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Great Barrier Reef Marine Park Authority

Douglas Shoal Remediation Project Pre-remediation Monitoring Report

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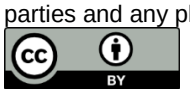


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Executive Summary

Purpose and Approach

The Great Barrier Reef Marine Park Authority (the Authority) proposes to remediate Douglas Shoal, which was damaged by the grounding of the bulk carrier *Shen Neng* 1 in 2010. The project aims to remediate areas damaged by the physical impact of the grounding and contaminated with antifoulant paints (AFPs), to support natural recovery of the shoal. Key challenges that may hinder natural recovery include AFP retarding colonisation, substrate instability, and continued physical damage from remobilisation of the rubble produced by the grounding.

BMT developed an environmental monitoring program to assess the effectiveness of the remediation, and detect whether remediation activities cause unintended negative impacts to the shoal. This report describes the methodology and findings of the first two 'baseline' surveys carried out in spring 2019 and autumn 2020.

The program is based around comparing changes in a range of biological, chemical, and physical response variables from locations (Figure 1) before and after remediation. The design will investigate changes at **remediation** and **nearfield** (not remediated) locations, against **reference** locations at nearby Haberfield Shoal (Figure 1), in a before-after, control-impact (BACI) framework.

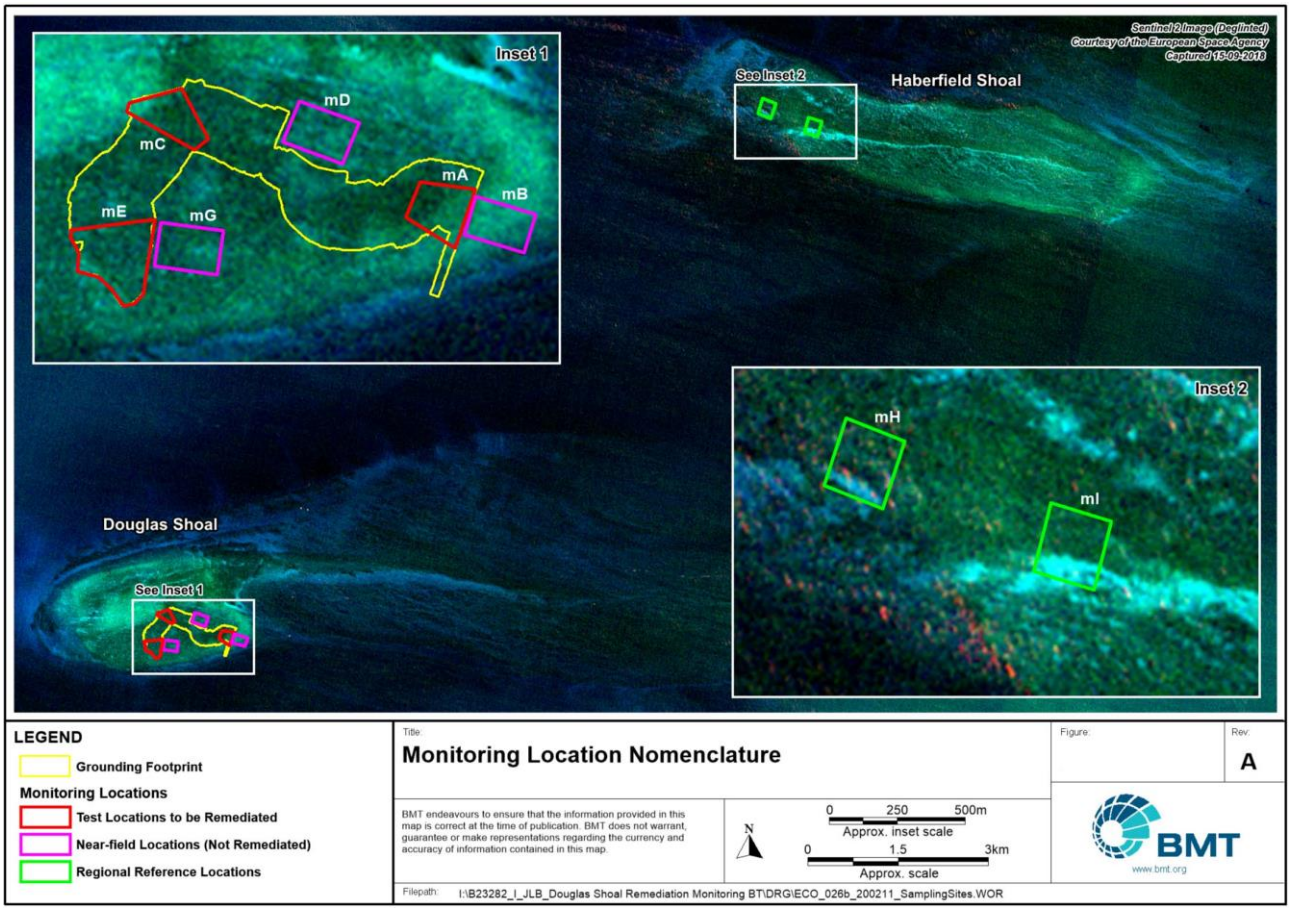


Figure 1 Monitoring Location Nomenclature

Advisian's Site Assessment Report (Neale and Boylson 2019) described the spatial extent of physical and AFP contamination, and their Options Analysis Report (Advisian 2020 - produced after the inception of the monitoring program) describes likely forms of remediation. Key conclusions from these reports were that monitoring location mA was highly contaminated with AFP with less extensive physical damage, compared to monitoring locations mC and mE where there was more rubble and lower concentrations of contamination. Material removal has been the highest ranked remediation approach and methods of remediation will likely vary among locations.

To meet the monitoring program objectives, the physical environment (waves, tides, currents, bathymetry), site logistics, habitat types, site remediation priorities, and previous spatial mapping by the Authority and its contractors were considered. The multiple environmental indicators were sampled were:

- High resolution multibeam and sub bottom acoustic surveys to assess changes in seabed elevation and rugosity, and to estimate the volume of potentially contaminated material remediated. Baseline data was collected by Advisian at all Douglas Shoal locations prior to BMT's environmental monitoring field campaigns.
- Seabed mapping using underwater video to develop three-dimensional images of the seabed. This was done at two sites in each of the remediation locations during event 1.
- Surveys of the seabed using towed underwater video transects, to quantify the cover of attached flora and fauna groups and bare substrate. A selection of 200 images were quantified from each location during each event (3,200 images over both events).
- Surveys of fish communities using baited remote underwater video stations, to quantify patterns in their abundance, biomass and biodiversity. Three replicate deployments were made in each location during each event (48 deployments over both events).
- Sampling of physio-chemical properties of the water column and sediments, targeting contaminants associated with antifoulant paints (AFPs) in all locations. Ten replicate sediment samples and five replicate water samples were collected from each location (plus QA/QC) during event 1.
- Collection of fish, sea squirts (ascidians) and seaweed (macroalgae) samples to measure concentrations of contaminants in tissues. Five replicates from each group (fish, ascidians, and seaweed) were collected from all locations in both events.

The existing and planned survey schedule will consist of two 'before events' (spring 2019, autumn 2020); during remediation (2021/2022); and two post-remediation 'after' events (in 2022 and/or 2023). The full complement of indicators will not be assessed in every monitoring event; some events (such as autumn 2020) are designed to account for seasonal variation in biological indicators, while other metrics such as bathymetry will not have a seasonal component and only change measurably before and after remediation. The timing and spatial extent of each indicator is show in in Table 1.

Table 1 Indicators sampled each survey and location

Indicator	Treatment	Event 1 Baseline 1	Event 2 Baseline 2	Event 3 During	Event 4 Post-Remediation 1	Event 5 Post Remediation 2
Seabed volume removed: Acoustic and Diver surveys	Impact (remediated)	✓	-	-		✓-
	Nearfield (non-remediated)	-	-	-	-	-
	Reference	-	-	-	-	-
Water quality	Impact (remediated)	✓	-	✓	-	✓
	Nearfield (non-remediated)	✓	-	✓	-	✓
	Reference	✓	-	✓	-	✓
Sediment Quality	Impact (remediated)	✓	-	-	-	✓
	Nearfield (non-remediated)	✓	-	-	-	✓
	Reference	✓	-	-	-	✓
Epibenthic Cover: Towed camera	Impact (remediated)	✓	✓	-	✓	✓
	Nearfield (non-remediated)	✓	✓	-	✓	✓
	Reference	✓	✓	-	✓	✓
Metal Burden: Fish and algal tissue collections	Impact (remediated)	✓	✓	-	✓	✓
	Nearfield (non-remediated)	✓	✓	-	✓	✓
	Reference	✓	✓	-	✓	✓
Fish (BRUVS)	Impact (remediated)	✓	✓	-	✓	✓
	Nearfield (non-remediated)	✓	✓	-	✓	✓
	Reference	✓	✓	-	✓	✓
Rubble and compaction	Impact (remediated)	✓	-	-	-	✓
	Nearfield (non-remediated)	✓	-	-	-	✓
	Reference	-	-	-	-	-
Reef physical structure: Acoustic and 3D models	Impact (remediated)	✓	-	-	-	✓
	Nearfield (non-remediated)	✓	-	-	-	✓
	Reference	-	-	-	-	-
Other (e.g. incidental	Impact (remediated)	✓	✓	✓	✓	✓
	Nearfield (non-remediated)	✓	✓	✓	✓	✓
	Reference	✓	✓	✓	✓	✓

Results and Analysis

Benthic Communities and Bare Substrate Cover

At all locations on Douglas Haberfield Shoals, the benthic community was comprised of low turf algae and fleshy macroalgae assemblages (typically >60% cover), with low hard and soft coral cover (typically <5%). There were seasonal changes in macroalgae groups, as well as an increase in bleached corals between survey events that was largely consistent among sites. These coral bleaching observations corresponded to widespread coral beaching reported throughout the Great Barrier Reef region in early 2020.

While the dominant epibenthic cover constituents were macroalgae and turf, the degree of dominance varied among different locations (Figure 2). Locations that were very high in macroalgae had less turf and vice versa, and combined totals of these two epibenthic constituents typically made up 60% to 80% of benthic cover. Location mB, on the southeast extremity of the low-relief terrace, was dominated by turfing macroalgal substrates with relatively high coral cover, particularly tabulate *Acropora* (Figure 2). Locations mC and mE, (priority remediation areas) had high gravel and macroalgal cover. Location mA at the initial grounding site tended to be relatively mid-range for most cover constituents, with slightly higher hard coral cover than other grounding locations and more turf than macroalgae. Locations at Haberfield Shoal (mH and mI) basically encompassed the range of variation in major epibenthic constituents observed at Douglas Shoal; with mH having the highest cover of hard and soft coral, and mI having among the lowest (Figure 2).

While temporal changes in cover were inconsistent at some locations, all locations experienced a major decline in the macroalgae *Dictyopteris,* and a marked increase in coral bleaching. The reduction in some macroalgae taxa coincided with increases in other cover types including gravel, sand, and turf algae, depending on what type of substrate remained below the reduced macroalgal canopy.

For hard coral cover (one of the most important environmental indicators) there were significant differences among locations, with mB, mH, and mG having the highest cover (4-6%); locations mG and mA having moderate hard coral cover (~ 4%), and the remaining locations typically having cover at 2-3% or less. A similar pattern was present for total *Acropora* coral, except that location mB had ~4% cover while the remaining locations had less than 1.5% Acropora.

Multivariate changes in benthic community (displaying relationships in the distribution and abundance of cover types in a two dimensional graph) showed that the direction of change between spring 2019 and autumn 2020 was highly consistent among locations, and that sites fell into one of two major groupings: one of low complexity and high macroalgal presence (mC, mE, mI); and a cluster of more complex habitats (mA, mB, mD, mG, and mH). One reference location was included in each cluster, suggesting that the reference locations are representative of the benthic communities at Douglas Shoal.

Spatial pattens in hard coral cover thematically mapped for each photo analysis point (Figure 4) show that, with the exception of location mC, coral cover was relatively evenly distributed. At location mC, it was concentrated around the high-relief terrace at the northern boundary of the footprint.

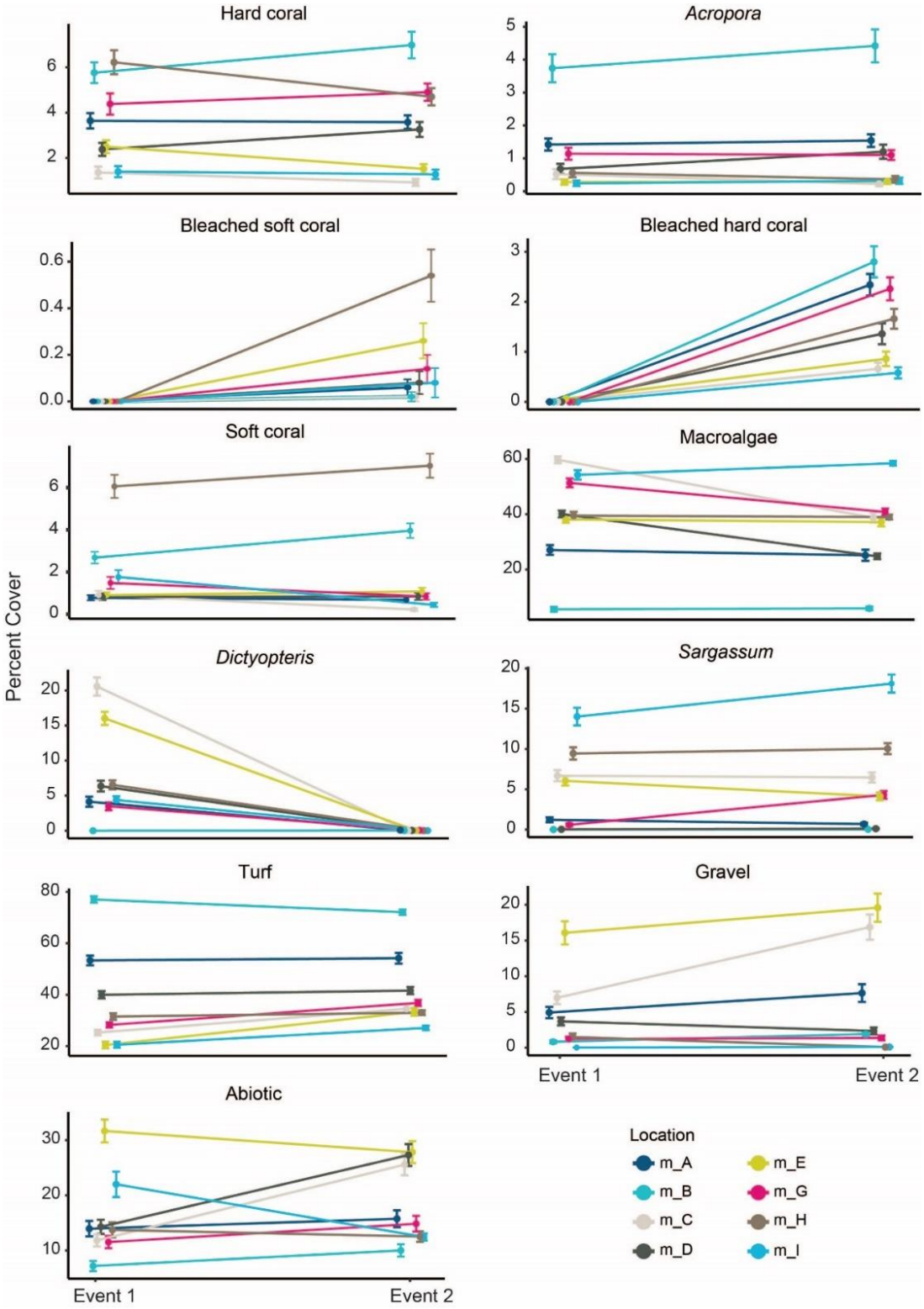


Figure 2 Mean (±SE) percent cover of major benthic categories in each monitoring location in events 1 and 2

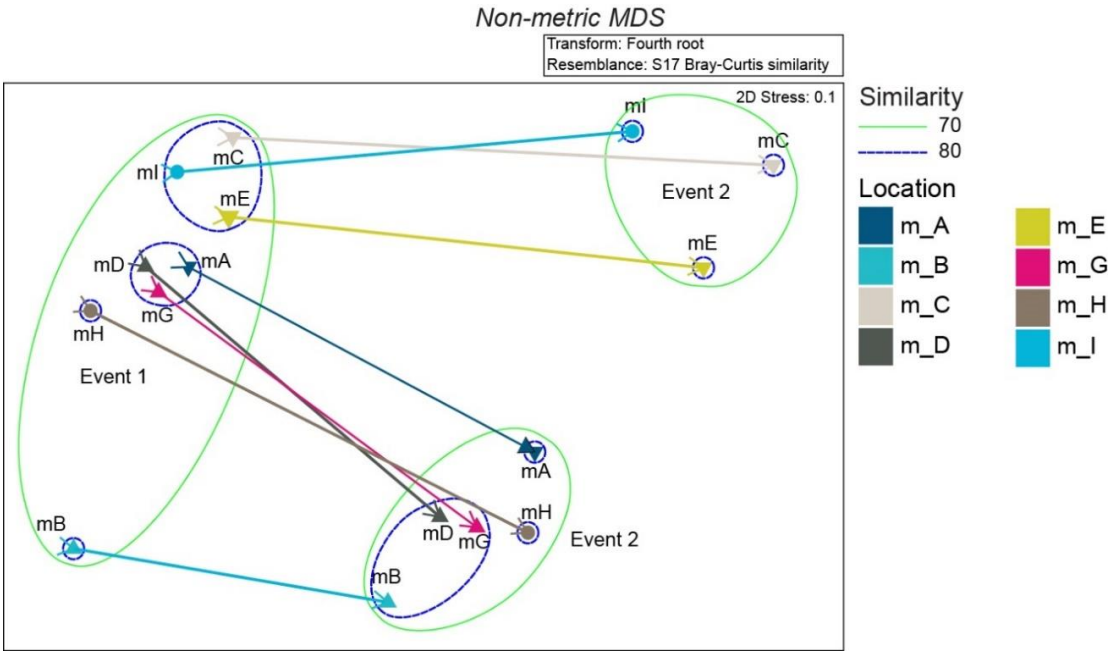
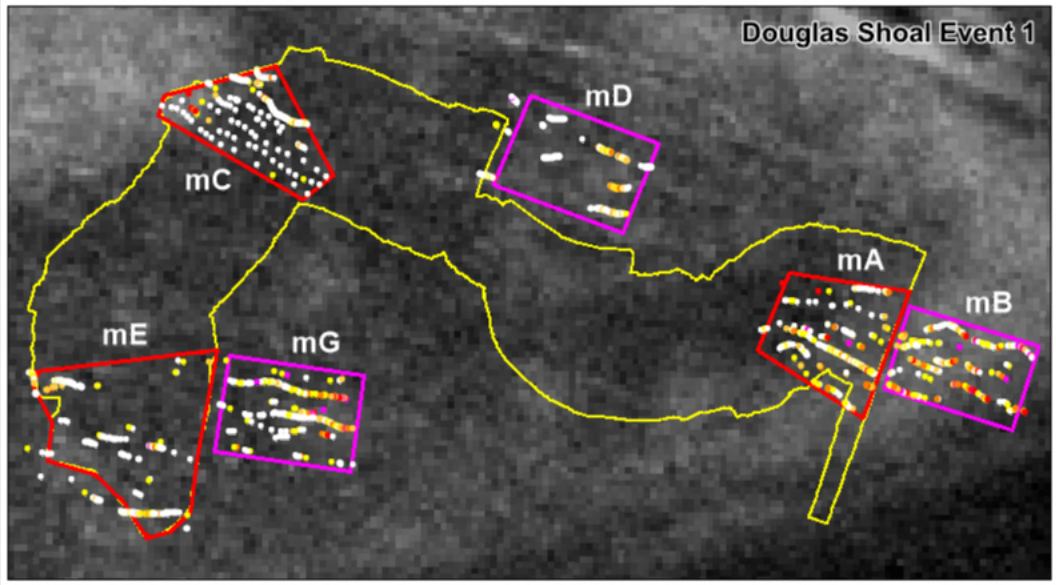
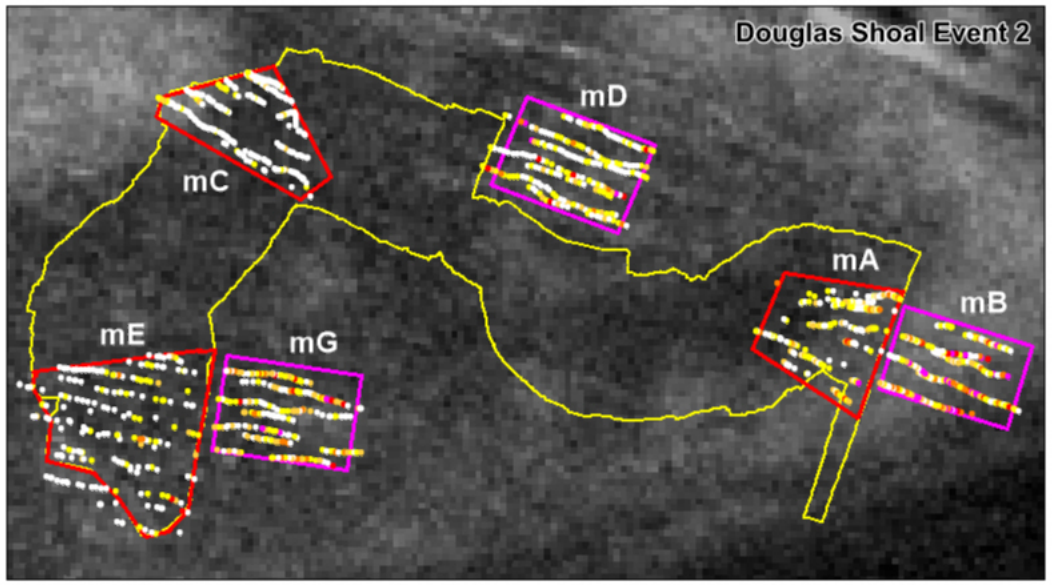
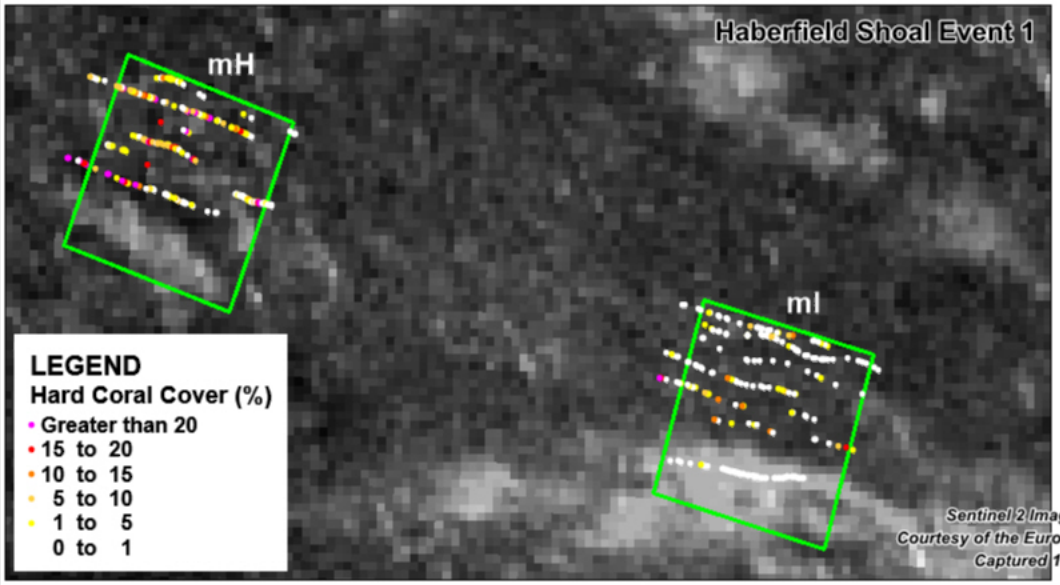
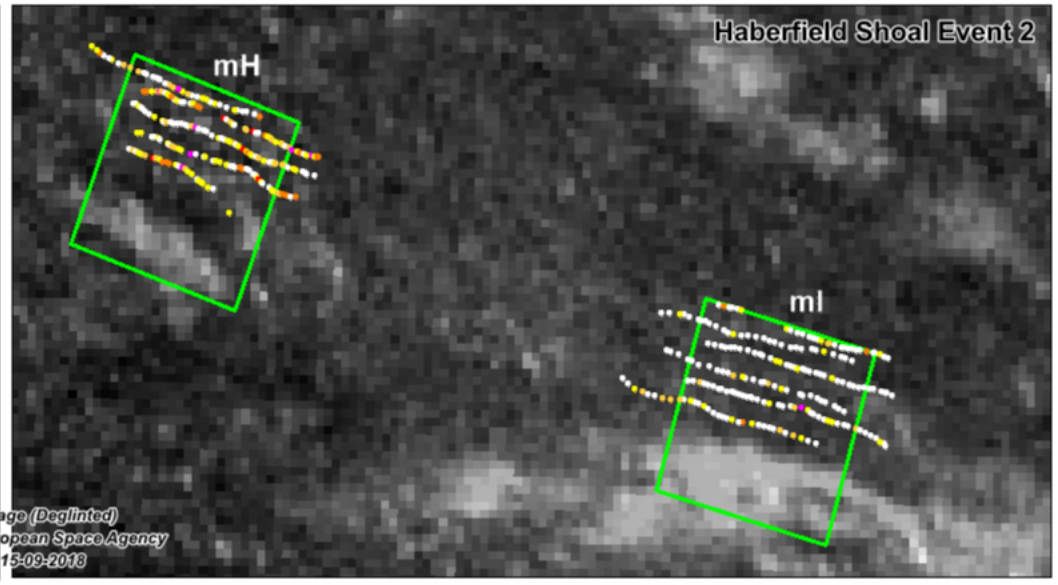


Figure 3 Two-dimensional nMDS ordination (stress = 0.10) of the location and event-averaged epibenthic data









LEGEND

Grounding Footprint

Monitoring Locations

Test Locations to be Remediated

Near-field Locations (Not Remediated)

Regional Reference Locations

Title:

Hard Coral Cover Before Remediation

Figure: 4

Rev: A

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

N

0 200 400m
Approx. scale Douglas Shoal

0 150 300m
Approx. scale Haberfield Shoal

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Coral Bleaching

Coral bleaching was virtually absent in 2019 and very extensive in 2020, with averages of up to 35% of hard corals, and up to 5% of soft corals, bleached at various locations (Figure 5). Locations mA, mB, and mG had formed a group with the highest proportion of bleached hard corals. Locations mB, mG, mD, and mH had mean proportions of bleached hard coral at approximately 20% and differences between these locations were not significant. The third group included low-cover locations mC, mE, and mI, which had rates of hard coral bleaching of approximately 10% of corals.

This shows that, although there were differences among the proportions of hard corals bleached in different locations, these were inconsistent among treatments (remediation, nearfield, and reference areas). Importantly, reference location mH had a similar proportion of bleached hard coral to some other areas of high coral cover at Douglas Shoal (mB, mG, and mD), and reference location mI was not significantly different to Douglas Shoal remediation sites mC and mE.

However, because there were significant differences in the proportion bleached hard corals between remediation location mA and both of the reference locations, there are potential implications for subsequent comparisons after remediation. Of potential concern for the monitoring program is the relatively high proportion of bleaching at location mA.

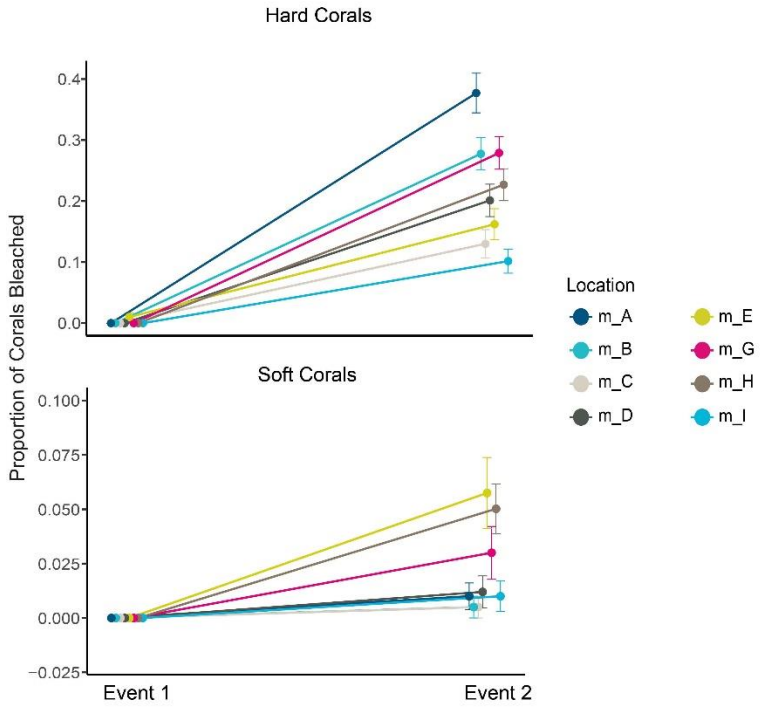


Figure 5 Mean (±SE) proportion of hard corals bleached relative to total hard coral cover (above) and proportion of soft corals bleached relative to total soft coral cover (below)

Overall, soft coral cover was far lower than hard coral cover and so too were the mean proportions of bleached soft coral in 2020, which varied from 1-5% of colonies (Figure 5). Differences in soft coral bleaching among locations are unlikely to present any challenges to understanding future putative remediation impact.

3D Models

Six 3D models were generated at Douglas Shoal; two sites within each of the locations to be remediated. The models were used to produce orthomosaics (Figure 6) and oblique views for each site for qualitative visual comparisons after remediation. The sites were positioned in areas likely to be subject to various forms of remediation effort and encompass both vertically and biologically complex, as well as relatively simplified habitats. The 3D models of the remediation locations showed generally limited vertical relief (<1.5 m) with a mixture of macroalgae, turf, sand and coral cover.

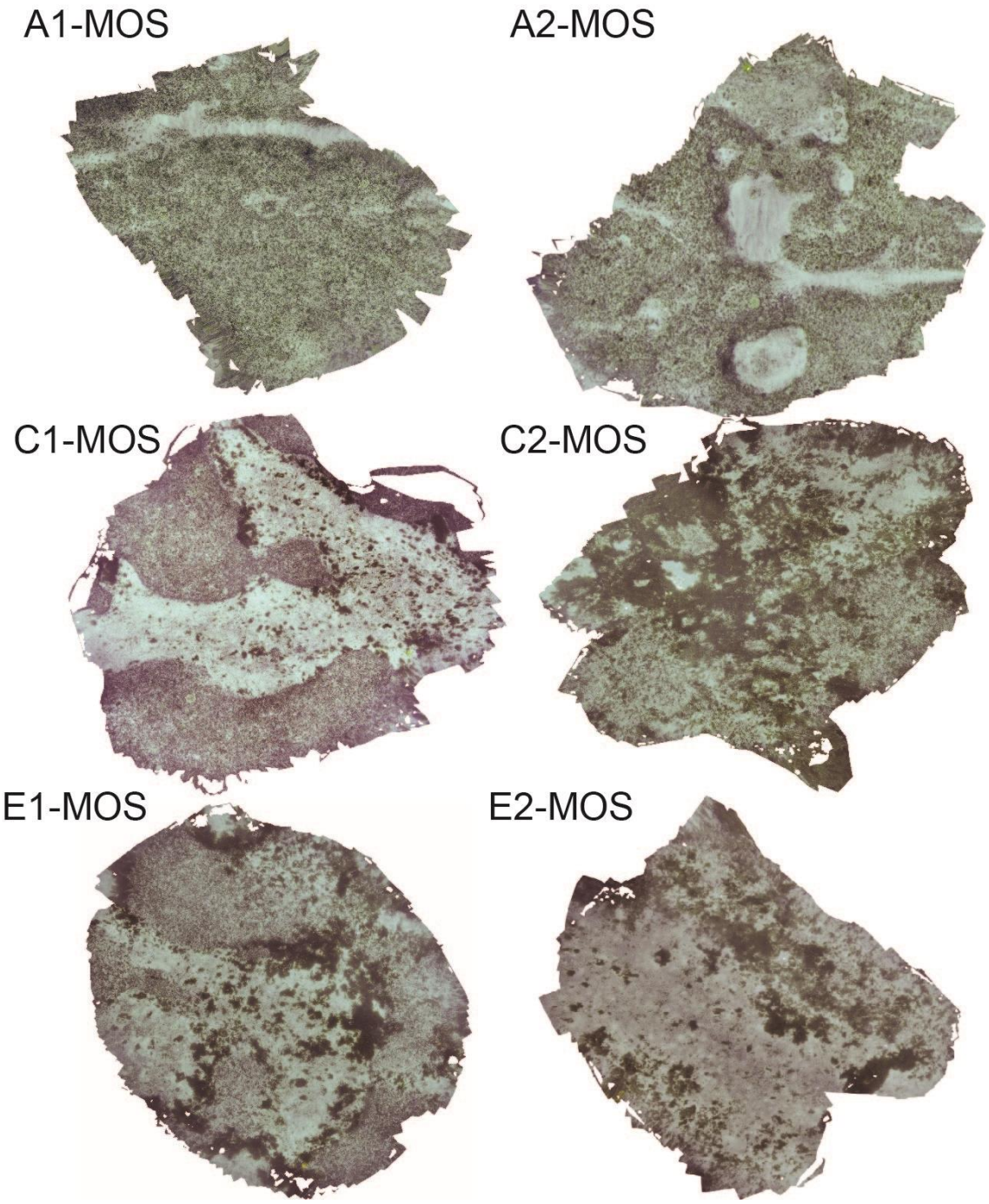


Figure 6 Orthomosaics of six 3D models produced within the grounding footprint

Fish Communities

BRUV deployments observed 146 fish taxa (including sharks) across the two sampling campaigns, with 68 of these taxa only observed once. A total of 4,327 fish were enumerated at the point of MaxN (maximum number of individuals in a video) for each species during each deployment; 1,677 in spring 2019 and 2,650 in autumn 2020.

Fish communities were numerically dominated by the dart goby (*Ptereleotris microlepis*), and two small damselfish (*Pomacentrus australis, Chromis nitida*), which collectively comprised approximately 60% of individuals detected. These three species are site-attached (i.e. small home range). Sharks made up substantially more biomass than fish (noting only fish over 20 cm were measured). There were significant differences in mean biomass among locations, but no significant differences between events. There were no significant differences in mean fish abundance or species richness in time or space.

Multivariate analyses showed that the direction of change in fish communities between the two survey events was largely consistent among all the locations (Figure 7). Major clusters of similarity formed three communities which varied between spring 2019 and autumn 2020, but generally consisted of: i) location mB as a discreet community; ii) the remaining Douglas Shoal locations; and iii) Haberfield Shoal locations. Increases in the abundance of several prevalent species, presumably due to recruitment, was the likely driver of this shift.

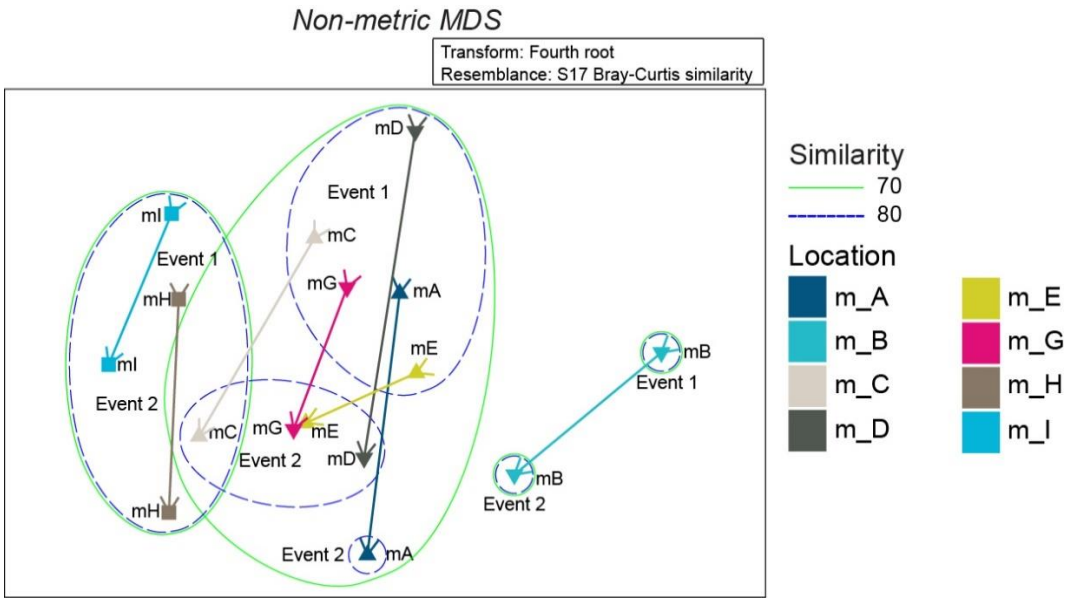


Figure 7 Two-dimensional n-MDS ordination of the location averaged fish data for two survey events

Water and Sediment Quality

The antifoulant tributyltin (TBT) was detected in sediments at location mA at concentrations exceeding ecosystem protection guideline values. Elsewhere in the grounding footprint and adjacent areas, TBT was typically non-detected or occurred at lower concentrations than recorded at location mA. These results are consistent with previous studies that indicate that this area of the initial ship impact represents the most contaminated section of the grounding footprint. Clay and silt material, which represent key attachment particles for many contaminants, were most abundant at Location mA.

Trace metals and metalloids were either not detected, or had concentrations less than default aquatic ecosystem protection guideline values, in both sediments and waters across all locations. A variety of

herbicides and pesticides were detected in sediment at location mA, typically just above the laboratory detection limit. No herbicides, fungicides or pesticides were recorded at other locations.

Overall, these results indicate that TBT represents the main contaminant of potential concern, and that location mA was the most contaminated area surveyed.

Contaminants in Tissue Samples

TBT, copper and zinc were detected in fish, macroalgae and ascidian samples. TBT was found exclusively in two fish species, the Venus tuskfish (*Choerodon venustus*) and iodine bream (*Gymnocranius audleyi*). Most TBT detections in macroalgae, ascidians and fish were recorded at location mA, consistent with patterns in sediment contamination. TBT was also detected at mD (one macroalgae sample), suggesting localised contamination at this location. TBT was detected in one fish sample from each of locations mB and mC. All samples had TBT concentrations less than the most conservative guideline value for the human consumption of seafood.

Copper and zinc are naturally occurring substances, however there was some evidence of higher concentrations at location mA compared to other locations. Copper and zinc displayed complex patterns over time and among test species. Zinc and copper concentrations in all samples were less than the most conservative guideline value for the human consumption of seafood.

Acoustic Assessment of Physical Habitat

Acoustic and remotely sensed data show that monitoring locations typically had similar baseline levels of rugosity (the physical complexity of the seabed, similar to micro-topography) and depth, with reference locations at Haberfield Shoal being slightly deeper than Douglas Shoal locations. Locations mB and mA were the most rugose, and rugosity was very similar across the remaining acoustically assessed locations. Acoustic backscatter intensity was investigated from three frequencies, with the lowest frequency and false-colour composites of all frequencies likely to be the most informative future acoustic monitoring tools. Rubble substrate within and adjacent to the grounding footprint was typically highly reflective due to its coarse nature and lack of biological covering to impede acoustic return intensity.

Conclusion and Recommendations

The environmental baseline surveys undertaken have provided invaluable data to assess the effects of the anticipated remediation activities at Douglas Shoal.

While locations were highly similar in the broad sense, the most different epibenthic communities existed at locations mB, on the south-eastern margin of the low-relief terrace at Douglas Shoal, and the location mH on the western (shallowest) side of Haberfield Shoal. These locations had slightly higher cover of hard and soft corals, respectively. Otherwise, there are very strong similarities in benthic community among the remaining Douglas and Haberfield Shoal locations. The monitoring program to date shows that the regional reference shoal, although slightly deeper, contains similar communities to those present on Douglas Shoal and should be a suitable point of control for broad-scale changes, such as macroalgal dieback and coral bleaching.

Multivariate routines detected statistically significant differences in assemblage structure between sampling events, manifested as both declines (several fleshy macroalgae) and increases (turfing algae) in macroalgae, varying among groups. The very strong reduction in *Dictyopteris*, and to a lesser extent *Asparagopsis*, led to greater cover of other substrates obstructed by these algae. Where the sharpest declines occurred at sites

mE and mC, increases in gravel cover co-occurred. The abundance of *Dictyopteris* over rubble substrates can be seen clearly in mosaics from these locations and it is likely that *Dictyopteris* is seasonal and opportunistic, particularly in areas of high rubble content.

There was also a major increase in coral bleaching, which went from almost none in 2019 to between 10% and >30% of hard coral colonies 2020, noting that soft corals were less affected. It should also be noted that the prevalence of less severe bleaching was actually much higher than reported due to the necessary annotation convention of scoring bleaching as a binomial response (bleached or unbleached). Numerous colonies displaying signs of bleaching below the threshold for inclusion in the bleached coral category were annotated as unbleached. Although few recently dead corals were observed during annotation, there is great potential for a large decline in coral cover between survey events 2 (pre-remediation) and 3 (during remediation) resulting from the 2020 mass bleaching event.

If the 2020 bleaching were to consistently translate into mortality across each of the monitoring locations, there is potential for bleaching mortality to confound putative remediation impacts at location mA, which had a higher proportion of bleached colonies than the reference location mH. Some of the inconsistency in the proportion of bleached corals among locations may be due to the interaction between TBT contamination and thermal bleaching. The impact of the 2020 bleaching event on the efficacy of the monitoring program to assess remediation will depend on whether the observed bleaching resulted in subsequent mortality, and whether or not this is consistent across locations.

While average soft and hard coral cover was very low, the number of image replicates sufficiently reduced within-locational error for meaningful spatial and temporal comparisons among locations. Some epibenthic indicators have been relatively variable in space and time while others, particularly the cover of *Acropora*, soft coral, turf and *Sargassum*, have been relatively consistent within locations between the first two sampling events. While rubble is clearly a strong indicator of physical damage in the grounding footprint based on imagery and acoustics, obstruction of the visual signal by temporally changing macroalgae such as *Dictyopteris* may render this visual signal harder to detect at certain times.

While changes in epibenthic cover represent some of the most promising indicators for changes relating to future remediation, indicator selection and interpretation will require careful consideration due to the aforementioned interactions between cover types, such as canopy obstruction. Multiple lines of evidence, interactions and factor co-variability will assist with understanding the nature of changes and potential causes. Potential improvements to reduce variability and increase monitoring efficacy include replacing one of the 2019 transect lines at Haberfield Shoal, and ensuring even coverage of each location is attained.

Point clouds derived from 3D models showing the elevation of the mosaic sites may be an important assessment tool, given the relatively low rugosity measurements from the acoustic DEM for each of the Douglas Shoal monitoring locations. Common areas before and after remediation could be queried similarly to the acoustic DEM to provide fine-scale assessments of changes in rugosity. This would require models to be spatially registered, which may present some logistical challenges.

Much like epibenthic communities, fish communities exhibited a consistent shift between the two survey events, largely related to the greater abundance of a few common species. While several of these species were always below the threshold of inclusion for length analyses, qualitatively many of the damselfish and wrasse observations consisted of a greater proportion of juveniles. This is consistent with more juvenile fish

being present at the start of the year (autumn), compared to spring when juvenile abundance is lower through subsequent growth and attrition.

Most of location-based univariate fish community metrics such as fish biomass, abundance, and diversity were either non-significant, or in some cases difficult to evaluate due to missing values (no large fish observed). Treatment-based community metrics permitted improved replication and showed an overall increase in fish richness. Univariate metrics of fish abundance, richness, and diversity will require a pooling from statistical and logical perspectives. While the spatial and temporal design of the monitoring program is well-suited to investigations of physical habitat and sessile biota, BRUV sites and locations are not sufficiently distant to be considered truly independent for many fish and elasmobranchs. This monitoring program required a design that was spatially consistent across the different environmental indicators (biota, epibenthos, physical structure); therefore fish with home-ranges that encompass multiple locations or treatment areas within Douglas Shoal will require some form of sensible pooling. One approach may be to use metrics such as B20 biomass, the presence of elasmobranchs, and certain univariate diversity metrics, for shoal-based comparisons to examine the effect of remediation on species of fisheries significance (Douglas vs Haberfield Shoal). Conversely, multivariate indicators, fish species or species groups, such as those with a high site attachment and affinity for complex habitats, will be examined among locations to examine fine-scale changes in the fish community.

The assessment of biotic contamination showed that AFP contaminants were present in fish, macroalgae and ascidians, but at concentrations well below safe consumption guidelines. For ascidians and algae, the highest concentrations of contaminants were found in location mA, which is consistent with the highest concentrations of sediment contamination. These data suggest that contamination is entering the food chain, particularly in sessile taxa near the initial grounding site.

Dictyopteris was initially chosen as the macroalgal candidate for biotic contamination, due to its dominance in the disturbance footprint. The almost complete loss of *Dictyopteris* in autumn 2020 meant that a new candidate was required. *Dictyota* was selected and will be continued for use in monitoring after remediation. The main differences in events (and candidate taxa) were consistently higher zinc concentrations, and occasionally higher concentrations of copper and TBT. It is likely that some of the differences in zinc between events (and species) relate to baseline zinc concentrations in algal taxa.

Venus tuskfish and iodine bream are key fish taxa that had detectable concentrations of TBT in their musculature. Bioaccumulation of TBT may be occurring in these species which feed primarily on benthic invertebrates; this would allow direct access to contamination within the surrounding sediment matrix as well as any contaminated tissue. Some propensity to bioaccumulate may also be related to the size of home ranges.

The water quality assessment showed that there was no evidence of contamination in the water column above the grounding footprint under pre-remediation conditions. Sediment quality results were consistent with Haberfield Shoal being a true reference area, without any significant anthropogenic contamination. Like previous studies, the present study identified the highest levels of contamination in location mA, and lesser concentrations of COPCs in locations mC and mE. COPCs were not detected above guideline levels in any of the nearfield locations.

Only four of an additional suite of 87 pesticides, herbicides and fungicides were detected, and these detection were entirely in samples from location mA. Concentrations for these detections were typically just above LOR.

Given the low prevalence and concentration of these additional contaminants, their removal from the program may be warranted, with their analysis budget diverted to increased replication of primary COPCs for better resolution of changes in TBT and metal concentrations.

The combination of sediment contamination data from this study and from the comprehensive previous mapping by Advisian (Neale and Boylson 2019) sets a strong baseline for subsequent comparisons. A power analysis that considers existing data and likely remediation actions will be undertaken to adequately inform the level of replication required for different putative effect sizes prior to re-sampling.

The initial acoustic data provides a comprehensive baseline over the entire remediation area to compare subsequent backscatter signal, rugosity and elevation changes. Running the multibeam survey in multifrequency mode had consequences for ping-rate, where fewer soundings are available for the DEM. A coarser DEM has been the cost of attaining more backscatter data, which appears to be highly effective in showing horizontal extent of unconsolidated material.

Post-remediation monitoring will assess temporal differences in backscatter intensity via raster calculations for the various frequencies and combinations of frequencies. Sub-bottom profiling did not provide a reliable estimate of the depth of unconsolidated material, thought to be due to the composition of the underlying matrix and the sub-bottom depth range. While the SBP survey could be repeated under different setting with the aim of providing greater clarity in the upper subsurface layer, there would be no baseline information to make comparisons against. Therefore, this is not recommended unless a useable baseline can be achieved.

Glossary

Abbreviation	Meaning
3D	Three dimensional
AFP	Antifouling paint
Ag	Silver
AIC	Akaike Information Criterion
ANZFA	Australia New Zealand Food Authority
ANOSIM	A two-way crossed analysis of similarity
ANZECC	Australian and New Zealand Environment Conservation Council
ANZG	Australian and New Zealand Guidelines
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
As	Arsenic
B20	Biomass of species exceeding 20 cm in length
Ba	Barium
BACI	Before-After / Control-Impact
BRUV	Baited Remote Underwater Video
CCA	Crustose coralline algae
Cd	Cadmium
cm	Centimetre
Co	Cobalt
COPC	contaminants of potential concern
Cr	Chromium
CRM	Certified Reference Material
Cu	Copper
dGPS	Differential Geographic Positioning System
DGV	Default Guideline Value
g	Grams
GBRMPA	Great Barrier Reef Marine Park Authority
GLM/ GLMM	Generalised Linear Model / Generalised Linear Mixed Model
GPS	Geographic Positioning System
GV	Guideline Value
ha	Hectares
HD	High Definition
kg	Kilograms
kHz	Kilohertz
L	Litres
LAT	Lowest Astronomical Tide
LOR	Limit of Reporting

Glossary

Abbreviation	Meaning
m	Metre
MaxN	Maximum Number of fish sighted for a given species during a baited video deployment
MBES	Multibeam Echo Sounder
mg	Milligrams
mm	Millimetres
Mn	Manganese
mp	Megapixels
MSL	Mean Sea Level
ng	Nanogram
ng Sn	Nanograms of Tin
Ni	Nickel
nMDS	Non-metric Multidimensional Scaling
NMI	National Measurement Institute
OP	Organophosphorus Pesticide
Pb	Lead
PERMANOVA	Permutational multivariate analysis of variance
PSD	Particle Size Distribution
PVC	Polyvinyl chloride
QA/QC	Quality Assurance / Quality Control
RMS	Root mean square
RPD	Relative Percent Differences
RSD	Relative Standard Deviation
RTK GPS	Real-Time Kinetic Global Positioning System
SAP	Sampling Analysis Plan
Sb	Antimony
SBP	Sub-Bottom Profiling
Se	Selenium
SE	Standard Error
SIMPER	Similarity Percentage routine in the statistics package Primer-e
SQDGV	Sediment Quality Default Guideline Value
TBT	Tributyltin
TC	Tropical Cyclones
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UTM	Universal Transverse Mercator
V	Vanadium
WGS84	World Geographic System 1994
WHO	World Health Organisation

Glossary

Abbreviation	Meaning
Zn	Zinc
µm	Micrometre
Technical terms	**Meaning**
Abiotic	Non-living
Abundance	The number of individuals observed within a replicate
Ascidians	A marine filter-feeding invertebrate, a sea-squirt
Assemblages	groups of animals or plants
Bathymetric	describing the depth of a waterway
Benthic	Pertaining to the sea floor
Contaminants	Polluting substance
Crustose coralline algae	Algae that is predominately composed of calcium
Epibenthic	living on the surface of the sea floor
Epifauna	animals living on the surface of other living organisms
Event	Used throughout this report to indicate survey event
Gravel	In this report, a benthic class consisting of coarse gravel to cobble
Georeferenced	Points or features referenced to geographic co-ordinates
Heterogeneity	A measure of difference
Heteroscedacity	Unequal variation of a variable across comparison groups
Macroalgal assemblage	Clumps of various species of macroalgae
MaxN	Maximum number of individuals of the same species observed in a single photo/video frame
Mulitvariate	Statistics using multiple variables at once
Nomenclature	A naming convention
Non-normality	Data that does not have a normal distribution eg. a large amount of zero counts within a dataset, skew, or truncation
Organotins	A class of chemical generally used as pesticides and biocides
Orthomosaic	A large image created by combining smaller images
Rubble	In the context of this report, sediment believed to be generated by the grounding incident. Sediments that are coarse, angular, and devoid of biological coverings
Rugosity	The physical complexity of the seabed, similar to micro-topography
Pavement	Consolidated reef substratum without biological coverings
Prevalence	The number of times a taxon is recorded by a replicate; a measure of presence or absence that does not consider abundance
Taxa	Plural of taxon: a group of related organisms
Turbidity	A measure of the clarity of water
Univariate	Statistics using a single variable

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1 Introduction

1.1 Project Background

In April 2010, the bulk carrier *Shen Neng 1* grounded on Douglas Shoal in the Capricorn Bunker region of the Great Barrier Reef Marine Park (Figure 1-1). The carrier remained on the reef for 10 days before it was salvaged, producing the largest grounding scar (42 ha) in the marine park to date. The grounding footprint of the *Shen Neng 1* over Douglas Shoal is shown in Figure 1-2.

The Great Barrier Reef Marine Park Authority (GBRMPA) established the Douglas Shoal Remediation Project (the project) in late 2016 with funds from a court settlement associated with the grounding incident. The primary desired outcome for the project is that remediation activities support natural recovery at Douglas Shoal, with the project being comprised of three work streams:

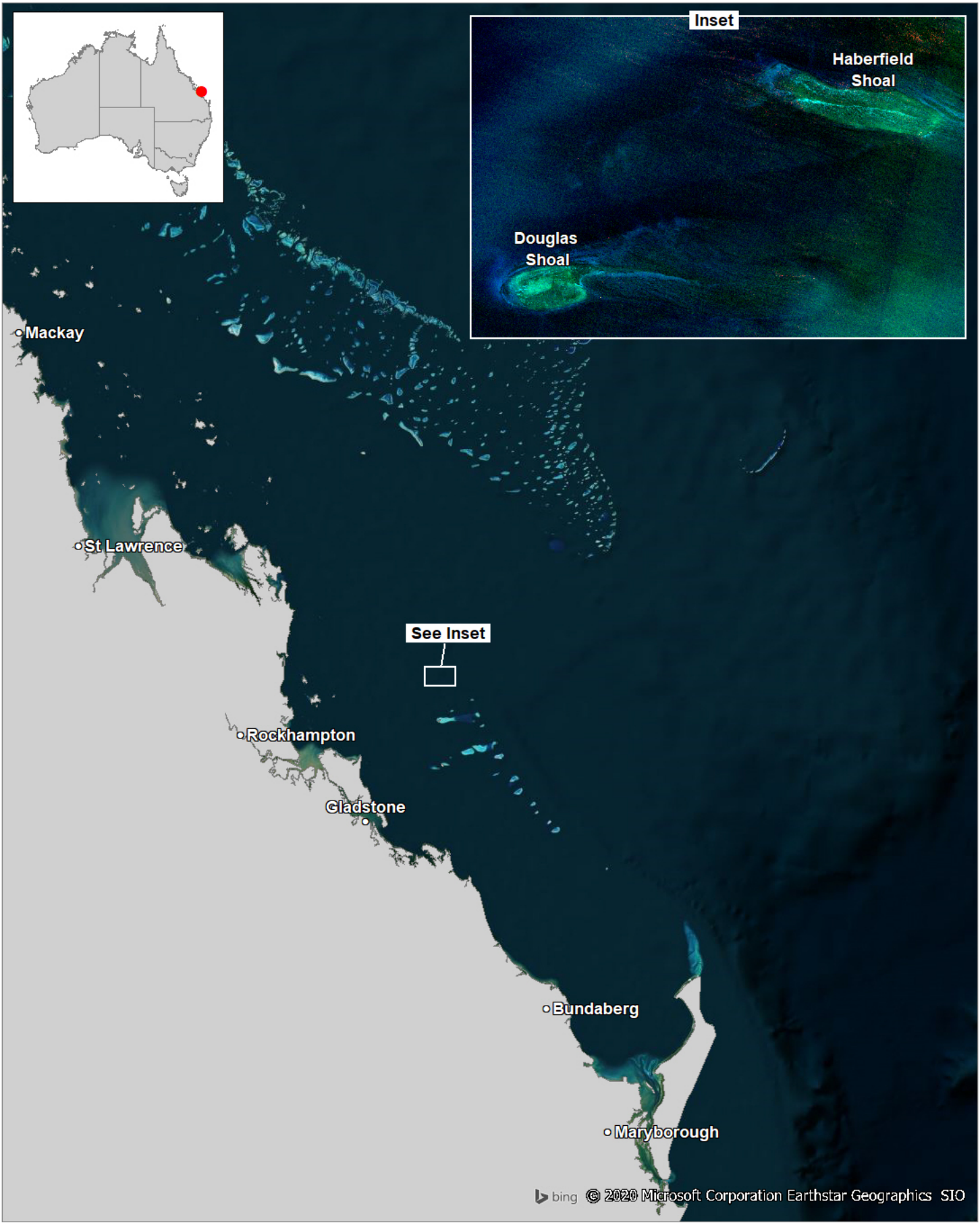
- **Stream 1:** Planning and Project Management services for the project (Advisian) including targeted fieldwork at Douglas Shoal; desktop investigations; production of a remediation options assessment; and engaging and managing a remediation contractor.
- **Stream 2:** Remediation and compliance monitoring.
- **Stream 3:** Physical, chemical and biological environmental monitoring of remediation works at Douglas Shoal.

BMT was engaged by GBRMPA to conduct Stream 3 (Environmental Monitoring). The planned environmental monitoring program is comprised of five survey campaigns. Two pre-remediation survey campaigns have been completed to date, consisting of Baseline Survey 1 in spring 2019 and Baseline survey 2 in Autumn 2020. This document details the methodologies, results, and conclusions of these pre-remediation field campaigns.

1.2 Known Grounding Impacts and Remediation Areas

GBRMPA identified three key concerns for the ongoing natural recovery in the grounding footprint at Douglas Shoal:

- Antifouling paint (AFP) – GBRMPA has estimated that up to 20 tonnes of AFP may have been dislodged from the vessel during the grounding incident. The AFP contains a range of chemicals, most notably the biocide Tributyltin (TBT).
- Unconsolidated reef fragments (rubble) – the vessel grounding broke up the reef pavement, creating large quantities of unconsolidated reef fragments of various sizes (gravel, cobble to boulders). Movement of rubble fragments by waves and currents is thought to cause physical impacts to sessile biota and limit recruitment success.
- Compaction – where the vessel hull contacted the seabed, it physically removed attached biota and compacted the reef substrate. As a result, sections of the grounding footprint were ground flat and have low rugosity.



Title:

Locality Plan

Figure: 1-1

Rev: A

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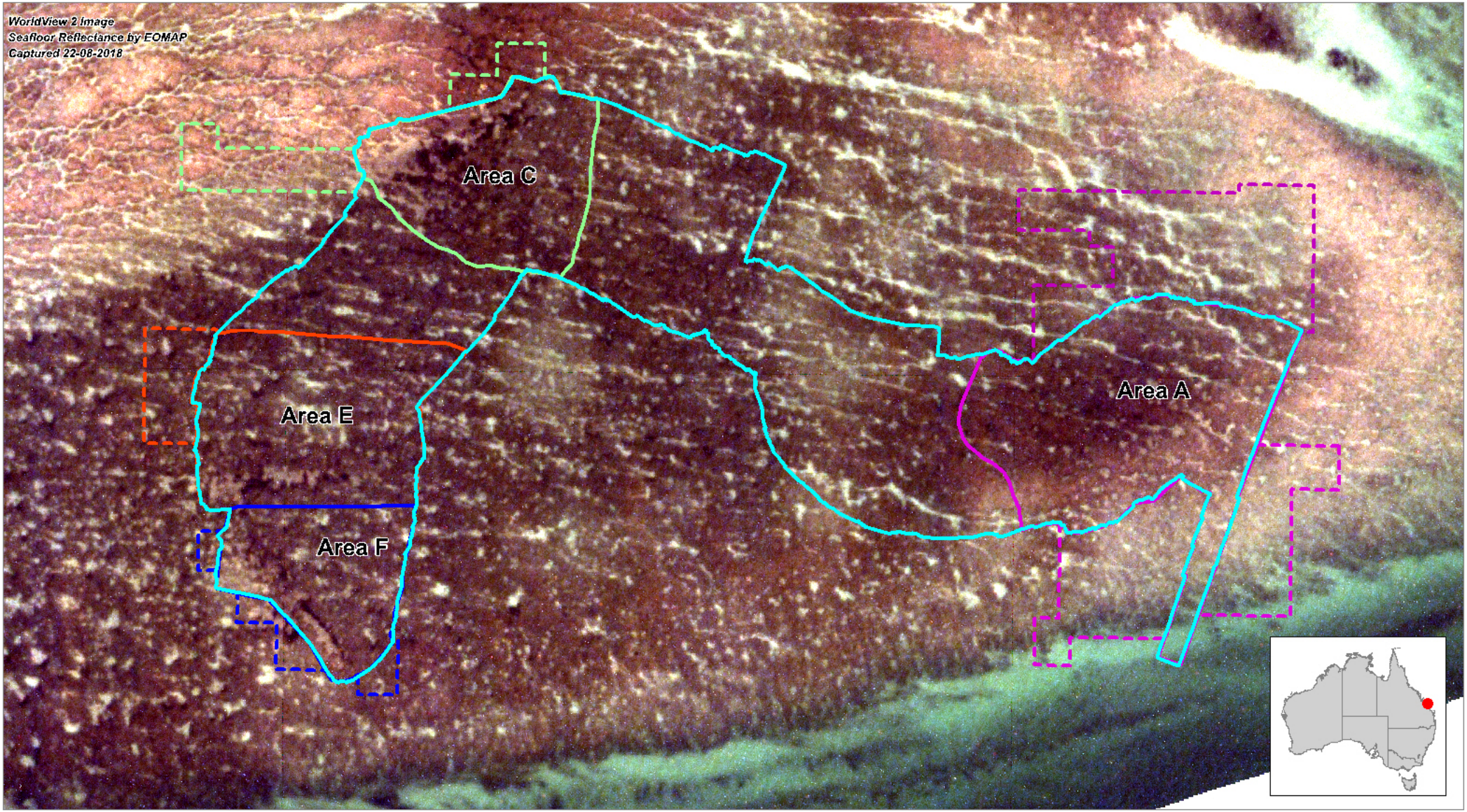
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Approx.Scale

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LEGEND

Grounding Footprint and Remediation Areas

Title:

Priority Remediation Areas based on Costen et al. (2017)

Figure: 1-2

Rev: A

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Costen *et al*. (2017) reviewed existing information to develop a map of the grounding footprint and damaged areas. Four 'priority remediation areas' were defined based on the type and magnitude of physical damage and contamination (Areas A, C, E and F). These areas and potential areas of concern outside of the footprint (dashed lines) are shown in Figure 1-2.

Advisian undertook systematic surveys of sediment contamination and physical damage at the four the priority remediation areas as a part of Stream 1 (Neale and Boylson 2019). Sediment quality analyses focussed on the main contaminants of potential concern (COPC), namely organotins and a suite of metals/metalloids. The organotin tributyltin (TBT) was the main tested COPC to exceed default sediment guideline values (ANZG 2018), with the highest concentrations located at area A and progressively lower concentrations in areas C and E/F. Outside of the ship's path, TBT was detected west of the priority remediation areas (typically below guideline levels), and no TBT was detected east of the priority remediation areas.

Visual and acoustic surveys (Neale and Boylson 2019) focused largely on the presence of rubble as an indicator of physical damage. Unconsolidated rubble appeared to have moved in a westerly direction since the grounding incident and has affected habitat on the shoal beyond the grounding footprint and filled natural depressions within, and west of, the original priority remediation areas. Updated priority areas for remediation from Neale and Boylson (2019) are shown in Figure 1-3.

Modelling of tidal vectors and velocities across the shoal shows that flood and ebb tide vectors run essentially east-west at similar velocities (BMT 2019). Spatial patterns in contaminants and rubble movement suggest a net unidirectional (westerly) movement. This indicates that prevailing south-east to easterly sea states were likely more influential than bi-directional tidal currents in redistributing rubble and contaminants from the grounding footprint.

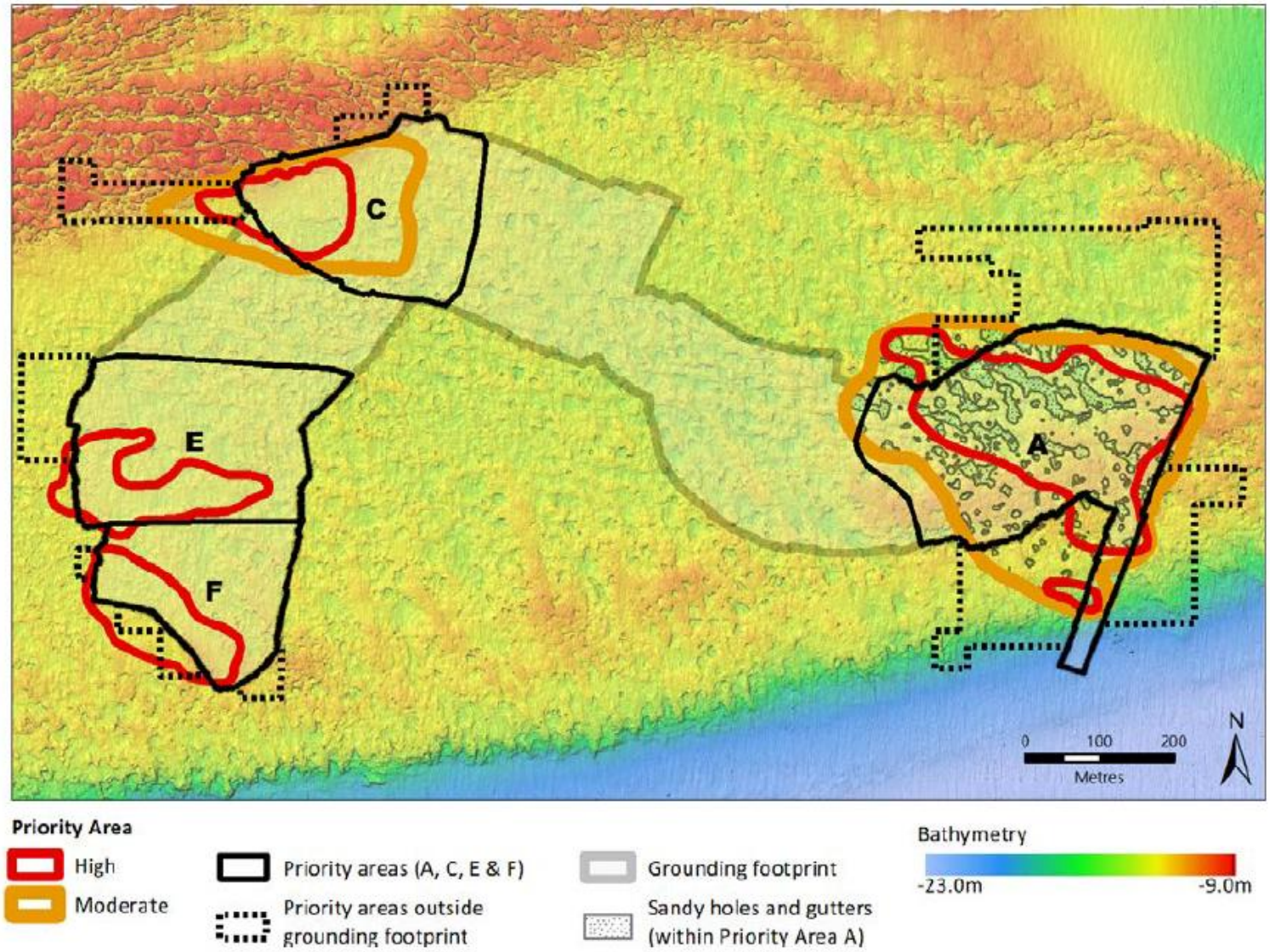


Figure 1-3 Revised Priority Areas for Remediation (Neale and Boylson 2019)

2 Monitoring Program Design and Approach

2.1 Assumptions and Limitations

The process of developing the monitoring program (i.e. developing objectives, indicator selection, survey design and analyses) considered what was known about the objectives and characteristics of the remediation program. At the time of monitoring program development, the following was known:

- The harmful processes associated with ship grounding, i.e. contamination by AFPs, compaction and rubble formation (see Section 1.2). Indicator selection was informed by this information;
- The location of impacted areas and GBRMPA's broad 'priority' remediation areas, which informed the selection of monitoring locations.

There were, however, many aspects of the remediation program that were undefined at the time of monitoring program development (i.e. remediation methodology, specific locations/sites to be remediated, remediation targets etc.). This presents a risk of misallocation of sampling effort during environmental monitoring, particularly during the present pre-remediation baseline surveys (e.g. sampling conducted in areas that end up not being remediated, or insufficient sampling effort in areas ultimately targeted during remediation etc.). In lieu of specific information on remediation targets and strategies, the following assumptions were adopted in the development of the monitoring plan:

- Remediation will occur at one or more of the priority remediation areas (A, C, E/F);
- Remediation activities may consist of substrate removal (e.g. dredging or vacuuming), substrate capping (e.g. cementation), stabilisation through re-profiling, or augmentation such as the placement of materials to increase rugosity and promote natural recolonization;
- Area A has the highest levels of AFP contamination, with the largest proportion of samples exceeding default sediment quality guideline values in ANZG (2018). Area A is therefore most likely to be targeted for contaminant management, such as substrate removal or capping;
- Areas C and E/F have lower levels of contamination and are more likely to undergo remediation activities designed to stabilise rubble and/or increase rugosity (i.e. benthic structural complexity);
- Remediation activities will be confined to the priority areas within the grounding footprint. High-impact areas within the priority areas defined by Costen *et al*. (2017) have the highest likelihood of being remediated.

The grounding footprint is extensive and the types and magnitude of impact (contamination, physical disturbance) vary across multiple spatial scales. For example, spatial patterns in AFP contamination are variable at scales measured in centimetres to 100s of metres, which would require very high levels of sampling effort to provide precise estimates of concentrations across the entire grounding footprint. The monitoring program was designed to provide broad spatial coverage across the priority remediation areas as practicably as possible given the assumptions, logistical constraints (discussed in Section 2.3) and scope of the project.

2.2 Monitoring Objectives and Null Hypotheses

The broad aim of the Stream 3 Environmental Monitoring Program is to:

"Assess the extent to which the remediation project has been effective at supporting natural recovery, including considering whether the project's activities have negatively impacted natural recovery on Douglas Shoal."

The key goals of the remediation works will be to protect and enhance environmental values at the grounding site, while not causing unintended negative consequences outside the direct remediation footprint. Based on this, the specific objectives of the Stream 3 Environmental Monitoring Program are to:

- Measure sediment AFP contamination levels before and after remediation to assess the effectiveness of remediation works;
- Measure the cover of epibenthic biota and abiotic benthic substrates (sand, gravel, pavement) before and after remediation to assess their response to the remediation activities;
- Undertake seafloor mapping using acoustic techniques before and after remediation to assess the effectiveness of remediation works at addressing loose rubble, substrate compaction and loss of rugosity.

The impact hypotheses to be tested are:

(1) The bed profile/rugosity and spatial extent of unconsolidated sediment in the remediation areas will not change between the baseline and post remediation survey events.

(2) There will be no differences in AFP derived sediment contamination between the baseline and post remediation survey events, and this will be consistent between test and reference locations.

(3) There will be no differences in epibenthic and reef fish communities between the baseline and post remediation survey events, and this will be consistent between test and reference locations.

(4) There will be no differences in concentrations of COPCs in the tissues of fish, invertebrates and macroalgae between the baseline and post remediation survey events, and this will be consistent between test and reference locations.

2.3 Environmental Conditions Considered in the Program Design

Douglas Shoal is exposed to prevailing weather conditions, which has implications for both the monitoring design (e.g. site selection) and the ability to conduct safe and informative monitoring. Effective environmental monitoring and interpretation relies on an understanding of natural gradients, confounding processes, as well as the intensity, duration, and geographical extent of the putative anthropogenic impacts to be assessed.

Since the grounding, there have been numerous storms and four tropical cyclones (TCs) in proximity to the site (TC Anthony, Yasi, Marcia, Debbie). These systems and south-easterly trade conditions have mobilised some contamination beyond the original impact site. Although remediation will only occur within high-impact areas (e.g. priority remediation areas), the selection

of reference locations for comparison relies on an understanding of the existing disturbance regime. This historic and ongoing disturbance has been considered in the design of the monitoring program to reduce potential confounding by these other processes.

The extent of present contamination has been mapped by Advisian (Neale and Boylson 2019) and spring tidal current vectors have been modelled across the shoal by BMT (2019). The present design considers ebb and flood tide movement on the lower terrace, and the potential for tides and sea-state to remobilise sediment onto adjacent high-quality habitats on the upper terrace. Understanding the potential extent of the remediation impacts (e.g. direct impacts and plume impacts) is of similar importance, in contextualising the potential degree of spatial remediation impact, within the larger historic impact.

Douglas Shoal also supports a variety of benthic assemblages, each with differing sensitivities to light limitation, suspended sediments and contaminants. The low-relief terrace typically has less living coral than the slightly raised area to the south-east of the grounding site, and the shallower high-relief terrace north of the grounding site. Further east in deeper waters of the shoal, the reef becomes less contiguous, with unconsolidated sediments increasingly more common. Thus depth, wave and current exposure, contact with unconsolidated sediment, and the existing mosaic of disturbance (both natural and anthropogenic) were key considerations for site selection.

Further, the exposure of the shoal, together with its tidal environment, limits diver-based sampling to neap tide periods only. Therefore, field assessment blocks (within each survey campaign) have been designed to be achieved within five to seven day periods, to fit within the tide-restricted operational windows. Some study components (water quality and biota assessments) were performed without divers and were less tide constrained.

2.4 Indicator Summary

Monitoring indicators were selected to encompass both stressors and ecosystem receptors in accordance with the SMART framework of UNDP (2009) and the national water quality management framework (ANZG 2018). Table 2-1 presents the selected indicators. Indicator selection considered the monitoring objectives, impact hypotheses, and expected types of remediation activities. Detailed sampling and analysis methods are presented in section 4, with the overall approach summarised below.

To measure spatially explicit physical changes in Douglas Shoal, acoustic (multibeam and sub-bottom) sampling methods were used to rapidly acquire detailed topographical and habitat maps across the entire low-relief terrace to define areas of reef, rubble and sand habitats, as well as habitat rugosity. Three dimensional mosaics of the seafloor in representative parts of the remediation areas were produced, providing easily relatable stakeholder engagement and monitoring tools.

Spatially explicit data were complemented by site-based monitoring of epibenthic communities (underwater video transects), water and sediment quality, fish communities (baited remote underwater videos), and AFP markers in fish and invertebrate tissue. Water quality and tissue contamination bio-markers were measured and compared against relevant guideline values. Changes in benthic communities, fish communities (BRUV data), and sediment quality will be assessed in a before-after / control-impact (BACI) framework.

For AFP markers in biota tissue, note that marine organisms can accumulate AFP derived chemicals from water, sediment and food. It is important to understand the occurrence of these chemicals in the tissues of biota, especially species consumed by humans, and representative sessile biota mostly likely to be exposed to contamination, namely ascidians (the most abundant sessile filter-feeders) and macroalgae (the dominant biota group on Douglas Shoal).

Each indicator will have different response rates (to remediation or other temporal effects), and therefore it is not necessary to sample every indicator on each survey. Likewise, it will not be necessary to monitor every indicator at every location. Table 2-2 illustrates which indicators are designated for sampling during each survey event, and at which locations.

Table 2-1 Summary of Indicators and Relevant Impact Hypotheses

Indicator Class	Indicator	Methods and Measured Parameters	Relevant impact hypothesis (Section 2.2)
Stressor (physical and chemical)	Seabed volume removed (proxy for volume of contaminated material removed)	• High intensity multibeam imagery, change in seafloor elevation • Output specifications from remediation contactor	(1) No change in physical (2) No change in contaminants
Stressor (physical)	Rubble and compaction	• High intensity multibeam imagery • Sub-bottom acoustic (rubble depth)	(1) No change in physical
Stressor (physical)	Reef physical structure	• High intensity multibeam imagery • 3D mapping and 3D image orthomosaics	(1) No change in physical
Stressor (physio-chemical)	Water quality parameters	• Physio-chemical stressors (*in situ*) - pH, TDS, turbidity, temperature, dissolved oxygen • Physio-chemical stressors (analytical) – TSS • Toxicants - trace metals/metalloids, TBT and other organotins	(2) No change in contaminants
Stressor (physio-chemical)	Sediment quality parameters	• Physical - Particle size distribution • Toxicants - trace metals/metalloids, pyrethroids, phenoxy acid herbicides, multiresidue screen (75 pesticides incl' 21 OPs + atrazine, simazine), TBT and other organotins	(2) No change in contaminants
Ecosystem receptor	Epibenthic assemblage structure	• Photo-quadrat analysis for epibenthic biota	(3) No change in biological communities
Ecosystem receptor	Fish assemblage structure	• Baited remote underwater video (BRUV)	(3) No change in biological communities
Ecosystem receptor	Biomarker	• Tissue analysis – fish, algae, and invertebrates (metals, mercury + optional subset of additional contaminants)	(4) No change in tissue concentrations
No class	Other	• Opportunistic observations • Other works related impacts	All

2.5 Monitoring Program Design

The broad monitoring design adopts a BACI (before-after-control-impact) type design, with the inclusion of multiple surveys both before and after the remediation, together with multiple tiers of reference locations (nearfield reference locations and far-field reference locations).

2.5.1 Spatial Design

Apart from acoustic assessments of the seafloor, the current monitoring program is largely contained within dedicated monitoring locations. Monitoring locations differ to the priority remediation areas (Costen *et al*. 2017) and these differences relate to the need for Stream 3 monitoring to:

- Capture putative changes occurring inside and outside of the grounding footprint,
- Effectively and practically sample within realistic weather/tide windows,
- Effectively monitor a range of possible remediation scenarios,
- Consider the present distribution of contaminants and likelihood of remobilisation by remediation activities.

The arrangement of monitoring locations at Douglas Shoal and the far-field reference reef, Haberfield Shoal, is shown in Figure 2-1. Stream 3 monitoring locations are prefixed with a lower-case m to prevent confusion with priority remediation areas, as some of the locations are similar but subtly different, while others occupy completely new areas. Locations mA, mC, and mE cover similar areas to priority remediation areas A, C, and E, while locations mB and mD are completely different to priority remediation areas B and D, the latter areas being unlikely to receive further remediation effort. Locations at Haberfield Shoal serve as regional references. Priority remediation areas E and F are considered collectively in this monitoring program as location mE, given the similar nature of impact, proximity and adjacency.

There are eight survey locations, which fall into one of three groups, considered as treatments in subsequent statistical analyses:

- **Locations to be remediated** – aligning with three (3) priority remediation area locations at Douglas Shoal as shown in Figure 2-1 (i.e. locations mA, mC, and mE).
- **Nearfield locations not to be remediated** – Three (3) locations positioned beyond the vessel grounding footprint and not within the Priority Remediation Areas (i.e. mB, mD, and mG). These locations will not be directly affected by remediation works, but they encompass likely flood and ebb-tide impacts from remediation Area A, and ebb tide impacts from Areas C, E and F.
    - While the nearfield test location east of Area A is situated on slightly shallower, high-quality habitat, this location was chosen because it was unlikely to contain any existing contamination (based on data available at the time). Higher coral cover and less contaminated sediment will serve well to assess the potential for ebb-tide impacts from remediation at Area A. Although its habitat differs slightly from locations on the low relief terrace, the BACI design is capable of handling existing variability between locations, and

it is likely that nearfield test locations will not be pooled given different exposures to remediation impacts.

- The nearfield test location mD between Area A and Area C will serve as a location on the low-relief terrace with potential to be affected by flood-tide plumes from Area A, and ebb-tide plumes from remediation works at Area C.
- The nearfield test location mG east of Areas E and F will examine ebb tide impacts from remediation works at area E/F.

- **Far-field reference locations** - Two (2) regionally relevant reference locations were located at Haberfield Shoal due to its similarities with Douglas Shoal including depth, geomorphology, apparent habitat similarity and size, and marine park zoning.

2.5.2 Survey Frequency

The planned survey schedule, where practicable (weather permitting safe operations etc.), is outlined as follows:

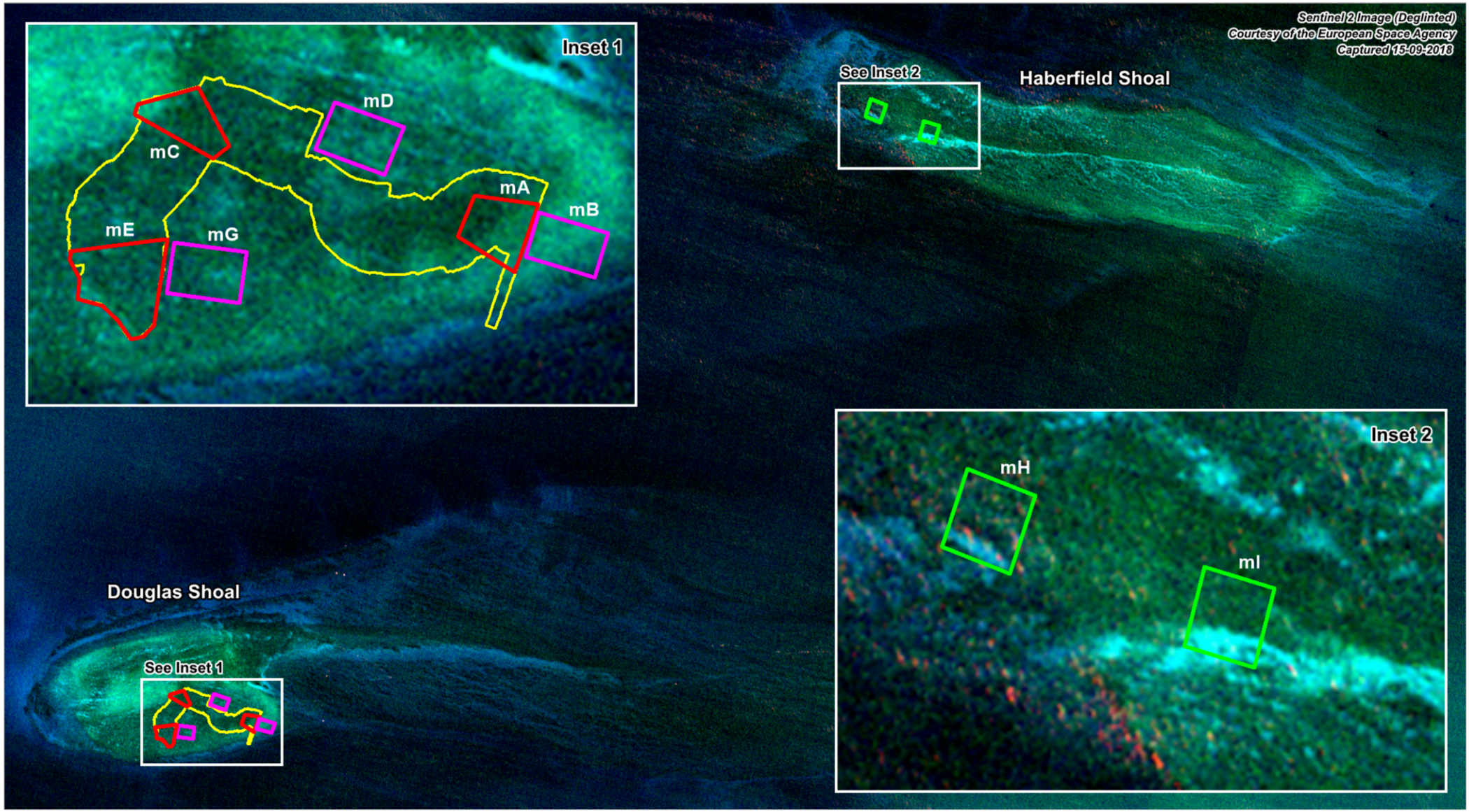
(1) Baseline # 1 before remediation (completed Spring 2019) - full survey, all indicators (with the exception of acoustic-based data and some sediment data already collected through Stream 1).

(2) Baseline # 2 before remediation (completed in Autumn 2020) to ensure baseline data incorporates some intra-annual variation for biological indicators) - reduced survey, biological indicators and incidental observations only.

(3) During remediation (2021/2022, timing to be informed by remediation schedule) - reduced survey, water quality and incidental observations only.

(4) Post-remediation # 1 (2022 or 2023) - (early to mid 2022 or 2023- depending on remediation timing, to ensure post-remediation data incorporates some intra-annual variation for biological indicators) - reduced survey, biological indicators and incidental observations only.

(5) Post-remediation # 2 (mid to late 2022, suitable weather windows most likely August to October) - full survey, all indicators.



LEGEND

- Grounding Footprint

Monitoring Locations

- Test Locations to be Remediated
- Near-field Locations (Not Remediated)
- Regional Reference Locations

Title:

Monitoring Location Nomenclature

Figure: 2-1

Rev: A

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Table 2-2 Indicators Sampled Each Survey and Location

Indicator	Treatment	Survey 1 Baseline 1	Survey 2 Baseline 2	Survey 3 During	Survey 4 Post-Remediation 1	Survey 5 Post Remediation 2
Seabed volume removed	Impact (remediated)	✓	-	-		✓-
	Nearfield (non-remediated)	-	-	-	-	-
	Reference	-	-	-	-	-
Water quality	Impact (remediated)	✓	-	✓	-	✓
	Nearfield (non-remediated)	✓	-	✓	-	✓
	Reference	✓	-	✓	-	✓
Sediment Quality	Impact (remediated)	✓	-	-	-	✓
	Nearfield (non-remediated)	✓	-	-	-	✓
	Reference	✓	-	-	-	✓
Epibenthic Cover	Impact (remediated)	✓	✓	-	✓	✓
	Nearfield (non-remediated)	✓	✓	-	✓	✓
	Reference	✓	✓	-	✓	✓
Metal Burden	Impact (remediated)	✓	✓	-	✓	✓
	Nearfield (non-remediated)	✓	✓	-	✓	✓
	Reference	✓	✓	-	✓	✓
Fish (BRUVS)	Impact (remediated)	✓	✓	-	✓	✓
	Nearfield (non-remediated)	✓	✓	-	✓	✓
	Reference	✓	✓	-	✓	✓
Rubble and compaction	Impact (remediated)	✓	-	-	-	✓
	Nearfield (non-remediated)	✓	-	-	-	✓
	Reference	-	-	-	-	-
Reef physical structure	Impact (remediated)	✓	-	-	-	✓
	Nearfield (non-remediated)	✓	-	-	-	✓
	Reference	-	-	-	-	-
Other (e.g. incidental	Impact (remediated)	✓	✓	✓	✓	✓
	Nearfield (non-remediated)	✓	✓	✓	✓	✓
	Reference	✓	✓	✓	✓	✓

2.5.3 Replication and Analyses

The level of replication for each of the site-based indicators to be monitored is illustrated in Figure 2-2. For statistical analyses, comparisons among locations and treatments (i.e. remediation vs reference) were typically examined using generalised linear modelling (GLM) within a BACI framework (as appropriate to the structure of the data). Non-detects were considered as zeros. Datasets heavily skewed, and/or with large numbers of zero counts have been modelled using truncated Poisson, negative binomial, and beta-binomial GLM approaches in R.

Water quality samples and biotic contamination is assessed against the relevant Queensland water quality guidelines, ANZG (2018) and ANZFAC (2016). The level of compliance to guidelines is compared qualitatively among sites. Due to the movement of water across the site, movement of biota, limited sample sizes, and uncertainties regarding biological accumulation and degradation of contaminants in tissues, these indicators are not suitable for the BACI statistical framework.

The deployment of BRUV replicates are not recommended within 200 m of each other (Langlois *et al.,* 2018), to avoid sampling overlap, therefore three replicates were placed within the boundaries of each site for simultaneous hour-long deployments. Unlike the majority of BRUV studies which attempt to understand the effects of extractive industries (fishing) on fish communities (while controlling for the influence of habitat), this program seeks to understand how changes in habitat (remediation) affect fish utilisation. Therefore, key response species for this assessment include site-attached and habitat dependent species, rather than species which are specifically targeted by fishers. Given the relatively small size of the test locations, non-independence (due to fish movement within the locations) is a key concern. Strategies to combat non-independence issues include short simultaneous baited deployments and a focus on site-attached species. Multivariate analyses of community composition were performed on BRUV data using PRIMER 7.

The remaining site-based indicators are assessed within the BACI framework. For epibenthic assemblages (coral and algal cover), the unit of replication is the photo-quadrat. Covering approximately 6m^2 (2 x 3 m), each photo-quadrat has 25-point identifications. With 200 randomly selected photos from each location, this result in 5,000-point identifications per location, per event.

Changes in percent cover metrics are analysed through time using generalised linear modelling with Poisson and Beta families as appropriate to the error structure of the data. Given its appropriateness in handling zero counts, threshold exceedance, strong performance in unbalanced designs and low-levels of replication, binomial regression will be used to answer questions regarding the spatiotemporal sediment contamination after remediation.

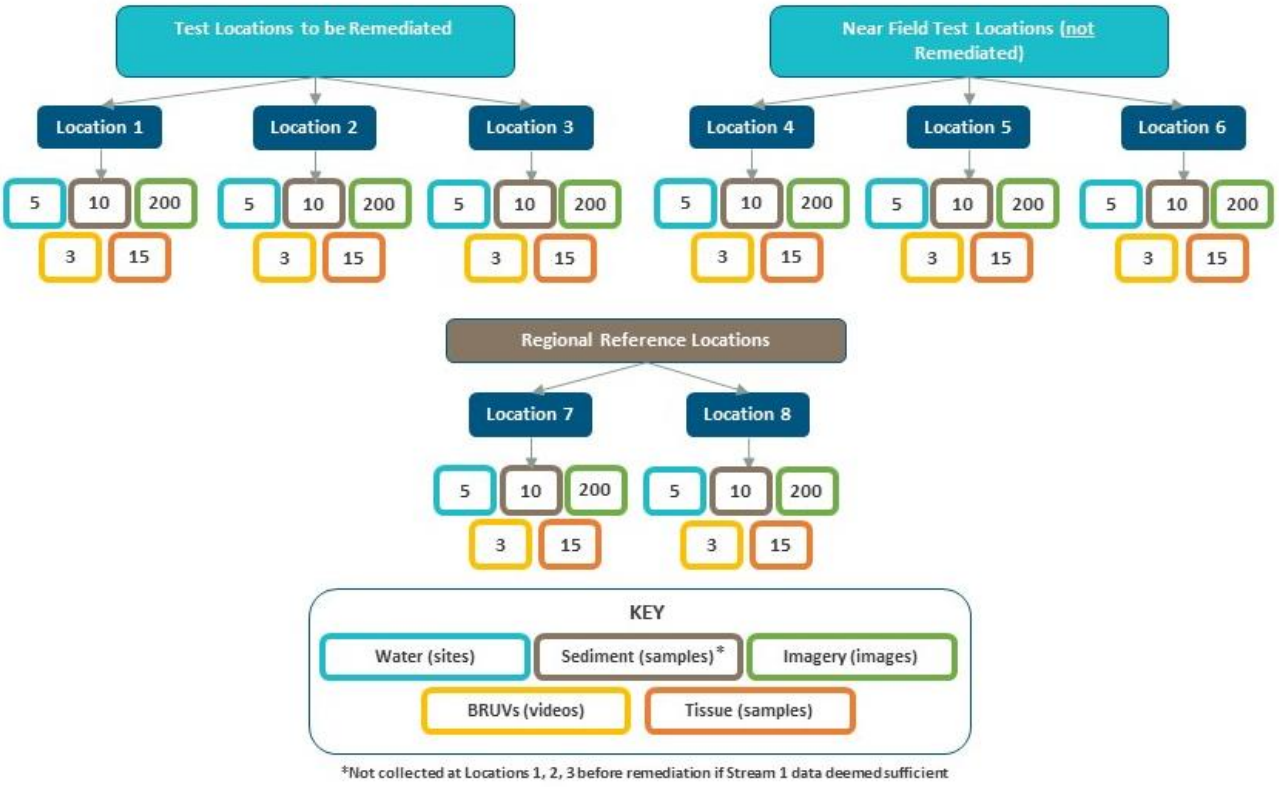


Figure 2-2 Conceptual schematic of spatial replication within a survey (indicators without spatial replication are not shown, such as broad coverage multibeam sonar)

3 Status of Monitoring to Date

This report was prepared after the completion of the planned baseline monitoring phase of the monitoring program (i.e. on completion of the second baseline survey). We provide here a summary of the monitoring program activities completed to date. Additional details including daily field activities, personnel details, the full spatial extent of towed camera work, and lessons learnt are described in Jones and Brassil (2019, 2020).

All surveys where baiting methods were used (fishing for tissue analysis, BRUVs), were temporally separated from diver-based survey activities to reduce the chance of interactions between diving personnel and sharks. Therefore, the spring 2019 and autumn 2020 surveys (Baseline Surveys 1 and 2) were split into two campaigns: surface-based and diver-based sampling trips. In 2020, some of the remaining surface work was completed after diving had ceased on the second trip. Field trip and activity summaries for all monitoring trips conducted to date are listed in Table 3-1.

Table 3-1 Trip and Activity Summaries

Survey	Type	Dates	Activities	Vessel
Baseline 1	Surface	2-10 October 2019	Mobilisation to Gladstone and Shoals Towed video camera BRUV deployments Water Quality Fish tissue collection Demobilisation	Wild Blue
Baseline 1	Dive	2-10 November 2019	Mobilisation to Gladstone and Shoals Sediment quality collections Macroalgae and ascidian collections 3D mosaic imagery collection Demobilisation	Adori
Baseline 2	Surface	9-14 April 2020	Mobilisation to Gladstone and Shoals Towed video camera BRUV deployments Fish tissue collection Demobilisation	Wild Blue
Baseline 2	Dive/ Surface	16-21 April 2020	Mobilisation to Gladstone and Shoals Macroalgae and ascidian collections BRUV deployments Fish tissue collection Demobilisation	Wild Blue

Progress against the entire program is shown in Table 3-1.

Table 3-2 Indicators and Survey Progress to Date

Indicator	Location	Survey 1 Baseline 1	Survey 2 Baseline 2	Survey 3 During	Survey 4 Post-Remediation 1	Survey 5 Post Remediation 2
Seabed volume removed	Remediation	✓	-	-		✓-
	Nearfield	-	-	-	-	-
	Reference	-	-	-	-	-
Water quality	Remediation	✓	-	✓	-	✓
	Nearfield	✓	-	✓	-	✓
	Reference	✓	-	✓	-	✓
Sediment Quality	Remediation	✓	-	-	-	✓
	Nearfield	✓	-	-	-	✓
	Reference	✓	-	-	-	✓
Epibenthic Cover	Remediation	✓	✓	-	✓	✓
	Nearfield	✓	✓	-	✓	✓
	Reference	✓	✓	-	✓	✓
Metal Burden	Remediation	✓	✓	-	✓	✓
	Nearfield	✓	✓	-	✓	✓
	Reference	✓	✓	-	✓	✓
Fish (BRUVS)	Remediation	✓	✓	-	✓	✓
	Nearfield	✓	✓	-	✓	✓
	Reference	✓	✓	-	✓	✓
Rubble and compaction	Remediation	✓	-	-	-	✓
	Nearfield	✓	-	-	-	✓
	Reference	-	-	-	-	-
Reef physical structure	Remediation	✓	-	-	-	✓
	Nearfield	✓	-	-	-	✓
	Reference	-	-	-	-	-
Other (e.g. incidental	Remediation	✓	✓	✓	✓	✓
	Nearfield	✓	✓	✓	✓	✓
	Reference	✓	✓	✓	✓	✓

4 Detailed Methods

4.1 Field Sampling

4.1.1 Epibenthic Cover

Changes in benthic cover are one of the most important response variables in the monitoring program following SMART criteria. This is due to the likelihood of a strong measurable response and the high degree of relevance to all other remediation objectives. Healthy benthic substrates, with high rugosity and living coral cover are likely to be one of the best predictors of diversity and abundance for the macroinvertebrate and fish communities they support.

Downward facing images (photo quadrats) were collected from locations along camera transects running east-west into the prevailing current. Two-hundred images were randomly selected for each site from the series of images collected during the tow. The positions of these images from survey events to date are shown in Figure 4-2.

Imagery of the seafloor was collected via remote downward-facing cameras collecting 12 mp still imagery on one second intervals, guided by forward facing cameras (Figure 4-1). Each image covered at least 6 m^2 (2 x 3 m). The camera array was towed above the seafloor by a 25 kg winged downrigger to reduce layback behind the vessel. Imagery was time-synchronised and positioned using an onboard dGPS with sub-metre accuracy. This produced an estimated final accuracy of within 5 m for tows with the current and within 15 m for tows against the current due to camera layback.

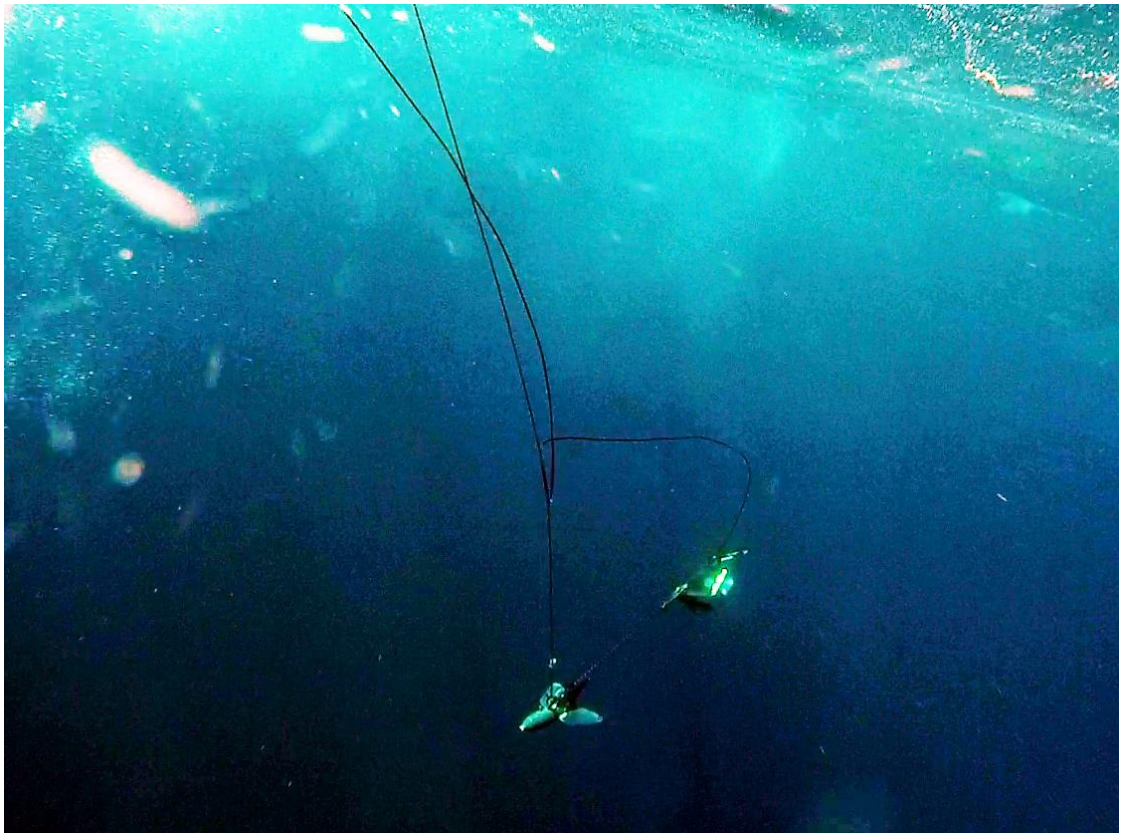
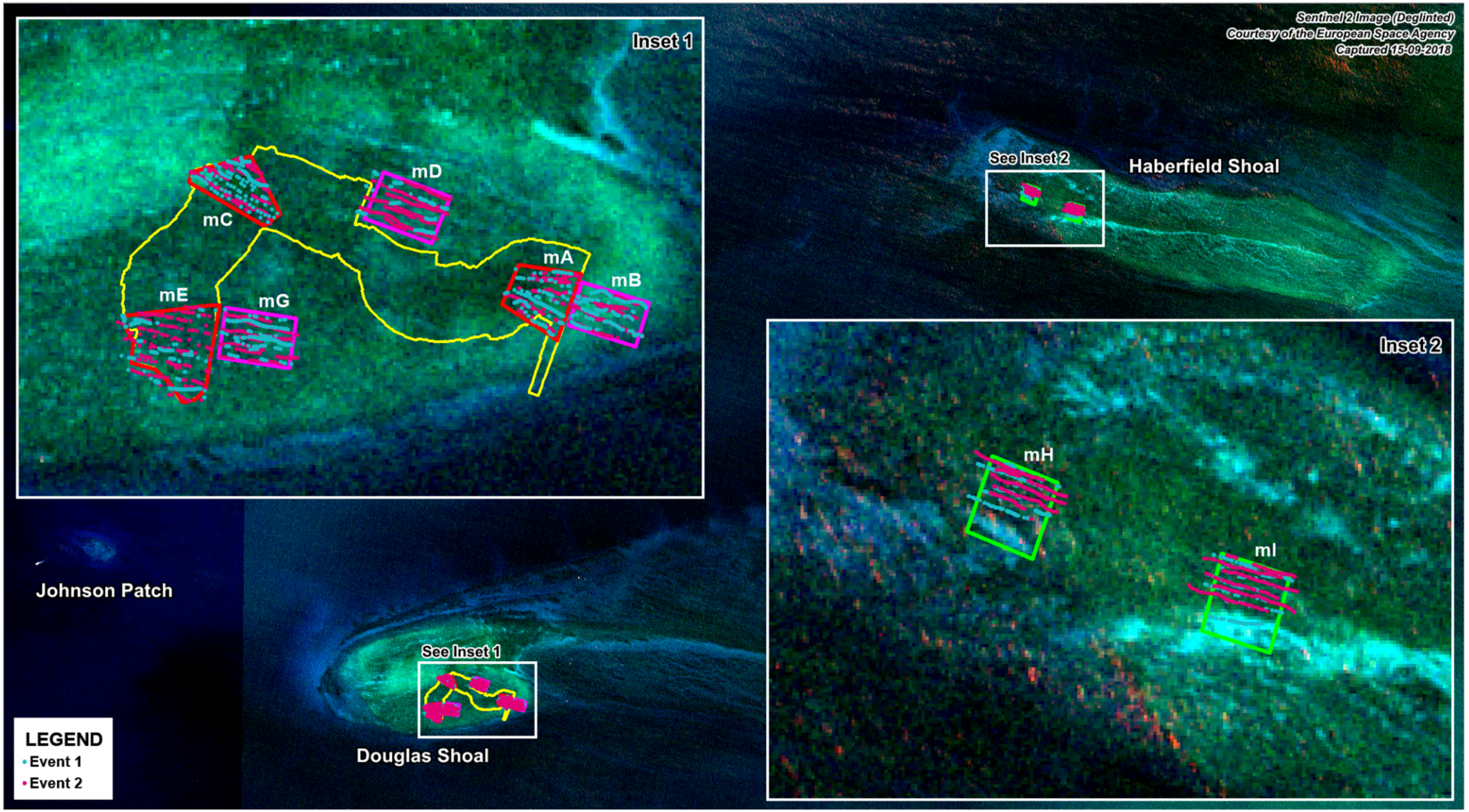


Figure 4-1 Towed camera array in operation at Douglas Shoal



LEGEND

- Grounding Footprint

Monitoring Locations

- Test Locations to be Remediated
- Near-field Locations (Not Remediated)
- Regional Reference Locations

Title:

Towed Camera Transect Imagery

Figure: 4-2

Rev: A

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4.1.2 Fish Communities

Three baited remote underwater video cameras (stereo BRUVs) capturing 1080 p HD video, were deployed for a 1 hour period at three sites simultaneously within each location. Cameras were separated by 70 cm and baited with 1 kg of pilchards. The stereo-camera unit was mounted to a 25 kg flat-based steel frame with surface floats (Figure 4-3, Figure 4-4). The arrangement of sites where BRUVs were deployed within each location is shown in Figure 4-2. BRUV sites were arranged to provide maximum distance between replicates within each location.



Figure 4-3 Synchronisation of cameras prior to the deployment of a stereo BRUV

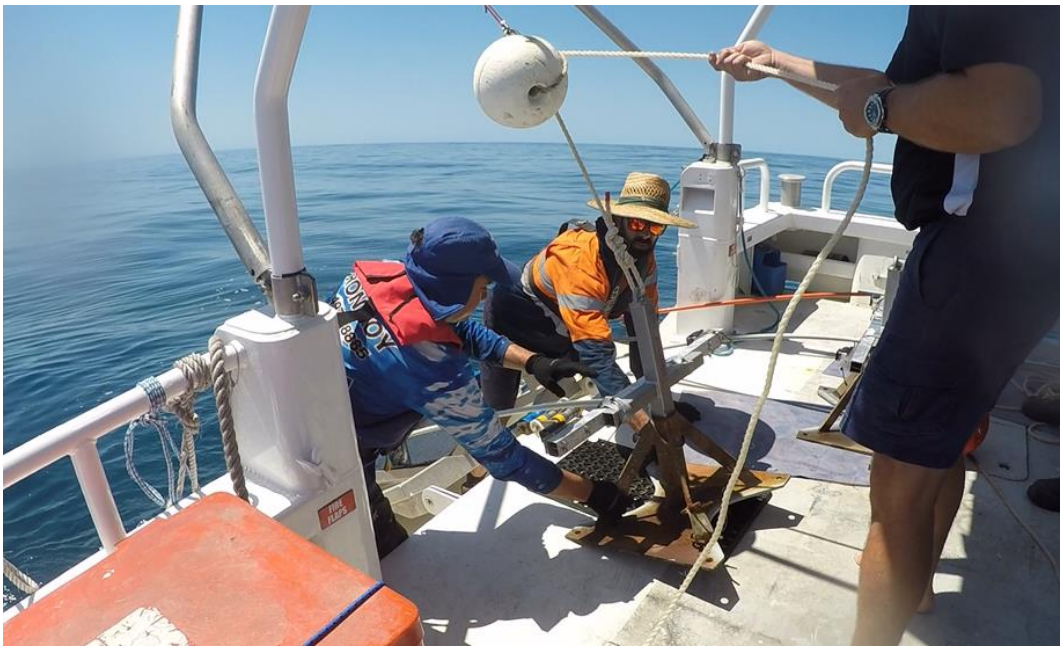
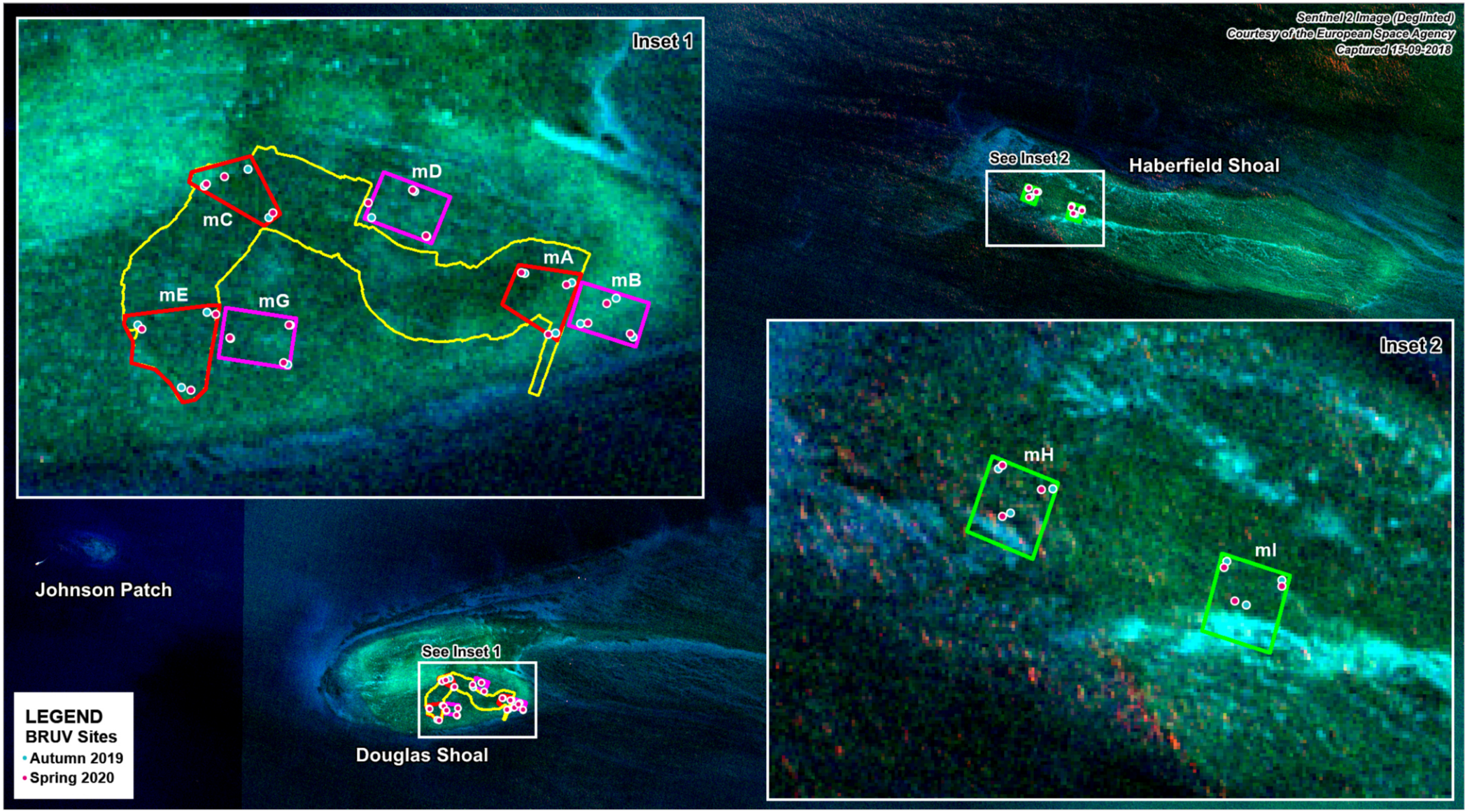


Figure 4-4 Stereo BRUV being deployed at Douglas Shoal



LEGEND

- Grounding Footprint

Monitoring Locations

- Test Locations to be Remediated
- Near-field Locations (Not Remediated)
- Regional Reference Locations

Title:

BRUV Sites within Locations

Figure: 4-5

Rev: A

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4.1.3 Tissue Sampling for Contaminants - Fish

Five fish samples were analysed from each location during each baseline survey. Fish were collected with hook and line (Figure 4-6), brought to the surface, pithed and placed individually into fish tubs. Samples consisted of a limited number of common recreationally caught species including tuskfish (largely *C. venustus*), collared sea bream (*G. audleyi*), serranids, red-throated emperor (*L. miniatus*) and lutjanids. Fish tissue sub-samples of 200-250 g were taken from fillets and placed into labelled ziplock bags.

Sub-sampling was done by a deckhand or scientist using at least one nitrile glove worn for handing the fillet, while the knife hand was gloved or un-gloved depending on operator preference. Sub-samples were taken with a stainless-steel filleting knife. The filleting area, knife and fish tubs were washed with Decon-90 and rinsed with seawater between subsampling individual fish.



Figure 4-6 Line fishing to collect reef fish samples for tissue analysis

All samples were assigned an identification label (site, species etc.), photographed, weighed to the nearest gram and their total length measured. Tissue samples were logged using standardised pro-forma, collecting the following information:

- Project name and number
- The name of the sample collector
- Date and time of sampling
- Field sample number
- Location (waypoint number)
- Length and weight
- Specimen observations, injuries, and general comments pertaining to the sample.

Samples were frozen and transported by BMT to the National Measurement Institute (NMI) for analysis. During transport, samples will be stored on ice until delivered to the laboratory. Muscle tissue samples were analysed for concentrations of copper, zinc, and TBT. Photos of all captured fish are shown in Appendix A.

4.1.4 Tissue Sampling for Contaminants – Invertebrates and Algae

Divers collected ascidians and macroalgae haphazardly from within each of the monitoring locations (Figure 4-7). Five invertebrate and five macroalgae samples were analysed from each location. Sub-sampling of macroalgae from larger specimens was done using nitrile gloves. The work area was washed with Decon-90 and rinsed with seawater between sub-sampling.

During event 1 in spring 2019, all macroalgal specimens were *Dictyopteris* sp., selected due to a potential association between *Dictyopteris* sp. and rubble associated with the grounding footprint. However, due to the virtual absence of this taxon during autumn 2020, specimens of *Dictyota* sp. were collected instead. *Dictyota* sp. is intended to be collected in all subsequent events. Holothurians were originally intended to be the invertebrate taxon selected to investigate bioaccumulation, due to their habit of feeding of sediment and relative abundance elsewhere in the region. However, due to the relative absence of holothurians at all locations except mI, holothurians were abandoned in favour of ascidians. Large ascidians resembling *Polycarpa* spp. were selected due to their abundance at all locations, sessile nature, and potential to accumulate metals and TBT through filter feeding. As much algae and other sessile fauna were removed from the ascidian as possible on the deck prior to bagging each sample, but significant amounts of biotic coverings often remained firmly attached to samples.



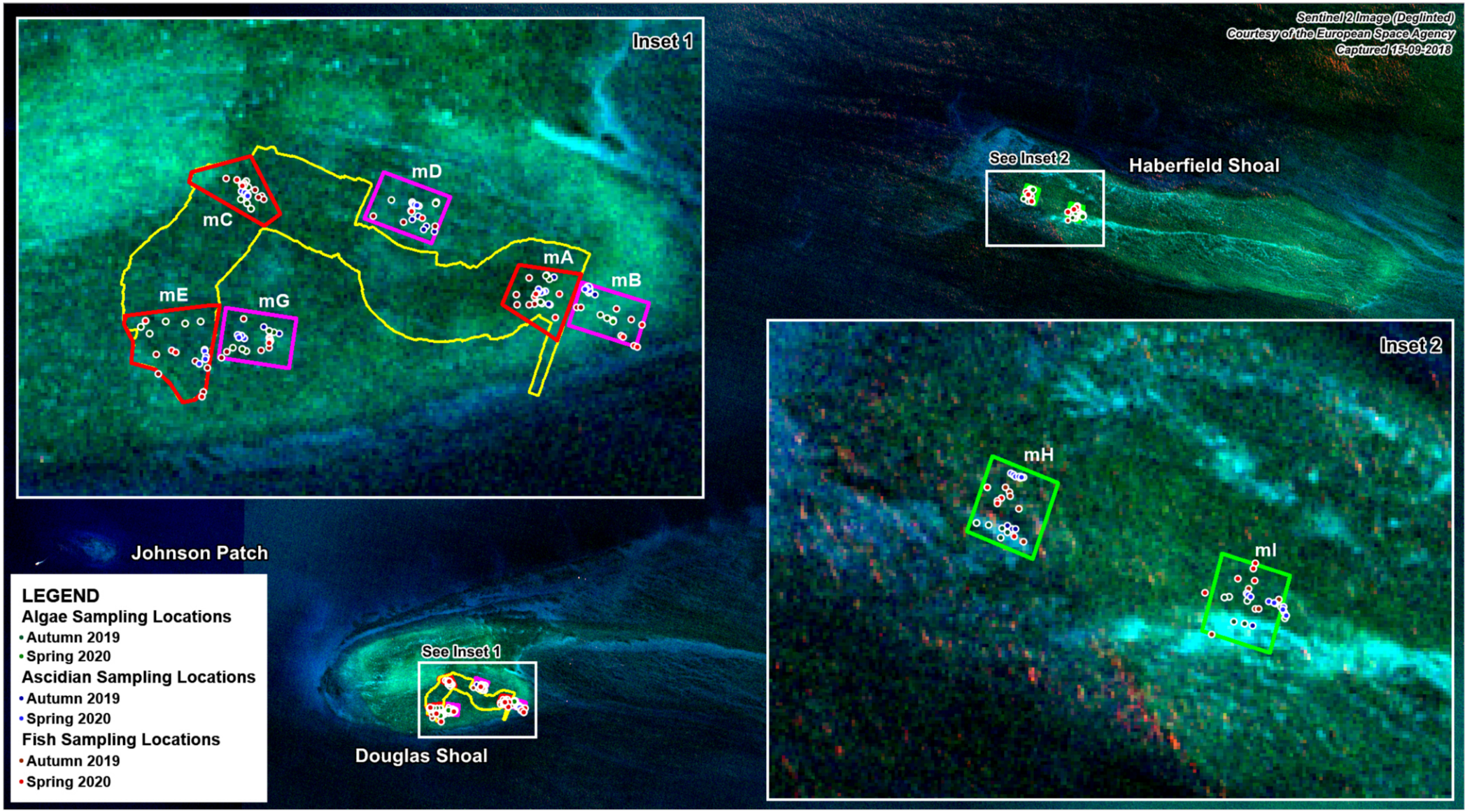
Figure 4-7 Commercial diver and attendant preparing to collect algae and ascidians

All samples were assigned an identification label (site, species etc.) and photographed. The following information was collected for each tissue sample:

- Project name and number

- The name of the sample collector
- Date and time of sampling
- Field sample number.

Samples were frozen and transported by BMT to the National Measurement Institute (NMI) for analysis. During transport, samples were stored on ice until delivered to the laboratory, for analysis of copper, zinc, and TBT concentrations.



LEGEND

Grounding Footprint

Monitoring Locations

Test Locations to be Remediated

Near-field Locations (Not Remediated)

Regional Reference Locations

Title:

Biota Tissue Sample Locations

Figure: 4-8

Rev: A

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N

0 300 600m

Approx. inset scale

0 1.5 3km

Approx. scale

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4.1.5 Water Sampling

At each location, five water samples were collected for laboratory analysis using a van Dorn sampler (Figure 4-9). For each sample, the sampler was cast haphazardly while drifting through the location and lowered to 1 m above the seafloor before being triggered. The water samples were taken by a scientist wearing protective gloves, while a dedicated water sampler handling syringes, water, and bottles wore nitrile gloves. Nitrile glove changes occurred between locations. The sampling apparatus was initially washed in Decon-90 then triple rinsed between replicates. Dissolved metal samples were filtered through a 0.45 µm membrane. The time, date, sample number and location were recorded before refrigeration and storage of the sample.

QA/QC samples consisted of the following:

- A rinsate blank;
- A field blank;
- Lab duplicates at 10% of locations (4 replicates); and
- Lab triplicates at 5% of locations (2 replicates).

At each sampling position, *in-situ* water quality measurements were also collected using a YSI Pro DSS water quality meter, which was lowered to a similar depth (approximately 1 m above the seafloor) while collecting a profile of water quality data (Figure 4-10). The data collected included pH, electrical conductivity, salinity, turbidity, temperature and dissolved oxygen.



Figure 4-9 Collecting a water sample at Douglas Shoal using a van Dorn sampler

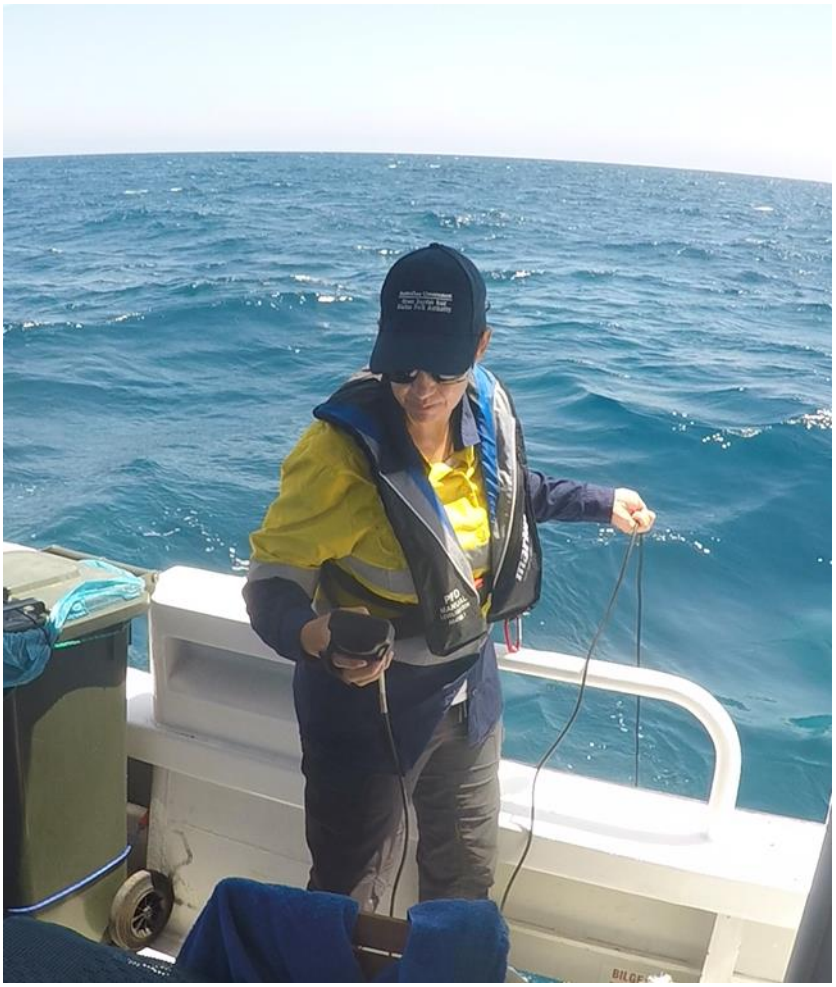


Figure 4-10 Measuring *in-situ* water quality at Douglas Shoal

4.1.6 Sediment Quality

Contaminants of Potential Concern

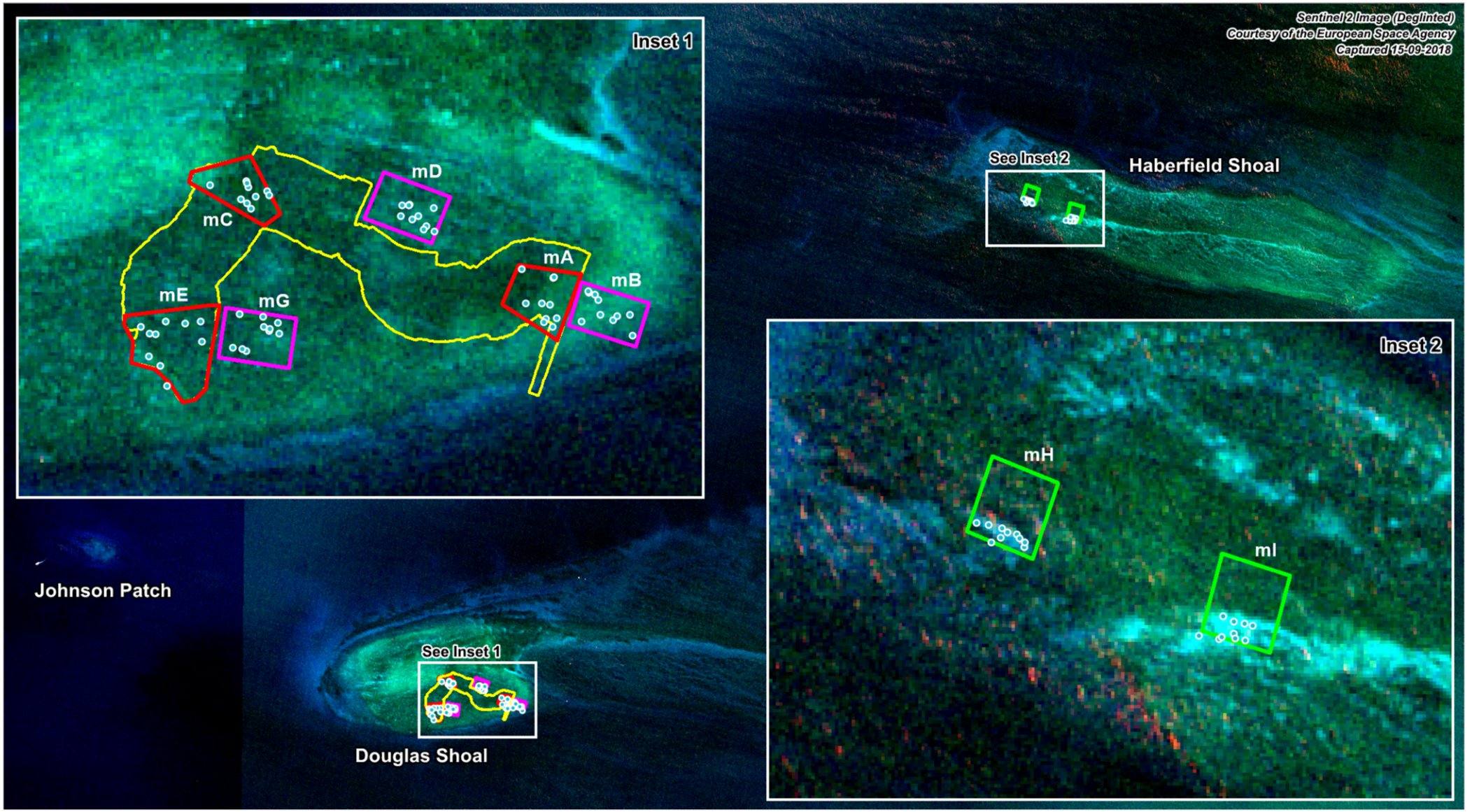
Contaminants of potential concern (COPC) were based on previous assessments (summarised in Costen *et al.,* 2017), the ship's antifouling history, and the relatively pristine surrounding High Ecological Value environment. Known contaminants include copper oxide, zinc oxide, and TBT. Suspected or possible other COPCs include pesticides and herbicides listed in Table 4-1, as these had not been tested in any of the previous assessments, and antifouling paints can contain herbicides and pesticides.

Table 4-1 Sediment Quality Parameters

Parameter	LOR (mg/kg if unspecified)
Metals	
Total metals: Sb, As, Cd, Cr, Cu, Co, Pb, Mn, Ni, Se, Ag, V, Zn, Ba	Cd, Se, Ag, Ba: 0.1 Co-: 0.5 Mn: 10 V: 2 Al: 50 Others: 1
Physical	
Particle Sizing (sieve and hydrometer)	1%
Organics	
Synthetic Pyrethroids	0.05
Phenoxy Acid Herbicides	0.02
Multiresidue Screen (75 pesticides including 21 Organophosphates + (Atrazine, Simazine)	0.001-1.0
Organotin (TBT)	0.5 µg Sn /kg

Sampling Sites

Ten replicate sediment samples were collected within each of the locations shown in Figure 4-11. Site locations were haphazardly sampled by divers drifting through the site in areas of unconsolidated sediment that were targeted based on satellite imagery. It should be noted that sediment was unavailable in large enough quantities over much of Haberfield Shoal, apart from in a slightly deeper trench at the southern boundary of each location, where all samples were taken (Figure 4-11).



LEGEND

- Autumn 2019 Sediment Sites
- Grounding Footprint

Monitoring Locations

- Test Locations to be Remediated
- Near-field Locations (Not Remediated)
- Regional Reference Locations

Title:

Sediment Quality Sampling Sites and Locations

Figure: 4-11

Rev: A

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Collection Methodology

During spring 2019, two samples at Haberfield Shoal were collected with a large stainless steel Van Veen grab; however, this methodology was abandoned due to difficulties with currents and waves reducing the efficacy of complete grab closure. An appropriately sized sediment patch was located using the vessel sounder, surface visibility, and drop camera. The location was marked with an RTK GPS, the grab was deployed and emptied into a 50 L plastic tub. Only samples where the grab had fully closed were accepted.

All remaining samples were collected by divers. The diver's path was traced utilising a tethered GPS[1] on the diver's float. At the point of sample collection, the diver notified the dive supervisor using a combination of radio communications and lines signals. The tether was shortened, and the time of sample was recorded for positioning against the tethered GPS, giving an expected position within 10 m of true position due to tether lay-back.

Each sample was photographed approximately 1 m from the substrate, with a 50 cm scale bar in view. Samples were collected by divers using a hand trowel and placed into a PVC collection tube. The penetration depth was made against a steel rod or trowel depending on sediment depth. Upon surfacing, the sample was emptied into a stainless-steel container (Figure 4-12), photographed, logged, homogenised, and divided into jars.



Figure 4-12 Processing a sediment sample collected from the sea floor

4.1.7 3D Modelling

3D models were generated inside the test locations, at areas of the highest level of impact to provide a visual comparison of changes in seafloor that may occur before and after remediation. The collection of these data required relatively calm currents, good visibility, and low to moderate

[1] Using a helix antenna and waterproof housing 40.8% of hand-held GPS positions were within 0.5 m of true position, 18.6% were within 0.5-1 m, 21.3% were within 1-2 m, and 19.3% were within 2-3.05 m of true position (cm-precision fixed RTK) under dynamic conditions and clear skies in August 2019.

algal canopies. Six 3D models and orthomosaics were generated; two in each remediation site (Figure 4-14). Models were 10x10 m and have been located over four tiles from the 5 m reference grid. The same locations will be visited before and after the remediation process.

The centroid of the site was marked using an RTK GPS and shot line, with the shot deployed within 1 m of the position. A diver descended the shot line and placed a series of markers. Tiles marked the north, south, east and western extremities of the site. These were positioned using a compass bearing and a 7 m line from the site centroid. Approximately 800 photos were taken by a diver using paired wide-angle still cameras (Figure 4-13). Photos and positions were built into 3D models using techniques involving:

- Batch processing of photos to remove poorly focused images;
- Colour correction to bring up red tones and reduce green and blue levels;
- Removal of lens vignetting to homogenise lighting across the field of view;
- Photogrammetry using tie points at precisely known locations; and
- Generation of 3D models and orthomosaics from aligned imagery with Agisoft Photoscan.

Within Agisoft Photoscan medium accuracy settings were used to align photos, build the dense point cloud and construct the model. Medium accuracy was selected as a compromise between analysis time and model quality.

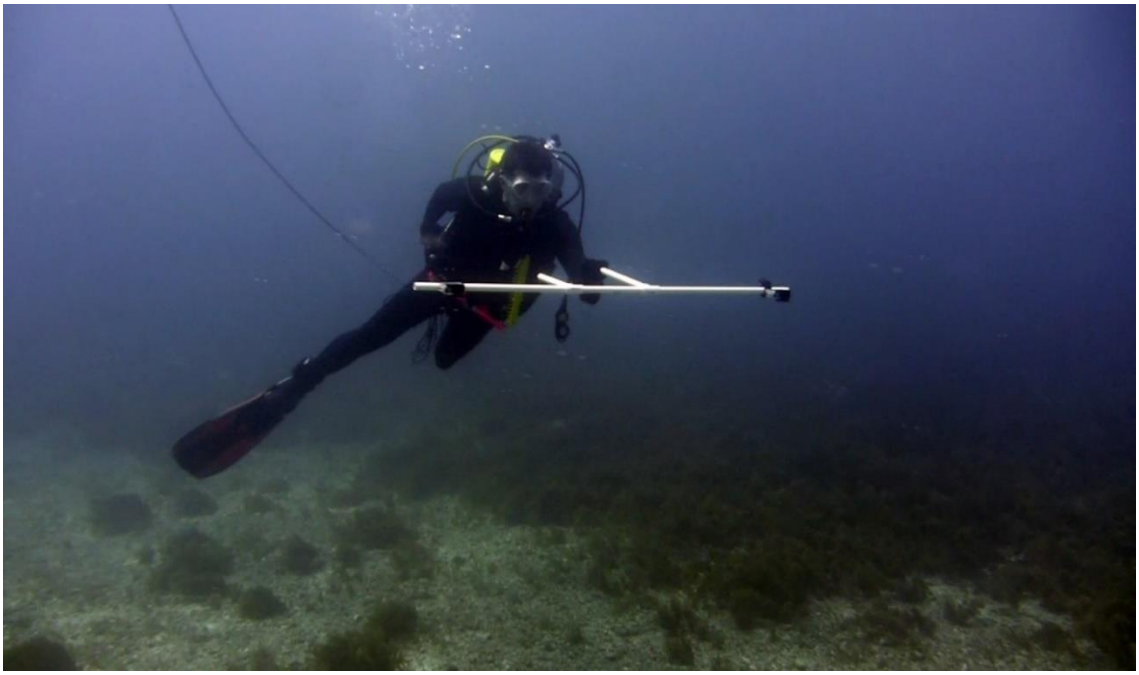
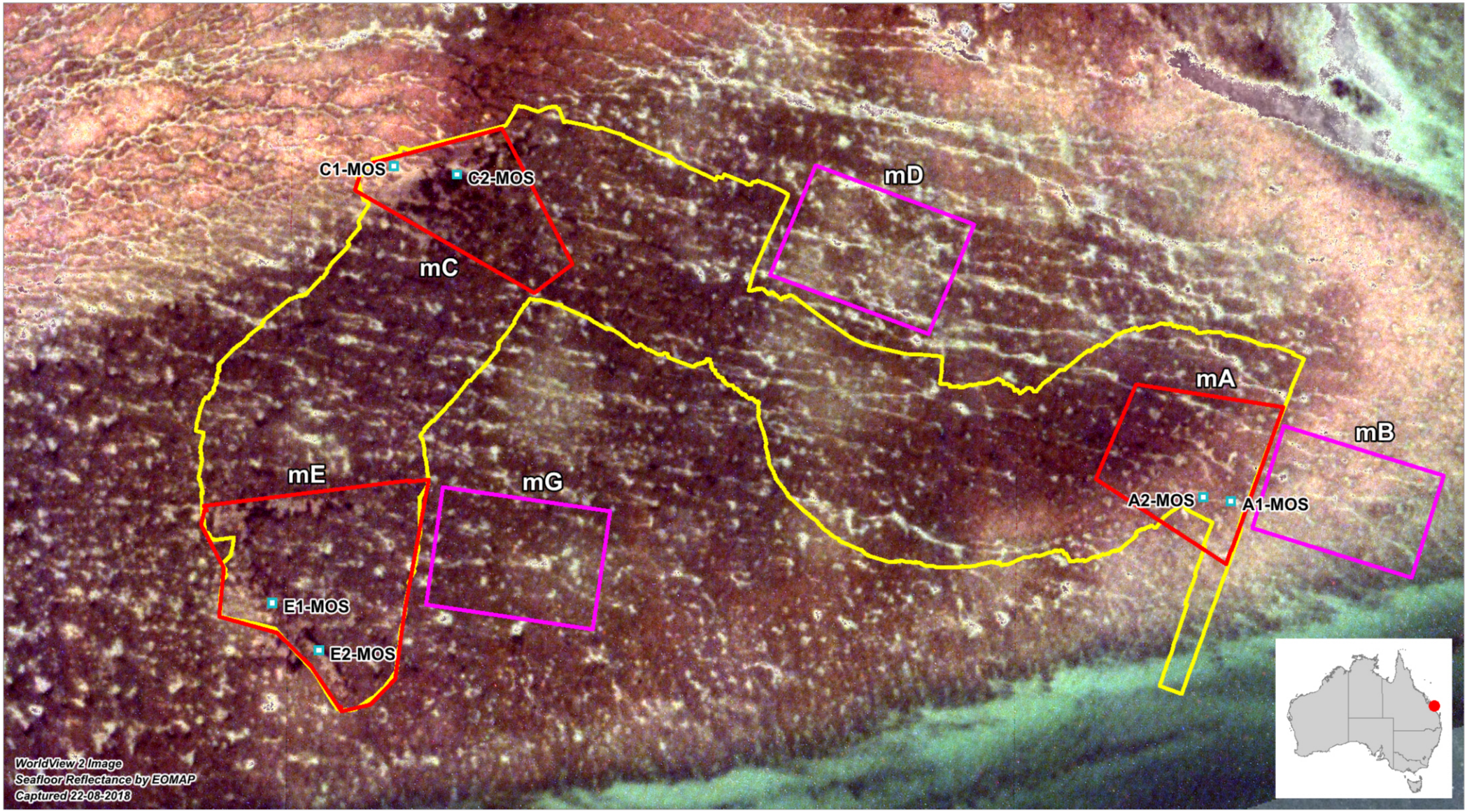


Figure 4-13 Diver collecting mosaic imagery at Douglas Shoal (site mE)



LEGEND

- 3D Sites
- Grounding Footprint

Monitoring Locations

- Test Locations to be Remediated
- Near-field Locations (Not Remediated)

Title:

3D Model Sites

Figure: 4-14

Rev: A

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4.1.8 Acoustic Data Collection

Multibeam and sub-bottom profiling (SBP) datasets were collected as a part of the Stream 1 field data collection campaigns (Neale and Boylson 2019). Acoustic datasets were required for both the Stream 1 and 3 scopes of work; therefore, this component was removed from the Stream 3 pre-remediation scope and it will be repeated after remediation works as a part of Stream 3 monitoring.

While SBP is frequently used to determine and characterise geological strata in upper seafloor strata, the data acquired were not sufficient to determine the depth of sand or gravel above the underlying consolidated reef. Therefore, the SBP results are not presented in this document, but they can be accessed in greater detail in Neale and Boylson (2019) and similarly, this report summarises these collection methodologies and data relevant to monitoring physical habitat.

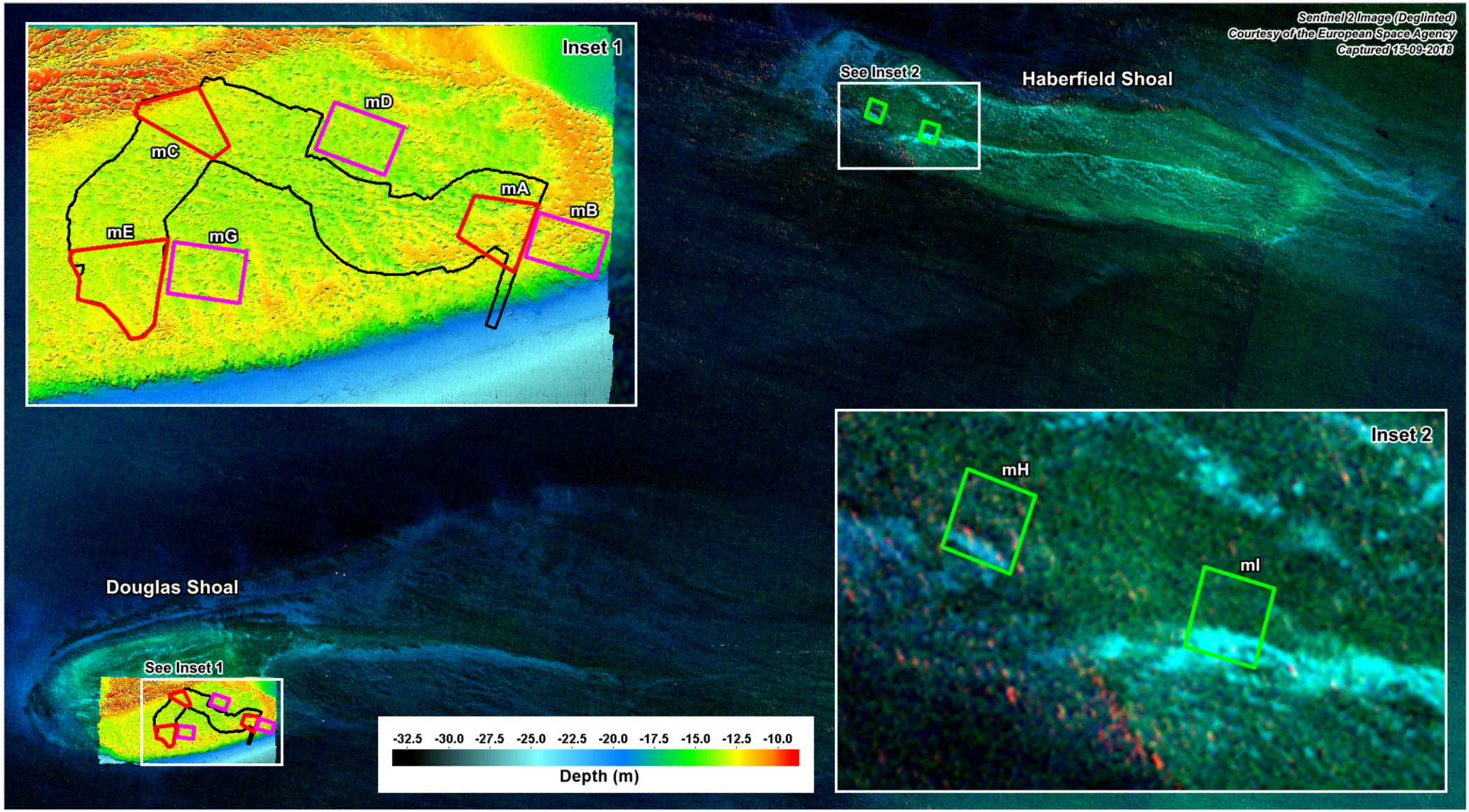
Sonar data were collected from May 22-23, 2019 over an area inclusive of the entire ship grounding footprint and all the monitoring locations at Douglas Shoal (Figure 4-15). No acoustic data were collected at Haberfield Shoal.

Hardware components of the sonar survey system included:

- R2Sonic 2022 Multibeam Echo Sounder (MBES) operating in multi-frequency mode providing bathymetry and backscatter data
- Innomar SES-2000 Sub-Bottom Profiler
- Applanix POS MV Wavemaster providing positioning, motion, and heading data
- SonTek Castaway CTD providing sound velocity through the water column.

Multibeam data were collected at three frequencies (170kHz, 300kHz, and 400kHz) resulting in a 0.5 m sounding density. Positioning and sound velocity data were applied, and anomalous data were removed using filters and manual checks. Bathymetry data were gridded at a 0.5m bin size using a weighted moving average algorithm and exported for use (Neale and Boylson 2019).

The QPS FMGT software package was used for backscatter data processing. The MBES was operated in a multi-frequency manner to provide data from three different frequencies so these could be used to create composite false-colour images to provide information on subtle changes to substrate and sediment types across the survey. Bathymetry data were applied to allow correction of the seabed intensity data for the slope differences across the survey areas, for each frequency. Absorption values were set for each of the frequencies and pixel size and processing parameters set to generate the backscatter data products (Neale and Boylson 2019).



LEGEND

- Grounding Footprint

Monitoring Locations

- Test Locations to be Remediated
- Near-field Locations (Not Remediated)
- Regional Reference Locations

Title:

Acoustic Survey Area

Figure: 4-15

Rev: A

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4.2 Data Analyses

4.2.1 Epibenthic Cover

Point Count Methods

Random selections of 200 downward facing images were used for analysis from each location. The selected subset of photos was processed using point-count methodologies to determine major cover metrics. Existing automated annotation software (CORALNET) was used to classify a 25-point stratified scatter within each image frame. The cover of major benthic categories and coral genera was quantified for each frame. Classes consisted of 34 hard coral genera (including bleached and unbleached variants where applicable), 14 soft coral genera (as above), five other fauna classifications, nine genera of macroalgae, macroalgal assemblage, turf, crustose coralline algae (CCA), sand, pavement and gravel (detailed further below).

Fully automated approaches have provided comparable results to human expert classifications for coral substrates, while algal substrates typically required semi-automated annotation as per Beijbom *et al.* (2015). Within CORALNET the level of automated assistance was set based on estimates of the machine accuracy (Cohen's kappa) for major functional groups of benthos. This estimate is progressively updated with more training (manual classification) as the project progresses. Beijbom *et al.* (2015) show that a 5% reduction in accuracy does not have a significant impact on the cover estimates of functional groups, therefore, the level of automation was set throughout the project to ensure at least 95% automation accuracy.

Hard coral cover is the highest priority response variable because its vulnerability to project impacts and because it is a building block of habitat supporting the rest of the reef ecosystem. Confidence limits suitable for fully automated classification were rarely achieved in the first and second baseline surveys, apart for some extremely homogeneous substrates such as sand. Machine accuracy never exceeded 95% for any coral taxa; therefore, all annotations were done by ecologists. However, machine-learned cover suggestions were frequently correct, making manual annotation substantially faster.

Classification Conventions

The classification of macroalgal assemblage, algal turf, pavement, sand, gravel, and bleached coral has an element of subjectivity, particularly where classification points fall on the border between two similar cover types, or in substrates transitioning from class to another. Photo acquisition height allowed a relatively large field of view (6 m^2 minimum); enabling greater coverage of the shoal at the cost of finer details in benthos. The consequence of this was that small clumps of mixed macroalgal assemblage occurring in patches less than 10 cm frequently could not be distinguished into individual macroalgal taxa. The macroalgal assemblage class was used where macroalgae appeared to be in multi-species clusters or where it was too small to allow identification.

The term 'rubble', in the context of this project, pertains to incident-derived sediments, and in many cases this could not be determined from towed camera imagery. Therefore, the benthic class 'gravel' was used to classify sediments into particle sizes that approximated coarse gravel and cobble, while 'sand' was used to classify substrates that varied from medium sands to fine gravel.

The following class definitions and examples (Figure 4-16) were used to better define substrates with elements of subjectivity:

- **Turf:** algal coatings varying from half to 2 cm thick, usually light in colour with poorly defined edges, sometimes mixed with other substrates.
- **Ascidians:** although ascidians were often covered in turfing or macroalgae, only animals with visible siphons were classed as ascidians, otherwise upper biotic coverings were classified.
- **Macroalgal assemblage:** macroalgal clumps dark in colour (red, green, or brown) with insufficient morphology for identification to genus. Moderate to well-defined edges.
- **Pavement:** consolidated reef substratum without any visible turf, macroalgae, or other biota. Often seen on the margin of, or near unconsolidated mobile substrates such as sand or rubble. Large cobble or boulders with thin turf layers were typically classed as turf.
- **CCA:** crustose coralline algae consisting of pink lithified surfaces.
- **Sand:** unconsolidated material varying from coarse sand to very fine gravel (0.5 – 5 mm. Very thin dustings of sand where the substrate beneath was visible and dominant were classified as the underlying substrate.
- **Gravel:** unconsolidated calcium carbonate pieces varying from medium gravel to small cobble material (10-100 mm).
- **Bleached Coral:** While the level of bleaching is typically recorded as a categorical variable, coral bleaching was considered dichotomously, with bleaching in the level 1 category (Seibeck *et al*. 2006) considered bleached and categories 2-6 considered unbleached.

A schematic diagram of the relationships among various benthic cover attributes is presented in Figure 4-17.

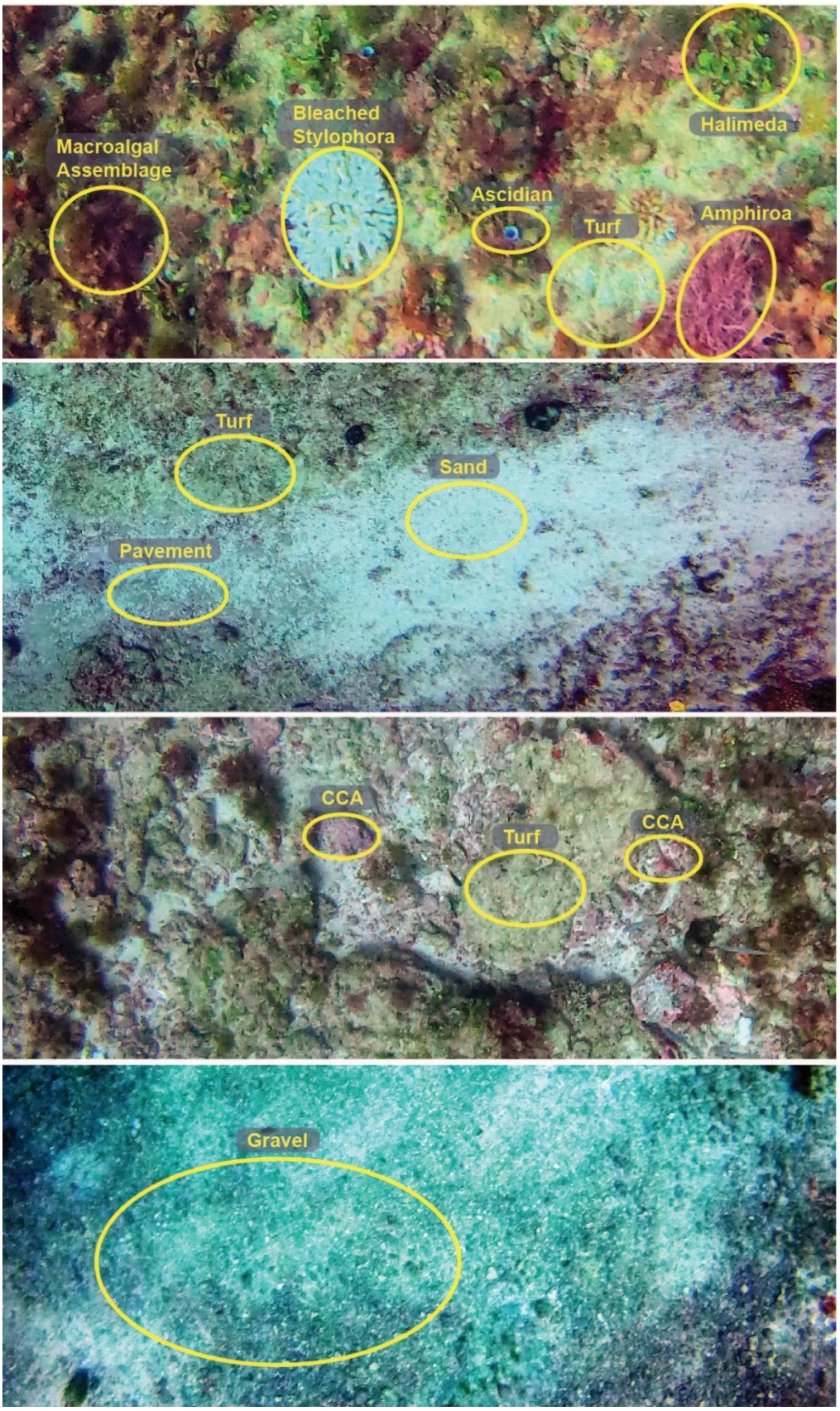


Figure 4-16 Examples of benthic classification conventions

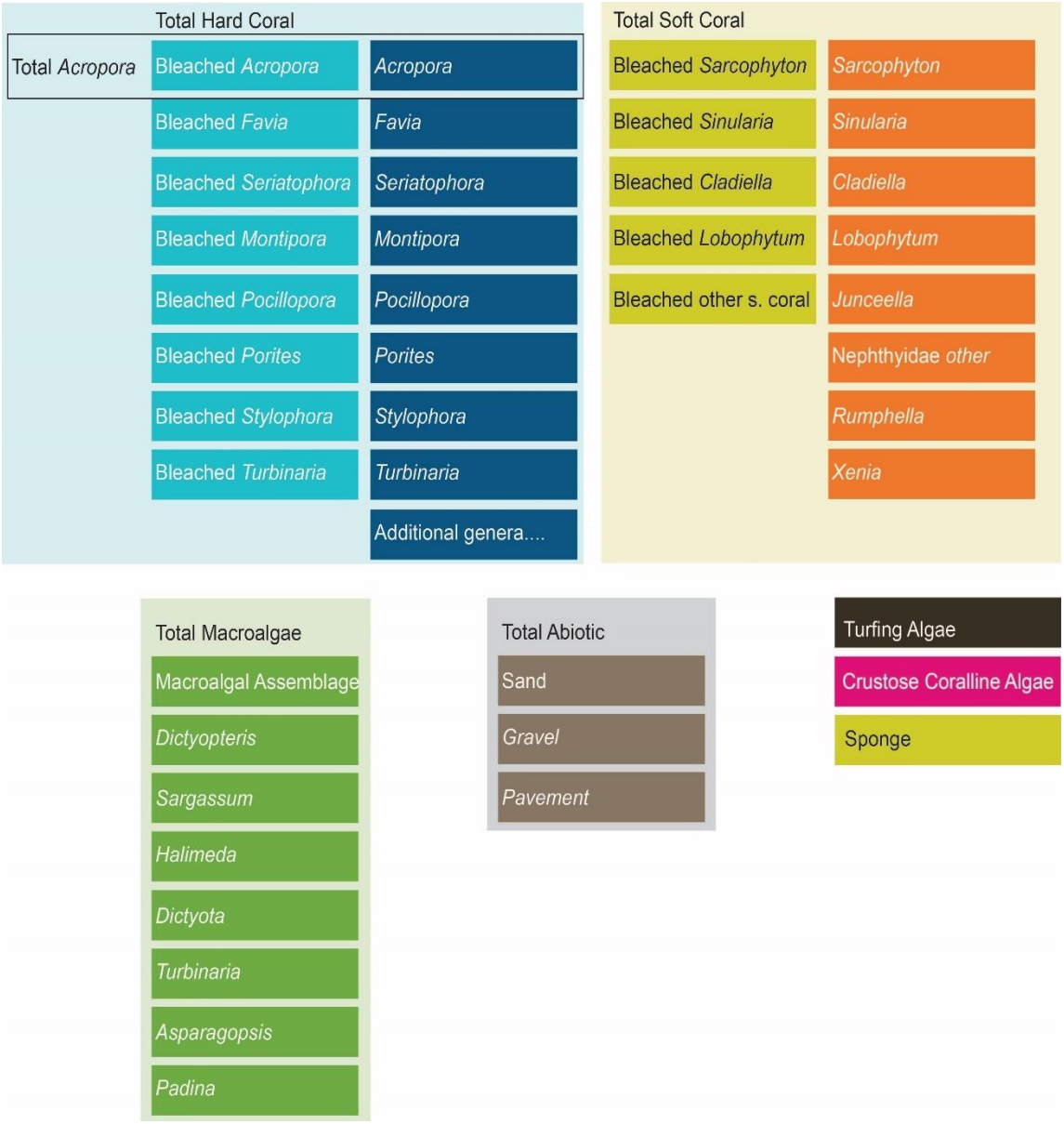


Figure 4-17 Schematic diagram of the relationships between a selection of key cover categories

Univariate Analysis

Each photo quadrat served as a unit of replication for use in BACI analyses. Univariate cover metrics (hard coral, soft coral, *Acropora,* turf, macroalgae, *Sargassum, Dictyopteris,* rubble and bare substrate) were analysed using the generalised linear mixed model package (glmmTMB) in R (Brooks *et al.* 2017).

Frequency distributions for each variable were generated (Figure 4-18); response variables with a strong zero-bias were analysed using error structures belonging to a truncated Poisson or negative-binomial distribution, depending on the level of dispersion. Zero-inflated count data were used and the choice of family in modelling was based on frequency distributions, the level of overdispersion, and the best model performance based on the Akaike Information Criterion

(AIC). Response variables including total macroalgae and turf were analysed using the beta-binomial regression family with zero-one inflated percent cover data.

Sampling event and treatment were considered random factors and location was treated as a fixed factor. The employed methods are resilient to many of the issues affecting this dataset including non-normality (strong zero-bias), heteroscedacity (differing levels of variation associated with treatments), and unforeseen design imbalance[2].

For the proportions of bleached hard and soft corals, images without coral were included as zero counts of bleaching. The vast number of zero values (particularly in 2019) created issues with glm model convergence due to the zero-inflation estimate approaching zero and due to a near-zero dispersion estimate. Differences in the proportions of bleached corals at locations in 2020 were investigated with a simple Kruskal-Wallis test and Wilcoxon rank-sum tests in R.

The BACI framework will be used subsequently to interrogate the interaction between treatment (remediation, nearfield and control) and survey event (effectively before and after remediation). A significant interaction in these terms, specifically a reduction sensitive receptor cover at test sites relative to controls, would be interpreted as an impact potentially related to remediation, or vice versa for increases in the cover of sensitive receptors.

In the present study, changes among locations and survey events were the primary interest. Multiple comparisons among sites and events were investigated with the enmeans package, and graphs were produced with ggplot2 in R.

[2] There is the potential for different levels of replication between “test” (remediation and nearfield) and reference locations depending on the nature of remediation and the types of future comparison being made.

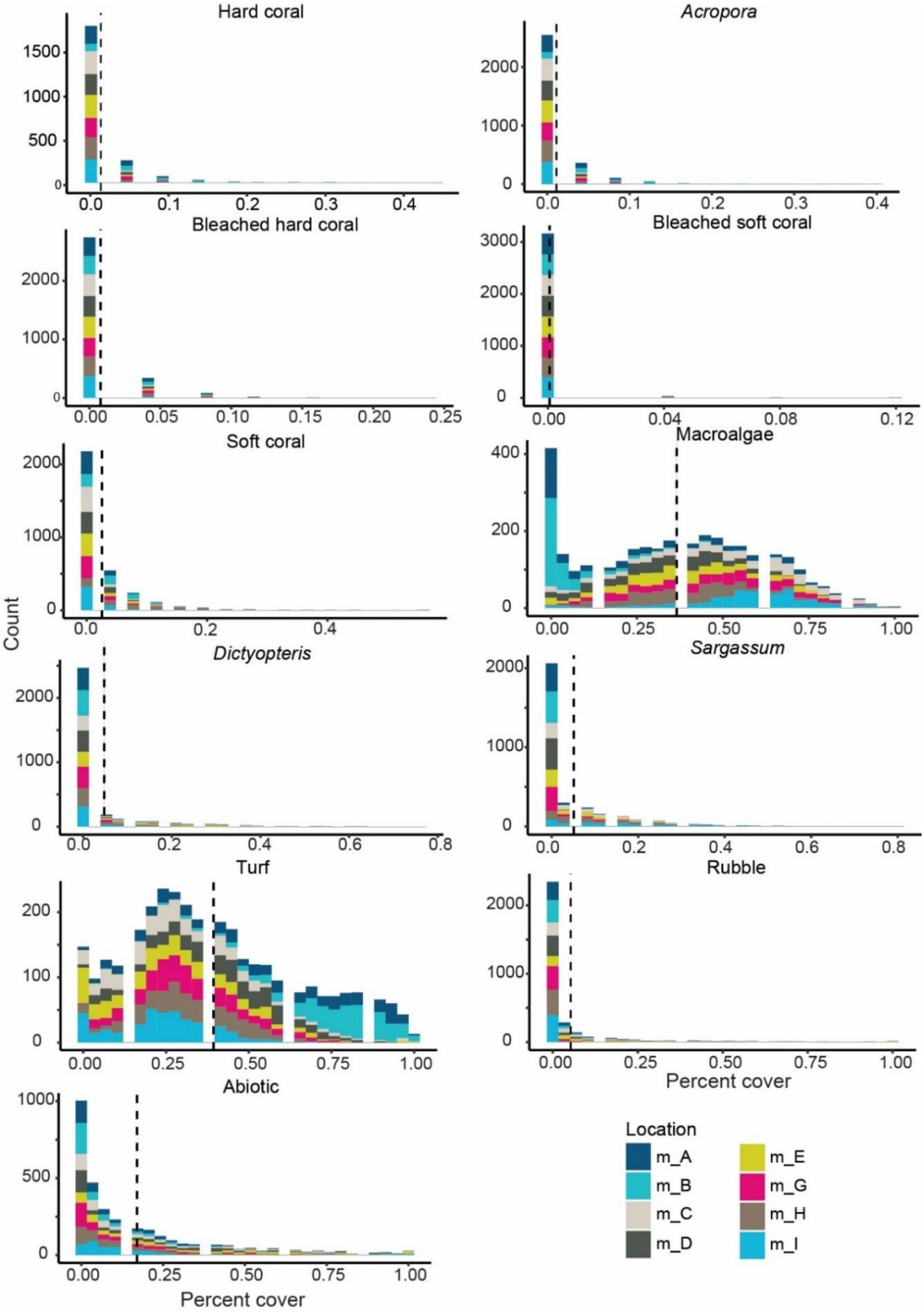


Figure 4-18 Frequency distributions of cover for key epibenthic classes

Multivariate Analyses

Patterns in benthic assemblages were examined using multivariate procedures described by Clarke (1993). All multivariate analyses were done using the software package Primer Version 6.

For all analyses, raw data were initially transformed (Log [x +1]) to weight less abundant benthic classes, and similarity matrices were generated using the Bray-Curtis measure of association. This measure performs consistently well in analyses of ecological data sets (Faith *et al*. 1987; Clarke 1993). Similarity matrices were generated from: (i) non-averaged data (i.e. samples not averaged at the location level) and (ii) data averaged by location and time period.

Site Averaged Data

Spatial and temporal variation in the assemblages were presented graphically using non-metric multidimensional scaling (nMDS) ordinations and cluster analysis (Clarke 1993; Clarke and Ainsworth 1993). Major groupings produced by cluster analysis (group average linking, 70% Bray Curtis similarity) were superimposed on the ordination. Arrows linking were superimposed on the ordination to illustrate the temporal trajectory and magnitude of variation (distance) in benthic assemblages within sites. SIMPROF permutation tests (Clarke *et al*. 2008) were conducted to identify statistically significant evidence of underlying structure among groups produced by cluster analysis.

A stress value was presented for the ordination as a measure of how well it satisfied all the conditions of its rank similarity matrix. This value is not indicative of any measure of environmental stress, rather, a value of <0.1 indicates that the ordination has represented accurately the relationships among the samples, but values closer to 0.2 indicate that the ordination may have misrepresented the data in high dimensional space.

Non-averaged Data

High heterogeneity in assemblage structure can be a symptom of ecosystem stress (Warwick and Clarke 1993). Multivariate dispersion was therefore examined to explore within-location variability in assemblages, specifically whether there was any evidence of higher dispersion at remediation locations. The dispersion sequence was calculated to determine multivariate dispersion within locations at each time (see Warwick and Clarke 1993). The analysis was calculated from the similarity matrix generated using non-averaged data, and specifically considers dispersion (variability in assemblages) among replicate transects within locations.

A two-way crossed analysis of similarity (ANOSIM - Clarke 1993) was used to assess variation in assemblages among locations and sampling episodes. SIMPER was undertaken to assess benthic classes contributing most to differences between sampling episodes within locations.

4.2.2 Spatial Patterns

Georeferenced cover metrics were projected as points and as gridded interpolations to show the cover of coral and other major benthic cover categories spatially. These were used to prepare thematic cover maps for key epibenthic indicators in each location.

4.2.3 QAQC

Epibenthic identifications were performed by three ecologists with differing levels of identification experience. QA/QC procedures were designed to compare observer 1 (the most experienced observer) with the other ecologists and ensure all three observers were adhering to identification conventions described in the section above.

Subsets of 20 images from a range of locations were enumerated by two combinations of observers (image pair 1 vs 2, and image pair 1 v3). The results were compared, particularly for classifications with elements of subjectivity, such as differences between bleached and un-bleached corals; and between turf and macroalgal assemblage. Figure 4-19 shows the improvement in classification consistency between pairs of observers. After the second QA/QC results were deemed sufficiently similar for observers to complete annotation of the remaining image set.

It should be noted that any difficult or obscured identifications were left for observer 1 and identification consensus communication between observers continued for the duration of annotation. Also, once sufficiently trained, annotation suggestions from CORALNET provided a useful tool for maintaining consensus identifications though continuous training of the image set.

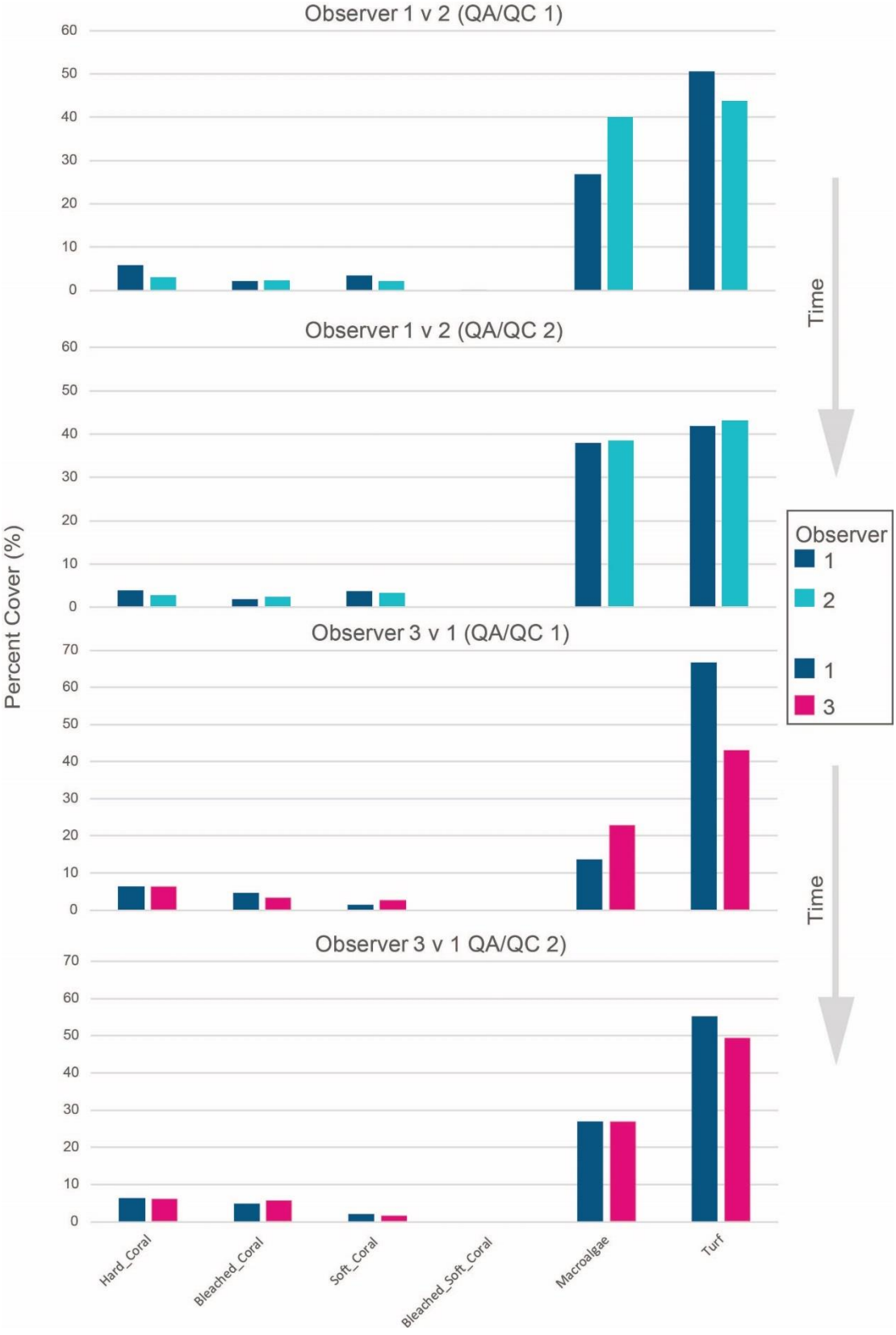


Figure 4-19 Epibenthic QA/QC results for subjective classifications

4.2.4 Fish Communities

EventMeasure was used to calibrate imagery, enumerate communities, and measure fish. Only the first 30 minutes of footage was analysed from each deployment. Simultaneous short deployments within each location were designed to reduce the incidence of recording the same individuals in different replicate units.

Fish larger than 20 cm total length (Figure 4-20) were measured from the point of MaxN (the point in time when the largest number of individuals for a given species were observed). Biomass for each individual was calculated using published length to weight relationships from Fishbase and published literature values. Where relationships were missing for certain species, congener relationships were used instead. Elasmobranch biomass was separated from teleost (bony fish) biomass, given the relative scarcity of elasmobranchs and very large impact of a single elasmobranch observation on biomass overall.

The following metrics were derived from the dataset for analysis:

- Richness
- Diversity (Simpson's D)
- Abundance (the sum of the highest number of fish observed for each species [maxN])
- MaxN of key taxa including tuskfish (*Choerodon venustus*), collared sea bream (*Gymnocranius audleyi*), species of unicornfish (*Naso* spp), and red-throated emperor (*Lethrinus miniatus*)
- Biomass of prominent taxa including *C. venustus* and elasmobranchs
- And the biomass of fish greater than 20 cm (B20).

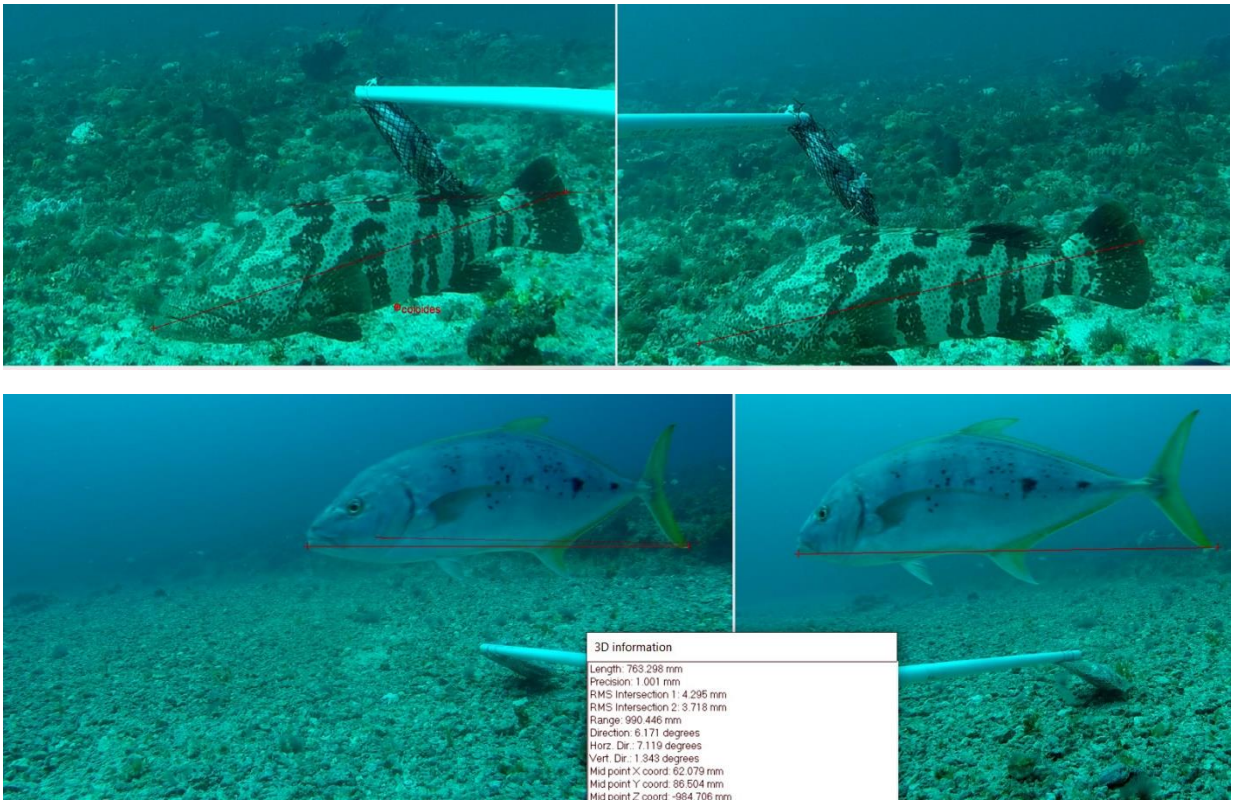


Figure 4-20 Example total length measurements for fish with convex (above) and forked tails (below)

Univariate Analyses

Each BRUV deployment served as a unit of replication for use in BACI analyses. Univariate metrics (B20 biomass, abundance, richness, Simpson's diversity) were analysed using the generalised linear mixed model package (glmmTMB) in R (Brooks *et al.* 2017).

Frequency distributions for each variable were generated; response variables with a strong zero-bias were analysed using error structures belonging to a truncated Poisson or negative-binomial distribution, depending on the level of dispersion. Zero-inflated count data were used and the choice of family in modelling was based on frequency distributions, the level of overdispersion, and the best model performance based on the AIC. Simpson's diversity was analysed with the gamma distributed regression family.

Sampling event and treatment were considered random factors and location was treated as a fixed factor. The BACI framework will be used subsequently to interrogate the interaction between treatment (remediation, nearfield and control) and survey event (effectively before and after remediation). A significant interaction in these terms, specifically a reduction sensitive receptor cover at test sites relative to controls, would be interpreted as an impact potentially related to remediation, or vice versa for increases in the cover of sensitive receptors.

In the present study, changes among locations and survey events were the primary interest. Multiple comparisons among sites and events were investigated with the enmeans package, and graphs were produced with ggplot2 in R.

Multivariate Analyses

All multivariate routines were conducted using the PRIMER v7 software. For all analyses, raw data were initially transformed (fourth root) and similarity matrices were generated using the Bray-Curtis measure of similarity. Similarity matrices were generated from: (i) non-averaged data (i.e. data not averaged at the location level) and (ii) data averaged by location .

Site Averaged Data

Spatial and temporal variation in the assemblages was presented graphically using nMDS ordination and cluster analysis. Major groupings produced by cluster analysis (50-55% Bray Curtis similarity) were superimposed on the ordination. Arrows linking locations across time trajectories (i.e. survey 1 to survey 2) were superimposed on the ordination to illustrate the temporal trends and magnitude of variation (distance) in fish assemblages within sites.

Non-averaged Data

High heterogeneity in assemblage structure can be a symptom of ecosystem stress (Warwick and Clarke 1993). Multivariate dispersion was therefore examined to explore within-location variability in assemblages, specifically whether there was any evidence of higher dispersion for the various factors (i.e. survey times, locations treatments). The dispersion sequence was calculated to determine multivariate dispersion within locations at each time. The analysis was calculated from the similarity matrix generated using non-averaged data (i.e. full replicated dataset).

A two-way crossed analysis of similarity (ANOSIM was used to assess variation in assemblages among locations and survey times. SIMPER was undertaken to assess the fish species contributing most to differences between surveys and within locations.

Identification Conventions

Fish that were too distant to be accurately identified were not included until their identity could be confirmed. Frame grabs of some distant fish were taken into Adobe Photohop for colour correction and enhancement to assist with identification. Small juvenile *Choerodon* and *Lethrinus* that were unable to be identified were classified as sp. of their respective genera. It is likely that *Lethrinus rubrioperculatus* and *L. ravus* were both present but could not be distinguished, therefore all individuals were typed as *Lethrinus rubrioperculatus.* Similarly, most small blue pomacentrids with or without white markings were considered all as *Pomacentrus australis,* and while the species displays significant phenotypic variability, it is likely that this taxon contained other pomacentrid species. All cardinalfish (apogonids) were typed as *Apogon* sp due to their small size and usual distance from the camera.

QAQC

All BRUV analyses and identifications were performed by marine ecologists with PhD qualifications in the field of coral reef fish ecology. Tentative or uncertain identifications were cross referenced between both ecologists so that there was consensus in identification.

Length measurement accuracy was assessed by analysing measurement error of a 37 cm calibration device. This was expressed as a percentage of the total length based on 10 measurements at the point of initial calibration and at the end of the campaign. These varied between 0.8 and 2% initially and increased to between 2.1 to 4.4% by the end of each campaign.

Table 4-2 BRUV unit start and final measurement error estimates

Rig	Initial Error (average % of 37cm length)	Final Error (average % of 37 cm length)
Event 1 (2019)		
1	1.48	2.86
2	0.81	3.96
3	2.03	4.42
Event 2 (2020)		
1	1.04	2.10
2	0.91	4.25
3	1.17	3.33

Root mean square (RMS) error was estimated for each of the length measurements made with EventMeasure. These are shown in Figure 4-21 in relation to the range (distance of target to camera) and fish total length. These figures show that measurement error was relatively unaffected by range, while greatly affected by fish length.

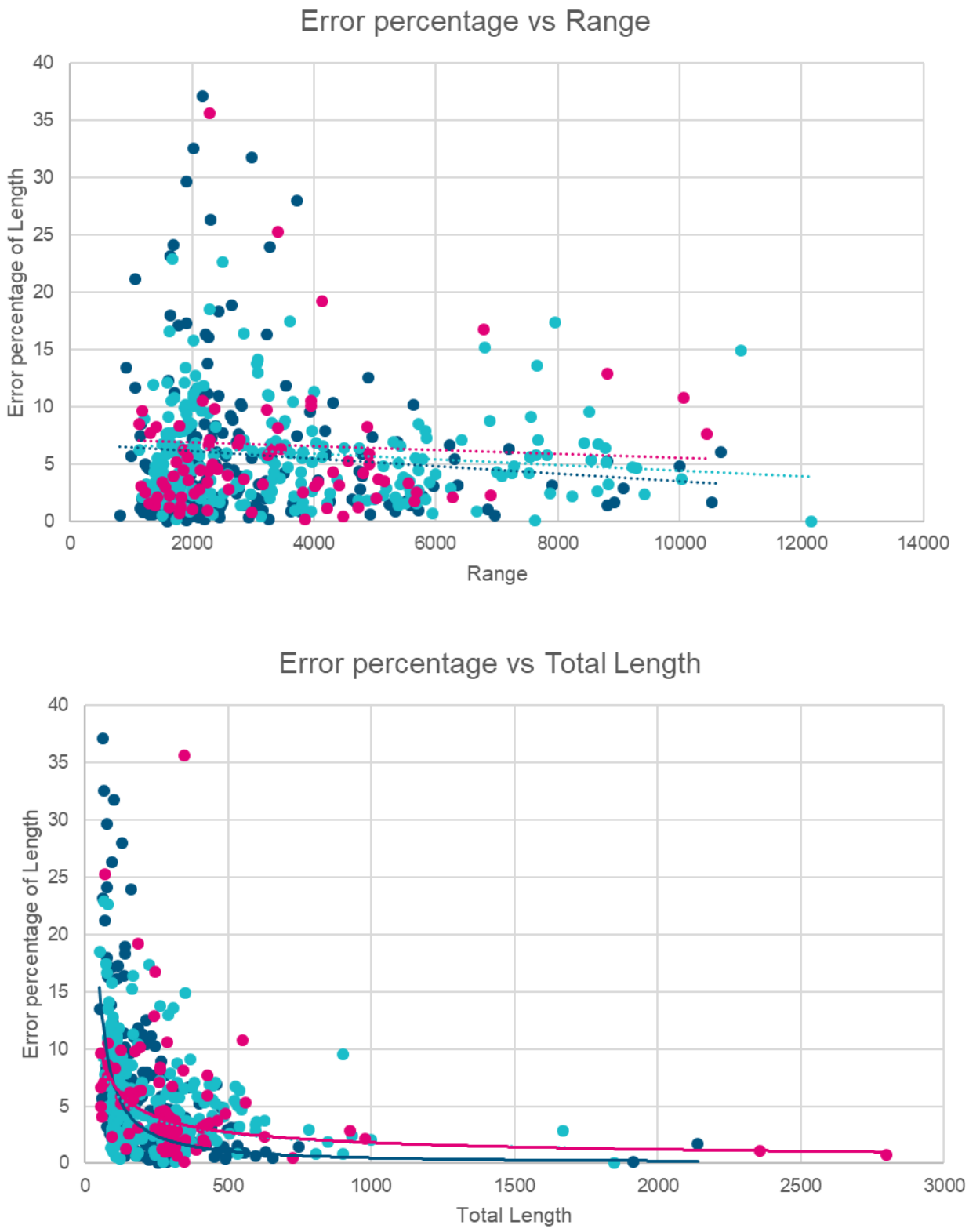


Figure 4-21 RMS error for each rig (aqua, blue, pink) as a function of range (distance from BRUV, above) and total length (below)

4.2.5 Contaminant Concentrations

Biotic Tissue

Mean (± SE) concentrations of TBT, copper and zinc in tissue samples from ascidians, macroalgae and fish were calculated and graphed in R. Each tissue sample served as a unit of replication for use in separate BACI analyses for each response variable. Concentrations of copper and zinc were analysed using the generalised linear mixed model package (glmmTMB) in R (Brooks *et al.* 2017).

Frequency distributions for each variable were generated for each response variable which were then analysed with the gamma distributed generalised linear models. Sampling event and treatment were considered random factors and location was treated as a fixed factor.

Sediment

The percentile distribution for metals/ metalloids and other parameters were visually inspected on box and whisker plots to observe the percentiles and standard deviations of the compounds. Concentrations of metals/ metalloids were compared to screening levels in ANZG (2018). Particle size percentages were also visually inspected for comparisons between sites.

QA/QC assessments of field and laboratory procedures were made following the methods outlined in NAGD (2009), with fine-scale spatial replication (duplicate samples) taken at 10% of sites and sample triplication (testing for laboratory variation) at 5% of sites. Relative percent differences (RPD) for duplicates and relative standard deviation (RSD) for assessments were made against criteria based on mean concentrations and the limit of reporting (LOR), detailed further in section 5.6.1.

Additional assessments of reported lab concentrations were made by submitting certified reference materials (CRM) for marine sediments including MESS-4 and PACs-3 (Marine Sediment Reference Material for Trace Metals and other Constituents) and SOPH-1 (Marine Sediment Certified Reference Material for the Determination of Butyltin Compounds). RPD calculations were also made between certified concentrations and laboratory results of CRMs.

Water

Water contaminants were visually inspected against levels of reporting, Australian and New Zealand Guidelines for high ecological conservation in marine water (99% species protection) (ANZG 2009) and the tributyltin oxide chemical assessment by the World Health Organisation (WHO 1999).

4.2.6 Rugosity and Depth

Multibeam survey data were adjusted to the Lowest Astronomical Tide (LAT) based on tidal planes for Tyron Island tide station (1.63m below Mean Sea Level [MSL]). Horizontal data were referenced to UTM Zone 56S, WGS84. Depths at Haberfield Shoal were gathered by querying the GBR 30m digital elevation model provided by Geoscience Australia (2017). A 1.6 m offset was applied to bring the GBR 30 m depths from MSL to LAT.

Rugosity measurements were made by dividing contoured surface area from the 0.5 m digital elevation model by the horizontal planar surface area of each location using 12D. This was only done for locations at Douglas Shoal. While a division by planar surface would take better

consideration of sloped versus flat areas of interest, the primary comparison of interest will be changes in rugosity within locations, making slope bias of lesser importance.

5 Key Findings

5.1 Epibenthic Cover

5.1.1 General Patterns

In each event 1,600 images were analysed giving 3,200 images across both survey events. The dominant epibenthic cover forms across the locations were macroalgae and turf; however, the degree of dominance varied substantially among different locations (Figure 5-1). Most locations typically were comprised 20-60% total macroalgae, and 20-80% turf (Figure 5-1). Locations that were very high in macroalgae had less turf and vice versa, while combined totals of the two cover forms of cover typically made up 60% to greater than 80%.

Location mB was situated on the southeast extremity of the low-relief terrace and was dominated by turfing algal substrates with relatively high coral cover, particularly tabulate *Acropora* (Figure 5-1). Locations mC and mE, within priority remediation areas had high gravel and macroalgal cover. Location mA at the initial grounding site tended to be relatively mid-range for most cover forms with slightly higher hard coral cover than other grounding locations and more turf than macroalgae. Locations at Haberfield Shoal (mH and mI) basically encompassed the range of variation in major cover forms observed at Douglas Shoal; with mH having the highest cover of hard and soft coral, and mI having among the lowest (Figure 5-1).

Site conditions including swell, waves, visibility, and tides during collection made some of the imagery unusable, leading to less spread of data over locations mE and mD in 2019 and some loss of representation centrally at location mC in 2020 (Figure 5-6 to Figure 5-14).

5.1.2 Univariate Patterns

All major cover type varied between survey events and locations, but there were significant interactions between survey event and location for each cover type (Table 5-1), meaning that temporal changes were inconsistent at some locations. The overall effect of survey event was significant for most cover types, with the exceptions being hard coral, soft coral, gravel, total *Acropora* and *Sargassum.* Interactions for between location and survey event were not significant for *Dictyopteris, Acropora,* hard coral, or turf, while significant interactions were present for the remaining cover types.

For hard coral cover, there were significant differences among locations, with mB, mH, and mG having the highest cover (4-6%), locations mG and mA having moderate hard coral cover (~ 4%), and the remaining locations typically having cover at 2-3% or less. A similar pattern was present for total *Acropora,* except that location mB had ~4% cover while the remaining locations had less than 1.5% *Acropora.*

Other univariate metrics that changed little overall between survey events included *Sargassum* and gravel (Table 5-1). While there was no significant overall effect of event for gravel, there was a significant interaction between location and event, with locations mA, mE, and mC showing increases in gravel between 2019 and 2020. Similarly, for the cover of *Sargassum,* cover increased at location mI, but fell at mE.

Table 5-1 Summary analysis of deviance table for generalized linear models. Significance codes: 0 = *, 0.001 =**, 0.01 = *, 0.05 =.**

Response	Parameter	Chi Sq	df	P>Chi	
Hard coral					
	Location	60.551	7	**1.172e-10**	***
	Event	2.2981	1	0.129	
	Location*Event	5.6990	7	0.575	
Acropora					
	Location	89.573	7	**1.005e-12**	***
	Event	0.302	1	0.058	
	Location*Event	3.300	7	0.856	
Soft coral					
	Location	137.088	7	**<2.2e-16**	***
	Event	0.520	1	0.471	
	Location*Event	67.7089	7	**0.022**	*
Macroalgae					
	Location	226.731	7	**<2.2e-16**	***
	Event	11.990	1	**0.0005348**	***
	Location*Event	21.436	7	**0.0031756**	**
Dictyopteris					
	Location	137.0513	7	**< 2.2e-16**	***
	Event	22.8910	1	**1.715e-06**	***
	Location*Event	9.1086	7	0.245	
Sargassum					
	Location	184.3767	7	**<2e-16**	***
	Event	0.3291	1	0.56617	
	Location*Event	16.0887	7	**0.02432**	*
Turf					
	Location	296.5883	7	**< 2.2e-16**	***
	Event	7.5381	1	**0.006041**	**
	Location*Event	11.9335	7	0.102766	
Abiotic					
	Location	148.540	7	**<2.2e-16**	***
	Event	5.501	1	**0.019**	*
	Location*Event	34.811	7	**1.214e-05**	***
Gravel					
	Location	70.397	7	**1.228e-12**	***
	Event	1.502	1	0.22	
	Location*Event	47.610	7	**4.243e-08**	***

Significant effects of location, event, and the interaction between these two factors occurred for total macroalgae and total abiotic cover. These interactions were driven largely by major increases in abiotic substrates (sand, pavement, and gravel) at mC and mD compared to relatively unchanging abiotic cover at other locations. Similarly, reductions in total macroalgae occurred at locations mD, mG, and mC while macroalgal cover remained steady at other locations (Table 5-1).

The biggest changes in cover between events manifested as major reductions in total macroalgae and *Dictyopteris* and increases in coral bleaching for hard and soft corals. Bleached soft coral cover occurred at similar percentages across all locations within event two, with exception of location mH where it was substantially higher. Changes in bleached coral cover and the proportions of corals bleached are discussed further in section 5.1.5.

Dictyopteris cover decreased across all locations to near zero values in the 2020 survey. Similarly, the cover of *Dictyopteris* fell drastically at all locations, particularly at mE and mC where it made a major contribution to total cover in 2019. These reductions in *Dictyoperis* appear to be commensurate with increases in gravel and turf which both increased in locations mE and mC.

Patterns in these univariate cover metrics based on treatment means are shown in Figure 5-2. Treatment mean cover plots are less complicated, but it should be noted that treatment comparisons as they are currently defined may not eventually be made, depending on the nature of remediation activities and observed plume effects. Figure 5-2 does show that biological indicators with relative stasis between survey events include *Acropora,* total soft coral, turfing algae, and *Sargassum.*

The detailed statistical outputs from these univariate analyses of benthic cover are provided in Appendix B.

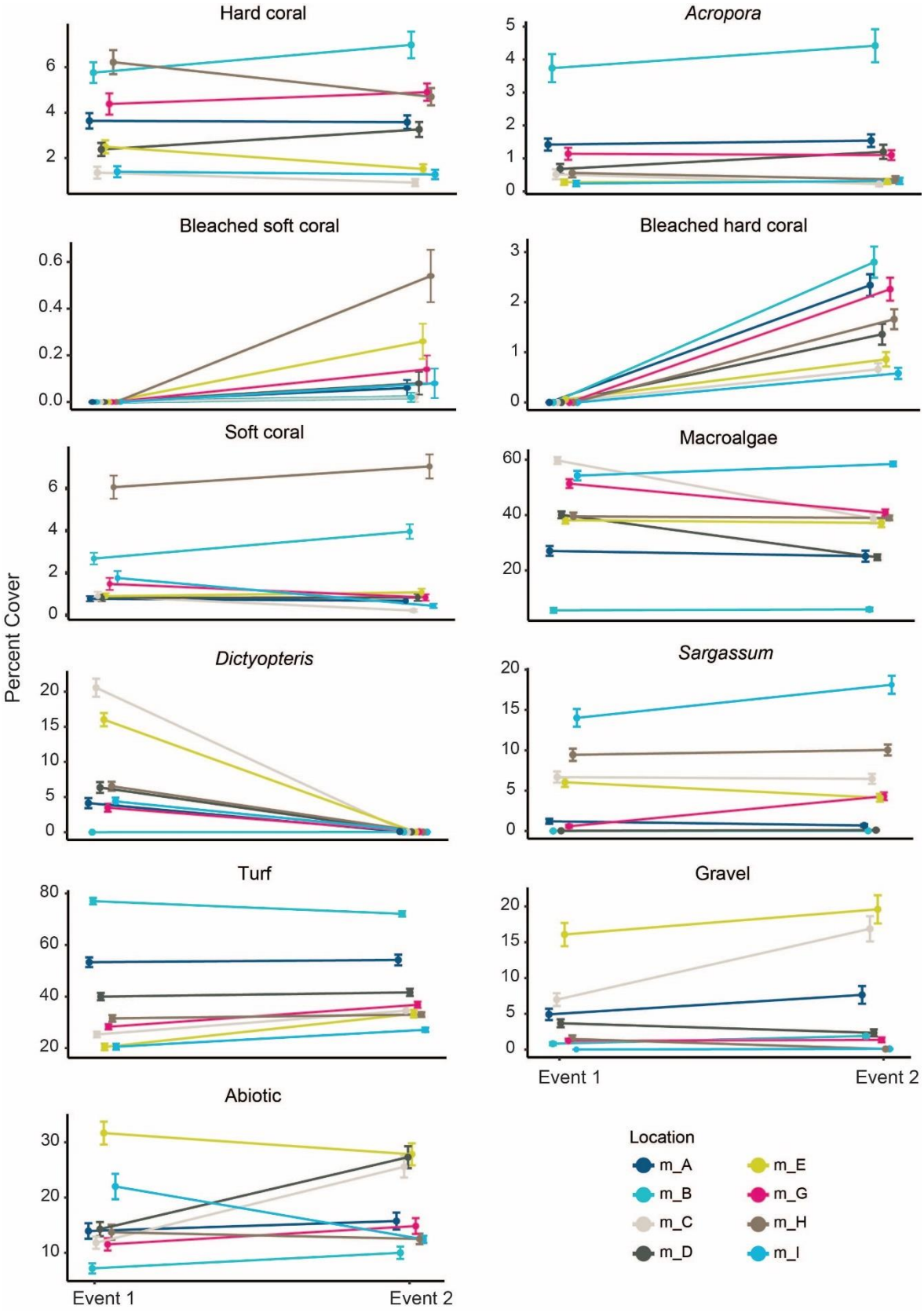


Figure 5-1 Mean (± SE) epibenthic cover between events by location

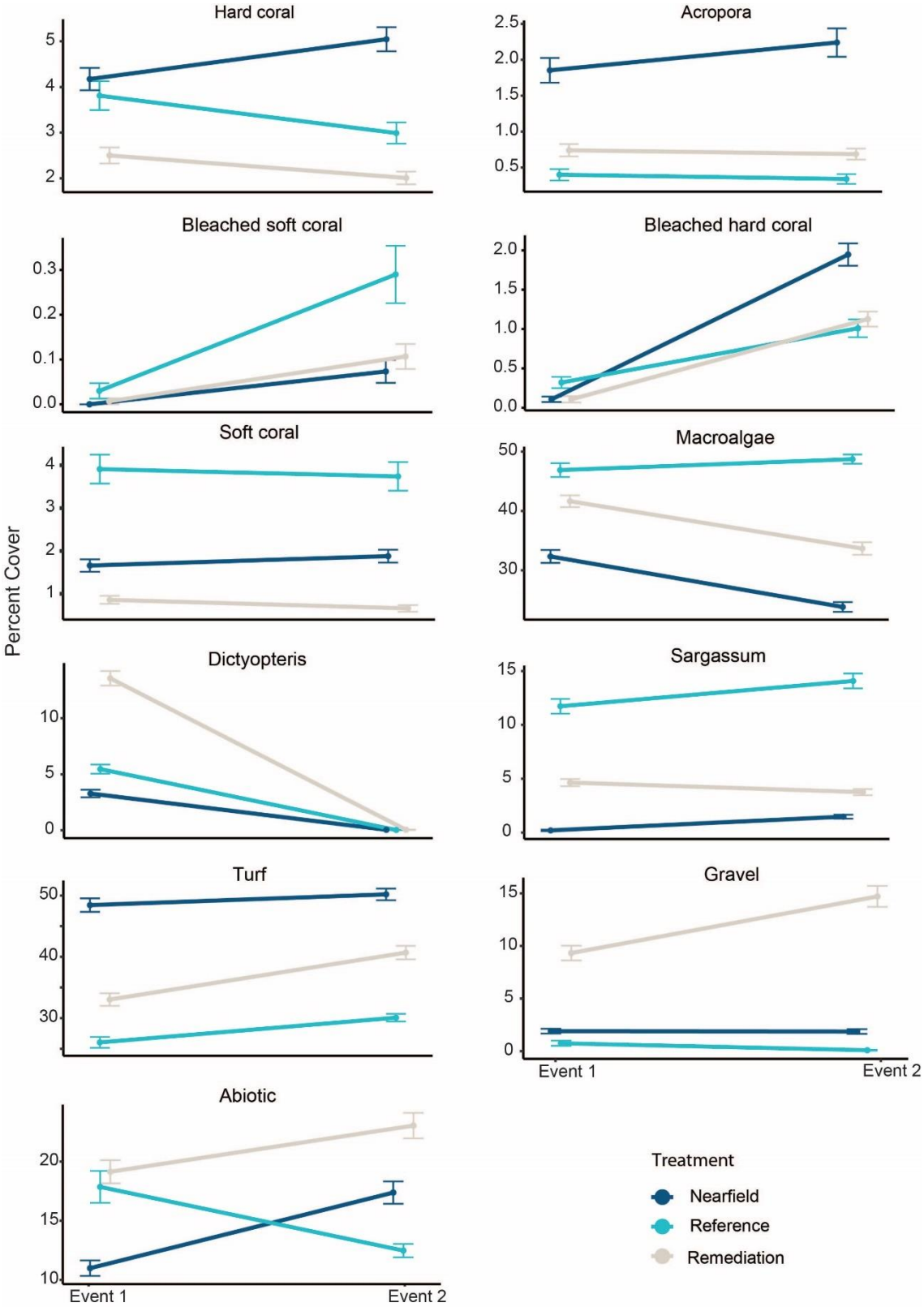


Figure 5-2 Mean (± SE) epibenthic cover between events by treatment

5.1.3 Multivariate Analyses

Multivariate analyses showed that the directional change in benthic community was largely consistent among all the locations, with two major clusters of similarity forming in 2020 around locations with relatively high and low coral cover. Community change was consistently driven by the losses of some macroalgae and the onset of coral bleaching.

A two-way ANOSIM showed that there were significant differences among locations (Global R = 0.266, p<0.001)[3] and events (Global R = 0.171, p<0.001). Based on cluster analysis (Figure 5-3) and nMDS ordination (Figure 5-4), three assemblage groups (A, B, and C) were identified at the 70% Bray Curtis similarity level. SIMPROF permutation tests indicate that the three groups were distinct (Pi >1.5, p <0.001). Groups A and B were comprised of locations sampled in Autumn 2020 (event 2), and Group A was comprised of all locations sampled in Spring 2019 (event 1). Within group B, assemblages at near-field locations were more similar to each other than those at other locations, however this grouping was not observed in Spring 2019. Other locations did not group by treatment.

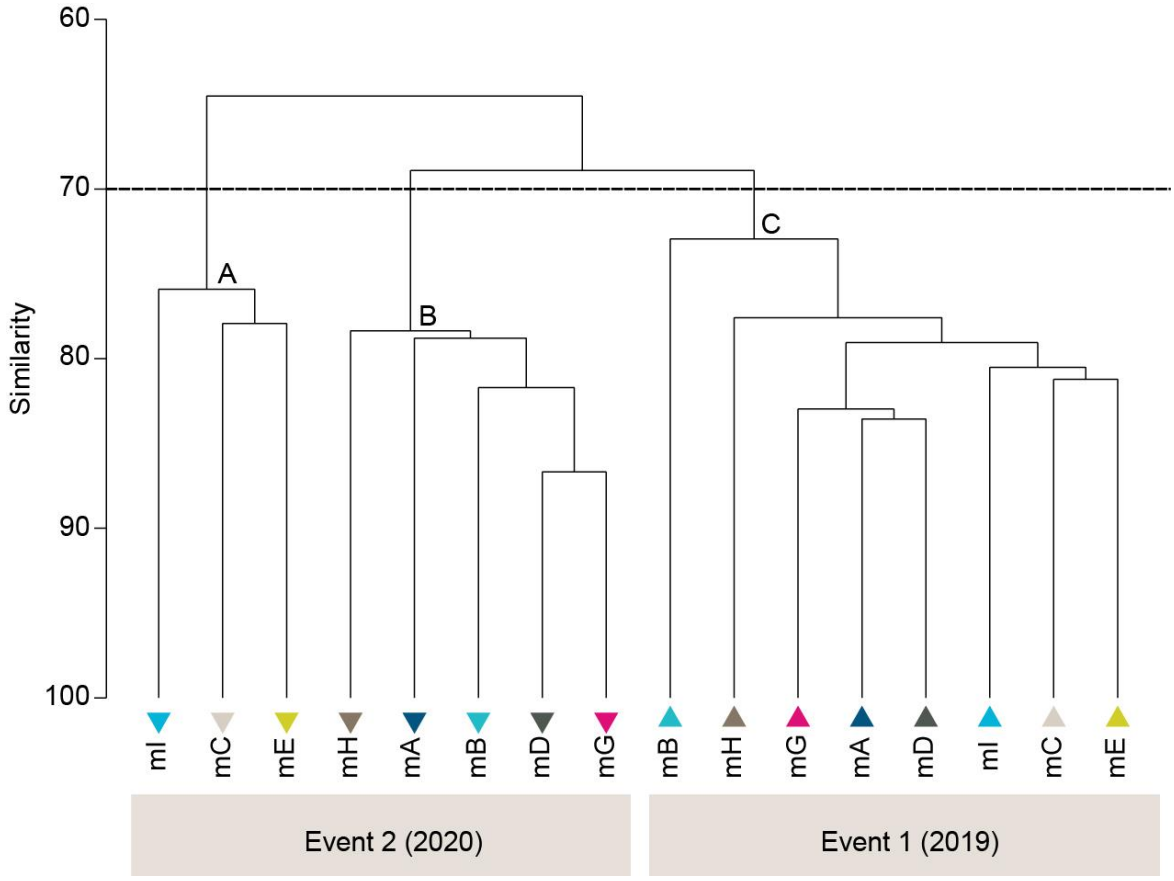


Figure 5-3 Dendrogram for hierarchical clustering of benthic assemblage data averaged within eight locations sampled at two times (group-average linking of Bray-Curtis similarities, fourth root-transformed abundance data). The locations/time groupings correspond to the division line fixed at 70% similarity level

[3] Pairwise tests indicated that there were significant (p<0.001) differences between all site pairs

The nMDS (Figure 5-4) shows the trajectory and magnitude (distance) of temporal variability of benthic assemblages within locations. Temporal patterns in assemblages were consistent in terms of the direction of change, but differed in terms of magnitide. The largest temporal change was observed within remediation locations mC (Bray Curtis similarity = 65%) and mE (Bray Curtis similarity = 67%), which was slightly less than the Bray Curtis similarity values (71-76%) within other locations (Table 5-2).

The shade plot (Figure 5-5) shows that the numerically dominant benthic classes contributing most to differences among locations and over time. There was a reduction in cover of the brown alga brown alga *Dictyopteris* and red alga *Asparagopsis*, and increases in bleached *Acropora* and turf algae, at most locations. Remediation locations C and to a lesser extent E had reduced cover of coralline algae (CCA), healthy *Acropora* and the soft corals *Sarcophyton*, *Sinularia* and *Lobphytum*. SIMPER analysis on the full data set (non-averaged data) shows that changes in various macroalgae groups and non-biotic substrates, were the primary drivers of temporal changes in communities within each location (Table 5-2).

Multivariate disperson (MVDISP) tests were undertaken to examine variation in assemblages within locations at each time, and the resulting dispersion sequence is presented in Table 5-3. There was no evidence that multivariate dispersion among transects within locations differed consistently among treatments.

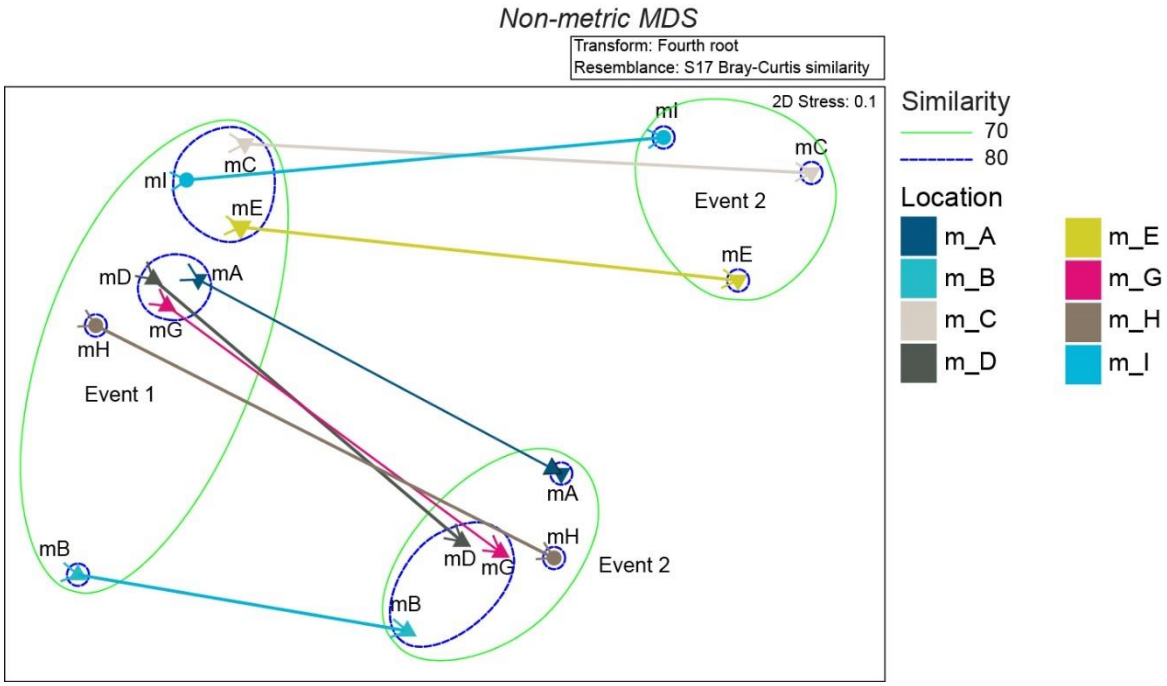


Figure 5-4 Two-dimensional nMDS ordination (stress = 0.10) of the location and event-averaged epibenthic data

Table 5-2 Bray Curtis similarity index between survey events within each location, and main contributing to differences between survey events from SIMPER

Group 1	Group 2	Location x time averaged data	Non-averaged data	
mA_2019	mA_2020	71.57	Macroalgae assem. (8% ↓), Sand (7% ↑)	51.87
mC_2019	mC_2020	65.40	*Dictyopteris* (10% ↓)	45.8
mE_2019	mE_2020	66.64	*Dictyopteris* (9% ↓), Gravel (7% ↓)	52.96
mB_2019	mB_2020	75.98	Macroalgae assem. (6% ↑), Sand (6% ↓)	51.94
mG_2019	mG_2020	71.42	Sand (6% ↓), *Sargassum* (4% ↓)	45.43
mD_2019	mD_2020	72.10	Sand (6% ↓), Pavement (5% ↓)	45.41
mH_2019	mH_2020	72.05	Sand (4% ↑), *Dictyopteris* (4% ↑), Sargassum (4% ↓)	48.87
mI_2019	mI_2020	71.07	Sand (6% ↓), *Sargassum* (6% ↓)	36.90

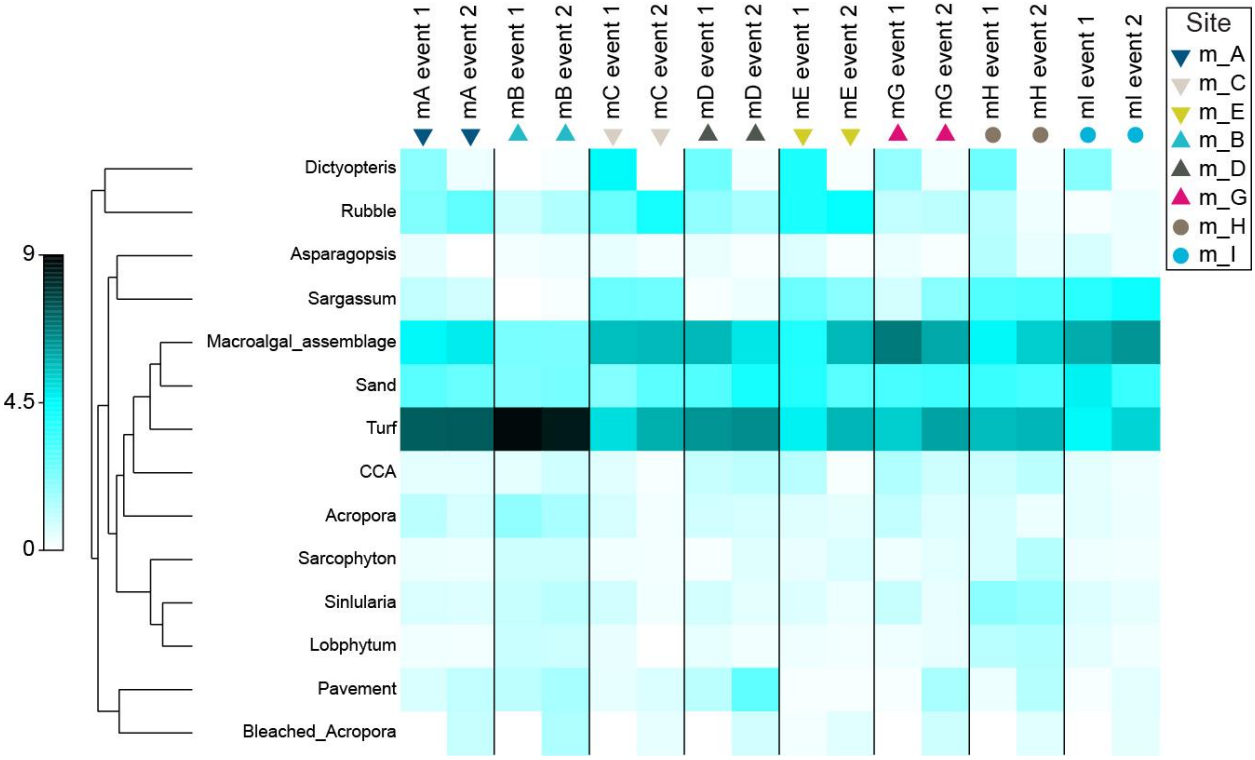


Figure 5-5 Shade plot showing square root transformed abundance of the fourteen most abundant benthic categories based on location and time averaged data

Table 5-3 Multivariate dispersion among samples within locations on each sampling Event

Location	Event	Dispersion
Reference m_I	Autumn 2020	0.297
Remediation m_C	Autumn 2020	0.796
Remediation m_C	Spring 2019	0.82
Remediation m_E	Autumn 2020	0.858
Reference m_H	Autumn 2020	0.941
Nearfield m_G	Spring 2019	0.951
Nearfield m_D	Autumn 2020	0.96
Nearfield m_D	Spring 2019	1.001
Nearfield m_G	Autumn 2020	1.011
Reference m_I	Spring 2019	1.031
Remediation m_E	Spring 2019	1.12
Nearfield m_B	Spring 2019	1.169
Reference m_H	Spring 2019	1.207
Remediation m_A	Spring 2019	1.225
Remediation m_A	Autumn 2020	1.25
Nearfield m_B	Autumn 2020	1.365

5.1.4 Spatial Patterns in Epibenthos

Thematically mapped cover for hard, coral, soft coral, gravel, macroalgae, *Dictyopteris, Sargassum*, turf, abiotic cover, *Acropora*, and bleached hard coral are shown in Figure 5-6 to Figure 5-16. Distinct spatial patterns were evident in some cover categories, between and within locations.

Hard coral cover was typically low overall, with the highest cover points present at locations mH, mB (particularly along the south-eastern margin), and occasionally in mG (Figure 5-6). Low hard coral cover was seen across the majority of mC, mE, and mI, although some higher levels of cover were present along the eastern margin of mE. It should also be noted that a transect line at site mI was taken in the sand channel section of mI in 2019, where there was very little hard coral cover. There was an area of higher coral cover at the margin of the high-relief terrace on location mC but cover here was not as high as the south-east margin in location mB.

The distribution of soft coral cover mimicked that of hard corals, generally at lower cover. Soft coral cover was highest at locations mB and mH with sporadic sparse cover observed at remaining locations (Figure 5-7).

Gravel cover was highest across the remediation locations (mA, mC and mE) with some low percentages observed in the other nearfield locations, while very little gravel was observed at Haberfield Shoal (reference locations) (Figure 5-8).

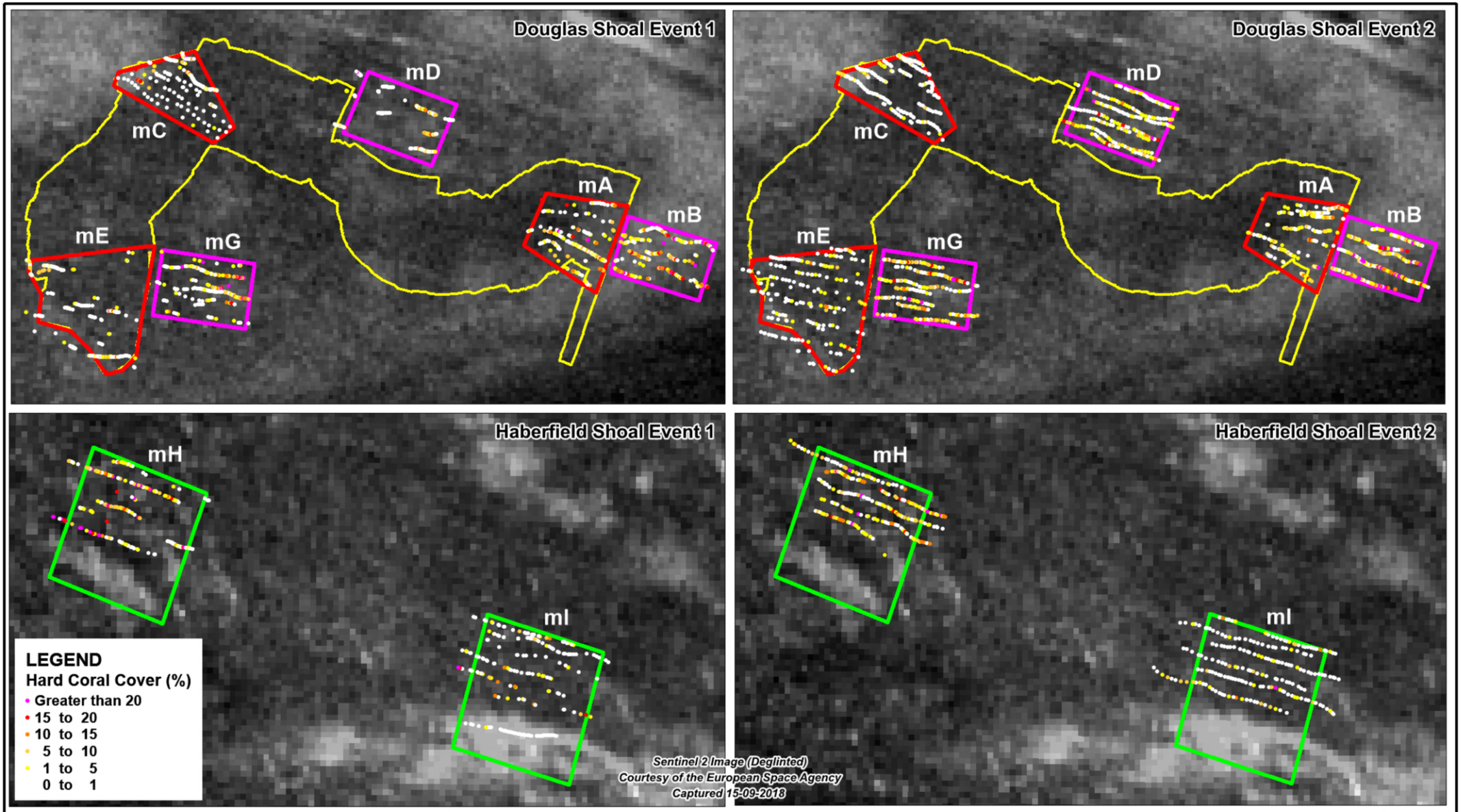
Macroalgal cover was relatively high across all locations apart from mB and the south-eastern portion of mA (Figure 5-9). Places with the highest macroalgal cover included location mI, parts of locations mE and mC, as well as the northern part of mA. Macroalgal cover was significantly different between the locations, the events and the interaction between location and event (Table 5-1).

The cover of *Dictyopteris* was highest in 2019 (event 1), with relatively high cover at remediation locations and some scattered, lower cover across other locations (Figure 5-10). The 2020 event saw a major reduction in *Dictyopteris* cover to almost zero, particularly in areas where there had been a large physical disturbance from the ship grounding.

There was low to moderate *Sargassum* cover across the majority of the locations, excluding mB and mD which very low cover, with fairly minimal spatial changes between events (Figure 5-11). Similarly, turfing algal cover appeared to vary minimally on a spatial scale within locations, with mB having the highest percent cover (Figure 5-12).

Temporal changes in abiotic cover were relatively inconsistent among sites with increases at locations mC and mD, and a decrease at location mI observed (Figure 5-13). Increases at remediation locations appear greatest in areas where the ship sat for long periods and may coincide with the loss of *Dictyopteris* in these areas. Conversely, the reduction in abiotic cover at location mI (and the reference treatment as a whole) likely relate to the inclusion of a transect line over the sand trench in 2019.

The cover of *Acropora* was highest in locations mB and mA at Douglas Shoal, with sporadic sparse cover present at remaining locations (Figure 5-14). While the spatial distribution of *Acropora* was relatively unchanged between survey events, bleached coral showed a major increase in extent in 2020 (Figure 5-16).



LEGEND

Grounding Footprint

Monitoring Locations

Test Locations to be Remediated

Near-field Locations (Not Remediated)

Regional Reference Locations

Title:

Hard Coral Cover Before Remediation

Figure: 5-6

Rev: A

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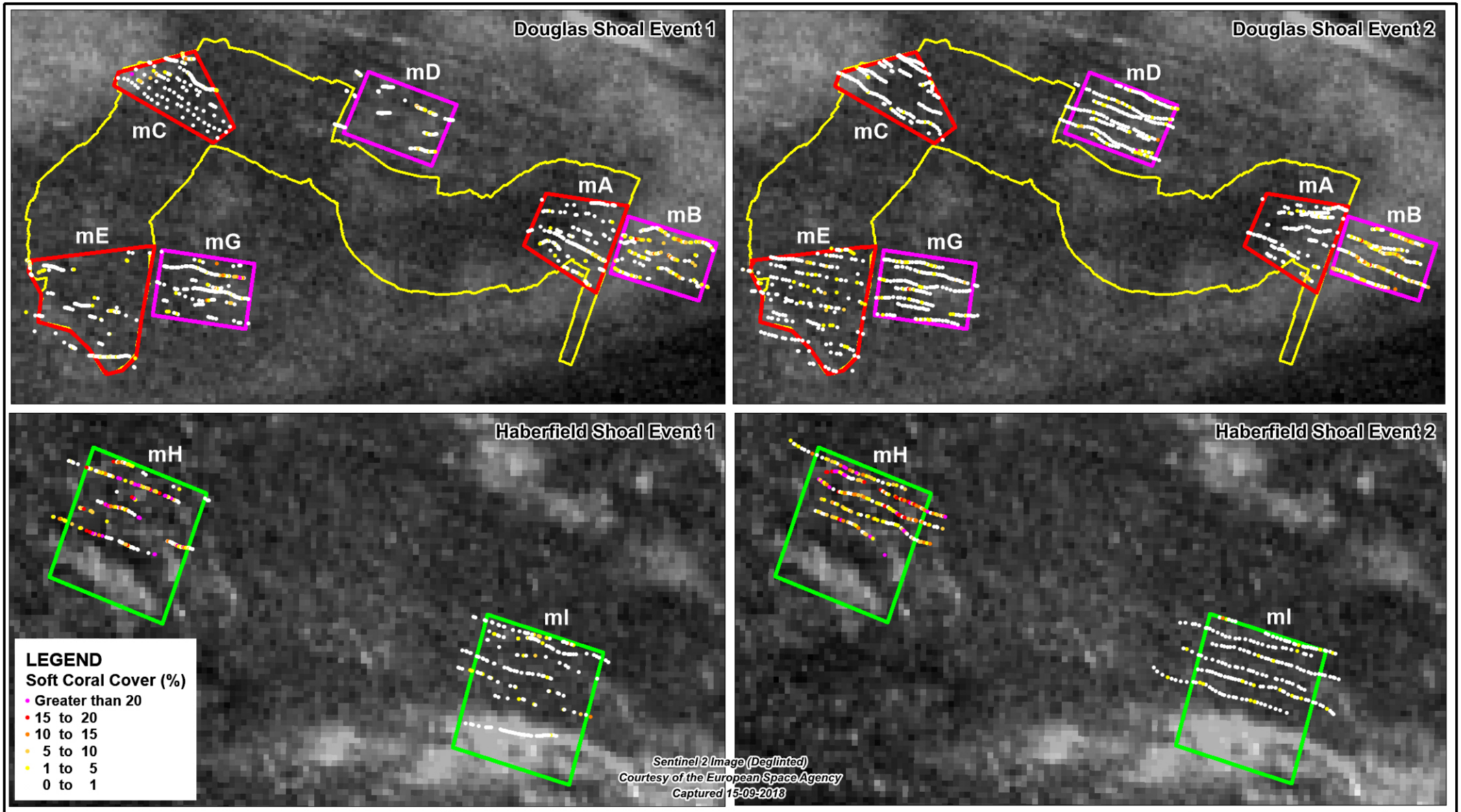
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0 200 400m
Approx. scale Douglas Shoal

0 150 300m
Approx. scale Haberfield Shoal

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LEGEND

Grounding Footprint

Monitoring Locations

Test Locations to be Remediated

Near-field Locations (Not Remediated)

Regional Reference Locations

Title:

Soft Coral Cover Before Remediation

Figure: 5-7

Rev: A

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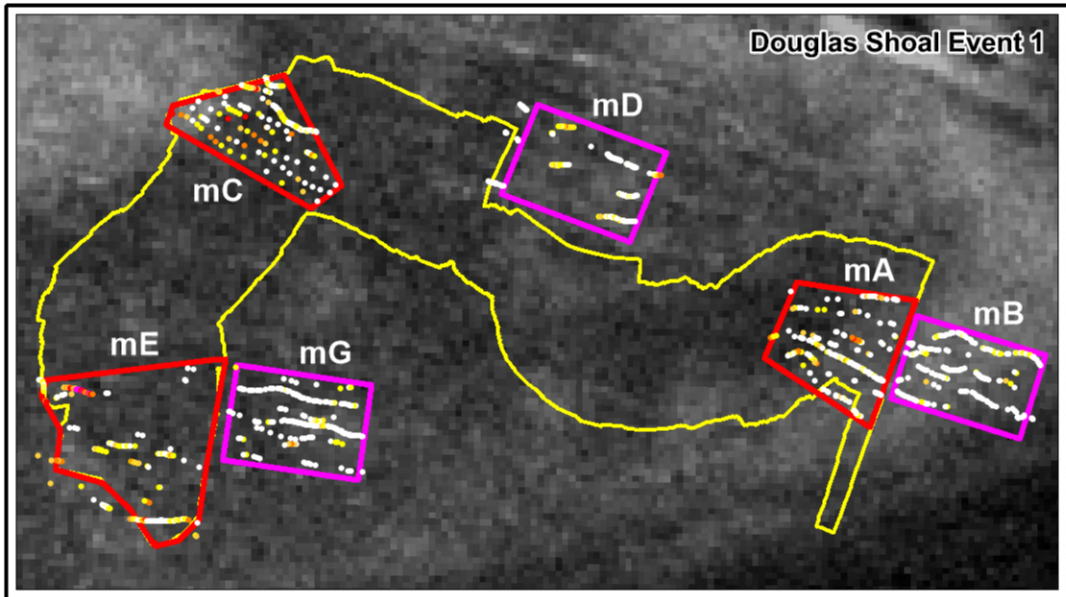
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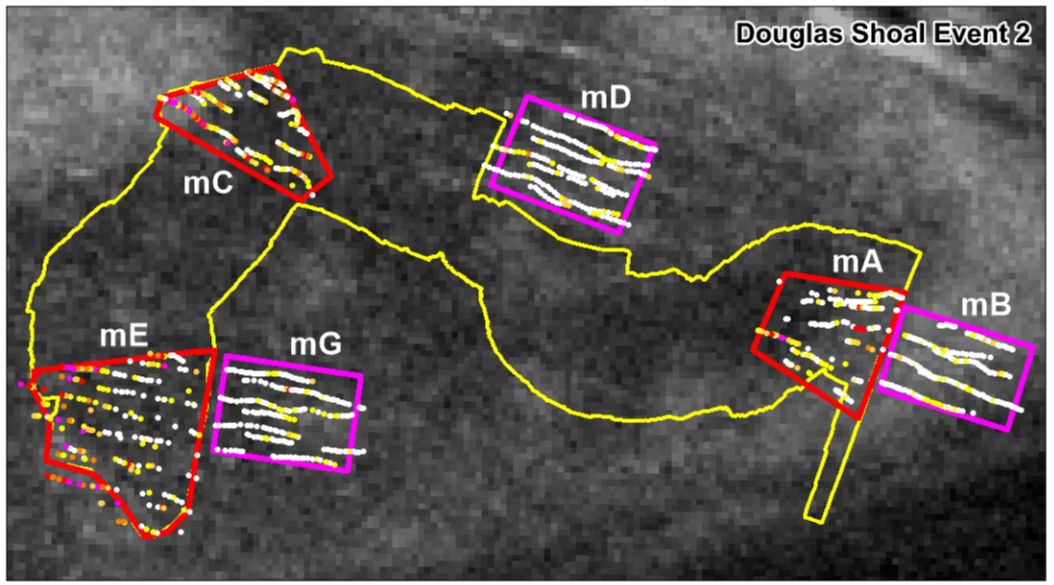
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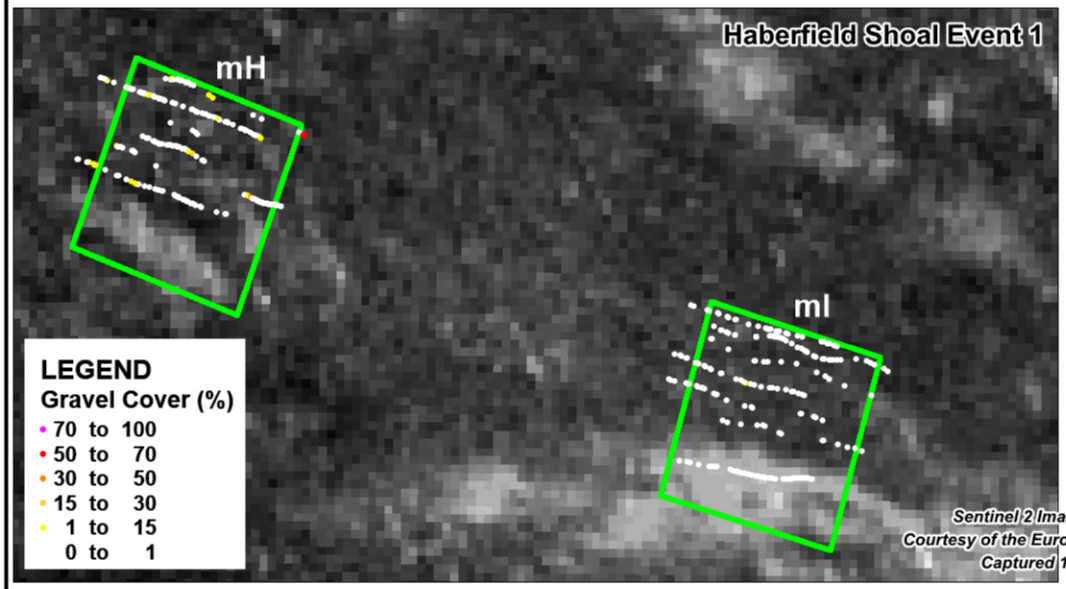
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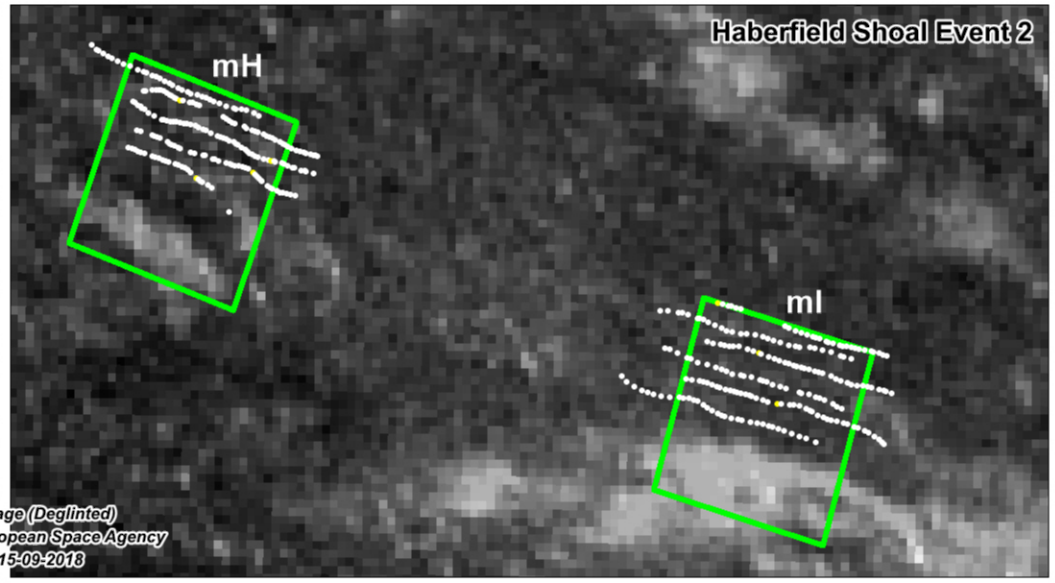
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LEGEND

Grounding Footprint

Monitoring Locations

Test Locations to be Remediated

Near-field Locations (Not Remediated)

Regional Reference Locations

Title:

Gravel Cover Before Remediation

Figure: **5-8**

Rev: **A**

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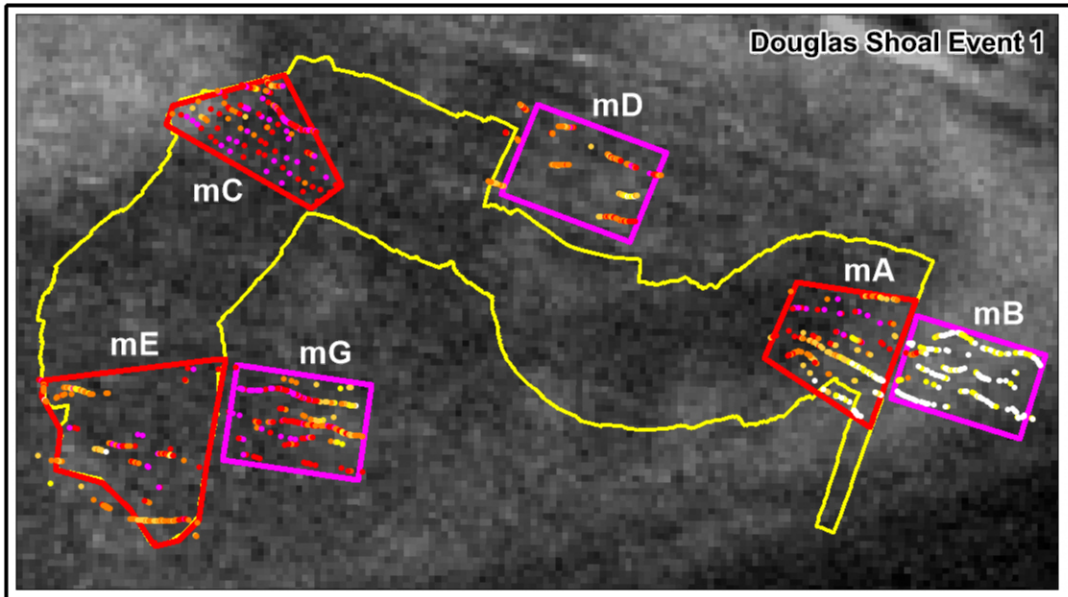
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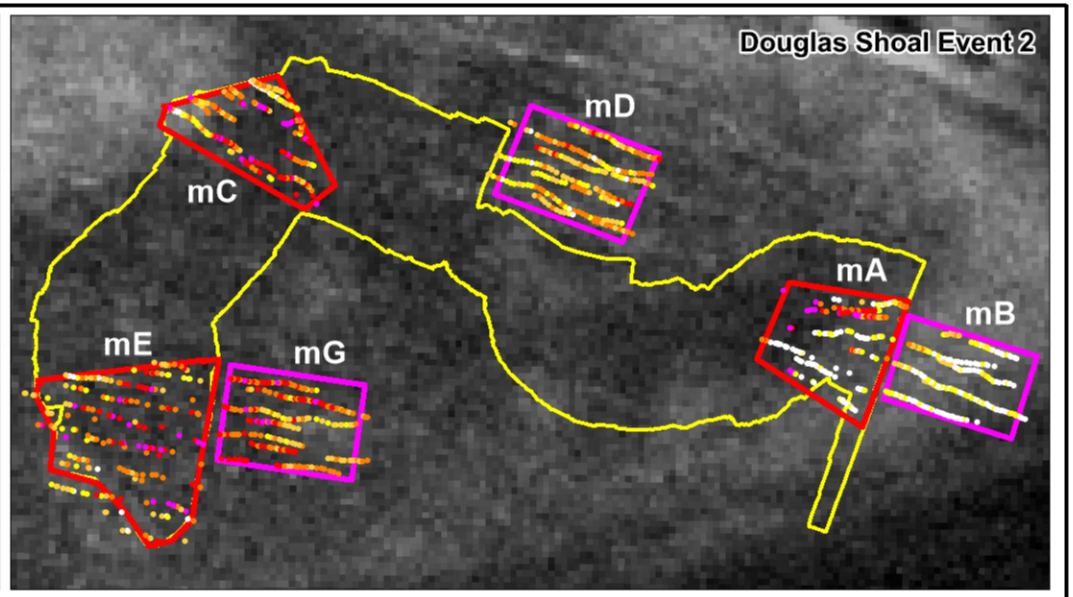
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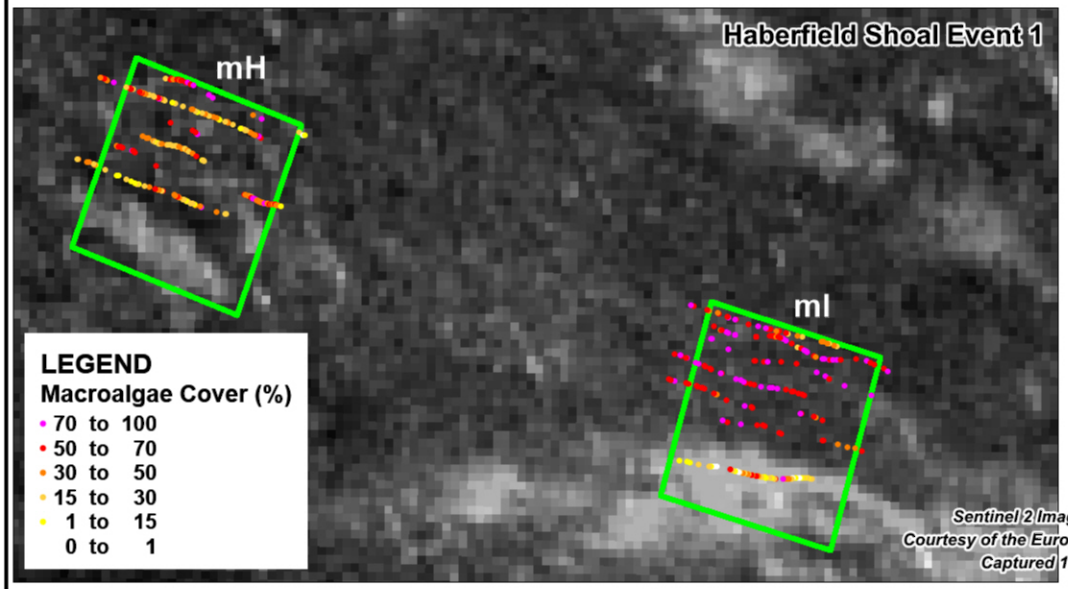
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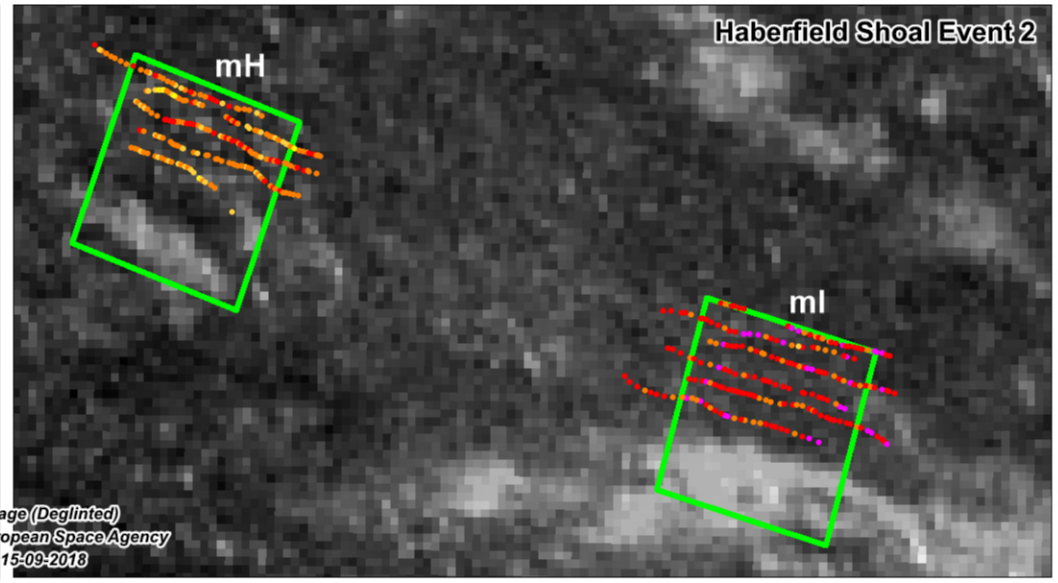
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LEGEND

Grounding Footprint

Monitoring Locations

Test Locations to be Remediated

Near-field Locations (Not Remediated)

Regional Reference Locations

Title:

Macroalgae Cover Before Remediation

Figure: **5-9**

Rev: **A**

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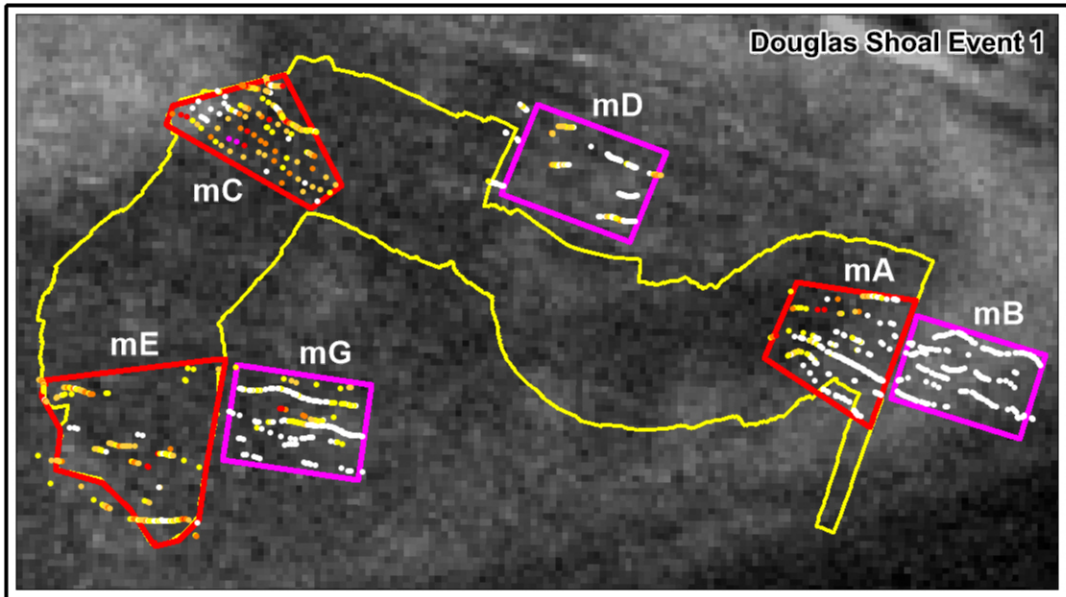
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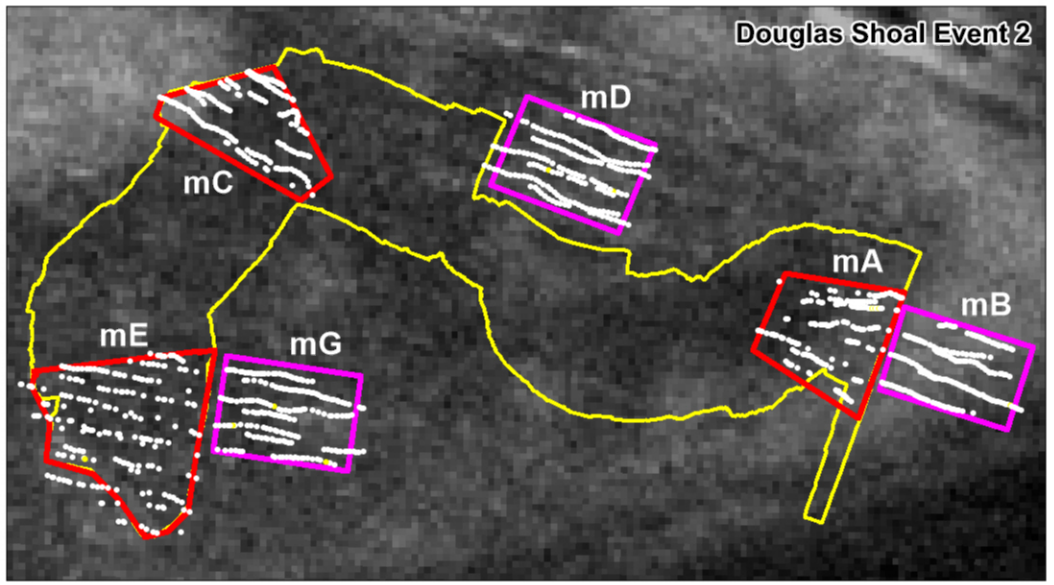
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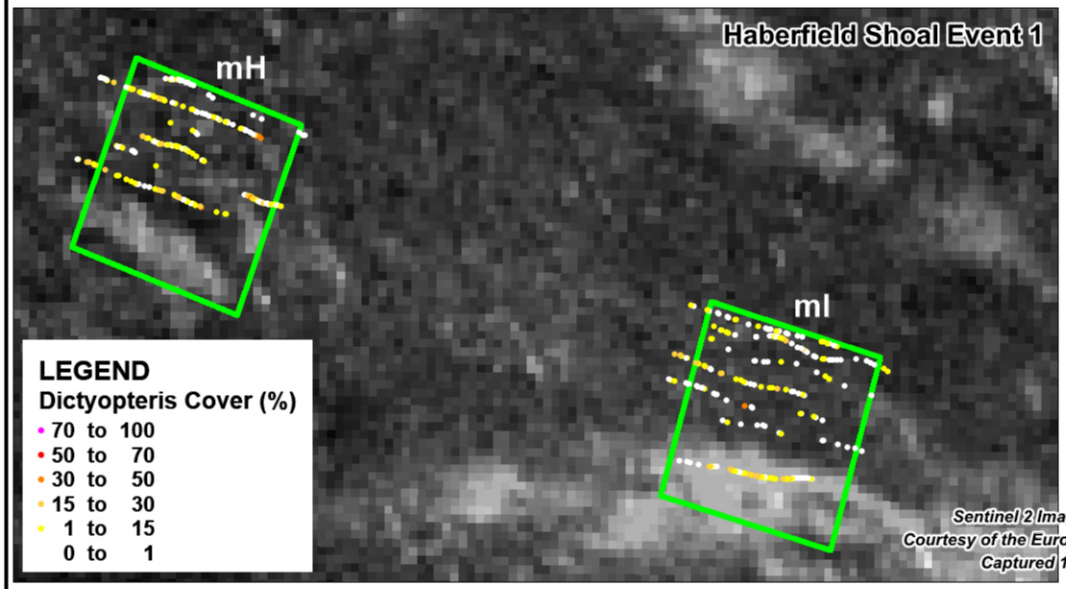
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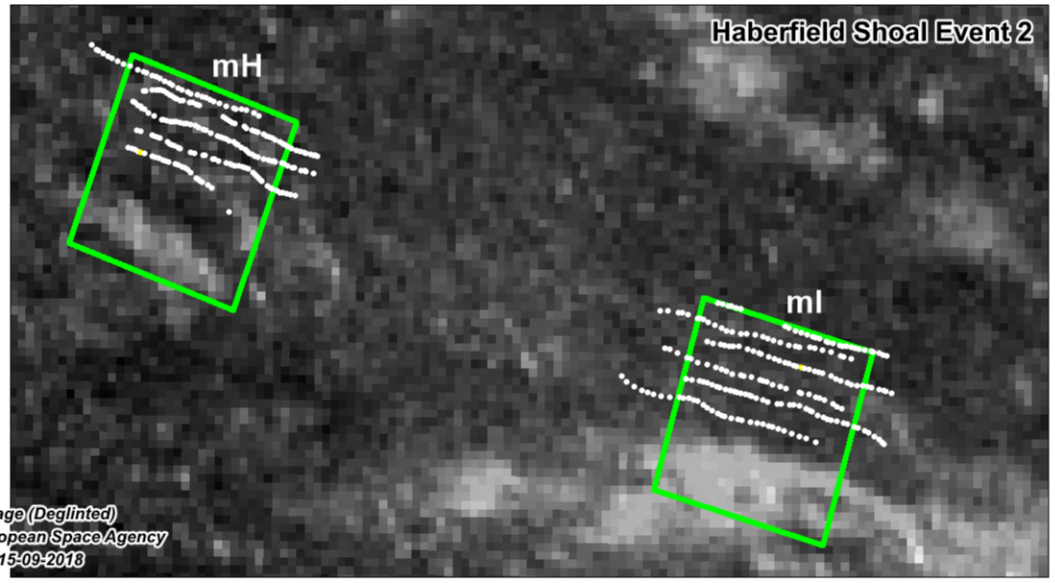
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LEGEND

Grounding Footprint

Monitoring Locations

Test Locations to be Remediated

Near-field Locations (Not Remediated)

Regional Reference Locations

Title:

Dictyopteris Cover Before Remediation

Figure: 5-10

Rev: A

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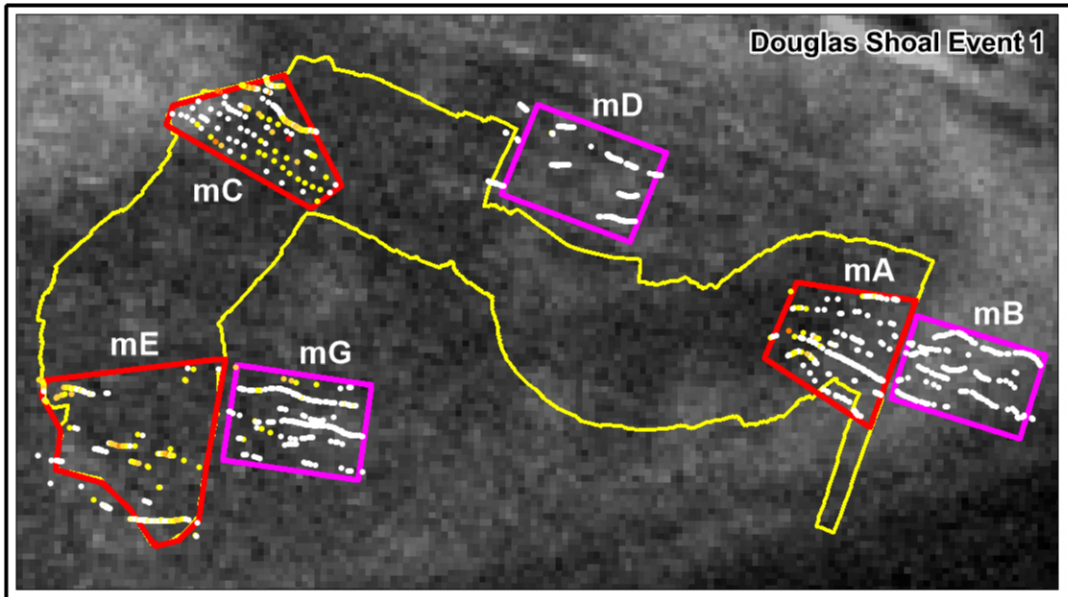
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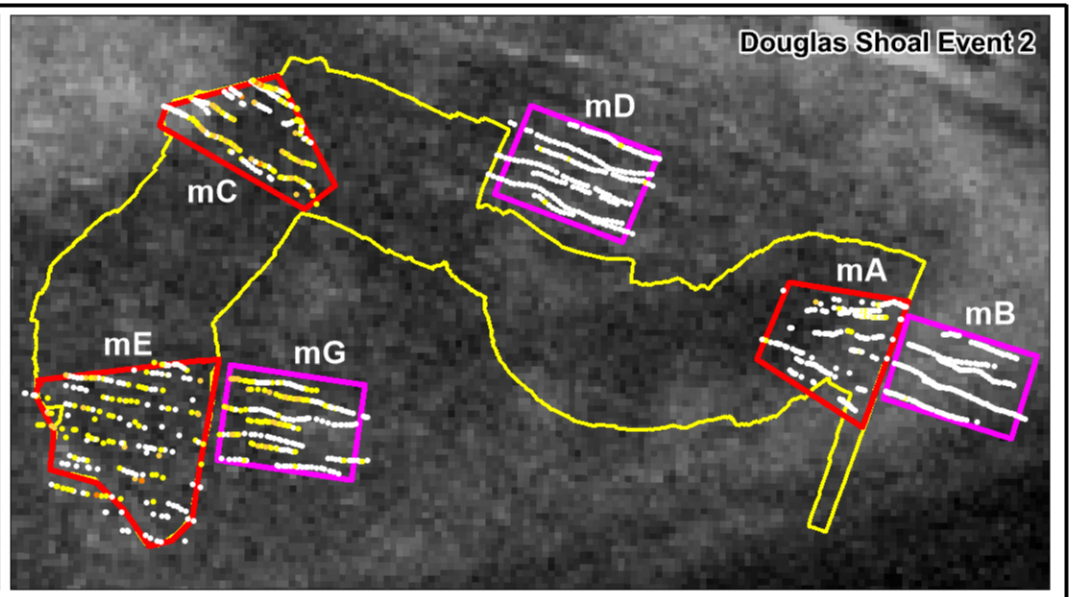
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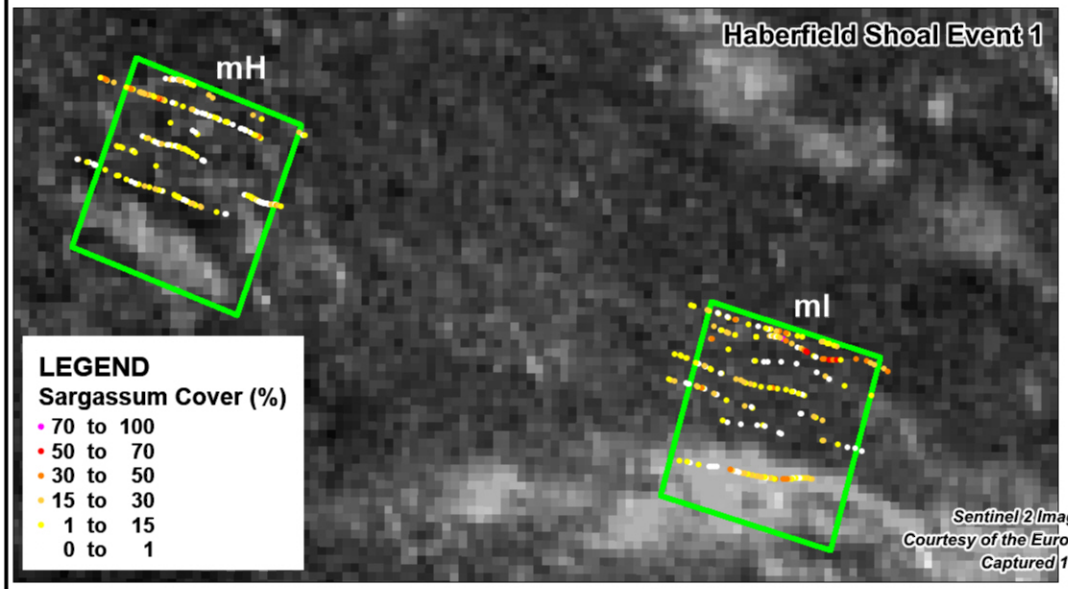
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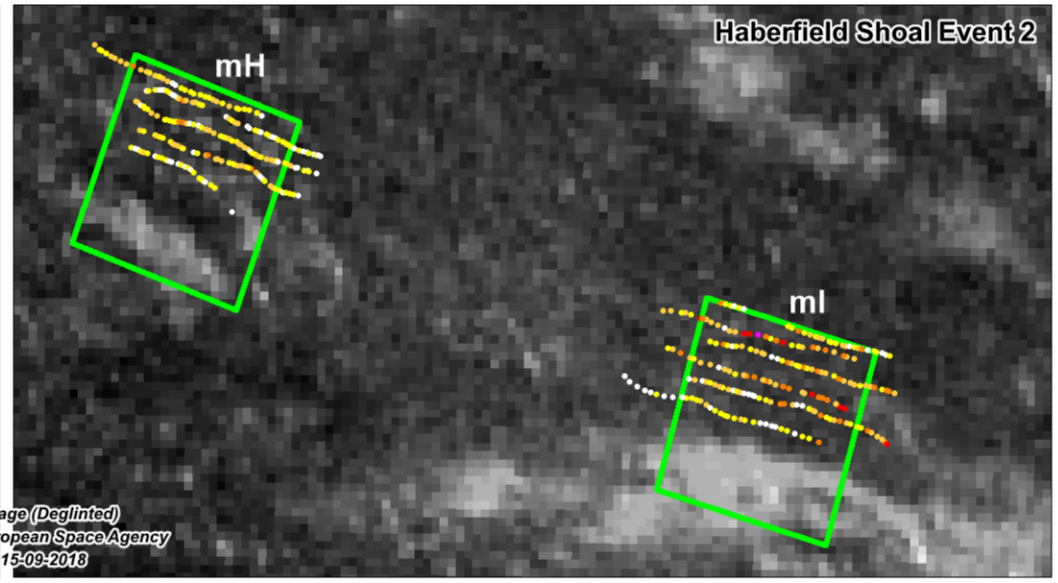
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LEGEND

Grounding Footprint

Monitoring Locations

Test Locations to be Remediated

Near-field Locations (Not Remediated)

Regional Reference Locations

Title:

Sargassum Cover Before Remediation

Figure: 5-11

Rev: A

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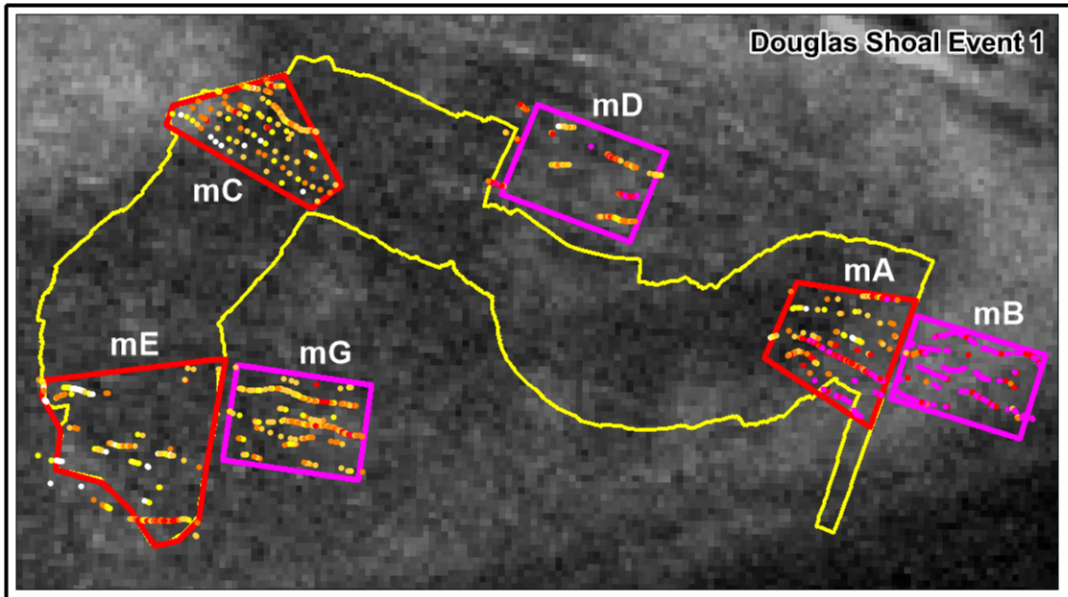
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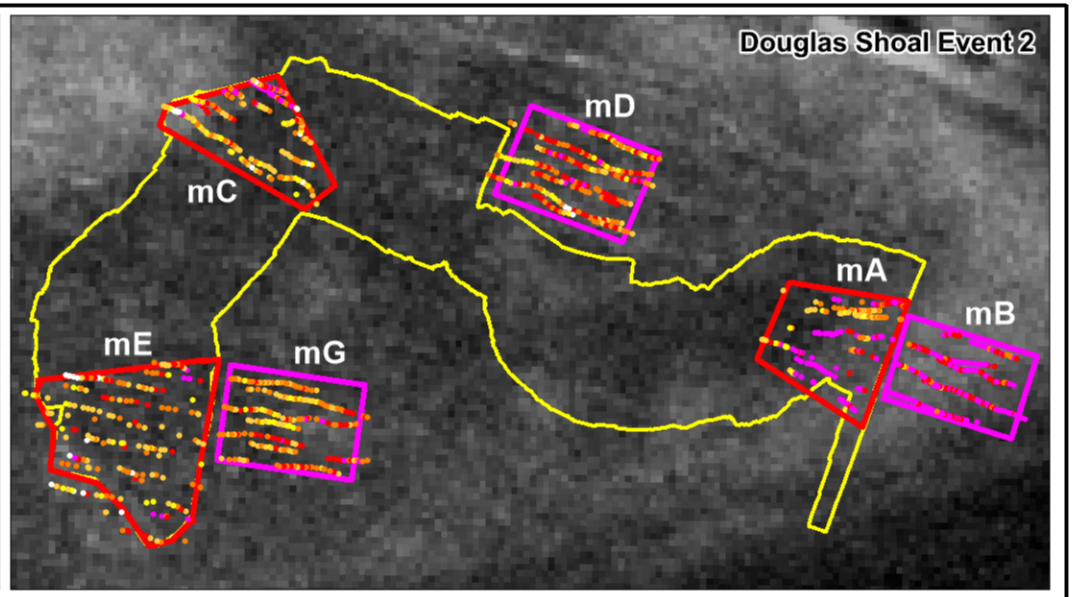
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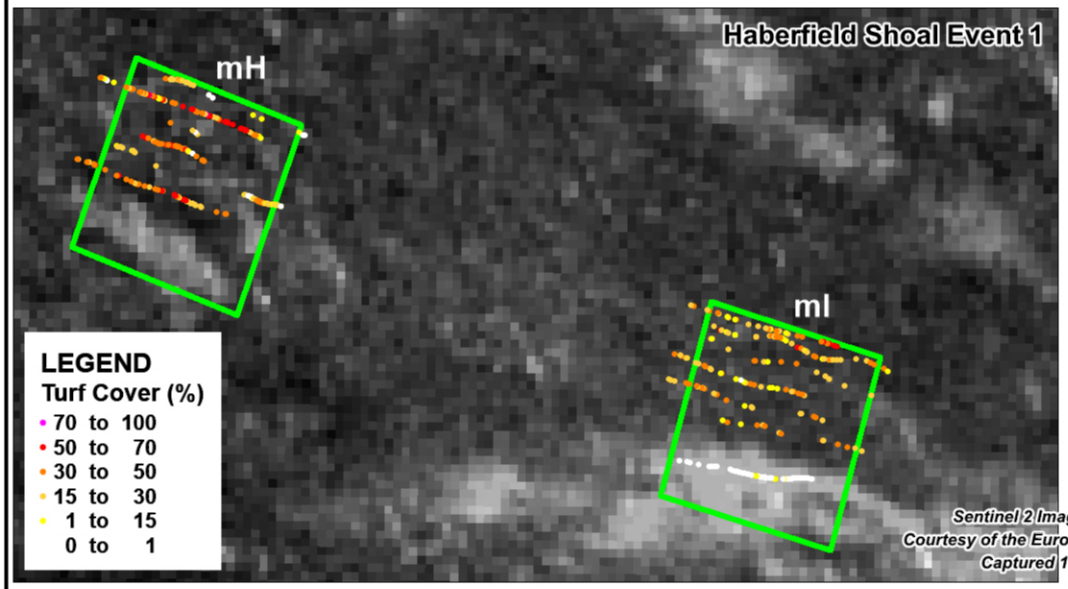
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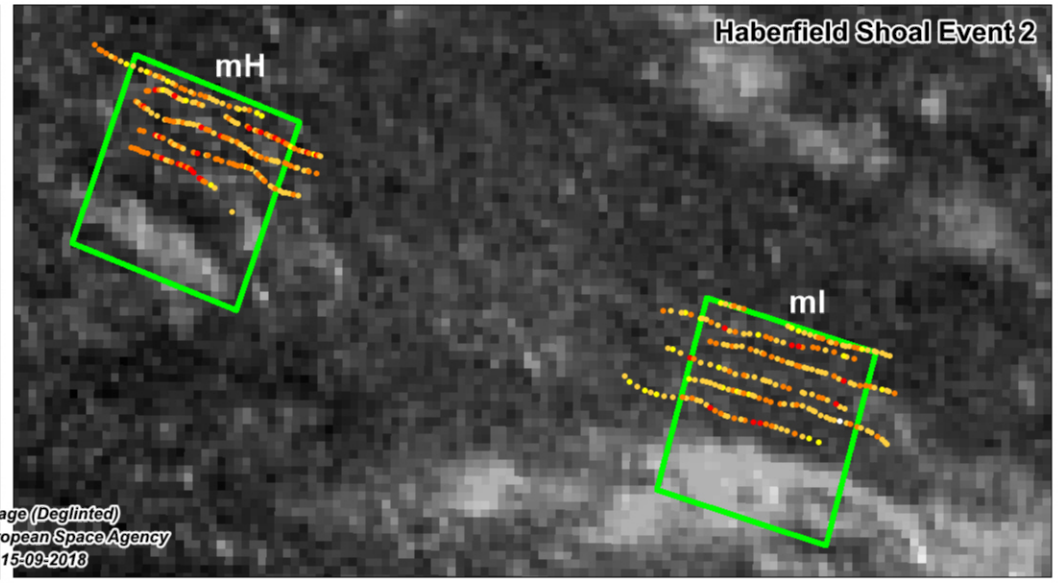
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LEGEND

Grounding Footprint

Monitoring Locations

Test Locations to be Remediated

Near-field Locations (Not Remediated)

Regional Reference Locations

Title:

Turf Cover Before Remediation

Figure: 5-12

Rev: A

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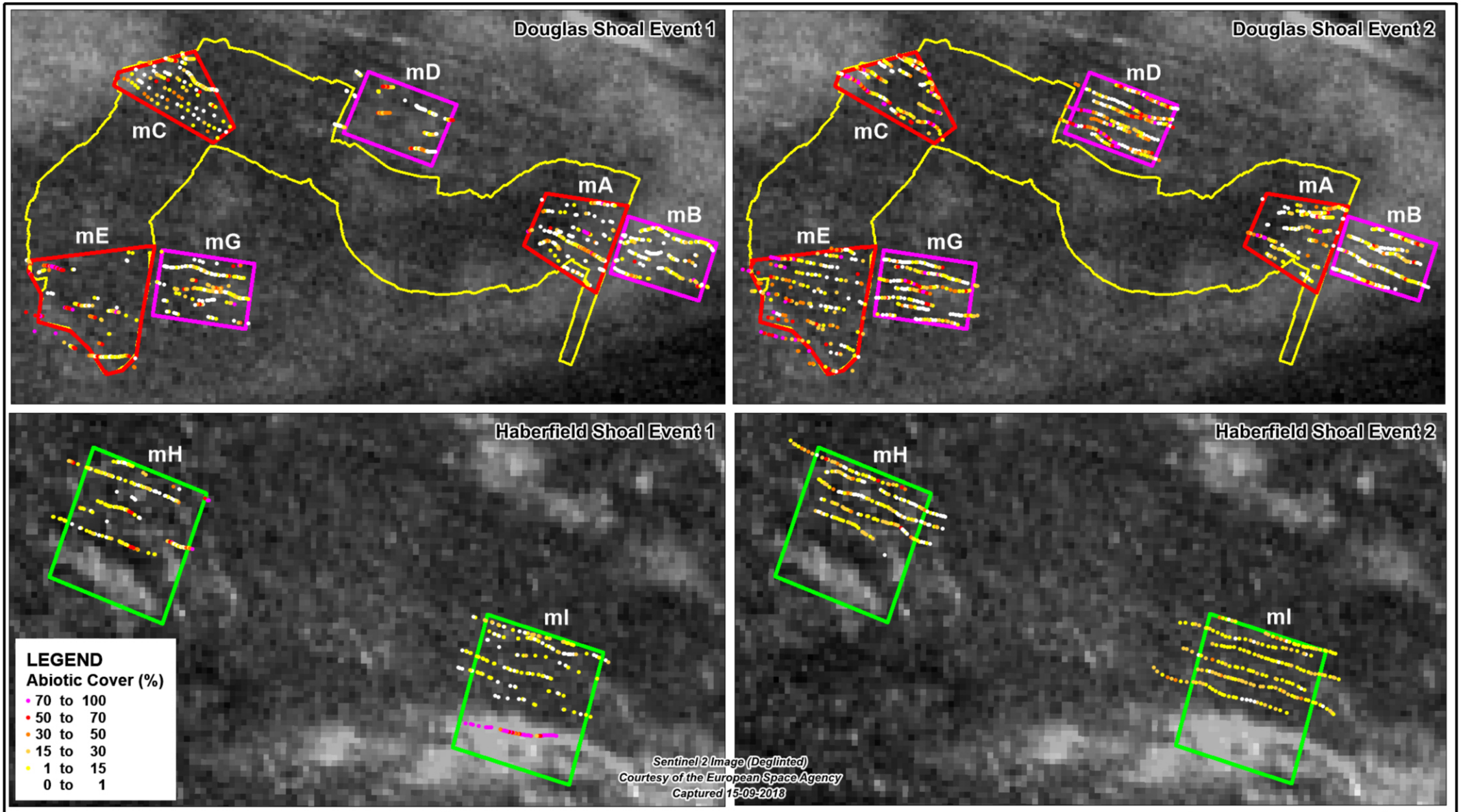
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Approx. scale Douglas Shoal

0 150 300m
Approx. scale Haberfield Shoal

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LEGEND

- Grounding Footprint

Monitoring Locations

- Test Locations to be Remediated
- Near-field Locations (Not Remediated)
- Regional Reference Locations

Title:

Abiotic Cover Before Remediation

Figure: 5-13

Rev: A

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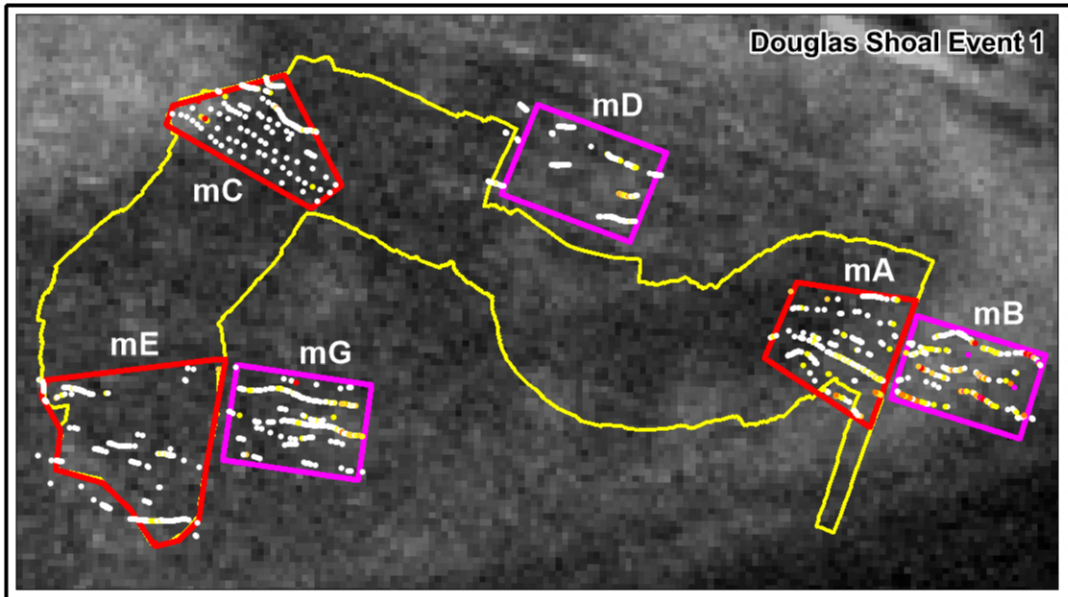
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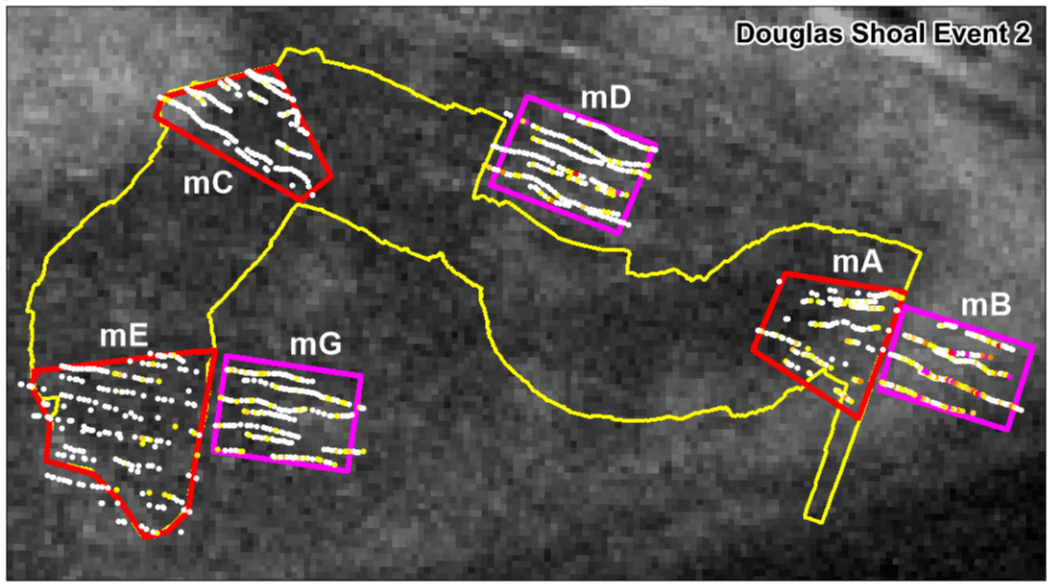
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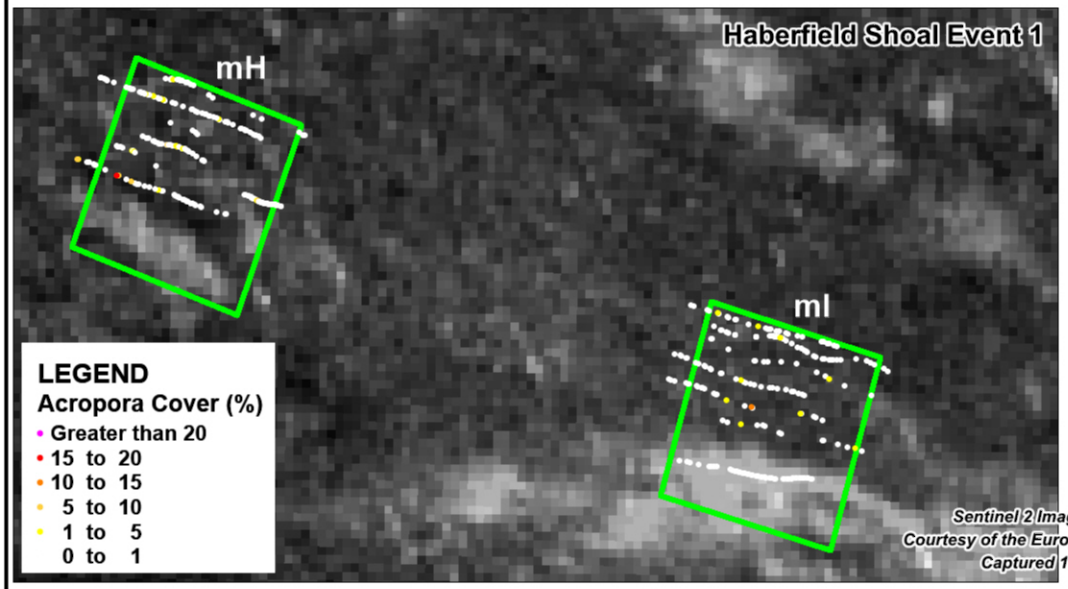
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Approx. scale Haberfield Shoal

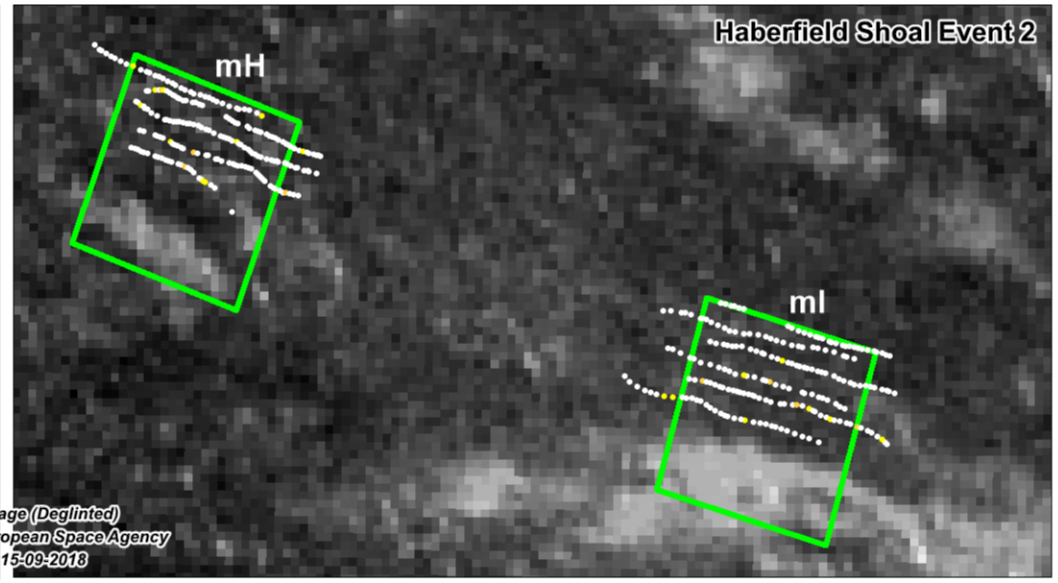
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LEGEND

Grounding Footprint

Monitoring Locations

Test Locations to be Remediated

Near-field Locations (Not Remediated)

Regional Reference Locations

Title:

Acropora Cover Before Remediation

Figure: 5-14

Rev: A

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N

0 200 400m
Approx. scale Douglas Shoal

0 150 300m
Approx. scale Haberfield Shoal

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Filepath: I:\B23282_I_JLB_Douglas Shoal Remediation Monitoring BT\DRG\ECO_038_200709_Acropora_Before.WOR

5.1.5 Coral Bleaching

Coral bleaching was virtually absent in 2019 and very extensive in 2020, with up to 35% of hard corals, and up to 5% of soft corals, bleached at various locations (Figure 5-15). Figure 5-15 shows the mean proportion of coral bleaching against respective hard or soft coral cover (left hand side), and as a percentage of total seafloor cover (right hand side). This is an important distinction for assessing the overall changes in cover that may relate to monitoring program, because high mean proportions of bleaching do not necessarily translate to high bleaching cover overall. For example, the highest proportion of bleached hard corals occurred at location mA, but the highest (seafloor) cover of bleached corals occurred at location mB (Figure 5-15, Figure 5-1).

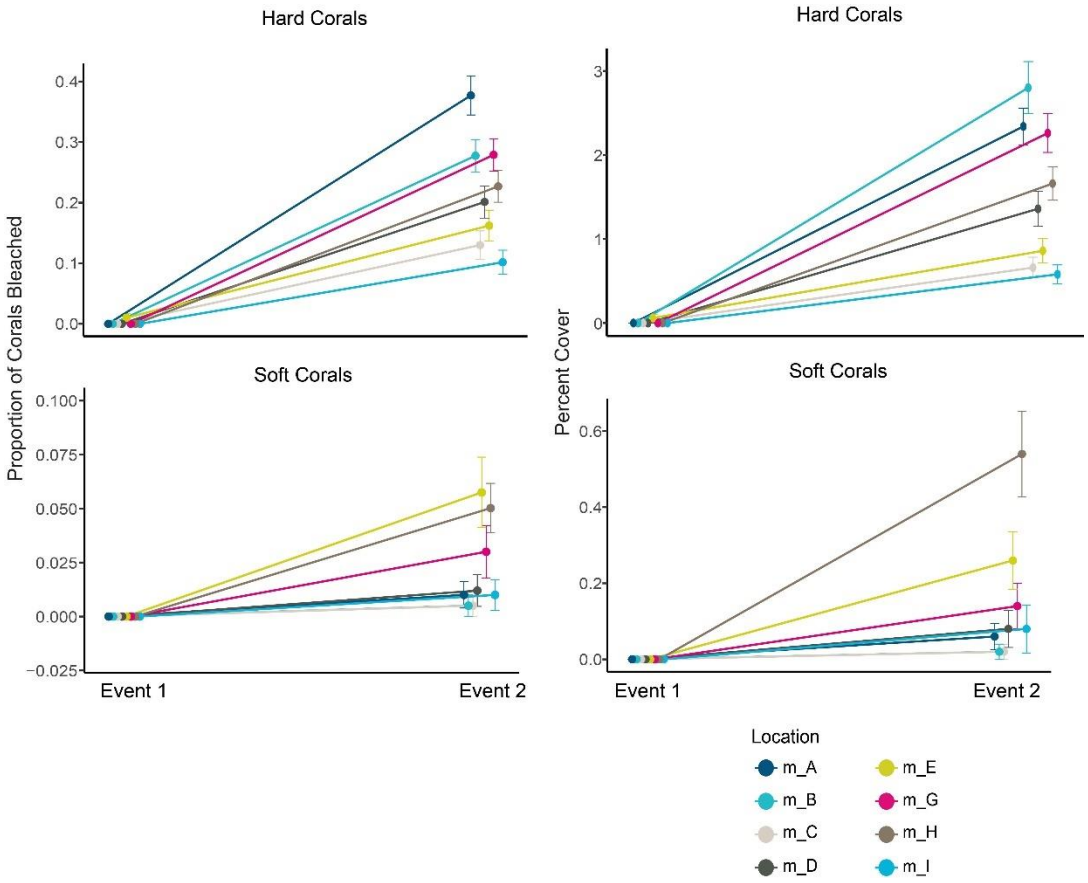


Figure 5-15 Mean (±SE) proportion of hard corals bleached relative to total hard coral cover (above left) and relative to total seafloor cover (above right); proportion of soft corals bleached relative to total soft coral cover (below left) and relative to total seafloor cover (below right)

Rankings of the proportions of bleached hard coral differed significantly among locations in 2020 ($p<0.01$), and essentially formed three groupings of similarity at the 0.05 significance level (Table 5-4). Locations mA, mB, and mG had the highest proportion of bleached hard corals and differences among these locations were not significant (Table 5-4). Locations mB, mG, mD, and mH had mean proportions of bleached hard coral at approximately 20% and differences between these locations were not significant. The third group included low-cover locations mC, mE, and mI, which had rates of hard coral bleaching of approximately 10% of corals.

This shows that although there were differences among the proportions of hard corals bleached in different locations, these were inconsistent among treatments. Importantly, reference location mH had a similar proportion of bleached hard coral to some other areas of high coral cover at Douglas Shoal including nearfield locations mB, mG, and mD, and reference location mI was not significantly different to Douglas Shoal remediation sites mC and mE.

However, because there were significant differences in the proportion bleached hard corals between remediation location mA and both of the reference locations, there are potential implications for subsequent comparisons after remediation. Of potential concern for the monitoring program is the relatively high proportion of bleaching at location mA. If the 2020 bleaching resulted in subsequent mortality, there is a chance that bleaching impacts could mask or confound the putative remediation impact on hard corals at location mA.

Table 5-4 Differences in the proportion of bleached hard coral based on Kruskall-Wallace rankings. Significant differences (p<0.05) are shown in yellow

Treatment	Location	Remediation	Nearfield	Remediation	Nearfield	Remediation	Nearfield	Reference
		mA	mB	mC	mD	mE	mG	mH
Nearfield	mB	0.152						
Remediation	mC	0.000	0.000					
Nearfield	mD	0.000	0.004	0.022				
Remediation	mE	0.000	0.000	0.364	0.171			
Nearfield	mG	0.097	0.911	0.000	0.008	0.000		
Reference	mH	0.004	0.095	0.000	0.196	0.006	0.136	
Reference	mI	0.000	0.000	0.682	0.005	0.180	0.000	0.000

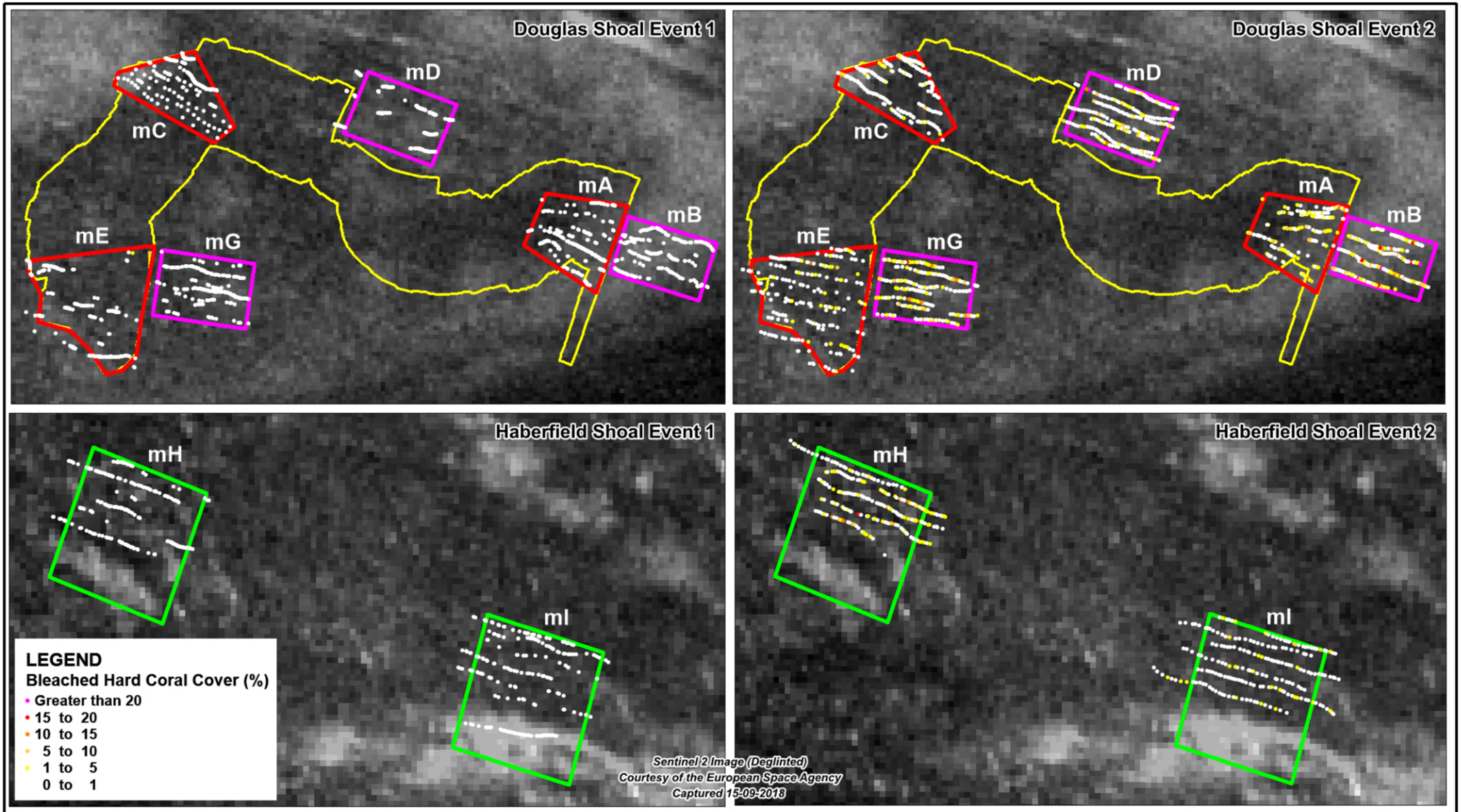
Soft coral cover overall was far lower than hard coral cover and so too were the mean proportions of bleached soft coral in 2020, which varied from 1-5% of colonies (Figure 5-15). The proportions of bleached soft coral differed significantly among locations in 2020 ($p<0.01$) and formed two groups of similarity at the 0.05 significance level (Table 5-5). Locations mE and mH, had the highest proportion of bleached soft corals at approximately 5% of total soft coral cover (Figure 5-15), and differences between these two locations were not significant (Table 5-5). The remaining locations had mean proportions of bleached soft coral varying from 0-2% (Figure 5-15) and differences among these locations were not significant.

This shows that the differences among the proportions of soft coral bleaching were relatively minor in scale and were inconsistent among treatments. Differences in soft coral bleaching among locations are unlikely to present any challenges to understanding future putative remediation impact.

Table 5-5 Differences in the proportion of bleached soft coral based on Kruskall-Wallace rankings. Significant differences (p<0.05) are shown in yellow

Treatment	Location	Remediation	Nearfield	Remediation	Nearfield	Remediation	Nearfield	Reference
		mA	mB	mC	mD	mE	mG	mH
Nearfield	mB	0.406						
Remediation	mC	0.406	1.000					
Nearfield	mD	1.000	0.406	0.406				
Remediation	mE	0.044	0.006	0.006	0.044			
Nearfield	mG	0.406	0.121	0.121	0.406	0.270		
Reference	mH	0.000	0.000	0.000	0.001	0.121	0.005	
Reference	mI	0.712	0.659	0.659	0.712	0.020	0.270	0.000

Mapping showing the percent cover of bleached hard corals as percentage of total seafloor cover is shown in Figure 5-16. The relative proportions of hard and soft coral bleaching as a proportion total hard and soft coral, respectively, are shown in in Figure 5-17 and Figure 5-18. Each of these figures shows that bleaching overall or as a proportion of coral cover appeared evenly distributed across each of the locations, but also shows that bleaching was proportionally higher at mA.



LEGEND

Grounding Footprint

Monitoring Locations

Test Locations to be Remediated

Near-field Locations (Not Remediated)

Regional Reference Locations

Title:

Bleached Hard Coral Cover Before Remediation

Figure: 5-16

Rev: A

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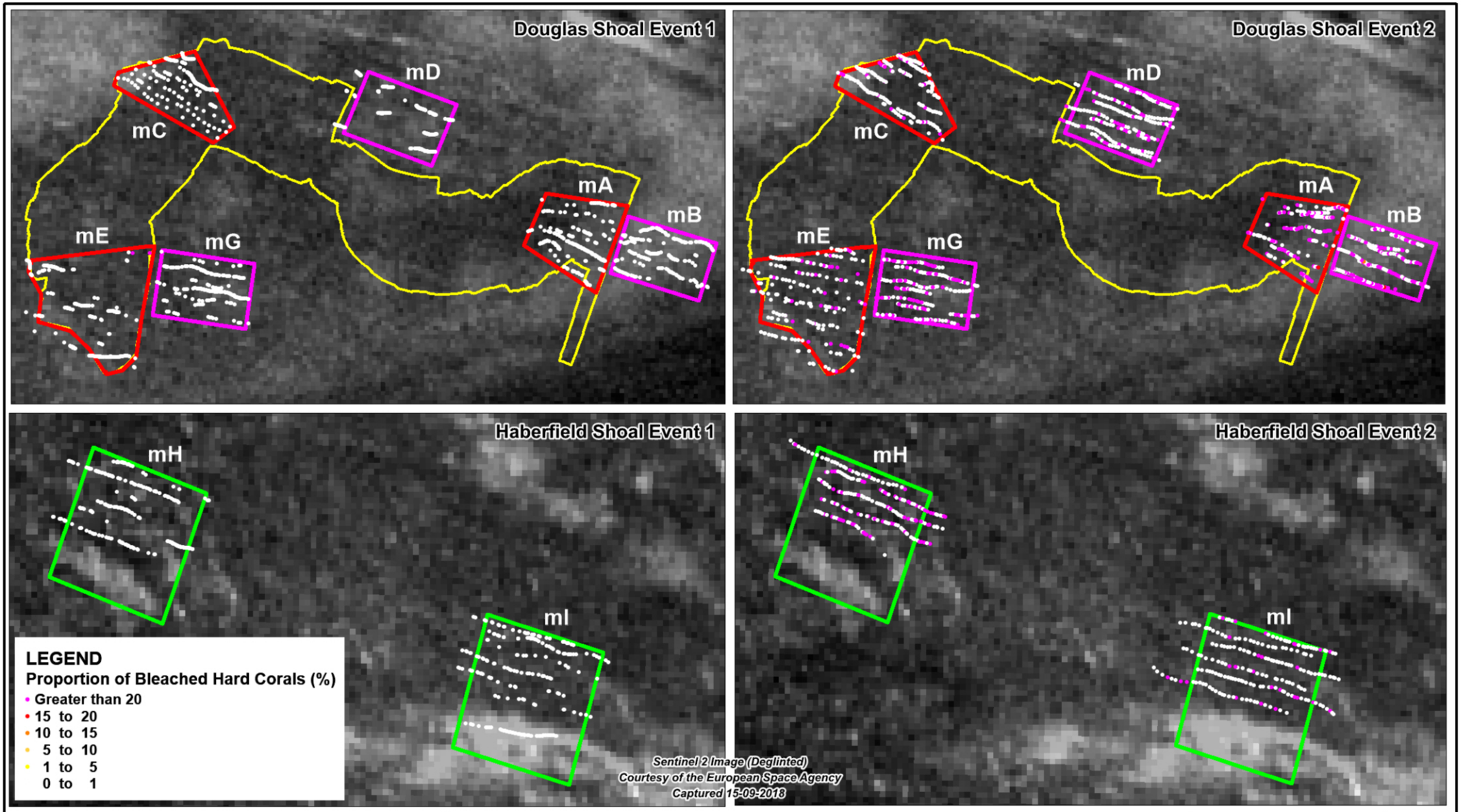
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Approx. scale Douglas Shoal

0 150 300m
Approx. scale Haberfield Shoal

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LEGEND

Grounding Footprint

Monitoring Locations

Test Locations to be Remediated

Near-field Locations (Not Remediated)

Regional Reference Locations

Title:

Proportion of Bleached Hard Corals Before Remediation

Figure: 5-17

Rev: A

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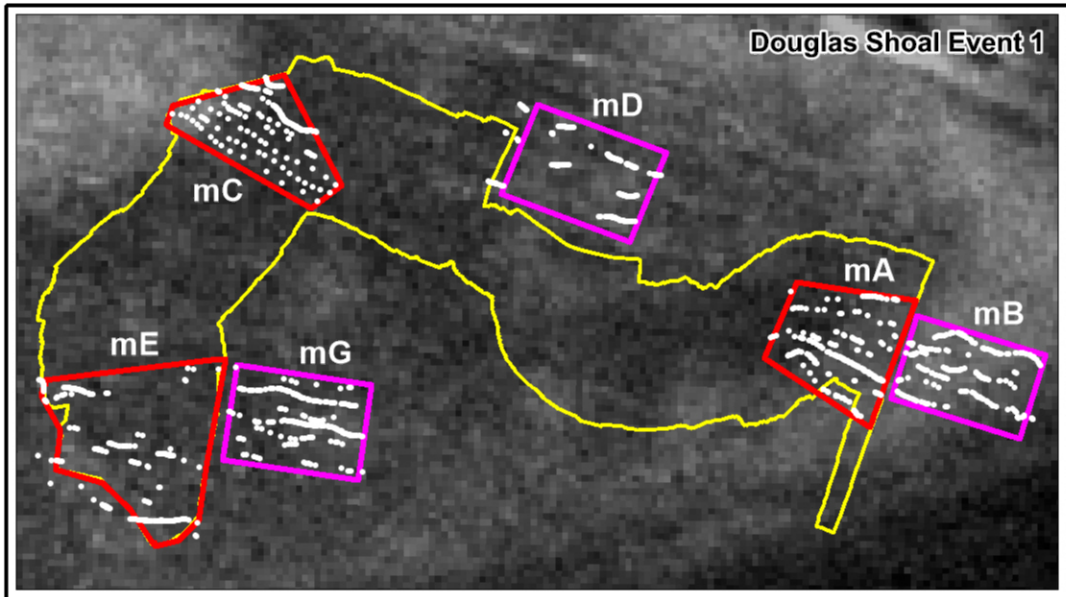
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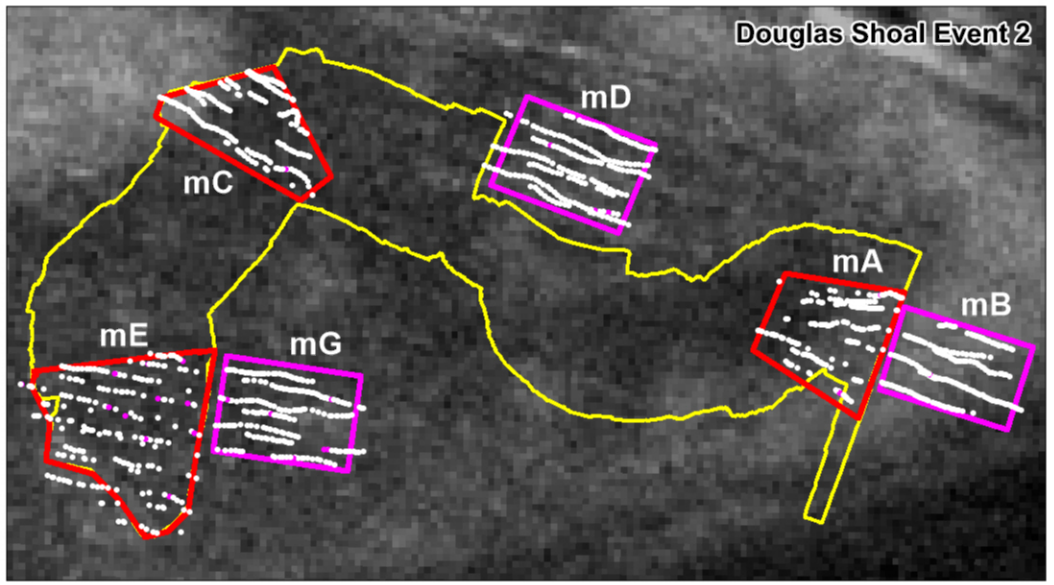
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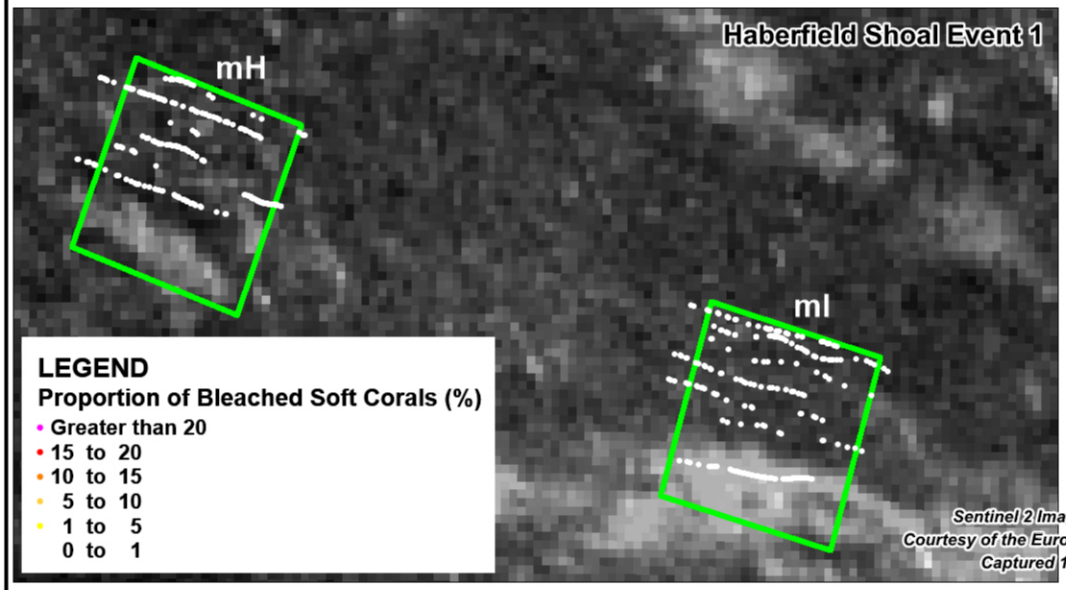
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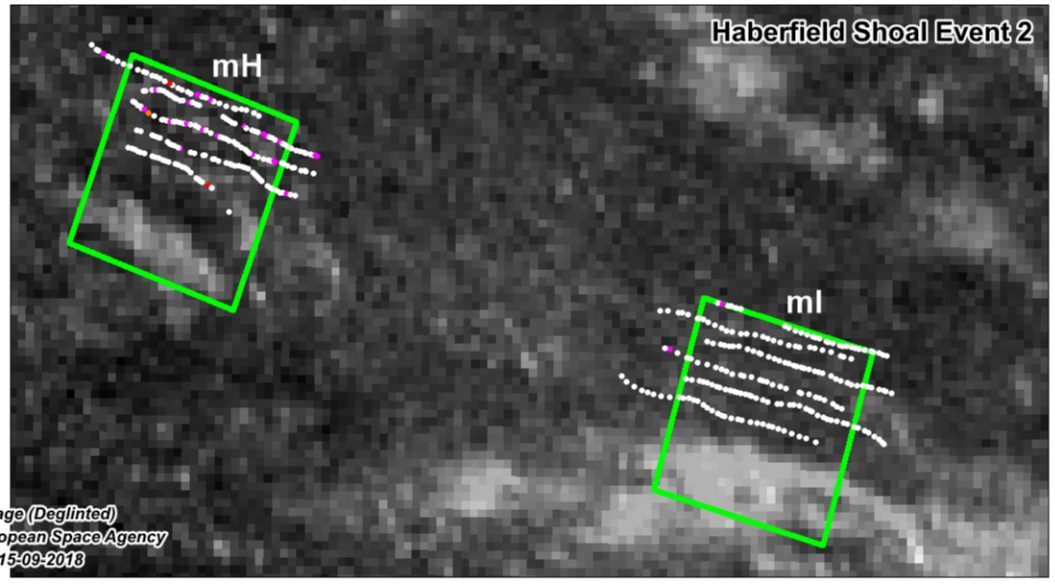
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LEGEND

Grounding Footprint

Monitoring Locations

Test Locations to be Remediated

Near-field Locations (Not Remediated)

Regional Reference Locations

Title:

Proportion of Bleached Soft Corals Before Remediation

Figure: 5-18

Rev: A

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N

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Approx. scale Douglas Shoal

0 150 300m
Approx. scale Haberfield Shoal

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5.2 3D Modelling

Six 3D models were generated at Douglas Shoal; two sites within each of the locations to be remediated. The models were used to produce orthomosaics and oblique views for each site (Figure 5-19 to Figure 5-30) for qualitative visual comparisons after remediation. The sites were positioned in areas likely to be subject to various forms of remediation effort and encompass both vertically and biologically complex, as well as relatively simplified habitats. The 3D models of the remediation locations showed generally limited vertical relief (<1.5 m) with a mixture of macroalgae, turf, sand and coral cover.

Both models collected in mA had sand channels and melon holes within the area which are the major vertical relief features for this location (Figure 5-20 and Figure 5-22). The orthomosaics of mA show the varied cover of corals and algae (Figure 5-19 and Figure 5-21). Estimates of vertical relief at AMOS1 and AMOS2 were approximately 1.0 and 1.1 m, respectively.

The vertical relief and epibenthic cover varied greatly between the two models developed at mC. Site CMOS1 (Figure 5-24) was located near the base of the high relief terrace and had the highest vertical relief compared to all of the other models (1.25 m change in bed elevation). The model shows unconsolidated sand and rubble material within groove formation at the base of the terrace. The second model (CMOS2, Figure 5-26) was comparatively flat due to the absence of spur and groove formation, with an estimated change in elevation of 0.2 m. This location was deliberately selected in an area of unconsolidated sediment likely to undergo some form of physical remediation. The orthomosaics showed the cover type varied substantially between the two models with a range of substrates present in CMOS1, including sand, rubble, coral, turfing algae and macroalgae (Figure 5-20) and sand, rubble and *Dictyopteris* dominating the site CMOS2 (Figure 5-22).

Both 3D models at location mE had moderate to limited vertical relief; site EMOS1 had a difference in bed elevation of 0.7 m owing to the presence of a filled sediment channel running through the site (Figure 5-25 and Figure 5-27). Site EMOS2 was situated directly beneath a part of the grounding footprint where the Shen Neng 1 rested prior to salvage. Vertical relief here was the lowest of any of the 3D sites, estimated to be 0.3 m across the site. Similar to location mC, sites at mE were chosen to represent more complex (EMOS1) and highly simplified, unconsolidated habitat (EMOS2). The orthomosaics of EMOS2 show cover was dominated by sand and macroalgae, predominately *Dictyopteris* (Figure 5-24 and Figure 5-29).

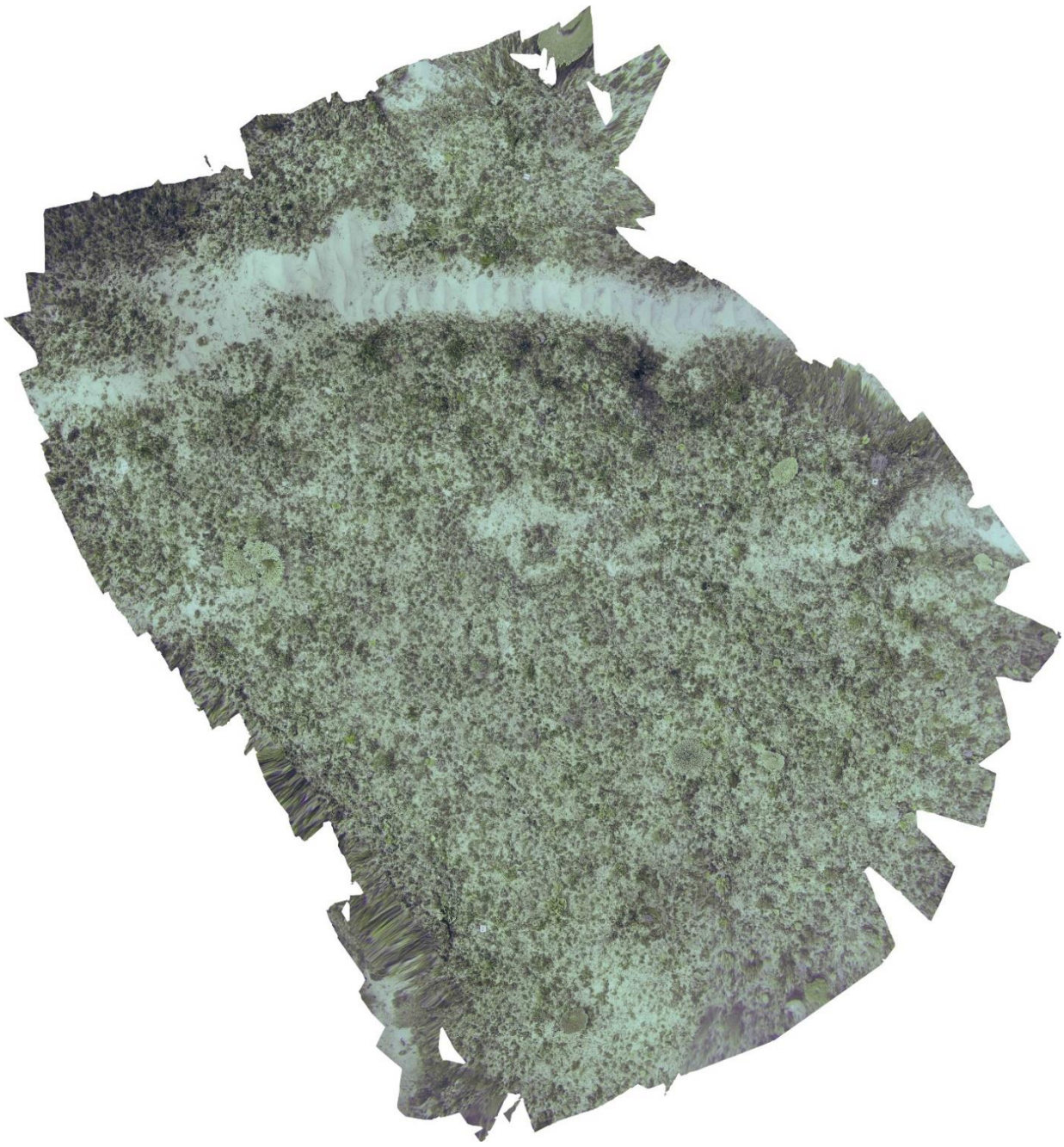


Figure 5-19 Orthomosaic of site AMOS1

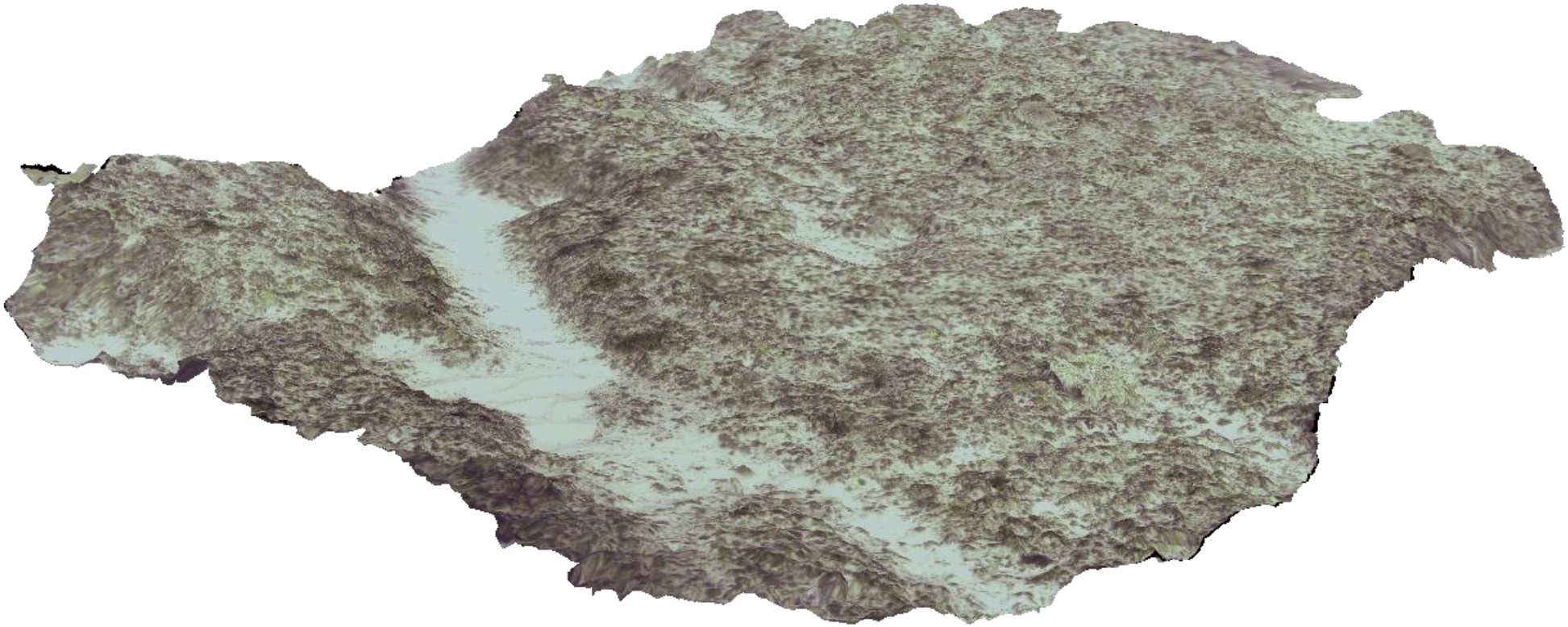


Figure 5-20 Oblique view of the 3D model of site AMOS1



Figure 5-21 Orthomosaic of site AMOS2

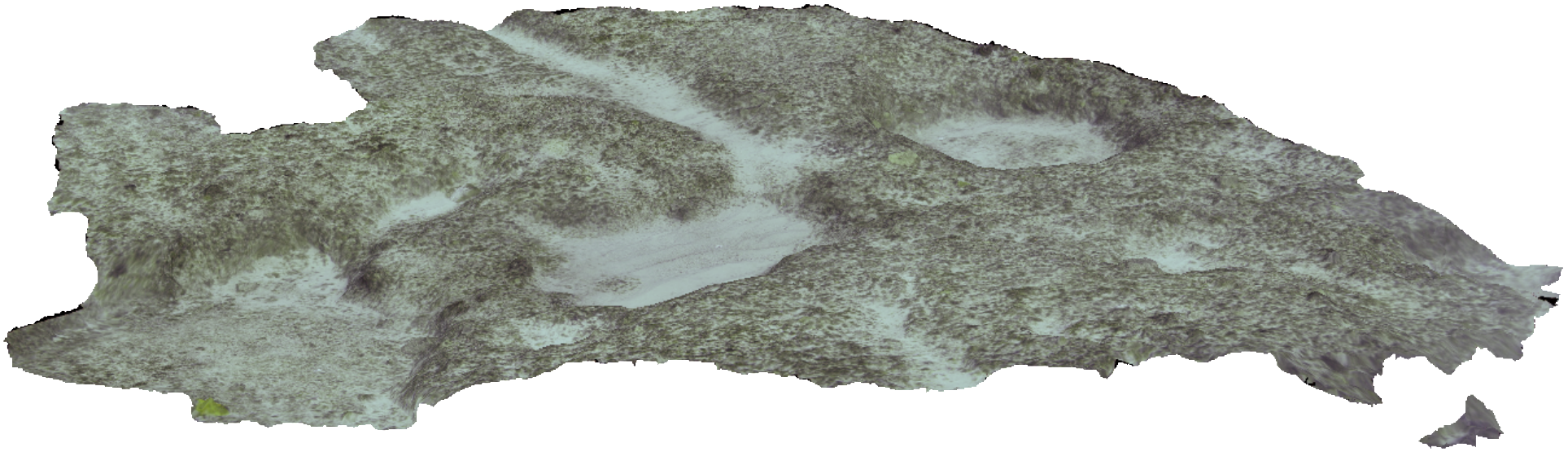


Figure 5-22 Oblique view of the 3D model of site AMOS2

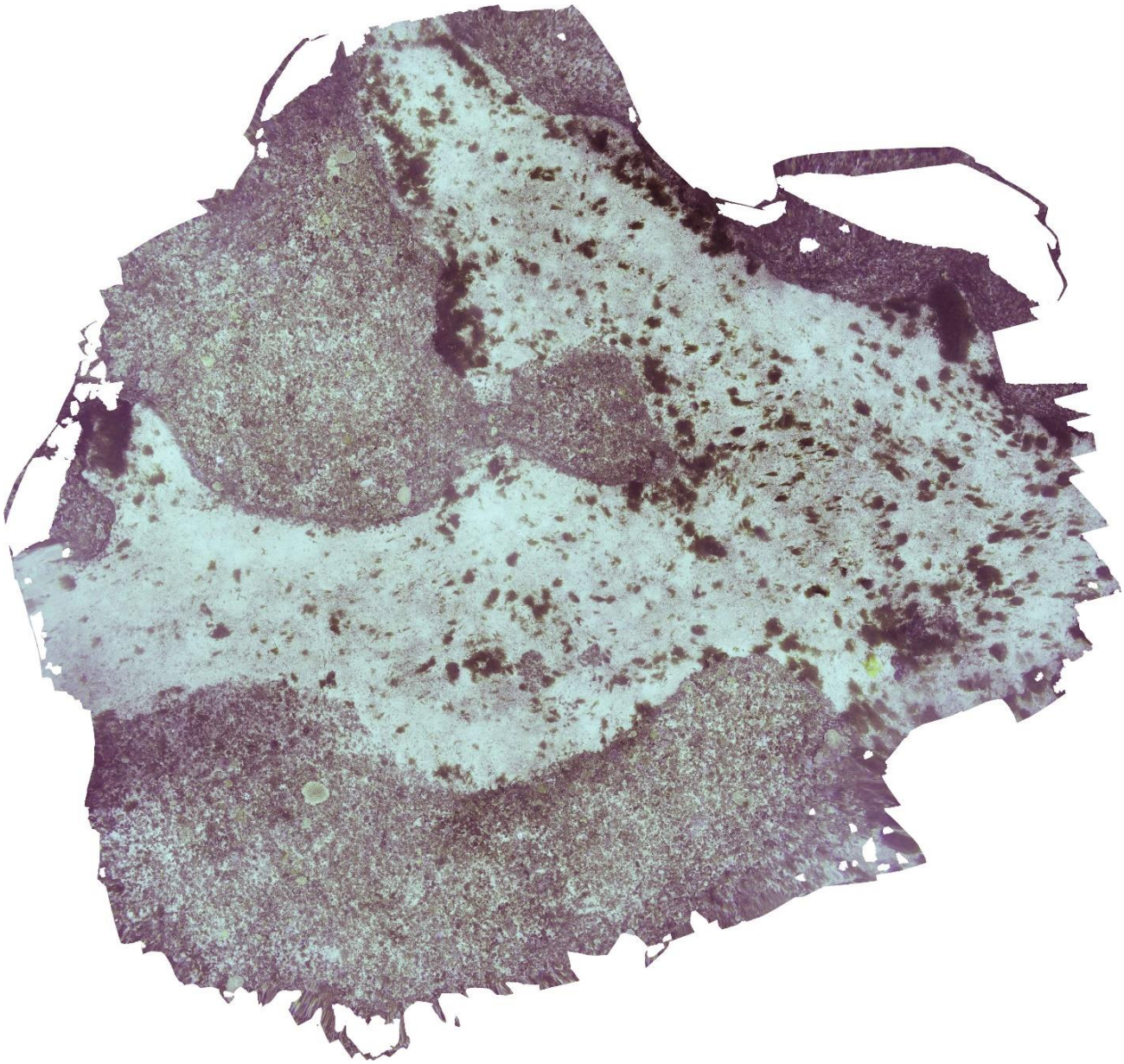


Figure 5-23 Orthomosaic of site CMOS1

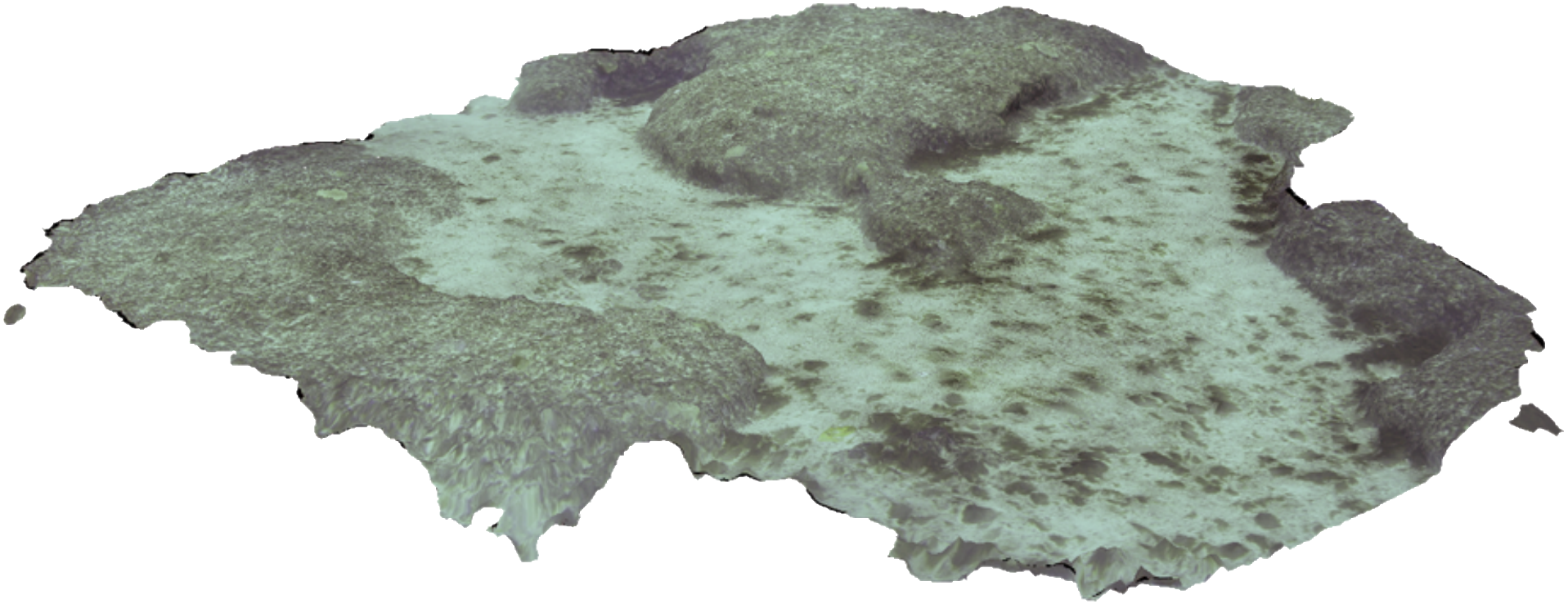


Figure 5-24 Oblique view of the 3D model of site CMOS1

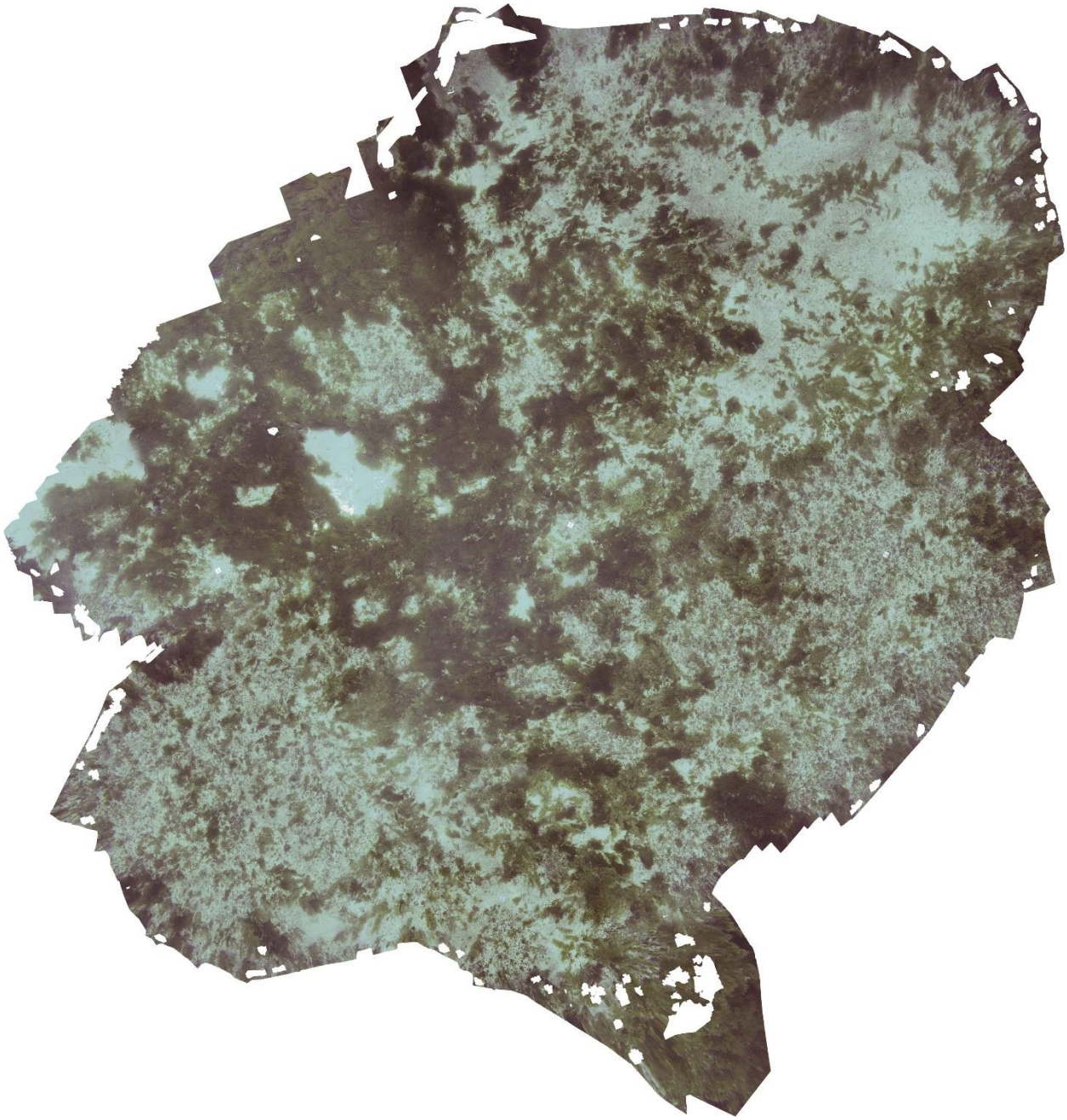


Figure 5-25 Orthomosaic of site CMOS2

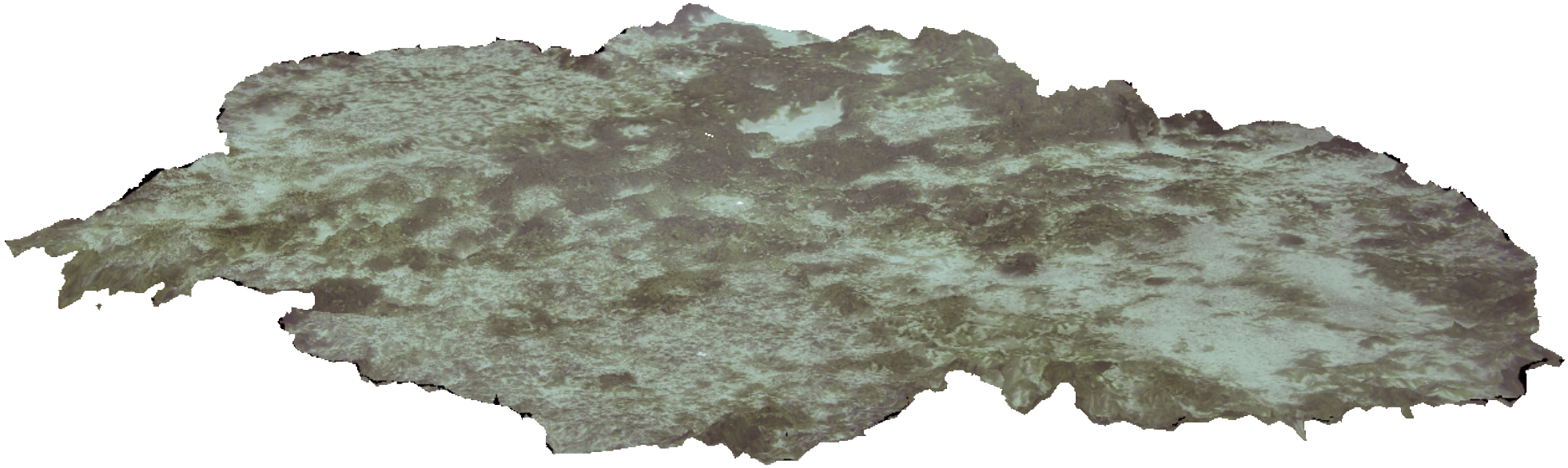


Figure 5-26 Oblique view of the 3D model of site CMOS2

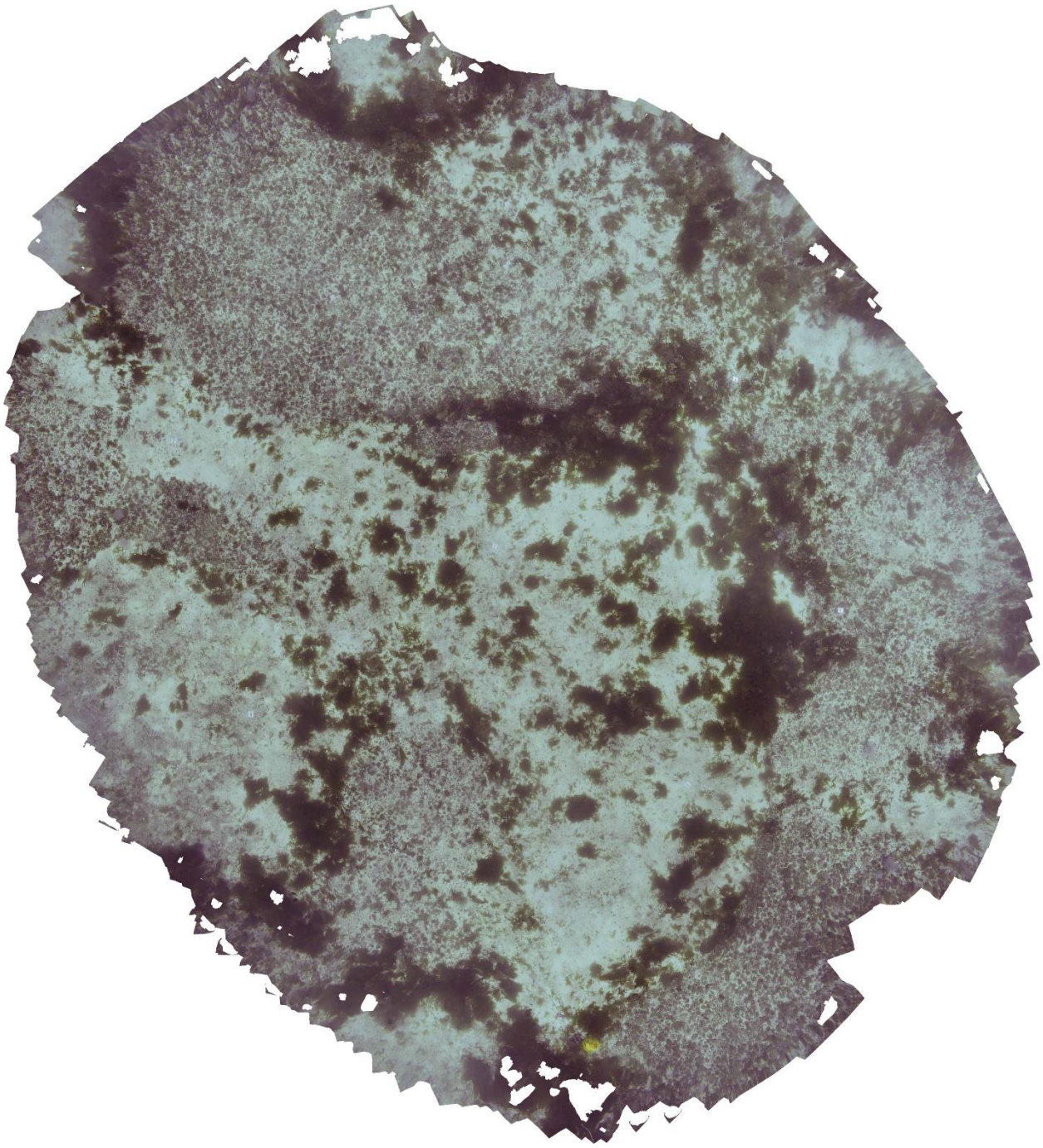


Figure 5-27 Orthomosaic of site EMOS1

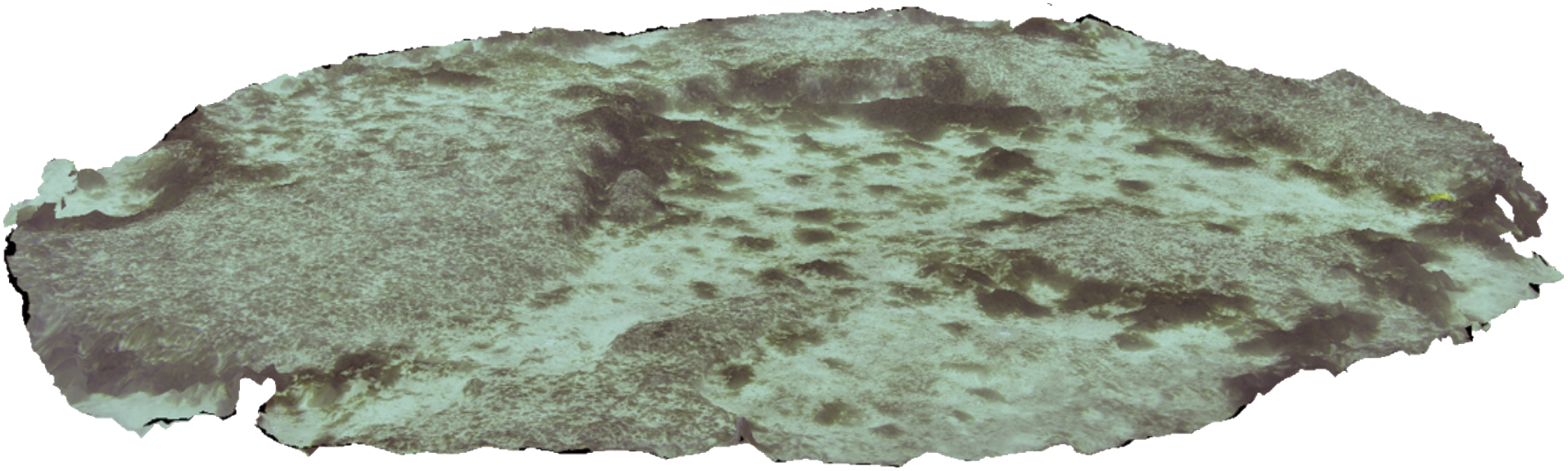


Figure 5-28 Oblique view of the 3D model of site EMOS1



Figure 5-29 Orthomosaic of site EMOS2

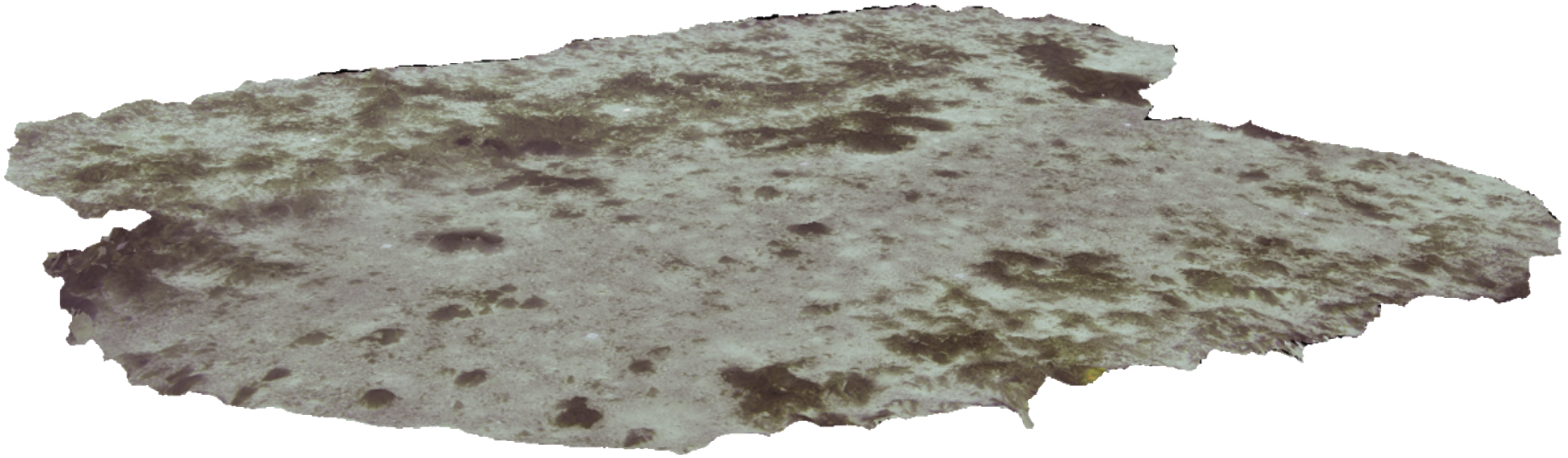


Figure 5-30 Oblique view of the 3D model of site EMOS2

5.3 Fish Communities

5.3.1 General Patterns

BRUV deployments observed 146 fish taxa across the two sampling campaigns, with 68 of these taxa only observed once. A total of 4,327 fish were enumerated at the point of MaxN for each species during each deployment; 1,677 in spring 2019 and 2,650 in autumn 2020. Of the 146 taxa, the most abundant (sum of MaxN observations) and prevalent (sum of presence within each replicate) taxa are listed in Table 5-6. Screen grabs of habitat from each deployment are provided in Appendix E.

Table 5-6 Top 10 most abundant and prevalent fish species observed in the monitoring program. Species present in both lists are highlighted

Rank Abundance	Total Abundance	Rank Prevalence	Prevalence
Ptereleotris microlepis	745	*Pomacentrus australis*	47
Pomacentrus australis	743	*Choerodon venustus*	46
Chromis nitida	535	*Halichoeres nebulosus*	40
Apogon spp.	203	*Pseudolabrus guentheri*	38
Siganus canaliculatus	174	*Coris pictoides*	38
Pseudolabrus guentheri	168	*Chromis nitida*	34
Halichoeres nebulosus	140	*Labroides dimidiatus*	34
Pterocaesio chrysozona	134	*Thalassoma lunare*	27
Choerodon venustus	102	*Ptereleotris microlepis*	26
Lethrinus miniatus	100	*Lethrinus miniatus*	26

The most abundant species (shown in Figure 5-31) were not always the most prevalent. Species that were in the top 10 most abundant and prevalent taxa included *Ptereleotris microlepis, Pomacentrus australis, Chromis nitida, Pseudolabrus guentheri, Halichoeres nebulosus, Choerodon venustus,* and *Lethrinus miniatus. Ptereleotris microlepis* is a free-swimming dart-goby that formed frequent large schools at 26 of the 48 deployments. *Pomacentrus australis* and *Chromis nitida* are small damselfish that were common and abundant, and relatively site-attached, present at 47 and 34 deployments, respectively. *Pomacentrus australis* was observed on every deployment except one. *Pseudolabrus guentheri,* and *Halichoeres nebulosus* are two small species of wrasse that were common in areas of dense macroalgae; a maximum of 13 and 20 individuals respectively, were recorded. However, 2-4 individuals were typically present. *Choerodon venustus,* and *Lethrinus miniatus* are larger species both commonly sought after by recreational fishers and both had the same prevalence (26 of 48 deployments) and similar total abundances (Table 5-6).

Elasmobranchs (sharks and rays) were observed relatively infrequently, with observations at 6/8 locations during 2019 and at 2/8 locations in 2020. Species of interest included *Galeocerdo cuvier* (tiger sharks), *Sphyrna lewini* (scalloped hammerhead sharks) *Pastinachus ater* (cow-tailed rays), and *Nebrius ferrugineus* (tawny nurse sharks).

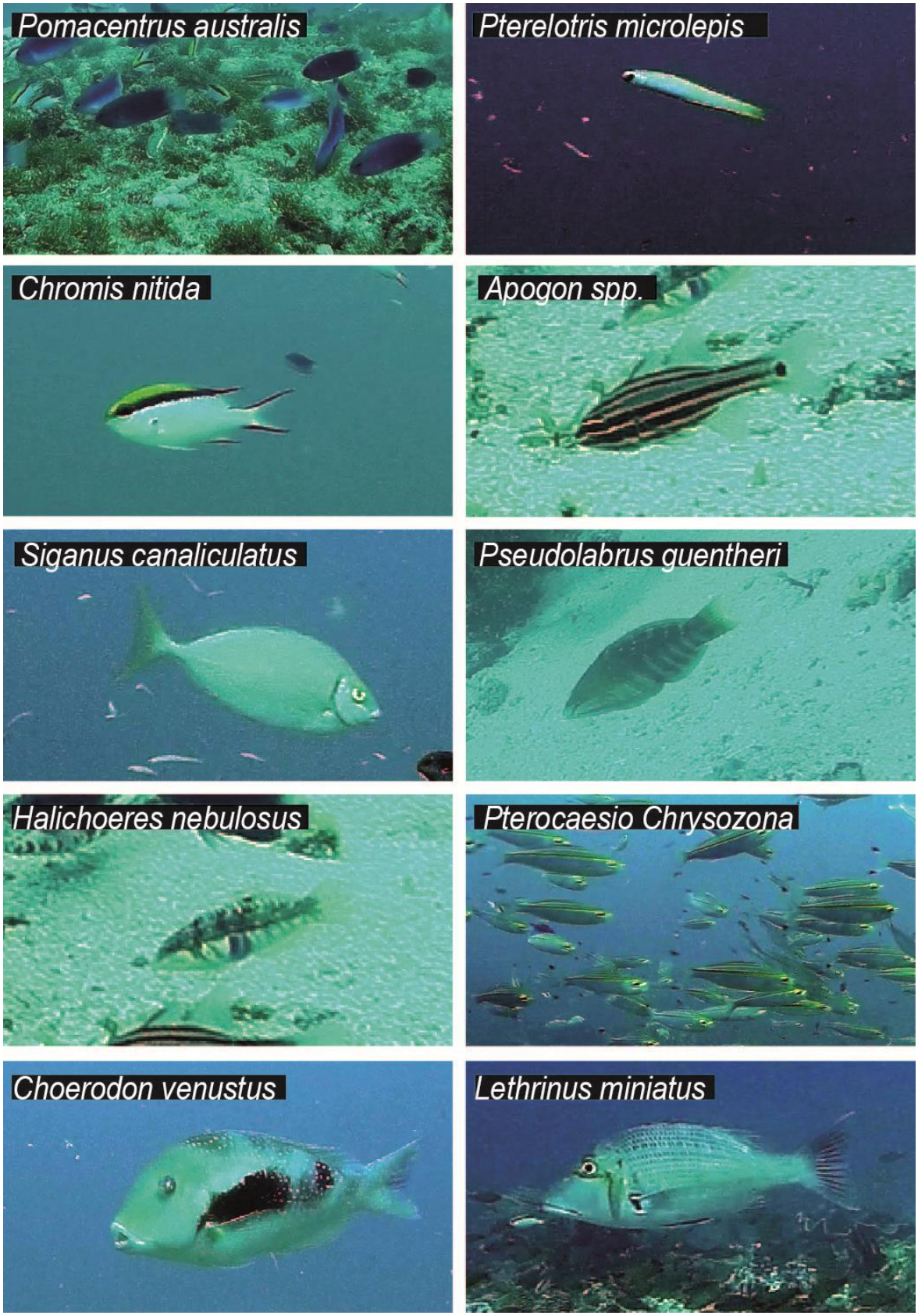


Figure 5-31 Sample BRUV video captures of the most abundant taxa

5.3.2 Univariate Patterns

Changes in treatment-level fish B20 biomass, richness and abundance reflected fish communities that became smaller in size, more rich, and more numerous between spring 2019 and Autumn 2020. Location-based differences were far more variable and without significant differences.

The B20 biomass totals for locations were typically similar among sampling events or declined slightly (Table 5-7, Figure 5-32). Location-based B20 biomass could not be statistically assessed among locations and events due to the absence of fish greater than 20 cm in length at some deployments in location mA. However, B20 biomass was higher in the nearfield treatment than it was in remediation and reference areas, and there were no changes between events (Figure 5-33, Table 5-15).

Table 5-7 Biomass of fish (>20cm) in each survey period per site (kg)

Location	Event 1		Event 2	
	Fish	Elasmobranch	Fish	Elasmobranch
mA	19.59	399.18	19.79	0.00
mB	85.39	0.00	70.46	0.00
mC	33.74	165.18	27.05	0.00
mD	63.83	139.95	49.97	0.00
mE	55.52	4.28	12.66	457.01
mG	22.88	0.00	22.51	0.00
mH	50.28	9.30	30.96	344.60
mI	4.36	5.56	11.29	0.00

While fish B20 biomass was unchanging or decreasing (non-significantly) between events, treatment-level abundance and richness increased significantly overall between surveys (Figure 5-32, Figure 5-33, Table 5-8). Although there were significant changes between events, treatments themselves did not consistently differ, nor were there interactions between treatments and events. While there was no evidence that univariate fish community descriptors varied among locations and events, there were differences among treatments.

Fish communities tended to be richer and more abundant in event 2, while there was a (non-significant) trend down in size. These changes are consistent with more juvenile fish in autumn 2020 compared to spring 2019. This was also reflected anecdotally during line fishing where fishing felt ‘leaner’ during the second survey, with smaller and fewer fish captured.

Location-based averages in Table 5-8 for some of the more common large genera (*Choerodon, Gymnocranius, Lethrinus,* and *Naso*) show that genera such as *Lethrinus* and *Naso* had larger fish on average in 2019 than 2020.

Differences in Simpson’s diversity, and the abundance of *C. venustus* were not significant among treatments or sampling events. Differences in elasmobranch biomass among treatments and events were not compared statistically due to a lack of data but means are presented visually in Figure 5-33.

The detailed statistical outputs from these univariate analyses of fish communities are provided in Appendix B. Full tabulated MaxN observations and biomass estimates are provided in Appendix E.

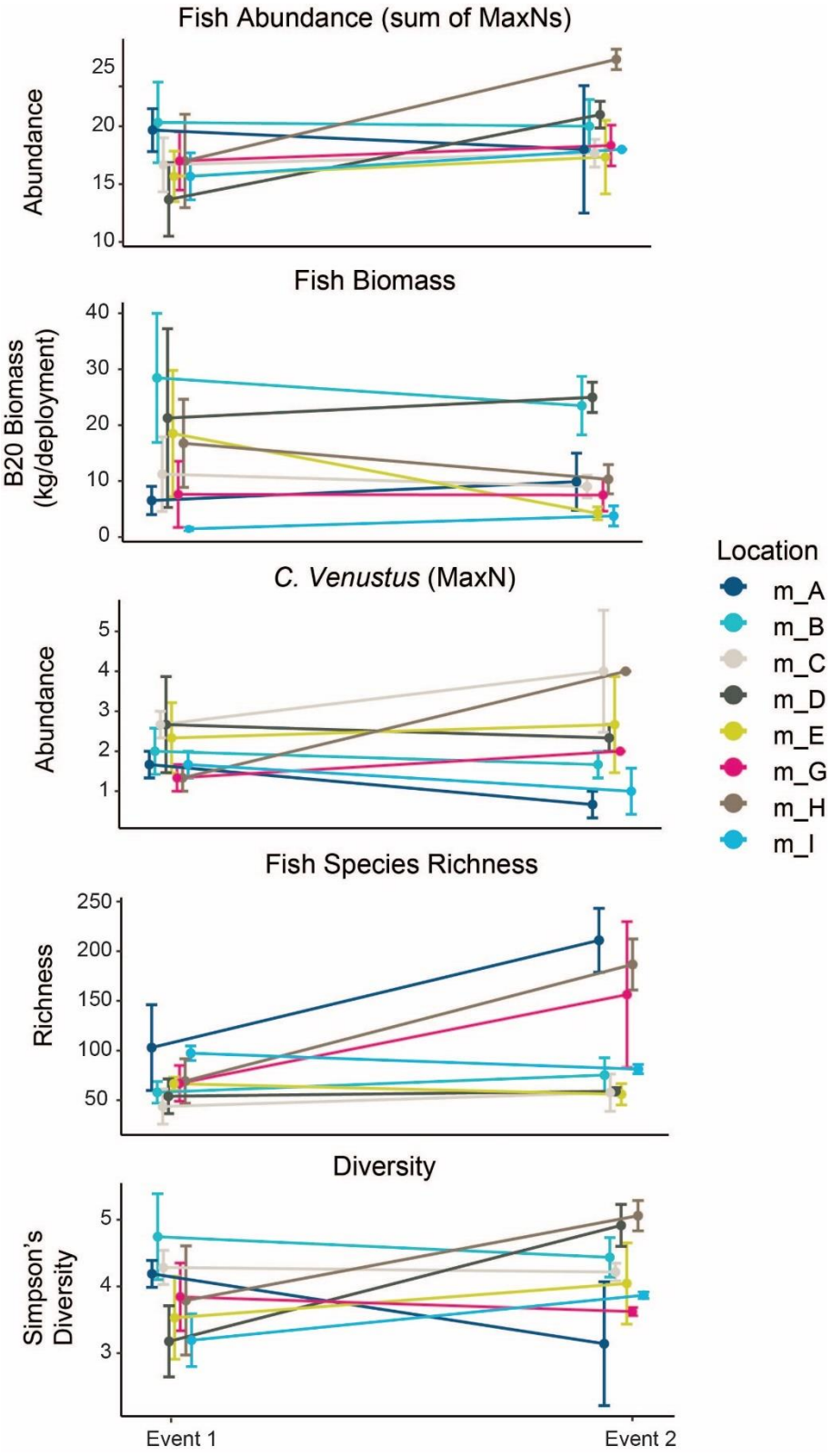


Figure 5-32 Mean (± SE) abundance, richness, diversity and biomass for fish (and *C. venustus* abundance) between survey events by location

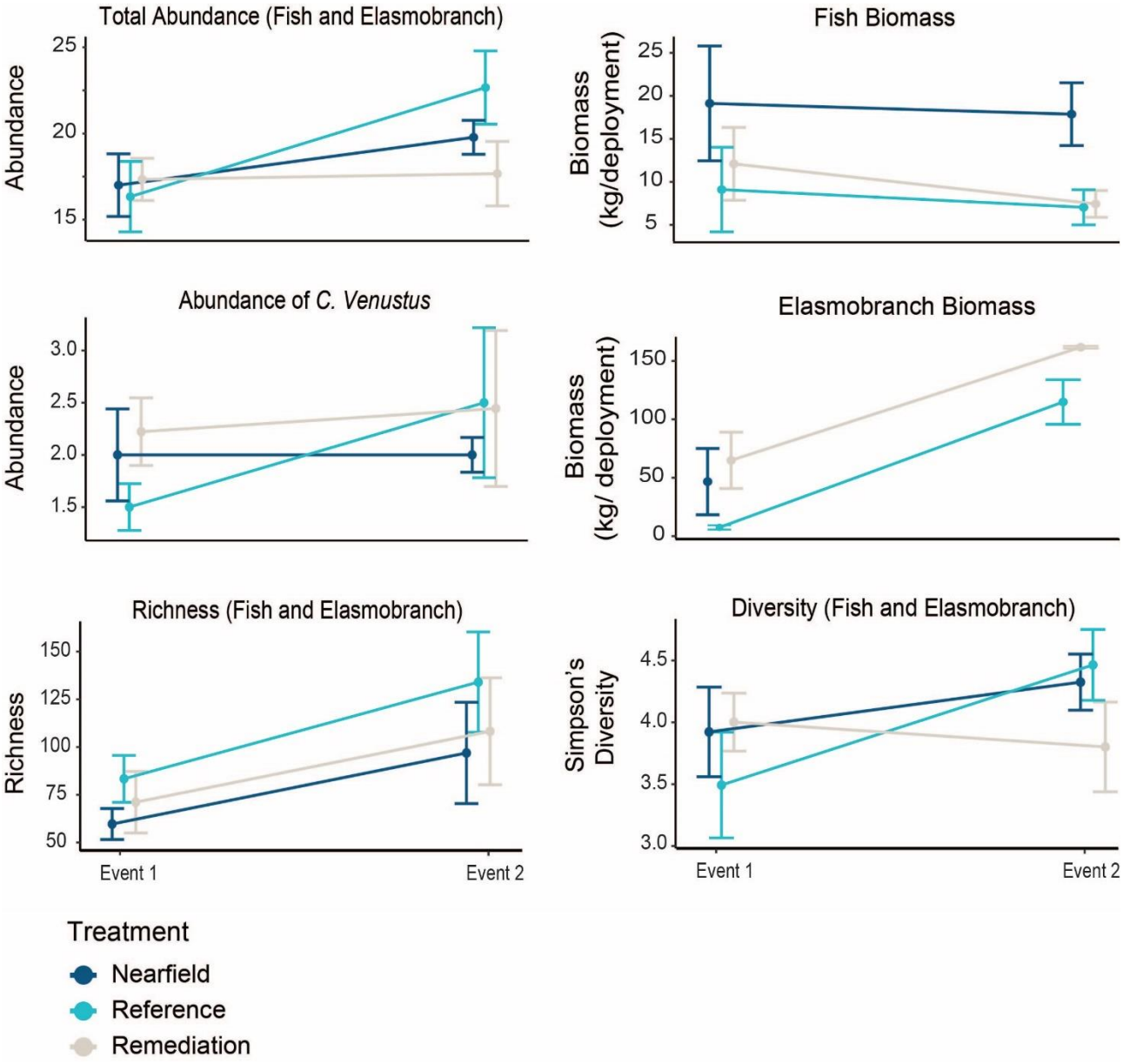


Figure 5-33 Mean (± SE) abundance (total and *C. venustus*), biomass richness, diversity and biomass (for fish and elasmobranchs) between events by treatment

Table 5-8 Summary analysis of deviance table for generalized linear models of fish diversity metrics. Significance codes: 0 = *, 0.001 =**, 0.01 = *, 0.05 =.**

Response	Parameter	Chi Sq	df	P>Chi	
B20 Biomass					
	Treatment	6.8277	2	**0.033**	*
	Event	0.5702	1	0.450	
	Treatment*Event	0.8546	2	0.653	
Richness					
	Location	1.6181	2	0.44528	
	Event	4.8805	1	**0.02716**	*
	Location*Event	3.1487	2	0.20714	
Abundance					
	Location	3.846	2	0.146	
	Event	4.808	1	**0.028**	*
	Location*Event	0.110	2	0.946	
Simpsons Diversity					
	Location	0.633	2	0.7286	
	Event	1.696	1	0.1928	
	Location*Event	3.510	2	0.1729	

(Refer Appendix B for detailed statistical outputs from these analyses)

Table 5-9 Average length of common genera at each site (mm). Highlights indicate the largest value for all events combined

Location	Event 1				Event 2			
	Choerodon	*Gymnocranius*	*Lethrinus*	*Naso*	*Choerodon*	*Gymnocranius*	*Lethrinus*	*Naso*
mA	298	252	0	337	387	293	0	169
mB	287	282	301	352	332	293	0	317
mC	251	268	347	0	173	213	127	0
mD	216	278	245	502	284	321	123	182
mE	419	315	305	0	247	304	257	0
mG	299	280	362	505	363	322	204	0
mH	330	0	199	187	282	0	183	189
mI	240	0	162	0	302	0	143	0
mA	298	252	0	337	387	293	0	169

5.3.3 Multivariate Patterns

Multivariate analyses showed that the direction of change in fish communities between the two survey events was largely consistent among all the locations. Major clusters of similarity formed three communities which varied between spring 2019 and autumn 2020, but generally consisted of location mB as a discreet community, the remaining Douglas Shoal locations, and thirdly, Haberfield Shoal locations. Increases in the abundance of several prevalent species, presumably due to recruitment, was the likely driver of this shift.

The differences in fish communities analysed with a two-way ANOSIM indicated significant that locations (Global R = 0.338, p = 0.001) and survey events (Global R = 0.237, p = 0.001) differed significantly. Pairwise comparisons of fish communities between locations showed that not all location pairs were significantly different (Table 5-10). Rather, Haberfield Shoal reference locations (mH and mI) were both significantly different to half of the Douglas Shoal locations, including mA (p = 0.01), mB (p < 0.03) and mC (p < 0.02). Differences were also detected when comparing some Douglas Shoal locations, namely location mC with each of mA and mB (p < 0.02), and when comparing mB to mG (p < 0.02).

Table 5-10 Pairwise comparison test results between location pairs (significant tests highlighted)

Pairwise comparison	R Statistic	Significance level (%)
mA, mB	0.352	8
mA, mC	0.444	2
mA, mD	0.259	10
mA, mE	0.148	22
mA, mG	0.204	16
mA, mH	0.63	1
mA, mI	0.574	1
mB, mC	0.667	1
mB, mD	0.148	28
mB, mE	0.204	20
mB, mG	0.537	2
mB, mH	0.519	3
mB, mI	0.852	1
mC, mD	0.204	15
mC, mE	-0.074	69
mC, mG	0.259	12
mC, mH	0.519	2
mC, mI	0.537	1
mD, mE	-0.056	56

Overall, three broad groupings were identified, as illustrated by both cluster analysis and n-MDS ordination (see Figure 5-34 and Figure 5-35). These groupings were comprised of:

(1) Haberfield Shoal (reference locations), including both survey events

(2) Douglas Shoal locations during the first survey event (Spring 2019)

(3) Douglas Shoal locations during the second survey (Autumn 2020).

Additionally, location mB appeared very different to other fish communities; it was dissimilar to other Douglas Shoal locations during both survey events but it changed direction in community spaces in the same way that other locations did. With the exception of the different communities at mB, the above-mentioned groups were distinct at a 55% similarity level (sharing roughly half of species [4]). All locations displayed a temporal shift between the two survey events. This temporal change followed a comparable trend at all locations in terms of the direction of change (see trajectories trending towards bottom-left of nMDS ordination at Figure 5-35). The magnitude of this change was variable between locations and appeared similar overall between treatments.

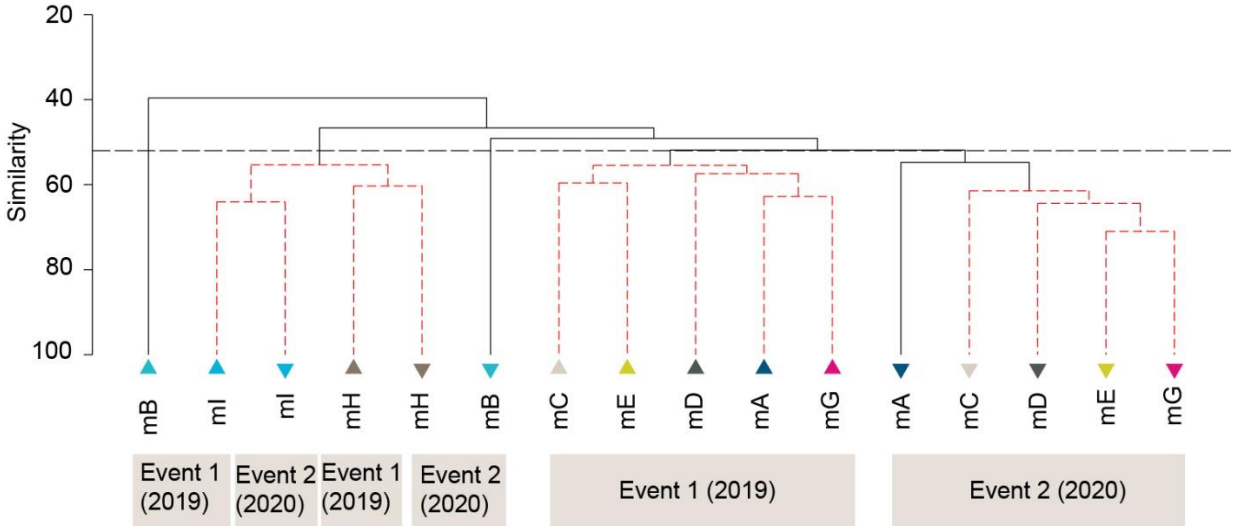


Figure 5-34 Dendrogram of hierarchical clustering of fish assemblage data, averaged within each location for both survey events

[4] Within the Bray-Curtis similarity matrix, the abundance and distribution of taxa between two groups can vary between 0 and 100% similarity, with the latter representing the same number of individuals from the same array of species at two sites. Zero (0%) similarity (or 100% dissimilarity) represents no shared species

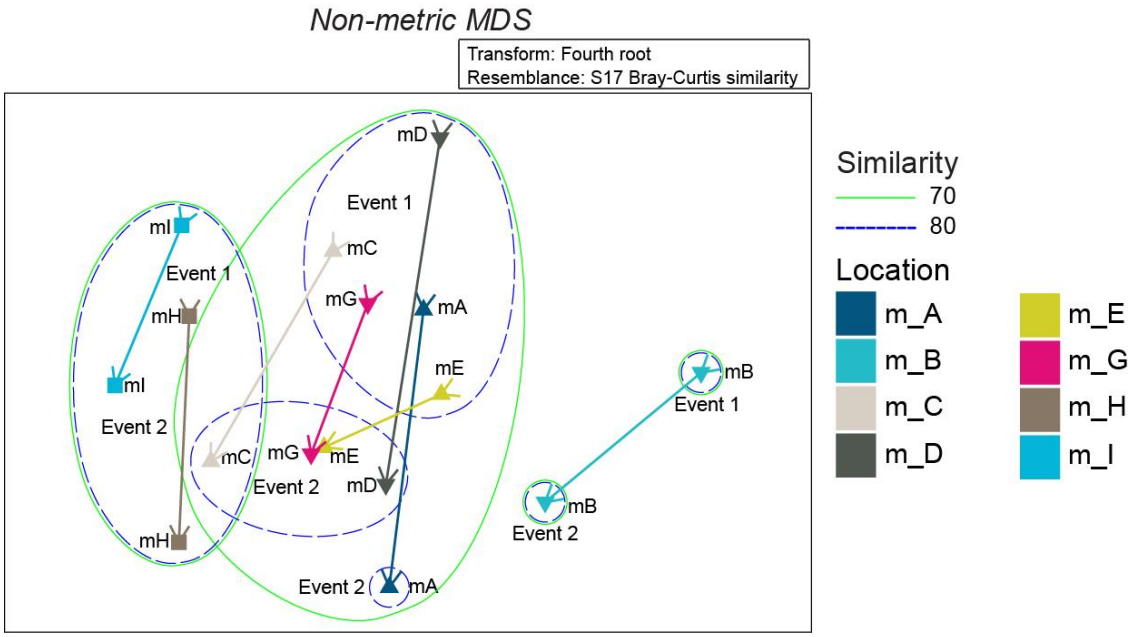


Figure 5-35 Two-dimensional n-MDS ordination of the location averaged fish data for two survey times. Data are denoted by location with temporal trajectories also shown

At every location, the first survey (Spring 2019) was characterised by a higher degree of multivariate dispersion as compared to the second survey (Autumn 2020) (Table 5-11). This indicates that, within each location, fish records (i.e. taxa/abundance) were less variable during the second survey. Dispersion trends were not evident between locations or treatments.

Table 5-11 Multivariate dispersion within locations on each survey event

Location	Survey	Dispersion
Remediation mA	1. Spring 2019 2. Autumn 2020	1.374 0.830
Remediation mC	1. Spring 2019 2. Autumn 2020	0.939 0.884
Remediation mE	1. Spring 2019 2. Autumn 2020	1.660 0.762
Nearfield mB	1. Spring 2019 2. Autumn 2020	1.769 1.211
Nearfield mD	1. Spring 2019 2. Autumn 2020	1.306 0.952
Nearfield mG	1. Spring 2019 2. Autumn 2020	0.898 0.259
Reference mH	1. Spring 2019 2. Autumn 2020	1.401 0.816
Reference mI	1. Spring 2019 2. Autumn 2020	0.612 0.327

The overall differences in the fish communities between the two survey times were strongly driven by higher average abundances of the following species during the second (Autumn 2020) survey: *Chromis nitida*, *Scolopsis monogramma*, *Apogon* sp, *Ptereleotris microlepis*; as well as changes in the presence of species of *Parapercis* (Table 5-12, Figure 5-36).

In terms of differences between locations, Figure 5-36 illustrates how the average abundances of the 20 most common species varied between locations for the two surveys. *Pomacentrus australis* was highly abundant across all locations. *Chromis nitida* was likewise widespread, but more abundant during the second survey. Location mA was differentiated by the highest abundances of *Chromis nitida* and *Ptereleotris microlepis* during the second survey. The apparent outlying nature of location mB was in part due to higher abundances of *Plectropomus leopardus*. Reference locations at Haberfield shoal tended to have higher abundances of *Acanthurus grammoptilus*, *Apogon* sp, *Choerodon venustus*, *Siganus canaliculatus* and *Halichoeres nebulosus*. Proportional contributions of these, and the less common species also contributing to differences between locations are listed in Table 5-13.

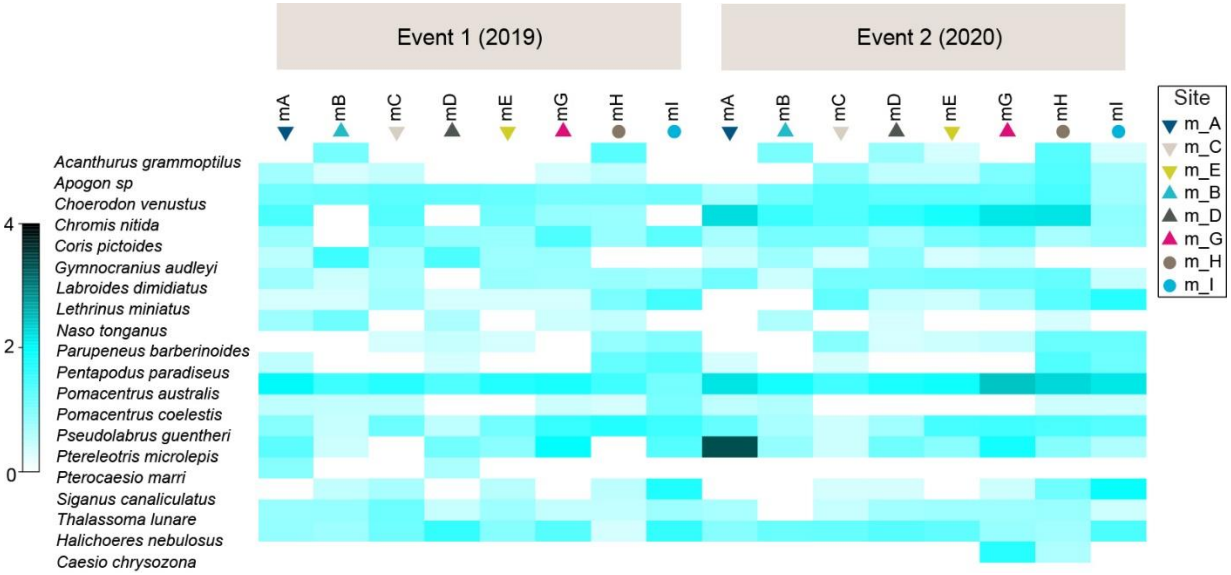


Figure 5-36 Shade plot showing fourth root transformed abundance (data averaged within location for each survey time) of the twenty most abundant fish species overall

Table 5-12 SIMPER summary listing fish species contributing the most to the dissimilarity between survey times

Test	Dissimilarity	Species contributing most to dissimilarity (% contribution, listed next to survey when most abundant)
Survey 1 (Spring 2019) vs Survey 2 (Autumn 2020)	45.38	↑ Survey 1: *Parapercis* sp (3%, absent survey 2) ↑ Survey 2: *Chromis nitida* (5%), *Parapercis stricticeps* (4%, absent survey 1), *Scolopsis monogramma* (3%), *Apogon* sp (3%), *Ptereleotris microlepis* (3%)

Table 5-13 SIMPER summary listing fish species contributing the most to the dissimilarity between locations

Test Loc	Dissimilarity	Species contributing most to dissimilarity (% contribution, listed next to location where most abundant)
mA, mB	52.65	↑ mA: *Ptereleotris microlepis* (7%), *Chromis nitida* (4%), *Parapercis clathrata* (3%) ↑ mB: *Acanthurus grammoptilus* (4%, absent at mA)
mA, mC	48.20	↑ mA: *Ptereleotris microlepis* (10%), *Lethrinus miniatus* (4%), *Naso unicornis* (3% and absent at mC), *Scolopsis monogramma* (3%)
mB, mC	59.08	↑ mB: *Acanthurus grammoptilus* (4%, absent at mC), *Naso tonganus* (3%, absent at mC) ↑ mC: *Lethrinus miniatus* (3%)
mA, mD	45.86	↑ mA: *Ptereleotris microlepis* (5%), *Chromis nitida* (5%), *Scolopsis monogramma* (4%) ↑ mD: *Leptojulis cyanopleura* (4%), *Gymnocranius audleyi* (3%)
mB, mD	49.93	↑ mB: *Acanthurus grammoptilus* (3%) ↑ mD: *Leptojulis cyanopleura* (4%)
mC, mD	44.29	↑ mC: *Chromis nitida* (5%), *Leptojulis cyanopleura* (4%), *Lethrinus miniatus* (3%) ↑ mD: *Ptereleotris microlepis* (5%), *Gymnocranius audleyi* (4%)
mA, mE	44.89	↑ mA: *Ptereleotris microlepis* (7%), *Parapercis clathrata* (5%), *Naso unicornis* (4%, absent at mE), *Scolopsis monogramma* (3%), *Apogon* sp (3%)
mB, mE	53.51	↑ mB: *Naso tonganus* (4%, absent at mE), *Acanthurus grammoptilus* (4%), *Plectropomus leopardus* (3%, absent at mE) ↑ mE: *Pseudolabrus guentheri* (3%)
mC, mE	36.49	↑ mC: *Lethrinus miniatus* (4%) ↑ mE: *Ptereleotris microlepis* (5%), *Pseudolabrus guentheri* (4%), *Parapercis clathrata* (3%)
mD, mE	41.76	↑ mD: *Leptojulis cyanopleura* (5%), *Sufflamen chrysopterum* (4%), *Gymnocranius audleyi* (4%) ↑ mE: *Chromis nitida* (4%), *Pseudolabrus guentheri* (4%)
mA mG	38.46	↑ mA: *Ptereleotris microlepis* (6%), *Scolopsis monogramma* (4%), *Parapercis clathrata* (3%, absent at mG) ↑ mG: *Caesio chrysozona* (4%, absent at mA), *Apogon* sp (4%), *Parapercis stricticeps* (3%, absent at mA)
mB, mG	54.93	↑ mB: *Acanthurus grammoptilus* (4%, absent at mG) ↑ mG: *Ptereleotris microlepis* (5%), *Pseudolabrus guentheri* (4%), *Caesio chrysozona* (3%, absent at mB), *Coris pictoides* (3%)
mC, mG	38.99	↑ mC: *Carangoides fulvoguttatus* (3%, absent at mG) ↑ mG: *Ptereleotris microlepis* (10%), *Caesio chrysozona* (5%, absent mC), *Pseudochromis fuscus* (5%), *Pseudolabrus guentheri* (4%)
mD, mG	39.03	↑ mD: *Gymnocranius audleyi* (3%), *Plectropomus leopardus* (3%) ↑ mG: *Pseudolabrus guentheri* (5%), *Ptereleotris microlepis* (5%), *Caesio chrysozona* (4%, absent at mD), *Chromis nitida* (4%)
mE, mG	35.47	↑ mE: *Siganus canaliculatus* (3%)

Test Loc	Dissimilarity	Species contributing most to dissimilarity (% contribution, listed next to location where most abundant)
		↑ mG: *Ptereleotris microlepis* (7%), *Caesio chrysozona* (5%, absent at mE), *Stethojulis strigiventer* (3%), *Choerodon schoenleinii* (3%)
mA, mH	53.93	↑ mA: *Ptereleotris microlepis* (6%), *Parapercis clathrata* (3%) ↑ mH: *Acanthurus grammoptilus* (5%, absent mA), *Parupeneus barberinoides* (3%, absent mA), *Lethrinus miniatus* (3%)
mB, mH	53.74	↑ mB: *Gymnocranius audleyi* (4%, absent at mH) ↑ mH: *Pentapodus paradiseus* (5%, absent mB), *Pseudolabrus guentheri* (4%), *Parupeneus barberinoides* (4%, absent mB)
mC, mH	49.20	↑ mH: *Acanthurus grammoptilus* (6%, absent at mC), *Pentapodus paradiseus* (5%), *Chaetodontoplus meredithi* (4%), *Pseudolabrus guentheri* (3%), *Parupeneus spilurus* (3%, absent at mC)
mD, mH	53.18	↑ mD: *Gymnocranius audleyi* (5%, absent at mH), *Halichoeres nebulosus* (4%) ↑ mH: *Pentapodus paradiseus* (4%), *Pseudolabrus guentheri* (4%), *Acanthurus grammoptilus* (4%), *Chaetodontoplus meredithi* (4%)
mE, mH	48.12	↑ mH: *Pentapodus paradiseus* (6%, absent at mE), *Acanthurus grammoptilus* (5%), *Chaetodontoplus meredithi* (4%), *Lethrinus miniatus* (3%), *Parupeneus spilurus* (3%, absent at mE)
mG, mH	43.35	↑ mG: *Ptereleotris microlepis* (7%) ↑ mH: *Acanthurus grammoptilus* (6%, absent at mG), *Pentapodus paradiseus* (6%, absent at mG), *Parupeneus barberinoides* (4%), *Parupeneus spilurus* (3%, absent at mG), *Sufflamen chrysopterum* (3%, absent at mG)
mA, mI	54.99	↑ mA: *Chromis nitida* (5%), *Ptereleotris microlepis* (5%) ↑ mI: *Siganus canaliculatus* (7%, absent at mA), *Lethrinus miniatus* (5%), *Parupeneus barberinoides* (4%, absent at mA), *Rhinecanthus rectangulus* (3%, absent at mA)
mB, mI	65.57	↑ mB: *Gymnocranius audleyi* (4%, absent at mI) ↑ mI: *Siganus canaliculatus* (5%), *Lethrinus miniatus* (5%), *Pentapodus paradiseus* (4%, absent mB)
mC, mI	45.04	↑ mC: *Chromis nitida* (5%), *Leptojulis cyanopleura* (3%, absent at mI) ↑ mI: *Siganus canaliculatus* (7%), *Pentapodus paradiseus* (6%), *Rhinecanthus rectangulus* (5%, absent at mC), *Ptereleotris microlepis* (4%)
mD, mI	49.36	↑ mD: *Gymnocranius audleyi* (6%, absent at mI) ↑ mI: *Siganus canaliculatus* (8%), *Lethrinus miniatus* (6%), *Pentapodus paradiseus* (5%), *Rhinecanthus rectangulus* (4%, absent at mD)
mE, mI	48.75	↑ mE: *Chromis nitida* (5%) ↑ mI: *Siganus canaliculatus* (7%), *Pentapodus paradiseus* (6%, absent mE) *Lethrinus_miniatus* (6%), *Rhinecanthus rectangulus* (4%, absent mE)
mG, mI	45.41	↑ mG: *Chromis nitida* (5%), *Ptereleotris microlepis* (4%) ↑ mI: *Siganus canaliculatus* (8%), *Pentapodus paradiseus* (6%, absent at mG), *Lethrinus miniatus* (5%)
mH, mI	41.13	↑ mH: *Acanthurus grammoptilus* (6%), *Chromis nitida* (5%) ↑ mI: *Siganus canaliculatus* (5%), *Halichoeres nebulosus* (5%), *Ptereleotris microlepis* (4%), *Rhinecanthus rectangulus* (4%, absent at mH)

5.4 Biotic Contaminant Concentrations

TBT, copper, and zinc were found in all three forms of biota (fish, macroalgae, and ascidians). Copper and zinc are naturally occurring and their presence in biota was not unexpected; however, there was some evidence of higher concentrations at mA compared to other locations. Although TBT was only found in fish in 2019, it was found in fish, ascidians and macroalgae in 2020. Detailed tabulated results are listed in Appendix C and photographs of the biota sampled are provided in Appendix A. Key findings from the biotic contamination assessment are as follows:

- TBT was below LOR in all tissue samples from algae and ascidians in 2019. However, TBT was present in four macroalgae samples from mA, one macroalgae sample from mD, and from two ascidian samples in mA during 2020. Concentrations ranged from 1.2 – 37 ng/g, which was below the most conservative human health guideline for consumption of 240 ng/g (WHO 1999). It should be noted that the species of macroalgae differed between 2019 (*Dictyopteris* sp.) compared to 2020 (*Dictyota sp.*) due to availability.
- In 2020, one macroalgae sample with high TBT (37 ng/g) from location mA also had detectable concentrations of monobutyltin (8.3 ng/g) and dibutyltin (20 ng/g).
- In 2019, four fish samples had TBT concentrations above the 1 ng/g limit of reaction (LOR) (Table 5-14). These included two *Choerodon venustus* and two *Gymnocranius audleyi* (iodine bream). Two TBT-positive fish were collected from location mA, one from location mB, and once from mC. All concentrations were below the most conservative 240 ng/g WHO (1999) guideline.
- In 2020, two TBT-positive *C. venustus* were collected from location mA (Table 5-14). Both concentrations (1.5 and 1.2 ng/g) were below the 240 ng/g WHO (1999) guideline.
- The concentration of copper in fish tissue was elevated at location mA, and this location experienced a large increase in concentration between events Figure 5-37, Table 5-15). A similar pattern in copper concentration was evident in macroalgae and ascidians.
- Concentrations of zinc in fish tissue declined between sampling events overall and locations mG and mH had lower concentrations of zinc between events (Figure 5-37, Table 5-15). Conversely, concentrations of zinc in algae tended to increase overall, with all locations except mD having significantly higher concentrations in 2020 compared to 2019. Concentrations of zinc in ascidians were relatively static except for a significant increase at location mA in 2020.
- Instances of TBT concentration were too scarce for meaningful linear modelling; however, it is notable that all records of TBT concentration from sessile biota have come from locations mA and mD.
- Zinc and copper concentrations in all biota were less than the most conservative ANZFA (2002) concentration guidelines of 160 and 80 mg/kg, respectively.

Note that detailed outputs from statistical analyses of biota contamination are provided in Appendix B.

Table 5-14 Length and Weight of Fish Samples (Photographs provided in Appendix A). Pink highlighted cells indicate the presence of TBT.

Sample Name	Date	Scientific Name	Common Name	Length (mm)	Weight (g)
A1-FIS-1019	6/10/2019	*Choerodon venustus*	Venus tuskfish	380	590
A2-FIS-1019	6/10/2019	*Choerodon venustus*	Venus tuskfish	400	820
A3-FIS-1019	6/10/2019	*Lethrinus miniatus*	Red throated emperor	380	740
A4-FIS-1019	6/10/2019	*Choerodon venustus*	Venus tuskfish	340	590
A5-FIS-1019	7/10/2019	*Lethrinus miniatus*	Red throated emperor	470	1680
B1-FIS-1019	7/10/2019	*Choerodon venustus*	Venus tuskfish	410	1190
B2-FIS-1019	7/10/2019	*Choerodon venustus*	Venus tuskfish	390	860
B3-FIS-1019	7/10/2019	*Gymnocranius audleyi*	Iodine bream	340	540
B4-FIS-1019	7/10/2019	*Gymnocranius audleyi*	Iodine bream	330	560
B5-FIS-1019	7/10/2019	*Gymnocranius audleyi*	Iodine bream	320	660
C1-FIS-1019	7/10/2019	*Lethrinus miniatus*	Red throated emperor	380	950
C2-FIS-1019	7/10/2019	*Lethrinus miniatus*	Red throated emperor	320	600
C3-FIS-1019	7/10/2019	*Lethrinus miniatus*	Red throated emperor	340	730
C4-FIS-1019	7/10/2019	*Lethrinus miniatus*	Red throated emperor	450	1330
C5-FIS-1019	7/10/2019	*Gymnocranius audleyi*	Iodine bream	290	410
D1-FIS-1019	6/10/2019	*Lutjanus adetii*	Hussar	330	490
D2-FIS-1019	6/10/2019	*Lutjanus sebae*	Red emperor	520	2250
D3-FIS-1019	7/10/2019	*Lutjanus adetii*	Hussar	350	540
D4-FIS-1019	7/10/2019	*Lethrinus miniatus*	Red throated emperor	490	1470
D5-FIS-1019	7/10/2019	*Lutjanus adetii*	Hussar	300	390
E1-FIS-1019	6/10/2019	*Choerodon venustus*	Venus tuskfish	410	980
E2-FIS-1019	7/10/2019	*Choerodon venustus*	Venus tuskfish	420	1130
E3-FIS-1019	7/10/2019	*Lethrinus miniatus*	Red throated emperor	400	800
E4-FIS-1019	7/10/2019	*Lethrinus miniatus*	Red throated emperor	380	900
E5-FIS-1019	7/10/2019	*Choerodon venustus*	Venus tuskfish	440	1300

Sample Name	Date	Scientific Name	Common Name	Length (mm)	Weight (g)
G1-FIS-1019	6/10/2019	*Lutjanus adetii*	Hussar	340	350
G2-FIS-1019	6/10/2019	*Lethrinus miniatus*	Red throated emperor	500	1670
G3-FIS-1019	6/10/2019	*Lutjanus adetii*	Hussar	340	400
G4-FIS-1019	6/10/2019	*Lethrinus miniatus*	Red throated emperor	450	1170
G5-FIS-1019	7/10/2019	*Lethrinus miniatus*	Red throated emperor	500	1780
H1-FIS-1019	7/10/2019	*Lethrinus miniatus*	Red throated emperor	300	450
H2-FIS-1019	7/10/2019	*Lethrinus miniatus*	Red throated emperor	290	350
H3-FIS-1019	7/10/2019	*Lutjanus sebae*	Red emperor	710	6400
H4-FIS-1019	7/10/2019	*Lethrinus miniatus*	Red throated emperor	320	560
H5-FIS-1019	7/10/2019	*Lethrinus miniatus*	Red throated emperor	420	1060
I1-FIS-1019	7/10/2019	*Epinephelus undulostriatus*	Maori rock cod	380	810
I2-FIS-1019	7/10/2019	*Choerodon venustus*	Venus tuskfish	320	600
I3-FIS-1019	7/10/2019	*Choerodon venustus*	Venus tuskfish	330	670
I4-FIS-1019	7/10/2019	*Epinephelus quoyanus*	Wire-netting cod	370	700
I5-FIS-1019	7/10/2019	*Choerodon venustus*	Venus tuskfish	320	520
A1-FIS-0420	11/04/2020	*Choerodon venustus*	Venus tuskfish	310	550
A2-FIS-0420	13/04/2020	*Choerodon venustus*	Venus tuskfish	400	1010
A3-FIS-0420	19/04/2020	*Echeneis naucrates*	Remora	900	3100
A4-FIS-0420	19/04/2020	*Lethrinus miniatus*	Red throated emperor	410	1030
A5-FIS-0420	19/04/2020	*Choerodon venustus*	Venus tuskfish	420	1100
B1-FIS-0420	11/04/2020	*Gymnocranius audleyi*	Iodine bream	320	450
B2-FIS-0420	11/04/2020	*Lethrinus miniatus*	Red throated emperor	520	1845
B3-FIS-0420	11/04/2020	*Lethrinus miniatus*	Red throated emperor	400	1100
B4-FIS-0420	11/04/2020	*Lethrinus miniatus*	Red throated emperor	420	1100
B5-FIS-0420	11/04/2020	*Gymnocranius audleyi*	Iodine bream	300	350
C1-FIS-0420	19/04/2020	*Echeneis naucrates*	Remora	800	2600

Sample Name	Date	Scientific Name	Common Name	Length (mm)	Weight (g)
C2-FIS-0420	20/04/2020	*Echeneis naucrates*	Remora	780	1500
C3-FIS-0420	20/04/2020	*Lethrinus miniatus*	Red throated emperor	430	1100
C4-FIS-0420	20/04/2020	*Choerodon venustus*	Venus tuskfish	420	1300
C5-FIS-0420	20/04/2020	*Lethrinus miniatus*	Red throated emperor	400	900
D1-FIS-0420	19/04/2020	*Gymnocranius audleyi*	Iodine bream	350	630
D2-FIS-0420	20/04/2020	*Lutjanus adetii*	Hussar	310	450
D3-FIS-0420	20/04/2020	*Lutjanus adetii*	Hussar	370	630
D4-FIS-0420	20/04/2020	*Lutjanus adetii*	Hussar	340	585
D5-FIS-0420	20/04/2020	*Choerodon venustus*	Venus tuskfish	350	800
E1-FIS-0420	19/04/2020	*Lethrinus miniatus*	Red throated emperor	350	750
E2-FIS-0420	19/04/2020	*Choerodon venustus*	Venus tuskfish	340	610
E3-FIS-0420	19/04/2020	*Lethrinus miniatus*	Red throated emperor	410	900
E4-FIS-0420	19/04/2020	*Gymnocranius audleyi*	Iodine bream	320	505
E5-FIS-0420	20/04/2020	*Lethrinus miniatus*	Red throated emperor	380	880
G1-FIS-0420	20/04/2020	*Choerodon venustus*	Venus tuskfish	420	1300
G2-FIS-0420	20/04/2020	*Lethrinus miniatus*	Red throated emperor	450	1200
G3-FIS-0420	20/04/2020	*Lethrinus miniatus*	Red throated emperor	400	940
G4-FIS-0420	20/04/2020	*Gymnocranius audleyi*	Iodine bream	365	680
G5-FIS-0420	20/04/2020	*Lutjanus adetii*	Hussar	360	660
H1-FIS-0420	12/04/2020	*Lethrinus miniatus*	Red throated emperor	260	300
H2-FIS-0420	12/04/2020	*Lethrinus miniatus*	Red throated emperor	260	280
H3-FIS-0420	12/04/2020	*Epinephelus quoyanus*	Wire-netting cod	390	750
H4-FIS-0420	12/04/2020	*Lethrinus miniatus*	Red throated emperor	280	320
H5-FIS-0420	12/04/2020	*Lethrinus miniatus*	Red throated emperor	270	310
I1-FIS-0420	12/04/2020	*Choerodon venustus*	Venus tuskfish	300	470
I2-FIS-0420	12/04/2020	*Choerodon venustus*	Venus tuskfish	320	500

Sample Name	Date	Scientific Name	Common Name	Length (mm)	Weight (g)
I3-FIS-0420	12/04/2020	*Lethrinus ravus*	Drab emperor	200	105
I4-FIS-0420	12/04/2020	*Echeneis naucrates*	Remora	605	620
I5-FIS-0420	12/04/2020	*Choerodon venustus*	Venus tuskfish	420	1630

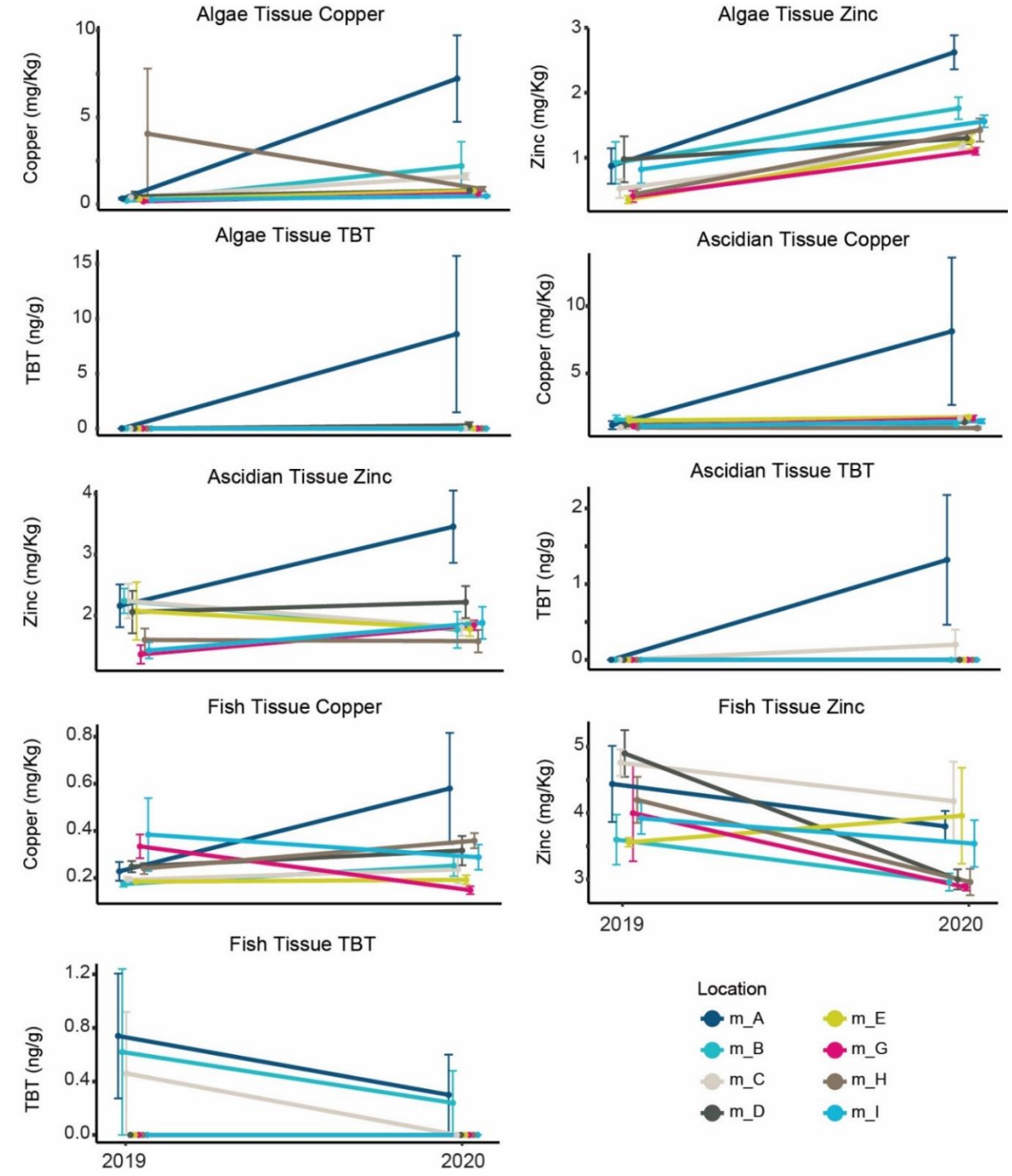


Figure 5-37 Mean (SE) TBT, zinc, and copper concentration in ascidians, algae and fish

Table 5-15 Summary analysis of deviance table for generalized linear models of biotic contamination. Significance codes: 0 = *, 0.001 =**, 0.01 = *, 0.05 =.**

Response	Parameter	Chi Sq	df	P>Chi	
Fish Copper					
	Location	36.6468	7	**5.471e-06**	***
	Event	3.2172	1	0.07287	
	Location*Event	24.5271	7	**0.00092**	***
Fish Zinc					
	Location	19.728	7	**0.006188**	**
	Event	20.959	1	**4.693e-06**	***
	Location*Event	16.894	7	**0.018094**	*
Ascidian Copper					
	Location	98.963	7	**< 2.2e-16**	***
	Event	11.867	1	**0.0005713**	***
	Location*Event	16.685	7	**0.0195415**	*
Ascidian Zinc					
	Location	41.5254	7	**6.417e-07**	***
	Event	1.2114	1	0.27106	
	Location*Event	16.1641	7	**0.02366**	*
Algae Copper					
	Location	72.3952	2	**4.841e-13**	***
	Event	3.2037	1	0.07347	
	Location*Event	38.6519	7	**2.277e-06**	***
Algae Zinc					
	Location	27.372		**0.0002856**	***
	Event	48.201		**3.848e-12**	***
	Location*Event	17.524		**0.0143148**	*

(Refer to Appendix B for detailed statistical analysis outputs).

5.5 Water Quality

Five water quality samples were collected for laboratory analysis at a depth of 1 m above the seafloor at each of the eight monitoring locations.

Key findings of water quality analyses are as follows (noting copies of detailed laboratory testing results are provided at Appendix D):

- Most parameters were below the laboratory limit of reporting (LOR) in water samples (Table 5-16)
- Total suspended solids (TSS) were below the LOR in five of the eight samples, the exceptions being location mC, mE and mG.

Table 5-16 Detections above LOR for dissolved parameters in water quality sampling (shown in pink); Guidelines are based on ANZG (2018) 99% species protection. ANZECC (2000) guideline values shown in yellow: Antimony and Arsenic are low reliability ANZECC; Barium is the recreational limit.

					Analyte grouping/Analyte	TSS	Mercury_Disolved	Aluminium	Antimony	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Nickel	Zinc	Tributyltin
					Unit	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ngSn/L
					Limit of reporting	1	0.04	5	0.5	0.5	1	0.2	0.5	1	5	0.2	0.5	5	2
Client sample ID (1st):	Location	Treatment	Site	event	ANZG Guideline (99%)		0.1		270	4.5	1000	0.7	0.14	0.3		2.2	7	7	0.4
C1WAT-1019	Douglas_Shoal	Test	mC	Spring_2019		**3**	<0.04	<5	<0.5	**1.6**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
C2WAT-1019	Douglas_Shoal	Test	mC	Spring_2019		<1	**0.16**	<5	<0.5	**1.9**	**3**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
C3WAT-1019	Douglas_Shoal	Test	mC	Spring_2019		**2**	<0.04	<5	<0.5	**1.9**	**3**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
C4WAT-1019	Douglas_Shoal	Test	mC	Spring_2019		**2**	<0.04	<5	<0.5	**1.6**	**3**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
C5WAT-1019	Douglas_Shoal	Test	mC	Spring_2019		<1	<0.04	<5	<0.5	**1.8**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
D1WAT-1019	Douglas_Shoal	Nearfield	mD	Spring_2019		<1	<0.04	<5	<0.5	**1.8**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
D2WAT-1019	Douglas_Shoal	Nearfield	mD	Spring_2019		<1	<0.04	<5	<0.5	**1.8**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
D3WAT-1019	Douglas_Shoal	Nearfield	mD	Spring_2019		<1	<0.04	<5	<0.5	**2**	**3**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
D4WAT-1019	Douglas_Shoal	Nearfield	mD	Spring_2019		<1	<0.04	<5	<0.5	**2**	**4**	<0.2	<0.5	<1	<5	<0.2	**0.6**	<5	<2
D5WAT-1019	Douglas_Shoal	Nearfield	mD	Spring_2019		<1	<0.04	<5	<0.5	**1.6**	**3**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
E1WAT-1019	Douglas_Shoal	Test	mE	Spring_2019		<1	<0.04	<5	<0.5	**1.5**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
E2WAT-1019	Douglas_Shoal	Test	mE	Spring_2019		<1	<0.04	<5	<0.5	**1.6**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
E3WAT-1019	Douglas_Shoal	Test	mE	Spring_2019		<1	<0.04	<5	<0.5	**1.6**	**3**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
E4WAT-1019	Douglas_Shoal	Test	mE	Spring_2019		<1	<0.04	<5	<0.5	**1.6**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
E5WAT-1019	Douglas_Shoal	Test	mE	Spring_2019		**1**	<0.04	<5	<0.5	**1.5**	**3**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
G1WAT-1019	Douglas_Shoal	Nearfield	mG	Spring_2019		**2**	<0.04	<5	<0.5	**1.6**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
G2WAT-1019	Douglas_Shoal	Nearfield	mG	Spring_2019		<1	<0.04	<5	<0.5	**1.5**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
G3WAT-1019	Douglas_Shoal	Nearfield	mG	Spring_2019		<1	<0.04	<5	<0.5	**1.5**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
G4WAT-1019	Douglas_Shoal	Nearfield	mG	Spring_2019		<1	<0.04	<5	<0.5	**1.4**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
G5WAT-1019	Douglas_Shoal	Nearfield	mG	Spring_2019		<1	<0.04	<5	<0.5	**1.3**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
A1WAT-1019	Douglas_Shoal	Test	mA	Spring_2019		<1	<0.04	<5	<0.5	**1.5**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
A2WAT-1019	Douglas_Shoal	Test	mA	Spring_2019		<1	<0.04	<5	<0.5	**1.6**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
A3WAT-1019	Douglas_Shoal	Test	mA	Spring_2019		<1	<0.04	<5	<0.5	**1.7**	**3**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
A4WAT-1019	Douglas_Shoal	Test	mA	Spring_2019		<1	<0.04	<5	<0.5	**1.5**	**3**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
A5WAT-1019	Douglas_Shoal	Test	mA	Spring_2019		<1	<0.04	<5	<0.5	**1.6**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
B1WAT-1019	Douglas_Shoal	Nearfield	mB	Spring_2019		<1	<0.04	<5	<0.5	**1.6**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
B2WAT-1019	Douglas_Shoal	Nearfield	mB	Spring_2019		<1	<0.04	<5	<0.5	**1.4**	**3**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
B3WAT-1019	Douglas_Shoal	Nearfield	mB	Spring_2019		<1	<0.04	<5	<0.5	**1.8**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
B4WAT-1019	Douglas_Shoal	Nearfield	mB	Spring_2019		<1	<0.04	<5	<0.5	**1.4**	**3**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
B5WAT-1019	Douglas_Shoal	Nearfield	mB	Spring_2019		<1	<0.04	<5	<0.5	**1.4**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
H1WAT-1019	Haberfield_Shoal	Reference	mH	Spring_2019		<1	<0.04	<5	<0.5	**1.6**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
H2WAT-1019	Haberfield_Shoal	Reference	mH	Spring_2019		<1	<0.04	<5	<0.5	**1.6**	**3**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
H3WAT-1019	Haberfield_Shoal	Reference	mH	Spring_2019		<1	<0.04	<5	<0.5	**1.6**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
H4WAT-1019	Haberfield_Shoal	Reference	mH	Spring_2019		<1	<0.04	<5	<0.5	**1.4**	**3**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
H5WAT-1019	Haberfield_Shoal	Reference	mH	Spring_2019		<1	<0.04	<5	<0.5	**1.7**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
I1WAT-1019	Haberfield_Shoal	Reference	mI	Spring_2019		<1	<0.04	<5	<0.5	**1.6**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
I2WAT-1019	Haberfield_Shoal	Reference	mI	Spring_2019		<1	<0.04	<5	<0.5	**1.7**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
I3WAT-1019	Haberfield_Shoal	Reference	mI	Spring_2019		<1	<0.04	<5	<0.5	**1.7**	**4**	<0.2	<0.5	<1	<5	**0.3**	<0.5	<5	<2
I4WAT-1019	Haberfield_Shoal	Reference	mI	Spring_2019		<1	<0.04	<5	<0.5	**1.7**	**4**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
I5WAT-1019	Haberfield_Shoal	Reference	mI	Spring_2019		<1	<0.04	<5	<0.5	**1.6**	**3**	<0.2	<0.5	<1	<5	<0.2	<0.5	<5	<2
FB01-1019	----	Field Blank				na	<0.04	**25**	<0.5	**1.7**	**5**	<0.2	<0.5	<1	na	**0.3**	**0.7**	**8**	na
TB01-1019	----	Trip Blank				na	<0.04	**41**	<0.5	**1.7**	**6**	<0.2	<0.5	<1	na	**0.6**	**0.8**	**7**	na
R01-1019	----	Rinse Blank				na	<0.04	<5	<0.2	<0.2	**1.2**	<0.05	<0.2	**1.9**	na	**0.3**	<0.5	**6**	na

- Most metals/metalloids had concentrations less than the LOR, the exceptions being:
  - Lead was less than the LOR (0.2 µg/L) or near the LOR (Haberfield Shoal location mI = 0.3 µg/L). Lead concentrations were therefore an order of magnitude below the ANZG (2018) default guideline value for 99% species protection level (99%DGV) of 2.2 µg/L.
  - Nickel was less than the LOR (0.5 µg/L) or near the LOR (Douglas Shoal location mD = 0.6 µg/L). Nickel concentrations were therefore an order of magnitude below the ANZG (2018) 99%DGV of 7 µg/L.
  - Mercury was less than the LOR (0.04 µg/L) for all samples except one from Douglas Shoal location mC (0.16 µg/L). Mercury concentrations were therefore below the ANZG (2018) 99%DGV of 0.1 µg/L[5] in most cases.
  - Arsenic and barium were detected at low concentrations in all samples, as is typical of Australian marine waters. Concentrations were below ANZG (2018) 99%DGVs[6].
- No metals/metalloids exceeded ANZG (2018) 99%DGVs. Furthermore, none of the metals/metalloids considered as contaminants of potential concern in sediments (i.e. copper, zinc, nickel) were recorded at elevated concentrations in water samples taken approximately 1 m above the seafloor at Douglas Shoal.

5.5.1 Water Data Quality Summary

- Relative percent differences (RPD) for arsenic QA/QC samples were acceptable and between 0 and 17%.
- RPD for barium QA/QC samples were between 0% and 28.5%; below the 50% threshold.
- Two field blanks and rinsate samples appeared to be contaminated with aluminium, copper, lead, nickel and zinc. There were slightly lower concentrations of these parameters in the rinsate sample compared to the field blanks.
- In the absence of a trip blank, it is not possible to determine whether contamination was introduced during the field sampling or via the laboratory-supplied rinsate solution. Laboratory tests of similar rinsate solution used during laboratory QA/QC were uncontaminated.
- For the purposes of this assessment, it should be assumed that field blanks and rinsate samples are anomalous for most metals/metalloids. Primary samples, by contrast, had concentrations consistent with clean seawater.

5.6 Sediment Quality

The key findings of sediment quality analyses are as follows, noting that copies of the full laboratory testing reports are available in Appendix D and photographs of the sediments samples are provided at Appendix A.

[5] Note DGV refers to inorganic Hg, whereas the measurements are reported as organic + inorganic Hg (i.e. this represents a conservative comparison to DGV)
[6] Note DGV refers to As III, whereas the measurements are reported for all forms of As (i.e. this represents a conservative comparison to DGV)

- Particle size distribution (PSD) results suggest that average proportions of different sediment classes were similar among locations (Figure 5-38). Exceptions to this were higher silt fractions in locations mA, mB and mD, and the proportion of gravel fractions was higher at Douglas Shoal locations than Haberfield Shoal, especially at location mC (Figure 5-38).

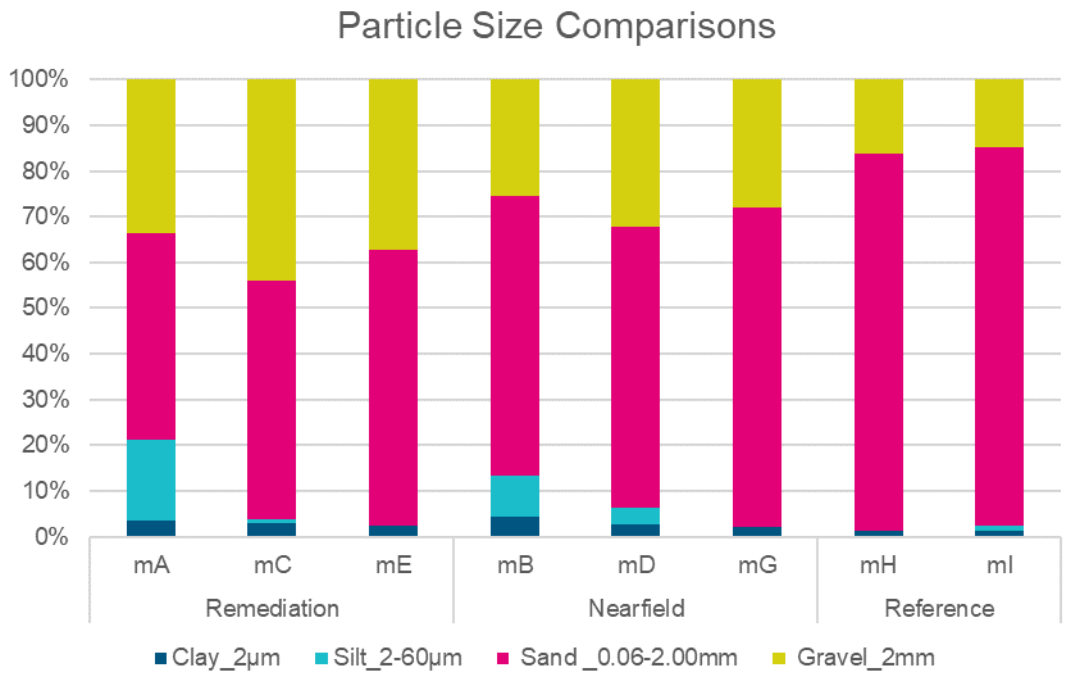


Figure 5-38 Average PSD distributions across monitoring locations

- Most metals/metalloids had concentrations less than ANZG (2018) sediment quality default guideline value (SQDGV). Antimony, cadmium, cobalt, lead, silver and mercury all had concentrations less than the LOR. Detected metals/metalloids with concentrations less than the SQDGV were arsenic, chromium and nickel.
- Selenium, vanadium and manganese were detected but there are no SQDGV for these. One reference site sample had a manganese concentration of >250 mg/kg, which was higher than recorded at other reference locations and Douglas Shoal (range = 11 to 33 mg/kg) and is considered to represent an outlier.
- Constituents with higher concentrations at Douglas Shoal (i.e. nearfield and remediation treatments) than Haberfield Shoal reference locations included copper, zinc, TBT, and nickel (Figure 5-35 and Figure 5-36).
  - copper – all samples had concentrations less than SQDGV of 65 mg/kg. The highest concentrations were recorded at Douglas Shoal 'remediation' location mA (median = 4.2 mg/kg) and mC (median = 1.3 mg/kg).
  - zinc – all samples had concentrations less than SQDGV of 200 mg/kg. The highest concentrations were recorded at Douglas Shoal 'remediation' locations mA (median = 3.5 mg/kg), mC (1.9 mg/kg) and mE (1.1 mg/kg).

- TBT - Douglas Shoal remediation treatment location mA had concentrations greater than ANZG (2018) Guideline Value – High (GV-High) of 70 µg/kg dry weight. Location mC had one sample greater than GV-High, and two samples between SQDGV and GV-High. TBT was detected at two sites below the SQDGV at location mE, and undetected elsewhere.
- nickel – all samples had concentrations less than SQDGV of 21 mg/kg, there were four detects in location mA, eight detects in mC and nine detects in area mE. In nearfield locations, there were three detects in mB, one detect in location mD, and two detects in location mG. At Haberfield shoal there two detects at location mH and one detect at location mI.

- Four of the 87 analysed pesticides, herbicides, and fungicides were detected, as follows:
  - Dimethoate (OP pesticide) and benomyl (carbamate fungicide) at one site from a QC spatial replicate sample at Douglas Shoal location mA (sample A14-SED-1019).
  - Propriconazole (fungicide) was recorded in two QC spatial replicate samples (A13-SED-1019 and A14-SED-1019) at location mA and four primary samples at location mA (A1-SED-1019, A3-SED-1019, A7-SED-1019, A8-SED-1019).
  - Diuron (herbicide) was recorded in three primary samples (A1-SED-1019, A3-SED-1019, A10-SED-1019) at location mA, and one of three QC triplicate samples (A11-SED-1019).
- The detections of herbicides and pesticides were typically just above the LOR, except for one sample of diuron (0.149 mg/Kg) and one sample of benomyl (0.031 mg/kg).
- All detections of fungicides, herbicides and pesticides occurred in location mA. The spatial distribution of propiconazole and diuron are shown in Figure 5-45 and Figure 5-46.

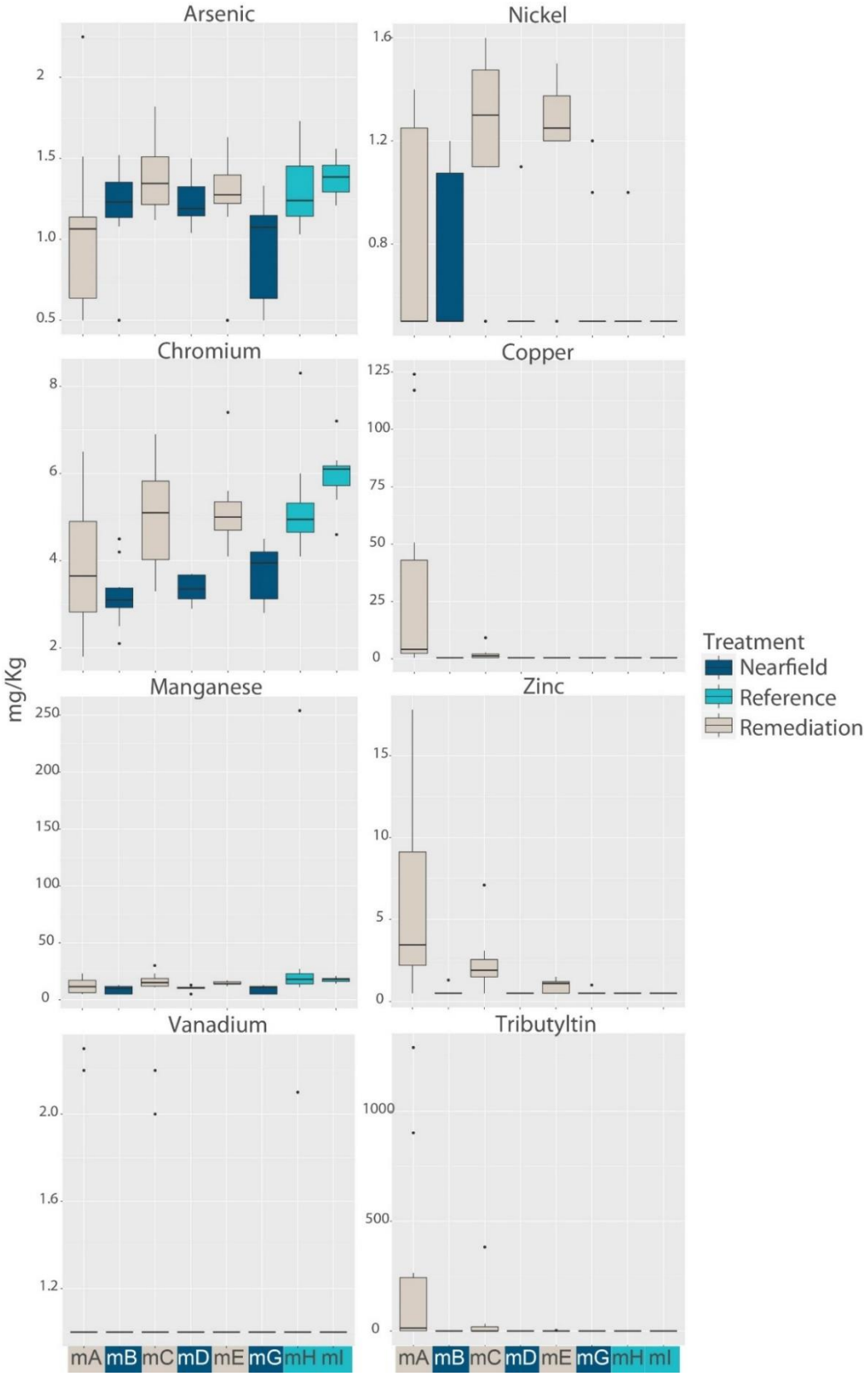


Figure 5-39 Median and interquartile ranges for key contaminants based on location

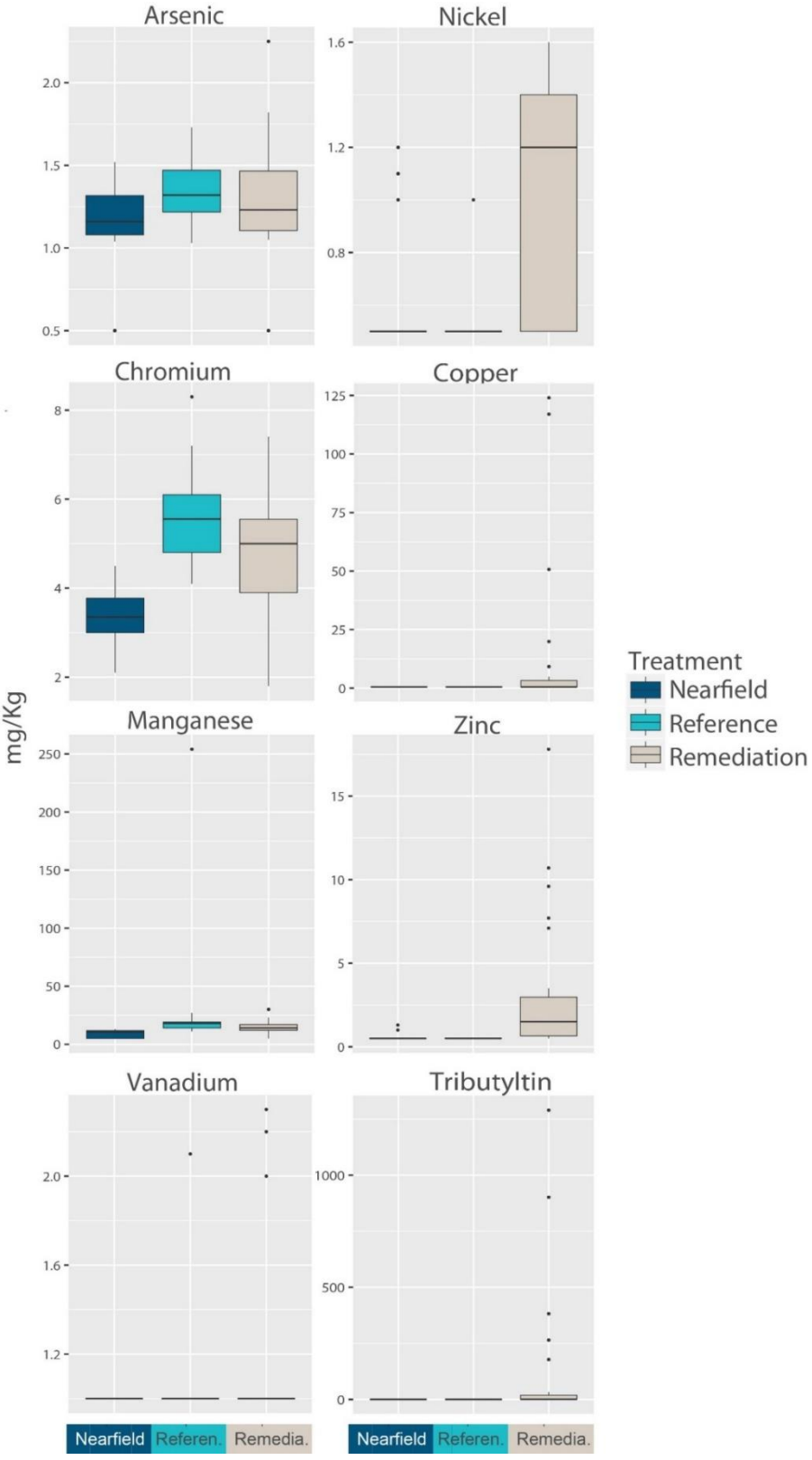


Figure 5-40 Median and interquartile ranges for key contaminants based on Treatment

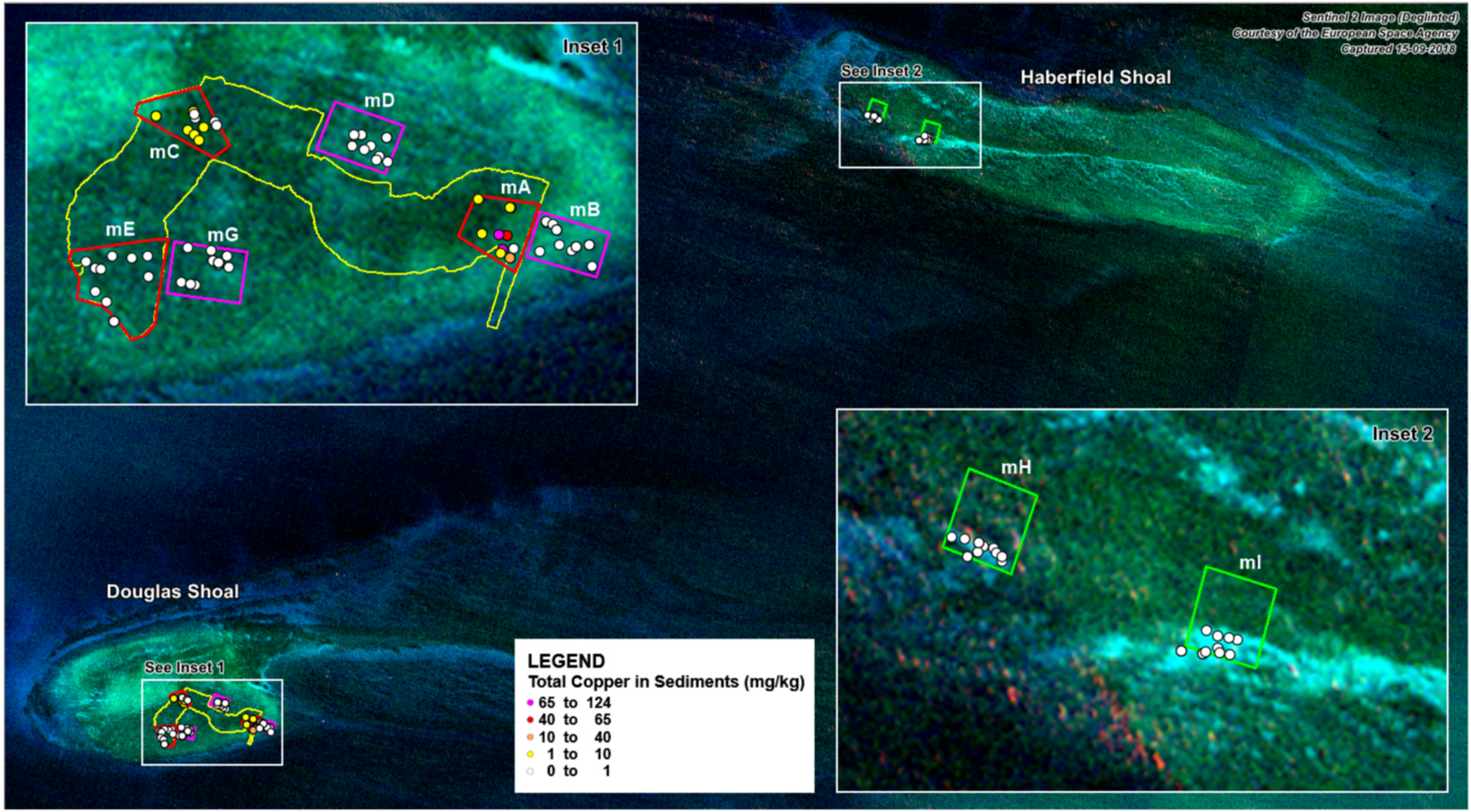
5.6.1 Sediment Data Quality Summary

The following summarises the sediment quality data:

- QC samples were assessed using RPD for duplicates and relative standard deviation (RSD) for triplicates, with exceedances based on the following criteria:
  - Where mean concentrations are <5 times LOR, RPD should be <100%
  - Where mean concentrations are 5-10 times LOR, RPD should be <75%
  - Where mean concentrations are >10 times LOR – RPD should be <50%
  - RSD for triplicates should be <50%.
- For duplicate QC samples (homogenised in the field examining laboratory variation), there were RPD exceedances for:
  - Cadmium at site I1SED-1019 (RPD 120%, RSD 87%)
  - Chromium at site A4SED-1019 (RPD 126%, RSD 68%)
  - Manganese at site A4SED-1019 (RSD 60%)
  - TBT at site A4SED-1019 (RPD 110%, RSD 55%)
  - Diuron at site A4SED-1019 (RPD 105%, RSD 73%)
  - Diuron at site A4SED-1019 (RPD 105%, RSD 73%).
- There was no significant laboratory variation in QC samples taken from primary sites B7SED-1019, B8SED-1019 or D10SED-1019.
- For spatial replicates examining fine scale variability in contaminant concentrations, there were the following RPD exceedances:
  - Zinc site A10SED-1019 (RPD 55%, RSD 28%)
  - TBT at site A10SED-1019 (RPD 82-163%, RSD 108%)
  - Dimethoate at site A10SED-1019 (RPD 111%, RSD 79%)
  - Benomyl at site A10SED-1019 (RPD 170%, RSD 137%)
  - Diuron at site A10SED-1019 (RPD 193%, RSD 165%)
  - Manganese at site B10SED-1019 (RPD 82%, RSD 55%).
- There was no significant spatial variation in spatial replicates taken from primary sites G10 SED-1019, E10 SED-1019, C10 SED-1019, I9 SED-1019, or H3 SED-1019.
- RPD estimates for certified reference material (CRM) showed the following exceedances:
  - For the MESS-4 CRM:
    - Aluminium (RPD = 158%)
    - Antimony (RPD = 124%)
    - Chromium (RPD = 131%)

  - Selenium (RPD = 73%)
  - Vanadium (RPD = 125%)
  - Barium (RPD = 109%).
- For the PACS3-CRM:
  - Aluminium (RPD = 143%)
  - Iron (RPD = 52%)
  - Antimony (RPD = 136%)
  - Chromium (RPD = 76%)
  - Manganese (RPD = 67%)
  - Vanadium (RPD = 75%).

- TBT was not exceeded for the SOPH1-CRM TBT: 67% of the TBT reference concentration was resolved with and acceptable RPD of 39%.
- Laboratory QA/QC outlined:
  - There were no method blank value outliers
  - There were no duplicate outliers
  - There were no laboratory control outliers
  - Matrix spikes were outside acceptability criteria for mercury, bioresmethrin, picloram, and thiodicarb
  - Recovery of the TBT surrogate triproptylin was 150% (above 130%)
  - For samples placed on hold pending preliminary results, there were hold time exceedances for moisture content analyses, and assays for fungicides, herbicides and pesticides, varying between 2 and 15 days (Appendix D).



LEGEND

- Grounding Footprint

Monitoring Locations

- Test Locations to be Remediated
- Near-field Locations (Not Remediated)
- Regional Reference Locations

Title:

Total Copper in Spring 2019 Sediment Samples

Figure: **5-41**

Rev: **A**

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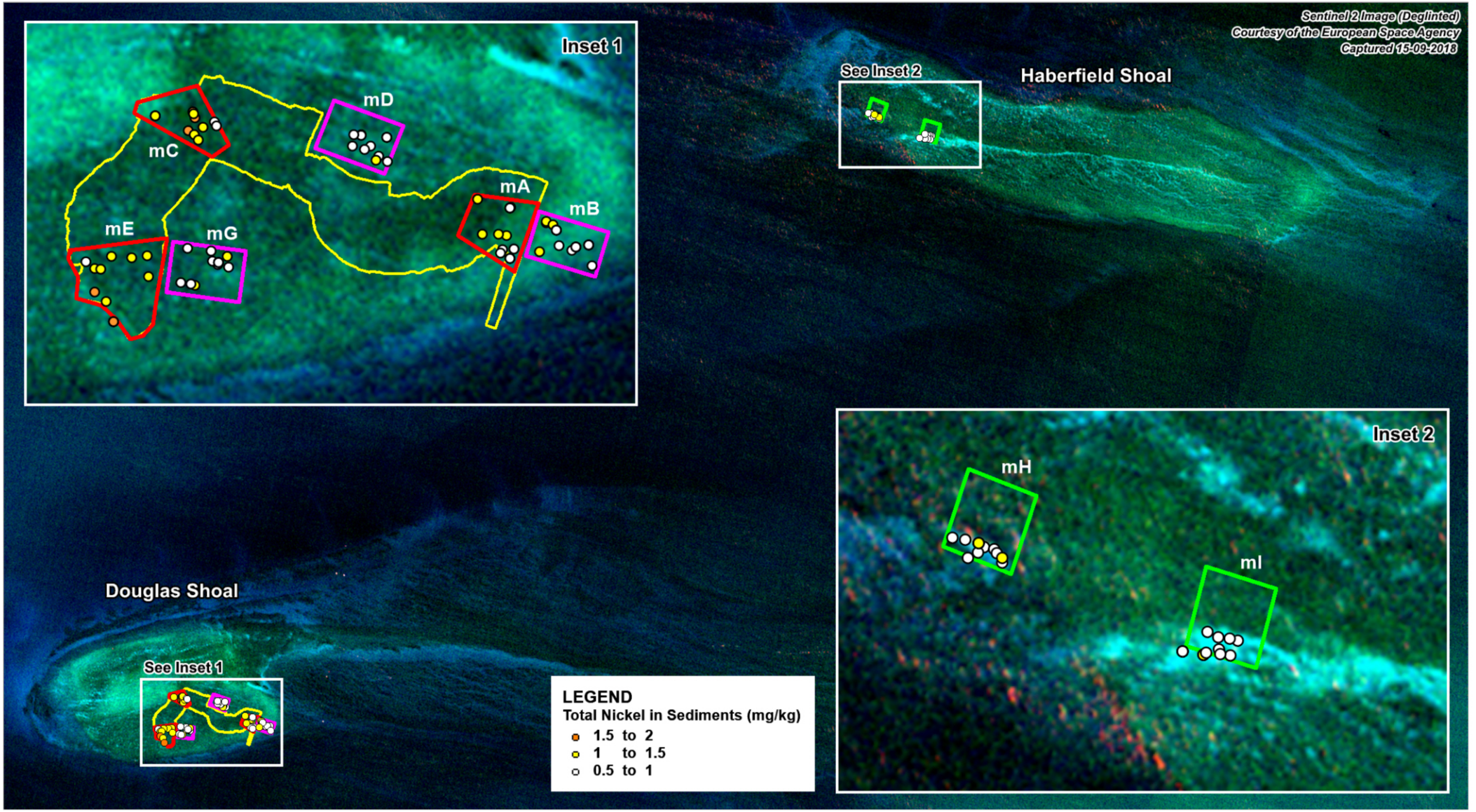
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LEGEND

- Grounding Footprint

Monitoring Locations

- Test Locations to be Remediated
- Near-field Locations (Not Remediated)
- Regional Reference Locations

Title:

Total Nickel in Spring 2019 Sediment Samples

Figure: 5-42

Rev: A

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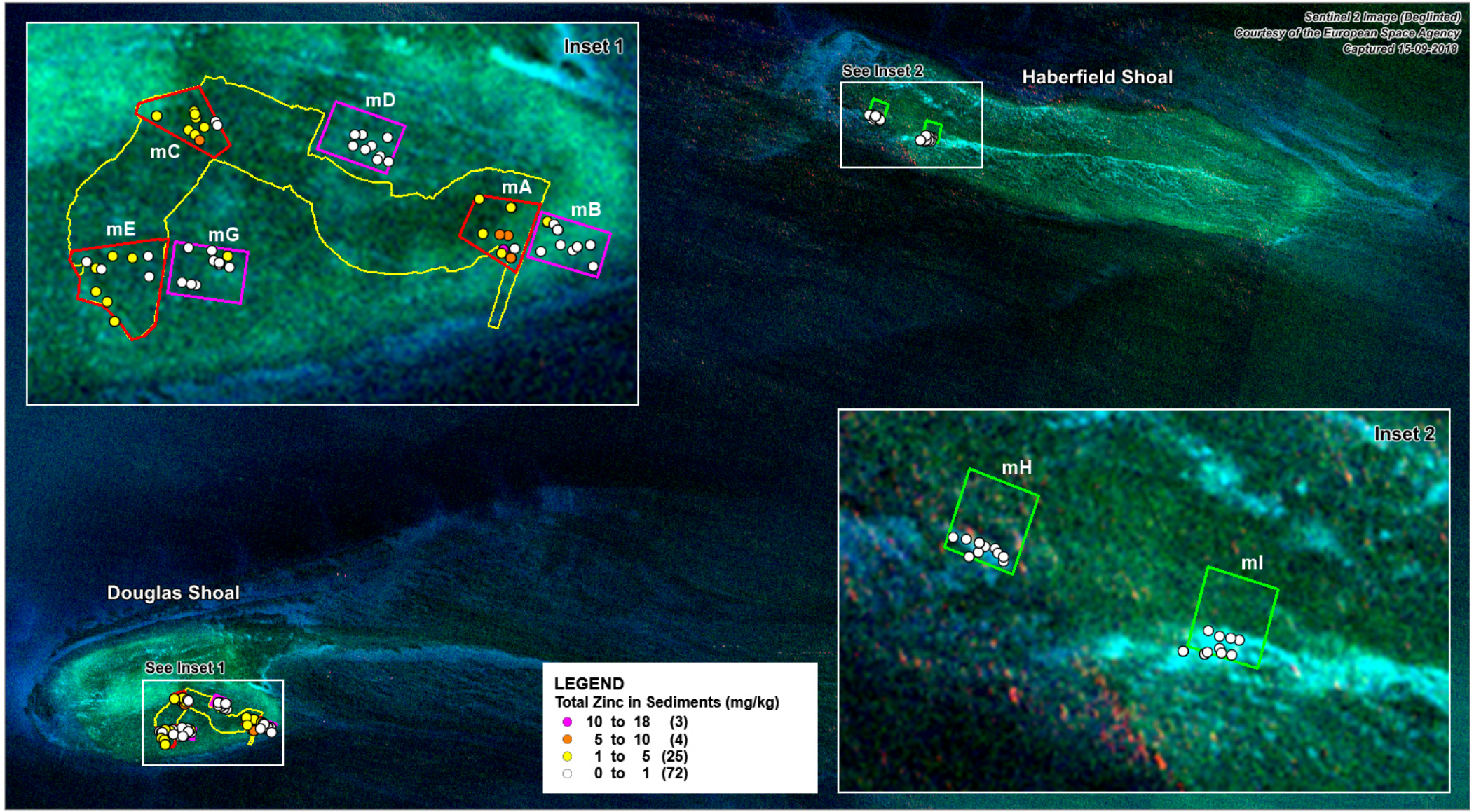
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LEGEND

- Grounding Footprint

Monitoring Locations

- Test Locations to be Remediated
- Near-field Locations (Not Remediated)
- Regional Reference Locations

Title:

Total Zinc in Spring 2019 Sediment Samples

Figure: **5-43**

Rev: **A**

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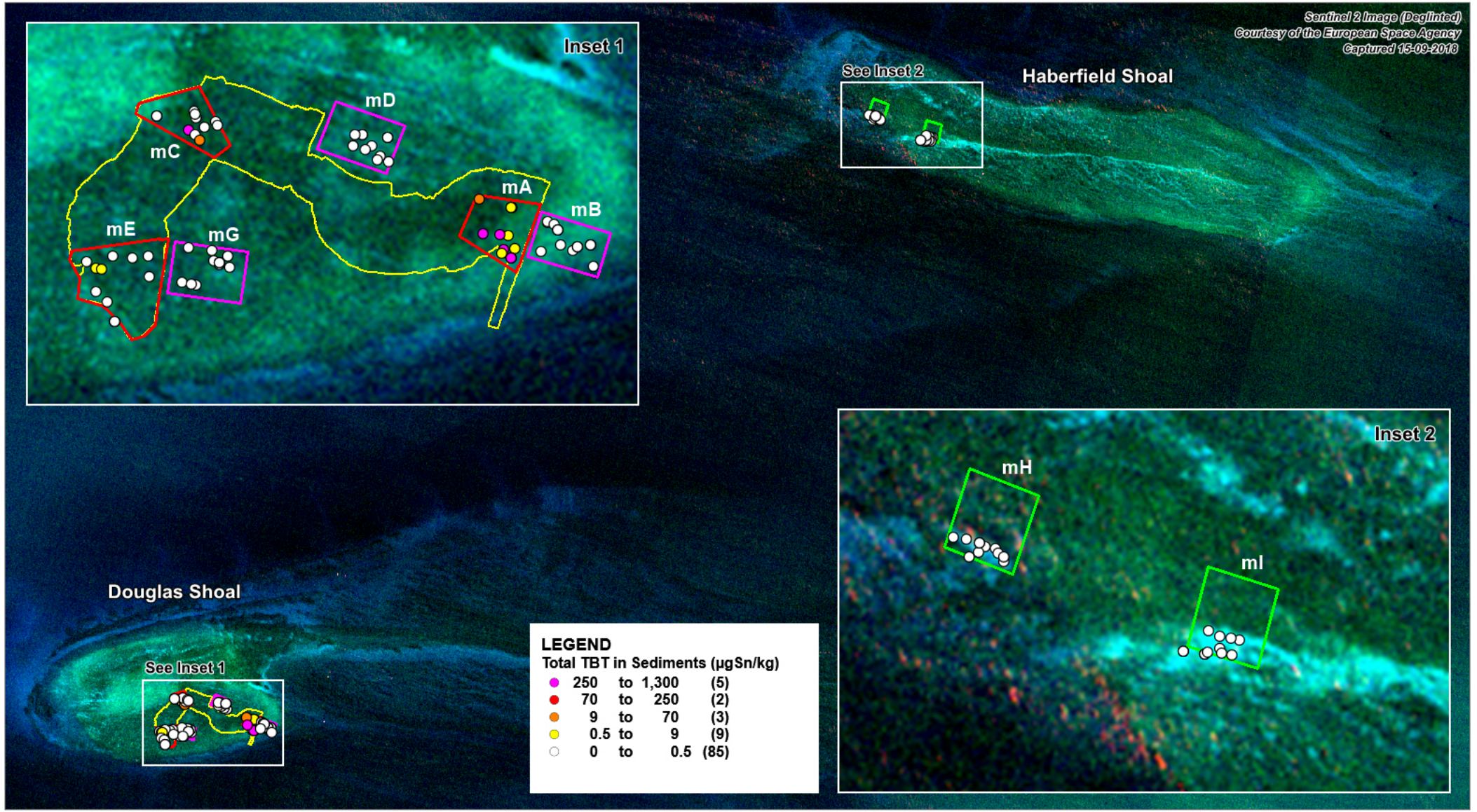
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LEGEND

- Grounding Footprint

Monitoring Locations

- Test Locations to be Remediated
- Near-field Locations (Not Remediated)
- Regional Reference Locations

Title:

Total Tributyltin in Spring 2019 Sediment Samples

Figure: **5-44**

Rev: **A**

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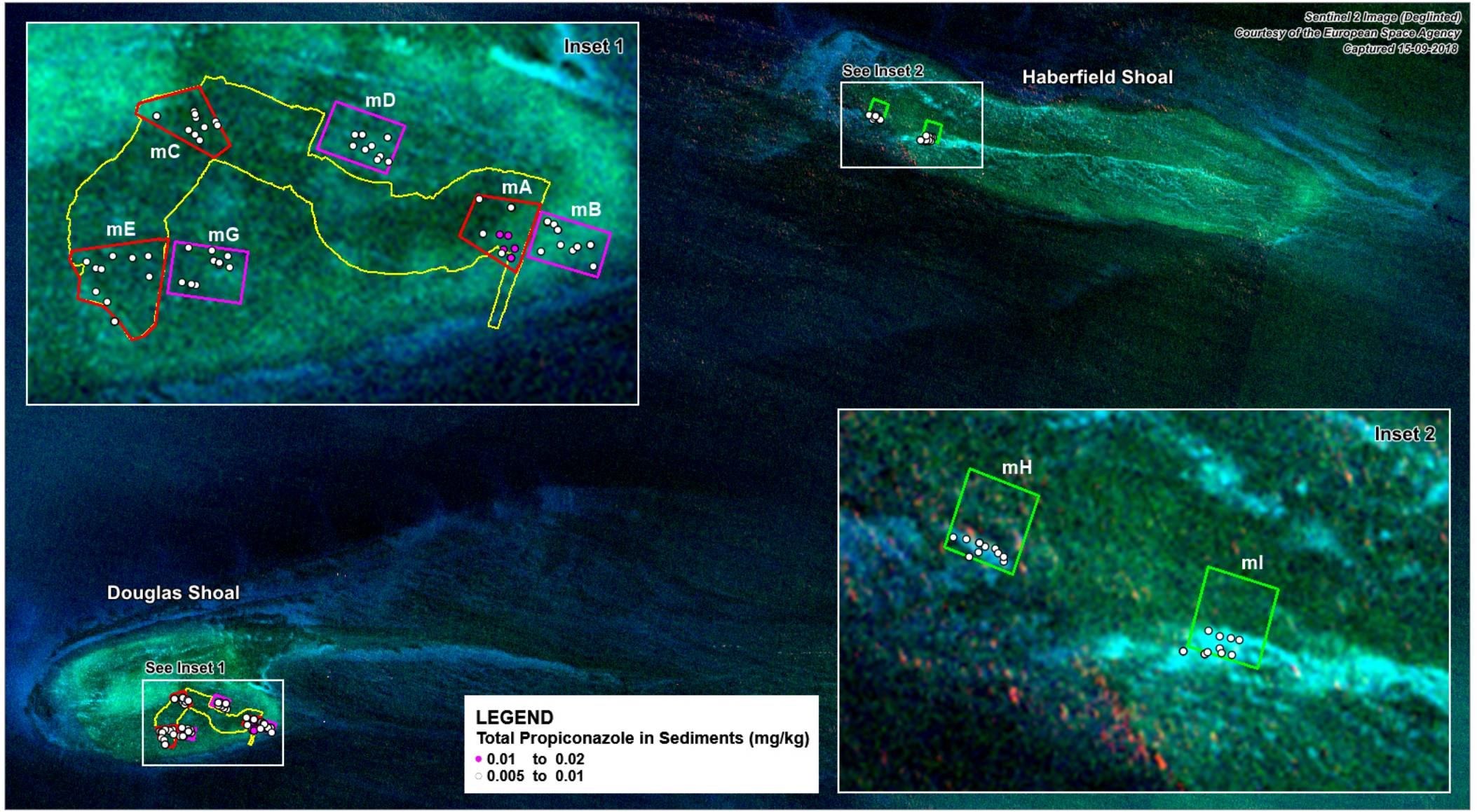
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LEGEND

- Grounding Footprint

Monitoring Locations

- Test Locations to be Remediated
- Near-field Locations (Not Remediated)
- Regional Reference Locations

Title:

Total Propiconazole in Spring 2019 Sediment Samples

Figure: **5-45**

Rev: **A**

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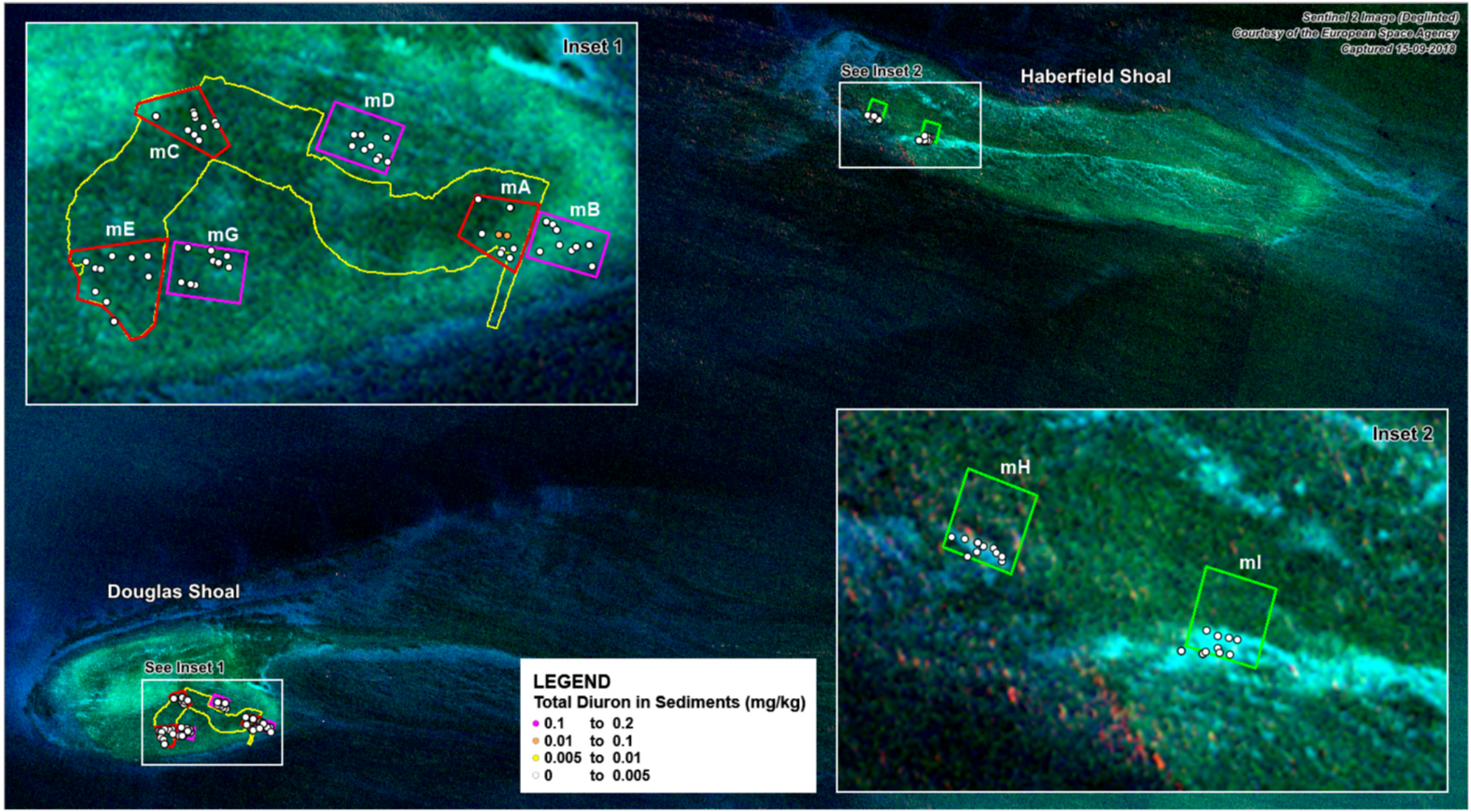
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LEGEND

- Grounding Footprint

Monitoring Locations

- Test Locations to be Remediated
- Near-field Locations (Not Remediated)
- Regional Reference Locations

Title:

Total Diuron in Spring 2019 Sediment Samples

Figure: **5-46**

Rev: **A**

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Filepath: I:\B23282_I_JLB_Douglas Shoal Remediation Monitoring BT\DRG\ECO_031_200212_SED_Diuron.wor

5.7 Acoustic Assessment of Physical Habitat

Acoustic and remotely sensed data show that monitoring locations typically had similar baseline levels of rugosity and depth, with reference locations at Haberfield Shoal being slightly deeper than Douglas Shoal locations. Locations mB and mA were the most rugose and rugosity was very similar across the remaining acoustically assessed locations. Acoustic backscatter intensity was investigated from three frequencies, with the lowest frequency and false-colour composites of all frequencies likely to be the most informative future acoustic monitoring tools. Rubble substrate within and adjacent to the grounding footprint was typically highly reflective due to its coarse nature and lack of biological covering to impede acoustic return intensity.

Haberfield Shoal reference locations were deeper than the Douglas Shoal locations (Table 5-17). The average depth (LAT) of locations at Douglas Shoal was approximately 12 m, with mD being slightly deeper at 13 m. Both reference locations at Haberfield Shoal (mH and mI) were deeper than the Douglas Shoal locations.

The high-resolution bathymetry of Douglas Shoal can be seen in Figure 5-43. This figure shows highly similar depths and vertical relief at locations at mC, mE, mD, and mG, with locations mA and mB being slightly deeper due to their position closer to the reef edge. On Douglas Shoal, the location with the deepest bathymetry was mB, which also had the greatest depth range. The Douglas Shoal location with the shallowest maximum depth was mC. Location mC is situated at the northern extremity of the ship grounding footprint, at the junction of the low- and high-relief terraces.

Rugosity calculations suggested that there was very little roughness across all remediation and nearfield locations (Table 5-17). Locations mA and mB had the greatest rugosity. Rugosity has previously been found to be significantly correlated with coral cover (Fuad 2010) and therefore fish abundance and richness (Harborne *et al*. 2011).

Table 5-17 Rugosity and Depth of Locations

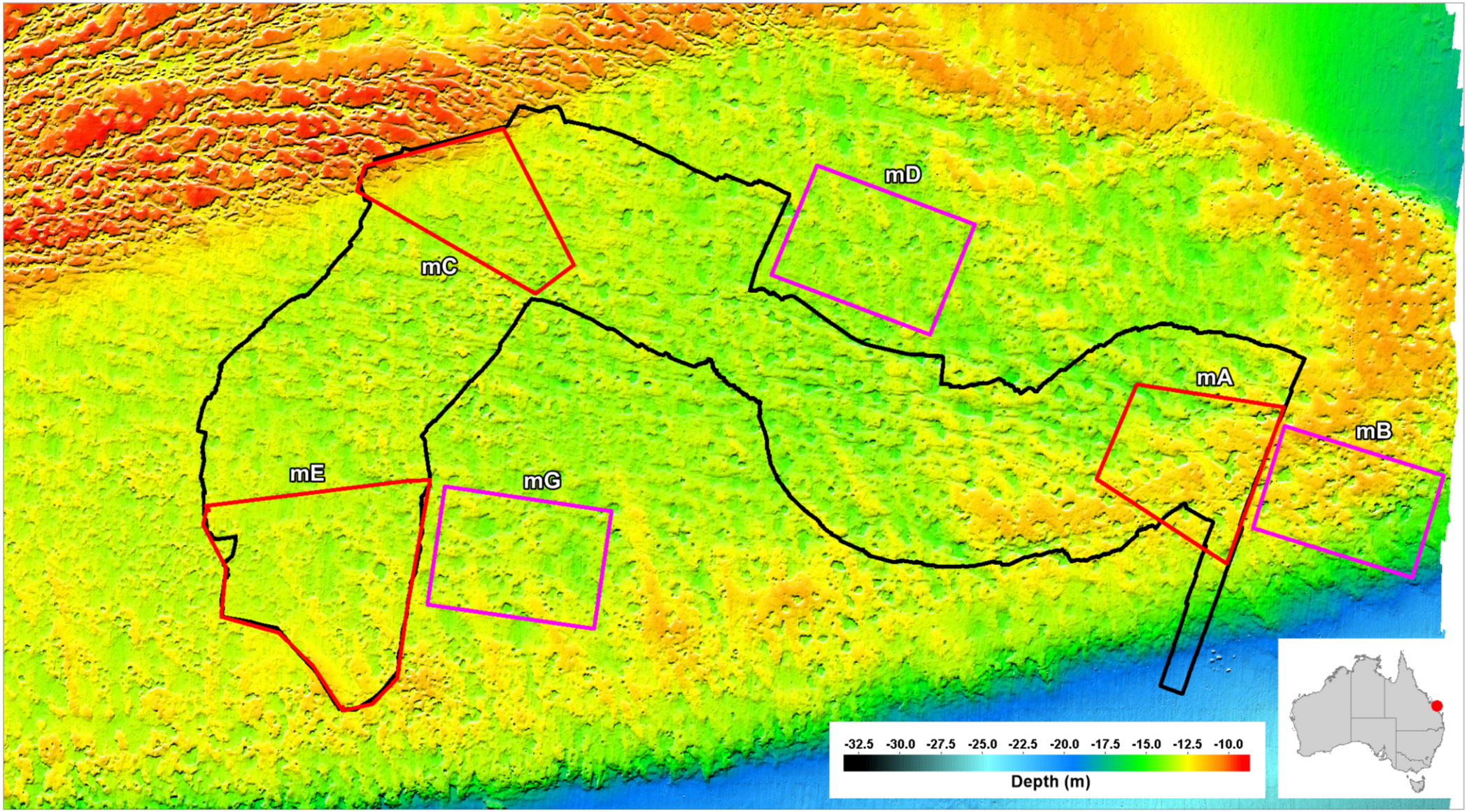
Site	Rugosity	Mean depth (m LAT)	Minimum depth (m LAT)	Maximum depth (m LAT)	Depth range (m)
mA	1.0159108	-12.4	-14.8	-11.1	3.7
mB	1.017219033	-12.8	-17.9	-10.8	7.1
mC	1.007246443	-12.6	-13.9	-9.6	4.3
mD	1.007095253	-13.2	-14.3	-12.1	2.2
mE	1.006861809	-12.7	-13.8	-11.3	2.5
mG	1.008780507	-12.9	-14.1	-11.9	2.2
mH	N/A	-18.4	-20.1	-16.3	3.8
mI	N/A	-15.7	-16.9	-15.1	1.8

Acoustic backscatter intensities of 170 kHz, 300 kHz and 400 kHz frequencies at Douglas Shoal (Neale and Boylson 2019) are shown in Figure 5-48 to Figure 5-51. The individual backscatter frequencies and the false-colour image (Figure 5-51) of all three frequencies show the prevalence of

unconsolidated substrates in the grounding footprint, (sand and gravel) which appear brighter in each extent.

Over soft sediment habitats such as estuaries, fine sediment fractions (muds) tend to absorb more of the acoustic backscatter and appear darker compared to consolidated substrates. There is some evidence of this at the far southern and northern acoustic survey extents at Douglas Shoal, where what is presumably fine sediment in deeper off-shoal waters appears very dark. However, within the grounding footprint, the opposite pattern is present, where unconsolidated substrate appears brigher than the surrounding reef matrix. This is likely to be the result of high acoustic reflection over unconsolidated substrates, and dampening of the backscatter signal due to more extensive macroalgal cover on consolidated substrate.

Of the three frequencies generated, the lowest wavelength (170 kHz) appears to show the greatest two dimensional extent of high-intensity backscatter within and around the grounding footprint (Figure 5-48). The frequency also appears to have the least amount of along-along track anomaly, with more pronounced horizontal striping visible in Figure 5-49 and Figure 5-50. It is likely that the lower frequency wavelength is less prone to motion artefacts and has slightly improved penetration for substrate detection compared to the higher wavelengths.



LEGEND

- Grounding Footprint

Monitoring Locations

- Test Locations to be Remediated
- Near-field Locations (Not Remediated)

Title:

Douglas Shoal Bathymetry (50cm)

Figure: 5-47

Rev: A

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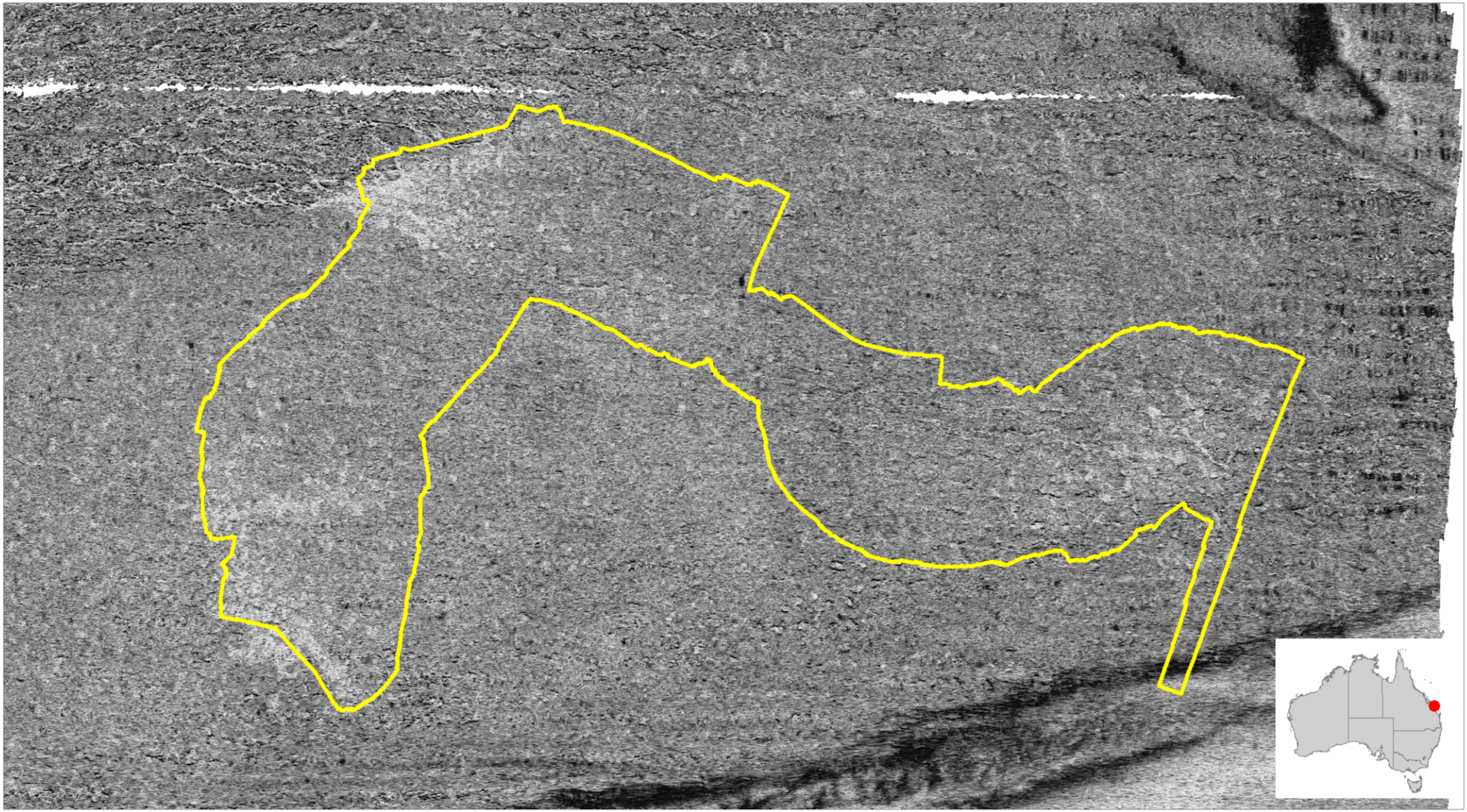
0 200 400m

Approx. scale

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Filepath: I:\B23282_I_JLB_Douglas Shoal Remediation Monitoring BT\DRG\ECO_051_200713_Bathymetry2.WOR



LEGEND

Grounding Footprint

Backscatter Data Source: May, 2019 Advisian

Title:

Backscatter - 170 kHz frequency

Figure: **5-48**

Rev: **A**

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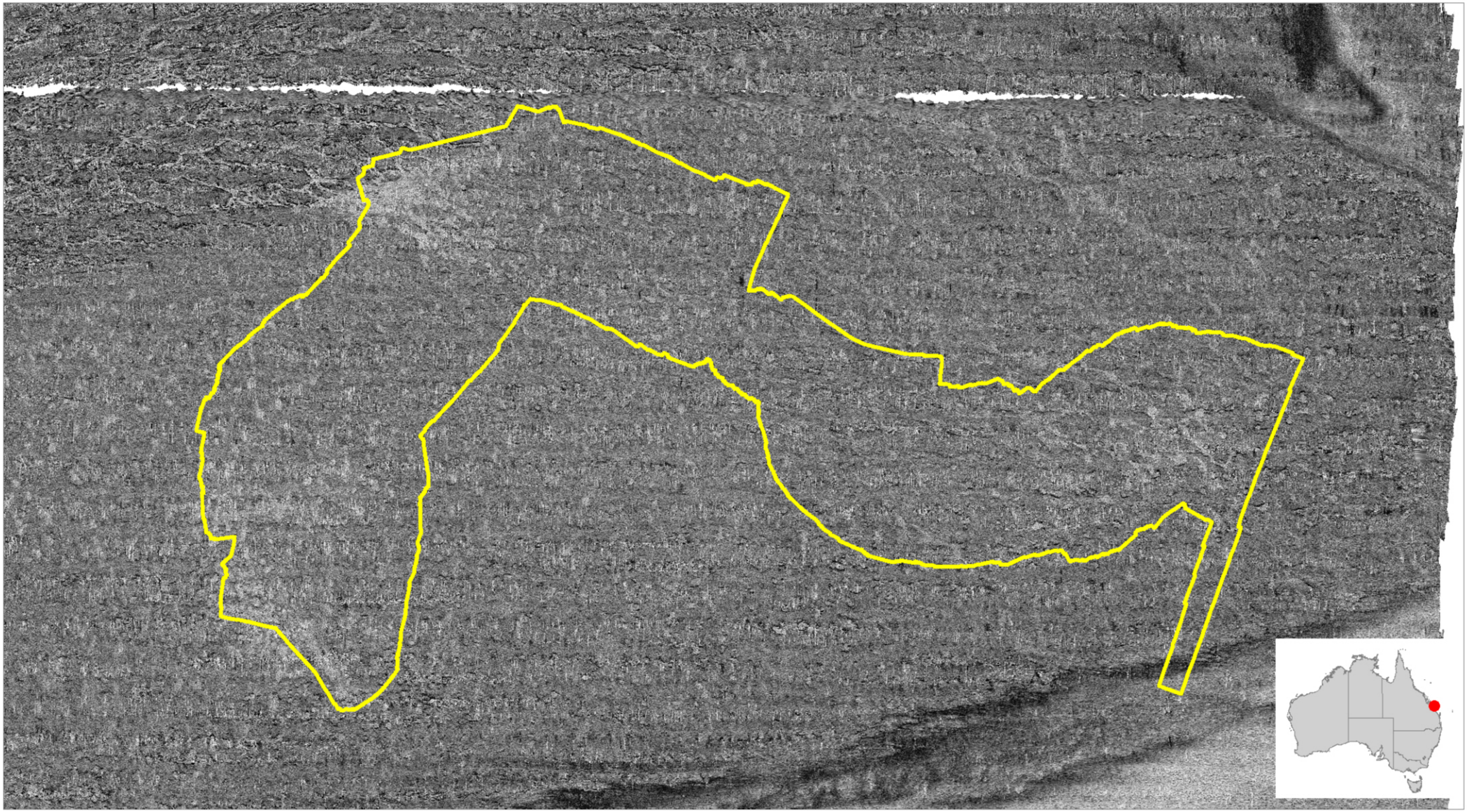
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LEGEND

Grounding Footprint

Backscatter Data Source: May, 2019 Advisian

Title:

Backscatter - 300 kHz frequency

Figure: **5-49**

Rev: **A**

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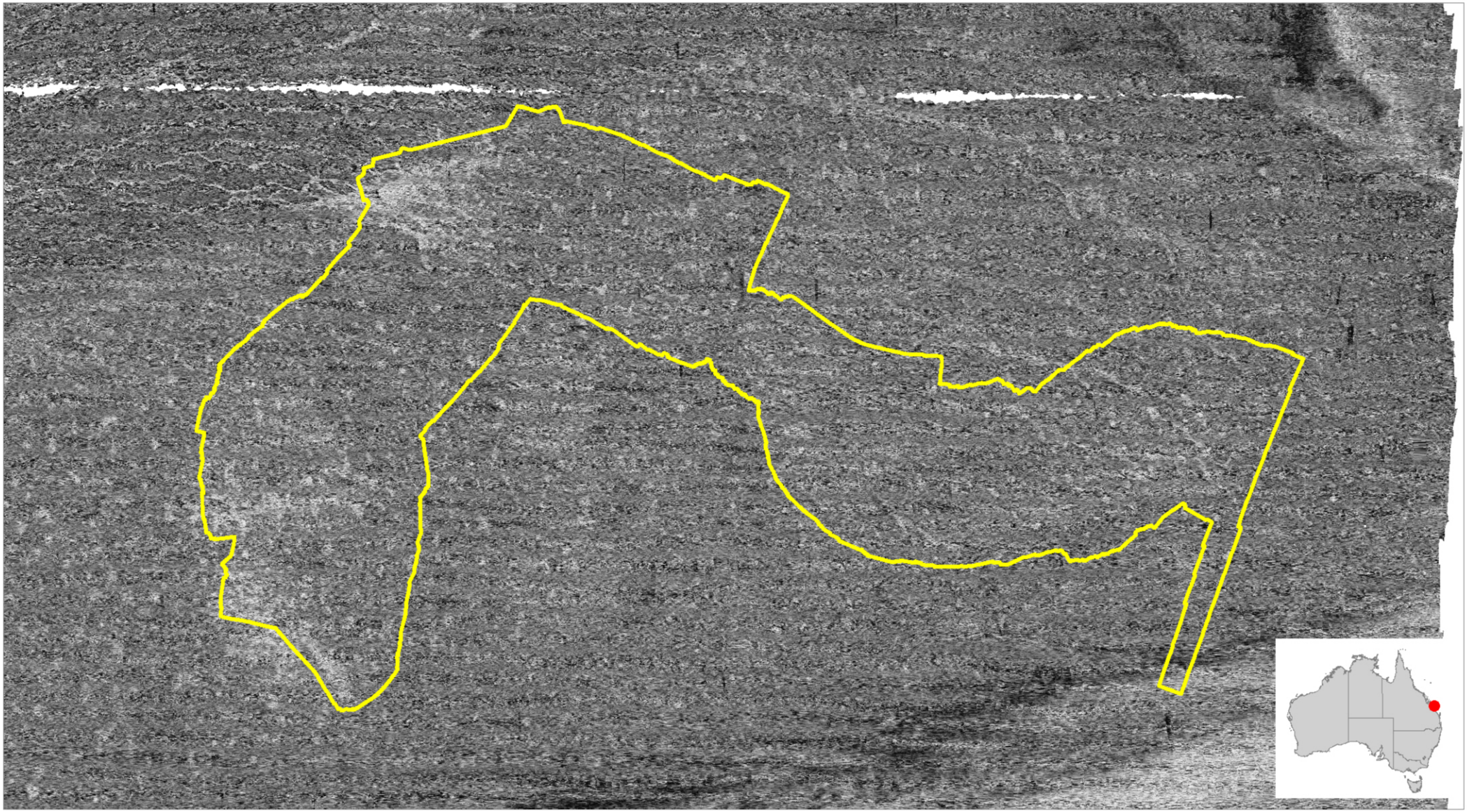
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Approx. scale

BMT

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Filepath: I:\B23282_I_JLB_Douglas Shoal Remediation Monitoring BT\DRG\ECO_047_200709_Backscatter_May2019_300kHz.WOR



LEGEND

Grounding Footprint

Backscatter Data Source: May, 2019 Advisian

Title:

Backscatter - 400 kHz frequency

Figure: **5-50**

Rev: **A**

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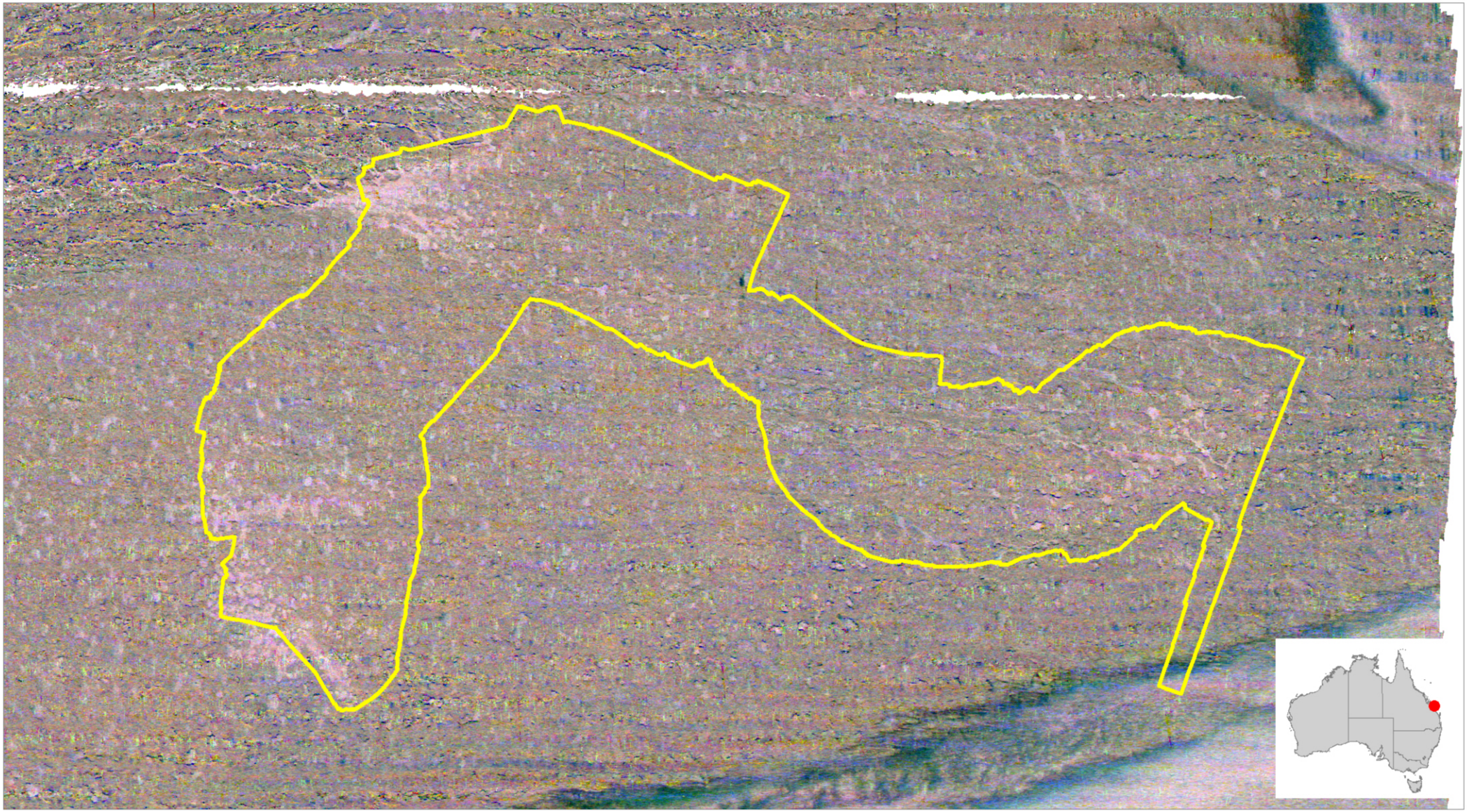
0 200 400m

Approx. scale

BMT

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Filepath: I:\B23282_I_JLB_Douglas Shoal Remediation Monitoring BT\DRG\ECO_048_200709_Backscatter_May2019_400kHz.WOR



LEGEND

Grounding Footprint

Backscatter Data Source: May, 2019 Advisian

Title:

Backscatter - RGB false colour combined frequencies (170 kHz, 300 kHz, 400 kHz)

Figure: **5-51**

Rev: **A**

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N

0 200 400m

Approx. scale

BMT

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Filepath: I:\B23282_I_JLB_Douglas Shoal Remediation Monitoring BT\DRG\ECO_049_200709_Backscatter_May2019_170_300_400.WOR

5.8 Opportunistic Observations

In the field, opportunistic observations of interest were largely confined to sightings of tiger sharks, green sea turtles, sea snakes and dolphins (Table 5-18). Seabirds and other vessels/users observed were also recorded.

Table 5-18 Summary of opportunistic observations during field surveys

Observation Type	Baseline Survey 1 (2019)		Baseline Survey 2 (2020)	
	Trip 1 (Oct)	Trip 2 (Nov)	Trip 1 (Apr)	Trip 2 (Apr-May)
Marine Fauna				
Tiger shark (*Galeocerdo cuvier*)	Single surface observation at site mA	Multiple surface sightings of a large tiger shark at site mA		9 sightings, including 2 in water sightings
Green sea turtle (*Chelonia mydas*)	Multiple sightings at Douglas Shoal and Haberfield Shoal, also North West Island	3 sightings	Occasional sightings (all sites), hatchlings observed when moored at NW Island	4 sightings (site mE)
Sea snake (assumed mostly Olive sea snake, *Aipysurus laevis*)		30^{+} sightings, at all locations	Occasional sightings (all sites)	10^{+} (locations mA, mE, mC
Manta ray (*Mobula. alfredi*)		2 sightings		
Spinner dolphin (*Stenella longirostris*)	2 sightings: bow riding between North West Island and Douglas Shoal	1 sighting, bow riding between Douglas Shoal during transit to Yeppoon	Small pod observed bow riding between North West Island and Douglas Shoal on two mornings	3 sightings
Dolphin (other)				Pod of 6
Fish (other)			Small marlin seen breaching approximately 5 times at site mA	
Seabirds				
Noddy Terns (*Anous minutus*)	Common	Common	Common	Common
Wedge tailed shearwater (*Puffinus pacificus*)	-	Common	Common	Common
Other				
Trichodesmium (“sea sawdust” – cyanobacteria)	Visible at both Douglas Shoal and Haberfield Shoal	Very thick at both Douglas Shoal and Haberfield Shoal		
Other vessel/user	Single vessel – small, privately-owned recreational fishing vessel	Vessel chartered by Advisian was performing ADCP servicing at Douglas Shoal	First 4 days coincided with Easter weekend. There were five recreational trailer boats	

Observation Type	Baseline Survey 1 (2019)		Baseline Survey 2 (2020)	
			fishing at Douglas Shoal each of these days. No vessels observed at Haberfield Shoal.	

During the Baseline survey 2 (April 2020) there were several apparent distinctions as compared to the Baseline survey 1 in October/November 2019. These are summarised as here:

- Line fishing during Autumn 2020 was more difficult compared to Spring 2019. This may have been due to the predominant north-westerly winds that were blowing for the majority of the April 2020 survey, noting that such conditions are anecdotally regarded as unfavourable for fishing by some commercial and charter operators.
- Coral bleaching was observed commonly by diving personnel at both Douglas Shoal and Haberfield Shoal during Autumn 2020. This is in alignment with an anticipated coral bleaching event on the Great Barrier Reef following heat stress over the 2019/20 summer (GBRMPA 2020).
- Compared to Spring 2019, visibility was notably poorer in April 2020. Whereas during the October 2019 trip the corals and sand patches were clearly visible from the surface, during April 2020, clear benthic features were rarely visible from the surface even at the lowest tides and under calm conditions. This was also noted on both the BRUV and towed camera footage when reviewed on board. Reduced visibility may have been due to a different current and tidal regime during this period, seasonal changes, or due to elevated sea states in the lead up to the trip.
- In April 2020, green sea turtle hatchlings were attracted to the back of the vessel when moored for the night at North West Island. All exterior lighting was switched off to allow the hatchlings to disperse.
- The first 4 days of Baseline survey 2 coincided with Easter weekend. There were five recreational trailer boats fishing at Douglas Shoal each day. No vessels were noted at Haberfield Shoal.
- Tiger sharks were observed more frequently in the field during the Autumn 2020 survey. Tiger sharks were sighted on both diving days during the second trip of Autumn 2020. On the first day (17 April 2020) a large (approximately 4m) tiger shark was seen while travelling between Haberfield Shoal and Douglas Shoal. The shark was 10 m from the boat in deep water between the shoals. It was not seen again while at Douglas Shoal that day. On the second diving day (18 April 2020) all dives were conducted at Douglas Shoal apart from the first. After a diver was exiting the water at Douglas Shoal site mD, a tiger shark was sighted approx. 10 m away from the vessel. A further two sightings were recorded from the surface at site mC. No sharks were sighted during the dive at location mC, although 7-8 remoras were swimming around the diver for the majority of the dive. A shark was observed three times while the survey vessel transited from site mE to site mG. At site mG. a diver reported two in-water tiger sharks observations (one 2 m and one 4m long) where approaches by these sharks were made from the edge of visibility to within 1.5 m away from the diver. The approaches were close but were not described as aggressive. BMT's shark management procedures, as per the project-specific safety plan, were implemented for all diving operations.

6 Conclusions

6.1 Epibenthic Cover

Douglas and Haberfield Shoal sampling locations had similar benthic cover features, despite differences in disturbance history. At all locations and both sampling episodes, the benthic assemblage was comprised of low 'turf' algae and mixed fleshy macroalgae assemblages (typically >60% cover), with a low cover (typically <5%) of hard and soft corals. These results and cover estimates are consistent with the results of Neale and Boylson (2019) who found an overall average of 3.8% and 2.0% hard and soft coral cover, respectively, on Douglas Shoal.

Other epibenthic macroinvertebrates (sponges, echinoderms, ascidians, bryozoans etc.) and crustose coralline algae also had <1% cover. Small (nominally <50 mm) invertebrates that could not be resolved in towed camera imagery, would occur in association with the turf and mixed algae assemblages, and on pavement, sand and gravel substrates.

While locations were highly similar in the broad sense, the most different epibenthic communities existed at locations mB, on the south-eastern margin of the low-relief terrace at Douglas Shoal, and the location mH on the western (shallowest) side of Haberfield Shoal. These locations had slightly higher cover of hard and soft corals, respectively. Otherwise there are very strong similarities in benthic community among the remaining Douglas and Haberfield Shoal locations. The monitoring program to date shows that the regional reference shoal, although slightly deeper, contains similar communities to those present on Douglas Shoal and should be a suitable point of control for broad-scale changes such as macroalgal dieback and coral bleaching.

Multivariate routines detected statistically significant differences in assemblage structure between sampling events, manifested as both declines (several fleshy macroalgae) and increases (turfs) in macroalgae, varying among groups. Many macroalgae groups in the GBR region are strongly seasonal. *Sargassum* for example has peak abundance and reproductivity activity during summer (Vuki and Price 1994, Diaz-Pulido and McCook 2005), but in the present study showed no clear trends in *Sargassum* between spring 2019 and autumn 2020. The very strong reduction in *Dictyopteris* and to a lesser extent *Asparagopsis* led to greater cover of other substrates obstructed by these algae. The sharpest declines occurred at sites mE and mC, where increases in gravel cover co-occurred. The abundance of *Dictyopteris* over rubble substrates can be seen clearly in image mosaics from these locations and it is likely that *Dictyopteris* is seasonal and opportunistic, particularly in areas of high rubble content.

There was also a major increase in the occurrence bleached of corals, which went from almost none in 2019 to between 10% and >30% of hard coral colonies 2020. Soft corals were less affected, and the proportions of bleached soft corals varied from ~0% in 2019 to 5% in 2020. It should also be noted that the prevalence of less severe bleaching was actually much higher than reported due to the annotation convention of scoring bleaching as a binomial response (bleached or unbleached). Numerous colonies displaying signs of bleaching below the threshold for inclusion in the bleached coral category were annotated as unbleached. Although few recently dead corals were observed during annotation, there is great potential for a large decline in coral cover between survey events 2 and 3 resulting from the 2020 mass bleaching event.

If the 2020 bleaching were to consistently translate into mortality across each of the monitoring locations, there is potential for bleaching mortality to confound putative remediation impacts at location mA, which had a higher proportion of bleached colonies than the reference location mH. While the overall magnitude of changes in percent cover are small due to the very low baseline hard coral cover (~1-6% mean total benthic cover across locations), any potential reduction in hard coral cover, particularly one that manifests inconsistently across the remediation and control locations has potential to confound future impact assessment. The impact of the 2020 bleaching event on the efficacy of the monitoring program to assess remediation will depend on whether the observed bleaching resulted in subsequent mortality, and whether or not this was consistent across locations.

Some of the inconsistency in the proportion of bleached corals among locations may be due to the interaction between TBT contamination and thermal bleaching. Sediment contaminated with TBT from groundings elsewhere on the GBR has been shown to exhibit a range of coral impacts including mortality and bleaching (Smith *et al.* 2003). The second highest proportion of bleached corals was observed at location mB, where TBT was absent, and the proportion of bleaching was ~10% lower than it was at the adjacent and heavily contaminated location mA.

If bleaching mortality affects all locations similarly, other consequences for the monitoring program might be that one of the key sensitive receptors could become even more difficult to detect. Conversely, from the perspective of the remediation contractor, on-ground works could appear less damaging, if the epibenthic community contains fewer corals.

While average soft and hard coral cover was very low, the number of image replicates sufficiently reduced within-locational error for meaningful spatial and temporal comparisons among locations. Some epibenthic indicators have been relatively variable in space and time while others, particularly the cover of *Acropora,* soft coral, turf and *Sargassum,* have been relatively consistent within locations between the first two sampling events. While the presence of rubble is clearly a strong indicator of physical damage in the grounding footprint based on imagery and acoustics, obstruction of the visual signal by temporally changing macroalgae such as *Dictyopteris* may render this visual signal harder to detect at certain times.

Changes in epibenthic cover represent some of the most promising indicators for changes relating to future remediation. However, indicator selection and interpretation will require careful consideration due to the aforementioned interactions between cover types, such as canopy obstruction. Multiple lines of evidence, interactions and factor co-variability will assist with understanding the nature of changes and potential causes.

Potential improvements to reduce variability and increase monitoring efficacy include replacing one of the 2019 transect lines (over sand) at Haberfield Shoal, and ensuring even coverage of each location is attained. Site conditions including swell, waves, visibility and tides during collection made some of the imagery unusable, particularly in 2019, leading to less spread of data over some of the locations (mE and mD). Maintaining similar transect cover to what was collected in 2020 will reduce variation associated with transect placement in the future and will provide more change detection capability.

6.2 3D modelling

Orthomosaics provide a detailed view of the benthos at two sites in each of the locations to be remediated. One of the most interesting aspects of the 3D models used to make the orthomosaics is the ability for the user to view the surface from a range of different angles and perspectives, making them ideal interactive platforms.

While colour and contrast of benthic images could be improved by adding strobe or video light, differential light fields in overlapping terrain can interfere with the photo matching ability and are not recommended. Red filtering can improve colour tonality but further reduces available light and can come at the cost of pixel clarity. In 2019 imagery was collected without red-filtering or the inclusion of additional light, relying on Photoshop to improve colour and tone. Subsequent imagery collection will be done similarly to provide the most consistent conditions for comparison before and after remediation.

Point clouds showing the elevation of the mosaic sites may be an important assessment tool, given the relatively low rugosity measurements from the acoustic DEM for each of the Douglas Shoal monitoring locations. Common areas before and after remediation could be queried similarly to the acoustic DEM to provide fine-scale assessments of changes in rugosity. This would require models to be spatially registered.

Tiles visible at the cardinal margins (N, E, S, W) of orthomosaics represent a 7 m distance from the site centroid and the area covered by this box is approximately 100 m^2; with excess imagery available beyond these markers. While the site centroid has been marked with a shot line from the surface with sub-meter accuracy, cardinal tiles were aligned by divers using compass bearings and are considered indicative. Bringing orthomosaics into GIS for spatial comparisons may be challenging due to a lack of additional precise points for image orientation. Images themselves can be used for rectification; commonalities among images together with site centroids will be used to rectify models. If images can be successfully registered, changes in raster intensity and elevation between events can be attempted. While the deployment of markers would greatly assist in geolocation, markers were not deployed to prevent interference with remediation activities and maintain the anonymity of the mosaic sites.

6.3 Fish Communities

Much like epibenthic communities, fish communities exhibited a consistent shift between the two survey events, largely related to the greater abundance of a few common species. While several of these species were always less than 20 cm in total length, and therefore, not included in length analyses, qualitatively many of the damselfish and wrasse observations consisted of a greater proportion of juveniles in 2020. This is consistent with more juvenile fish being present at the start of the year (autumn), compared to spring when juvenile abundance is lower through subsequent growth and attrition.

Most of location-based univariate community metrics such as biomass, abundance, and diversity of fish were either non-significant, or in some cases difficult to evaluate due to missing values (no large fish observed). Treatment-based community metrics permitted improved replication and showed an overall increase in richness. Univariate metrics of fish abundance, richness, and diversity will require

a pooling from statistical and logical perspectives. While the spatial and temporal design of the monitoring program is well-suited to investigations of physical habitat and sessile biota, BRUV sites and locations are not sufficiently distant to be considered truly independent for many fish and elasmobranchs. This monitoring program required a design that was spatially consistent across the different receptors (biota, epibenthos, physical structure); therefore fish with home-ranges that encompass multiple locations or treatment areas within Douglas Shoal will require some form of sensible pooling.

The campaign in the present monitoring program differs from most typical BRUV investigations, which are targeted towards understanding the impact of fishing or reserves on the biomass of target species. While the impact of remediation on target species is an important consideration, other indicators are perhaps of greater relevance to understanding remediation efficacy or smaller scale spatial changes, at least in the short-term.

A sensible dichotomy and the analysis framework beyond remediation works will apply metrics (such as B20 biomass, the presence of elasmobranchs, and certain univariate diversity metrics) for shoal-based comparisons to examine the effect of remediation on species of fisheries significance (i.e. Douglas vs Haberfield Shoal). Conversely, multivariate indicators, as well as species or species groups with high site attachment and affinity for complex habitats, will be examined among locations to examine fine-scale changes in fish community.

6.4 Biotic Contaminant Concentrations

The assessment of biotic contamination showed that COPCs were present in fish, macroalgae and ascidians, but at concentrations well below safe consumption guidelines. For ascidians and algae, the highest concentrations of contaminants were found in location mA, which is consistent with the highest concentrations of sediment contamination shown in this study and in Neale and Boylson (2019). These data suggest that contamination is entering the food chain, particularly in sessile taxa near the initial grounding site.

Dictyopteris was initially chosen as the macroalgal candidate for biotic contamination, due to its dominance in the disturbance footprint. The almost complete loss of *Dictyopteris* in autumn 2020 meant that a new candidate was required. *Dictyota* was selected and will be continued for use in monitoring after remediation. The main differences in events (and candidate taxa) were consistently higher zinc concentrations, and occasionally higher concentrations of copper and TBT. It is likely that some of the differences in zinc between events (and species) relate to baseline zinc concentrations in algal taxa. Zinc was higher at every location in 2020, but also highest in location mA. One of the differences between the macroalgae species is that *Dictyopteris* was collected from large, mature specimens, while samples of *Dictyota* tended to be lower and more prostrate. This lower growth form may have allowed contaminated particles, or small fauna, to become entrapped in its lower canopy, rather than being bioaccumulation within the algal tissue. Alternatively, considering the cover of *Dictyota* was less temporally variable than *Dictyopteris*, longer-lived specimens may have more opportunity for bioaccumulation.

Choerodon venustus and *Gymnocranius audleyi* are key fish taxa that had detectable concentrations of TBT in their musculature. Bioaccumulation of TBT may be occurring in these species which feed primarily on benthic invertebrates; this would allow direct access to contamination within the

surrounding sediment matrix as well as any contaminated tissue. Interestingly, *Lethrinus miniatus* was also collected in reasonable quantities, but no TBT contamination was detected. This may be the result of differences in home ranges. While specific information is lacking for the above species, tagging work on *Lethrinus nebulosus* suggests they have home ranges exceeding 8 km^2 (Pillans *et al.,* 2014). Species of *Choerodon* have substantially smaller home ranges, sometimes in the order of hundreds of metres (Kawabata *et al*., 2008; Fairclough *et al.,* 2011).

6.5 Water and Sediment Quality

The water quality assessment showed that there was no evidence of contamination in the water column above the grounding footprint under pre-remediation conditions. While there was an issue with QA/QC rinsate samples, these do not affect the validity of the environmental samples.

Sediment quality results show that concentrations of COPCs at Haberfield Shoal were consistent with the shoal being a true reference area, without any significant anthropogenic contamination. Like previous studies (Costen 2017; Neale and Boylson 2019) the present study identified the highest levels of contamination in location mA (e.g. TBT, nickel, copper, zinc), and lesser concentrations of COPCs in locations mC and mE. COPCs were not detected above guideline levels in any of the nearfield locations.

Only four of the 87 pesticide, herbicide and fungicide analytes were detected, and these detections were entirely from samples collected in area mA. Concentrations were typically just above LOR. Given the low prevalence and concentration of these additional contaminants, their removal from the program may be warranted, with their analysis budget diverted to increased replication of primary COPCs for better resolution of changes in TBT and metal concentrations.

The combination of sediment contamination data from this study and from the comprehensive mapping of Neale and Boylson (2019) sets a strong baseline for subsequent comparisons. A power analysis that considers existing data and likely remediation actions will be undertaken to adequately inform the level of replication required for different putative effect sizes prior to re-sampling.

6.6 Physical Habitat Assessment

The initial acoustic data provides a comprehensive baseline over the entire remediation area to compare subsequent backscatter signal, rugosity and elevation changes. Running the multibeam survey in multifrequency mode had consequences for ping-rate, where fewer soundings are available for the DEM. A coarser DEM has been the cost of attaining more backscatter data, which appears to be highly effective in showing horizontal extent of unconsolidated material.

Post-remediation monitoring will assess temporal differences in backscatter intensity via raster calculations for the various frequencies and combinations of frequencies. Sub-bottom profiling did not provide a reliable estimate of the depth of unconsolidated material, thought to be due to the composition of the underlying matrix and the sub-bottom depth range (Neale and Boylson 2019). While the SBP survey could be repeated under different setting with the aim of providing greater clarity in the upper subsurface layer, there would be no baseline information to make comparisons against. Therefore, this is not recommended unless a useable baseline can be achieved.

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Appendix A Photo Plates

A.1 Spring 2019

A.1.1 Algae and Ascidian Samples

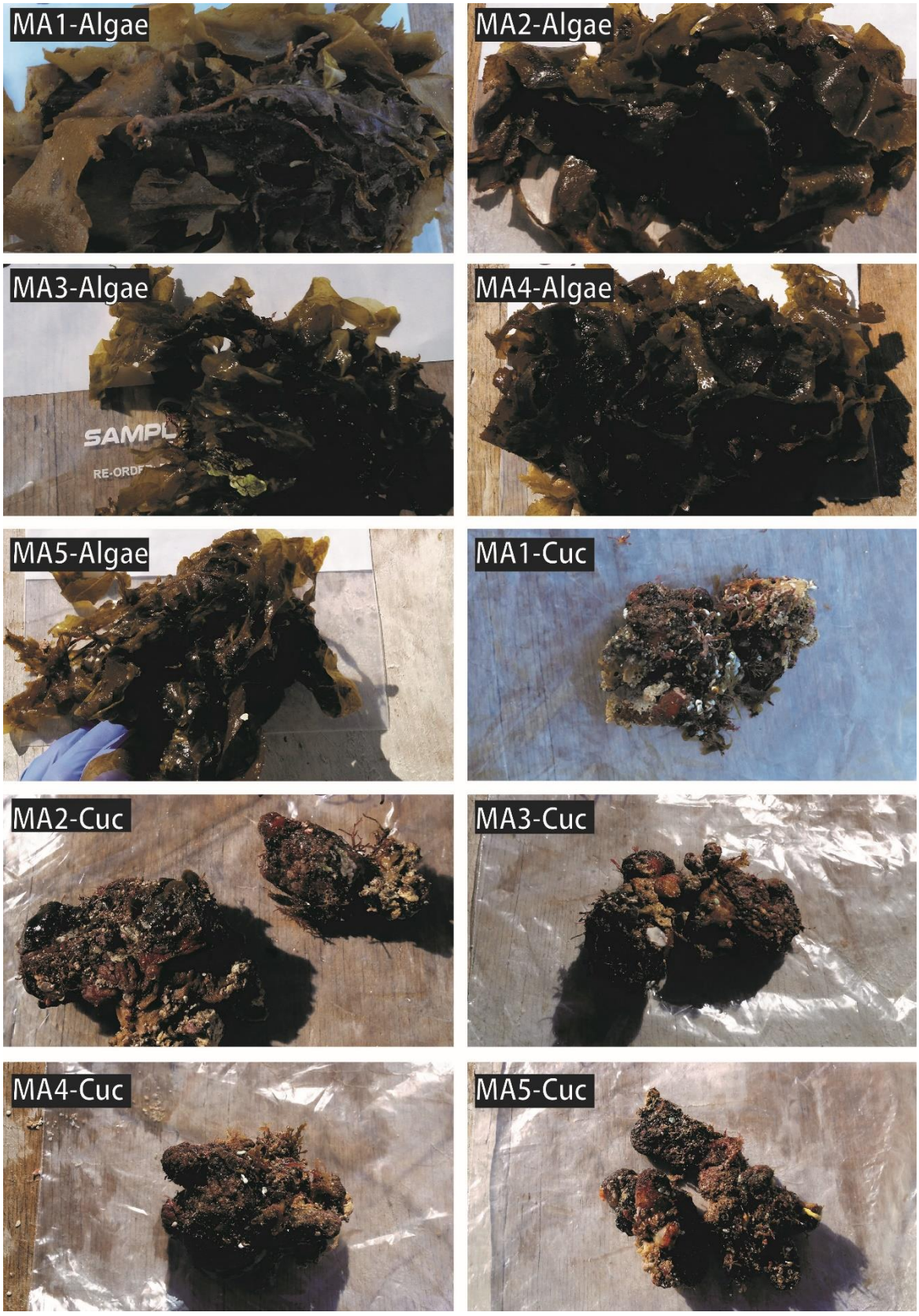


Figure A-1 Algae and ascidian samples from site mA



Figure A-2 Algae and ascidian samples from site mB



Figure A-3 Algae and ascidian samples from site mC

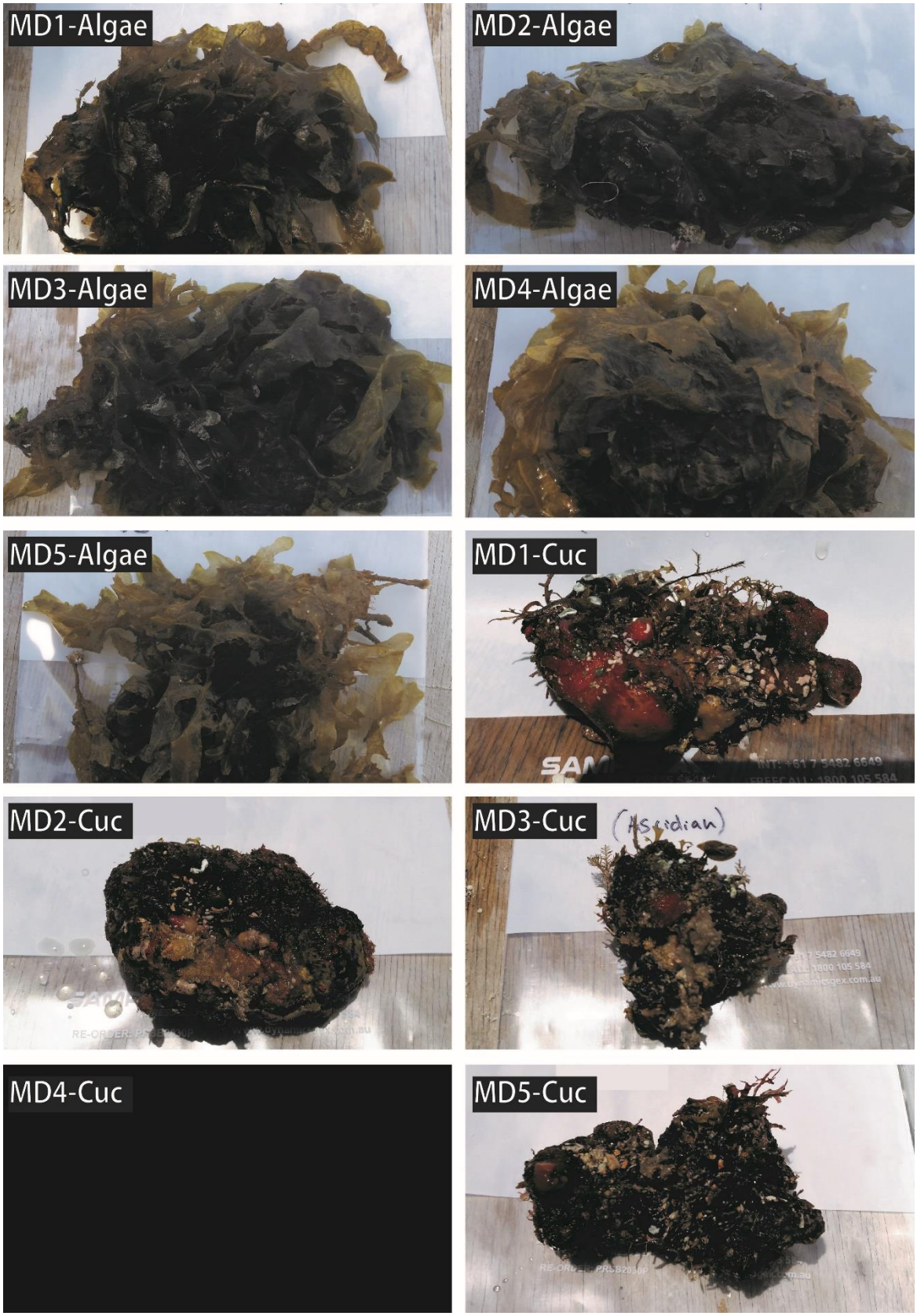


Figure A-4 Algae and ascidian samples from site mD

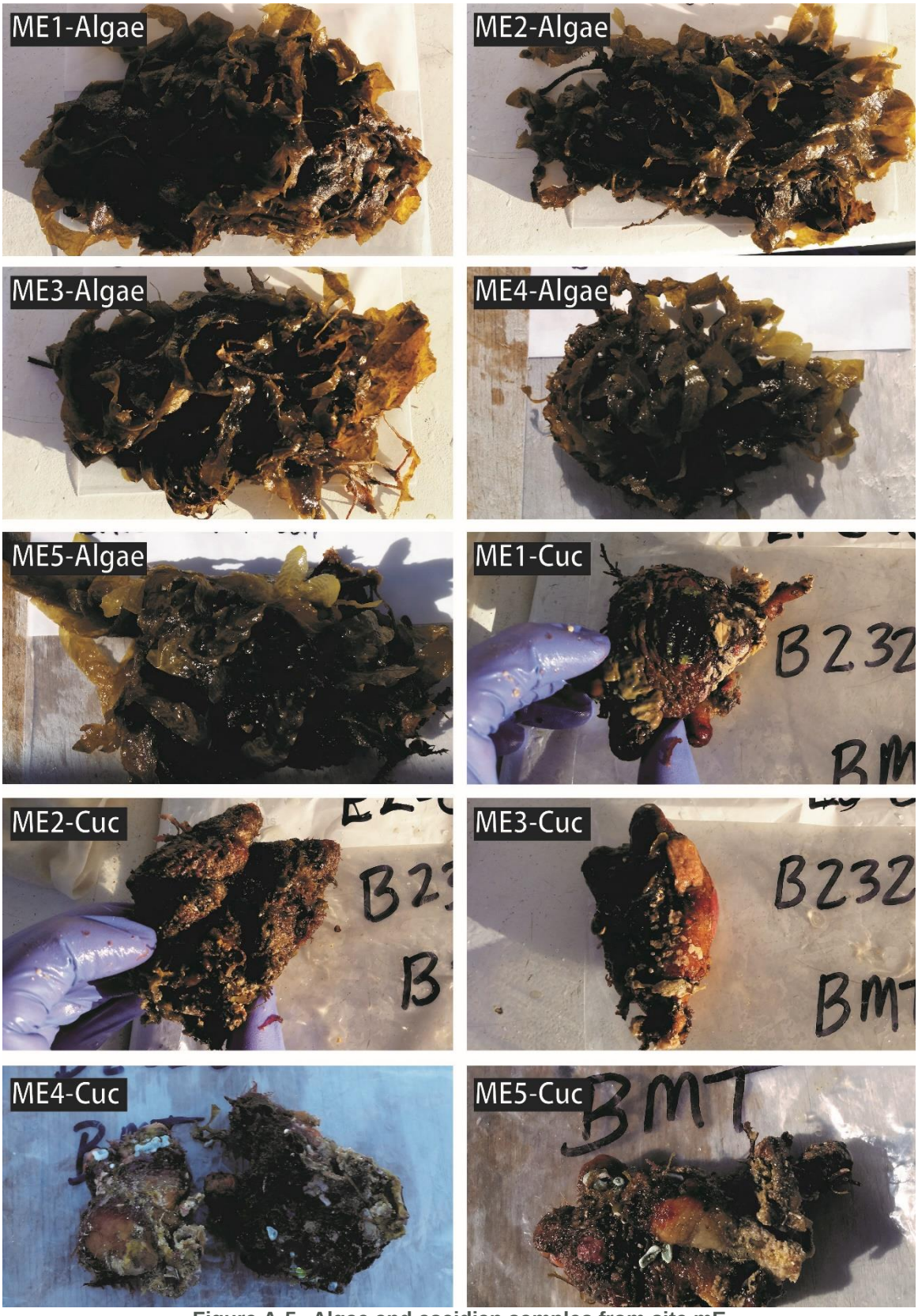


Figure A-5 Algae and ascidian samples from site mE



Figure A-6 Algae and ascidian samples from site mG



Figure A-7 Algae and ascidian samples from site mH



Figure A-8 Algae and ascidian samples from site ml

A.1.2 Fish Samples



Figure A-9 Fish samples from site mA and mB

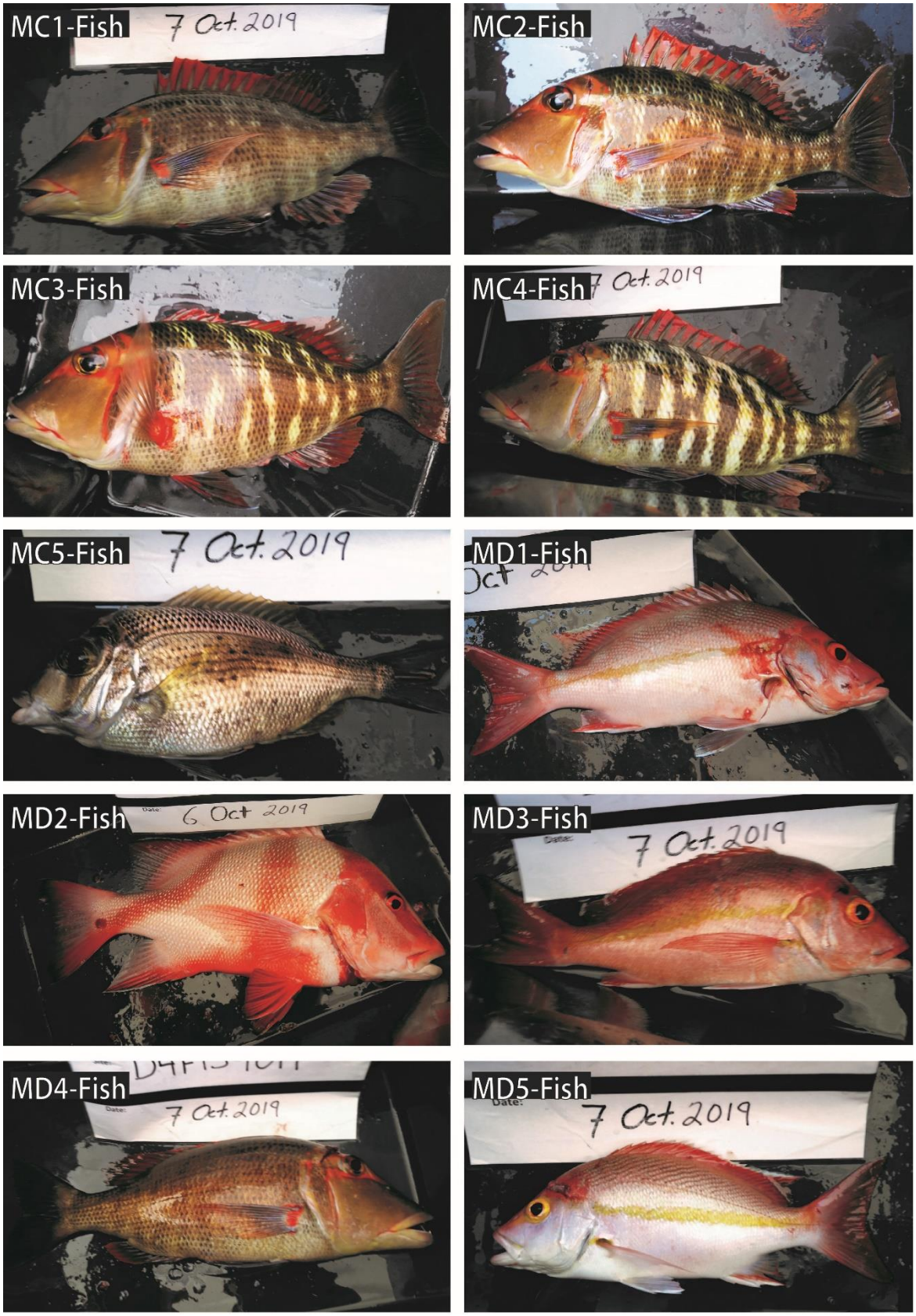


Figure A-10 Fish samples from site mC and mD

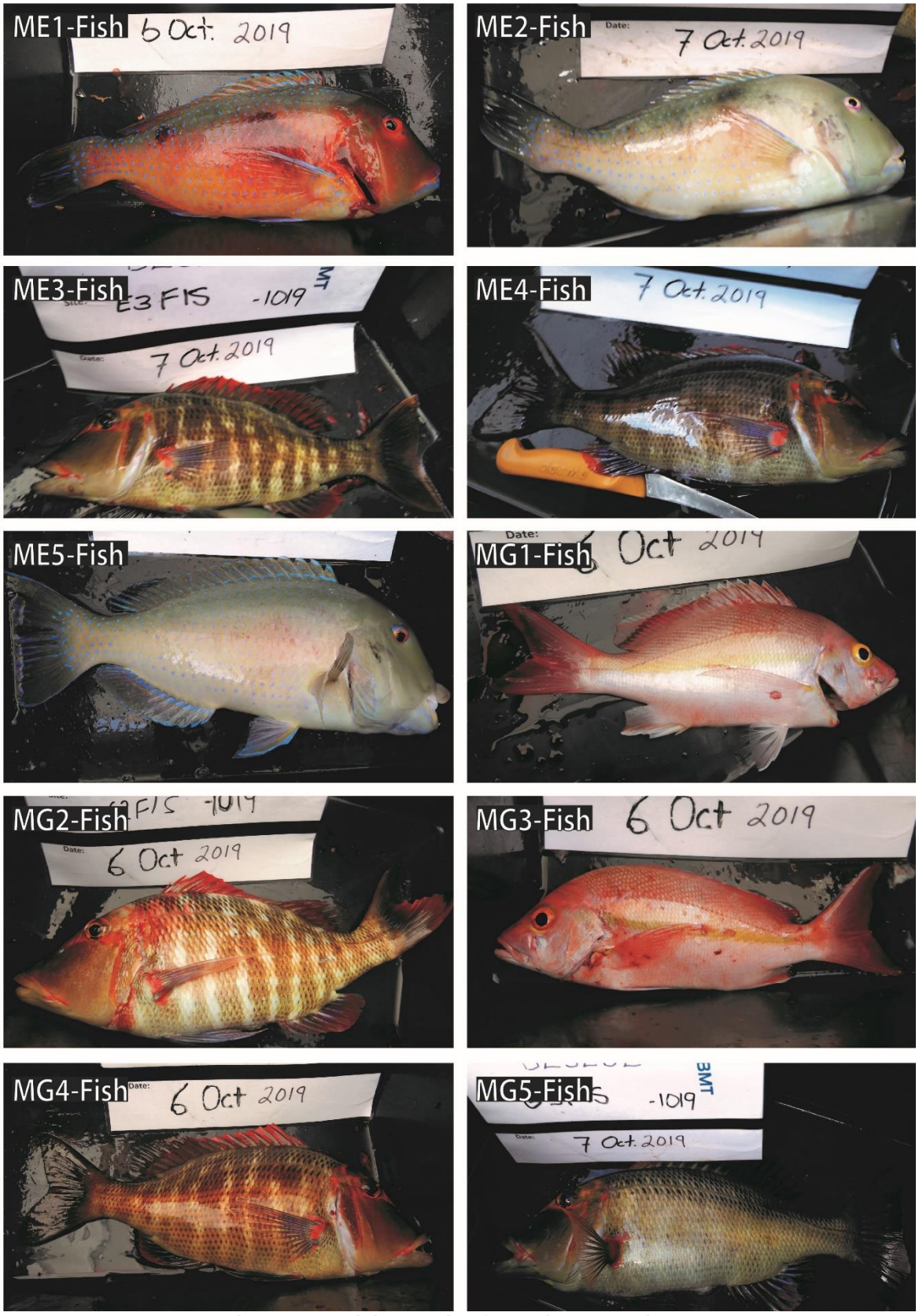


Figure A-11 Fish samples from site mE and mG



Figure A-12 Fish samples from site mH and ml

A.1.3 Sediment Samples

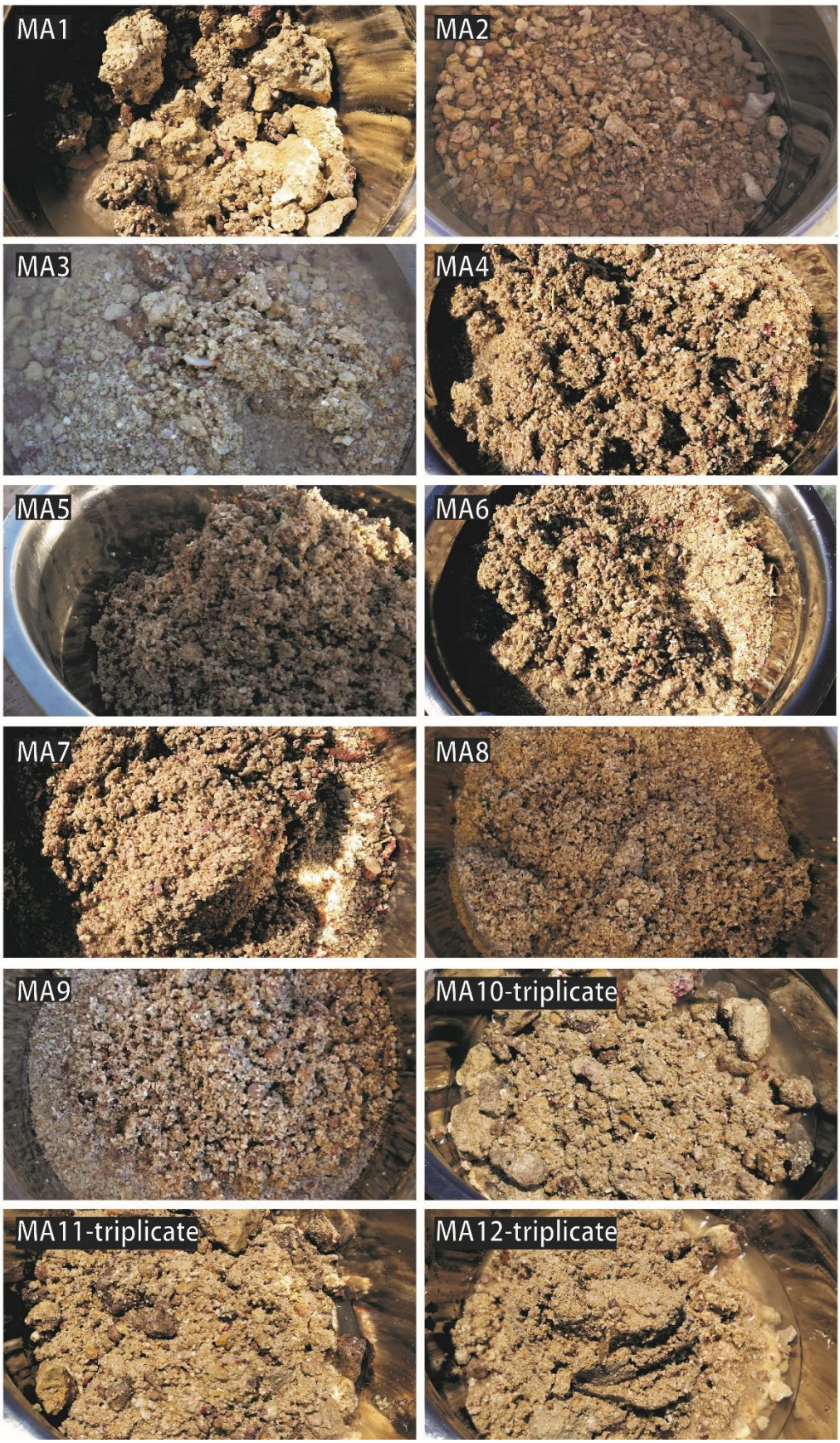


Figure A-13 Sediment samples from site mA



Figure A-14 Sediment samples from site mB

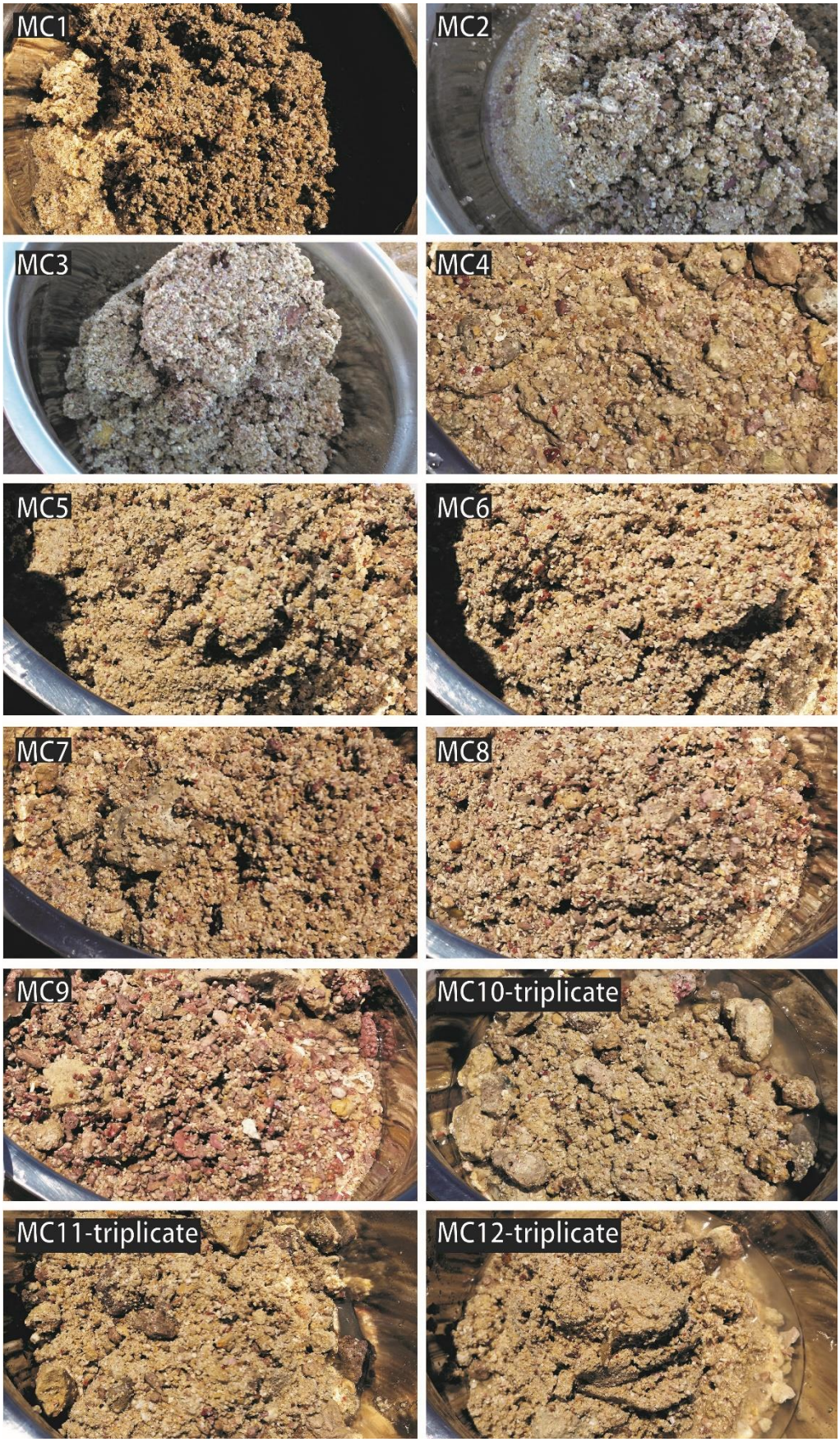


Figure A-15 Sediment samples from site mC

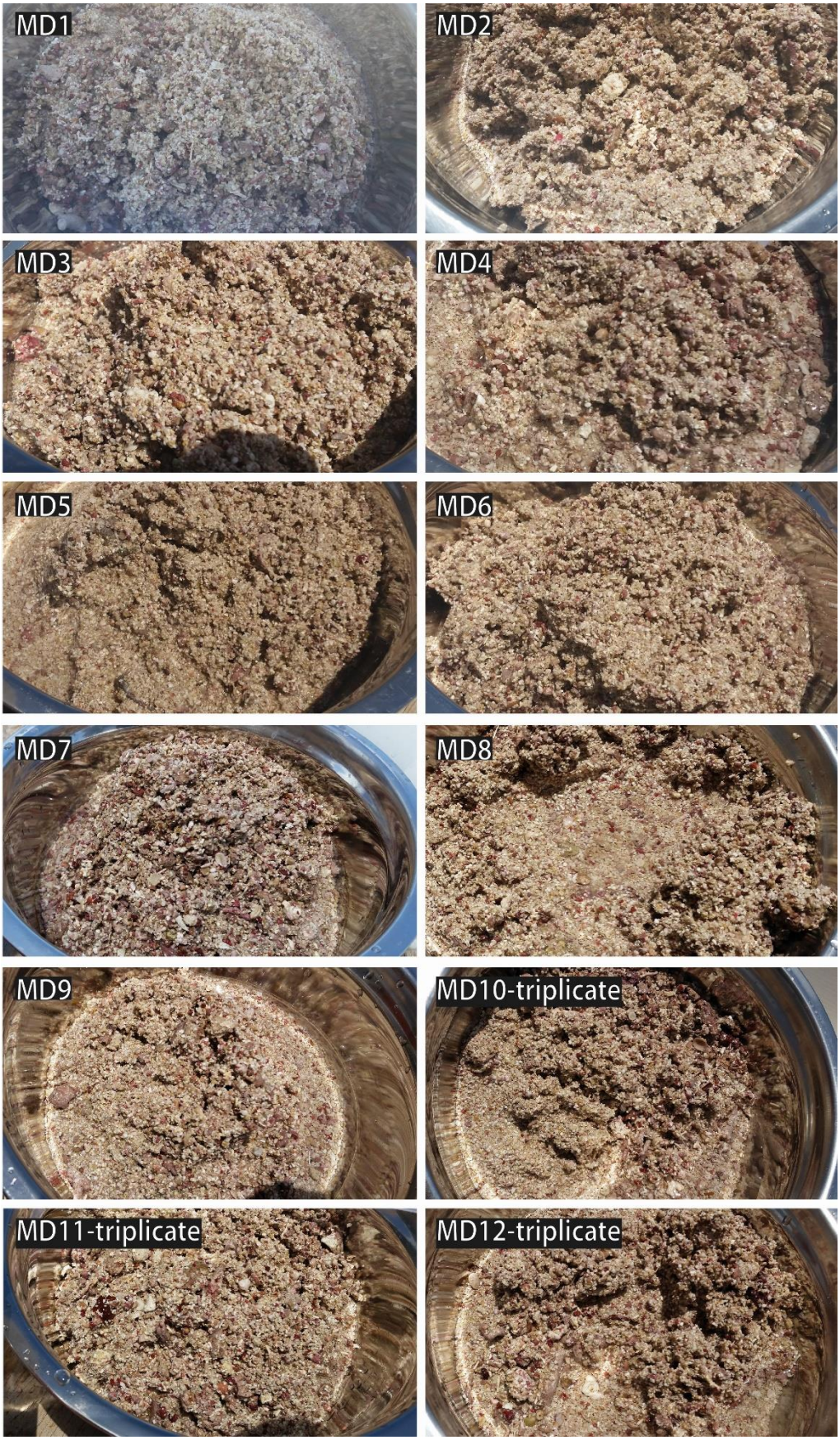


Figure A-16 Sediment samples from site mA

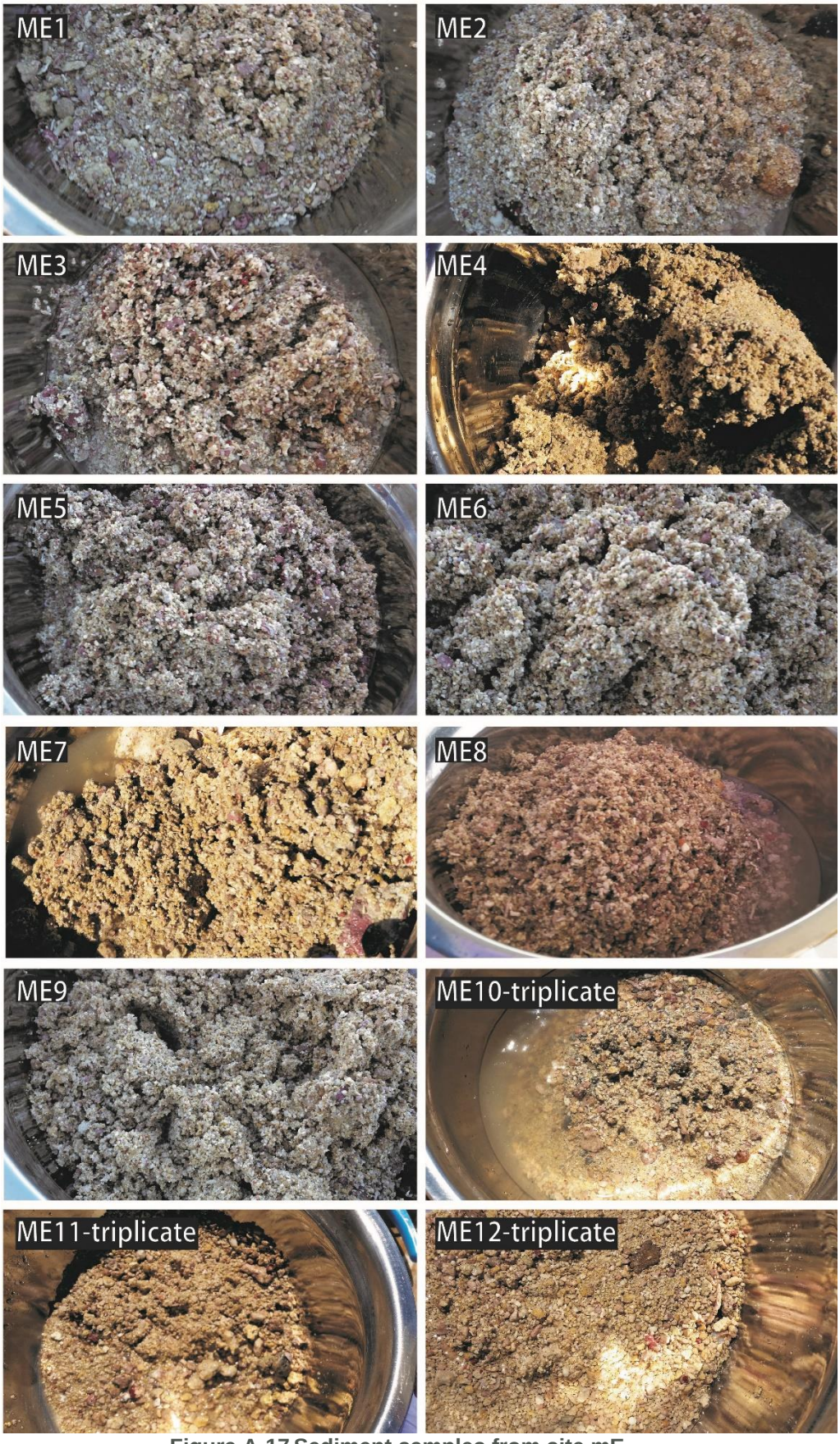


Figure A-17 Sediment samples from site mE

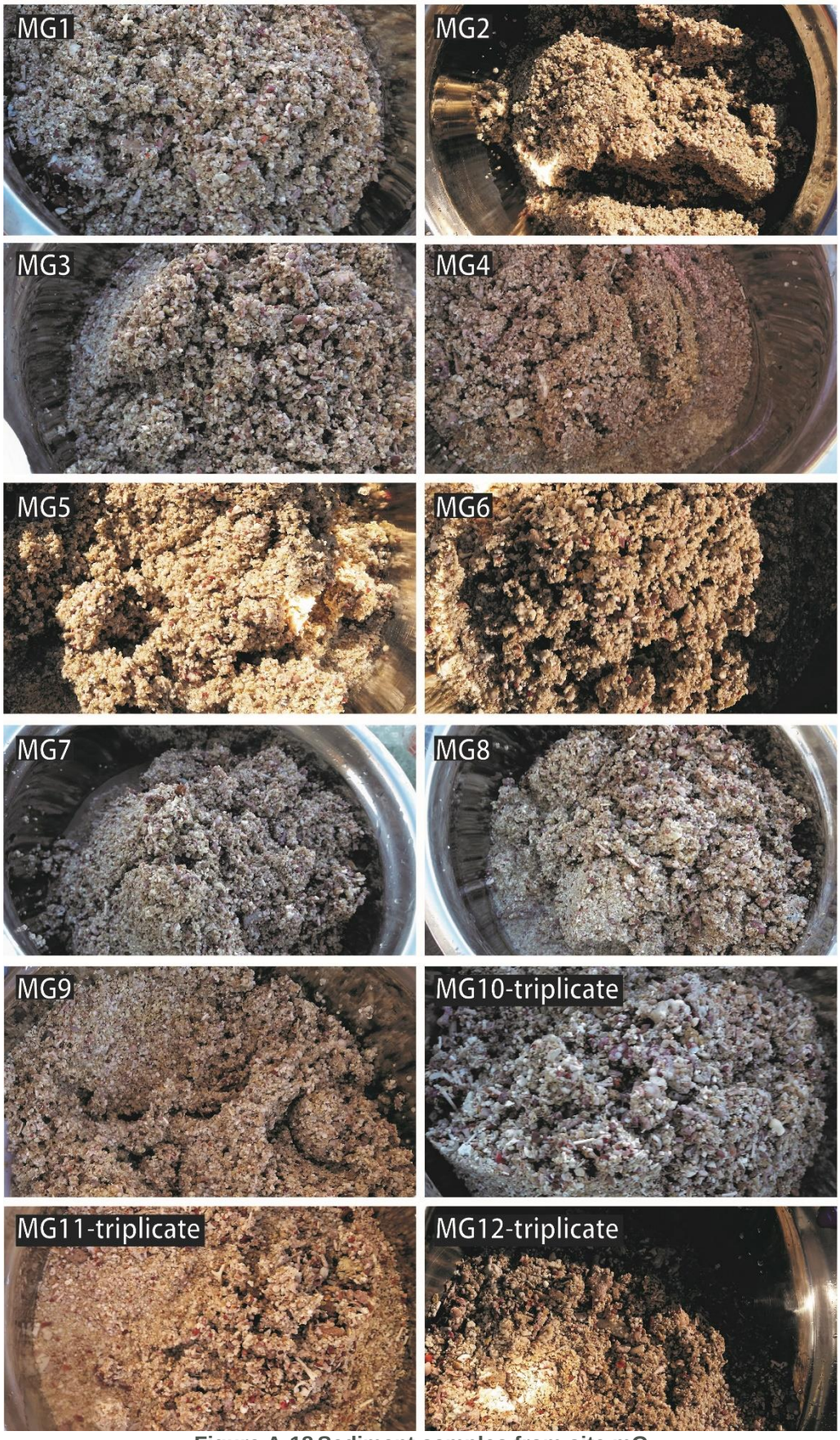


Figure A-18 Sediment samples from site mG

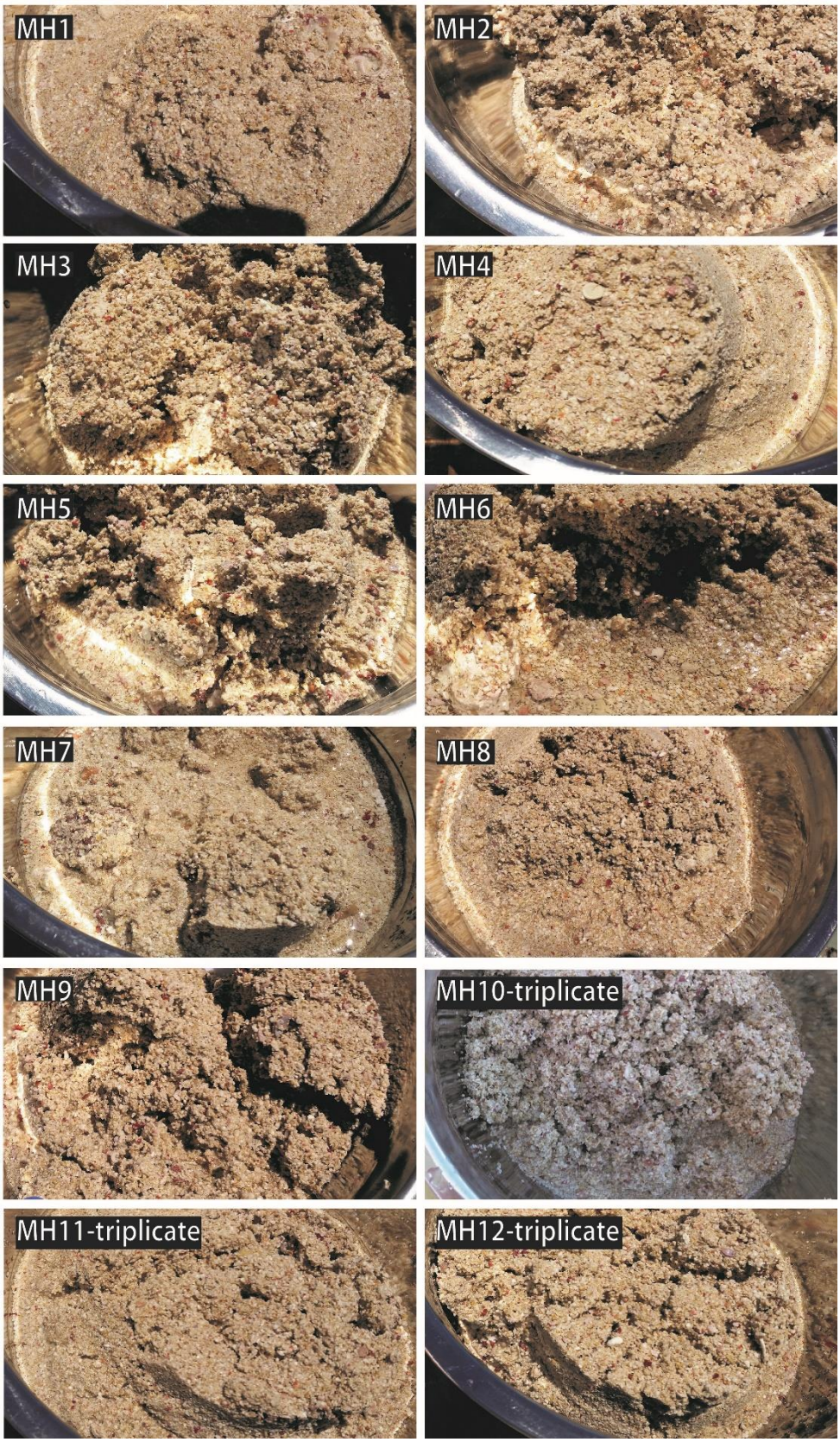


Figure A-19 Sediment samples from site mH

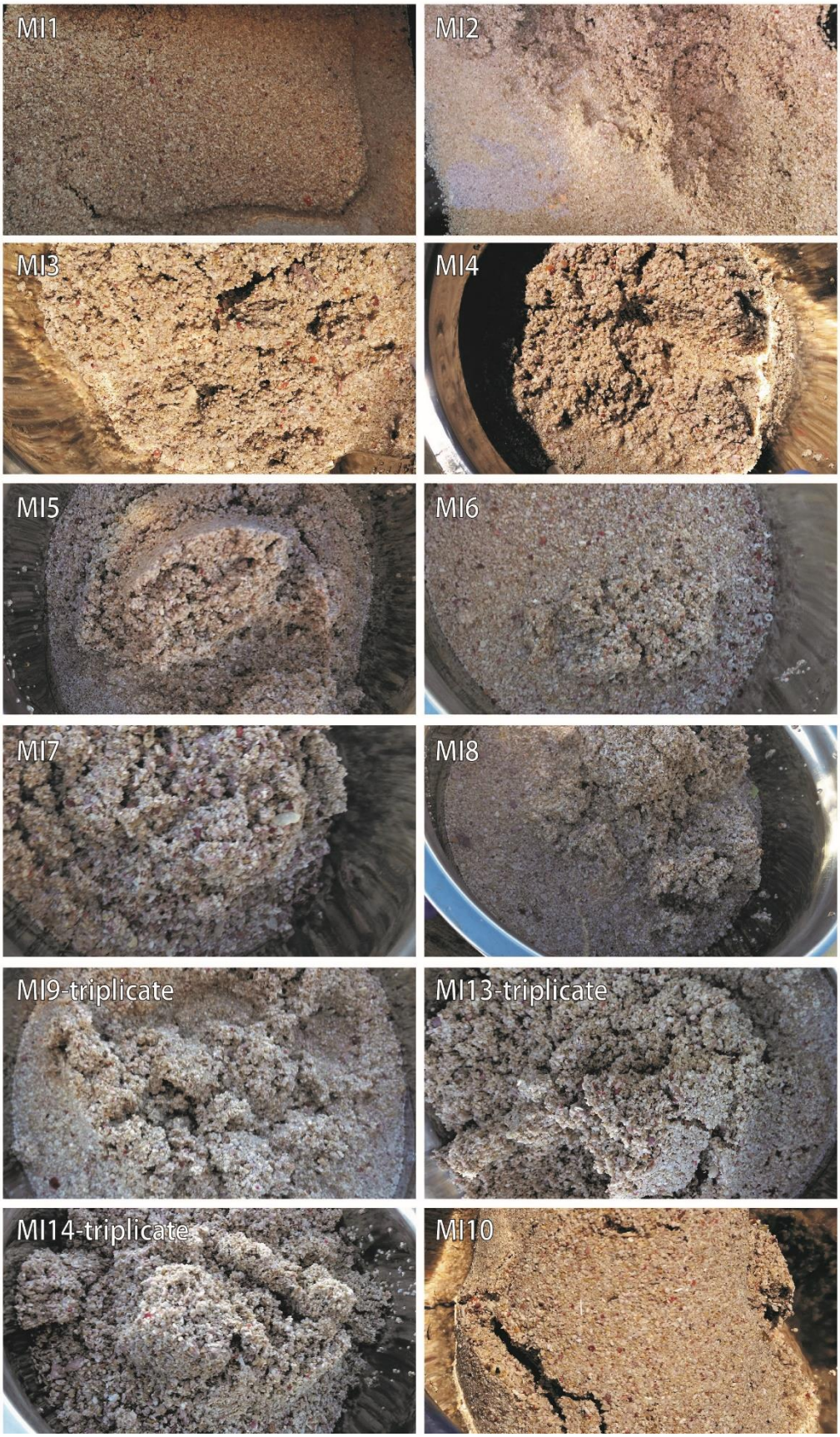


Figure A-20 Sediment samples from site ml

A.1.4 BRUV Habitat Images

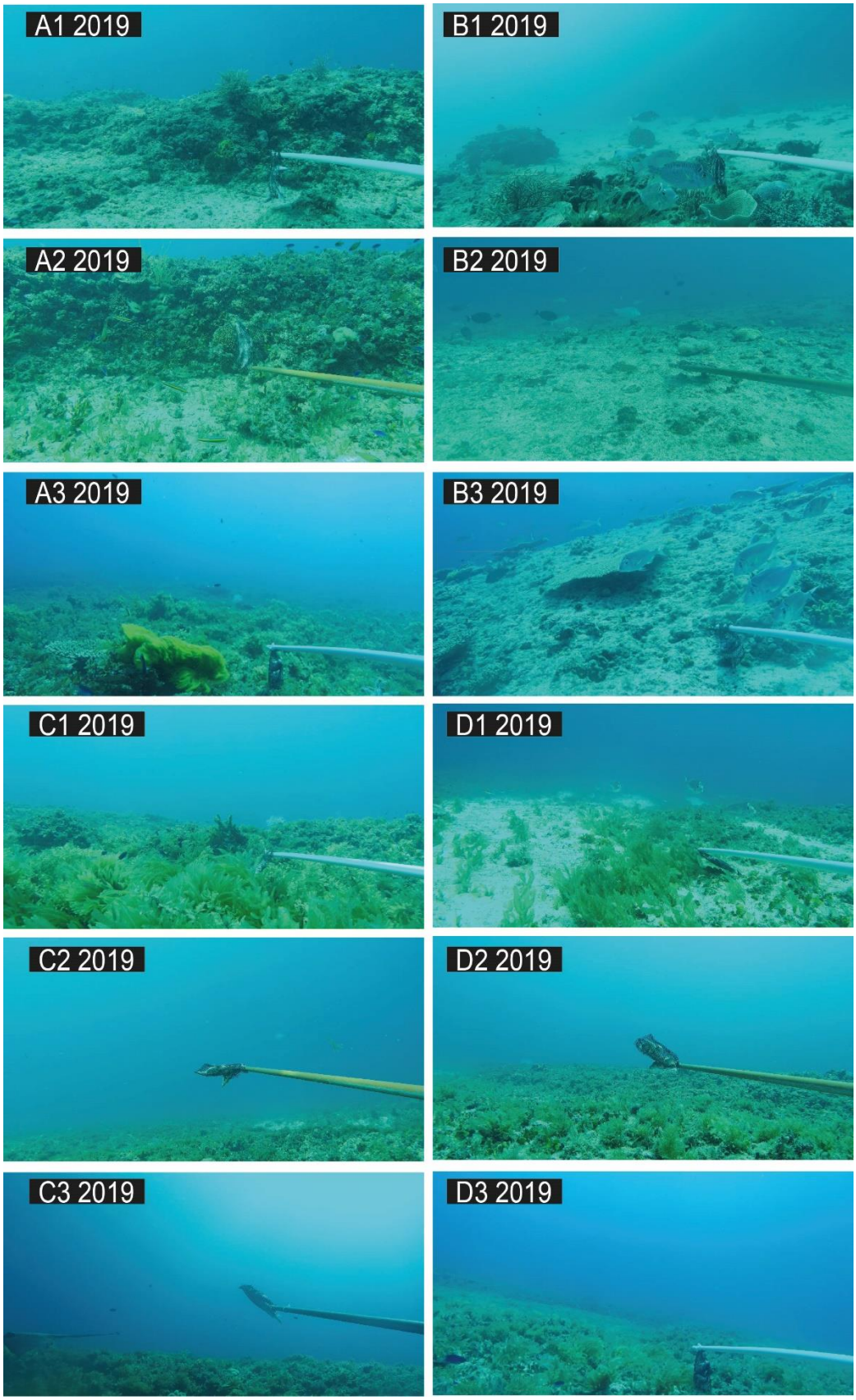


Figure A-21 Spring 2019 BRUV habitat images at locations mA, mB, mC, and mD

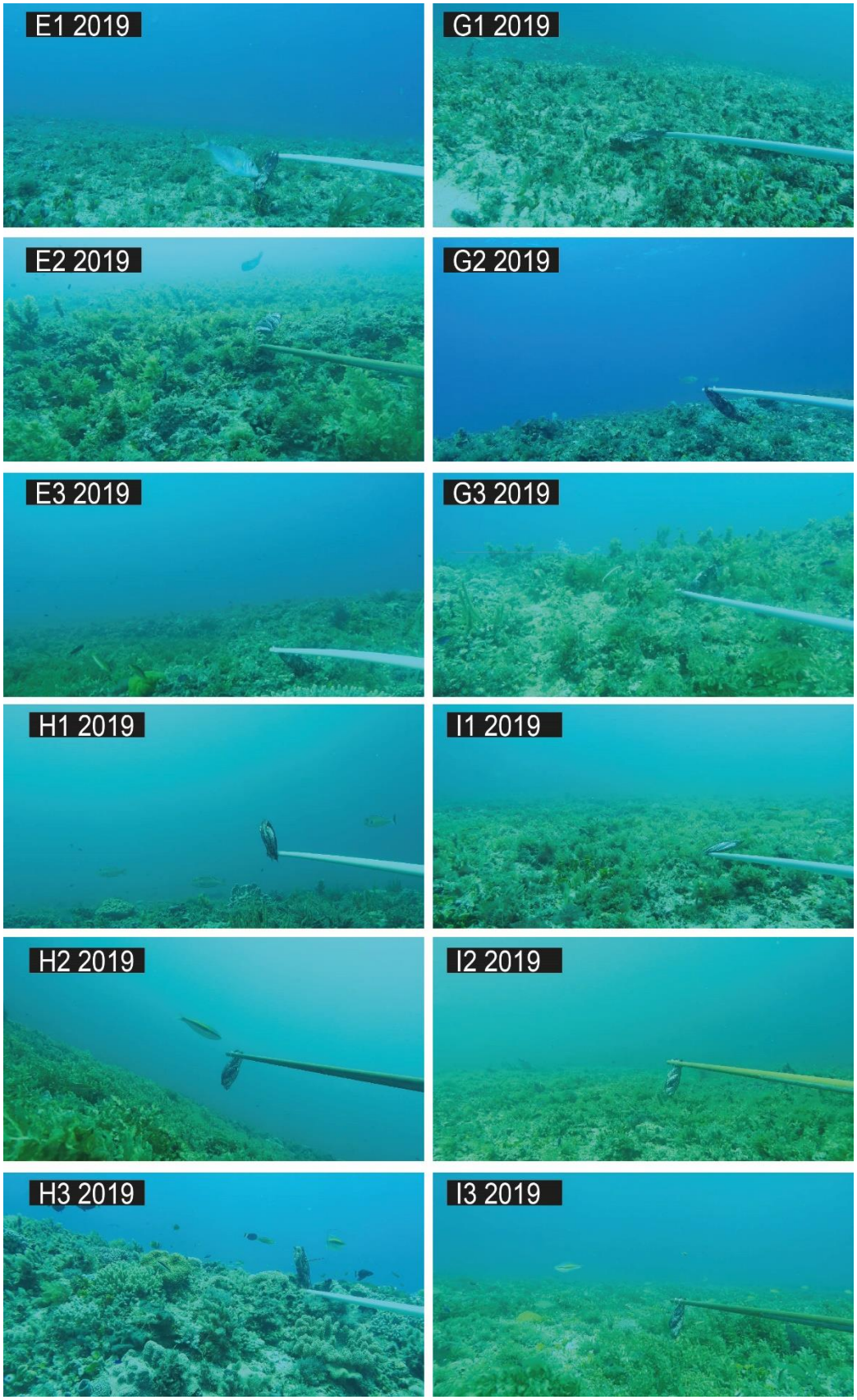


Figure A-22 Spring 2019 BRUV habitat images at locations mE, mG, mH, and mI



Figure A-23 Autumn 2020 BRUV habitat images at locations mA, mB, mC, and mD



Figure A-24 Autumn 2020 BRUV habitat images at locations mE, mG, mH, and mI

A.2 Autumn 2020

A.2.1 Algae and Ascidian Samples

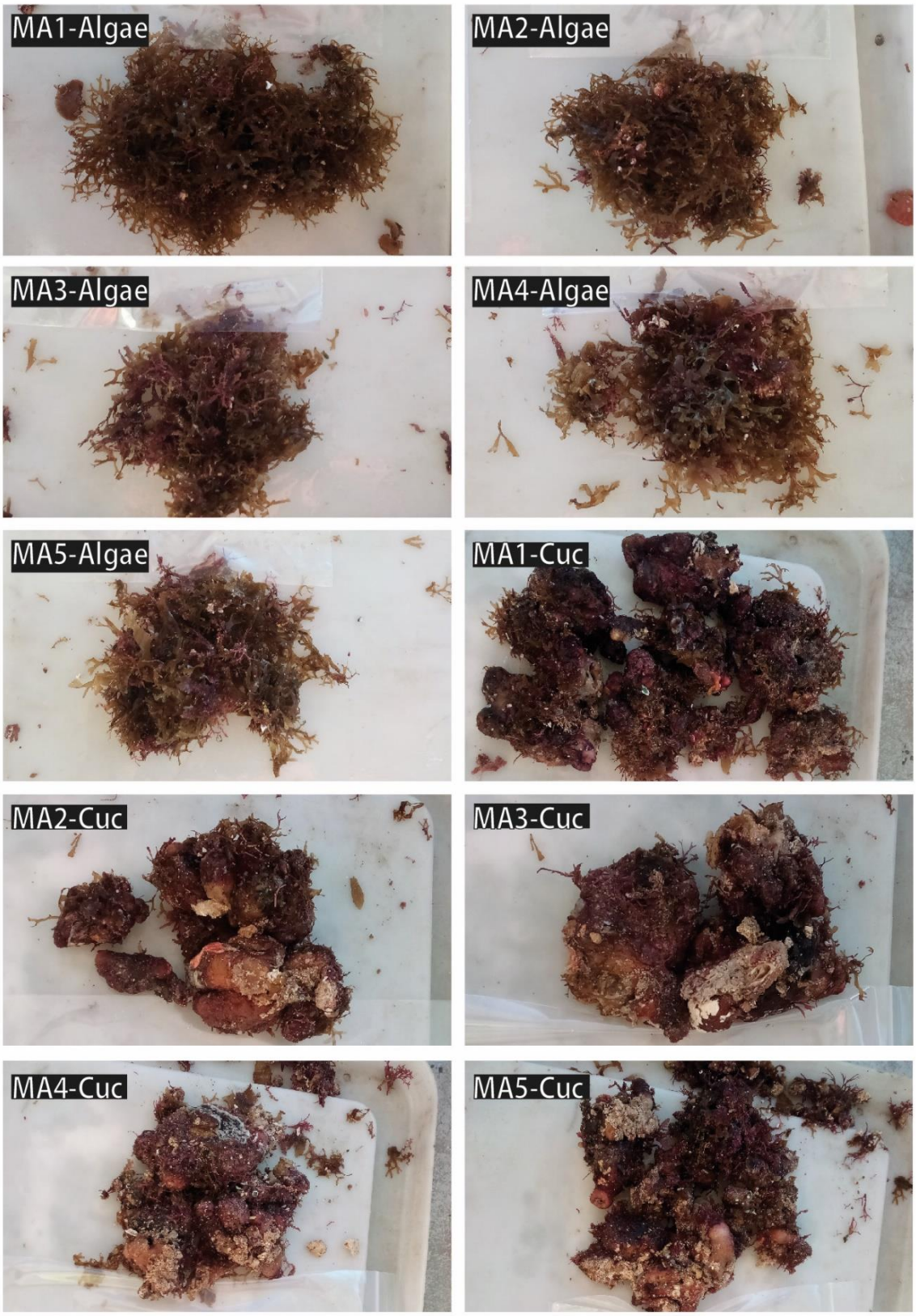


Figure A-25 Algae and ascidian samples from site mA

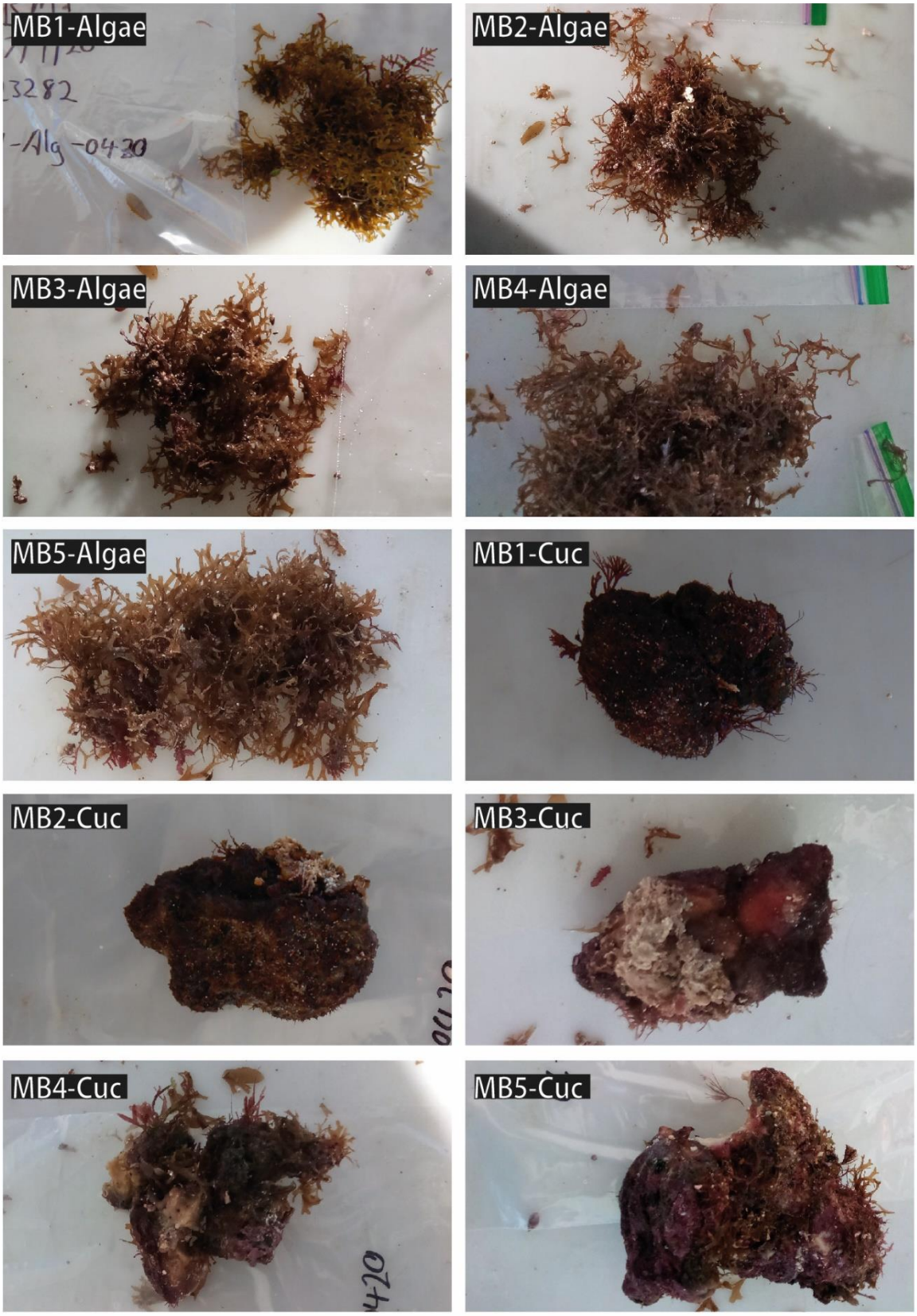


Figure A-26 Algae and ascidian samples from site mB

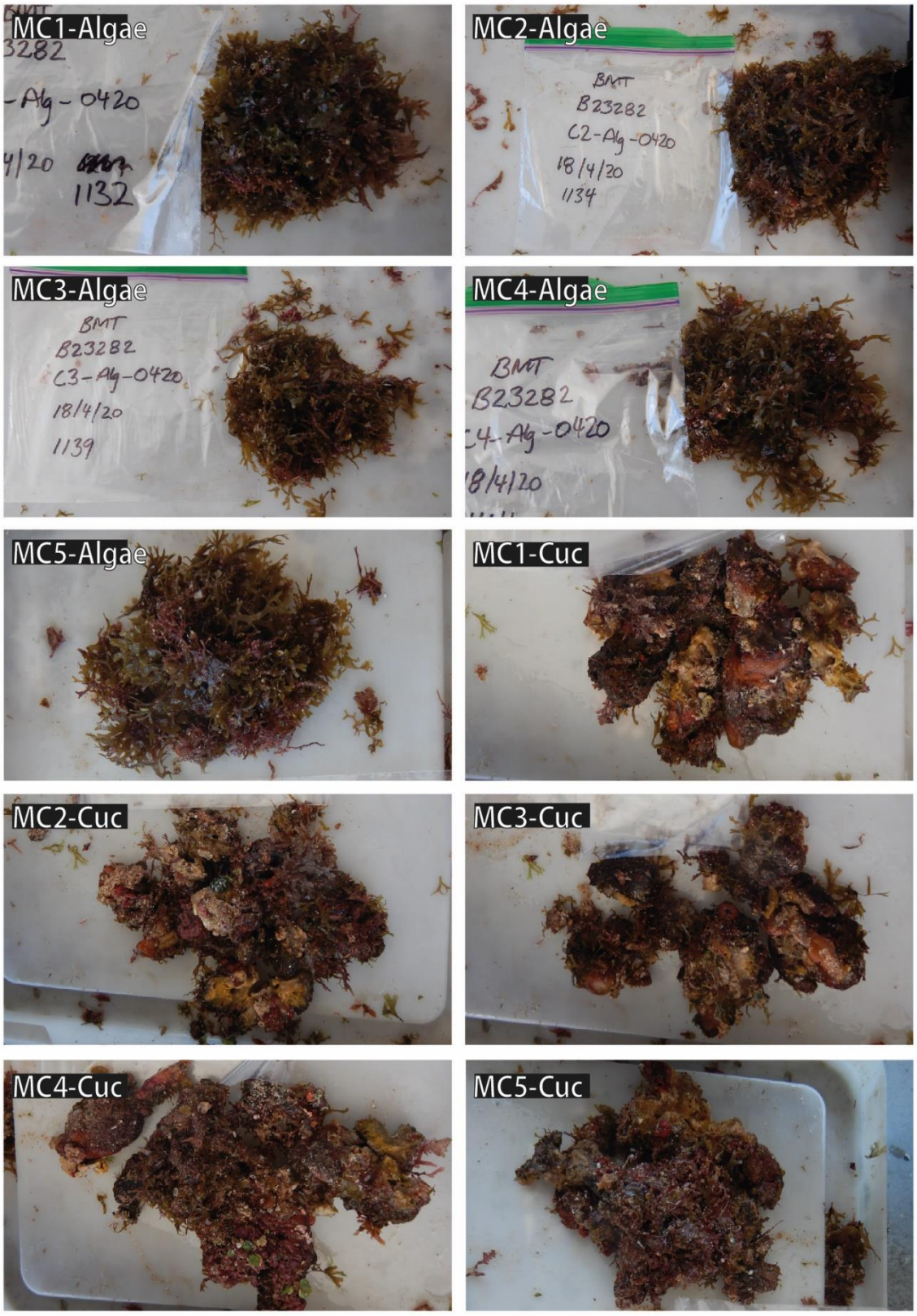


Figure A-27 Algae and ascidian samples from site mC

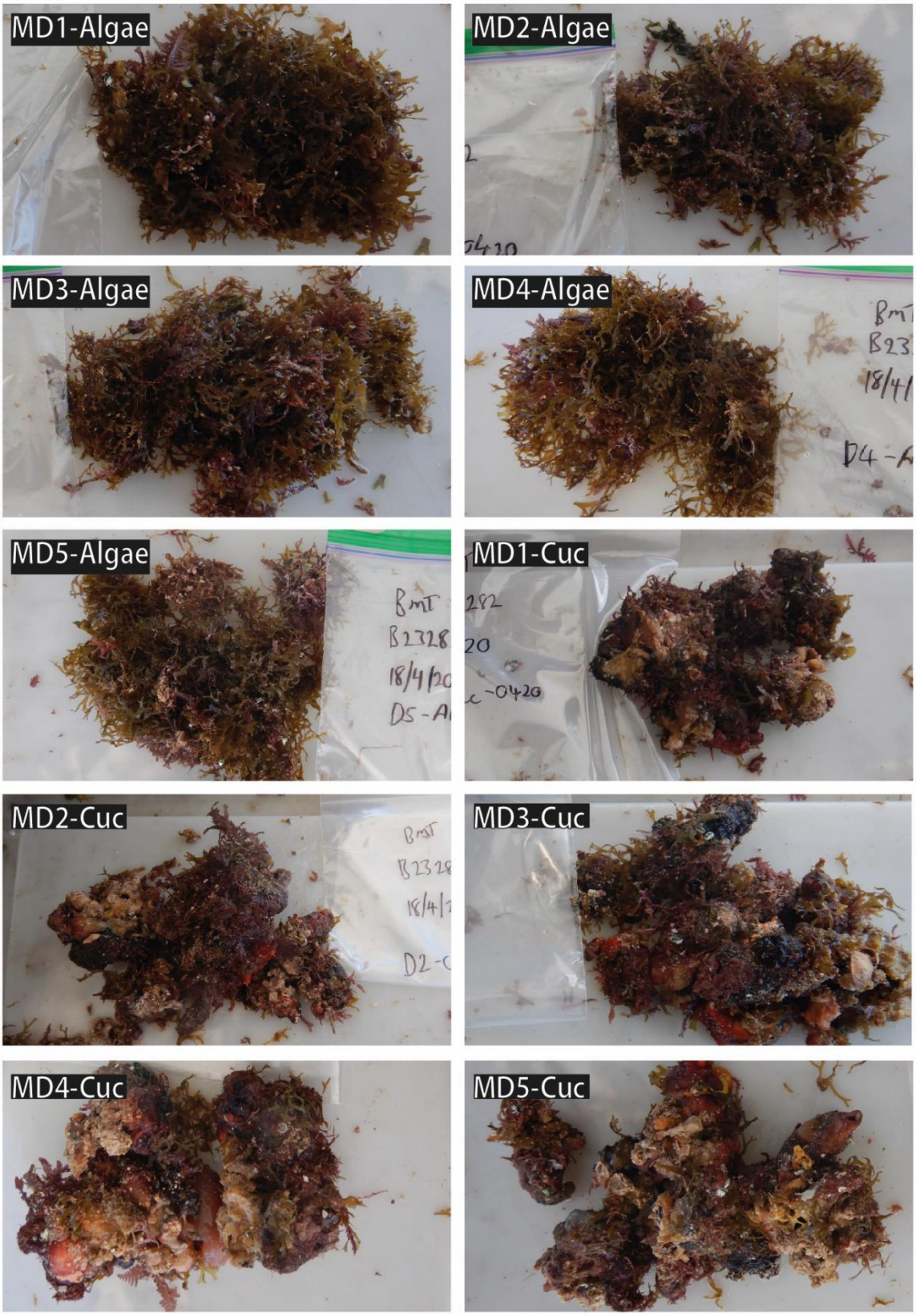


Figure A-28 Algae and ascidian samples from site mD

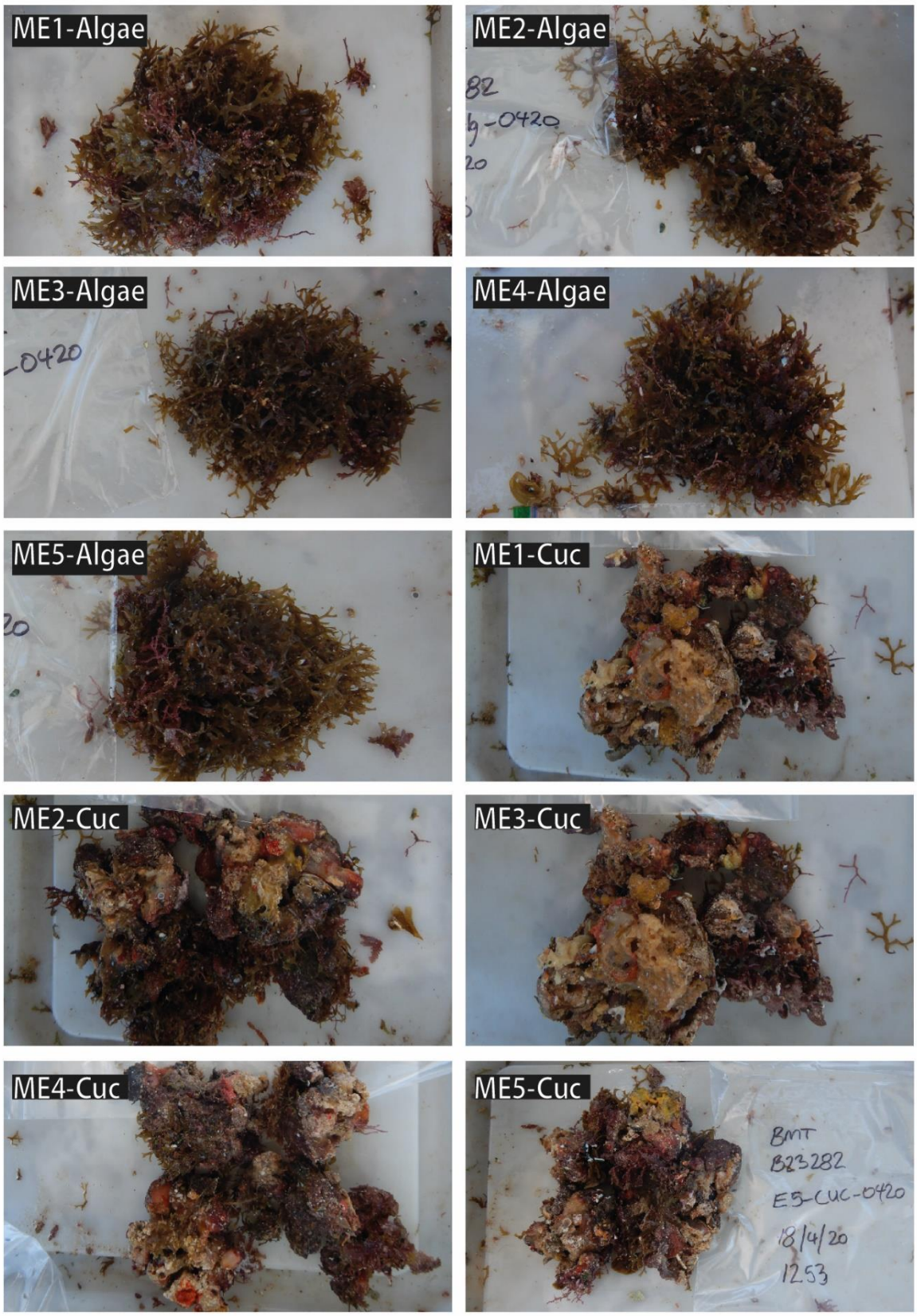


Figure A-29 Algae and ascidian samples from site mE

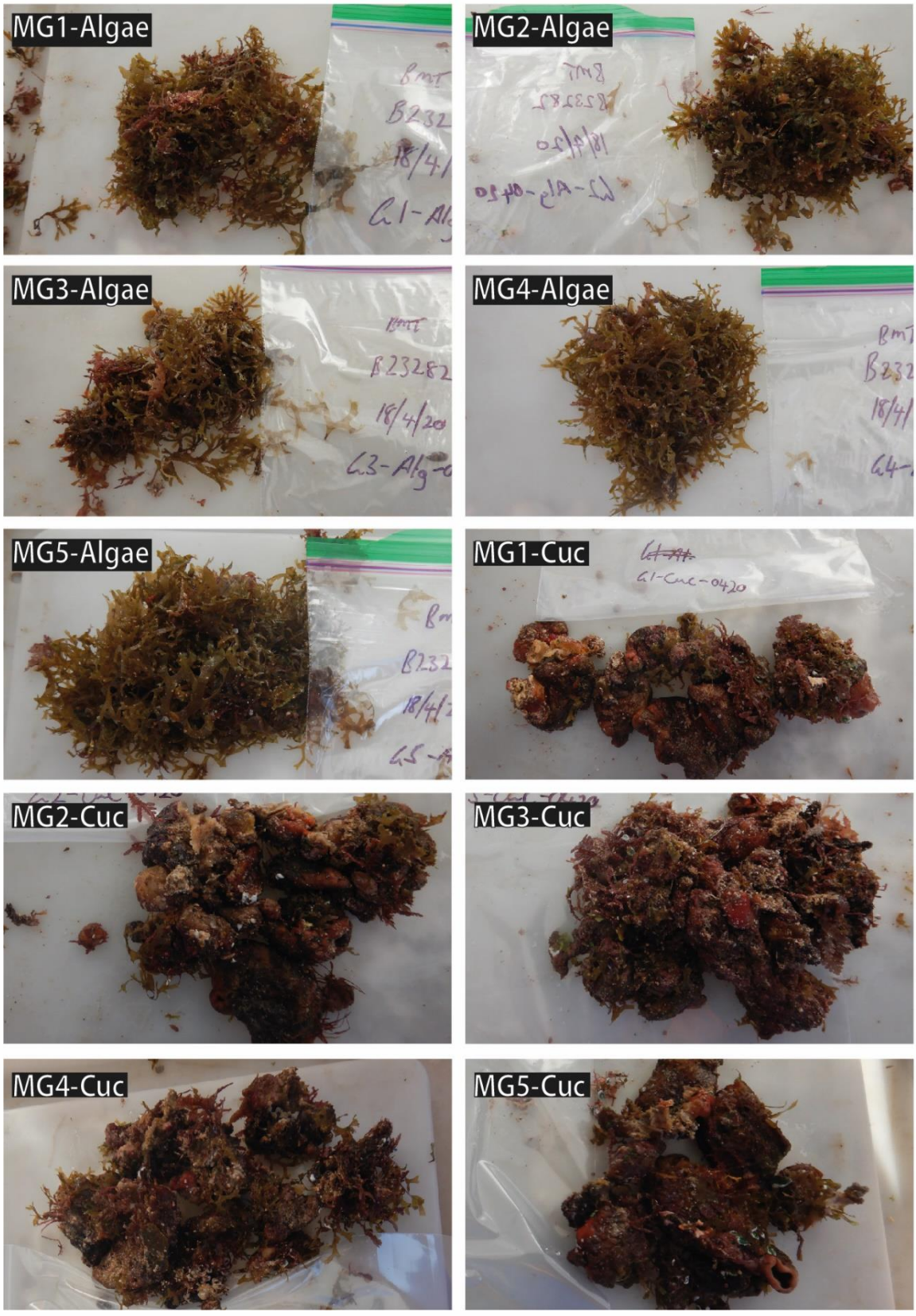


Figure A-30 Algae and ascidian samples from site mG

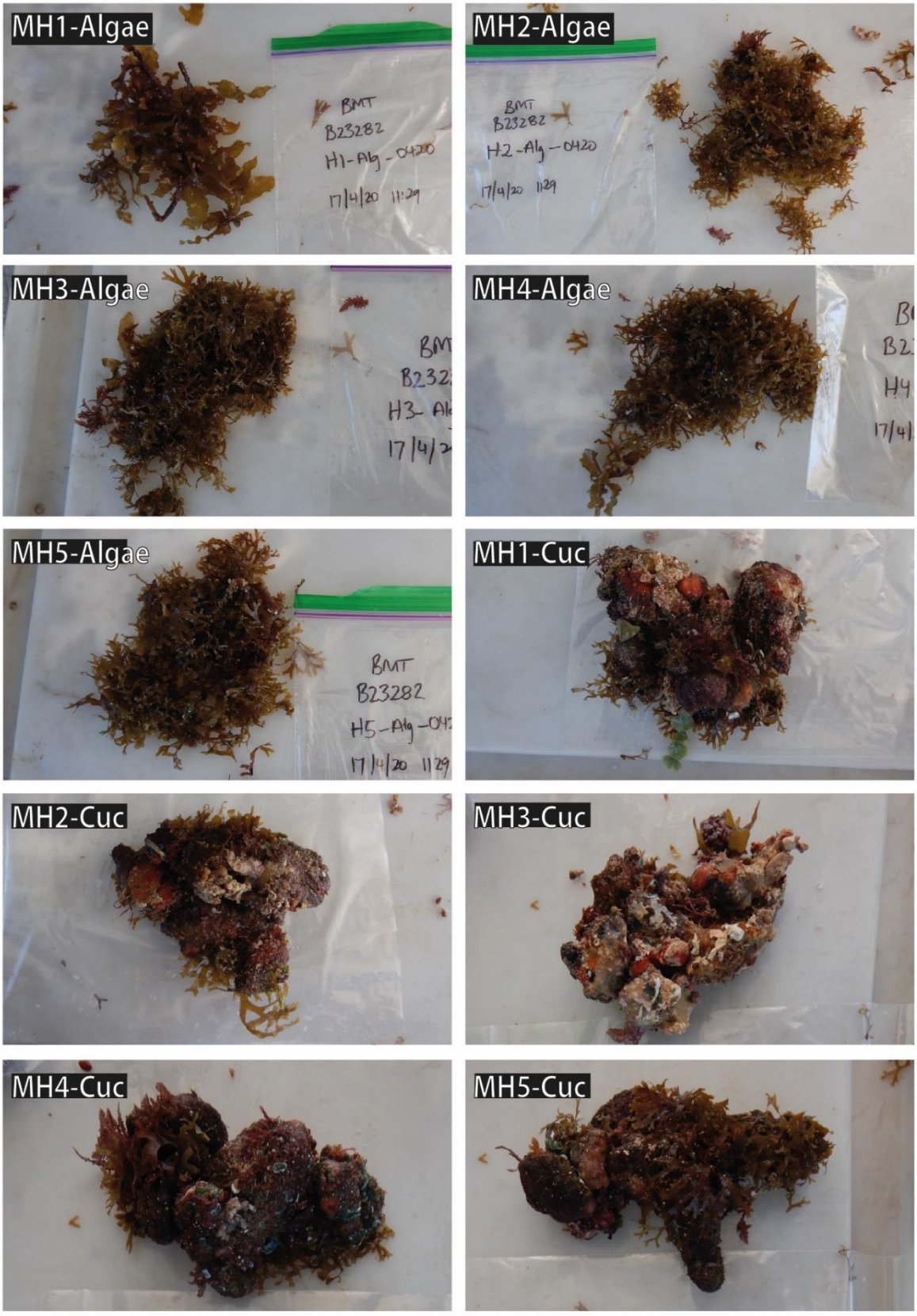


Figure A-31 Algae and ascidian samples from site mH

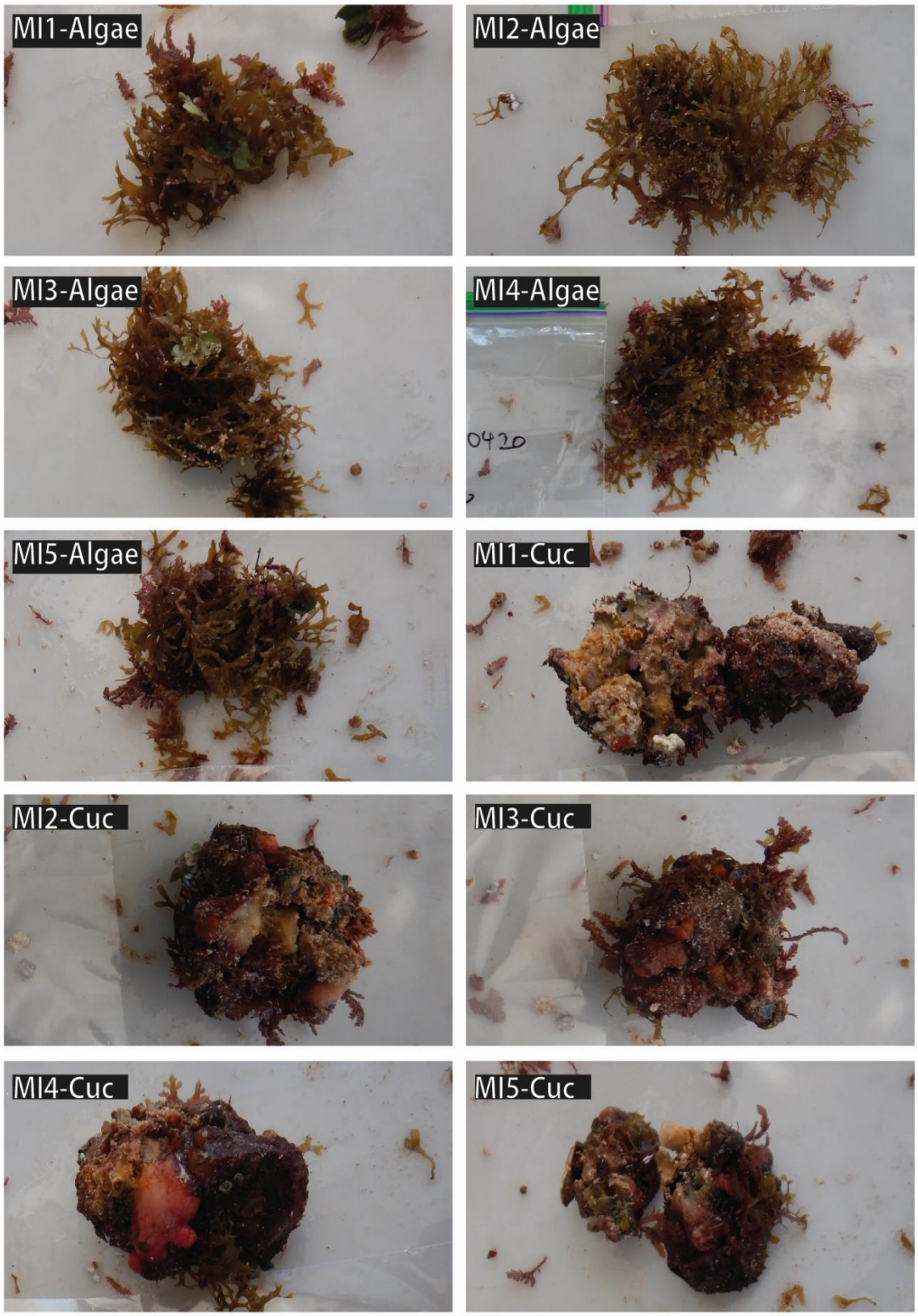


Figure A-32 Algae and ascidian samples from site ml

A.2.2 Fish Samples

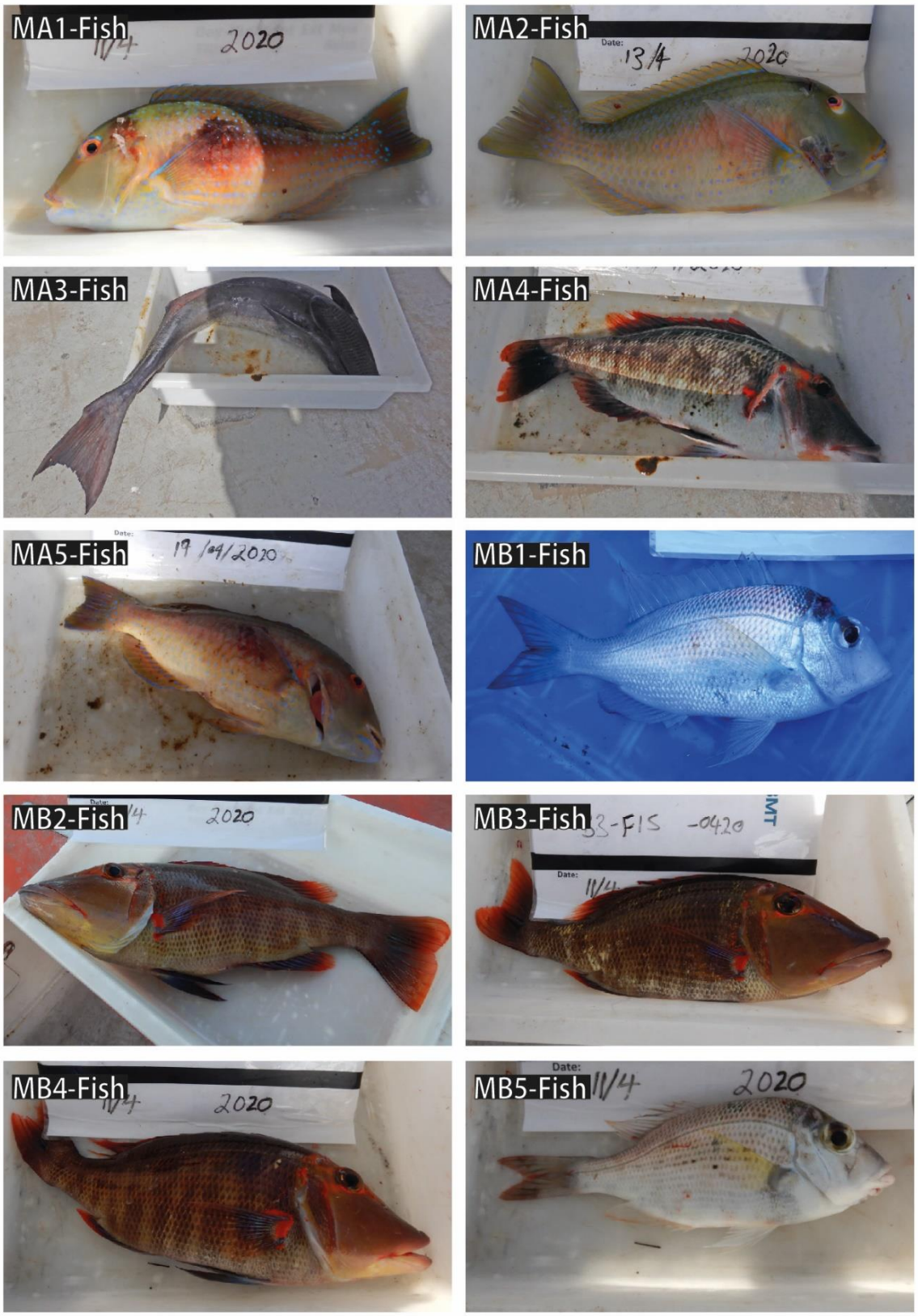


Figure A-33 Fish samples from site mA and mB



Figure A-34 Fish samples from site mC and mD

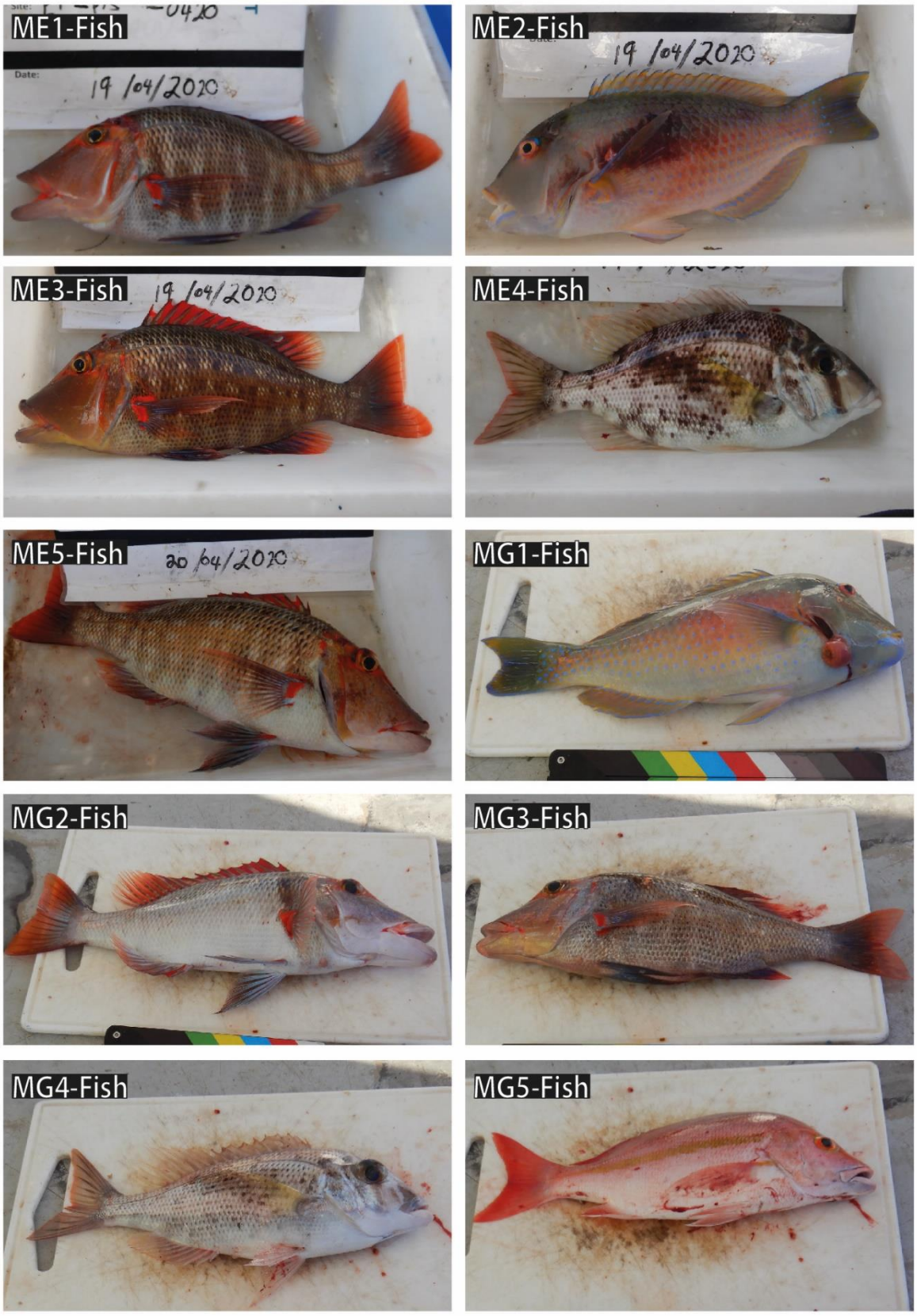


Figure A-35 Fish samples from site mE and mG

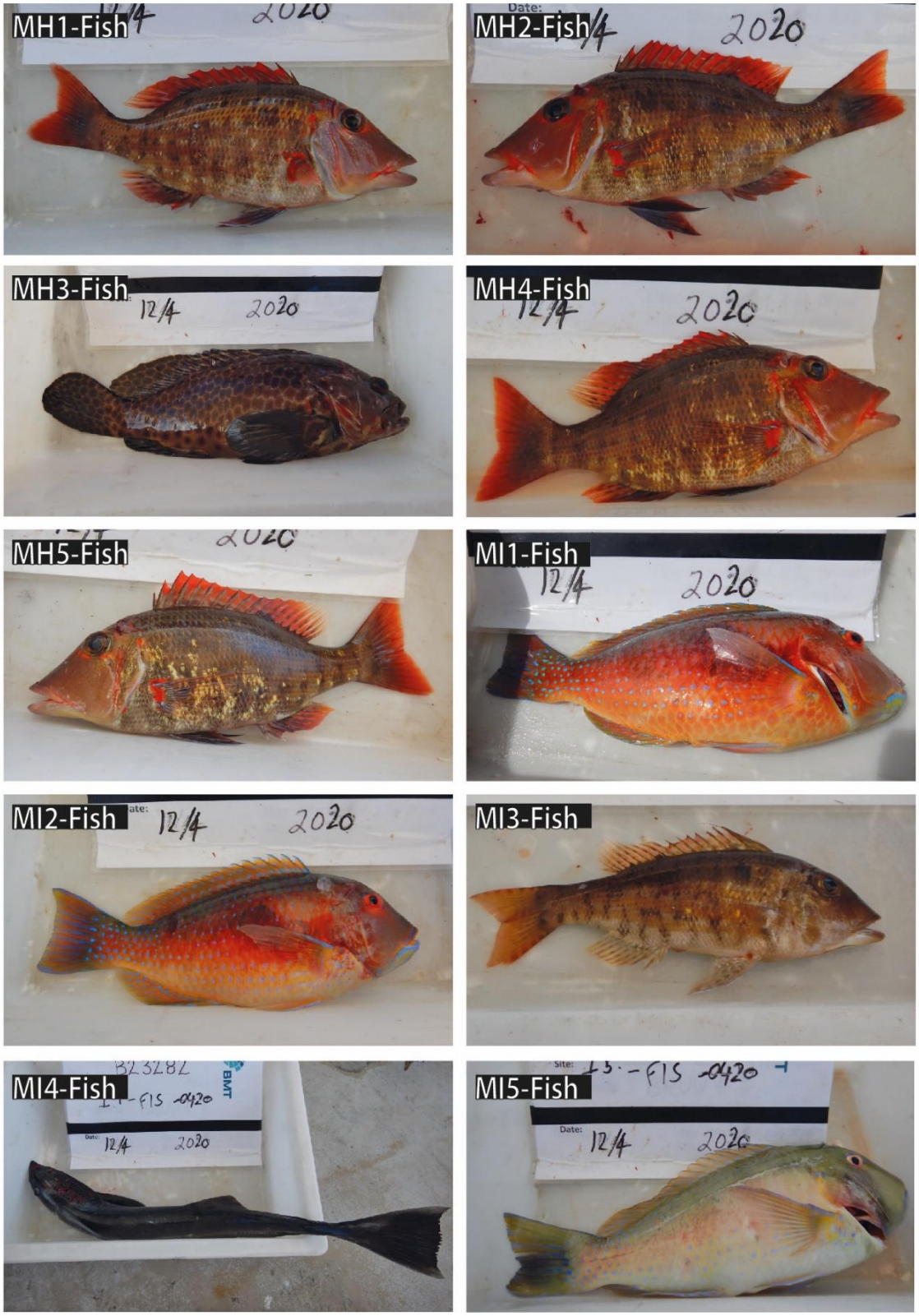


Figure A-36 Fish samples from site mH and mI

Appendix B Statistical Outputs

B.1 Generalised Linear Modelling

B.1.1 Benthic Cover Analyses

```
> mod_Acropora <- glmmTMB(Total_Acropora ~ Location * Event + (1|Treatment), zi
=~Location + Event, family=nbinom1(), data=ccover)
> summary(mod_Acropora)
 Family: nbinom1  ( log )
Formula:          Total_Acropora ~ Location * Event + (1 | Treatment)
Zero inflation:                  ~Location + Event
Data: ccover

     AIC      BIC   logLik deviance df.resid
  5675.2   5839.1  -2810.6   5621.2     3173

Random effects:

Conditional model:
 Groups    Name        Variance  Std.Dev.
 Treatment (Intercept) 3.108e-10 1.763e-05
Number of obs: 3200, groups:  Treatment, 3

Overdispersion parameter for nbinom1 family (): 1.26

Conditional model:
                              Estimate Std. Error z value Pr(>|z|)
(Intercept)                   1.710709   0.090396  18.925  < 2e-16 ***
Locationm_B                   0.432581   0.106758   4.052 5.08e-05 ***
Locationm_C                   0.036833   0.174235   0.211    0.833
Locationm_D                   0.044424   0.132751   0.335    0.738
Locationm_E                  -0.191141   0.192098  -0.995    0.320
Locationm_G                  -0.106448   0.139519  -0.763    0.445
Locationm_H                  -0.072074   0.208624  -0.345    0.730
Locationm_I                  -0.001408   0.209468  -0.007    0.995
EventSpring_2019             -0.037468   0.126693  -0.296    0.767
Locationm_B:EventSpring_2019  0.028531   0.149645   0.191    0.849
Locationm_C:EventSpring_2019  0.137337   0.247280   0.555    0.579
Locationm_D:EventSpring_2019  0.028339   0.232085   0.122    0.903
Locationm_E:EventSpring_2019  0.340030   0.244207   1.392    0.164
Locationm_G:EventSpring_2019  0.142980   0.193223   0.740    0.459
Locationm_H:EventSpring_2019  0.171716   0.258023   0.666    0.506
Locationm_I:EventSpring_2019 -0.105962   0.289756  -0.366    0.715
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Zero-inflation model:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)    0.96060    0.12469   7.704 1.32e-14 ***
Locationm_B   -0.66050    0.15316  -4.312 1.62e-05 ***
Locationm_C    1.38786    0.21331   6.506 7.70e-11 ***
Locationm_D    0.80033    0.18408   4.348 1.38e-05 ***
Locationm_E    1.08427    0.19793   5.478 4.30e-08 ***
Locationm_G    0.31512    0.16918   1.863   0.0625 .
Locationm_H    1.22662    0.20481   5.989 2.11e-09 ***
Locationm_I    1.62003    0.23105   7.012 2.35e-12 ***
EventSpring_2019  0.01057    0.09821   0.108   0.9143
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_Acropora)
Analysis of Deviance Table (Type II Wald chisquare tests)
```

```
Response: Total_Acropora
               Chisq Df Pr(>Chisq)
Location      70.8277  7  1.005e-12 ***
Event          0.3018  1     0.5828
Location:Event  3.2990  7     0.8560
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_Acropora, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.71 0.0904 3173     1.53     1.89
 Spring_2019             1.67 0.0893 3173     1.50     1.85

Location = m_B:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   2.14 0.0569 3173     2.03     2.25
 Spring_2019             2.13 0.0558 3173     2.02     2.24

Location = m_C:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.75 0.1492 3173     1.46     2.04
 Spring_2019             1.85 0.1515 3173     1.55     2.14

Location = m_D:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.76 0.0975 3173     1.56     1.95
 Spring_2019             1.75 0.1685 3173     1.42     2.08

Location = m_E:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.52 0.1697 3173     1.19     1.85
 Spring_2019             1.82 0.1224 3173     1.58     2.06

Location = m_G:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.60 0.1066 3173     1.40     1.81
 Spring_2019             1.71 0.1005 3173     1.51     1.91

Location = m_H:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.64 0.1881 3173     1.27     2.01
 Spring_2019             1.77 0.1238 3173     1.53     2.02

Location = m_I:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.71 0.1891 3173     1.34     2.08
 Spring_2019             1.57 0.1803 3173     1.21     1.92

Results are given on the log (not the response) scale.
Confidence level used: 0.95

$contrasts
Location = m_A:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  0.03747 0.1267 3173  0.296  0.7674

Location = m_B:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  0.00894 0.0797 3173  0.112  0.9107

Location = m_C:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019 -0.09987 0.2124 3173 -0.470  0.6383
```

```
Location = m_D:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  0.00913 0.1946 3173  0.047  0.9626

Location = m_E:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019 -0.30256 0.2089 3173 -1.448  0.1476

Location = m_G:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019 -0.10551 0.1460 3173 -0.722  0.4701

Location = m_H:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019 -0.13425 0.2249 3173 -0.597  0.5506

Location = m_I:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  0.14343 0.2607 3173  0.550  0.5822

Results are given on the log (not the response) scale.

> mod_Gravel <-glmmTMB(Rubble ~ Location * Event + (1|Treatment), zi=~Location
+ Event, family=truncated_poisson(), data=ccover)
> summary(mod_Gravel)
 Family: truncated_poisson  ( log )
Formula:          Rubble ~ Location * Event + (1 | Treatment)
Zero inflation:          ~Location + Event
Data: ccover

     AIC      BIC   logLik deviance df.resid
 20498.0  20655.9 -10223.0  20446.0     3174

Random effects:

Conditional model:
 Groups    Name        Variance  Std.Dev.
 Treatment (Intercept) 8.777e-11 9.368e-06
Number of obs: 3200, groups:  Treatment, 3

Conditional model:
                            Estimate Std. Error z value Pr(>|z|)
(Intercept)                  2.96227    0.02558  115.79  < 2e-16 ***
Locationm_B                 -0.82897    0.05737  -14.45  < 2e-16 ***
Locationm_C                  0.39149    0.03083   12.70  < 2e-16 ***
Locationm_D                 -0.55148    0.05284  -10.44  < 2e-16 ***
Locationm_E                  0.48327    0.03016   16.02  < 2e-16 ***
Locationm_G                 -0.75778    0.06584  -11.51  < 2e-16 ***
Locationm_H                 -1.59600    0.26180   -6.10 1.09e-09 ***
Locationm_I                 -1.06644    0.22602   -4.72 2.38e-06 ***
EventSpring_2019             -0.11369    0.04087   -2.78  0.00541 **
Locationm_B:EventSpring_2019 -0.09887    0.10223   -0.97  0.33345
Locationm_C:EventSpring_2019 -0.48734    0.05180   -9.41  < 2e-16 ***
Locationm_D:EventSpring_2019  0.17700    0.07188    2.46  0.01380 *
Locationm_E:EventSpring_2019 -0.10798    0.04729   -2.28  0.02243 *
Locationm_G:EventSpring_2019  0.18744    0.09722    1.93  0.05386 .
Locationm_H:EventSpring_2019  1.30229    0.27006    4.82 1.42e-06 ***
Locationm_I:EventSpring_2019 -0.41587    0.56889   -0.73  0.46477
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Zero-inflation model:
               Estimate Std. Error z value Pr(>|z|)
(Intercept)     0.58912    0.11441   5.149 2.62e-07 ***
Locationm_B     0.90566    0.16936   5.347 8.92e-08 ***
Locationm_C    -0.73432    0.14554  -5.045 4.53e-07 ***
```

```
Locationm_D      0.38313    0.15544   2.465   0.0137 *
Locationm_E     -1.20790    0.14808  -8.157 3.43e-16 ***
Locationm_G      1.17406    0.17959   6.538 6.25e-11 ***
Locationm_H      1.96398    0.22559   8.706  < 2e-16 ***
Locationm_I      3.93369    0.51352   7.660 1.86e-14 ***
EventSpring_2019  0.15014    0.09016   1.665   0.0958 .
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_Gravel)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Rubble
               Chisq Df Pr(>Chisq)
Location      2071.4  7  < 2.2e-16 ***
Event          274.7  1  < 2.2e-16 ***
Location:Event  204.3  7  < 2.2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_Gravel, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   2.96 0.0256 3174    2.912     3.01
 Spring_2019             2.85 0.0319 3174    2.786     2.91

Location = m_B:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   2.13 0.0513 3174    2.033     2.23
 Spring_2019             1.92 0.0784 3174    1.767     2.07

Location = m_C:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   3.35 0.0172 3174    3.320     3.39
 Spring_2019             2.75 0.0268 3174    2.700     2.81

Location = m_D:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   2.41 0.0462 3174    2.320     2.50
 Spring_2019             2.47 0.0369 3174    2.402     2.55

Location = m_E:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   3.45 0.0160 3174    3.414     3.48
 Spring_2019             3.22 0.0176 3174    3.189     3.26

Location = m_G:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   2.20 0.0607 3174    2.086     2.32
 Spring_2019             2.28 0.0640 3174    2.153     2.40

Location = m_H:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.37 0.2605 3174    0.855     1.88
 Spring_2019             2.55 0.0581 3174    2.441     2.67

Location = m_I:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.90 0.2246 3174    1.456     2.34
 Spring_2019             1.37 0.5211 3174    0.345     2.39

Results are given on the log (not the response) scale.
Confidence level used: 0.95

$contrasts
Location = m_A:
 contrast                          estimate     SE   df t.ratio p.value
```

```
 Event 2 - Autumn 2020 - Spring_2019   0.1137 0.0409 3174  2.782  0.0054

Location = m_B:
 contrast                            estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.2126 0.0937 3174  2.269  0.0234

Location = m_C:
 contrast                            estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.6010 0.0318 3174 18.888  <.0001

Location = m_D:
 contrast                            estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.0633 0.0591 3174 -1.071  0.2844

Location = m_E:
 contrast                            estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.2217 0.0238 3174  9.317  <.0001

Location = m_G:
 contrast                            estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.0737 0.0882 3174 -0.836  0.4032

Location = m_H:
 contrast                            estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -1.1886 0.2669 3174 -4.453  <.0001

Location = m_I:
 contrast                            estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.5296 0.5674 3174  0.933  0.3507

Results are given on the log (not the response) scale.
```

```
> Mod_Dictyopteris <- glmmTMB(Dioptr ~ Location * Event + (1|Treatment), zi=~Lo
cation + Event, family=nbinom2(), data=ccover)
> summary(Mod_Dictyopteris)
 Family: nbinom2  ( log )
Formula:          Dioptr ~ Location * Event + (1 | Treatment)
Zero inflation:          ~Location + Event
Data: ccover

     AIC      BIC   logLik deviance df.resid
  7202.7   7366.6  -3574.4   7148.7     3173

Random effects:

Conditional model:
 Groups    Name        Variance Std.Dev.
 Treatment (Intercept) 2.25e-10 1.5e-05
Number of obs: 3200, groups:  Treatment, 3

Overdispersion parameter for nbinom2 family (): 2.12

Conditional model:
                          Estimate Std. Error z value Pr(>|z|)
(Intercept)               1.882e+00  4.584e-01   4.105 4.04e-05 ***
Locationm_B              -6.312e-01  1.015e+00  -0.622  0.53384
Locationm_C              -1.916e+01  1.605e+03  -0.012  0.99048
Locationm_D              -5.725e-01  7.698e-01  -0.744  0.45705
Locationm_E              -2.640e+00  9.840e-01  -2.683  0.00730 **
Locationm_G              -5.411e-01  6.775e-01  -0.799  0.42454
Locationm_H              -9.361e-01  1.101e+00  -0.850  0.39520
Locationm_I              -7.315e-01  1.035e+00  -0.707  0.47981
```

```
EventSpring_2019              8.550e-01  4.694e-01   1.821  0.06854 .
Locationm_B:EventSpring_2019 -3.304e+01  4.607e+05   0.000  0.99994
Locationm_C:EventSpring_2019  1.961e+01  1.605e+03   0.012  0.99025
Locationm_D:EventSpring_2019  7.126e-01  7.812e-01   0.912  0.36169
Locationm_E:EventSpring_2019  2.845e+00  9.904e-01   2.872  0.00408 **
Locationm_G:EventSpring_2019  1.510e-01  6.915e-01   0.218  0.82709
Locationm_H:EventSpring_2019  6.567e-01  1.108e+00   0.593  0.55334
Locationm_I:EventSpring_2019  3.029e-01  1.043e+00   0.290  0.77156
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Zero-inflation model:
                Estimate Std. Error z value Pr(>|z|)
(Intercept)       5.3609     0.4192  12.788  < 2e-16 ***
Locationm_B      -0.2042     1.1012  -0.185  0.85285
Locationm_C      -2.6389     0.2529 -10.434  < 2e-16 ***
Locationm_D      -0.3844     0.2148  -1.790  0.07344 .
Locationm_E      -2.5495     0.2494 -10.221  < 2e-16 ***
Locationm_G      -0.2980     0.2173  -1.371  0.17023
Locationm_H      -1.1644     0.2123  -5.485 4.13e-08 ***
Locationm_I      -0.6799     0.2131  -3.191  0.00142 **
EventSpring_2019  -4.4104     0.3972 -11.104  < 2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(Mod_Dictyopteris)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Dioptr
                Chisq Df Pr(>Chisq)
Location      137.0513  7  < 2.2e-16 ***
Event          22.8910  1  1.715e-06 ***
Location:Event   9.1086  7      0.245
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(Mod_Dictyopteris, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event                  emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020   2.079 6.60e-01 3173     0.786    3.373
 Spring_2019             2.659 1.07e-01 3173     2.449    2.869

Location = m_B:
 Event                  emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020   2.550 1.95e-01 3173     2.168    2.932
 Spring_2019           -18.180 1.49e+03 3173 -2941.515 2905.156

Location = m_C:
 Event                  emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020  -2.433 1.03e+00 3173    -4.460   -0.407
 Spring_2019             3.142 4.68e-02 3173     3.050    3.234

Location = m_D:
 Event                  emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020   0.601 9.43e-01 3173    -1.248    2.450
 Spring_2019             2.906 8.02e-02 3173     2.749    3.063

Location = m_E:
 Event                  emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020   2.938 1.46e-01 3173     2.652    3.223
 Spring_2019             2.923 5.48e-02 3173     2.815    3.030

Location = m_G:
 Event                  emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020   2.556 2.14e-01 3173     2.137    2.976
 Spring_2019             2.285 1.30e-01 3173     2.030    2.539
```

```
Location = m_H:
 Event                  emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020   2.595 3.09e-01 3173     1.990    3.200
 Spring_2019             2.522 8.81e-02 3173     2.349    2.695

Location = m_I:
 Event                  emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020  -0.332 1.13e+00 3173    -2.553    1.889
 Spring_2019             2.314 1.16e-01 3173     2.086    2.543

Results are given on the log (not the response) scale.
Confidence level used: 0.95

$contrasts
Location = m_A:
 contrast                               estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019    -0.5797    0.668 3173 -0.868  0.3853

Location = m_B:
 contrast                               estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019    20.7300 1490.956 3173  0.014  0.9889

Location = m_C:
 contrast                               estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019    -5.5749    1.034 3173 -5.391  <.0001

Location = m_D:
 contrast                               estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019    -2.3051    0.946 3173 -2.437  0.0148

Location = m_E:
 contrast                               estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019     0.0148    0.155 3173  0.096  0.9238

Location = m_G:
 contrast                               estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019     0.2716    0.249 3173  1.089  0.2763

Location = m_H:
 contrast                               estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019     0.0727    0.321 3173  0.227  0.8206

Location = m_I:
 contrast                               estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019    -2.6465    1.134 3173 -2.333  0.0197

Results are given on the log (not the response) scale.
```

```
> mod_Sargassum <-glmmTMB(Sarg ~ Location * Event + (1|Treatment), zi=~Location
+ Event, family=nbinom2(), data=ccover)
> summary(mod_Sargassum)
 Family: nbinom2  ( log )
Formula:          Sarg ~ Location * Event + (1 | Treatment)
Zero inflation:        ~Location + Event
Data: ccover

     AIC      BIC   logLik deviance df.resid
 10781.7  10945.7  -5363.9  10727.7     3173

Random effects:

Conditional model:
 Groups    Name        Variance  Std.Dev.
```

```
 Treatment (Intercept) 5.643e-15 7.512e-08
Number of obs: 3200, groups:  Treatment, 3

Overdispersion parameter for nbinom2 family (): 2.38

Conditional model:
                            Estimate Std. Error z value Pr(>|z|)
(Intercept)                   1.8009     0.1716  10.495  < 2e-16 ***
Locationm_B                  -0.5358     0.8895  -0.602 0.546936
Locationm_C                   0.7124     0.1854   3.843 0.000122 ***
Locationm_D                  -0.4992     0.4183  -1.193 0.232681
Locationm_E                   0.4402     0.1892   2.327 0.019956 *
Locationm_G                   0.5641     0.1895   2.976 0.002916 **
Locationm_H                   0.7555     0.1808   4.178 2.94e-05 ***
Locationm_I                   1.2787     0.1796   7.120 1.08e-12 ***
EventSpring_2019              0.4039     0.2238   1.805 0.071145 .
Locationm_B:EventSpring_2019 -15.8997  1409.0555  -0.011 0.990997
Locationm_C:EventSpring_2019  -0.3645     0.2448  -1.489 0.136421
Locationm_D:EventSpring_2019  -0.6898     1.0581  -0.652 0.514423
Locationm_E:EventSpring_2019  -0.1327     0.2483  -0.535 0.592970
Locationm_G:EventSpring_2019  -0.7651     0.3172  -2.412 0.015844 *
Locationm_H:EventSpring_2019  -0.3407     0.2388  -1.427 0.153691
Locationm_I:EventSpring_2019  -0.5478     0.2369  -2.312 0.020771 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Zero-inflation model:
               Estimate Std. Error z value Pr(>|z|)
(Intercept)     1.78846    0.16228  11.021  < 2e-16 ***
Locationm_B     3.38303    1.02887   3.288  0.00101 **
Locationm_C    -2.07312    0.18720 -11.074  < 2e-16 ***
Locationm_D     2.07737    0.45336   4.582 4.60e-06 ***
Locationm_E    -1.83936    0.18755  -9.807  < 2e-16 ***
Locationm_G    -0.82858    0.19725  -4.201 2.66e-05 ***
Locationm_H    -3.00536    0.19533 -15.386  < 2e-16 ***
Locationm_I    -3.31367    0.20042 -16.534  < 2e-16 ***
EventSpring_2019  0.39368    0.09508   4.140 3.47e-05 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_Sargassum)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Sarg
               Chisq Df Pr(>Chisq)
Location      184.3767  7    < 2e-16 ***
Event           0.3291  1    0.56617
Location:Event  16.0887  7    0.02432 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_Sargassum, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event                  emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020   1.80 1.72e-01 3173     1.464     2.14
 Spring_2019             2.20 1.44e-01 3173     1.923     2.49

Location = m_B:
 Event                  emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020   1.27 8.73e-01 3173    -0.446     2.98
 Spring_2019           -14.23 1.41e+03 3173 -2776.982  2748.52

Location = m_C:
 Event                  emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020   2.51 7.03e-02 3173     2.375     2.65
 Spring_2019             2.55 6.99e-02 3173     2.416     2.69
```

```
Location = m_D:
 Event                 emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020   1.30 3.82e-01 3173     0.554     2.05
 Spring_2019             1.02 9.70e-01 3173    -0.886     2.92

Location = m_E:
 Event                 emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020   2.24 7.99e-02 3173     2.084     2.40
 Spring_2019             2.51 7.22e-02 3173     2.371     2.65

Location = m_G:
 Event                 emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020   2.36 8.05e-02 3173     2.207     2.52
 Spring_2019             2.00 2.10e-01 3173     1.592     2.42

Location = m_H:
 Event                 emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020   2.56 5.72e-02 3173     2.444     2.67
 Spring_2019             2.62 6.06e-02 3173     2.501     2.74

Location = m_I:
 Event                 emmean       SE   df  lower.CL upper.CL
 Event 2 - Autumn 2020   3.08 5.31e-02 3173     2.975     3.18
 Spring_2019             2.94 5.67e-02 3173     2.825     3.05

Results are given on the log (not the response) scale.
Confidence level used: 0.95

$contrasts
Location = m_A:
 contrast                              estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   -0.4039 2.24e-01 3173 -1.805  0.0712

Location = m_B:
 contrast                              estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   15.4958 1.41e+03 3173  0.011  0.9912

Location = m_C:
 contrast                              estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   -0.0394 9.91e-02 3173 -0.397  0.6910

Location = m_D:
 contrast                              estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019    0.2859 1.03e+00 3173  0.276  0.7822

Location = m_E:
 contrast                              estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   -0.2712 1.08e-01 3173 -2.519  0.0118

Location = m_G:
 contrast                              estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019    0.3612 2.25e-01 3173  1.608  0.1080

Location = m_H:
 contrast                              estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   -0.0632 8.32e-02 3173 -0.760  0.4475

Location = m_I:
 contrast                              estimate       SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019    0.1439 7.77e-02 3173  1.852  0.0641

Results are given on the log (not the response) scale.
```

```
> mod_Turf <-glmmTMB(Turf_pc ~ Location * Event + (1|Treatment), zi=~Location + Event, family=betabinomial(), data=ccover_select)
> summary(mod_Turf)
 Family: betabinomial  ( logit )
Formula:          Turf_pc ~ Location * Event + (1 | Treatment)
Zero inflation:           ~Location + Event
Data: ccover_select

     AIC      BIC   logLik deviance df.resid
 -4236.4  -4072.5   2145.2  -4290.4     3173

Random effects:

Conditional model:
 Groups    Name        Variance  Std.Dev.
 Treatment (Intercept) 7.386e-12 2.718e-06
Number of obs: 3200, groups:  Treatment, 3

Overdispersion parameter for betabinomial family (): 7.6e+05

Conditional model:
                            Estimate Std. Error z value Pr(>|z|)
(Intercept)                  0.17044    0.14193   1.201 0.229809
Locationm_B                  0.77886    0.21213   3.672 0.000241 ***
Locationm_C                 -0.81105    0.20559  -3.945 7.98e-05 ***
Locationm_D                 -0.50915    0.20180  -2.523 0.011636 *
Locationm_E                 -0.86322    0.20650  -4.180 2.91e-05 ***
Locationm_G                 -0.71090    0.20406  -3.484 0.000494 ***
Locationm_H                 -0.87713    0.20676  -4.242 2.21e-05 ***
Locationm_I                 -1.15962    0.21319  -5.439 5.35e-08 ***
EventSpring_2019             -0.03749    0.20058  -0.187 0.851729
Locationm_B:EventSpring_2019  0.29766    0.30551   0.974 0.329904
Locationm_C:EventSpring_2019 -0.40312    0.29798  -1.353 0.176114
Locationm_D:EventSpring_2019 -0.03013    0.28574  -0.105 0.916027
Locationm_E:EventSpring_2019 -0.62768    0.30571  -2.053 0.040053 *
Locationm_G:EventSpring_2019 -0.35242    0.29390  -1.199 0.230486
Locationm_H:EventSpring_2019 -0.03073    0.29324  -0.105 0.916538
Locationm_I:EventSpring_2019 -0.32454    0.31007  -1.047 0.295256
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Zero-inflation model:
                Estimate Std. Error z value Pr(>|z|)
(Intercept)      -12.696     38.103  -0.333    0.739
Locationm_B       -1.246     78.099  -0.016    0.987
Locationm_C       -1.246     78.099  -0.016    0.987
Locationm_D       -1.246     78.099  -0.016    0.987
Locationm_E       -1.246     78.099  -0.016    0.987
Locationm_G       -1.246     78.099  -0.016    0.987
Locationm_H       -1.246     78.099  -0.016    0.987
Locationm_I       -1.246     78.099  -0.016    0.987
EventSpring_2019   -1.618     57.211  -0.028    0.977
> Anova(mod_Turf)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Turf_pc
                 Chisq Df Pr(>Chisq)
Location      296.5883  7  < 2.2e-16 ***
Event           7.5381  1   0.006041 **
Location:Event  11.9335  7   0.102766
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_Turf, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event                emmean    SE   df lower.CL upper.CL
```

```
 Event 2 - Autumn 2020  0.170 0.142 3173   -0.108   0.4487
 Spring_2019            0.133 0.142 3173   -0.145   0.4108

Location = m_B:
 Event                  emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020  0.949 0.158 3173    0.640   1.2584
 Spring_2019            1.209 0.168 3173    0.880   1.5390

Location = m_C:
 Event                  emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020 -0.641 0.149 3173   -0.932  -0.3490
 Spring_2019           -1.081 0.163 3173   -1.400  -0.7624

Location = m_D:
 Event                  emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020 -0.339 0.143 3173   -0.620  -0.0574
 Spring_2019           -0.406 0.144 3173   -0.689  -0.1233

Location = m_E:
 Event                  emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020 -0.693 0.150 3173   -0.987  -0.3987
 Spring_2019           -1.358 0.175 3173   -1.702  -1.0143

Location = m_G:
 Event                  emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020 -0.540 0.147 3173   -0.828  -0.2530
 Spring_2019           -0.930 0.157 3173   -1.238  -0.6225

Location = m_H:
 Event                  emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020 -0.707 0.150 3173   -1.001  -0.4119
 Spring_2019           -0.775 0.152 3173   -1.073  -0.4766

Location = m_I:
 Event                  emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020 -0.989 0.159 3173   -1.301  -0.6773
 Spring_2019           -1.351 0.175 3173   -1.694  -1.0082

Results are given on the logit (not the response) scale.
Confidence level used: 0.95

$contrasts
Location = m_A:
 contrast                              estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.0375 0.201 3173  0.187  0.8517

Location = m_B:
 contrast                              estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.2602 0.230 3173 -1.129  0.2590

Location = m_C:
 contrast                              estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.4406 0.220 3173  1.999  0.0456

Location = m_D:
 contrast                              estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.0676 0.204 3173  0.332  0.7397

Location = m_E:
 contrast                              estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.6652 0.231 3173  2.883  0.0040

Location = m_G:
 contrast                              estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.3899 0.215 3173  1.815  0.0696
```

```
Location = m_H:
 contrast                              estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.0682 0.214 3173  0.319  0.7498

Location = m_I:
 contrast                              estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.3620 0.236 3173  1.531  0.1258

Results are given on the log odds ratio (not the response) scale.

> mod_Hardcoral <-glmmTMB(Total_hardcoral ~ Location * Event + (1|Treatment), z
i=~Location + Event, family=nbinom1(), data=ccover)
> summary(mod_Hardcoral)
 Family: nbinom1  ( log )
Formula:          Total_hardcoral ~ Location * Event + (1 | Treatment)
Zero inflation:                     ~Location + Event
Data: ccover

     AIC      BIC   logLik deviance df.resid
 11885.6  12049.5  -5915.8  11831.6     3173

Random effects:

Conditional model:
 Groups    Name        Variance  Std.Dev.
 Treatment (Intercept) 4.752e-10 2.18e-05
Number of obs: 3200, groups:  Treatment, 3

Overdispersion parameter for nbinom1 family (): 2.07

Conditional model:
                             Estimate Std. Error z value Pr(>|z|)
(Intercept)                  1.906405   0.067866  28.091  < 2e-16 ***
Locationm_B                  0.350868   0.083351   4.209 2.56e-05 ***
Locationm_C                 -0.069487   0.124352  -0.559   0.5763
Locationm_D                 -0.024294   0.095551  -0.254   0.7993
Locationm_E                 -0.105821   0.116414  -0.909   0.3633
Locationm_G                  0.209676   0.088278   2.375   0.0175 *
Locationm_H                  0.162502   0.090237   1.801   0.0717 .
Locationm_I                 -0.060101   0.132593  -0.453   0.6503
EventSpring_2019             0.065381   0.093455   0.700   0.4842
Locationm_B:EventSpring_2019 -0.142658   0.116936  -1.220   0.2225
Locationm_C:EventSpring_2019  0.121759   0.176948   0.688   0.4914
Locationm_D:EventSpring_2019 -0.010386   0.145975  -0.071   0.9433
Locationm_E:EventSpring_2019  0.107640   0.157644   0.683   0.4947
Locationm_G:EventSpring_2019 -0.003876   0.124742  -0.031   0.9752
Locationm_H:EventSpring_2019  0.046519   0.122545   0.380   0.7042
Locationm_I:EventSpring_2019 -0.014478   0.169925  -0.085   0.9321
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Zero-inflation model:
               Estimate Std. Error z value Pr(>|z|)
(Intercept)    -0.13430    0.11013  -1.219  0.22267
Locationm_B    -0.61687    0.14873  -4.148 3.36e-05 ***
Locationm_C     1.43416    0.16287   8.806  < 2e-16 ***
Locationm_D     0.45199    0.14664   3.082  0.00205 **
Locationm_E     0.90805    0.15182   5.981 2.21e-09 ***
Locationm_G    -0.01155    0.14442  -0.080  0.93627
Locationm_H    -0.29270    0.14589  -2.006  0.04482 *
Locationm_I     1.09718    0.15525   7.067 1.58e-12 ***
EventSpring_2019  0.11099    0.07663   1.448  0.14752
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_Hardcoral)
Analysis of Deviance Table (Type II Wald chisquare tests)
```

```
Response: Total_hardcoral
               Chisq Df Pr(>Chisq)
Location      60.5511  7  1.172e-10 ***
Event          2.2981  1     0.1295
Location:Event  5.6990  7     0.5753
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_Hardcoral, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.91 0.0679 3173     1.77     2.04
 Spring_2019             1.97 0.0647 3173     1.84     2.10

Location = m_B:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   2.26 0.0486 3173     2.16     2.35
 Spring_2019             2.18 0.0510 3173     2.08     2.28

Location = m_C:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.84 0.1044 3173     1.63     2.04
 Spring_2019             2.02 0.1085 3173     1.81     2.24

Location = m_D:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.88 0.0676 3173     1.75     2.01
 Spring_2019             1.94 0.0899 3173     1.76     2.11

Location = m_E:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.80 0.0948 3173     1.61     1.99
 Spring_2019             1.97 0.0851 3173     1.81     2.14

Location = m_G:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   2.12 0.0567 3173     2.00     2.23
 Spring_2019             2.18 0.0603 3173     2.06     2.30

Location = m_H:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   2.07 0.0597 3173     1.95     2.19
 Spring_2019             2.18 0.0525 3173     2.08     2.28

Location = m_I:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.85 0.1140 3173     1.62     2.07
 Spring_2019             1.90 0.0852 3173     1.73     2.06

Results are given on the log (not the response) scale.
Confidence level used: 0.95

$contrasts
Location = m_A:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.0654 0.0935 3173 -0.700  0.4842

Location = m_B:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.0773 0.0703 3173  1.099  0.2719

Location = m_C:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.1871 0.1503 3173 -1.245  0.2132
```

```
Location = m_D:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.0550 0.1122 3173 -0.490  0.6242

Location = m_E:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.1730 0.1270 3173 -1.362  0.1733

Location = m_G:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.0615 0.0827 3173 -0.744  0.4569

Location = m_H:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.1119 0.0793 3173 -1.411  0.1584

Location = m_I:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.0509 0.1420 3173 -0.358  0.7200

Results are given on the log (not the response) scale.

> mod_Softcoral <-glmmTMB(Total_Softcoral ~ Location * Event + (1|Treatment), z
i=~Location + Event, family=nbinom1(), data=ccover)
> summary(mod_Softcoral)
 Family: nbinom1  ( log )
Formula:          Total_Softcoral ~ Location * Event + (1 | Treatment)
Zero inflation:                     ~Location + Event
Data: ccover

     AIC      BIC   logLik deviance df.resid
  7683.5   7847.5  -3814.8   7629.5     3173

Random effects:

Conditional model:
 Groups    Name        Variance  Std.Dev.
 Treatment (Intercept) 2.293e-10 1.514e-05
Number of obs: 3200, groups:  Treatment, 3

Overdispersion parameter for nbinom1 family (): 1.73

Conditional model:
                             Estimate Std. Error z value Pr(>|z|)
(Intercept)                 1.6495794  0.1467004  11.245  < 2e-16 ***
Locationm_B                 0.3006617  0.1577229   1.906   0.0566 .
Locationm_C                -0.3555186  0.3690494  -0.963   0.3354
Locationm_D                -0.0002263  0.1953661  -0.001   0.9991
Locationm_E                 0.0231291  0.1850837   0.125   0.9006
Locationm_G                 0.0141104  0.1953438   0.072   0.9424
Locationm_H                 0.6644300  0.1533469   4.333 1.47e-05 ***
Locationm_I                -0.2339539  0.2668054  -0.877   0.3806
EventSpring_2019           -0.0738561  0.1942515  -0.380   0.7038
Locationm_B:EventSpring_2019  0.0002391  0.2153168   0.001   0.9991
Locationm_C:EventSpring_2019  0.7079859  0.4078396   1.736   0.0826 .
Locationm_D:EventSpring_2019  0.1561020  0.2664731   0.586   0.5580
Locationm_E:EventSpring_2019 -0.0096304  0.2558346  -0.038   0.9700
Locationm_G:EventSpring_2019  0.4805859  0.2526287   1.902   0.0571 .
Locationm_H:EventSpring_2019  0.0596197  0.2052456   0.290   0.7714
Locationm_I:EventSpring_2019  0.6748410  0.3084034   2.188   0.0287 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Zero-inflation model:
             Estimate Std. Error z value Pr(>|z|)
(Intercept)  1.612242   0.148012  10.893   <2e-16 ***
```

```
Locationm_B      -1.629570   0.174226  -9.353   <2e-16 ***
Locationm_C       0.571272   0.230513   2.478   0.0132 *
Locationm_D      -0.005136   0.198214  -0.026   0.9793
Locationm_E      -0.325743   0.190006  -1.714   0.0865 .
Locationm_G      -0.096745   0.194331  -0.498   0.6186
Locationm_H      -2.105531   0.174809 -12.045   <2e-16 ***
Locationm_I      -0.039365   0.200115  -0.197   0.8441
EventSpring_2019  0.034335   0.090635   0.379   0.7048
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_Softcoral)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Total_Softcoral
                Chisq Df Pr(>Chisq)
Location      137.0880  7     <2e-16 ***
Event           0.5207  1     0.4705
Location:Event  16.3385  7     0.0222 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_Softcoral, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.65 0.1467 3173    1.362     1.94
 Spring_2019             1.58 0.1288 3173    1.323     1.83

Location = m_B:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.95 0.0582 3173    1.836     2.06
 Spring_2019             1.88 0.0730 3173    1.734     2.02

Location = m_C:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.29 0.3389 3173    0.630     1.96
 Spring_2019             1.93 0.1224 3173    1.688     2.17

Location = m_D:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.65 0.1293 3173    1.396     1.90
 Spring_2019             1.73 0.1300 3173    1.477     1.99

Location = m_E:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.67 0.1131 3173    1.451     1.89
 Spring_2019             1.59 0.1238 3173    1.346     1.83

Location = m_G:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.66 0.1292 3173    1.410     1.92
 Spring_2019             2.07 0.0976 3173    1.879     2.26

Location = m_H:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   2.31 0.0448 3173    2.226     2.40
 Spring_2019             2.30 0.0489 3173    2.204     2.40

Location = m_I:
 Event                  emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   1.42 0.2231 3173    0.978     1.85
 Spring_2019             2.02 0.0903 3173    1.840     2.19

Results are given on the log (not the response) scale.
Confidence level used: 0.95

$contrasts
```

```
Location = m_A:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.0739 0.1943 3173  0.380  0.7038

Location = m_B:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.0736 0.0931 3173  0.791  0.4292

Location = m_C:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.6341 0.3596 3173 -1.764  0.0779

Location = m_D:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.0822 0.1827 3173 -0.450  0.6527

Location = m_E:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.0835 0.1669 3173  0.500  0.6170

Location = m_G:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.4067 0.1617 3173 -2.515  0.0120

Location = m_H:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.0142 0.0663 3173  0.215  0.8300

Location = m_I:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.6010 0.2405 3173 -2.499  0.0125

Results are given on the log (not the response) scale.
```

```
> mod_Macroalgae <-glmmTMB(Macroalgae_pc ~ Location * Event + (1|Treatment), zi
=~Location + Event, family=betabinomial(), data=ccover_select)
> summary(mod_Macroalgae)
 Family: betabinomial  ( logit )
Formula:          Macroalgae_pc ~ Location * Event + (1 | Treatment)
Zero inflation:                 ~Location + Event
Data: ccover_select

     AIC      BIC   logLik deviance df.resid
  2817.3   2981.3  -1381.7   2763.3     3173

Random effects:

Conditional model:
 Groups    Name        Variance  Std.Dev.
 Treatment (Intercept) 4.007e-09 6.33e-05
Number of obs: 3200, groups:  Treatment, 3

Overdispersion parameter for betabinomial family (): 3.63e+05

Conditional model:
                         Estimate Std. Error z value Pr(>|z|)
(Intercept)               -1.09211    0.16303  -6.699 2.10e-11 ***
Locationm_B               -1.67610    0.34138  -4.910 9.12e-07 ***
Locationm_C                0.63308    0.21829   2.900 0.003730 **
Locationm_D               -0.02169    0.23120  -0.094 0.925238
Locationm_E                0.56639    0.21908   2.585 0.009728 **
Locationm_G                0.72069    0.21743   3.315 0.000918 ***
Locationm_H                0.64416    0.21818   2.953 0.003152 **
Locationm_I                1.43377    0.21719   6.602 4.07e-11 ***
EventSpring_2019           0.09889    0.22789   0.434 0.664315
```

```
Locationm_B:EventSpring_2019 -0.16278    0.48692  -0.334 0.738145
Locationm_C:EventSpring_2019  0.75364    0.30625   2.461 0.013859 *
Locationm_D:EventSpring_2019  0.61315    0.31563   1.943 0.052060 .
Locationm_E:EventSpring_2019 -0.05687    0.30747  -0.185 0.853270
Locationm_G:EventSpring_2019  0.32670    0.30437   1.073 0.283118
Locationm_H:EventSpring_2019 -0.07763    0.30639  -0.253 0.799985
Locationm_I:EventSpring_2019 -0.26998    0.30441  -0.887 0.375147
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Zero-inflation model:
                Estimate Std. Error z value Pr(>|z|)
(Intercept)      -12.153     29.511  -0.412    0.680
Locationm_B       -1.296     62.155  -0.021    0.983
Locationm_C       -1.296     62.155  -0.021    0.983
Locationm_D       -1.296     62.155  -0.021    0.983
Locationm_E       -1.296     62.155  -0.021    0.983
Locationm_G       -1.296     62.155  -0.021    0.983
Locationm_H       -1.296     62.155  -0.021    0.983
Locationm_I       -1.296     62.155  -0.021    0.983
EventSpring_2019   -1.948     51.057  -0.038    0.970
> Anova(mod_Macroalgae)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Macroalgae_pc
               Chisq Df Pr(>Chisq)
Location      226.731  7  < 2.2e-16 ***
Event          11.990  1  0.0005348 ***
Location:Event  21.436  7  0.0031756 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_Macroalgae, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event                    emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020 -1.0921 0.163 3173  -1.4118  -0.7724
 Spring_2019           -0.9932 0.159 3173  -1.3054  -0.6810

Location = m_B:
 Event                    emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020 -2.7682 0.300 3173  -3.3563  -2.1801
 Spring_2019           -2.8321 0.309 3173  -3.4371  -2.2271

Location = m_C:
 Event                    emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020 -0.4590 0.145 3173  -0.7436  -0.1744
 Spring_2019            0.3935 0.144 3173   0.1108   0.6762

Location = m_D:
 Event                    emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020 -1.1138 0.164 3173  -1.4352  -0.7924
 Spring_2019           -0.4018 0.144 3173  -0.6847  -0.1189

Location = m_E:
 Event                    emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020 -0.5257 0.146 3173  -0.8126  -0.2388
 Spring_2019           -0.4837 0.146 3173  -0.7691  -0.1983

Location = m_G:
 Event                    emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020 -0.3714 0.144 3173  -0.6535  -0.0893
 Spring_2019            0.0542 0.141 3173  -0.2232   0.3316

Location = m_H:
 Event                    emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020 -0.4479 0.145 3173  -0.7322  -0.1637
```

```
 Spring_2019           -0.4267 0.145 3173  -0.7103  -0.1431

Location = m_I:
 Event                  emmean    SE   df lower.CL upper.CL
 Event 2 - Autumn 2020  0.3417 0.143 3173   0.0603   0.6230
 Spring_2019            0.1706 0.142 3173  -0.1077   0.4489

Results are given on the logit (not the response) scale.
Confidence level used: 0.95

$contrasts
Location = m_A:
 contrast                                estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.0989 0.228 3173 -0.434  0.6643

Location = m_B:
 contrast                                estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.0639 0.430 3173  0.148  0.8820

Location = m_C:
 contrast                                estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.8525 0.205 3173 -4.167  <.0001

Location = m_D:
 contrast                                estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.7120 0.218 3173 -3.261  0.0011

Location = m_E:
 contrast                                estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.0420 0.206 3173 -0.204  0.8387

Location = m_G:
 contrast                                estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.4256 0.202 3173 -2.109  0.0350

Location = m_H:
 contrast                                estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.0213 0.205 3173 -0.104  0.9173

Location = m_I:
 contrast                                estimate    SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.1711 0.202 3173  0.848  0.3967

Results are given on the log odds ratio (not the response) scale.


> mod_Abiotic <-glmmTMB(Total_Abiotic ~ Location * Event + (1|Treatment), zi=~L
ocation + Event, family=nbinom1(), data=ccover)
> summary(mod_Abiotic)
 Family: nbinom1  ( log )
Formula:          Total_Abiotic ~ Location * Event + (1 | Treatment)
Zero inflation:                 ~Location + Event
Data: ccover

     AIC      BIC   logLik deviance df.resid
 22052.0  22215.9 -10999.0  21998.0     3173

Random effects:

Conditional model:
 Groups    Name        Variance  Std.Dev.
 Treatment (Intercept) 3.006e-10 1.734e-05
Number of obs: 3200, groups:  Treatment, 3

Overdispersion parameter for nbinom1 family ():   19
```

```
Conditional model:
                              Estimate Std. Error z value Pr(>|z|)
(Intercept)                    3.11271    0.07420   41.95  < 2e-16 ***
Locationm_B                   -0.09308    0.11675   -0.80  0.42531
Locationm_C                    0.23166    0.09533    2.43  0.01510 *
Locationm_D                    0.50765    0.09209    5.51 3.54e-08 ***
Locationm_E                    0.29492    0.09459    3.12  0.00182 **
Locationm_G                    0.09509    0.10575    0.90  0.36855
Locationm_H                   -0.17463    0.11535   -1.51  0.13004
Locationm_I                   -0.19348    0.09670   -2.00  0.04542 *
EventSpring_2019               0.02112    0.10809    0.20  0.84511
Locationm_B:EventSpring_2019  -0.27442    0.17482   -1.57  0.11648
Locationm_C:EventSpring_2019  -0.48421    0.15098   -3.21  0.00134 **
Locationm_D:EventSpring_2019  -0.33153    0.14210   -2.33  0.01965 *
Locationm_E:EventSpring_2019   0.09747    0.13489    0.72  0.46995
Locationm_G:EventSpring_2019  -0.18227    0.15445   -1.18  0.23793
Locationm_H:EventSpring_2019   0.05646    0.15660    0.36  0.71845
Locationm_I:EventSpring_2019   0.11741    0.14952    0.79  0.43229
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Zero-inflation model:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)  -0.83402    0.12062  -6.915 4.69e-12 ***
Locationm_B   0.48137    0.15744   3.057 0.002232 **
Locationm_C  -0.50117    0.17171  -2.919 0.003515 **
Locationm_D   0.05799    0.15421   0.376 0.706905
Locationm_E  -0.74321    0.17023  -4.366 1.27e-05 ***
Locationm_G   0.15847    0.15562   1.018 0.308544
Locationm_H  -0.37105    0.17150  -2.164 0.030496 *
Locationm_I  -1.18578    0.20720  -5.723 1.05e-08 ***
EventSpring_2019  0.32533    0.08594   3.786 0.000153 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_Abiotic)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Total_Abiotic
              Chisq Df Pr(>Chisq)
Location      148.540  7  < 2.2e-16 ***
Event           5.501  1    0.01901 *
Location:Event  34.811  7  1.214e-05 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_Abiotic, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event                 emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   3.11 0.0742 3173     2.97     3.26
 Spring_2019             3.13 0.0801 3173     2.98     3.29

Location = m_B:
 Event                 emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   3.02 0.0910 3173     2.84     3.20
 Spring_2019             2.77 0.1067 3173     2.56     2.98

Location = m_C:
 Event                 emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   3.34 0.0610 3173     3.22     3.46
 Spring_2019             2.88 0.0880 3173     2.71     3.05

Location = m_D:
 Event                 emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   3.62 0.0557 3173     3.51     3.73
 Spring_2019             3.31 0.0745 3173     3.16     3.46
```

```
Location = m_E:
 Event                 emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   3.41 0.0598 3173     3.29     3.52
 Spring_2019             3.53 0.0555 3173     3.42     3.64

Location = m_G:
 Event                 emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   3.21 0.0763 3173     3.06     3.36
 Spring_2019             3.05 0.0816 3173     2.89     3.21

Location = m_H:
 Event                 emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   2.94 0.0891 3173     2.76     3.11
 Spring_2019             3.02 0.0743 3173     2.87     3.16

Location = m_I:
 Event                 emmean     SE   df lower.CL upper.CL
 Event 2 - Autumn 2020   2.92 0.0638 3173     2.79     3.04
 Spring_2019             3.06 0.0839 3173     2.89     3.22

Results are given on the log (not the response) scale.
Confidence level used: 0.95

$contrasts
Location = m_A:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.0211 0.1081 3173 -0.195  0.8451

Location = m_B:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.2533 0.1380 3173  1.835  0.0665

Location = m_C:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.4631 0.1059 3173  4.372  <.0001

Location = m_D:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.3104 0.0924 3173  3.360  0.0008

Location = m_E:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.1186 0.0808 3173 -1.467  0.1424

Location = m_G:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019   0.1612 0.1107 3173  1.456  0.1454

Location = m_H:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.0776 0.1139 3173 -0.681  0.4959

Location = m_I:
 contrast                              estimate     SE   df t.ratio p.value
 Event 2 - Autumn 2020 - Spring_2019  -0.1385 0.1039 3173 -1.333  0.1825

Results are given on the log (not the response) scale.
```

.

B.1.2 Fish Biomass and Diversity Metrics

```
> mod_B20_2 <- glm(sumWeight ~ Treatment * Event, family=Gamma(), data=Weight_s
um)
> summary(mod_B20_2)
Call:
glm(formula = sumWeight ~ Treatment * Event, family = Gamma(),
    data = Weight_sum)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.9777  -1.0653  -0.2768   0.4249   1.4890

Coefficients:
                           Estimate Std. Error t value Pr(>|t|)
(Intercept)               4.863e-05  3.677e-05   1.323    0.194
TreatmentReference        2.901e-05  1.046e-04   0.277    0.783
TreatmentRemediation     -1.769e-05  7.622e-05  -0.232    0.818
Event                     3.669e-06  2.419e-05   0.152    0.880
TreatmentReference:Event  2.851e-05  7.143e-05   0.399    0.692
TreatmentRemediation:Event 4.808e-05  5.590e-05   0.860    0.395

(Dispersion parameter for Gamma family taken to be 0.8412942)

    Null deviance: 49.225  on 45  degrees of freedom
Residual deviance: 42.164  on 40  degrees of freedom
AIC: 966.9

Number of Fisher Scoring iterations: 6

> Anova(mod_B20_2)
Analysis of Deviance Table (Type II tests)

Response: sumWeight
              LR Chisq Df Pr(>Chisq)
Treatment       6.8277  2    0.03291 *
Event           0.5702  1    0.45016
Treatment:Event 0.8546  2    0.65227
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_B20_2, pairwise ~ Treatment | Event)
$emmeans
Event = 1:
 Treatment     emmean       SE  df asymp.LCL asymp.UCL
 Nearfield   5.23e-05 1.60e-05 Inf  2.10e-05  8.36e-05
 Reference   1.10e-04 4.11e-05 Inf  2.92e-05  1.90e-04
 Remediation 8.27e-05 2.53e-05 Inf  3.31e-05  1.32e-04

Event = 2:
 Treatment     emmean       SE  df asymp.LCL asymp.UCL
 Nearfield   5.60e-05 1.81e-05 Inf  2.04e-05  9.15e-05
 Reference   1.42e-04 5.32e-05 Inf  3.78e-05  2.46e-04
 Remediation 1.34e-04 4.36e-05 Inf  4.90e-05  2.20e-04

Results are given on the inverse (not the response) scale.
Confidence level used: 0.95

$contrasts
Event = 1:
 contrast                 estimate       SE  df z.ratio p.value
 Nearfield - Reference   -5.75e-05 4.41e-05 Inf -1.304  0.3929
 Nearfield - Remediation -3.04e-05 2.99e-05 Inf -1.016  0.5667
 Reference - Remediation  2.71e-05 4.83e-05 Inf  0.562  0.8402

Event = 2:
 contrast                 estimate       SE  df z.ratio p.value
```

```
 Nearfield - Reference   -8.60e-05 5.62e-05 Inf -1.531  0.2762
 Nearfield - Remediation -7.85e-05 4.72e-05 Inf -1.662  0.2200
 Reference - Remediation  7.56e-06 6.88e-05 Inf  0.110  0.9934

Note: contrasts are still on the inverse scale
P value adjustment: tukey method for comparing a family of 3 estimates

 > mod_Richness2 <- glmmTMB(Richness ~ Treatment * Event, data=Diversity, famil
y=truncated_poisson())
> summary(mod_Richness2)
 Family: truncated_poisson  ( log )
Formula:          Richness ~ Treatment * Event
Data: Diversity

     AIC      BIC   logLik deviance df.resid
   290.3    301.5   -139.1    278.3       42


Conditional model:
                          Estimate Std. Error z value Pr(>|z|)
(Intercept)                 2.6819     0.1782  15.048   <2e-16 ***
TreatmentReference         -0.2163     0.2827  -0.765    0.444
TreatmentRemediation        0.1517     0.2524   0.601    0.548
Event                       0.1513     0.1102   1.373    0.170
TreatmentReference:Event    0.1763     0.1724   1.023    0.306
TreatmentRemediation:Event -0.1323     0.1576  -0.839    0.401
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_Richness2)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Richness
                Chisq Df Pr(>Chisq)
Treatment      1.6181  2    0.44528
Event          4.8805  1    0.02716 *
Treatment:Event 3.1487  2    0.20714
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_Richness2, pairwise ~ Treatment | Event)
$emmeans
Event = 1:
 Treatment   emmean     SE df lower.CL upper.CL
 Nearfield     2.83 0.0808 42     2.67     3.00
 Reference     2.79 0.1010 42     2.59     3.00
 Remediation   2.85 0.0801 42     2.69     3.01

Event = 2:
 Treatment   emmean     SE df lower.CL upper.CL
 Nearfield     2.98 0.0750 42     2.83     3.14
 Reference     3.12 0.0857 42     2.95     3.29
 Remediation   2.87 0.0793 42     2.71     3.03

Results are given on the log (not the response) scale.
Confidence level used: 0.95

$contrasts
Event = 1:
 contrast               estimate    SE df t.ratio p.value
 Nearfield - Reference    0.0400 0.129 42  0.309  0.9487
 Nearfield - Remediation -0.0194 0.114 42 -0.171  0.9841
 Reference - Remediation -0.0594 0.129 42 -0.461  0.8898

Event = 2:
 contrast               estimate    SE df t.ratio p.value
 Nearfield - Reference   -0.1363 0.114 42 -1.197  0.4615
 Nearfield - Remediation  0.1129 0.109 42  1.034  0.5596
```

```
 Reference - Remediation   0.2492 0.117 42  2.134  0.0952

Results are given on the log (not the response) scale.
P value adjustment: tukey method for comparing a family of 3 estimates

>
> mod_Abundance3 <- glmmTMB(Abundance ~ Treatment * Event, data=Diversity, fami
ly=nbinom1())
> summary(mod_Abundance3)
 Family: nbinom1  ( log )
Formula:          Abundance ~ Treatment * Event
Data: Diversity

     AIC      BIC   logLik deviance df.resid
   513.0    526.1   -249.5    499.0       41


Overdispersion parameter for nbinom1 family (): 26.2

Conditional model:
                          Estimate Std. Error z value Pr(>|z|)
(Intercept)                3.91557    0.42093   9.302   <2e-16 ***
TreatmentReference         0.18722    0.61577   0.304    0.761
TreatmentRemediation       0.08619    0.58437   0.147    0.883
Event                      0.30572    0.25526   1.198    0.231
TreatmentReference:Event   0.09631    0.37282   0.258    0.796
TreatmentRemediation:Event -0.01964    0.35679  -0.055    0.956
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_Abundance3)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Abundance
                Chisq Df Pr(>Chisq)
Treatment      3.8466  2    0.14612
Event          4.8080  1    0.02833 *
Treatment:Event 0.1100  2    0.94649
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_Abundance3, pairwise ~ Treatment | Event)
$emmeans
Event = 1:
 Treatment   emmean    SE df lower.CL upper.CL
 Nearfield     4.22 0.195 41     3.83     4.62
 Reference     4.50 0.210 41     4.08     4.93
 Remediation   4.29 0.190 41     3.90     4.67

Event = 2:
 Treatment   emmean    SE df lower.CL upper.CL
 Nearfield     4.53 0.171 41     4.18     4.87
 Reference     4.91 0.176 41     4.55     5.26
 Remediation   4.57 0.168 41     4.24     4.91

Results are given on the log (not the response) scale.
Confidence level used: 0.95

$contrasts
Event = 1:
 contrast               estimate    SE df t.ratio p.value
 Nearfield - Reference    -0.2835 0.283 41 -1.002  0.5800
 Nearfield - Remediation  -0.0665 0.267 41 -0.249  0.9664
 Reference - Remediation   0.2170 0.280 41  0.776  0.7200

Event = 2:
 contrast               estimate    SE df t.ratio p.value
 Nearfield - Reference    -0.3798 0.243 41 -1.563  0.2729
```

```
 Nearfield - Remediation  -0.0469 0.236 41 -0.198  0.9785
 Reference - Remediation   0.3329 0.241 41  1.383  0.3593

Results are given on the log (not the response) scale.
P value adjustment: tukey method for comparing a family of 3 estimates
>
> mod_SimpsonD3 <- glmmTMB(SimpsonD ~ Treatment * Event, data=Diversity, family
=gaussian())
> summary(mod_SimpsonD3)
 Family: gaussian  ( identity )
Formula:          SimpsonD ~ Treatment * Event
Data: Diversity

     AIC      BIC   logLik deviance df.resid
   134.4    147.5    -60.2    120.4       41


Dispersion estimate for gaussian family (sigma^2): 0.719

Conditional model:
                          Estimate Std. Error z value Pr(>|z|)
(Intercept)                 3.5195     0.6321   5.568 2.58e-08 ***
TreatmentReference         -0.9985     0.9995  -0.999    0.318
TreatmentRemediation        0.6830     0.8940   0.764    0.445
Event                       0.4030     0.3998   1.008    0.313
TreatmentReference:Event    0.5688     0.6321   0.900    0.368
TreatmentRemediation:Event -0.6036     0.5654  -1.068    0.286
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_SimpsonD3)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: SimpsonD
                Chisq Df Pr(>Chisq)
Treatment      0.6333  2     0.7286
Event          1.6963  1     0.1928
Treatment:Event 3.5106  2     0.1729
> emmeans(mod_SimpsonD3, pairwise ~ Treatment | Event)
$emmeans
Event = 1:
 Treatment   emmean    SE df lower.CL upper.CL
 Nearfield     3.92 0.283 41     3.35     4.49
 Reference     3.49 0.346 41     2.79     4.19
 Remediation   4.00 0.283 41     3.43     4.57

Event = 2:
 Treatment   emmean    SE df lower.CL upper.CL
 Nearfield     4.33 0.283 41     3.75     4.90
 Reference     4.46 0.346 41     3.77     5.16
 Remediation   3.80 0.283 41     3.23     4.37

Confidence level used: 0.95

$contrasts
Event = 1:
 contrast                estimate    SE df t.ratio p.value
 Nearfield - Reference     0.4297 0.447 41  0.961  0.6052
 Nearfield - Remediation  -0.0794 0.400 41 -0.199  0.9785
 Reference - Remediation  -0.5091 0.447 41 -1.139  0.4960

Event = 2:
 contrast                estimate    SE df t.ratio p.value
 Nearfield - Reference    -0.1391 0.447 41 -0.311  0.9481
 Nearfield - Remediation   0.5242 0.400 41  1.311  0.3972
 Reference - Remediation   0.6633 0.447 41  1.484  0.3090
```

```
P value adjustment: tukey method for comparing a family of 3 estimates
```

B.1.3 Biotic Contamination

```
> mod_FishCopper <- glmmTMB(Copper ~ Location * Event + (1|Treatment), family=G
amma(), data=Fish_con)
> summary(mod_FishCopper)
 Family: Gamma  ( inverse )
Formula:          Copper ~ Location * Event + (1 | Treatment)
Data: Fish_con

     AIC      BIC   logLik deviance df.resid
  -117.1    -74.2     76.5   -153.1       62

Random effects:

Conditional model:
 Groups    Name        Variance  Std.Dev.
 Treatment (Intercept) 5.618e-10 2.37e-05
Number of obs: 80, groups:  Treatment, 3

Dispersion estimate for Gamma family (sigma^2): 0.146

Conditional model:
                 Estimate Std. Error z value Pr(>|z|)
(Intercept)        7.0478     1.5262   4.618 3.87e-06 ***
Locationm_B        0.4781     2.5765   0.186 0.852779
Locationm_C       -0.8684     2.4525  -0.354 0.723267
Locationm_D       -2.1479     2.1252  -1.011 0.312168
Locationm_E       -1.3866     2.5618  -0.541 0.588325
Locationm_G       -7.8166     2.1690  -3.604 0.000314 ***
Locationm_H       -1.5078     2.1402  -0.705 0.481101
Locationm_I       -5.3117     1.8631  -2.851 0.004358 **
Event              -2.6619     0.8045  -3.309 0.000938 ***
Locationm_B:Event   0.8830     1.4383   0.614 0.539277
Locationm_C:Event   1.6908     1.4004   1.207 0.227292
Locationm_D:Event   1.7941     1.1887   1.509 0.131206
Locationm_E:Event   2.4354     1.5161   1.606 0.108199
Locationm_G:Event   6.4246     1.4963   4.294 1.76e-05 ***
Locationm_H:Event   1.2885     1.1750   1.097 0.272818
Locationm_I:Event   3.5299     1.0937   3.227 0.001249 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_FishCopper)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Copper
               Chisq Df Pr(>Chisq)
Location      36.6468  7  5.471e-06 ***
Event          3.2172  1    0.07287 .
Location:Event 24.5271  7    0.00092 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_FishCopper, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event emmean    SE df lower.CL upper.CL
    1   4.39 0.749 62     2.89     5.88
    2   1.72 0.294 62     1.14     2.31

Location = m_B:
 Event emmean    SE df lower.CL upper.CL
    1   5.75 0.981 62     3.79     7.71
    2   3.97 0.677 62     2.61     5.32
```

```
Location = m_C:
 Event emmean    SE df lower.CL upper.CL
    1   5.21 0.889 62     3.43     6.99
    2   4.24 0.723 62     2.79     5.68

Location = m_D:
 Event emmean    SE df lower.CL upper.CL
    1   4.03 0.688 62     2.66     5.41
    2   3.16 0.540 62     2.08     4.24

Location = m_E:
 Event emmean    SE df lower.CL upper.CL
    1   5.43 0.928 62     3.58     7.29
    2   5.21 0.889 62     3.43     6.99

Location = m_G:
 Event emmean    SE df lower.CL upper.CL
    1   2.99 0.511 62     1.97     4.02
    2   6.76 1.153 62     4.45     9.06

Location = m_H:
 Event emmean    SE df lower.CL upper.CL
    1   4.17 0.711 62     2.74     5.59
    2   2.79 0.477 62     1.84     3.75

Location = m_I:
 Event emmean    SE df lower.CL upper.CL
    1   2.60 0.445 62     1.72     3.49
    2   3.47 0.593 62     2.29     4.66

Results are given on the inverse (not the response) scale.
Confidence level used: 0.95

$contrasts
Location = m_A:
 contrast estimate    SE df t.ratio p.value
 1 - 2       2.662 0.805 62  3.309  0.0016

Location = m_B:
 contrast estimate    SE df t.ratio p.value
 1 - 2       1.779 1.192 62  1.492  0.1408

Location = m_C:
 contrast estimate    SE df t.ratio p.value
 1 - 2       0.971 1.146 62  0.847  0.4001

Location = m_D:
 contrast estimate    SE df t.ratio p.value
 1 - 2       0.868 0.875 62  0.992  0.3252

Location = m_E:
 contrast estimate    SE df t.ratio p.value
 1 - 2       0.226 1.285 62  0.176  0.8607

Location = m_G:
 contrast estimate    SE df t.ratio p.value
 1 - 2      -3.763 1.262 62 -2.982  0.0041

Location = m_H:
 contrast estimate    SE df t.ratio p.value
 1 - 2       1.373 0.856 62  1.604  0.1139

Location = m_I:
 contrast estimate    SE df t.ratio p.value
 1 - 2      -0.868 0.741 62 -1.172  0.2459
```

```
Note: contrasts are still on the inverse scale

>
> mod_FishZinc <- glmmTMB(Zinc ~ Location * Event + (1|Treatment), family=Gamma
(), data=Fish_con)
> summary(mod_FishZinc)
 Family: Gamma  ( inverse )
Formula:          Zinc ~ Location * Event + (1 | Treatment)
Data: Fish_con

     AIC      BIC   logLik deviance df.resid
   205.3    248.2    -84.7    169.3       62

Random effects:

Conditional model:
 Groups    Name        Variance  Std.Dev.
 Treatment (Intercept) 1.334e-12 1.155e-06
Number of obs: 80, groups:  Treatment, 3

Dispersion estimate for Gamma family (sigma^2): 0.0356

Conditional model:
                  Estimate Std. Error z value Pr(>|z|)
(Intercept)       0.187293   0.044001   4.257 2.08e-05 ***
Locationm_B       0.030425   0.070312   0.433   0.6652
Locationm_C      -0.006359   0.059993  -0.106   0.9156
Locationm_D      -0.112463   0.062544  -1.798   0.0722 .
Locationm_E       0.121980   0.068081   1.792   0.0732 .
Locationm_G      -0.034515   0.067619  -0.510   0.6098
Locationm_H      -0.048940   0.066040  -0.741   0.4587
Locationm_I       0.040426   0.065998   0.613   0.5402
Event             0.037933   0.029215   1.298   0.1941
Locationm_B:Event  0.022127   0.047057   0.470   0.6382
Locationm_C:Event -0.008782   0.039681  -0.221   0.8248
Locationm_D:Event  0.091319   0.044048   2.073   0.0382 *
Locationm_E:Event -0.066306   0.043225  -1.534   0.1250
Locationm_G:Event  0.059290   0.046431   1.277   0.2016
Locationm_H:Event  0.061810   0.045484   1.359   0.1742
Locationm_I:Event -0.010549   0.043407  -0.243   0.8080
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_FishZinc)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Zinc
               Chisq Df Pr(>Chisq)
Location      19.728  7   0.006188 **
Event         20.959  1  4.693e-06 ***
Location:Event 16.894  7   0.018094 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_FishZinc, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event emmean     SE df lower.CL upper.CL
    1  0.225 0.0190 62    0.187    0.263
    2  0.263 0.0222 62    0.219    0.308

Location = m_B:
 Event emmean     SE df lower.CL upper.CL
    1  0.278 0.0234 62    0.231    0.325
    2  0.338 0.0285 62    0.281    0.395

Location = m_C:
 Event emmean     SE df lower.CL upper.CL
```

```
    1  0.210 0.0177 62    0.175    0.246
    2  0.239 0.0202 62    0.199    0.280

Location = m_D:
 Event emmean     SE df lower.CL upper.CL
    1  0.204 0.0172 62    0.170    0.238
    2  0.333 0.0281 62    0.277    0.390

Location = m_E:
 Event emmean     SE df lower.CL upper.CL
    1  0.281 0.0237 62    0.234    0.328
    2  0.253 0.0213 62    0.210    0.295

Location = m_G:
 Event emmean     SE df lower.CL upper.CL
    1  0.250 0.0211 62    0.208    0.292
    2  0.347 0.0293 62    0.289    0.406

Location = m_H:
 Event emmean     SE df lower.CL upper.CL
    1  0.238 0.0201 62    0.198    0.278
    2  0.338 0.0285 62    0.281    0.395

Location = m_I:
 Event emmean     SE df lower.CL upper.CL
    1  0.255 0.0215 62    0.212    0.298
    2  0.282 0.0238 62    0.235    0.330

Results are given on the inverse (not the response) scale.
Confidence level used: 0.95

$contrasts
Location = m_A:
 contrast estimate     SE df t.ratio p.value
 1 - 2     -0.0379 0.0292 62 -1.298  0.1990

Location = m_B:
 contrast estimate     SE df t.ratio p.value
 1 - 2     -0.0601 0.0369 62 -1.628  0.1086

Location = m_C:
 contrast estimate     SE df t.ratio p.value
 1 - 2     -0.0292 0.0269 62 -1.086  0.2819

Location = m_D:
 contrast estimate     SE df t.ratio p.value
 1 - 2     -0.1293 0.0330 62 -3.921  0.0002

Location = m_E:
 contrast estimate     SE df t.ratio p.value
 1 - 2      0.0284 0.0319 62  0.891  0.3766

Location = m_G:
 contrast estimate     SE df t.ratio p.value
 1 - 2     -0.0972 0.0361 62 -2.694  0.0091

Location = m_H:
 contrast estimate     SE df t.ratio p.value
 1 - 2     -0.0997 0.0349 62 -2.861  0.0057

Location = m_I:
 contrast estimate     SE df t.ratio p.value
 1 - 2     -0.0274 0.0321 62 -0.853  0.3969

Note: contrasts are still on the inverse scale
```

```
>
> mod_AscidianCopper <- glmmTMB(Copper ~ Location * Event + (1|Treatment), fami
ly=Gamma(), data=Ascidian_con)
> summary(mod_AscidianCopper)
 Family: Gamma  ( inverse )
Formula:          Copper ~ Location * Event + (1 | Treatment)
Data: Ascidian_con

     AIC      BIC   logLik deviance df.resid
   172.6    215.5    -68.3    136.6       62

Random effects:

Conditional model:
 Groups    Name        Variance  Std.Dev.
 Treatment (Intercept) 7.027e-12 2.651e-06
Number of obs: 80, groups:  Treatment, 3

Dispersion estimate for Gamma family (sigma^2): 0.181

Conditional model:
                 Estimate Std. Error z value Pr(>|z|)
(Intercept)        1.6099     0.3308   4.867 1.13e-06 ***
Locationm_B       -1.1815     0.4415  -2.676 0.007449 **
Locationm_C       -0.1757     0.5225  -0.336 0.736655
Locationm_D       -0.6075     0.4864  -1.249 0.211725
Locationm_E       -0.8388     0.4325  -1.939 0.052473 .
Locationm_G       -0.3650     0.4990  -0.732 0.464424
Locationm_H       -0.6125     0.5537  -1.106 0.268626
Locationm_I       -0.4282     0.5045  -0.849 0.396003
Event             -0.7434     0.1666  -4.462 8.14e-06 ***
Locationm_B:Event  0.9544     0.2623   3.638 0.000274 ***
Locationm_C:Event  0.3275     0.2802   1.169 0.242529
Locationm_D:Event  0.6045     0.2717   2.225 0.026113 *
Locationm_E:Event  0.6452     0.2370   2.722 0.006479 **
Locationm_G:Event  0.4296     0.2702   1.590 0.111869
Locationm_H:Event  0.7812     0.3292   2.373 0.017640 *
Locationm_I:Event  0.4998     0.2778   1.799 0.071986 .
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_AscidianCopper)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Copper
               Chisq Df Pr(>Chisq)
Location      98.963  7  < 2.2e-16 ***
Event         11.867  1  0.0005713 ***
Location:Event 16.685  7  0.0195415 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_AscidianCopper, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event emmean     SE df lower.CL upper.CL
    1  0.867 0.1650 62   0.5367    1.196
    2  0.123 0.0234 62   0.0763    0.170

Location = m_B:
 Event emmean     SE df lower.CL upper.CL
    1  0.639 0.1217 62   0.3960    0.883
    2  0.850 0.1619 62   0.5267    1.174

Location = m_C:
 Event emmean     SE df lower.CL upper.CL
    1  1.018 0.1939 62   0.6307    1.406
    2  0.602 0.1147 62   0.3731    0.832
```

```
Location = m_D:
 Event emmean     SE df lower.CL upper.CL
    1  0.864 0.1644 62   0.5349    1.192
    2  0.725 0.1380 62   0.4488    1.000

Location = m_E:
 Event emmean     SE df lower.CL upper.CL
    1  0.673 0.1281 62   0.4168    0.929
    2  0.575 0.1094 62   0.3560    0.793

Location = m_G:
 Event emmean     SE df lower.CL upper.CL
    1  0.931 0.1773 62   0.5767    1.285
    2  0.617 0.1175 62   0.3823    0.852

Location = m_H:
 Event emmean     SE df lower.CL upper.CL
    1  1.035 0.1971 62   0.6412    1.429
    2  1.073 0.2043 62   0.6646    1.481

Location = m_I:
 Event emmean     SE df lower.CL upper.CL
    1  0.938 0.1786 62   0.5810    1.295
    2  0.694 0.1322 62   0.4301    0.959

Results are given on the inverse (not the response) scale.
Confidence level used: 0.95

$contrasts
Location = m_A:
 contrast estimate    SE df t.ratio p.value
 1 - 2      0.7434 0.167 62  4.462  <.0001

Location = m_B:
 contrast estimate    SE df t.ratio p.value
 1 - 2     -0.2110 0.203 62 -1.041  0.3018

Location = m_C:
 contrast estimate    SE df t.ratio p.value
 1 - 2      0.4159 0.225 62  1.846  0.0696

Location = m_D:
 contrast estimate    SE df t.ratio p.value
 1 - 2      0.1389 0.215 62  0.647  0.5199

Location = m_E:
 contrast estimate    SE df t.ratio p.value
 1 - 2      0.0982 0.169 62  0.583  0.5620

Location = m_G:
 contrast estimate    SE df t.ratio p.value
 1 - 2      0.3138 0.213 62  1.475  0.1452

Location = m_H:
 contrast estimate    SE df t.ratio p.value
 1 - 2     -0.0378 0.284 62 -0.133  0.8946

Location = m_I:
 contrast estimate    SE df t.ratio p.value
 1 - 2      0.2436 0.222 62  1.096  0.2772

Note: contrasts are still on the inverse scale

>
```

```
> mod_AscidianZinc <- glmmTMB(Zinc ~ Location * Event + (1|Treatment), family=G
amma(), data=Ascidian_con)
> summary(mod_AscidianZinc)
 Family: Gamma  ( inverse )
Formula:          Zinc ~ Location * Event + (1 | Treatment)
Data: Ascidian_con

     AIC      BIC   logLik deviance df.resid
   152.2    195.1    -58.1    116.2       62

Random effects:

Conditional model:
 Groups    Name        Variance  Std.Dev.
 Treatment (Intercept) 2.673e-12 1.635e-06
Number of obs: 80, groups:  Treatment, 3

Dispersion estimate for Gamma family (sigma^2): 0.0712

Conditional model:
                 Estimate Std. Error z value Pr(>|z|)
(Intercept)       0.63691    0.11575   5.503 3.74e-08 ***
Locationm_B      -0.31030    0.17121  -1.812  0.06993 .
Locationm_C      -0.29961    0.17071  -1.755  0.07926 .
Locationm_D      -0.11554    0.17244  -0.670  0.50282
Locationm_E      -0.23439    0.17644  -1.328  0.18405
Locationm_G       0.28804    0.21979   1.311  0.19001
Locationm_H      -0.01982    0.20335  -0.097  0.92235
Locationm_I       0.23174    0.21297   1.088  0.27655
Event            -0.17395    0.06512  -2.671  0.00756 **
Locationm_B:Event  0.29377    0.10791   2.722  0.00648 **
Locationm_C:Event  0.28307    0.10712   2.643  0.00823 **
Locationm_D:Event  0.13849    0.10243   1.352  0.17638
Locationm_E:Event  0.25358    0.10975   2.311  0.02086 *
Locationm_G:Event -0.01679    0.12698  -0.132  0.89480
Locationm_H:Event  0.18186    0.12453   1.460  0.14419
Locationm_I:Event  0.00558    0.12350   0.045  0.96396
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_AscidianZinc)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Zinc
               Chisq Df Pr(>Chisq)
Location     41.5254  7  6.417e-07 ***
Event         1.2114  1    0.27106
Location:Event 16.1641  7    0.02366 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_AscidianZinc, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event emmean     SE df lower.CL upper.CL
    1  0.463 0.0552 62    0.353    0.573
    2  0.289 0.0345 62    0.220    0.358

Location = m_B:
 Event emmean     SE df lower.CL upper.CL
    1  0.446 0.0533 62    0.340    0.553
    2  0.566 0.0676 62    0.431    0.701

Location = m_C:
 Event emmean     SE df lower.CL upper.CL
    1  0.446 0.0533 62    0.340    0.553
    2  0.556 0.0663 62    0.423    0.688
```

```
Location = m_D:
 Event emmean     SE df lower.CL upper.CL
    1  0.486 0.0580 62    0.370    0.602
    2  0.450 0.0538 62    0.343    0.558

Location = m_E:
 Event emmean     SE df lower.CL upper.CL
    1  0.482 0.0575 62    0.367    0.597
    2  0.562 0.0670 62    0.428    0.696

Location = m_G:
 Event emmean     SE df lower.CL upper.CL
    1  0.734 0.0876 62    0.559    0.909
    2  0.543 0.0649 62    0.414    0.673

Location = m_H:
 Event emmean     SE df lower.CL upper.CL
    1  0.625 0.0746 62    0.476    0.774
    2  0.633 0.0755 62    0.482    0.784

Location = m_I:
 Event emmean     SE df lower.CL upper.CL
    1  0.700 0.0836 62    0.533    0.867
    2  0.532 0.0635 62    0.405    0.659

Results are given on the inverse (not the response) scale.
Confidence level used: 0.95

$contrasts
Location = m_A:
 contrast estimate     SE df t.ratio p.value
 1 - 2     0.17395 0.0651 62  2.671  0.0096

Location = m_B:
 contrast estimate     SE df t.ratio p.value
 1 - 2    -0.11982 0.0860 62 -1.393  0.1687

Location = m_C:
 contrast estimate     SE df t.ratio p.value
 1 - 2    -0.10913 0.0850 62 -1.283  0.2042

Location = m_D:
 contrast estimate     SE df t.ratio p.value
 1 - 2     0.03546 0.0791 62  0.448  0.6554

Location = m_E:
 contrast estimate     SE df t.ratio p.value
 1 - 2    -0.07964 0.0883 62 -0.901  0.3708

Location = m_G:
 contrast estimate     SE df t.ratio p.value
 1 - 2     0.19074 0.1090 62  1.750  0.0851

Location = m_H:
 contrast estimate     SE df t.ratio p.value
 1 - 2    -0.00791 0.1061 62 -0.075  0.9408

Location = m_I:
 contrast estimate     SE df t.ratio p.value
 1 - 2     0.16837 0.1049 62  1.604  0.1137

Note: contrasts are still on the inverse scale

>
> mod_AlgCopper <- glmmTMB(Copper ~ Location * Event + (1|Treatment), family=Ga
mma(), data=Alg_con)
```

```
> summary(mod_AlgCopper)
 Family: Gamma  ( inverse )
Formula:          Copper ~ Location * Event + (1 | Treatment)
Data: Alg_con

     AIC      BIC   logLik deviance df.resid
   115.4    158.3    -39.7     79.4       62

Random effects:

Conditional model:
 Groups    Name        Variance  Std.Dev.
 Treatment (Intercept) 8.825e-12 2.971e-06
Number of obs: 80, groups:  Treatment, 3

Dispersion estimate for Gamma family (sigma^2): 0.466

Conditional model:
                Estimate Std. Error z value Pr(>|z|)
(Intercept)       5.8139     1.8184   3.197 0.001387 **
Locationm_B       3.5363     3.5060   1.009 0.313138
Locationm_C      -1.4884     2.3726  -0.627 0.530447
Locationm_D      -2.7065     2.2876  -1.183 0.236768
Locationm_E      -0.5303     2.7387  -0.194 0.846479
Locationm_G       4.3007     4.0586   1.060 0.289302
Locationm_H      -6.4649     1.8578  -3.480 0.000501 ***
Locationm_I      -0.5796     2.9612  -0.196 0.844828
Event            -2.8377     0.9099  -3.119 0.001816 **
Locationm_B:Event -1.6106     1.7574  -0.916 0.359442
Locationm_C:Event  0.9874     1.1983   0.824 0.409905
Locationm_D:Event  1.9137     1.1919   1.606 0.108345
Locationm_E:Event  0.8435     1.4120   0.597 0.550235
Locationm_G:Event -1.3945     2.0760  -0.672 0.501754
Locationm_H:Event  3.7353     0.9776   3.821 0.000133 ***
Locationm_I:Event  1.2799     1.5835   0.808 0.418946
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_AlgCopper)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Copper
               Chisq Df Pr(>Chisq)
Location      72.3952  7  4.841e-13 ***
Event          3.2037  1    0.07347 .
Location:Event 38.6519  7  2.277e-06 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_AlgCopper, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event emmean     SE df lower.CL upper.CL
    1  2.976 0.9090 62    1.159    4.793
    2  0.139 0.0423 62    0.054    0.223

Location = m_B:
 Event emmean     SE df lower.CL upper.CL
    1  4.902 1.4972 62    1.909    7.895
    2  0.454 0.1386 62    0.177    0.731

Location = m_C:
 Event emmean     SE df lower.CL upper.CL
    1  2.475 0.7560 62    0.964    3.986
    2  0.625 0.1909 62    0.243    1.007

Location = m_D:
 Event emmean     SE df lower.CL upper.CL
```

```
    1  2.183 0.6669 62    0.850    3.516
    2  1.259 0.3847 62    0.491    2.028

Location = m_E:
 Event emmean     SE df lower.CL upper.CL
    1  3.289 1.0047 62    1.281    5.298
    2  1.295 0.3956 62    0.504    2.086

Location = m_G:
 Event emmean     SE df lower.CL upper.CL
    1  5.882 1.7966 62    2.291    9.474
    2  1.650 0.5040 62    0.643    2.658

Location = m_H:
 Event emmean     SE df lower.CL upper.CL
    1  0.247 0.0753 62    0.096    0.397
    2  1.144 0.3495 62    0.446    1.843

Location = m_I:
 Event emmean     SE df lower.CL upper.CL
    1  3.676 1.1229 62    1.432    5.921
    2  2.119 0.6471 62    0.825    3.412

Results are given on the inverse (not the response) scale.
Confidence level used: 0.95

$contrasts
Location = m_A:
 contrast estimate    SE df t.ratio p.value
 1 - 2       2.838 0.910 62  3.119  0.0028

Location = m_B:
 contrast estimate    SE df t.ratio p.value
 1 - 2       4.448 1.504 62  2.958  0.0044

Location = m_C:
 contrast estimate    SE df t.ratio p.value
 1 - 2       1.850 0.780 62  2.373  0.0208

Location = m_D:
 contrast estimate    SE df t.ratio p.value
 1 - 2       0.924 0.770 62  1.200  0.2346

Location = m_E:
 contrast estimate    SE df t.ratio p.value
 1 - 2       1.994 1.080 62  1.847  0.0695

Location = m_G:
 contrast estimate    SE df t.ratio p.value
 1 - 2       4.232 1.866 62  2.268  0.0268

Location = m_H:
 contrast estimate    SE df t.ratio p.value
 1 - 2      -0.898 0.357 62 -2.511  0.0147

Location = m_I:
 contrast estimate    SE df t.ratio p.value
 1 - 2       1.558 1.296 62  1.202  0.2339

Note: contrasts are still on the inverse scale

>
> mod_AlgZinc <- glmmTMB(Zinc ~ Location * Event + (1|Treatment), family=Gamma(
), data=Alg_con)
> summary(mod_AlgZinc)
 Family: Gamma  ( inverse )
```

```
Formula:          Zinc ~ Location * Event + (1 | Treatment)
Data: Alg_con

     AIC      BIC   logLik deviance df.resid
   106.8    149.7    -35.4     70.8       62

Random effects:

Conditional model:
 Groups    Name        Variance  Std.Dev.
 Treatment (Intercept) 1.302e-11 3.608e-06
Number of obs: 80, groups:  Treatment, 3

Dispersion estimate for Gamma family (sigma^2): 0.176

Conditional model:
                Estimate Std. Error z value Pr(>|z|)
(Intercept)       1.9119     0.4361   4.384 1.17e-05 ***
Locationm_B      -0.3109     0.6059  -0.513 0.607885
Locationm_C       1.0543     0.8506   1.239 0.215161
Locationm_D      -0.6319     0.5990  -1.055 0.291394
Locationm_E       2.9074     1.1503   2.528 0.011485 *
Locationm_G       2.1295     1.0400   2.048 0.040591 *
Locationm_H       1.8511     0.9533   1.942 0.052149 .
Locationm_I      -0.1139     0.6434  -0.177 0.859487
Event            -0.7651     0.2267  -3.375 0.000738 ***
Locationm_B:Event  0.2487     0.3227   0.771 0.440915
Locationm_C:Event -0.2999     0.4507  -0.665 0.505795
Locationm_D:Event  0.5097     0.3304   1.543 0.122841
Locationm_E:Event -1.2452     0.5928  -2.100 0.035696 *
Locationm_G:Event -0.8010     0.5441  -1.472 0.140945
Locationm_H:Event -0.7658     0.4940  -1.550 0.121072
Locationm_I:Event  0.1866     0.3438   0.543 0.587214
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> Anova(mod_AlgZinc)
Analysis of Deviance Table (Type II Wald chisquare tests)

Response: Zinc
              Chisq Df Pr(>Chisq)
Location     27.372  7  0.0002856 ***
Event        48.201  1  3.848e-12 ***
Location:Event 17.524  7  0.0143148 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> emmeans(mod_AlgZinc, pairwise ~ Event | Location)
$emmeans
Location = m_A:
 Event emmean     SE df lower.CL upper.CL
    1  1.147 0.2151 62    0.717    1.577
    2  0.382 0.0716 62    0.239    0.525

Location = m_B:
 Event emmean     SE df lower.CL upper.CL
    1  1.085 0.2034 62    0.678    1.491
    2  0.568 0.1066 62    0.355    0.781

Location = m_C:
 Event emmean     SE df lower.CL upper.CL
    1  1.901 0.3566 62    1.188    2.614
    2  0.836 0.1568 62    0.523    1.150

Location = m_D:
 Event emmean     SE df lower.CL upper.CL
    1  1.025 0.1922 62    0.640    1.409
    2  0.769 0.1443 62    0.481    1.058
```

```
Location = m_E:
 Event emmean     SE df lower.CL upper.CL
    1  2.809 0.5269 62    1.756    3.862
    2  0.799 0.1498 62    0.499    1.098

Location = m_G:
 Event emmean     SE df lower.CL upper.CL
    1  2.475 0.4643 62    1.547    3.403
    2  0.909 0.1705 62    0.568    1.250

Location = m_H:
 Event emmean     SE df lower.CL upper.CL
    1  2.232 0.4187 62    1.395    3.069
    2  0.701 0.1315 62    0.438    0.964

Location = m_I:
 Event emmean     SE df lower.CL upper.CL
    1  1.220 0.2287 62    0.762    1.677
    2  0.641 0.1202 62    0.401    0.881

Results are given on the inverse (not the response) scale.
Confidence level used: 0.95

$contrasts
Location = m_A:
 contrast estimate    SE df t.ratio p.value
 1 - 2       0.765 0.227 62 3.375   0.0013

Location = m_B:
 contrast estimate    SE df t.ratio p.value
 1 - 2       0.516 0.230 62 2.249   0.0281

Location = m_C:
 contrast estimate    SE df t.ratio p.value
 1 - 2       1.065 0.390 62 2.734   0.0081

Location = m_D:
 contrast estimate    SE df t.ratio p.value
 1 - 2       0.255 0.240 62 1.063   0.2921

Location = m_E:
 contrast estimate    SE df t.ratio p.value
 1 - 2       2.010 0.548 62 3.670   0.0005

Location = m_G:
 contrast estimate    SE df t.ratio p.value
 1 - 2       1.566 0.495 62 3.166   0.0024

Location = m_H:
 contrast estimate    SE df t.ratio p.value
 1 - 2       1.531 0.439 62 3.488   0.0009

Location = m_I:
 contrast estimate    SE df t.ratio p.value
 1 - 2       0.578 0.258 62 2.239   0.0288

Note: contrasts are still on the inverse scale
```

Appendix C Tabulated Biota Contamination Results

C.1 Tabulated Biotic Contamination

Table C-1 Laboratory results for metal and organotin burden in biotic samples

				Organotins				Total Recoverable Trace Elements by ICP		Moisture Content
				Monobutyltin as Sn	Dibutyltin as Sn	Tributyltin as Sn	Surrogate: Tripropyltin	Copper	Zinc	Moisture
Sample	Type	Site	Year	ng/g	ng/g	ng/g	%REC	mg/kg	mg/kg	%
A1-FIS-0420	Fish	M_A	2020	<1	<1	1.5	70	0.14	4.1	76.9
A2-FIS-0420	Fish	M_A	2020	<1	<1	<1	71	0.11	4.1	75.4
A3-FIS-0420	Fish	M_A	2020	<1	<1	<1	70	1.4	4.3	75.7
A4-FIS-0420	Fish	M_A	2020	<1	<1	<1	75	0.73	3.4	75.9
A5-FIS-0420	Fish	M_A	2020	<1	<1	<1	63	0.52	3.1	77.1
B1-FIS-0420	Fish	M_B	2020	<1	<1	1.2	81	0.13	3	75.9
B2-FIS-0420	Fish	M_B	2020	<1	<1	<1	76	0.25	2.8	75.4
B3-FIS-0420	Fish	M_B	2020	<1	<1	<1	60	0.19	3	68.5
B4-FIS-0420	Fish	M_B	2020	<1	<1	<1	93	0.3	3.4	76.2
B5-FIS-0420	Fish	M_B	2020	<1	<1	<1	68	0.39	2.6	75
C1-FIS-0420	Fish	M_C	2020	<1	<1	<1	79	0.2	4.1	75.8
C2-FIS-0420	Fish	M_C	2020	<1	<1	<1	74	0.47	6.4	78.6
C3-FIS-0420	Fish	M_C	2020	<1	<1	<1	73	0.15	3.1	75.8
C4-FIS-0420	Fish	M_C	2020	<1	<1	<1	67	0.16	4.1	74.9
C5-FIS-0420	Fish	M_C	2020	<1	<1	<1	78	0.2	3.2	75.8
D1-FIS-0420	Fish	M_D	2020	<1	<1	<1	81	0.24	2.7	77.1
D2-FIS-0420	Fish	M_D	2020	<1	<1	<1	80	0.27	3.4	77.1
D3-FIS-0420	Fish	M_D	2020	<1	<1	<1	79	0.48	3.2	77.9
D4-FIS-0420	Fish	M_D	2020	<1	<1	<1	87	0.44	2.6	78.3
D5-FIS-0420	Fish	M_D	2020	<1	<1	<1	101	0.15	3.1	77.2
E1-FIS-0420	Fish	M_E	2020	<1	<1	<1	79	0.22	3	74

Tabulated Biota Contamination Results

				Organotins				Total Recoverable Trace Elements by ICP		Moisture Content
				Monobutyltin as Sn	Dibutyltin as Sn	Tributyltin as Sn	Surrogate: Tripropyltin	Copper	Zinc	Moisture
E2-FIS-0420	Fish	M_E	2020	<1	<1	<1	74	0.23	6.6	75.7
E3-FIS-0420	Fish	M_E	2020	<1	<1	<1	75	0.19	4.4	75.4
E4-FIS-0420	Fish	M_E	2020	<1	<1	<1	84	0.2	2.6	77.7
E5-FIS-0420	Fish	M_E	2020	<1	<1	<1	82	0.12	3.2	76.3
G1-FIS-0420	Fish	M_G	2020	<1	<1	<1	82	0.11	3	77.2
G2-FIS-0420	Fish	M_G	2020	<1	<1	<1	81	0.21	2.7	76.8
G3-FIS-0420	Fish	M_G	2020	<1	<1	<1	76	0.14	2.9	75.4
G4-FIS-0420	Fish	M_G	2020	<1	<1	<1	84	0.13	2.9	76.5
G5-FIS-0420	Fish	M_G	2020	<1	<1	<1	73	0.15	2.9	77.1
H1-FIS-0420	Fish	M_H	2020	<1	<1	<1	62	0.4	3.5	78.2
H2-FIS-0420	Fish	M_H	2020	<1	<1	<1	70	0.4	2.7	78.3
H3-FIS-0420	Fish	M_H	2020	<1	<1	<1	72	0.25	3.3	78.3
H4-FIS-0420	Fish	M_H	2020	<1	<1	<1	69	0.32	2.9	76.8
H5-FIS-0420	Fish	M_H	2020	<1	<1	<1	102	0.42	2.4	80.2
I1-FIS-0420	Fish	M_I	2020	<1	<1	<1	92	0.28	3.4	76.2
I2-FIS-0420	Fish	M_I	2020	<1	<1	<1	82	0.25	4.2	75.6
I3-FIS-0420	Fish	M_I	2020	<1	<1	<1	58	0.28	2.9	76.5
I4-FIS-0420	Fish	M_I	2020	<1	<1	<1	63	0.48	4.5	75.6
I5-FIS-0420	Fish	M_I	2020	<1	<1	<1	69	0.15	2.7	78
A1-CUC-0420	Ascidian	M_A	2020	<1	<1	<1	101	2.2	3.8	82.7
A2-CUC-0420	Ascidian	M_A	2020	<1	<1	<1	81	2.4	1.9	84.8
A3-CUC-0420	Ascidian	M_A	2020	<1	<1	2.4	90	3.3	3	77.4
A4-CUC-0420	Ascidian	M_A	2020	<1	1	4.2	96	30	5.5	81.9

Tabulated Biota Contamination Results

				Organotins				Total Recoverable Trace Elements by ICP		Moisture Content
				Monobutyltin as Sn	Dibutyltin as Sn	Tributyltin as Sn	Surrogate: Tripropyltin	Copper	Zinc	Moisture
A5-CUC-0420	Ascidian	M_A	2020	<1	<1	<1	98	2.7	3.1	74.5
B1-CUC-0420	Ascidian	M_B	2020	<1	<1	<1	86	1	2.1	84.1
B2-CUC-0420	Ascidian	M_B	2020	<1	<1	<1	92	0.82	0.93	90.5
B3-CUC-0420	Ascidian	M_B	2020	<1	<1	<1	100	0.76	1.6	80.6
B4-CUC-0420	Ascidian	M_B	2020	<1	<1	<1	91	1.3	1.5	84.9
B5-CUC-0420	Ascidian	M_B	2020	<1	<1	<1	99	2	2.7	77.5
C1-CUC-0420	Ascidian	M_C	2020	<1	<1	1	79	1.5	2	83.7
C2-CUC-0420	Ascidian	M_C	2020	<1	<1	<1	93	2.2	1.7	79.6
C3-CUC-0420	Ascidian	M_C	2020	<1	<1	<1	108	1.4	1.6	83
C4-CUC-0420	Ascidian	M_C	2020	<1	<1	<1	97	1.2	1.5	80.5
C5-CUC-0420	Ascidian	M_C	2020	<1	<1	<1	97	2	2.2	79.4
D1-CUC-0420	Ascidian	M_D	2020	<1	<1	<1	104	1.4	1.7	81.1
D2-CUC-0420	Ascidian	M_D	2020	<1	<1	<1	108	1.2	1.8	76.7
D3-CUC-0420	Ascidian	M_D	2020	<1	<1	<1	91	1.3	1.9	81.2
D4-CUC-0420	Ascidian	M_D	2020	<1	<1	<1	79	1.4	2.7	77.9
D5-CUC-0420	Ascidian	M_D	2020	<1	<1	<1	87	1.6	3	73.9
E1-CUC-0420	Ascidian	M_E	2020	<1	<1	<1	95	1.9	2.2	65.5
E2-CUC-0420	Ascidian	M_E	2020	<1	<1	<1	98	2	1.8	78.3
E3-CUC-0420	Ascidian	M_E	2020	<1	<1	<1	89	1.6	1.6	69.5
E4-CUC-0420	Ascidian	M_E	2020	<1	<1	<1	115	1.2	1.5	83.9
E5-CUC-0420	Ascidian	M_E	2020	<1	<1	<1	100	2	1.8	74.9
G1-CUC-0420	Ascidian	M_G	2020	<1	<1	<1	83	1.8	2.1	81.3
G2-CUC-0420	Ascidian	M_G	2020	<1	<1	<1	97	1.2	1.8	83.5

Tabulated Biota Contamination Results

				Organotins				Total Recoverable Trace Elements by ICP		Moisture Content
				Monobutyltin as Sn	Dibutyltin as Sn	Tributyltin as Sn	Surrogate: Tripropyltin	Copper	Zinc	Moisture
G3-CUC-0420	Ascidian	M_G	2020	<1	<1	<1	96	1	1.6	81.3
G4-CUC-0420	Ascidian	M_G	2020	<1	<1	<1	104	2.4	1.8	81.1
G5-CUC-0420	Ascidian	M_G	2020	<1	<1	<1	108	1.7	1.9	77.9
H1-CUC-0420	Ascidian	M_H	2020	<1	<1	<1	105	0.95	1.4	81.2
H2-CUC-0420	Ascidian	M_H	2020	<1	<1	<1	139	0.75	1.2	84.7
H3-CUC-0420	Ascidian	M_H	2020	<1	<1	<1	115	1.3	2.2	63.4
H4-CUC-0420	Ascidian	M_H	2020	<1	<1	<1	74	0.89	1.3	84
H5-CUC-0420	Ascidian	M_H	2020	<1	<1	<1	127	0.77	1.8	83.6
I1-CUC-0420	Ascidian	M_I	2020	<1	<1	<1	109	2.1	2.8	75.4
I2-CUC-0420	Ascidian	M_I	2020	<1	<1	<1	107	1.4	1.3	79.7
I6-CUC-0420	Ascidian	M_I	2020	<1	<1	<1	112	1.1	1.6	80.6
I7-CUC-0420	Ascidian	M_I	2020	<1	<1	<1	112	1.3	2.1	75.2
I8-CUC-0420	Ascidian	M_I	2020	<1	<1	<1	104	1.3	1.6	78
A1-ALG-0420	Algae	M_A	2020	<1	<1	1.4	102	2.9	2.8	74.1
A2-ALG-0420	Algae	M_A	2020	8.3	20	37	91	11	3.4	78.8
A3-ALG-0420	Algae	M_A	2020	<1	<1	3.4	126	15	2.8	81.1
A4-ALG-0420	Algae	M_A	2020	<1	<1	1.2	126	4.9	2.2	74.8
A5-ALG-0420	Algae	M_A	2020	<1	<1	<1	128	2.3	1.9	78.2
B1-ALG-0420	Algae	M_B	2020	<1	<1	<1	123	7.7	2	81
B2-ALG-0420	Algae	M_B	2020	<1	<1	<1	66	1.5	1.8	78.4
B3-ALG-0420	Algae	M_B	2020	<1	<1	<1	99	0.57	2	76.7
B4-ALG-0420	Algae	M_B	2020	<1	<1	<1	88	0.8	1.9	79.9
B5-ALG-0420	Algae	M_B	2020	<1	<1	<1	95	0.45	1.1	79.1

Tabulated Biota Contamination Results

				Organotins				Total Recoverable Trace Elements by ICP		Moisture Content
				Monobutyltin as Sn	Dibutyltin as Sn	Tributyltin as Sn	Surrogate: Tripropyltin	Copper	Zinc	Moisture
C1-ALG-0420	Algae	M_C	2020	<1	<1	<1	84	2	1.4	79
C2-ALG-0420	Algae	M_C	2020	<1	<1	<1	100	1.8	1.2	73.7
C3-ALG-0420	Algae	M_C	2020	<1	<1	<1	91	1.9	1.2	83.1
C4-ALG-0420	Algae	M_C	2020	<1	<1	<1	104	1.2	1.2	68.6
C5-ALG-0420	Algae	M_C	2020	<1	<1	<1	114	1.1	0.98	76.8
D1-ALG-0420	Algae	M_D	2020	<1	<1	<1	95	0.72	1.5	80.8
D2-ALG-0420	Algae	M_D	2020	<1	<1	1.4	92	0.94	1.1	77.2
D3-ALG-0420	Algae	M_D	2020	<1	<1	<1	112	0.56	1.1	82.5
D4-ALG-0420	Algae	M_D	2020	<1	<1	<1	89	0.93	1.3	79.5
D5-ALG-0420	Algae	M_D	2020	<1	<1	<1	108	0.82	1.5	82
E1-ALG-0420	Algae	M_E	2020	<1	<1	<1	97	0.38	0.96	82.6
E2-ALG-0420	Algae	M_E	2020	<1	<1	<1	93	0.88	1.4	74.1
E3-ALG-0420	Algae	M_E	2020	<1	<1	<1	74	1.4	1.4	70.8
E4-ALG-0420	Algae	M_E	2020	<1	<1	<1	97	0.49	1	78.5
E5-ALG-0420	Algae	M_E	2020	<1	<1	<1	93	0.71	1.5	73.6
G1-ALG-0420	Algae	M_G	2020	<1	<1	<1	95	0.47	1.1	78
G2-ALG-0420	Algae	M_G	2020	<1	<1	<1	98	0.6	1	76
G3-ALG-0420	Algae	M_G	2020	<1	<1	<1	104	0.94	1.3	77
G4-ALG-0420	Algae	M_G	2020	<1	<1	<1	101	0.67	1.1	77
G5-ALG-0420	Algae	M_G	2020	<1	<1	<1	103	0.35	1	76.5
H1-ALG-0420	Algae	M_H	2020	<1	<1	<1	113	1.4	0.93	81.9
H2-ALG-0420	Algae	M_H	2020	<1	<1	<1	71	0.71	1.5	79.7
H3-ALG-0420	Algae	M_H	2020	<1	<1	<1	113	0.8	2	81.3

Tabulated Biota Contamination Results

				Organotins				Total Recoverable Trace Elements by ICP		Moisture Content
				Monobutyltin as Sn	Dibutyltin as Sn	Tributyltin as Sn	Surrogate: Tripropyltin	Copper	Zinc	Moisture
H4-ALG-0420	Algae	M_H	2020	<1	<1	<1	101	0.76	1.5	82.4
H5-ALG-0420	Algae	M_H	2020	<1	<1	<1	93	0.7	1.2	82.8
I1-ALG-0420	Algae	M_I	2020	<1	<1	<1	144	0.33	1.3	83.8
I2-ALG-0420	Algae	M_I	2020	<1	<1	<1	97	0.57	1.7	76.6
I3-ALG-0420	Algae	M_I	2020	<1	<1	<1	90	0.49	1.4	83
I6-ALG-0420	Algae	M_I	2020	<1	<1	<1	89	0.48	1.8	79.7
I7-ALG-0420	Algae	M_I	2020	<1	<1	<1	91	0.49	1.6	73.3
D1-ALG-1019	Algae	M_D	2019	<1	<1	<1	62	1.6	2.3	86.9
D2-ALG-1019	Algae	M_D	2019	<1	<1	<1	97	0.14	0.62	90.1
D3-ALG-1019	Algae	M_D	2019	<1	<1	<1	92	0.13	0.44	87.7
D4-ALG-1019	Algae	M_D	2019	<1	<1	<1	62	0.21	0.42	86.7
D5-ALG-1019	Algae	M_D	2019	<1	<1	<1	84	0.21	1.1	81.8
D1-CUC-1019	Ascidian	M_D	2019	<1	<1	<1	76	2	3.1	80.6
D2-CUC-1019	Ascidian	M_D	2019	<1	<1	<1	72	1	1.8	83.4
D3-CUC-1019	Ascidian	M_D	2019	<1	<1	<1	91	0.4	0.99	81.3
D4-CUC-1019	Ascidian	M_D	2019	<1	<1	<1	94	0.89	2	85
D5-CUC-1019	Ascidian	M_D	2019	<1	<1	<1	93	1.5	2.4	75
A1-ALG-1019	Algae	M_A	2019	<1	<1	<1	77	0.49	1.3	88.3
A2-ALG-1019	Algae	M_A	2019	<1	<1	<1	95	0.26	0.44	87.2
A3-ALG-1019	Algae	M_A	2019	<1	<1	<1	93	0.44	1.7	86.1
A4-ALG-1019	Algae	M_A	2019	<1	<1	<1	73	0.3	0.24	87.4
A5-ALG-1019	Algae	M_A	2019	<1	<1	<1	72	0.19	0.68	85.2
A1-CUC-1019	Ascidian	M_A	2019	<1	<1	<1	130	1.6	2.8	78.9

Tabulated Biota Contamination Results

				Organotins				Total Recoverable Trace Elements by ICP		Moisture Content
				Monobutyltin as Sn	Dibutyltin as Sn	Tributyltin as Sn	Surrogate: Tripropyltin	Copper	Zinc	Moisture
A2-CUC-1019	Ascidian	M_A	2019	<1	<1	<1	71	2	3.2	80.9
A3-CUC-1019	Ascidian	M_A	2019	<1	<1	<1	92	0.38	1.6	82.8
A4-CUC-1019	Ascidian	M_A	2019	<1	<1	<1	96	0.59	1.7	80.7
A5-CUC-1019	Ascidian	M_A	2019	<1	<1	<1	75	1.2	1.5	74.5
B1-ALG-1019	Algae	M_B	2019	<1	<1	<1	84	0.13	0.45	86.7
B2-ALG-1019	Algae	M_B	2019	<1	<1	<1	94	0.22	0.54	86.8
B3-ALG-1019	Algae	M_B	2019	<1	<1	<1	69	0.26	1.7	84.5
B4-ALG-1019	Algae	M_B	2019	<1	<1	<1	85	0.3	1.7	84.3
B5-ALG-1019	Algae	M_B	2019	<1	<1	<1	72	0.11	0.22	85.9
B1-CUC-1019	Ascidian	M_B	2019	<1	<1	<1	92	2.6	1.9	80.1
B2-CUC-1019	Ascidian	M_B	2019	<1	<1	<1	80	0.94	2.1	78.5
B3-CUC-1019	Ascidian	M_B	2019	<1	<1	<1	71	1.3	1.9	81.8
B4-CUC-1019	Ascidian	M_B	2019	<1	<1	<1	70	0.98	3	78.6
B5-CUC-1019	Ascidian	M_B	2019	<1	<1	<1	63	2	2.3	81.3
E1-ALG-1019	Algae	M_E	2019	<1	<1	<1	92	0.49	0.56	88.2
E2-ALG-1019	Algae	M_E	2019	<1	<1	<1	92	0.22	0.21	86.4
E3-ALG-1019	Algae	M_E	2019	<1	<1	<1	78	0.35	0.29	87.8
E4-ALG-1019	Algae	M_E	2019	<1	<1	<1	73	0.18	0.34	83.8
E5-ALG-1019	Algae	M_E	2019	<1	<1	<1	86	0.28	0.38	85
E1-CUC-1019	Ascidian	M_E	2019	<1	<1	<1	101	1.2	1.6	81.7
E2-CUC-1019	Ascidian	M_E	2019	<1	<1	<1	147	1.4	2.5	78.9
E3-CUC-1019	Ascidian	M_E	2019	<1	<1	<1	101	2.5	0.97	82.3
E4-CUC-1019	Ascidian	M_E	2019	<1	<1	<1	112	0.53	1.6	85.3

Tabulated Biota Contamination Results

				Organotins				Total Recoverable Trace Elements by ICP		Moisture Content
				Monobutyltin as Sn	Dibutyltin as Sn	Tributyltin as Sn	Surrogate: Tripropyltin	Copper	Zinc	Moisture
E5-CUC-1019	Ascidian	M_E	2019	<1	<1	<1	135	1.8	3.7	81.5
C1-ALG-1019	Algae	M_C	2019	<1	<1	<1	120	0.92	0.78	85.2
C2-ALG-1019	Algae	M_C	2019	<1	<1	<1	103	0.24	0.64	84.8
C3-ALG-1019	Algae	M_C	2019	<1	<1	<1	100	0.24	0.83	85.8
C4-ALG-1019	Algae	M_C	2019	<1	<1	<1	106	0.51	0.28	86.9
C5-ALG-1019	Algae	M_C	2019	<1	<1	<1	109	0.11	0.1	89.3
C1-CUC-1019	Ascidian	M_C	2019	<1	<1	<1	143	0.58	3	83.6
C2-CUC-1019	Ascidian	M_C	2019	<1	<1	<1	103	0.97	2.2	76.6
C3-CUC-1019	Ascidian	M_C	2019	<1	<1	<1	86	1.4	1.4	80.6
C4-CUC-1019	Ascidian	M_C	2019	<1	<1	<1	105	1.1	1.9	73.4
C5-CUC-1019	Ascidian	M_C	2019	<1	<1	<1	86	0.86	2.7	77.1
I1-ALG-1019	Algae	M_I	2019	<1	<1	<1	81	0.38	0.71	83.3
I2-ALG-1019	Algae	M_I	2019	<1	<1	<1	97	0.27	0.67	84.4
I3-ALG-1019	Algae	M_I	2019	<1	<1	<1	121	0.23	0.33	84.1
I4-ALG-1019	Algae	M_I	2019	<1	<1	<1	96	0.17	0.79	82.7
I5-ALG-1019	Algae	M_I	2019	<1	<1	<1	103	0.31	1.6	83.1
I1-CUC-1019	Ascidian	M_I	2019	<1	<1	<1	103	1.5	1.6	76.8
I2-CUC-1019	Ascidian	M_I	2019	<1	<1	<1	125	0.75	1.4	64.8
I3-CUC-1019	Ascidian	M_I	2019	<1	<1	<1	88	0.88	1.5	79.3
I4-CUC-1019	Ascidian	M_I	2019	<1	<1	<1	94	0.7	0.94	70.7
I5-CUC-1019	Ascidian	M_I	2019	<1	<1	<1	94	1.5	1.7	79
H1-ALG-1019	Algae	M_H	2019	<1	<1	<1	77	0.57	0.72	80
H2-ALG-1019	Algae	M_H	2019	<1	<1	<1	99	0.33	0.48	83.2

Tabulated Biota Contamination Results

				Organotins				Total Recoverable Trace Elements by ICP		Moisture Content
				Monobutyltin as Sn	Dibutyltin as Sn	Tributyltin as Sn	Surrogate: Tripropyltin	Copper	Zinc	Moisture
H3-ALG-1019	Algae	M_H	2019	<1	<1	<1	89	19	0.35	86.7
H4-ALG-1019	Algae	M_H	2019	<1	<1	<1	77	0.19	0.25	86.8
H5-ALG-1019	Algae	M_H	2019	<1	<1	<1	77	0.19	0.44	86.4
H1-CUC-1019	Ascidian	M_H	2019	<1	<1	<1	133	0.81	1.5	82
H2-CUC-1019	Ascidian	M_H	2019	<1	<1	<1	135	0.9	2.2	76.4
H3-CUC-1019	Ascidian	M_H	2019	<1	<1	<1	140	0.92	1.4	75.6
H4-CUC-1019	Ascidian	M_H	2019	<1	<1	<1	137	1.3	1.1	82.2
H5-CUC-1019	Ascidian	M_H	2019	<1	<1	<1	147	0.9	1.8	80.9
G1-ALG-1019	Algae	M_G	2019	<1	<1	<1	130	0.25	0.56	78.8
G2-ALG-1019	Algae	M_G	2019	<1	<1	<1	112	0.19	0.67	78.7
G3-ALG-1019	Algae	M_G	2019	<1	<1	<1	107	0.13	0.23	87.6
G4-ALG-1019	Algae	M_G	2019	<1	<1	<1	90	0.13	0.26	88.2
G5-ALG-1019	Algae	M_G	2019	<1	<1	<1	87	0.15	0.3	85.3
G1-CUC-1019	Ascidian	M_G	2019	<1	<1	<1	128	1.2	1.5	79.2
G2-CUC-1019	Ascidian	M_G	2019	<1	<1	<1	148	0.78	1.6	72.8
G3-CUC-1019	Ascidian	M_G	2019	<1	<1	<1	145	1.5	1.7	86.1
G4-CUC-1019	Ascidian	M_G	2019	<1	<1	<1	148	0.91	1.1	74.1
G5-CUC-1019	Ascidian	M_G	2019	<1	<1	<1	134	0.98	0.91	82.2
A1FIS-1019	Fish	m_A	2019	<1	<1	2.2	68	0.21	4.3	77.3
A2FIS-1019	Fish	m_A	2019	<1	<1	<1	55	0.22	6.1	77.9
A3FIS-1019	Fish	m_A	2019	<1	<1	<1	65	0.38	5.3	76.7
A4FIS-1019	Fish	m_A	2019	<1	<1	1.5	55	0.16	3.6	77.4
A5FIS-1019	Fish	m_A	2019	<1	<1	<1	68	0.17	2.9	77.9

Tabulated Biota Contamination Results

				Organotins				Total Recoverable Trace Elements by ICP		Moisture Content
				Monobutyltin as Sn	Dibutyltin as Sn	Tributyltin as Sn	Surrogate: Tripropyltin	Copper	Zinc	Moisture
B1FIS-1019	Fish	m_B	2019	<1	<1	<1	60	0.19	3.2	78.2
B2FIS-1019	Fish	m_B	2019	<1	<1	<1	64	0.21	5.1	77.5
B3FIS-1019	Fish	m_B	2019	<1	<1	<1	62	0.16	3.4	77
B4FIS-1019	Fish	m_B	2019	<1	<1	<1	61	0.15	3.1	76.6
B5FIS-1019	Fish	m_B	2019	<1	<1	3.1	65	0.16	3.2	76.3
C1FIS-1019	Fish	m_C	2019	<1	<1	<1	52	0.16	4.5	77.4
C2FIS-1019	Fish	m_C	2019	<1	<1	<1	54	0.2	4.7	77.3
C3FIS-1019	Fish	m_C	2019	<1	<1	<1	52	0.2	5.3	76.7
C4FIS-1019	Fish	m_C	2019	<1	<1	<1	53	0.23	4.2	77.9
C5FIS-1019	Fish	m_C	2019	<1	<1	2.3	56	0.17	5.1	76.6
D1FIS-1019	Fish	m_D	2019	<1	<1	<1	48	0.33	4.6	76.8
D2FIS-1019	Fish	m_D	2019	<1	<1	<1	64	0.26	5.8	76.6
D3FIS-1019	Fish	m_D	2019	<1	<1	<1	50	0.19	4.6	77.1
D4FIS-1019	Fish	m_D	2019	<1	<1	<1	56	0.22	3.9	78.4
D5FIS-1019	Fish	m_D	2019	<1	<1	<1	44	0.24	5.6	77.4
E1FIS-1019	Fish	m_E	2019	<1	<1	<1	60	0.2	3.8	76.2
E2FIS-1019	Fish	m_E	2019	<1	<1	<1	50	0.19	3.6	78.4
E3FIS-1019	Fish	m_E	2019	<1	<1	<1	52	0.2	3.4	78.9
E4FIS-1019	Fish	m_E	2019	<1	<1	<1	60	0.19	3.5	77.9
E5FIS-1019	Fish	m_E	2019	<1	<1	<1	53	0.14	3.5	79.6
G1FIS-1019	Fish	m_G	2019	<1	<1	<1	53	0.27	6.8	75.3
G2FIS-1019	Fish	m_G	2019	<1	<1	<1	64	0.47	3.5	77.7
G3FIS-1019	Fish	m_G	2019	<1	<1	<1	57	0.4	2.9	78.2

Tabulated Biota Contamination Results

				Organotins				Total Recoverable Trace Elements by ICP		Moisture Content
				Monobutyltin as Sn	Dibutyltin as Sn	Tributyltin as Sn	Surrogate: Tripropyltin	Copper	Zinc	Moisture
G4FIS-1019	Fish	m_G	2019	<1	<1	<1	58	0.18	2.9	77.3
G5FIS-1019	Fish	m_G	2019	<1	<1	<1	54	0.35	3.9	77.9
H1FIS-1019	Fish	m_H	2019	<1	<1	<1	40	0.22	5.1	76.5
H2FIS-1019	Fish	m_H	2019	<1	<1	<1	55	0.2	4.5	77.8
H3FIS-1019	Fish	m_H	2019	<1	<1	<1	56	0.19	4.4	74.3
H4FIS-1019	Fish	m_H	2019	<1	<1	<1	62	0.31	4	76.1
H5FIS-1019	Fish	m_H	2019	<1	<1	<1	48	0.28	3	77.6
I1FIS-1019	Fish	m_I	2019	<1	<1	<1	41	0.28	4.4	78.1
I2FIS-1019	Fish	m_I	2019	<1	<1	<1	52	1	3.4	77.9
I3FIS-1019	Fish	m_I	2019	<1	<1	<1	52	0.24	3.4	78.5
I4FIS-1019	Fish	m_I	2019	<1	<1	<1	54	0.18	4.5	79.5
I5FIS-1019	Fish	m_I	2019	<1	<1	<1	51	0.22	3.9	78.4

Appendix D Laboratory Results and QA/QC

D.1 Laboratory Results

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB1926789**	Page	: 1 of 20
Client	: **BMT COMMERCIAL AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MS BETH TOKI	Contact	: Customer Services EB
Address	: PO BOX 203 SPRING HILL BRISBANE QLD 4004	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: 07 3831 6744	Telephone	: +61-7-3243 7222
Project	: B23282 Douglas Shoal	Date Samples Received	: 10-Oct-2019 10:40
Order number	: B23282	Date Analysis Commenced	: 10-Oct-2019
C-O-C number	: ----	Issue Date	: 25-Oct-2019 15:52
Sampler	: WILLIS BRASSIL		
Site	: ----		
Quote number	: BN/165/18 B		
No. of samples received	: 58		
No. of samples analysed	: 58		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Diana Mesa	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Sarah Ashworth	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP234: Poor matrix spike recovery for particular compounds due to matrix interferences.
- EG035T LL (Total Mercury - Low Level): Positive mercury results have been confirmed by re-extraction and re-analysis.
- **Specialised organic analysis will be conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913).**
- It is recognised that EG093-T (Total Metals in Saline Water by ORC-ICP-MS) is less than EG093-F (Dissolved Metals in Saline Water by ORC-ICP-MS) for some samples. However, the difference is within experimental variation of the methods.
- EG020-T (Total Metals by ICP-MS): Sample EB1926789 – 001 (I1SED-1019) shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- EG035T-LL result less than EG035F-LL result. However, the difference is within experimental variation of methods, confirmed by re-extraction and re-analysis
- EG035F-LL (Dissolved Mercury Low Level): Positive mercury result has been confirmed by re-extraction and re-analysis.
- EG093: Samples containing high levels of sulfate may precipitate barium under the acidic conditions of this method and may therefore bias results low.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	I1SED-1019	I11SED-1019	I12SED-1019	I2SED-1019	----
			Client sampling date / time	05-Oct-2019 00:00	05-Oct-2019 00:00	05-Oct-2019 00:00	07-Oct-2019 00:00	----
Compound	CAS Number	LOR	Unit	EB1926789-001	EB1926789-002	EB1926789-003	EB1926789-004	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	24.9	15.2	15.0	23.0	----
EA150: Particle Sizing								
+75µm	----	1	%	98	----	----	99	----
+150µm	----	1	%	98	----	----	99	----
+300µm	----	1	%	98	----	----	98	----
+425µm	----	1	%	98	----	----	97	----
+600µm	----	1	%	93	----	----	89	----
+1180µm	----	1	%	37	----	----	26	----
+2.36mm	----	1	%	6	----	----	1	----
+4.75mm	----	1	%	2	----	----	<1	----
+9.5mm	----	1	%	<1	----	----	<1	----
+19.0mm	----	1	%	<1	----	----	<1	----
+37.5mm	----	1	%	<1	----	----	<1	----
+75.0mm	----	1	%	<1	----	----	<1	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	2	----	----	<1	----
Silt (2-60 µm)	----	1	%	<1	----	----	1	----
Sand (0.06-2.00 mm)	----	1	%	83	----	----	90	----
Gravel (>2mm)	----	1	%	15	----	----	9	----
Cobbles (>6cm)	----	1	%	<1	----	----	<1	----
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.60	----	----	2.57	----
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	220	260	220	260	----
Iron	7439-89-6	50	mg/kg	250	250	220	240	----
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	----
Arsenic	7440-38-2	1.00	mg/kg	1.56	1.33	1.67	1.33	----
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.2	<0.1	----
Chromium	7440-47-3	1.0	mg/kg	7.2	6.7	6.6	6.1	----
Copper	7440-50-8	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	----
Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.5	<0.5	----
Lead	7439-92-1	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	----
Manganese	7439-96-5	10	mg/kg	19	18	18	19	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	I1SED-1019	I11SED-1019	I12SED-1019	I2SED-1019	----
				Client sampling date / time	05-Oct-2019 00:00	05-Oct-2019 00:00	05-Oct-2019 00:00	07-Oct-2019 00:00	----
Compound	CAS Number	LOR	Unit		EB1926789-001	EB1926789-002	EB1926789-003	EB1926789-004	--------
					Result	Result	Result	Result	----
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Nickel	7440-02-0	1.0	mg/kg		<1.0	<1.0	**1.1**	<1.0	----
Selenium	7782-49-2	0.1	mg/kg		**0.1**	**0.1**	<0.1	<0.1	----
Silver	7440-22-4	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	----
Vanadium	7440-62-2	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	----
Zinc	7440-66-6	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0	----
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		**6.6**	**5.6**	**6.0**	**5.9**	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	----
EP090: Organotin Compounds									
Monobutyltin	78763-54-9	1	µgSn/kg		<1	<1	<1	<1	----
Dibutyltin	1002-53-5	1	µgSn/kg		<1	<1	<1	<1	----
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	<0.5	<0.5	<0.5	----
EP094A: Synthetic Pyrethroids									
Bioresmethrin	28434-01-07	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Bifenthrin	82657-04-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Phenothrin	26002-80-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Lambda-cyhalothrin	68085-85-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Permethrin	52645-53-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Cyfluthrin	68359-37-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Cypermethrin	52315-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Allethrin	584-79-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Transfluthrin	118712-89-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Tetramethrin	7696-12-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Tau-fluvalinate	102851-06-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
EP094B: Synergist									
Piperonyl Butoxide	63993-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	I1SED-1019	I11SED-1019	I12SED-1019	I2SED-1019	----
				Client sampling date / time	05-Oct-2019 00:00	05-Oct-2019 00:00	05-Oct-2019 00:00	07-Oct-2019 00:00	----
Compound	CAS Number	LOR	Unit		EB1926789-001	EB1926789-002	EB1926789-003	EB1926789-004	--------
					Result	Result	Result	Result	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
EP234A: OP Pesticides									
Azinphos-ethyl	2642-71-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
Azinphos-methyl	86-50-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
Chlorfenvinphos	470-90-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
Coumaphos	56-72-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Diazinon	333-41-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Dimethoate	60-51-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	----
Disulfoton	298-04-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	----
Ethoprophos	13194-48-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Fenamiphos	22224-92-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Fenitrothion	122-14-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Fensulfothion	115-90-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
Fenthion	55-38-9	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Malathion	121-75-5	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
^ **Mevinphos**	7786-34-7	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
Monocrotophos	6923-22-4	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
Omethoate	1113-02-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Parathion	56-38-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Parathion-methyl	298-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Phorate	298-02-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
Pirimiphos-methyl	29232-93-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Sulfotep	3689-24-5	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	----
Tetrachlorvinphos	22248-79-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	I1SED-1019	I11SED-1019	I12SED-1019	I2SED-1019	----
				Client sampling date / time	05-Oct-2019 00:00	05-Oct-2019 00:00	05-Oct-2019 00:00	07-Oct-2019 00:00	----
Compound	CAS Number	LOR	Unit		EB1926789-001	EB1926789-002	EB1926789-003	EB1926789-004	--------
					Result	Result	Result	Result	----
EP234A: OP Pesticides - Continued									
Triazophos	24017-47-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	----
EP234B: Thiocarbamates and Carbamates									
Aldicarb	116-06-3	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	----
Bendiocarb	22781-23-3	1	mg/kg		<1	<1	<1	<1	----
Benomyl	17804-35-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
Carbaryl	63-25-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Carbofuran	1563-66-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
Methiocarb	2032-65-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Methomyl	16752-77-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Molinate	2212-67-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
Oxamyl	23135-22-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Thiobencarb	28249-77-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Thiodicarb	59669-26-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
EP234D: Triazinone Herbicides									
Hexazinone	51235-04-2	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	----
Metribuzin	21087-64-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	----
EP234E: Conazole and Aminopyrimidine Fungicides									
Cyproconazole	94361-06-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	----
Flusilazole	85509-19-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	----
Hexaconazole	79983-71-4	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	----
Paclobutrazole	76738-62-0	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	----
Propiconazole	60207-90-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	----
Tebuconazole	107534-96-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Cyprodinil	121552-61-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Pyrimethanil	53112-28-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
Fluometuron	2164-17-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Tebuthiuron	34014-18-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
Bromacil	314-40-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
EP234G: Chloracetanilides									
Metolachlor	51218-45-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
EP234H: Triazine Herbicides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	I1SED-1019	I11SED-1019	I12SED-1019	I2SED-1019	----
				Client sampling date / time	05-Oct-2019 00:00	05-Oct-2019 00:00	05-Oct-2019 00:00	07-Oct-2019 00:00	----
Compound	CAS Number	LOR	Unit		EB1926789-001	EB1926789-002	EB1926789-003	EB1926789-004	--------
					Result	Result	Result	Result	----
EP234H: Triazine Herbicides - Continued									
Ametryn	834-12-8	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Atrazine	1912-24-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Cyanazine	21725-46-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
Prometryn	7287-19-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Propazine	139-40-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Simazine	122-34-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
Terbuthylazine	5915-41-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	----
Terbutryn	886-50-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	----
EP234I: Miscellaneous (ESI Positive Mode) Pesticides									
Fenarimol	60168-88-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	----
Irgarol	28159-98-0	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	----
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**76.9**	**88.0**	**94.3**	**111**	----
EP094S: Pesticide Surrogate									
DEF	78-48-8	0.05	%		**73.1**	**94.6**	**99.0**	**83.2**	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**67.0**	**56.9**	**66.5**	**67.2**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	C1WAT-1019	C2WAT-1019	C3WAT-1019	C4WAT-1019	C5WAT-1019
				Client sampling date / time	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		EB1926789-005	EB1926789-006	EB1926789-007	EB1926789-008	EB1926789-009
					Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	1	mg/L		**3**	<1	**2**	**2**	<1
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	**0.00016**	<0.00004	<0.00004	<0.00004
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	<5	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.6**	**1.9**	**1.9**	**1.6**	**1.8**
Barium	7440-39-3	1	µg/L		**4**	**3**	**3**	**3**	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Copper	7440-50-8	1	µg/L		<1	<1	<1	<1	<1
Iron	7439-89-6	5	µg/L		<5	<5	<5	<5	<5
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	<5	<5	<5	<5
EG093T: Total Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	<5	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**2.1**	**1.7**	**1.9**	**1.6**	**1.6**
Barium	7440-39-3	1	µg/L		**4**	**4**	**4**	**4**	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Copper	7440-50-8	1	µg/L		<1	<1	<1	<1	<1
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	<5	<5	<5	<5
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**121**	**102**	**104**	**97.2**	**95.2**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	C6WAT-1019	AMB04	AMB05	D1WAT-1019	D2WAT-1019
				Client sampling date / time	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		EB1926789-010	EB1926789-011	EB1926789-013	EB1926789-015	EB1926789-016
					Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	1	mg/L		**1**	----	----	<1	<1
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	----	----	<0.00004	<0.00004
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	----	----	<0.00004	<0.00004
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	----	----	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	----	----	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.9**	----	----	**1.8**	**1.8**
Barium	7440-39-3	1	µg/L		**4**	----	----	**4**	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	----	----	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	----	----	<0.5	<0.5
Copper	7440-50-8	1	µg/L		<1	----	----	<1	<1
Iron	7439-89-6	5	µg/L		<5	----	----	<5	<5
Lead	7439-92-1	0.2	µg/L		<0.2	----	----	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	----	----	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	----	----	<5	<5
EG093T: Total Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	----	----	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	----	----	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.8**	----	----	**1.8**	**1.4**
Barium	7440-39-3	1	µg/L		**4**	----	----	**4**	**5**
Cadmium	7440-43-9	0.2	µg/L		<0.2	----	----	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	----	----	<0.5	<0.5
Copper	7440-50-8	1	µg/L		<1	----	----	<1	<1
Lead	7439-92-1	0.2	µg/L		<0.2	----	----	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	----	----	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	----	----	<5	<5
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**95.1**	**88.5**	**132**	**103**	**85.4**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	D3WAT-1019	D4WAT-1019	D5WAT-1019	AMB03	E1WAT-1019
				Client sampling date / time	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		EB1926789-017	EB1926789-018	EB1926789-019	EB1926789-020	EB1926789-022
					Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	1	mg/L		<1	<1	<1	----	<1
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	----	<0.00004
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	----	<0.00004
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	<5	----	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	----	<0.5
Arsenic	7440-38-2	0.5	µg/L		**2.0**	**2.0**	**1.6**	----	**1.5**
Barium	7440-39-3	1	µg/L		**3**	**4**	**3**	----	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	----	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	----	<0.5
Copper	7440-50-8	1	µg/L		<1	<1	<1	----	<1
Iron	7439-89-6	5	µg/L		<5	<5	<5	----	<5
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	----	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	**0.6**	<0.5	----	<0.5
Zinc	7440-66-6	5	µg/L		<5	<5	<5	----	<5
EG093T: Total Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	<5	----	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	----	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.8**	**1.7**	**1.8**	----	**1.8**
Barium	7440-39-3	1	µg/L		**4**	**5**	**5**	----	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	----	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	----	<0.5
Copper	7440-50-8	1	µg/L		<1	<1	<1	----	<1
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	----	**0.2**
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	<0.5	----	<0.5
Zinc	7440-66-6	5	µg/L		<5	<5	<5	----	<5
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**92.7**	**88.2**	**80.6**	**98.3**	**92.9**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	E2WAT-1019	E3WAT-1019	E4WAT-1019	E5WAT-1019	G1WAT-1019
				Client sampling date / time	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		EB1926789-023	EB1926789-024	EB1926789-025	EB1926789-026	EB1926789-027
					Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	1	mg/L		<1	<1	<1	**1**	**2**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	<5	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.6**	**1.6**	**1.6**	**1.5**	**1.6**
Barium	7440-39-3	1	µg/L		**4**	**3**	**4**	**3**	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Copper	7440-50-8	1	µg/L		<1	<1	<1	<1	<1
Iron	7439-89-6	5	µg/L		<5	<5	<5	<5	<5
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	<5	<5	<5	<5
EG093T: Total Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	**9**	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.9**	**1.7**	**1.8**	**1.9**	**1.8**
Barium	7440-39-3	1	µg/L		**4**	**4**	**4**	**4**	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Copper	7440-50-8	1	µg/L		<1	<1	<1	<1	<1
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	<5	<5	<5	<5
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**110**	**103**	**100**	**106**	**94.0**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	G2WAT-1019	G3WAT-1019	G4WAT-1019	G5WAT-1019	A1WAT-1019
				Client sampling date / time	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		EB1926789-028	EB1926789-029	EB1926789-030	EB1926789-031	EB1926789-032
					Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	1	mg/L		<1	<1	<1	<1	<1
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	<5	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.5**	**1.5**	**1.4**	**1.3**	**1.5**
Barium	7440-39-3	1	µg/L		**4**	**4**	**4**	**4**	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Copper	7440-50-8	1	µg/L		<1	<1	<1	<1	<1
Iron	7439-89-6	5	µg/L		<5	<5	<5	<5	<5
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	<5	<5	<5	<5
EG093T: Total Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	<5	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.7**	**1.8**	**1.6**	**1.6**	**1.3**
Barium	7440-39-3	1	µg/L		**4**	**4**	**4**	**4**	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	**0.7**
Copper	7440-50-8	1	µg/L		<1	<1	<1	<1	<1
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	<5	<5	<5	<5
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**110**	**96.4**	**90.5**	**99.0**	**108**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	A2WAT-1019	A3WAT-1019	A4WAT-1019	A5WAT-1019	A6WAT-1019
				Client sampling date / time	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		EB1926789-033	EB1926789-034	EB1926789-035	EB1926789-036	EB1926789-037
					Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	1	mg/L		<1	<1	<1	<1	<1
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	<5	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.6**	**1.7**	**1.5**	**1.6**	**1.5**
Barium	7440-39-3	1	µg/L		**4**	**3**	**3**	**4**	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Copper	7440-50-8	1	µg/L		<1	<1	<1	<1	<1
Iron	7439-89-6	5	µg/L		<5	<5	<5	<5	<5
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	<5	<5	<5	<5
EG093T: Total Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	**7**	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.6**	**1.5**	**1.6**	**1.4**	**1.4**
Barium	7440-39-3	1	µg/L		**4**	**4**	**4**	**4**	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Copper	7440-50-8	1	µg/L		<1	<1	<1	<1	<1
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	<5	<5	<5	<5
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**90.9**	**98.7**	**82.7**	**110**	**113**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	A7WAT-1019	AMB01	B1WAT-1019	B2WAT-1019	B3WAT-1019
				Client sampling date / time	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		EB1926789-038	EB1926789-039	EB1926789-041	EB1926789-042	EB1926789-043
					Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	1	mg/L		<1	----	<1	<1	<1
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	----	<0.00004	<0.00004	<0.00004
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	----	<0.00004	<0.00004	<0.00004
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	----	<5	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	----	<0.5	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.5**	----	**1.6**	**1.4**	**1.8**
Barium	7440-39-3	1	µg/L		**4**	----	**4**	**3**	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	----	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	----	<0.5	<0.5	<0.5
Copper	7440-50-8	1	µg/L		<1	----	<1	<1	<1
Iron	7439-89-6	5	µg/L		<5	----	<5	<5	<5
Lead	7439-92-1	0.2	µg/L		<0.2	----	<0.2	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	----	<0.5	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	----	<5	<5	<5
EG093T: Total Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		**12**	----	<5	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	----	<0.5	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.8**	----	**1.2**	**1.6**	**1.5**
Barium	7440-39-3	1	µg/L		**4**	----	**4**	**4**	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	----	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	----	<0.5	<0.5	<0.5
Copper	7440-50-8	1	µg/L		<1	----	<1	<1	<1
Lead	7439-92-1	0.2	µg/L		<0.2	----	<0.2	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	----	<0.5	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	----	<5	<5	<5
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**103**	**103**	**119**	**126**	**97.8**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	B4WAT-1019	B5WAT-1019	B6WAT-1019	B7WAT-1019	AMB02
				Client sampling date / time	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		EB1926789-044	EB1926789-045	EB1926789-046	EB1926789-047	EB1926789-048
					Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	1	mg/L		<1	<1	<1	<1	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	----
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	----
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	<5	<5	----
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Arsenic	7440-38-2	0.5	µg/L		1.4	1.4	1.5	1.4	----
Barium	7440-39-3	1	µg/L		3	4	4	4	----
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	----
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Copper	7440-50-8	1	µg/L		<1	<1	<1	<1	----
Iron	7439-89-6	5	µg/L		<5	<5	<5	<5	----
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	----
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Zinc	7440-66-6	5	µg/L		<5	<5	<5	<5	----
EG093T: Total Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		5	<5	<5	<5	----
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Arsenic	7440-38-2	0.5	µg/L		1.5	1.5	1.4	1.4	----
Barium	7440-39-3	1	µg/L		4	4	4	4	----
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	----
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	----
Copper	7440-50-8	1	µg/L		<1	<1	<1	<1	----
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	----
Nickel	7440-02-0	0.5	µg/L		<0.5	0.6	<0.5	<0.5	----
Zinc	7440-66-6	5	µg/L		<5	<5	<5	<5	----
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		103	77.8	76.8	99.2	86.1

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	H1WAT-1019	H2WAT-1019	H3WAT-1019	H4WAT-1019	H5WAT-1019
				Client sampling date / time	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		EB1926789-050	EB1926789-051	EB1926789-052	EB1926789-053	EB1926789-054
					Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	1	mg/L		<1	<1	<1	<1	<1
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	<5	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.6**	**1.6**	**1.6**	**1.4**	**1.7**
Barium	7440-39-3	1	µg/L		**4**	**3**	**4**	**3**	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Copper	7440-50-8	1	µg/L		<1	<1	<1	<1	<1
Iron	7439-89-6	5	µg/L		<5	<5	<5	<5	<5
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	<5	<5	<5	<5
EG093T: Total Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	<5	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.2**	**1.7**	**1.4**	**1.9**	**1.5**
Barium	7440-39-3	1	µg/L		**4**	**4**	**4**	**4**	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	**0.6**	<0.5
Copper	7440-50-8	1	µg/L		<1	<1	<1	<1	<1
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		**0.7**	<0.5	<0.5	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	<5	<5	<5	<5
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**82.1**	**83.5**	**81.4**	**80.9**	**98.6**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	I1WAT-1019	I2WAT-1019	I3WAT-1019	I4WAT-1019	I5WAT-1019
				Client sampling date / time	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		EB1926789-055	EB1926789-056	EB1926789-057	EB1926789-058	EB1926789-059
					Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	1	mg/L		<1	<1	<1	<1	<1
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		**0.00006**	<0.00004	<0.00004	<0.00004	<0.00004
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	<5	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.6**	**1.7**	**1.7**	**1.7**	**1.6**
Barium	7440-39-3	1	µg/L		**4**	**4**	**4**	**4**	**3**
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Copper	7440-50-8	1	µg/L		<1	<1	<1	<1	<1
Iron	7439-89-6	5	µg/L		<5	<5	<5	<5	<5
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	**0.3**	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	<5	<5	<5	<5
EG093T: Total Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	<5	<5	<5	<5
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	7440-38-2	0.5	µg/L		**1.6**	**1.4**	**1.8**	**1.3**	**1.6**
Barium	7440-39-3	1	µg/L		**4**	**4**	**4**	**4**	**4**
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L		**0.6**	<0.5	<0.5	<0.5	<0.5
Copper	7440-50-8	1	µg/L		<1	<1	<1	<1	<1
Lead	7439-92-1	0.2	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	7440-66-6	5	µg/L		<5	<5	<5	<5	<5
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**90.9**	**80.8**	**95.6**	**92.7**	**96.5**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	I6WAT-1019	FB01-1019	TB01-1019	R01-1019	----
				Client sampling date / time	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	----
Compound	CAS Number	LOR	Unit		EB1926789-060	EB1926789-061	EB1926789-062	EB1926789-063	--------
					Result	Result	Result	Result	----
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	1	mg/L		<1	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	----	----	----	----
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		**0.00005**	<0.00004	<0.00004	<0.00004	----
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	----	----	----	----
Antimony	7440-36-0	0.5	µg/L		<0.5	----	----	----	----
Arsenic	7440-38-2	0.5	µg/L		**1.8**	----	----	----	----
Barium	7440-39-3	1	µg/L		**4**	----	----	----	----
Cadmium	7440-43-9	0.2	µg/L		<0.2	----	----	----	----
Chromium	7440-47-3	0.5	µg/L		<0.5	----	----	----	----
Copper	7440-50-8	1	µg/L		<1	----	----	----	----
Iron	7439-89-6	5	µg/L		<5	----	----	----	----
Lead	7439-92-1	0.2	µg/L		<0.2	----	----	----	----
Nickel	7440-02-0	0.5	µg/L		<0.5	----	----	----	----
Zinc	7440-66-6	5	µg/L		<5	----	----	----	----
EG093T: Total Metals in Saline Water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		<5	**25**	**41**	----	----
Antimony	7440-36-0	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Arsenic	7440-38-2	0.5	µg/L		**1.8**	**1.7**	**1.7**	----	----
Barium	7440-39-3	1	µg/L		**4**	**5**	**6**	----	----
Cadmium	7440-43-9	0.2	µg/L		<0.2	<0.2	<0.2	----	----
Chromium	7440-47-3	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Copper	7440-50-8	1	µg/L		<1	<1	<1	----	----
Lead	7439-92-1	0.2	µg/L		<0.2	**0.3**	**0.6**	----	----
Nickel	7440-02-0	0.5	µg/L		<0.5	**0.7**	**0.8**	----	----
Zinc	7440-66-6	5	µg/L		<5	**8**	**7**	----	----
EG094T: Total metals in Fresh water by ORC-ICPMS									
Aluminium	7429-90-5	5	µg/L		----	----	----	<5	----
Antimony	7440-36-0	0.2	µg/L		----	----	----	<0.2	----
Arsenic	7440-38-2	0.2	µg/L		----	----	----	<0.2	----
Barium	7440-39-3	0.5	µg/L		----	----	----	**1.2**	----
Cadmium	7440-43-9	0.05	µg/L		----	----	----	<0.05	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	I6WAT-1019	FB01-1019	TB01-1019	R01-1019	----
				Client sampling date / time	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	08-Oct-2019 00:00	----
Compound	CAS Number	LOR	Unit		EB1926789-060	EB1926789-061	EB1926789-062	EB1926789-063	--------
					Result	Result	Result	Result	----
EG094T: Total metals in Fresh water by ORC-ICPMS - Continued									
Chromium	7440-47-3	0.2	µg/L		----	----	----	<0.2	----
Copper	7440-50-8	0.5	µg/L		----	----	----	**1.9**	----
Lead	7439-92-1	0.1	µg/L		----	----	----	**0.3**	----
Nickel	7440-02-0	0.5	µg/L		----	----	----	<0.5	----
Zinc	7440-66-6	1	µg/L		----	----	----	**6**	----
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	----	----	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**80.2**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP090S: Organotin Surrogate			
Tripropyltin	----	35	130
EP094S: Pesticide Surrogate			
DEF	78-48-8	10	110
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP090S: Organotin Surrogate			
Tripropyltin	----	24	116

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB1929990**	Page	: 1 of 63
Client	: **BMT COMMERCIAL AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MS BETH TOKI	Contact	: Andrew Epps
Address	: PO BOX 203 SPRING HILL BRISBANE QLD 4004	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: 07 3831 6744	Telephone	: +61 7 3552 8639
Project	: B23282-4 Douglas Shoal	Date Samples Received	: 11-Nov-2019 08:35
Order number	: ----	Date Analysis Commenced	: 12-Nov-2019
C-O-C number	: ----	Issue Date	: 05-Dec-2019 11:43
Sampler	: CONOR JONES		
Site	: ----		
Quote number	: BN/165/18 B		
No. of samples received	: 61		
No. of samples analysed	: 56		

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Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Diana Mesa	2IC Organic Chemist	Brisbane Inorganics, Stafford, QLD
Diana Mesa	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Gaston Allende	R&D Chemist	Sydney Organics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Inorganics, Stafford, QLD

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP094 (Synthetic Pyrethroids by GCMS): Samples 'D8-SED-1019' and 'E5-SED-1019' show poor matrix spike recovery due to matrix interference.
- EP234: Poor matrix spike recovery for particular compounds due to matrix interferences.
- **Herbicides and Pesticides analysis will be conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913).**
- EG020-SD (Total Metals in Sediments by ICP-MS): Samples EB1929990-001(A1-SED-1019) and EB1929990-013(A13-SED-1019) show poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- EG020-T (Total Metals by ICP-MS): Samples EB1929990-025(B11-SED-1019) and EB1929990-035(D5-SED-1019) show poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- EG020-SD (Total Metals in Sediments by ICP-MS): Sample EB1929990-003(A3-SED-1019) shows poor matrix spike recovery due to sample heterogeneity. Confirmed by visual inspection.
- EP090 Organotins: Sample 'G9-SED-1019' shows poor surrogate recovery due to matrix interference. Confirmed by re-extraction and re-analysis.
- EP090: Sample 'E4-SED-1019' shows poor matrix spike recovery due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- EG005-SD (Total Fe and Al in Sediments by ICP-AES): Sample EB1929990-001 (A1-SED-1019) shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	A1-SED-1019	A3-SED-1019	A4-SED-1019	A6-SED-1019	A7-SED-1019
			Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit	EB1929990-001	EB1929990-003	EB1929990-004	EB1929990-006	EB1929990-007
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	19.8	27.4	30.3	31.3	34.9
EA150: Particle Sizing								
+75µm	----	1	%	83	94	96	94	92
+150µm	----	1	%	82	94	96	94	92
+300µm	----	1	%	81	92	95	94	91
+425µm	----	1	%	79	90	94	93	88
+600µm	----	1	%	78	84	91	88	81
+1180µm	----	1	%	70	64	60	54	49
+2.36mm	----	1	%	58	35	26	19	21
+4.75mm	----	1	%	49	17	14	8	13
+9.5mm	----	1	%	31	5	7	4	9
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	9	4	3	5	5
Silt (2-60 µm)	----	1	%	8	2	1	1	3
Sand (0.06-2.00 mm)	----	1	%	21	50	59	64	62
Gravel (>2mm)	----	1	%	62	44	37	30	30
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.93	2.54	2.48	2.51	2.45
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	300	500	120	220	140
Iron	7439-89-6	50	mg/kg	360	560	200	260	190
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	<1.00	1.08	1.15	<1.00	<1.00
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	3.9	5.2	2.0	3.4	1.8
Copper	7440-50-8	1.0	mg/kg	50.7	117	<1.0	4.9	<1.0
Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Lead	7439-92-1	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Manganese	7439-96-5	10	mg/kg	14	18	<10	10	<10

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A1-SED-1019	A3-SED-1019	A4-SED-1019	A6-SED-1019	A7-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-001	EB1929990-003	EB1929990-004	EB1929990-006	EB1929990-007
					Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Nickel	7440-02-0	1.0	mg/kg		**1.1**	**1.4**	<1.0	<1.0	<1.0
Selenium	7782-49-2	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
Silver	7440-22-4	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	7440-66-6	1.0	mg/kg		**7.7**	**9.6**	<1.0	**2.5**	<1.0
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		**3.9**	**6.4**	**3.9**	**6.0**	**3.7**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP090: Organotin Compounds									
Tributyltin	56573-85-4	0.5	µgSn/kg		**4.1**	----	----	----	----
EP094A: Synthetic Pyrethroids									
Bioresmethrin	28434-01-07	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bifenthrin	82657-04-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Phenothrin	26002-80-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Lambda-cyhalothrin	68085-85-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Permethrin	52645-53-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cyfluthrin	68359-37-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cypermethrin	52315-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Allethrin	584-79-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Transfluthrin	118712-89-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tetramethrin	7696-12-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tau-fluvalinate	102851-06-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP094B: Synergist									
Piperonyl Butoxide	63993-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A1-SED-1019	A3-SED-1019	A4-SED-1019	A6-SED-1019	A7-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-001	EB1929990-003	EB1929990-004	EB1929990-006	EB1929990-007
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
EP234A: OP Pesticides									
Azinphos-ethyl	2642-71-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Azinphos-methyl	86-50-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Chlorfenvinphos	470-90-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Coumaphos	56-72-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Diazinon	333-41-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Dimethoate	60-51-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Disulfoton	298-04-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Ethoprophos	13194-48-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenamiphos	22224-92-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenitrothion	122-14-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fensulfothion	115-90-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fenthion	55-38-9	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Malathion	121-75-5	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
^ **Mevinphos**	7786-34-7	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Monocrotophos	6923-22-4	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Omethoate	1113-02-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Parathion	56-38-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phorate	298-02-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Pirimiphos-methyl	29232-93-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Sulfotep	3689-24-5	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachlorvinphos	22248-79-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Triazophos	24017-47-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A1-SED-1019	A3-SED-1019	A4-SED-1019	A6-SED-1019	A7-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-001	EB1929990-003	EB1929990-004	EB1929990-006	EB1929990-007
					Result	Result	Result	Result	Result
EP234B: Thiocarbamates and Carbamates									
Aldicarb	116-06-3	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Bendiocarb	22781-23-3	1	mg/kg		<1	<1	<1	<1	<1
Benomyl	17804-35-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Carbaryl	63-25-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Carbofuran	1563-66-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Methiocarb	2032-65-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Methomyl	16752-77-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Molinate	2212-67-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Oxamyl	23135-22-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiobencarb	28249-77-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiodicarb	59669-26-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234D: Triazinone Herbicides									
Hexazinone	51235-04-2	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Metribuzin	21087-64-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
EP234E: Conazole and Aminopyrimidine Fungicides									
Cyproconazole	94361-06-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Flusilazole	85509-19-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Hexaconazole	79983-71-4	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Paclobutrazole	76738-62-0	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Propiconazole	60207-90-1	0.01	mg/kg		**0.01**	**0.01**	<0.01	<0.01	**0.01**
Tebuconazole	107534-96-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Cyprodinil	121552-61-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Pyrimethanil	53112-28-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.005	mg/kg		**0.076**	**0.014**	<0.005	<0.005	<0.005
Fluometuron	2164-17-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Tebuthiuron	34014-18-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Bromacil	314-40-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234G: Chloracetanilides									
Metolachlor	51218-45-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234H: Triazine Herbicides									
Ametryn	834-12-8	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Atrazine	1912-24-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A1-SED-1019	A3-SED-1019	A4-SED-1019	A6-SED-1019	A7-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-001	EB1929990-003	EB1929990-004	EB1929990-006	EB1929990-007
					Result	Result	Result	Result	Result
EP234H: Triazine Herbicides - Continued									
Cyanazine	21725-46-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Prometryn	7287-19-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Propazine	139-40-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Simazine	122-34-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Terbuthylazine	5915-41-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Terbutryn	886-50-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP234I: Miscellaneous (ESI Positive Mode) Pesticides									
Fenarimol	60168-88-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Irgarol	28159-98-0	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**35.4**	**----**	**----**	**----**	**----**
EP094S: Pesticide Surrogate									
DEF	78-48-8	0.05	%		**84.7**	**93.1**	**100**	**93.0**	**91.6**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**64.5**	**65.0**	**62.4**	**60.6**	**66.1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	A8-SED-1019	A9-SED-1019	A10-SED-1019	A11-SED-1019	A12-SED-1019
			Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit	EB1929990-008	EB1929990-009	EB1929990-010	EB1929990-011	EB1929990-012
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	32.9	31.2	31.2	28.2	33.7
EA150: Particle Sizing								
+75µm	----	1	%	96	94	94	95	94
+150µm	----	1	%	96	94	94	95	94
+300µm	----	1	%	95	94	94	95	94
+425µm	----	1	%	95	93	93	94	93
+600µm	----	1	%	89	93	91	91	89
+1180µm	----	1	%	50	70	58	57	59
+2.36mm	----	1	%	12	27	18	24	26
+4.75mm	----	1	%	5	8	6	10	10
+9.5mm	----	1	%	4	<1	<1	<1	5
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	3	4	4	2	5
Silt (2-60 µm)	----	1	%	1	2	2	3	1
Sand (0.06-2.00 mm)	----	1	%	72	54	64	61	58
Gravel (>2mm)	----	1	%	24	40	30	34	36
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.50	2.53	2.46	2.60	2.53
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	120	150	370	200	220
Iron	7439-89-6	50	mg/kg	180	200	430	240	260
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	1.05	1.05	1.10	<1.00	1.04
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	2.7	3.2	4.0	2.8	3.5
Copper	7440-50-8	1.0	mg/kg	124	2.1	19.9	1.1	2.2
Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Lead	7439-92-1	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Manganese	7439-96-5	10	mg/kg	<10	10	13	<10	13

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A8-SED-1019	A9-SED-1019	A10-SED-1019	A11-SED-1019	A12-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-008	EB1929990-009	EB1929990-010	EB1929990-011	EB1929990-012
					Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Nickel	7440-02-0	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0	<1.0
Selenium	7782-49-2	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
Silver	7440-22-4	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	7440-66-6	1.0	mg/kg		**17.8**	**2.1**	**10.7**	**1.2**	**1.1**
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		**5.0**	**6.0**	**4.7**	**4.5**	**5.1**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP094A: Synthetic Pyrethroids									
Bioresmethrin	28434-01-07	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bifenthrin	82657-04-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Phenothrin	26002-80-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Lambda-cyhalothrin	68085-85-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Permethrin	52645-53-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cyfluthrin	68359-37-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cypermethrin	52315-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Allethrin	584-79-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Transfluthrin	118712-89-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tetramethrin	7696-12-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tau-fluvalinate	102851-06-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP094B: Synergist									
Piperonyl Butoxide	63993-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A8-SED-1019	A9-SED-1019	A10-SED-1019	A11-SED-1019	A12-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-008	EB1929990-009	EB1929990-010	EB1929990-011	EB1929990-012
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
EP234A: OP Pesticides									
Azinphos-ethyl	2642-71-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Azinphos-methyl	86-50-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Chlorfenvinphos	470-90-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Coumaphos	56-72-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Diazinon	333-41-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Dimethoate	60-51-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Disulfoton	298-04-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Ethoprophos	13194-48-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenamiphos	22224-92-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenitrothion	122-14-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fensulfothion	115-90-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fenthion	55-38-9	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Malathion	121-75-5	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
^ **Mevinphos**	7786-34-7	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Monocrotophos	6923-22-4	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Omethoate	1113-02-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Parathion	56-38-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phorate	298-02-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Pirimiphos-methyl	29232-93-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Sulfotep	3689-24-5	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachlorvinphos	22248-79-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Triazophos	24017-47-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
EP234B: Thiocarbamates and Carbamates									
Aldicarb	116-06-3	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A8-SED-1019	A9-SED-1019	A10-SED-1019	A11-SED-1019	A12-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-008	EB1929990-009	EB1929990-010	EB1929990-011	EB1929990-012
					Result	Result	Result	Result	Result
EP234B: Thiocarbamates and Carbamates - Continued									
Bendiocarb	22781-23-3	1	mg/kg		<1	<1	<1	<1	<1
Benomyl	17804-35-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Carbaryl	63-25-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Carbofuran	1563-66-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Methiocarb	2032-65-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Methomyl	16752-77-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Molinate	2212-67-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Oxamyl	23135-22-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiobencarb	28249-77-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiodicarb	59669-26-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234D: Triazinone Herbicides									
Hexazinone	51235-04-2	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Metribuzin	21087-64-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
EP234E: Conazole and Aminopyrimidine Fungicides									
Cyproconazole	94361-06-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Flusilazole	85509-19-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Hexaconazole	79983-71-4	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Paclobutrazole	76738-62-0	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Propiconazole	60207-90-1	0.01	mg/kg		**0.01**	<0.01	<0.01	<0.01	<0.01
Tebuconazole	107534-96-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Cyprodinil	121552-61-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Pyrimethanil	53112-28-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.005	mg/kg		<0.005	<0.005	**0.149**	**0.008**	<0.005
Fluometuron	2164-17-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Tebuthiuron	34014-18-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Bromacil	314-40-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234G: Chloracetanilides									
Metolachlor	51218-45-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234H: Triazine Herbicides									
Ametryn	834-12-8	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Atrazine	1912-24-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Cyanazine	21725-46-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A8-SED-1019	A9-SED-1019	A10-SED-1019	A11-SED-1019	A12-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-008	EB1929990-009	EB1929990-010	EB1929990-011	EB1929990-012
					Result	Result	Result	Result	Result
EP234H: Triazine Herbicides - Continued									
Prometryn	7287-19-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Propazine	139-40-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Simazine	122-34-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Terbuthylazine	5915-41-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Terbutryn	886-50-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP234I: Miscellaneous (ESI Positive Mode) Pesticides									
Fenarimol	60168-88-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Irgarol	28159-98-0	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
EP094S: Pesticide Surrogate									
DEF	78-48-8	0.05	%		**94.2**	**94.2**	**95.8**	**98.5**	**95.2**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**81.7**	**75.4**	**63.3**	**68.2**	**60.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	A13-SED-1019	A14-SED-1019	B1-SED-1019	B3-SED-1019	B4-SED-1019
			Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit	EB1929990-013	EB1929990-014	EB1929990-015	EB1929990-017	EB1929990-018
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	29.2	30.5	33.7	33.7	35.6
EA150: Particle Sizing								
+75µm	----	1	%	93	94	94	91	96
+150µm	----	1	%	93	94	94	91	96
+300µm	----	1	%	93	94	93	90	96
+425µm	----	1	%	92	93	92	89	93
+600µm	----	1	%	90	89	87	84	83
+1180µm	----	1	%	62	62	42	51	32
+2.36mm	----	1	%	28	35	8	16	5
+4.75mm	----	1	%	11	20	3	7	2
+9.5mm	----	1	%	<1	8	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	3	4	5	6	4
Silt (2-60 µm)	----	1	%	4	2	1	3	<1
Sand (0.06-2.00 mm)	----	1	%	55	51	75	64	83
Gravel (>2mm)	----	1	%	38	43	19	27	13
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.54	2.51	2.50	2.47	2.43
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	310	270	170	130	170
Iron	7439-89-6	50	mg/kg	340	320	230	180	230
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	1.17	1.03	1.36	1.13	<1.00
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	4.3	3.6	3.0	2.5	3.4
Copper	7440-50-8	1.0	mg/kg	21.5	16.8	<1.0	<1.0	<1.0
Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Lead	7439-92-1	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Manganese	7439-96-5	10	mg/kg	12	10	<10	<10	10

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A13-SED-1019	A14-SED-1019	B1-SED-1019	B3-SED-1019	B4-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-013	EB1929990-014	EB1929990-015	EB1929990-017	EB1929990-018
					Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Nickel	7440-02-0	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0	**1.2**
Selenium	7782-49-2	0.1	mg/kg		<0.1	<0.1	<0.1	**0.1**	<0.1
Silver	7440-22-4	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	7440-66-6	1.0	mg/kg		**14.2**	**8.1**	<1.0	<1.0	<1.0
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		**5.7**	**6.2**	**6.1**	**5.5**	**5.1**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP090: Organotin Compounds									
Tributyltin	56573-85-4	0.5	µgSn/kg		----	----	<0.5	<0.5	<0.5
EP094A: Synthetic Pyrethroids									
Bioresmethrin	28434-01-07	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bifenthrin	82657-04-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Phenothrin	26002-80-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Lambda-cyhalothrin	68085-85-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Permethrin	52645-53-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cyfluthrin	68359-37-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cypermethrin	52315-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Allethrin	584-79-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Transfluthrin	118712-89-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tetramethrin	7696-12-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tau-fluvalinate	102851-06-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP094B: Synergist									
Piperonyl Butoxide	63993-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A13-SED-1019	A14-SED-1019	B1-SED-1019	B3-SED-1019	B4-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-013	EB1929990-014	EB1929990-015	EB1929990-017	EB1929990-018
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
EP234A: OP Pesticides									
Azinphos-ethyl	2642-71-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Azinphos-methyl	86-50-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Chlorfenvinphos	470-90-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Coumaphos	56-72-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Diazinon	333-41-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Dimethoate	60-51-5	0.004	mg/kg		<0.004	**0.007**	<0.004	<0.004	<0.004
Disulfoton	298-04-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Ethoprophos	13194-48-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenamiphos	22224-92-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenitrothion	122-14-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fensulfothion	115-90-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fenthion	55-38-9	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Malathion	121-75-5	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
^ Mevinphos	7786-34-7	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Monocrotophos	6923-22-4	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Omethoate	1113-02-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Parathion	56-38-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phorate	298-02-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Pirimiphos-methyl	29232-93-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Sulfotep	3689-24-5	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachlorvinphos	22248-79-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Triazophos	24017-47-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A13-SED-1019	A14-SED-1019	B1-SED-1019	B3-SED-1019	B4-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-013	EB1929990-014	EB1929990-015	EB1929990-017	EB1929990-018
					Result	Result	Result	Result	Result
EP234B: Thiocarbamates and Carbamates									
Aldicarb	116-06-3	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Bendiocarb	22781-23-3	1	mg/kg		<1	<1	<1	<1	<1
Benomyl	17804-35-2	0.005	mg/kg		<0.005	**0.031**	<0.005	<0.005	<0.005
Carbaryl	63-25-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Carbofuran	1563-66-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Methiocarb	2032-65-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Methomyl	16752-77-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Molinate	2212-67-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Oxamyl	23135-22-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiobencarb	28249-77-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiodicarb	59669-26-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234D: Triazinone Herbicides									
Hexazinone	51235-04-2	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Metribuzin	21087-64-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
EP234E: Conazole and Aminopyrimidine Fungicides									
Cyproconazole	94361-06-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Flusilazole	85509-19-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Hexaconazole	79983-71-4	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Paclobutrazole	76738-62-0	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Propiconazole	60207-90-1	0.01	mg/kg		**0.01**	**0.01**	<0.01	<0.01	<0.01
Tebuconazole	107534-96-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Cyprodinil	121552-61-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Pyrimethanil	53112-28-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fluometuron	2164-17-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Tebuthiuron	34014-18-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Bromacil	314-40-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234G: Chloracetanilides									
Metolachlor	51218-45-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234H: Triazine Herbicides									
Ametryn	834-12-8	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Atrazine	1912-24-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A13-SED-1019	A14-SED-1019	B1-SED-1019	B3-SED-1019	B4-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-013	EB1929990-014	EB1929990-015	EB1929990-017	EB1929990-018
					Result	Result	Result	Result	Result
EP234H: Triazine Herbicides - Continued									
Cyanazine	21725-46-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Prometryn	7287-19-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Propazine	139-40-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Simazine	122-34-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Terbuthylazine	5915-41-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Terbutryn	886-50-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP234I: Miscellaneous (ESI Positive Mode) Pesticides									
Fenarimol	60168-88-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Irgarol	28159-98-0	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**----**	**----**	**74.2**	**86.1**	**73.9**
EP094S: Pesticide Surrogate									
DEF	78-48-8	0.05	%		**96.4**	**92.3**	**85.8**	**84.8**	**85.6**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**67.3**	**64.6**	**68.7**	**80.9**	**60.1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B5-SED-1019	B6-SED-1019	B7-SED-1019	B8-SED-1019	B10-SED-1019
			Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit	EB1929990-019	EB1929990-020	EB1929990-021	EB1929990-022	EB1929990-024
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	34.4	33.8	28.8	31.7	31.2
EA150: Particle Sizing								
+75µm	----	1	%	93	94	95	94	94
+150µm	----	1	%	93	94	95	94	94
+300µm	----	1	%	92	93	94	93	94
+425µm	----	1	%	90	92	94	93	93
+600µm	----	1	%	80	84	90	90	91
+1180µm	----	1	%	43	36	65	65	67
+2.36mm	----	1	%	18	10	20	27	30
+4.75mm	----	1	%	12	6	5	13	17
+9.5mm	----	1	%	8	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	6	6	5	4	5
Silt (2-60 µm)	----	1	%	1	<1	<1	2	1
Sand (0.06-2.00 mm)	----	1	%	67	76	61	55	53
Gravel (>2mm)	----	1	%	26	18	34	39	41
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.63	2.46	2.48	2.65	2.51
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	120	240	150	140	80
Iron	7439-89-6	50	mg/kg	200	310	220	190	120
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	1.15	1.33	1.21	1.25	1.08
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	2.9	4.2	3.3	3.0	2.1
Copper	7440-50-8	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Lead	7439-92-1	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Manganese	7439-96-5	10	mg/kg	11	12	12	<10	<10

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B5-SED-1019	B6-SED-1019	B7-SED-1019	B8-SED-1019	B10-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-019	EB1929990-020	EB1929990-021	EB1929990-022	EB1929990-024
					Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Nickel	7440-02-0	1.0	mg/kg		**1.0**	**1.1**	<1.0	<1.0	<1.0
Selenium	7782-49-2	0.1	mg/kg		<0.1	**0.1**	**0.1**	<0.1	<0.1
Silver	7440-22-4	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	7440-66-6	1.0	mg/kg		**1.3**	<1.0	<1.0	<1.0	<1.0
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		**5.4**	**6.4**	**6.5**	**6.6**	**4.7**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP090: Organotin Compounds									
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP094A: Synthetic Pyrethroids									
Bioresmethrin	28434-01-07	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bifenthrin	82657-04-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Phenothrin	26002-80-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Lambda-cyhalothrin	68085-85-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Permethrin	52645-53-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cyfluthrin	68359-37-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cypermethrin	52315-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Allethrin	584-79-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Transfluthrin	118712-89-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tetramethrin	7696-12-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tau-fluvalinate	102851-06-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP094B: Synergist									
Piperonyl Butoxide	63993-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B5-SED-1019	B6-SED-1019	B7-SED-1019	B8-SED-1019	B10-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-019	EB1929990-020	EB1929990-021	EB1929990-022	EB1929990-024
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
EP234A: OP Pesticides									
Azinphos-ethyl	2642-71-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Azinphos-methyl	86-50-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Chlorfenvinphos	470-90-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Coumaphos	56-72-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Diazinon	333-41-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Dimethoate	60-51-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Disulfoton	298-04-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Ethoprophos	13194-48-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenamiphos	22224-92-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenitrothion	122-14-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fensulfothion	115-90-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fenthion	55-38-9	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Malathion	121-75-5	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
^ Mevinphos	7786-34-7	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Monocrotophos	6923-22-4	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Omethoate	1113-02-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Parathion	56-38-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phorate	298-02-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Pirimiphos-methyl	29232-93-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Sulfotep	3689-24-5	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachlorvinphos	22248-79-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Triazophos	24017-47-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B5-SED-1019	B6-SED-1019	B7-SED-1019	B8-SED-1019	B10-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-019	EB1929990-020	EB1929990-021	EB1929990-022	EB1929990-024
					Result	Result	Result	Result	Result
EP234B: Thiocarbamates and Carbamates									
Aldicarb	116-06-3	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Bendiocarb	22781-23-3	1	mg/kg		<1	<1	<1	<1	<1
Benomyl	17804-35-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Carbaryl	63-25-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Carbofuran	1563-66-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Methiocarb	2032-65-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Methomyl	16752-77-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Molinate	2212-67-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Oxamyl	23135-22-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiobencarb	28249-77-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiodicarb	59669-26-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234D: Triazinone Herbicides									
Hexazinone	51235-04-2	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Metribuzin	21087-64-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
EP234E: Conazole and Aminopyrimidine Fungicides									
Cyproconazole	94361-06-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Flusilazole	85509-19-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Hexaconazole	79983-71-4	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Paclobutrazole	76738-62-0	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Propiconazole	60207-90-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Tebuconazole	107534-96-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Cyprodinil	121552-61-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Pyrimethanil	53112-28-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fluometuron	2164-17-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Tebuthiuron	34014-18-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Bromacil	314-40-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234G: Chloracetanilides									
Metolachlor	51218-45-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234H: Triazine Herbicides									
Ametryn	834-12-8	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Atrazine	1912-24-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B5-SED-1019	B6-SED-1019	B7-SED-1019	B8-SED-1019	B10-SED-1019
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-019	EB1929990-020	EB1929990-021	EB1929990-022	EB1929990-024
					Result	Result	Result	Result	Result
EP234H: Triazine Herbicides - Continued									
Cyanazine	21725-46-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Prometryn	7287-19-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Propazine	139-40-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Simazine	122-34-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Terbuthylazine	5915-41-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Terbutryn	886-50-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP234I: Miscellaneous (ESI Positive Mode) Pesticides									
Fenarimol	60168-88-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Irgarol	28159-98-0	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**98.7**	**196**	**66.4**	**90.1**	**41.6**
EP094S: Pesticide Surrogate									
DEF	78-48-8	0.05	%		**87.6**	**89.9**	**87.4**	**87.2**	**96.3**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**52.5**	**58.2**	**55.9**	**55.2**	**55.3**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B11-SED-1019	B12-SED-1019	B13-SED-1019	B14-SED-1019	B15-SED-1019
			Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit	EB1929990-025	EB1929990-026	EB1929990-027	EB1929990-028	EB1929990-029
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	30.5	30.6	32.0	28.5	28.0
EA150: Particle Sizing								
+75µm	----	1	%	94	94	92	94	88
+150µm	----	1	%	94	94	92	94	87
+300µm	----	1	%	93	93	91	94	86
+425µm	----	1	%	91	92	90	92	86
+600µm	----	1	%	87	88	87	89	84
+1180µm	----	1	%	57	62	61	63	71
+2.36mm	----	1	%	15	19	26	25	46
+4.75mm	----	1	%	2	3	12	11	31
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	6	5	5	5	8
Silt (2-60 µm)	----	1	%	<1	1	3	1	4
Sand (0.06-2.00 mm)	----	1	%	67	62	55	57	34
Gravel (>2mm)	----	1	%	27	32	37	37	54
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.67	2.75	2.71	2.68	2.68
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	130	180	120	140	160
Iron	7439-89-6	50	mg/kg	200	240	150	210	220
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	1.12	1.29	1.46	1.31	1.38
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	3.0	3.7	2.5	3.1	3.2
Copper	7440-50-8	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Lead	7439-92-1	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Manganese	7439-96-5	10	mg/kg	10	10	<10	<10	12

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B11-SED-1019	B12-SED-1019	B13-SED-1019	B14-SED-1019	B15-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-025	EB1929990-026	EB1929990-027	EB1929990-028	EB1929990-029
					Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Nickel	7440-02-0	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0	<1.0
Selenium	7782-49-2	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
Silver	7440-22-4	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	7440-66-6	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0	<1.0
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		**9.0**	**7.8**	**7.1**	**5.6**	**7.3**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP090: Organotin Compounds									
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP094A: Synthetic Pyrethroids									
Bioresmethrin	28434-01-07	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bifenthrin	82657-04-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Phenothrin	26002-80-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Lambda-cyhalothrin	68085-85-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Permethrin	52645-53-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cyfluthrin	68359-37-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cypermethrin	52315-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Allethrin	584-79-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Transfluthrin	118712-89-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tetramethrin	7696-12-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tau-fluvalinate	102851-06-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP094B: Synergist									
Piperonyl Butoxide	63993-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B11-SED-1019	B12-SED-1019	B13-SED-1019	B14-SED-1019	B15-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-025	EB1929990-026	EB1929990-027	EB1929990-028	EB1929990-029
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
EP234A: OP Pesticides									
Azinphos-ethyl	2642-71-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Azinphos-methyl	86-50-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Chlorfenvinphos	470-90-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Coumaphos	56-72-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Diazinon	333-41-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Dimethoate	60-51-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Disulfoton	298-04-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Ethoprophos	13194-48-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenamiphos	22224-92-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenitrothion	122-14-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fensulfothion	115-90-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fenthion	55-38-9	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Malathion	121-75-5	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
^ Mevinphos	7786-34-7	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Monocrotophos	6923-22-4	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Omethoate	1113-02-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Parathion	56-38-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phorate	298-02-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Pirimiphos-methyl	29232-93-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Sulfotep	3689-24-5	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachlorvinphos	22248-79-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Triazophos	24017-47-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B11-SED-1019	B12-SED-1019	B13-SED-1019	B14-SED-1019	B15-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-025	EB1929990-026	EB1929990-027	EB1929990-028	EB1929990-029
					Result	Result	Result	Result	Result
EP234B: Thiocarbamates and Carbamates									
Aldicarb	116-06-3	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Bendiocarb	22781-23-3	1	mg/kg		<1	<1	<1	<1	<1
Benomyl	17804-35-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Carbaryl	63-25-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Carbofuran	1563-66-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Methiocarb	2032-65-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Methomyl	16752-77-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Molinate	2212-67-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Oxamyl	23135-22-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiobencarb	28249-77-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiodicarb	59669-26-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234D: Triazinone Herbicides									
Hexazinone	51235-04-2	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Metribuzin	21087-64-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
EP234E: Conazole and Aminopyrimidine Fungicides									
Cyproconazole	94361-06-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Flusilazole	85509-19-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Hexaconazole	79983-71-4	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Paclobutrazole	76738-62-0	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Propiconazole	60207-90-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Tebuconazole	107534-96-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Cyprodinil	121552-61-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Pyrimethanil	53112-28-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fluometuron	2164-17-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Tebuthiuron	34014-18-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Bromacil	314-40-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234G: Chloracetanilides									
Metolachlor	51218-45-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234H: Triazine Herbicides									
Ametryn	834-12-8	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Atrazine	1912-24-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B11-SED-1019	B12-SED-1019	B13-SED-1019	B14-SED-1019	B15-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-025	EB1929990-026	EB1929990-027	EB1929990-028	EB1929990-029
					Result	Result	Result	Result	Result
EP234H: Triazine Herbicides - Continued									
Cyanazine	21725-46-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Prometryn	7287-19-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Propazine	139-40-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Simazine	122-34-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Terbuthylazine	5915-41-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Terbutryn	886-50-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP234I: Miscellaneous (ESI Positive Mode) Pesticides									
Fenarimol	60168-88-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Irgarol	28159-98-0	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**108**	**35.4**	**82.0**	**94.4**	**93.3**
EP094S: Pesticide Surrogate									
DEF	78-48-8	0.05	%		**94.0**	**97.6**	**58.7**	**80.2**	**92.2**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**85.5**	**65.6**	**61.8**	**83.8**	**58.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B16-SED-1019	D1-SED-1019	D2-SED-1019	D3-SED-1019	D4-SED-1019
			Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit	EB1929990-030	EB1929990-031	EB1929990-032	EB1929990-033	EB1929990-034
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	25.3	32.5	35.4	32.1	31.0
EA150: Particle Sizing								
+75µm	----	1	%	91	94	93	98	98
+150µm	----	1	%	91	94	93	98	98
+300µm	----	1	%	90	93	92	98	98
+425µm	----	1	%	90	92	91	97	97
+600µm	----	1	%	88	90	85	95	88
+1180µm	----	1	%	75	64	51	63	48
+2.36mm	----	1	%	46	26	23	26	18
+4.75mm	----	1	%	24	9	13	12	6
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	6	5	6	2	1
Silt (2-60 µm)	----	1	%	3	1	1	<1	1
Sand (0.06-2.00 mm)	----	1	%	36	56	62	61	71
Gravel (>2mm)	----	1	%	55	38	31	37	27
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.77	2.68	2.66	2.68	2.65
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	110	190	210	310	110
Iron	7439-89-6	50	mg/kg	180	240	260	320	180
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	1.05	1.16	1.17	1.34	1.46
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	2.6	3.1	3.2	3.7	3.3
Copper	7440-50-8	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Lead	7439-92-1	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Manganese	7439-96-5	10	mg/kg	<10	<10	11	13	11

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B16-SED-1019	D1-SED-1019	D2-SED-1019	D3-SED-1019	D4-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-030	EB1929990-031	EB1929990-032	EB1929990-033	EB1929990-034
					Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Nickel	7440-02-0	1.0	mg/kg		<1.0	<1.0	<1.0	**1.1**	<1.0
Selenium	7782-49-2	0.1	mg/kg		<0.1	**0.1**	<0.1	**0.1**	<0.1
Silver	7440-22-4	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	7440-66-6	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0	<1.0
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		**5.0**	**7.4**	**6.6**	**7.2**	**7.4**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP090: Organotin Compounds									
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP094A: Synthetic Pyrethroids									
Bioresmethrin	28434-01-07	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bifenthrin	82657-04-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Phenothrin	26002-80-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Lambda-cyhalothrin	68085-85-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Permethrin	52645-53-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cyfluthrin	68359-37-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cypermethrin	52315-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Allethrin	584-79-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Transfluthrin	118712-89-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tetramethrin	7696-12-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tau-fluvalinate	102851-06-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP094B: Synergist									
Piperonyl Butoxide	63993-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B16-SED-1019	D1-SED-1019	D2-SED-1019	D3-SED-1019	D4-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-030	EB1929990-031	EB1929990-032	EB1929990-033	EB1929990-034
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
EP234A: OP Pesticides									
Azinphos-ethyl	2642-71-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Azinphos-methyl	86-50-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Chlorfenvinphos	470-90-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Coumaphos	56-72-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Diazinon	333-41-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Dimethoate	60-51-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Disulfoton	298-04-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Ethoprophos	13194-48-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenamiphos	22224-92-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenitrothion	122-14-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fensulfothion	115-90-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fenthion	55-38-9	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Malathion	121-75-5	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
^ Mevinphos	7786-34-7	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Monocrotophos	6923-22-4	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Omethoate	1113-02-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Parathion	56-38-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phorate	298-02-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Pirimiphos-methyl	29232-93-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Sulfotep	3689-24-5	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachlorvinphos	22248-79-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Triazophos	24017-47-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B16-SED-1019	D1-SED-1019	D2-SED-1019	D3-SED-1019	D4-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-030	EB1929990-031	EB1929990-032	EB1929990-033	EB1929990-034
					Result	Result	Result	Result	Result
EP234B: Thiocarbamates and Carbamates									
Aldicarb	116-06-3	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Bendiocarb	22781-23-3	1	mg/kg		<1	<1	<1	<1	<1
Benomyl	17804-35-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Carbaryl	63-25-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Carbofuran	1563-66-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Methiocarb	2032-65-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Methomyl	16752-77-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Molinate	2212-67-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Oxamyl	23135-22-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiobencarb	28249-77-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiodicarb	59669-26-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234D: Triazinone Herbicides									
Hexazinone	51235-04-2	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Metribuzin	21087-64-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
EP234E: Conazole and Aminopyrimidine Fungicides									
Cyproconazole	94361-06-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Flusilazole	85509-19-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Hexaconazole	79983-71-4	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Paclobutrazole	76738-62-0	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Propiconazole	60207-90-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Tebuconazole	107534-96-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Cyprodinil	121552-61-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Pyrimethanil	53112-28-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fluometuron	2164-17-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Tebuthiuron	34014-18-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Bromacil	314-40-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234G: Chloracetanilides									
Metolachlor	51218-45-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234H: Triazine Herbicides									
Ametryn	834-12-8	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Atrazine	1912-24-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B16-SED-1019	D1-SED-1019	D2-SED-1019	D3-SED-1019	D4-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-030	EB1929990-031	EB1929990-032	EB1929990-033	EB1929990-034
					Result	Result	Result	Result	Result
EP234H: Triazine Herbicides - Continued									
Cyanazine	21725-46-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Prometryn	7287-19-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Propazine	139-40-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Simazine	122-34-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Terbuthylazine	5915-41-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Terbutryn	886-50-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP234I: Miscellaneous (ESI Positive Mode) Pesticides									
Fenarimol	60168-88-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Irgarol	28159-98-0	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**113**	**100**	**72.0**	**82.1**	**92.4**
EP094S: Pesticide Surrogate									
DEF	78-48-8	0.05	%		**75.8**	**91.2**	**91.6**	**91.4**	**85.9**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**81.3**	**58.4**	**73.1**	**64.6**	**65.3**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	D5-SED-1019	D6-SED-1019	D7-SED-1019	D8-SED-1019	D9-SED-1019
			Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit	EB1929990-035	EB1929990-036	EB1929990-037	EB1929990-038	EB1929990-039
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	34.4	33.4	34.8	34.2	33.7
EA150: Particle Sizing								
+75µm	----	1	%	97	98	98	97	98
+150µm	----	1	%	97	97	98	97	98
+300µm	----	1	%	97	97	98	97	98
+425µm	----	1	%	96	95	97	97	97
+600µm	----	1	%	91	89	95	94	93
+1180µm	----	1	%	48	55	63	63	48
+2.36mm	----	1	%	20	23	27	26	17
+4.75mm	----	1	%	10	11	12	11	7
+9.5mm	----	1	%	<1	6	<1	2	4
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	3	2	1	3	2
Silt (2-60 µm)	----	1	%	<1	<1	1	<1	<1
Sand (0.06-2.00 mm)	----	1	%	68	65	60	60	72
Gravel (>2mm)	----	1	%	29	33	38	37	26
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.67	2.65	2.71	2.58	2.63
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	210	150	130	100	150
Iron	7439-89-6	50	mg/kg	280	220	150	140	200
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	1.50	1.28	1.14	1.08	1.21
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	3.6	3.4	3.7	2.9	3.7
Copper	7440-50-8	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Lead	7439-92-1	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Manganese	7439-96-5	10	mg/kg	12	10	11	10	10

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	D5-SED-1019	D6-SED-1019	D7-SED-1019	D8-SED-1019	D9-SED-1019
			Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit	EB1929990-035	EB1929990-036	EB1929990-037	EB1929990-038	EB1929990-039
				Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued								
Nickel	7440-02-0	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Selenium	7782-49-2	0.1	mg/kg	<0.1	<0.1	<0.1	**0.1**	<0.1
Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	7440-66-6	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
EG020T: Total Metals by ICP-MS								
Barium	7440-39-3	0.1	mg/kg	**8.1**	**5.3**	**7.5**	**7.0**	**5.4**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
EP090: Organotin Compounds								
Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP094A: Synthetic Pyrethroids								
Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP094B: Synergist								
Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	D5-SED-1019	D6-SED-1019	D7-SED-1019	D8-SED-1019	D9-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-035	EB1929990-036	EB1929990-037	EB1929990-038	EB1929990-039
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
EP234A: OP Pesticides									
Azinphos-ethyl	2642-71-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Azinphos-methyl	86-50-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Chlorfenvinphos	470-90-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Coumaphos	56-72-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Diazinon	333-41-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Dimethoate	60-51-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Disulfoton	298-04-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Ethoprophos	13194-48-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenamiphos	22224-92-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenitrothion	122-14-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fensulfothion	115-90-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fenthion	55-38-9	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Malathion	121-75-5	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
^ **Mevinphos**	7786-34-7	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Monocrotophos	6923-22-4	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Omethoate	1113-02-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Parathion	56-38-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phorate	298-02-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Pirimiphos-methyl	29232-93-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Sulfotep	3689-24-5	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachlorvinphos	22248-79-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Triazophos	24017-47-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	D5-SED-1019	D6-SED-1019	D7-SED-1019	D8-SED-1019	D9-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-035	EB1929990-036	EB1929990-037	EB1929990-038	EB1929990-039
					Result	Result	Result	Result	Result
EP234B: Thiocarbamates and Carbamates									
Aldicarb	116-06-3	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Bendiocarb	22781-23-3	1	mg/kg		<1	<1	<1	<1	<1
Benomyl	17804-35-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Carbaryl	63-25-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Carbofuran	1563-66-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Methiocarb	2032-65-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Methomyl	16752-77-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Molinate	2212-67-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Oxamyl	23135-22-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiobencarb	28249-77-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiodicarb	59669-26-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234D: Triazinone Herbicides									
Hexazinone	51235-04-2	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Metribuzin	21087-64-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
EP234E: Conazole and Aminopyrimidine Fungicides									
Cyproconazole	94361-06-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Flusilazole	85509-19-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Hexaconazole	79983-71-4	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Paclobutrazole	76738-62-0	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Propiconazole	60207-90-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Tebuconazole	107534-96-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Cyprodinil	121552-61-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Pyrimethanil	53112-28-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fluometuron	2164-17-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Tebuthiuron	34014-18-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Bromacil	314-40-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234G: Chloracetanilides									
Metolachlor	51218-45-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234H: Triazine Herbicides									
Ametryn	834-12-8	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Atrazine	1912-24-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	D5-SED-1019	D6-SED-1019	D7-SED-1019	D8-SED-1019	D9-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-035	EB1929990-036	EB1929990-037	EB1929990-038	EB1929990-039
					Result	Result	Result	Result	Result
EP234H: Triazine Herbicides - Continued									
Cyanazine	21725-46-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Prometryn	7287-19-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Propazine	139-40-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Simazine	122-34-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Terbuthylazine	5915-41-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Terbutryn	886-50-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP234I: Miscellaneous (ESI Positive Mode) Pesticides									
Fenarimol	60168-88-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Irgarol	28159-98-0	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**80.4**	**114**	**93.9**	**89.2**	**74.4**
EP094S: Pesticide Surrogate									
DEF	78-48-8	0.05	%		**89.0**	**89.9**	**109**	**116**	**100**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**75.7**	**81.4**	**59.1**	**68.4**	**60.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	D10-SED-1019	D11-SED-1019	D12-SED-1019	G1-SED-1019	G2-SED-1019
			Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit	EB1929990-040	EB1929990-041	EB1929990-042	EB1929990-043	EB1929990-044
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	34.5	29.8	34.6	31.3	33.3
EA150: Particle Sizing								
+75µm	----	1	%	98	97	98	98	98
+150µm	----	1	%	98	97	97	98	98
+300µm	----	1	%	98	97	97	97	98
+425µm	----	1	%	97	96	97	96	96
+600µm	----	1	%	94	91	91	91	84
+1180µm	----	1	%	62	51	54	57	33
+2.36mm	----	1	%	27	24	28	22	5
+4.75mm	----	1	%	13	13	18	6	<1
+9.5mm	----	1	%	2	4	4	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	2	3	2	2	2
Silt (2-60 µm)	----	1	%	<1	<1	<1	<1	<1
Sand (0.06-2.00 mm)	----	1	%	60	65	62	65	84
Gravel (>2mm)	----	1	%	38	32	36	33	14
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.66	2.72	2.70	2.70	2.72
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	130	190	120	160	160
Iron	7439-89-6	50	mg/kg	170	260	170	210	230
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	1.04	1.41	1.10	<1.00	1.33
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	3.0	4.3	3.0	3.5	4.2
Copper	7440-50-8	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Lead	7439-92-1	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Manganese	7439-96-5	10	mg/kg	10	12	10	<10	11

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	D10-SED-1019	D11-SED-1019	D12-SED-1019	G1-SED-1019	G2-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-040	EB1929990-041	EB1929990-042	EB1929990-043	EB1929990-044
					Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Nickel	7440-02-0	1.0	mg/kg		<1.0	**1.0**	<1.0	<1.0	<1.0
Selenium	7782-49-2	0.1	mg/kg		<0.1	**0.1**	<0.1	<0.1	<0.1
Silver	7440-22-4	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	7440-66-6	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0	<1.0
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		**6.1**	**6.0**	**5.2**	**6.0**	**7.0**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP090: Organotin Compounds									
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP094A: Synthetic Pyrethroids									
Bioresmethrin	28434-01-07	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bifenthrin	82657-04-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Phenothrin	26002-80-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Lambda-cyhalothrin	68085-85-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Permethrin	52645-53-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cyfluthrin	68359-37-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cypermethrin	52315-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Allethrin	584-79-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Transfluthrin	118712-89-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tetramethrin	7696-12-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tau-fluvalinate	102851-06-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP094B: Synergist									
Piperonyl Butoxide	63993-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	D10-SED-1019	D11-SED-1019	D12-SED-1019	G1-SED-1019	G2-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-040	EB1929990-041	EB1929990-042	EB1929990-043	EB1929990-044
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
EP234A: OP Pesticides									
Azinphos-ethyl	2642-71-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Azinphos-methyl	86-50-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Chlorfenvinphos	470-90-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Coumaphos	56-72-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Diazinon	333-41-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Dimethoate	60-51-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Disulfoton	298-04-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Ethoprophos	13194-48-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenamiphos	22224-92-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenitrothion	122-14-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fensulfothion	115-90-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fenthion	55-38-9	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Malathion	121-75-5	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
^ **Mevinphos**	7786-34-7	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Monocrotophos	6923-22-4	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Omethoate	1113-02-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Parathion	56-38-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phorate	298-02-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Pirimiphos-methyl	29232-93-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Sulfotep	3689-24-5	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachlorvinphos	22248-79-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Triazophos	24017-47-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	D10-SED-1019	D11-SED-1019	D12-SED-1019	G1-SED-1019	G2-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-040	EB1929990-041	EB1929990-042	EB1929990-043	EB1929990-044
					Result	Result	Result	Result	Result
EP234B: Thiocarbamates and Carbamates									
Aldicarb	116-06-3	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Bendiocarb	22781-23-3	1	mg/kg		<1	<1	<1	<1	<1
Benomyl	17804-35-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Carbaryl	63-25-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Carbofuran	1563-66-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Methiocarb	2032-65-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Methomyl	16752-77-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Molinate	2212-67-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Oxamyl	23135-22-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiobencarb	28249-77-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiodicarb	59669-26-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234D: Triazinone Herbicides									
Hexazinone	51235-04-2	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Metribuzin	21087-64-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
EP234E: Conazole and Aminopyrimidine Fungicides									
Cyproconazole	94361-06-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Flusilazole	85509-19-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Hexaconazole	79983-71-4	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Paclobutrazole	76738-62-0	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Propiconazole	60207-90-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Tebuconazole	107534-96-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Cyprodinil	121552-61-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Pyrimethanil	53112-28-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fluometuron	2164-17-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Tebuthiuron	34014-18-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Bromacil	314-40-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234G: Chloracetanilides									
Metolachlor	51218-45-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234H: Triazine Herbicides									
Ametryn	834-12-8	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Atrazine	1912-24-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	D10-SED-1019	D11-SED-1019	D12-SED-1019	G1-SED-1019	G2-SED-1019
				Client sampling date / time	04-Nov-2019 00:00	04-Nov-2019 00:00	04-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-040	EB1929990-041	EB1929990-042	EB1929990-043	EB1929990-044
					Result	Result	Result	Result	Result
EP234H: Triazine Herbicides - Continued									
Cyanazine	21725-46-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Prometryn	7287-19-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Propazine	139-40-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Simazine	122-34-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Terbuthylazine	5915-41-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Terbutryn	886-50-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP234I: Miscellaneous (ESI Positive Mode) Pesticides									
Fenarimol	60168-88-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Irgarol	28159-98-0	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**94.0**	**84.0**	**73.0**	**84.7**	**93.7**
EP094S: Pesticide Surrogate									
DEF	78-48-8	0.05	%		**108**	**58.8**	**91.4**	**102**	**99.5**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**63.2**	**64.8**	**60.2**	**51.0**	**66.4**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	G3-SED-1019	G4-SED-1019	G6-SED-1019	G7-SED-1019	G8-SED-1019
			Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit	EB1929990-045	EB1929990-046	EB1929990-047	EB1929990-048	EB1929990-049
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	31.2	31.7	27.4	33.9	32.4
EA150: Particle Sizing								
+75µm	----	1	%	98	98	98	97	98
+150µm	----	1	%	97	98	98	97	98
+300µm	----	1	%	97	98	97	97	98
+425µm	----	1	%	96	97	93	96	97
+600µm	----	1	%	93	95	81	93	93
+1180µm	----	1	%	63	64	42	67	60
+2.36mm	----	1	%	20	20	18	27	25
+4.75mm	----	1	%	6	11	9	12	10
+9.5mm	----	1	%	2	5	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	3	2	2	3	2
Silt (2-60 µm)	----	1	%	<1	<1	<1	<1	<1
Sand (0.06-2.00 mm)	----	1	%	64	65	73	58	62
Gravel (>2mm)	----	1	%	33	33	25	39	36
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.66	2.82	2.73	2.61	2.61
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	170	330	210	120	140
Iron	7439-89-6	50	mg/kg	210	320	260	170	200
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	<1.00	1.05	<1.00	1.10	1.11
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	3.0	4.5	3.8	2.9	2.8
Copper	7440-50-8	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Lead	7439-92-1	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Manganese	7439-96-5	10	mg/kg	11	13	<10	<10	<10

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	G3-SED-1019	G4-SED-1019	G6-SED-1019	G7-SED-1019	G8-SED-1019
				Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-045	EB1929990-046	EB1929990-047	EB1929990-048	EB1929990-049
					Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Nickel	7440-02-0	1.0	mg/kg		<1.0	1.2	<1.0	1.0	<1.0
Selenium	7782-49-2	0.1	mg/kg		<0.1	<0.1	<0.1	0.1	<0.1
Silver	7440-22-4	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	7440-66-6	1.0	mg/kg		<1.0	<1.0	<1.0	1.0	<1.0
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		5.3	6.6	6.4	5.8	7.1
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP090: Organotin Compounds									
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP094A: Synthetic Pyrethroids									
Bioresmethrin	28434-01-07	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bifenthrin	82657-04-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Phenothrin	26002-80-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Lambda-cyhalothrin	68085-85-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Permethrin	52645-53-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cyfluthrin	68359-37-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cypermethrin	52315-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Allethrin	584-79-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Transfluthrin	118712-89-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tetramethrin	7696-12-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tau-fluvalinate	102851-06-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP094B: Synergist									
Piperonyl Butoxide	63993-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	G3-SED-1019	G4-SED-1019	G6-SED-1019	G7-SED-1019	G8-SED-1019
				Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-045	EB1929990-046	EB1929990-047	EB1929990-048	EB1929990-049
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
EP234A: OP Pesticides									
Azinphos-ethyl	2642-71-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Azinphos-methyl	86-50-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Chlorfenvinphos	470-90-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Coumaphos	56-72-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Diazinon	333-41-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Dimethoate	60-51-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Disulfoton	298-04-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Ethoprophos	13194-48-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenamiphos	22224-92-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenitrothion	122-14-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fensulfothion	115-90-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fenthion	55-38-9	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Malathion	121-75-5	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
^ **Mevinphos**	7786-34-7	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Monocrotophos	6923-22-4	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Omethoate	1113-02-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Parathion	56-38-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phorate	298-02-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Pirimiphos-methyl	29232-93-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Sulfotep	3689-24-5	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachlorvinphos	22248-79-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Triazophos	24017-47-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	G3-SED-1019	G4-SED-1019	G6-SED-1019	G7-SED-1019	G8-SED-1019
				Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-045	EB1929990-046	EB1929990-047	EB1929990-048	EB1929990-049
					Result	Result	Result	Result	Result
EP234B: Thiocarbamates and Carbamates									
Aldicarb	116-06-3	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Bendiocarb	22781-23-3	1	mg/kg		<1	<1	<1	<1	<1
Benomyl	17804-35-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Carbaryl	63-25-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Carbofuran	1563-66-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Methiocarb	2032-65-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Methomyl	16752-77-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Molinate	2212-67-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Oxamyl	23135-22-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiobencarb	28249-77-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiodicarb	59669-26-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234D: Triazinone Herbicides									
Hexazinone	51235-04-2	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Metribuzin	21087-64-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
EP234E: Conazole and Aminopyrimidine Fungicides									
Cyproconazole	94361-06-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Flusilazole	85509-19-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Hexaconazole	79983-71-4	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Paclobutrazole	76738-62-0	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Propiconazole	60207-90-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Tebuconazole	107534-96-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Cyprodinil	121552-61-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Pyrimethanil	53112-28-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fluometuron	2164-17-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Tebuthiuron	34014-18-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Bromacil	314-40-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234G: Chloracetanilides									
Metolachlor	51218-45-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234H: Triazine Herbicides									
Ametryn	834-12-8	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Atrazine	1912-24-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	G3-SED-1019	G4-SED-1019	G6-SED-1019	G7-SED-1019	G8-SED-1019
				Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-045	EB1929990-046	EB1929990-047	EB1929990-048	EB1929990-049
					Result	Result	Result	Result	Result
EP234H: Triazine Herbicides - Continued									
Cyanazine	21725-46-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Prometryn	7287-19-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Propazine	139-40-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Simazine	122-34-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Terbuthylazine	5915-41-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Terbutryn	886-50-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP234I: Miscellaneous (ESI Positive Mode) Pesticides									
Fenarimol	60168-88-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Irgarol	28159-98-0	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**53.9**	**79.7**	**74.8**	**68.7**	**64.0**
EP094S: Pesticide Surrogate									
DEF	78-48-8	0.05	%		**109**	**96.9**	**104**	**98.6**	**108**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**53.2**	**56.5**	**56.0**	**56.1**	**55.1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	G9-SED-1019	G10-SED-1019	G11-SED-1019	G12-SED-1019	E1-SED-1019
			Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit	EB1929990-050	EB1929990-051	EB1929990-052	EB1929990-053	EB1929990-054
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	32.3	33.8	34.0	34.4	26.6
EA150: Particle Sizing								
+75µm	----	1	%	98	98	98	99	98
+150µm	----	1	%	98	98	98	98	98
+300µm	----	1	%	97	98	98	98	97
+425µm	----	1	%	96	97	97	98	97
+600µm	----	1	%	91	95	91	95	95
+1180µm	----	1	%	47	61	49	55	74
+2.36mm	----	1	%	8	21	13	14	39
+4.75mm	----	1	%	4	7	4	3	19
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	2	2	2	1	2
Silt (2-60 µm)	----	1	%	<1	<1	<1	<1	<1
Sand (0.06-2.00 mm)	----	1	%	78	65	74	73	48
Gravel (>2mm)	----	1	%	20	33	24	26	50
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.67	2.79	2.65	2.69	2.71
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	230	140	210	170	280
Iron	7439-89-6	50	mg/kg	250	180	280	230	310
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	1.04	1.16	1.32	1.19	1.33
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	4.1	4.3	4.1	3.2	5.0
Copper	7440-50-8	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Lead	7439-92-1	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Manganese	7439-96-5	10	mg/kg	12	13	11	12	14

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	G9-SED-1019	G10-SED-1019	G11-SED-1019	G12-SED-1019	E1-SED-1019
				Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-050	EB1929990-051	EB1929990-052	EB1929990-053	EB1929990-054
					Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Nickel	7440-02-0	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0	**1.4**
Selenium	7782-49-2	0.1	mg/kg		<0.1	**0.1**	**0.1**	<0.1	<0.1
Silver	7440-22-4	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	7440-66-6	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0	<1.0
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		**6.5**	**5.9**	**6.1**	**7.1**	**7.4**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP090: Organotin Compounds									
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP094A: Synthetic Pyrethroids									
Bioresmethrin	28434-01-07	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bifenthrin	82657-04-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Phenothrin	26002-80-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Lambda-cyhalothrin	68085-85-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Permethrin	52645-53-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cyfluthrin	68359-37-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cypermethrin	52315-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Allethrin	584-79-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Transfluthrin	118712-89-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tetramethrin	7696-12-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tau-fluvalinate	102851-06-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP094B: Synergist									
Piperonyl Butoxide	63993-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	G9-SED-1019	G10-SED-1019	G11-SED-1019	G12-SED-1019	E1-SED-1019
				Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-050	EB1929990-051	EB1929990-052	EB1929990-053	EB1929990-054
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
EP234A: OP Pesticides									
Azinphos-ethyl	2642-71-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Azinphos-methyl	86-50-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Chlorfenvinphos	470-90-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Coumaphos	56-72-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Diazinon	333-41-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Dimethoate	60-51-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Disulfoton	298-04-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Ethoprophos	13194-48-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenamiphos	22224-92-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenitrothion	122-14-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fensulfothion	115-90-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fenthion	55-38-9	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Malathion	121-75-5	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
^ **Mevinphos**	7786-34-7	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Monocrotophos	6923-22-4	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Omethoate	1113-02-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Parathion	56-38-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phorate	298-02-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Pirimiphos-methyl	29232-93-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Sulfotep	3689-24-5	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachlorvinphos	22248-79-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Triazophos	24017-47-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	G9-SED-1019	G10-SED-1019	G11-SED-1019	G12-SED-1019	E1-SED-1019
				Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-050	EB1929990-051	EB1929990-052	EB1929990-053	EB1929990-054
					Result	Result	Result	Result	Result
EP234B: Thiocarbamates and Carbamates									
Aldicarb	116-06-3	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Bendiocarb	22781-23-3	1	mg/kg		<1	<1	<1	<1	<1
Benomyl	17804-35-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Carbaryl	63-25-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Carbofuran	1563-66-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Methiocarb	2032-65-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Methomyl	16752-77-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Molinate	2212-67-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Oxamyl	23135-22-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiobencarb	28249-77-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiodicarb	59669-26-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234D: Triazinone Herbicides									
Hexazinone	51235-04-2	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Metribuzin	21087-64-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
EP234E: Conazole and Aminopyrimidine Fungicides									
Cyproconazole	94361-06-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Flusilazole	85509-19-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Hexaconazole	79983-71-4	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Paclobutrazole	76738-62-0	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Propiconazole	60207-90-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Tebuconazole	107534-96-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Cyprodinil	121552-61-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Pyrimethanil	53112-28-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fluometuron	2164-17-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Tebuthiuron	34014-18-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Bromacil	314-40-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234G: Chloracetanilides									
Metolachlor	51218-45-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234H: Triazine Herbicides									
Ametryn	834-12-8	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Atrazine	1912-24-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	G9-SED-1019	G10-SED-1019	G11-SED-1019	G12-SED-1019	E1-SED-1019
				Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-050	EB1929990-051	EB1929990-052	EB1929990-053	EB1929990-054
					Result	Result	Result	Result	Result
EP234H: Triazine Herbicides - Continued									
Cyanazine	21725-46-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Prometryn	7287-19-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Propazine	139-40-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Simazine	122-34-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Terbuthylazine	5915-41-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Terbutryn	886-50-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP234I: Miscellaneous (ESI Positive Mode) Pesticides									
Fenarimol	60168-88-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Irgarol	28159-98-0	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**31.1**	**76.9**	**81.2**	**78.9**	**98.7**
EP094S: Pesticide Surrogate									
DEF	78-48-8	0.05	%		**77.6**	**89.9**	**73.2**	**48.8**	**106**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**54.0**	**56.0**	**51.2**	**56.3**	**56.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	E2-SED-1019	E3-SED-1019	E4-SED-1019	E5-SED-1019	E6-SED-1019
			Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit	EB1929990-055	EB1929990-056	EB1929990-057	EB1929990-058	EB1929990-059
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	27.0	31.0	30.4	34.2	34.2
EA150: Particle Sizing								
+75µm	----	1	%	98	97	98	98	98
+150µm	----	1	%	98	97	98	98	98
+300µm	----	1	%	97	97	93	98	98
+425µm	----	1	%	96	96	83	97	96
+600µm	----	1	%	89	91	67	93	87
+1180µm	----	1	%	44	60	37	54	38
+2.36mm	----	1	%	19	23	22	20	13
+4.75mm	----	1	%	13	8	12	8	6
+9.5mm	----	1	%	8	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	2	3	2	2	2
Silt (2-60 µm)	----	1	%	<1	<1	<1	<1	<1
Sand (0.06-2.00 mm)	----	1	%	71	63	72	68	77
Gravel (>2mm)	----	1	%	27	34	26	30	21
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.71	2.66	2.69	2.64	2.71
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	370	290	360	360	400
Iron	7439-89-6	50	mg/kg	390	280	410	400	410
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	1.23	1.14	<1.00	1.48	1.42
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	5.0	4.1	4.6	5.4	5.2
Copper	7440-50-8	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Lead	7439-92-1	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Manganese	7439-96-5	10	mg/kg	14	12	12	14	16

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	E2-SED-1019	E3-SED-1019	E4-SED-1019	E5-SED-1019	E6-SED-1019
				Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-055	EB1929990-056	EB1929990-057	EB1929990-058	EB1929990-059
					Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Nickel	7440-02-0	1.0	mg/kg		**1.2**	<1.0	**1.2**	**1.2**	**1.5**
Selenium	7782-49-2	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
Silver	7440-22-4	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	7440-66-6	1.0	mg/kg		**1.2**	<1.0	**1.5**	<1.0	**1.1**
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		**5.9**	**4.9**	**4.8**	**6.5**	**5.6**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP090: Organotin Compounds									
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	<0.5	**2.9**	**2.4**	<0.5
EP094A: Synthetic Pyrethroids									
Bioresmethrin	28434-01-07	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bifenthrin	82657-04-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Phenothrin	26002-80-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Lambda-cyhalothrin	68085-85-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Permethrin	52645-53-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cyfluthrin	68359-37-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Cypermethrin	52315-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Allethrin	584-79-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Transfluthrin	118712-89-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tetramethrin	7696-12-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Tau-fluvalinate	102851-06-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP094B: Synergist									
Piperonyl Butoxide	63993-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	E2-SED-1019	E3-SED-1019	E4-SED-1019	E5-SED-1019	E6-SED-1019
				Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-055	EB1929990-056	EB1929990-057	EB1929990-058	EB1929990-059
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
EP234A: OP Pesticides									
Azinphos-ethyl	2642-71-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Azinphos-methyl	86-50-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Chlorfenvinphos	470-90-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Coumaphos	56-72-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Diazinon	333-41-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Dimethoate	60-51-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Disulfoton	298-04-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Ethoprophos	13194-48-4	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenamiphos	22224-92-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Fenitrothion	122-14-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fensulfothion	115-90-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fenthion	55-38-9	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Malathion	121-75-5	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
^ **Mevinphos**	7786-34-7	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Monocrotophos	6923-22-4	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Omethoate	1113-02-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Parathion	56-38-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phorate	298-02-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Pirimiphos-methyl	29232-93-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Sulfotep	3689-24-5	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachlorvinphos	22248-79-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Triazophos	24017-47-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	E2-SED-1019	E3-SED-1019	E4-SED-1019	E5-SED-1019	E6-SED-1019
				Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-055	EB1929990-056	EB1929990-057	EB1929990-058	EB1929990-059
					Result	Result	Result	Result	Result
EP234B: Thiocarbamates and Carbamates									
Aldicarb	116-06-3	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Bendiocarb	22781-23-3	1	mg/kg		<1	<1	<1	<1	<1
Benomyl	17804-35-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Carbaryl	63-25-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Carbofuran	1563-66-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Methiocarb	2032-65-7	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Methomyl	16752-77-5	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Molinate	2212-67-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Oxamyl	23135-22-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiobencarb	28249-77-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Thiodicarb	59669-26-0	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234D: Triazinone Herbicides									
Hexazinone	51235-04-2	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Metribuzin	21087-64-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
EP234E: Conazole and Aminopyrimidine Fungicides									
Cyproconazole	94361-06-5	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Flusilazole	85509-19-9	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Hexaconazole	79983-71-4	0.004	mg/kg		<0.004	<0.004	<0.004	<0.004	<0.004
Paclobutrazole	76738-62-0	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Propiconazole	60207-90-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Tebuconazole	107534-96-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Cyprodinil	121552-61-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Pyrimethanil	53112-28-0	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Fluometuron	2164-17-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Tebuthiuron	34014-18-1	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Bromacil	314-40-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
EP234G: Chloracetanilides									
Metolachlor	51218-45-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
EP234H: Triazine Herbicides									
Ametryn	834-12-8	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Atrazine	1912-24-9	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	E2-SED-1019	E3-SED-1019	E4-SED-1019	E5-SED-1019	E6-SED-1019
				Client sampling date / time	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00	06-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1929990-055	EB1929990-056	EB1929990-057	EB1929990-058	EB1929990-059
					Result	Result	Result	Result	Result
EP234H: Triazine Herbicides - Continued									
Cyanazine	21725-46-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Prometryn	7287-19-6	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Propazine	139-40-2	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Simazine	122-34-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Terbuthylazine	5915-41-3	0.002	mg/kg		<0.002	<0.002	<0.002	<0.002	<0.002
Terbutryn	886-50-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP234I: Miscellaneous (ESI Positive Mode) Pesticides									
Fenarimol	60168-88-9	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
Irgarol	28159-98-0	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**99.9**	**114**	**108**	**99.9**	**106**
EP094S: Pesticide Surrogate									
DEF	78-48-8	0.05	%		**93.0**	**111**	**82.8**	**84.4**	**93.2**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**56.7**	**54.2**	**51.0**	**51.2**	**53.7**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	E7-SED-1019	----	----	----	----
			Client sampling date / time	06-Nov-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB1929990-060	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**27.8**	----	----	----	----
EA150: Particle Sizing								
+75µm	----	1	%	**97**	----	----	----	----
+150µm	----	1	%	**97**	----	----	----	----
+300µm	----	1	%	**97**	----	----	----	----
+425µm	----	1	%	**96**	----	----	----	----
+600µm	----	1	%	**92**	----	----	----	----
+1180µm	----	1	%	**75**	----	----	----	----
+2.36mm	----	1	%	**53**	----	----	----	----
+4.75mm	----	1	%	**38**	----	----	----	----
+9.5mm	----	1	%	**21**	----	----	----	----
+19.0mm	----	1	%	<1	----	----	----	----
+37.5mm	----	1	%	<1	----	----	----	----
+75.0mm	----	1	%	<1	----	----	----	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	**3**	----	----	----	----
Silt (2-60 µm)	----	1	%	<1	----	----	----	----
Sand (0.06-2.00 mm)	----	1	%	**37**	----	----	----	----
Gravel (>2mm)	----	1	%	**60**	----	----	----	----
Cobbles (>6cm)	----	1	%	<1	----	----	----	----
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	**2.69**	----	----	----	----
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	**440**	----	----	----	----
Iron	7439-89-6	50	mg/kg	**510**	----	----	----	----
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	----	----	----	----
Arsenic	7440-38-2	1.00	mg/kg	**1.32**	----	----	----	----
Cadmium	7440-43-9	0.1	mg/kg	<0.1	----	----	----	----
Chromium	7440-47-3	1.0	mg/kg	**5.6**	----	----	----	----
Copper	7440-50-8	1.0	mg/kg	<1.0	----	----	----	----
Cobalt	7440-48-4	0.5	mg/kg	<0.5	----	----	----	----
Lead	7439-92-1	1.0	mg/kg	<1.0	----	----	----	----
Manganese	7439-96-5	10	mg/kg	**17**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	E7-SED-1019	----	----	----	----
				Client sampling date / time	06-Nov-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB1929990-060	--------	--------	--------	--------
					Result	----	----	----	----
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Nickel	7440-02-0	1.0	mg/kg		**1.4**	----	----	----	----
Selenium	7782-49-2	0.1	mg/kg		<0.1	----	----	----	----
Silver	7440-22-4	0.1	mg/kg		<0.1	----	----	----	----
Vanadium	7440-62-2	2.0	mg/kg		<2.0	----	----	----	----
Zinc	7440-66-6	1.0	mg/kg		**1.4**	----	----	----	----
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		**5.2**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		<0.01	----	----	----	----
EP090: Organotin Compounds									
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	----	----	----	----
EP094A: Synthetic Pyrethroids									
Bioresmethrin	28434-01-07	0.05	mg/kg		<0.05	----	----	----	----
Bifenthrin	82657-04-3	0.05	mg/kg		<0.05	----	----	----	----
Phenothrin	26002-80-2	0.05	mg/kg		<0.05	----	----	----	----
Lambda-cyhalothrin	68085-85-8	0.05	mg/kg		<0.05	----	----	----	----
Permethrin	52645-53-1	0.05	mg/kg		<0.05	----	----	----	----
Cyfluthrin	68359-37-5	0.05	mg/kg		<0.05	----	----	----	----
Cypermethrin	52315-07-8	0.05	mg/kg		<0.05	----	----	----	----
Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg		<0.05	----	----	----	----
Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg		<0.05	----	----	----	----
Allethrin	584-79-2	0.05	mg/kg		<0.05	----	----	----	----
Transfluthrin	118712-89-3	0.05	mg/kg		<0.05	----	----	----	----
Tetramethrin	7696-12-0	0.05	mg/kg		<0.05	----	----	----	----
Tau-fluvalinate	102851-06-9	0.05	mg/kg		<0.05	----	----	----	----
EP094B: Synergist									
Piperonyl Butoxide	63993-73-7	0.05	mg/kg		<0.05	----	----	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	----	----	----	----
2.4-DB	94-82-6	0.02	mg/kg		<0.02	----	----	----	----
Dicamba	1918-00-9	0.02	mg/kg		<0.02	----	----	----	----
Mecoprop	93-65-2	0.02	mg/kg		<0.02	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	E7-SED-1019	----	----	----	----
				Client sampling date / time	06-Nov-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB1929990-060	--------	--------	--------	--------
					Result	----	----	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
MCPA	94-74-6	0.02	mg/kg		<0.02	----	----	----	----
2.4-DP	120-36-5	0.02	mg/kg		<0.02	----	----	----	----
2.4-D	94-75-7	0.02	mg/kg		<0.02	----	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	----	----	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	----	----	----	----
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	----	----	----	----
MCPB	94-81-5	0.02	mg/kg		<0.02	----	----	----	----
Picloram	1918-02-1	0.02	mg/kg		<0.02	----	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	----	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	----	----	----	----
EP234A: OP Pesticides									
Azinphos-ethyl	2642-71-9	0.005	mg/kg		<0.005	----	----	----	----
Azinphos-methyl	86-50-0	0.005	mg/kg		<0.005	----	----	----	----
Chlorfenvinphos	470-90-6	0.005	mg/kg		<0.005	----	----	----	----
Coumaphos	56-72-4	0.002	mg/kg		<0.002	----	----	----	----
Diazinon	333-41-5	0.002	mg/kg		<0.002	----	----	----	----
Dimethoate	60-51-5	0.004	mg/kg		<0.004	----	----	----	----
Disulfoton	298-04-4	0.01	mg/kg		<0.01	----	----	----	----
Ethoprophos	13194-48-4	0.002	mg/kg		<0.002	----	----	----	----
Fenamiphos	22224-92-6	0.002	mg/kg		<0.002	----	----	----	----
Fenitrothion	122-14-5	0.5	mg/kg		<0.5	----	----	----	----
Fensulfothion	115-90-2	0.005	mg/kg		<0.005	----	----	----	----
Fenthion	55-38-9	0.010	mg/kg		<0.010	----	----	----	----
Malathion	121-75-5	0.005	mg/kg		<0.005	----	----	----	----
^ **Mevinphos**	7786-34-7	0.005	mg/kg		<0.005	----	----	----	----
Monocrotophos	6923-22-4	0.005	mg/kg		<0.005	----	----	----	----
Omethoate	1113-02-6	0.002	mg/kg		<0.002	----	----	----	----
Parathion	56-38-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.5	mg/kg		<0.5	----	----	----	----
Phorate	298-02-2	0.02	mg/kg		<0.02	----	----	----	----
Pirimiphos-methyl	29232-93-7	0.002	mg/kg		<0.002	----	----	----	----
Sulfotep	3689-24-5	0.001	mg/kg		<0.001	----	----	----	----
Tetrachlorvinphos	22248-79-9	0.002	mg/kg		<0.002	----	----	----	----
Triazophos	24017-47-8	0.001	mg/kg		<0.001	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	E7-SED-1019	----	----	----	----
				Client sampling date / time	06-Nov-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB1929990-060	--------	--------	--------	--------
					Result	----	----	----	----
EP234B: Thiocarbamates and Carbamates									
Aldicarb	116-06-3	0.01	mg/kg		<0.01	----	----	----	----
Bendiocarb	22781-23-3	1	mg/kg		<1	----	----	----	----
Benomyl	17804-35-2	0.005	mg/kg		<0.005	----	----	----	----
Carbaryl	63-25-2	0.002	mg/kg		<0.002	----	----	----	----
Carbofuran	1563-66-2	0.002	mg/kg		<0.002	----	----	----	----
3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg		<0.005	----	----	----	----
Methiocarb	2032-65-7	0.002	mg/kg		<0.002	----	----	----	----
Methomyl	16752-77-5	0.002	mg/kg		<0.002	----	----	----	----
Molinate	2212-67-1	0.02	mg/kg		<0.02	----	----	----	----
Oxamyl	23135-22-0	0.002	mg/kg		<0.002	----	----	----	----
Thiobencarb	28249-77-6	0.002	mg/kg		<0.002	----	----	----	----
Thiodicarb	59669-26-0	0.002	mg/kg		<0.002	----	----	----	----
EP234D: Triazinone Herbicides									
Hexazinone	51235-04-2	0.004	mg/kg		<0.004	----	----	----	----
Metribuzin	21087-64-9	0.004	mg/kg		<0.004	----	----	----	----
EP234E: Conazole and Aminopyrimidine Fungicides									
Cyproconazole	94361-06-5	0.004	mg/kg		<0.004	----	----	----	----
Flusilazole	85509-19-9	0.004	mg/kg		<0.004	----	----	----	----
Hexaconazole	79983-71-4	0.004	mg/kg		<0.004	----	----	----	----
Paclobutrazole	76738-62-0	0.01	mg/kg		<0.01	----	----	----	----
Propiconazole	60207-90-1	0.01	mg/kg		<0.01	----	----	----	----
Tebuconazole	107534-96-3	0.002	mg/kg		<0.002	----	----	----	----
Cyprodinil	121552-61-2	0.002	mg/kg		<0.002	----	----	----	----
Pyrimethanil	53112-28-0	0.005	mg/kg		<0.005	----	----	----	----
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.005	mg/kg		<0.005	----	----	----	----
Fluometuron	2164-17-2	0.002	mg/kg		<0.002	----	----	----	----
Tebuthiuron	34014-18-1	0.005	mg/kg		<0.005	----	----	----	----
Bromacil	314-40-9	0.005	mg/kg		<0.005	----	----	----	----
EP234G: Chloracetanilides									
Metolachlor	51218-45-2	0.002	mg/kg		<0.002	----	----	----	----
EP234H: Triazine Herbicides									
Ametryn	834-12-8	0.002	mg/kg		<0.002	----	----	----	----
Atrazine	1912-24-9	0.002	mg/kg		<0.002	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	E7-SED-1019	----	----	----	----
				Client sampling date / time	06-Nov-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB1929990-060	--------	--------	--------	--------
					Result	----	----	----	----
EP234H: Triazine Herbicides - Continued									
Cyanazine	21725-46-2	0.005	mg/kg		<0.005	----	----	----	----
Prometryn	7287-19-6	0.002	mg/kg		<0.002	----	----	----	----
Propazine	139-40-2	0.002	mg/kg		<0.002	----	----	----	----
Simazine	122-34-9	0.005	mg/kg		<0.005	----	----	----	----
Terbuthylazine	5915-41-3	0.002	mg/kg		<0.002	----	----	----	----
Terbutryn	886-50-0	0.1	mg/kg		<0.1	----	----	----	----
EP234I: Miscellaneous (ESI Positive Mode) Pesticides									
Fenarimol	60168-88-9	0.005	mg/kg		<0.005	----	----	----	----
Irgarol	28159-98-0	0.001	mg/kg		<0.001	----	----	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**122**	----	----	----	----
EP094S: Pesticide Surrogate									
DEF	78-48-8	0.05	%		**96.2**	----	----	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**55.1**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP090S: Organotin Surrogate			
Tripropyltin	----	35	130
EP094S: Pesticide Surrogate			
DEF	78-48-8	10	110
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB1932835**	Page	: 1 of 6
Client	: **BMT COMMERCIAL AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MS BETH TOKI	Contact	: Andrew Epps
Address	: PO BOX 203 SPRING HILL BRISBANE QLD 4004	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: 07 3831 6744	Telephone	: +61 7 3552 8639
Project	: B23282-4 Douglas Shoal	Date Samples Received	: 05-Dec-2019 15:48
Order number	: ----	Date Analysis Commenced	: 06-Dec-2019
C-O-C number	: ----	Issue Date	: 16-Dec-2019 16:33
Sampler	: ----		
Site	: ----		
Quote number	: BN/165/18 B		
No. of samples received	: 12		
No. of samples analysed	: 12		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Diana Mesa	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP090 Organotin: Samples 'A10-SED-1026' and 'A13-SED-1029' show poor surrogate recovery due to matrix interference. Confirmed by re-extraction and re-analysis.
- EP090 Organotin: Samples 'A3-SED-1019' and 'A14-SED-1030' show poor duplicate results due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- EP090 Organotin: Significant sample heterogeneity was noted between extractions for samples 'A3-SED-1019', 'A10-SED-1026', 'A13-SED-1029' and 'A14-SED-1030'.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	A3-SED-1019	A4-SED-1020	A6-SED-1022	A7-SED-1023	A8-SED-1024
				Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EB1932835-001	EB1932835-002	EB1932835-004	EB1932835-005	EB1932835-006
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**29.0**	**31.5**	**30.3**	**33.0**	**35.7**
EP090: Organotin Compounds									
Tributyltin	56573-85-4	0.5	µgSn/kg		**1290**	**1.5**	**1.2**	**1.5**	**265**
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**44.1**	**119**	**38.9**	**113**	**88.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	A9-SED-1025	A10-SED-1026	A11-SED-1027	A12-SED-1028	A13-SED-1029
			Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00	05-Nov-2019 00:00
Compound	CAS Number	LOR	Unit	EB1932835-007	EB1932835-008	EB1932835-009	EB1932835-010	EB1932835-011
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	26.9	29.3	31.8	31.0	27.2
EP090: Organotin Compounds								
Tributyltin	56573-85-4	0.5	µgSn/kg	1.2	178	2.4	0.7	74.8
EP090S: Organotin Surrogate								
Tripropyltin	----	0.5	%	120	5.02	112	110	2.63

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	A14-SED-1030	SOPH-1 CRM	----	----	----
			Client sampling date / time	05-Nov-2019 00:00	05-Nov-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EB1932835-012	EB1932835-013	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**16.8**	----	----	----	----
EP090: Organotin Compounds								
Tributyltin	56573-85-4	0.5	µgSn/kg	**735**	**133**	----	----	----
EP090S: Organotin Surrogate								
Tripropyltin	----	0.5	%	**51.5**	**106**	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP090S: Organotin Surrogate			
Tripropyltin	----	35	130

D.2 Laboratory QA/QC Reporting

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB1926789**	Page	: 1 of 22
Client	: **BMT COMMERCIAL AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MS BETH TOKI	Contact	: Customer Services EB
Address	: PO BOX 203 SPRING HILL BRISBANE QLD 4004	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: 07 3831 6744	Telephone	: +61-7-3243 7222
Project	: B23282 Douglas Shoal	Date Samples Received	: 10-Oct-2019
Order number	: B23282	Date Analysis Commenced	: 10-Oct-2019
C-O-C number	: ----	Issue Date	: 25-Oct-2019
Sampler	: WILLIS BRASSIL		
Site	: ----		
Quote number	: BN/165/18 B		
No. of samples received	: 58		
No. of samples analysed	: 58		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Diana Mesa	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Sarah Ashworth	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QC Lot: 2632907)									
EB1926789-001	I1SED-1019	EG005-SD: Aluminium	7429-90-5	50	mg/kg	220	280	23.3	No Limit
		EG005-SD: Iron	7439-89-6	50	mg/kg	250	260	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QC Lot: 2632905)									
EB1926789-001	I1SED-1019	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2632915)									
EB1926662-007	Anonymous	EA055: Moisture Content	----	0.1	%	30.5	30.0	1.46	0% - 20%
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 2632906)									
EB1926789-001	I1SED-1019	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	0.1	0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	1.56	1.29	18.9	No Limit
		EG020-SD: Chromium	7440-47-3	1	mg/kg	7.2	7.0	3.26	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Manganese	7439-96-5	10	mg/kg	19	22	16.5	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	<2.0	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 2632908)									
EB1926789-001	I1SED-1019	EG020X-T: Barium	7440-39-3	0.1	mg/kg	6.6	# 5.0	27.6	0% - 20%
EP090: Organotin Compounds (QC Lot: 2651335)									
EB1926789-001	I1SED-1019	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP090: Organotin Compounds (QC Lot: 2651335) - continued									
EB1926789-001	I1SED-1019	EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	0.00	No Limit
		EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	0.00	No Limit
EP1910525-026	Anonymous	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.00	No Limit
		EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	0.00	No Limit
		EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	0.00	No Limit
EP094A: Synthetic Pyrethroids (QC Lot: 2632913)									
EB1926789-001	I1SED-1019	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66 230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66 841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094B: Synergist (QC Lot: 2632913)									
EB1926789-001	I1SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2637610)									
EB1926789-001	I1SED-1019	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
ES1933348-004	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2637610) - continued									
ES1933348-004	Anonymous	EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EP234A: OP Pesticides (QC Lot: 2634892)									
EB1926754-001	Anonymous	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	0.020	0.017	17.5	0% - 50%
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	0.006	0.004	34.5	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	28.6	28.1	1.73	0% - 50%
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP234B: Thiocarbamates and Carbamates (QC Lot: 2634892)									
EB1926754-001	Anonymous	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234B: Thiocarbamates and Carbamates (QC Lot: 2634892) - continued									
EB1926754-001	Anonymous	EP234: Methomyl	16752-77-5	0.002	mg/kg	0.003	0.003	0.00	No Limit
		EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiobencarb	28249-77-6	0.002	mg/kg	1.60	1.42	11.9	0% - 50%
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	0.006	0.006	0.00	No Limit
		EP234: Benomyl	17804-35-2	0.005	mg/kg	0.009	0.009	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EP234D: Triazinone Herbicides (QC Lot: 2634892)									
EB1926754-001	Anonymous	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	0.206	0.214	3.89	No Limit
EP234E: Conazole and Aminopyrimidine Fungicides (QC Lot: 2634892)									
EB1926754-001	Anonymous	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	0.320	0.381	17.2	0% - 20%
		EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	0.128	0.146	13.2	0% - 20%
		EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QC Lot: 2634892)									
EB1926754-001	Anonymous	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	0.033	0.031	6.62	No Limit
		EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	0.022	0.015	38.6	No Limit
EP234G: Chloracetanilides (QC Lot: 2634892)									
EB1926754-001	Anonymous	EP234: Metolachlor	51218-45-2	0.002	mg/kg	2.11	1.96	7.23	0% - 50%
EP234H: Triazine Herbicides (QC Lot: 2634892)									
EB1926754-001	Anonymous	EP234: Ametryn	834-12-8	0.002	mg/kg	0.016	0.013	23.2	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	0.022	0.023	5.09	0% - 50%
		EP234: Prometryn	7287-19-6	0.002	mg/kg	0.011	0.010	10.7	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	0.003	0.004	45.4	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QC Lot: 2634892)									
EB1926754-001	Anonymous	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QC Lot: 2634892) - continued									
EB1926754-001	Anonymous	EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 2633285)									
EB1926789-017	D3WAT-1019	EA025: Suspended Solids (SS)	----	1	mg/L	<1	<1	0.00	No Limit
EB1926512-016	Anonymous	EA025: Suspended Solids (SS)	----	1	mg/L	4	4	0.00	No Limit
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 2633286)									
EB1926789-029	G3WAT-1019	EA025: Suspended Solids (SS)	----	1	mg/L	<1	<1	0.00	No Limit
EB1926789-041	B1WAT-1019	EA025: Suspended Solids (SS)	----	1	mg/L	<1	<1	0.00	No Limit
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 2633287)									
EB1926789-053	H4WAT-1019	EA025: Suspended Solids (SS)	----	1	mg/L	<1	<1	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 2633722)									
EB1926789-005	C1WAT-1019	EG035F-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	<0.00004	0.00	No Limit
EB1926789-019	D5WAT-1019	EG035F-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	<0.00004	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 2633723)									
EB1926789-031	G5WAT-1019	EG035F-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	<0.00004	0.00	No Limit
EB1926789-043	B3WAT-1019	EG035F-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	<0.00004	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 2633725)									
EB1926789-051	H2WAT-1019	EG035F-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	<0.00004	0.00	No Limit
EG035T: Total Mercury by FIMS (QC Lot: 2633756)									
EB1926789-005	C1WAT-1019	EG035T-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	<0.00004	0.00	No Limit
EB1926789-019	D5WAT-1019	EG035T-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	<0.00004	0.00	No Limit
EG035T: Total Mercury by FIMS (QC Lot: 2633775)									
EB1926789-031	G5WAT-1019	EG035T-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	<0.00004	0.00	No Limit
EB1926789-043	B3WAT-1019	EG035T-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	<0.00004	0.00	No Limit
EG035T: Total Mercury by FIMS (QC Lot: 2633779)									
EB1926789-055	I1WAT-1019	EG035T-LL: Mercury	7439-97-6	0.00004	mg/L	0.00006	0.00006	0.00	No Limit
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 2633753)									
EB1926789-007	C3WAT-1019	EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-F: Antimony	7440-36-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	1.9	1.2	44.2	No Limit
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-F: Barium	7440-39-3	1	µg/L	3	3	0.00	No Limit
		EG093A-F: Copper	7440-50-8	1	µg/L	<1	<1	0.00	No Limit
		EG093A-F: Aluminium	7429-90-5	5	µg/L	<5	<5	0.00	No Limit
		EG093A-F: Zinc	7440-66-6	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 2633753) - continued									
EB1926789-018	D4WAT-1019	EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-F: Antimony	7440-36-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	2.0	1.5	31.6	No Limit
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	0.6	<0.5	19.6	No Limit
		EG093A-F: Barium	7440-39-3	1	µg/L	4	4	0.00	No Limit
		EG093A-F: Copper	7440-50-8	1	µg/L	<1	<1	0.00	No Limit
		EG093A-F: Aluminium	7429-90-5	5	µg/L	<5	<5	0.00	No Limit
		EG093A-F: Zinc	7440-66-6	5	µg/L	<5	<5	0.00	No Limit
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 2633754)									
EB1926789-007	C3WAT-1019	EG093B-F: Iron	7439-89-6	5	µg/L	<5	<5	0.00	No Limit
EB1926789-018	D4WAT-1019	EG093B-F: Iron	7439-89-6	5	µg/L	<5	<5	0.00	No Limit
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 2633771)									
EB1926789-033	A2WAT-1019	EG093B-F: Iron	7439-89-6	5	µg/L	<5	<5	0.00	No Limit
EB1926789-042	B2WAT-1019	EG093B-F: Iron	7439-89-6	5	µg/L	<5	<5	0.00	No Limit
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 2633772)									
EB1926789-033	A2WAT-1019	EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-F: Antimony	7440-36-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	1.6	1.4	11.9	No Limit
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-F: Barium	7440-39-3	1	µg/L	4	3	0.00	No Limit
		EG093A-F: Copper	7440-50-8	1	µg/L	<1	<1	0.00	No Limit
		EG093A-F: Aluminium	7429-90-5	5	µg/L	<5	<5	0.00	No Limit
		EG093A-F: Zinc	7440-66-6	5	µg/L	<5	<5	0.00	No Limit
EB1926789-042	B2WAT-1019	EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-F: Antimony	7440-36-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	1.4	1.5	0.00	No Limit
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-F: Barium	7440-39-3	1	µg/L	3	3	0.00	No Limit
		EG093A-F: Copper	7440-50-8	1	µg/L	<1	<1	0.00	No Limit
		EG093A-F: Aluminium	7429-90-5	5	µg/L	<5	<5	0.00	No Limit
		EG093A-F: Zinc	7440-66-6	5	µg/L	<5	<5	0.00	No Limit
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 2633776)									
EB1926789-055	I1WAT-1019	EG093B-F: Iron	7439-89-6	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 2633777)									
EB1926789-055	I1WAT-1019	EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-F: Antimony	7440-36-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	1.6	1.6	0.00	No Limit
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-F: Barium	7440-39-3	1	µg/L	4	3	0.00	No Limit
		EG093A-F: Copper	7440-50-8	1	µg/L	<1	<1	0.00	No Limit
		EG093A-F: Aluminium	7429-90-5	5	µg/L	<5	<5	0.00	No Limit
		EG093A-F: Zinc	7440-66-6	5	µg/L	<5	<5	0.00	No Limit
EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 2633755)									
EB1926789-005	C1WAT-1019	EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-T: Antimony	7440-36-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	2.1	1.8	20.2	No Limit
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-T: Barium	7440-39-3	1	µg/L	4	4	0.00	No Limit
		EG093A-T: Copper	7440-50-8	1	µg/L	<1	<1	0.00	No Limit
		EG093A-T: Aluminium	7429-90-5	5	µg/L	<5	<5	0.00	No Limit
		EG093A-T: Zinc	7440-66-6	5	µg/L	<5	<5	0.00	No Limit
EB1926789-018	D4WAT-1019	EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-T: Antimony	7440-36-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	1.7	1.8	6.98	No Limit
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-T: Barium	7440-39-3	1	µg/L	5	4	0.00	No Limit
		EG093A-T: Copper	7440-50-8	1	µg/L	<1	<1	0.00	No Limit
		EG093A-T: Aluminium	7429-90-5	5	µg/L	<5	<5	0.00	No Limit
		EG093A-T: Zinc	7440-66-6	5	µg/L	<5	<5	0.00	No Limit
EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 2633773)									
EB1926789-031	G5WAT-1019	EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-T: Antimony	7440-36-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	1.6	1.4	14.6	No Limit
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-T: Barium	7440-39-3	1	µg/L	4	4	0.00	No Limit
		EG093A-T: Copper	7440-50-8	1	µg/L	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 2633773) - continued									
EB1926789-031	G5WAT-1019	EG093A-T: Aluminium	7429-90-5	5	µg/L	<5	<5	0.00	No Limit
		EG093A-T: Zinc	7440-66-6	5	µg/L	<5	<5	0.00	No Limit
EB1926789-042	B2WAT-1019	EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-T: Antimony	7440-36-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	1.6	1.4	11.8	No Limit
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-T: Barium	7440-39-3	1	µg/L	4	4	0.00	No Limit
		EG093A-T: Copper	7440-50-8	1	µg/L	<1	<1	0.00	No Limit
		EG093A-T: Aluminium	7429-90-5	5	µg/L	<5	<5	0.00	No Limit
		EG093A-T: Zinc	7440-66-6	5	µg/L	<5	<5	0.00	No Limit
EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 2633778)									
EB1926789-055	I1WAT-1019	EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG093A-T: Antimony	7440-36-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	1.6	1.4	16.6	No Limit
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	0.6	<0.5	0.00	No Limit
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG093A-T: Barium	7440-39-3	1	µg/L	4	4	0.00	No Limit
		EG093A-T: Copper	7440-50-8	1	µg/L	<1	<1	0.00	No Limit
		EG093A-T: Aluminium	7429-90-5	5	µg/L	<5	<5	0.00	No Limit
		EG093A-T: Zinc	7440-66-6	5	µg/L	<5	<5	0.00	No Limit
EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 2664434)									
EB1926789-063	R01-1019	EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EG094A-T: Lead	7439-92-1	0.1	µg/L	0.3	0.3	0.00	No Limit
		EG094A-T: Antimony	7440-36-0	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	0.2	0.00	No Limit
		EG094A-T: Barium	7440-39-3	0.5	µg/L	1.2	1.3	11.4	No Limit
		EG094A-T: Copper	7440-50-8	0.5	µg/L	1.9	1.7	14.1	No Limit
		EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EG094A-T: Zinc	7440-66-6	1	µg/L	6	6	0.00	No Limit
		EG094A-T: Aluminium	7429-90-5	5	µg/L	<5	6	19.5	No Limit
EP090: Organotin Compounds (Soluble) (QC Lot: 2637687)									
EB1926789-039	AMB01	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.00	No Limit
EP090: Organotin Compounds (Soluble) (QC Lot: 2637690)									
EB1926789-048	AMB02	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.00	No Limit
EP090: Organotin Compounds (Soluble) (QC Lot: 2637740)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP090: Organotin Compounds (Soluble) (QC Lot: 2637740) - continued									
EB1926789-011	AMB04	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.00	No Limit
EB1926789-020	AMB03	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QCLot: 2632907)								
EG005-SD: Aluminium	7429-90-5	50	mg/kg	<50	12361 mg/kg	118	70.0	130
EG005-SD: Iron	7439-89-6	50	mg/kg	<50	30024 mg/kg	100	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2632905)								
EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	0.0847 mg/kg	95.2	70.0	130
EA152: Soil Particle Density (QCLot: 2633642)								
EA152: Soil Particle Density (Clay/Silt/Sand)	----	----	g/cm3	----	2.68 g/cm3	101	80.0	120
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2632906)								
EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	----	----	----	----
EG020-SD: Arsenic	7440-38-2	1	mg/kg	<1.00	96.1 mg/kg	108	80.0	124
EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	0.74 mg/kg	113	87.0	122
EG020-SD: Chromium	7440-47-3	1	mg/kg	<1.0	15.3 mg/kg	113	79.0	129
EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	44.8 mg/kg	106	85.0	118
EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	----	----	----	----
EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	52.8 mg/kg	113	86.0	119
EG020-SD: Manganese	7439-96-5	10	mg/kg	<10	----	----	----	----
EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	12.2 mg/kg	106	77.0	123
EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	----	----	----	----
EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	114 mg/kg	107	71.0	127
EG020T: Total Metals by ICP-MS (QCLot: 2632908)								
EG020X-T: Barium	7440-39-3	0.1	mg/kg	<0.1	77.4 mg/kg	110	86.0	123
EP090: Organotin Compounds (QCLot: 2651335)								
EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	1.25 µgSn/kg	102	36.0	128
EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	1.25 µgSn/kg	105	42.0	132
EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	1.25 µgSn/kg	92.0	52.0	139
EP094A: Synthetic Pyrethroids (QCLot: 2632913)								
EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.07	0.5 mg/kg	82.3	67.0	137
EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.07	0.5 mg/kg	86.4	66.0	134
EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.07	0.5 mg/kg	92.0	67.0	134
EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.07	0.5 mg/kg	102	60.0	134
EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.07	0.5 mg/kg	100	71.0	128
EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.07	0.5 mg/kg	97.6	68.0	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP094A: Synthetic Pyrethroids (QCLot: 2632913) - continued								
EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.07	0.5 mg/kg	96.4	66.0	130
EP094: Fenvalerate & Esfenvalerate	51630-58-1/ 66230-04-	0.05	mg/kg	<0.07	0.5 mg/kg	112	60.0	142
EP094: Deltamethrin & Tralomethrin	62229-77-0/ 66841-25-	0.05	mg/kg	<0.07	0.5 mg/kg	120	56.0	130
EP094: Allethrin	584-79-2	0.05	mg/kg	<0.07	0.5 mg/kg	96.6	60.0	135
EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.07	0.5 mg/kg	95.5	63.0	137
EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.07	0.5 mg/kg	88.3	60.0	130
EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.07	0.5 mg/kg	115	62.0	136
EP094B: Synergist (QCLot: 2632913)								
EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.07	0.5 mg/kg	77.6	59.0	145
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2637610)								
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	96.3	54.4	128
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	97.7	45.5	130
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	72.1	51.7	135
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	94.5	60.0	130
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	97.2	56.8	131
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	95.6	50.0	141
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	95.2	68.5	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	99.4	50.8	141
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	92.3	40.8	126
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	99.3	57.4	139
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	99.5	38.9	137
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	76.3	48.7	129
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	55.4	49.4	106
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	91.2	53.2	128
EP234A: OP Pesticides (QCLot: 2634892)								
EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	0.04 mg/kg	111	70.0	130
EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	0.04 mg/kg	82.4	60.0	118
EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	0.08 mg/kg	101	61.0	111
EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	0.02 mg/kg	84.8	65.0	101
EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	0.02 mg/kg	88.8	63.0	95.0
EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	0.04 mg/kg	95.2	70.0	130
EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	0.1 mg/kg	87.8	70.0	130
EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	0.02 mg/kg	92.0	70.0	130
EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	0.02 mg/kg	74.4	70.0	130
EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	4 mg/kg	76.8	70.0	130
EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	0.02 mg/kg	81.6	62.0	116

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP234A: OP Pesticides (QCLot: 2634892) - continued								
EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	0.1 mg/kg	81.4	70.0	130
EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	0.04 mg/kg	81.6	70.0	130
EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	0.08 mg/kg	89.2	67.0	123
EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	0.04 mg/kg	93.2	61.0	117
EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	0.02 mg/kg	80.0	70.0	130
EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	0.4 mg/kg	100	70.0	130
EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	4 mg/kg	94.5	62.0	118
EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	0.2 mg/kg	80.0	70.0	130
EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	0.02 mg/kg	96.8	63.0	103
EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	0.01 mg/kg	91.2	59.0	111
EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	0.02 mg/kg	83.2	60.0	106
EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	0.01 mg/kg	83.2	63.0	107
EP234B: Thiocarbamates and Carbamates (QCLot: 2634892)								
EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	0.1 mg/kg	90.9	67.0	117
EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	0.2 mg/kg	124	70.0	130
EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	0.02 mg/kg	84.0	56.0	122
EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	0.02 mg/kg	89.6	70.0	130
EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	0.02 mg/kg	79.2	70.0	130
EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	0.04 mg/kg	82.8	70.0	130
EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	0.02 mg/kg	77.6	70.0	130
EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	0.02 mg/kg	107	70.0	130
EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	0.2 mg/kg	95.9	70.0	130
EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	0.02 mg/kg	76.0	70.0	130
EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	0.02 mg/kg	71.2	59.0	109
EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	0.02 mg/kg	72.0	70.0	130
EP234D: Triazinone Herbicides (QCLot: 2634892)								
EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	0.04 mg/kg	79.2	62.0	124
EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	0.04 mg/kg	96.8	65.0	119
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2634892)								
EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	0.08 mg/kg	76.2	70.0	130
EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	0.04 mg/kg	80.4	59.0	107
EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	0.04 mg/kg	80.8	62.0	106
EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	0.1 mg/kg	115	70.0	130
EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	0.1 mg/kg	92.5	60.0	102
EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	0.02 mg/kg	94.4	70.0	130
EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	0.02 mg/kg	86.4	62.0	98.0
EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	0.04 mg/kg	84.4	61.0	127
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2634892)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2634892) - continued								
EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	0.04 mg/kg	81.2	70.0	130
EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	0.02 mg/kg	90.4	64.0	122
EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	0.04 mg/kg	102	58.0	108
EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	0.04 mg/kg	107	61.0	131
EP234G: Chloracetanilides (QCLot: 2634892)								
EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	0.02 mg/kg	82.4	70.0	130
EP234H: Triazine Herbicides (QCLot: 2634892)								
EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	0.02 mg/kg	81.6	70.0	130
EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	0.02 mg/kg	88.8	62.0	120
EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	0.04 mg/kg	84.4	70.0	130
EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	0.02 mg/kg	123	58.0	130
EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	0.02 mg/kg	99.2	61.0	127
EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	0.04 mg/kg	90.0	70.0	130
EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	0.02 mg/kg	86.4	63.0	117
EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	0.02 mg/kg	102	59.0	115
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2634892)								
EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	0.04 mg/kg	101	62.0	114
EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	0.004 mg/kg	100	60.0	112

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 2633285)								
EA025: Suspended Solids (SS)	----	1	mg/L	<1	150 mg/L	101	84.0	120
				<1	1000 mg/L	97.8	84.0	120
				<1	951 mg/L	108	87.9	116
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 2633286)								
EA025: Suspended Solids (SS)	----	1	mg/L	<1	150 mg/L	99.2	84.0	120
				<1	1000 mg/L	95.5	84.0	120
				<1	951 mg/L	104	87.9	116
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 2633287)								
EA025: Suspended Solids (SS)	----	1	mg/L	<1	150 mg/L	105	84.0	120
				<1	1000 mg/L	96.6	84.0	120
				<1	951 mg/L	107	87.9	116
EG035F: Dissolved Mercury by FIMS (QCLot: 2633722)								
EG035F-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	0.002 mg/L	93.1	85.0	118
EG035F: Dissolved Mercury by FIMS (QCLot: 2633723)								
EG035F-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	0.002 mg/L	98.1	85.0	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG035F: Dissolved Mercury by FIMS (QCLot: 2633725)								
EG035F-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	0.002 mg/L	101	85.0	118
EG035T: Total Mercury by FIMS (QCLot: 2633756)								
EG035T-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	0.002 mg/L	100	84.0	114
EG035T: Total Mercury by FIMS (QCLot: 2633775)								
EG035T-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	0.002 mg/L	100	84.0	114
EG035T: Total Mercury by FIMS (QCLot: 2633779)								
EG035T-LL: Mercury	7439-97-6	0.00004	mg/L	<0.00004	0.002 mg/L	101	84.0	114
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 2633753)								
EG093A-F: Aluminium	7429-90-5	5	µg/L	<5	50 µg/L	86.5	85.0	118
EG093A-F: Antimony	7440-36-0	0.5	µg/L	<0.5	10 µg/L	97.1	87.0	115
EG093A-F: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	98.9	87.0	116
EG093A-F: Barium	7440-39-3	1	µg/L	<1	10 µg/L	90.8	87.0	114
EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	93.2	88.0	114
EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	93.2	83.0	115
EG093A-F: Copper	7440-50-8	1	µg/L	<1	10 µg/L	91.9	81.0	117
EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	87.4	80.0	117
EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	95.6	87.0	117
EG093A-F: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	96.0	81.0	120
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 2633754)								
EG093B-F: Iron	7439-89-6	5	µg/L	<5	50 µg/L	92.5	78.0	123
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 2633771)								
EG093B-F: Iron	7439-89-6	5	µg/L	<5	50 µg/L	95.6	78.0	123
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 2633772)								
EG093A-F: Aluminium	7429-90-5	5	µg/L	<5	50 µg/L	86.7	85.0	118
EG093A-F: Antimony	7440-36-0	0.5	µg/L	<0.5	10 µg/L	107	87.0	115
EG093A-F: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	94.2	87.0	116
EG093A-F: Barium	7440-39-3	1	µg/L	<1	10 µg/L	89.1	87.0	114
EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	94.7	88.0	114
EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	92.8	83.0	115
EG093A-F: Copper	7440-50-8	1	µg/L	<1	10 µg/L	95.1	81.0	117
EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	102	80.0	117
EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	99.3	87.0	117
EG093A-F: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	98.2	81.0	120
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 2633776)								
EG093B-F: Iron	7439-89-6	5	µg/L	<5	50 µg/L	96.2	78.0	123
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 2633777)								
EG093A-F: Aluminium	7429-90-5	5	µg/L	<5	50 µg/L	91.0	85.0	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 2633777) - continued								
EG093A-F: Antimony	7440-36-0	0.5	µg/L	<0.5	10 µg/L	98.5	87.0	115
EG093A-F: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	96.0	87.0	116
EG093A-F: Barium	7440-39-3	1	µg/L	<1	10 µg/L	89.8	87.0	114
EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	94.7	88.0	114
EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	87.6	83.0	115
EG093A-F: Copper	7440-50-8	1	µg/L	<1	10 µg/L	95.5	81.0	117
EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	104	80.0	117
EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	94.1	87.0	117
EG093A-F: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	95.7	81.0	120
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2633755)								
EG093A-T: Aluminium	7429-90-5	5	µg/L	<5	50 µg/L	95.5	85.0	120
EG093A-T: Antimony	7440-36-0	0.5	µg/L	<0.5	10 µg/L	98.1	83.0	116
EG093A-T: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	97.2	86.0	117
EG093A-T: Barium	7440-39-3	1	µg/L	<1	10 µg/L	101	84.0	118
EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	97.8	84.0	115
EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	94.4	84.0	120
EG093A-T: Copper	7440-50-8	1	µg/L	<1	10 µg/L	101	84.0	119
EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	101	84.0	120
EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	91.9	80.0	120
EG093A-T: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	95.9	81.0	124
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2633773)								
EG093A-T: Aluminium	7429-90-5	5	µg/L	<5	50 µg/L	97.8	85.0	120
EG093A-T: Antimony	7440-36-0	0.5	µg/L	<0.5	10 µg/L	98.2	83.0	116
EG093A-T: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	89.8	86.0	117
EG093A-T: Barium	7440-39-3	1	µg/L	<1	10 µg/L	89.4	84.0	118
EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	92.9	84.0	115
EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	90.9	84.0	120
EG093A-T: Copper	7440-50-8	1	µg/L	<1	10 µg/L	95.4	84.0	119
EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	96.7	84.0	120
EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	100	80.0	120
EG093A-T: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	92.6	81.0	124
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2633778)								
EG093A-T: Aluminium	7429-90-5	5	µg/L	<5	50 µg/L	86.6	85.0	120
EG093A-T: Antimony	7440-36-0	0.5	µg/L	<0.5	10 µg/L	92.0	83.0	116
EG093A-T: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	98.0	86.0	117
EG093A-T: Barium	7440-39-3	1	µg/L	<1	10 µg/L	102	84.0	118
EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	94.4	84.0	115
EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	98.7	84.0	120

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2633778) - continued								
EG093A-T: Copper	7440-50-8	1	µg/L	<1	10 µg/L	97.9	84.0	119
EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	97.0	84.0	120
EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	99.2	80.0	120
EG093A-T: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	109	81.0	124
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 2664434)								
EG094A-T: Aluminium	7429-90-5	5	µg/L	<5	50 µg/L	92.2	80.0	120
EG094A-T: Antimony	7440-36-0	0.2	µg/L	<0.2	10 µg/L	109	80.0	120
EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	99.4	80.0	120
EG094A-T: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	95.2	80.0	120
EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	98.0	80.0	120
EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	109	80.0	120
EG094A-T: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	109	80.0	120
EG094A-T: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	98.9	80.0	120
EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	107	80.0	120
EG094A-T: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	110	80.0	120
EP090: Organotin Compounds (Soluble) (QCLot: 2637687)								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	78.9	30.7	134
EP090: Organotin Compounds (Soluble) (QCLot: 2637690)								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	93.8	30.7	134
EP090: Organotin Compounds (Soluble) (QCLot: 2637740)								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	84.7	30.7	134

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2632905)							
EB1926789-002	I11SED-1019	EG035T-LL: Mercury	7439-97-6	0.5 mg/kg	77.5	70.0	130
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2632906)							
EB1926789-002	I11SED-1019	EG020-SD: Arsenic	7440-38-2	100 mg/kg	92.0	70.0	130
		EG020-SD: Cadmium	7440-43-9	25 mg/kg	82.3	70.0	130
		EG020-SD: Chromium	7440-47-3	100 mg/kg	93.8	70.0	130
		EG020-SD: Copper	7440-50-8	100 mg/kg	80.2	70.0	130
		EG020-SD: Cobalt	7440-48-4	100 mg/kg	94.0	70.0	130
		EG020-SD: Lead	7439-92-1	100 mg/kg	92.5	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2632906) - continued							
EB1926789-002	I11SED-1019	EG020-SD: Manganese	7439-96-5	100 mg/kg	111	70.0	130
		EG020-SD: Nickel	7440-02-0	100 mg/kg	80.5	70.0	130
		EG020-SD: Vanadium	7440-62-2	100 mg/kg	99.5	70.0	130
		EG020-SD: Zinc	7440-66-6	100 mg/kg	76.6	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 2632908)							
EB1926789-002	I11SED-1019	EG020X-T: Barium	7440-39-3	100 mg/kg	97.0	70.0	130
EP090: Organotin Compounds (QCLot: 2651335)							
EB1926789-002	I11SED-1019	EP090: Monobutyltin	78763-54-9	1.25 µgSn/kg	79.3	20.0	130
		EP090: Dibutyltin	1002-53-5	1.25 µgSn/kg	82.9	20.0	130
		EP090: Tributyltin	56573-85-4	1.25 µgSn/kg	47.4	20.0	130
EP094A: Synthetic Pyrethroids (QCLot: 2632913)							
EB1926789-002	I11SED-1019	EP094: Bioresmethrin	28434-01-07	0.5 mg/kg	60.6	60.0	140
		EP094: Bifenthrin	82657-04-3	0.5 mg/kg	88.5	60.0	140
		EP094: Phenothrin	26002-80-2	0.5 mg/kg	93.6	60.0	140
		EP094: Lambda-cyhalothrin	68085-85-8	0.5 mg/kg	103	60.0	140
		EP094: Permethrin	52645-53-1	0.5 mg/kg	96.3	60.0	140
		EP094: Cyfluthrin	68359-37-5	0.5 mg/kg	95.8	60.0	140
		EP094: Cypermethrin	52315-07-8	0.5 mg/kg	95.0	60.0	140
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/6	0.5 mg/kg	110	60.0	140
		EP094: Deltamethrin & Tralomethrin	62229-77-0/6 6841-25-	0.5 mg/kg	119	60.0	140
		EP094: Allethrin	584-79-2	0.5 mg/kg	107	60.0	140
		EP094: Transfluthrin	118712-89-3	0.5 mg/kg	95.8	60.0	140
		EP094: Tetramethrin	7696-12-0	0.5 mg/kg	95.6	60.0	140
		EP094: Tau-fluvalinate	102851-06-9	0.5 mg/kg	114	60.0	140
EP094B: Synergist (QCLot: 2632913)							
EB1926789-002	I11SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.5 mg/kg	79.7	60.0	140
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2637610)							
EB1926789-001	I1SED-1019	EP202: Mecoprop	93-65-2	0.1 mg/kg	95.8	60.0	140
		EP202: MCPA	94-74-6	0.1 mg/kg	100	57.0	143
		EP202: 2.4-D	94-75-7	0.1 mg/kg	98.9	68.0	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	97.8	51.0	145
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	96.5	57.0	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	66.2	49.0	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	60.0	49.0	149
EP234A: OP Pesticides (QCLot: 2634892)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234A: OP Pesticides (QCLot: 2634892) - continued							
EB1926754-001	Anonymous	EP234: Azinphos-ethyl	2642-71-9	0.04 mg/kg	108	70.0	130
		EP234: Azinphos-methyl	86-50-0	0.04 mg/kg	115	70.0	130
		EP234: Chlorfenvinphos	470-90-6	0.08 mg/kg	81.2	70.0	130
		EP234: Coumaphos	56-72-4	0.02 mg/kg	80.8	70.0	130
		EP234: Diazinon	333-41-5	0.02 mg/kg	# Not Determined	70.0	130
		EP234: Dimethoate	60-51-5	0.04 mg/kg	112	70.0	130
		EP234: Disulfoton	298-04-4	0.1 mg/kg	108	70.0	130
		EP234: Ethoprophos	13194-48-4	0.02 mg/kg	80.0	70.0	130
		EP234: Fenamiphos	22224-92-6	0.02 mg/kg	# Not Determined	70.0	130
		EP234: Fenitrothion	122-14-5	4 mg/kg	101	70.0	130
		EP234: Fensulfothion	115-90-2	0.02 mg/kg	93.6	70.0	130
		EP234: Fenthion	55-38-9	0.1 mg/kg	76.6	70.0	130
		EP234: Malathion	121-75-5	0.04 mg/kg	116	70.0	130
		EP234: Mevinphos	7786-34-7	0.08 mg/kg	118	70.0	130
		EP234: Monocrotophos	6923-22-4	0.04 mg/kg	103	70.0	130
		EP234: Omethoate	1113-02-6	0.02 mg/kg	105	70.0	130
		EP234: Parathion	56-38-2	0.4 mg/kg	107	70.0	130
		EP234: Parathion-methyl	298-00-0	4 mg/kg	86.5	70.0	130
		EP234: Phorate	298-02-2	0.2 mg/kg	99.0	70.0	130
		EP234: Pirimiphos-methyl	29232-93-7	0.02 mg/kg	78.4	70.0	130
		EP234: Sulfotep	3689-24-5	0.01 mg/kg	106	70.0	130
		EP234: Tetrachlorvinphos	22248-79-9	0.02 mg/kg	106	70.0	130
		EP234: Triazophos	24017-47-8	0.01 mg/kg	120	70.0	130
EP234B: Thiocarbamates and Carbamates (QCLot: 2634892)							
EB1926754-001	Anonymous	EP234: Aldicarb	116-06-3	0.1 mg/kg	112	70.0	130
		EP234: Bendiocarb	22781-23-3	0.2 mg/kg	127	70.0	130
		EP234: Benomyl	17804-35-2	0.02 mg/kg	# 39.2	70.0	130
		EP234: Carbaryl	63-25-2	0.02 mg/kg	114	70.0	130
		EP234: Carbofuran	1563-66-2	0.02 mg/kg	118	70.0	130
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.04 mg/kg	120	70.0	130
		EP234: Methiocarb	2032-65-7	0.02 mg/kg	124	70.0	130
		EP234: Methomyl	16752-77-5	0.02 mg/kg	112	70.0	130
		EP234: Molinate	2212-67-1	0.2 mg/kg	104	70.0	130
		EP234: Oxamyl	23135-22-0	0.02 mg/kg	120	70.0	130
		EP234: Thiobencarb	28249-77-6	0.02 mg/kg	# Not Determined	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234B: Thiocarbamates and Carbamates (QCLot: 2634892) - continued							
EB1926754-001	Anonymous	EP234: Thiodicarb	59669-26-0	0.02 mg/kg	# Not Determined	70.0	130
EP234D: Triazinone Herbicides (QCLot: 2634892)							
EB1926754-001	Anonymous	EP234: Hexazinone	51235-04-2	0.04 mg/kg	# 18.0	70.0	130
		EP234: Metribuzin	21087-64-9	0.04 mg/kg	# Not Determined	70.0	130
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2634892)							
EB1926754-001	Anonymous	EP234: Cyproconazole	94361-06-5	0.08 mg/kg	84.4	70.0	130
		EP234: Flusilazole	85509-19-9	0.04 mg/kg	# 52.4	70.0	130
		EP234: Hexaconazole	79983-71-4	0.04 mg/kg	114	70.0	130
		EP234: Paclobutrazole	76738-62-0	0.1 mg/kg	98.7	70.0	130
		EP234: Propiconazole	60207-90-1	0.1 mg/kg	115	70.0	130
		EP234: Tebuconazole	107534-96-3	0.02 mg/kg	# Not Determined	70.0	130
		EP234: Cyprodinil	121552-61-2	0.02 mg/kg	116	70.0	130
		EP234: Pyrimethanil	53112-28-0	0.04 mg/kg	# Not Determined	70.0	130
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2634892)							
EB1926754-001	Anonymous	EP234: Diuron	330-54-1	0.04 mg/kg	# 26.8	70.0	130
		EP234: Fluometuron	2164-17-2	0.02 mg/kg	117	70.0	130
		EP234: Tebuthiuron	34014-18-1	0.04 mg/kg	118	70.0	130
		EP234: Bromacil	314-40-9	0.04 mg/kg	70.8	70.0	130
EP234G: Chloracetanilides (QCLot: 2634892)							
EB1926754-001	Anonymous	EP234: Metolachlor	51218-45-2	0.02 mg/kg	# Not Determined	70.0	130
EP234H: Triazine Herbicides (QCLot: 2634892)							
EB1926754-001	Anonymous	EP234: Ametryn	834-12-8	0.02 mg/kg	# 3.20	70.0	130
		EP234: Atrazine	1912-24-9	0.02 mg/kg	# Not Determined	70.0	130
		EP234: Cyanazine	21725-46-2	0.04 mg/kg	# 0.00	70.0	130
		EP234: Prometryn	7287-19-6	0.02 mg/kg	78.4	70.0	130
		EP234: Propazine	139-40-2	0.02 mg/kg	# 42.4	70.0	130
		EP234: Simazine	122-34-9	0.04 mg/kg	# 32.8	70.0	130
		EP234: Terbuthylazine	5915-41-3	0.02 mg/kg	# 29.6	70.0	130
		EP234: Terbutryn	886-50-0	0.02 mg/kg	122	70.0	130
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2634892)							
EB1926754-001	Anonymous	EP234: Fenarimol	60168-88-9	0.04 mg/kg	72.8	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2634892) - continued							
EB1926754-001	Anonymous	EP234: Irgarol	28159-98-0	0.004 mg/kg	108	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035F: Dissolved Mercury by FIMS (QCLot: 2633722)							
EB1926789-006	C2WAT-1019	EG035F-LL: Mercury	7439-97-6	0.002 mg/L	88.4	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2633723)							
EB1926789-032	A1WAT-1019	EG035F-LL: Mercury	7439-97-6	0.002 mg/L	92.4	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2633725)							
EB1926789-052	H3WAT-1019	EG035F-LL: Mercury	7439-97-6	0.002 mg/L	95.8	70.0	130
EG035T: Total Mercury by FIMS (QCLot: 2633756)							
EB1926789-006	C2WAT-1019	EG035T-LL: Mercury	7439-97-6	0.002 mg/L	94.0	70.0	130
EG035T: Total Mercury by FIMS (QCLot: 2633775)							
EB1926789-032	A1WAT-1019	EG035T-LL: Mercury	7439-97-6	0.002 mg/L	95.0	70.0	130
EG035T: Total Mercury by FIMS (QCLot: 2633779)							
EB1926789-056	I2WAT-1019	EG035T-LL: Mercury	7439-97-6	0.002 mg/L	95.8	70.0	130
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 2633753)							
EB1926789-008	C4WAT-1019	EG093A-F: Arsenic	7440-38-2	250 µg/L	100	70.0	130
		EG093A-F: Barium	7440-39-3	250 µg/L	99.0	70.0	130
		EG093A-F: Cadmium	7440-43-9	62.5 µg/L	95.0	70.0	130
		EG093A-F: Chromium	7440-47-3	250 µg/L	91.6	70.0	130
		EG093A-F: Copper	7440-50-8	250 µg/L	91.0	70.0	130
		EG093A-F: Lead	7439-92-1	250 µg/L	91.4	70.0	130
		EG093A-F: Nickel	7440-02-0	250 µg/L	99.8	70.0	130
		EG093A-F: Zinc	7440-66-6	250 µg/L	95.6	70.0	130
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 2633772)							
EB1926789-034	A3WAT-1019	EG093A-F: Arsenic	7440-38-2	250 µg/L	101	70.0	130
		EG093A-F: Barium	7440-39-3	250 µg/L	99.5	70.0	130
		EG093A-F: Cadmium	7440-43-9	62.5 µg/L	96.5	70.0	130
		EG093A-F: Chromium	7440-47-3	250 µg/L	98.2	70.0	130
		EG093A-F: Copper	7440-50-8	250 µg/L	101	70.0	130
		EG093A-F: Lead	7439-92-1	250 µg/L	112	70.0	130
		EG093A-F: Nickel	7440-02-0	250 µg/L	98.4	70.0	130
		EG093A-F: Zinc	7440-66-6	250 µg/L	92.6	70.0	130
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 2633777)							
EB1926789-056	I2WAT-1019	EG093A-F: Arsenic	7440-38-2	250 µg/L	104	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 2633777) - continued							
EB1926789-056	I2WAT-1019	EG093A-F: Barium	7440-39-3	250 µg/L	103	70.0	130
		EG093A-F: Cadmium	7440-43-9	62.5 µg/L	98.0	70.0	130
		EG093A-F: Chromium	7440-47-3	250 µg/L	97.6	70.0	130
		EG093A-F: Copper	7440-50-8	250 µg/L	99.4	70.0	130
		EG093A-F: Lead	7439-92-1	250 µg/L	109	70.0	130
		EG093A-F: Nickel	7440-02-0	250 µg/L	98.6	70.0	130
		EG093A-F: Zinc	7440-66-6	250 µg/L	98.9	70.0	130
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2633755)							
EB1926789-006	C2WAT-1019	EG093A-T: Arsenic	7440-38-2	500 µg/L	101	70.0	130
		EG093A-T: Barium	7440-39-3	500 µg/L	98.8	70.0	130
		EG093A-T: Cadmium	7440-43-9	125 µg/L	95.1	70.0	130
		EG093A-T: Chromium	7440-47-3	500 µg/L	98.6	70.0	130
		EG093A-T: Copper	7440-50-8	500 µg/L	95.6	70.0	130
		EG093A-T: Lead	7439-92-1	500 µg/L	96.1	70.0	130
		EG093A-T: Nickel	7440-02-0	500 µg/L	90.8	70.0	130
		EG093A-T: Zinc	7440-66-6	500 µg/L	98.7	70.0	130
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2633773)							
EB1926789-032	A1WAT-1019	EG093A-T: Arsenic	7440-38-2	500 µg/L	98.7	70.0	130
		EG093A-T: Barium	7440-39-3	500 µg/L	96.3	70.0	130
		EG093A-T: Cadmium	7440-43-9	125 µg/L	94.1	70.0	130
		EG093A-T: Chromium	7440-47-3	500 µg/L	99.3	70.0	130
		EG093A-T: Copper	7440-50-8	500 µg/L	96.0	70.0	130
		EG093A-T: Lead	7439-92-1	500 µg/L	97.1	70.0	130
		EG093A-T: Nickel	7440-02-0	500 µg/L	95.7	70.0	130
		EG093A-T: Zinc	7440-66-6	500 µg/L	96.3	70.0	130
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2633778)							
EB1926789-056	I2WAT-1019	EG093A-T: Arsenic	7440-38-2	500 µg/L	102	70.0	130
		EG093A-T: Barium	7440-39-3	500 µg/L	100	70.0	130
		EG093A-T: Cadmium	7440-43-9	125 µg/L	96.0	70.0	130
		EG093A-T: Chromium	7440-47-3	500 µg/L	101	70.0	130
		EG093A-T: Copper	7440-50-8	500 µg/L	96.1	70.0	130
		EG093A-T: Lead	7439-92-1	500 µg/L	95.7	70.0	130
		EG093A-T: Nickel	7440-02-0	500 µg/L	95.3	70.0	130
		EG093A-T: Zinc	7440-66-6	500 µg/L	96.0	70.0	130
EP090: Organotin Compounds (Soluble) (QCLot: 2637740)							
EB1926789-013	AMB05	EP090S: Tributyltin	56573-85-4	147 ngSn/L	82.1	20.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB1926789**	Page	: 1 of 17
Client	: **BMT COMMERCIAL AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MS BETH TOKI	Telephone	: +61-7-3243 7222
Project	: B23282 Douglas Shoal	Date Samples Received	: 10-Oct-2019
Site	: ----	Issue Date	: 25-Oct-2019
Sampler	: WILLIS BRASSIL	No. of samples received	: 58
Order number	: B23282	No. of samples analysed	: 58

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG020T: Total Metals by ICP-MS	EB1926789--001	I1SED-1019	**Barium**	7440-39-3	27.6 %	0% - 20%	**RPD exceeds LOR based limits**
Matrix Spike (MS) Recoveries							
EP234A: OP Pesticides	EB1926754--001	Anonymous	**Fenamiphos**	22224-92-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP234B: Thiocarbamates and Carbamates	EB1926754--001	Anonymous	**Benomyl**	17804-35-2	39.2 %	70.0-130%	**Recovery less than lower data quality objective**
EP234B: Thiocarbamates and Carbamates	EB1926754--001	Anonymous	**Thiobencarb**	28249-77-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP234D: Triazinone Herbicides	EB1926754--001	Anonymous	**Hexazinone**	51235-04-2	18.0 %	70.0-130%	**Recovery less than lower data quality objective**
EP234D: Triazinone Herbicides	EB1926754--001	Anonymous	**Metribuzin**	21087-64-9	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP234E: Conazole and Aminopyrimidine Fungicides	EB1926754--001	Anonymous	**Flusilazole**	85509-19-9	52.4 %	70.0-130%	**Recovery less than lower data quality objective**
EP234E: Conazole and Aminopyrimidine Fungicides	EB1926754--001	Anonymous	**Tebuconazole**	107534-96-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfony	EB1926754--001	Anonymous	**Diuron**	330-54-1	26.8 %	70.0-130%	**Recovery less than lower data quality objective**
EP234G: Chloracetanilides	EB1926754--001	Anonymous	**Metolachlor**	51218-45-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP234H: Triazine Herbicides	EB1926754--001	Anonymous	**Ametryn**	834-12-8	3.20 %	70.0-130%	**Recovery less than lower data quality objective**
EP234H: Triazine Herbicides	EB1926754--001	Anonymous	**Cyanazine**	21725-46-2	0.00 %	70.0-130%	**Recovery less than lower data quality objective**
EP234H: Triazine Herbicides	EB1926754--001	Anonymous	**Propazine**	139-40-2	42.4 %	70.0-130%	**Recovery less than lower data quality objective**
EP234H: Triazine Herbicides	EB1926754--001	Anonymous	**Simazine**	122-34-9	32.8 %	70.0-130%	**Recovery less than lower data quality objective**
EP234H: Triazine Herbicides	EB1926754--001	Anonymous	**Terbuthylazine**	5915-41-3	29.6 %	70.0-130%	**Recovery less than lower data quality objective**

Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP090S: Organotin Surrogate	EB1926789-005	C1WAT-1019	**Tripropyltin**	----	121 %	24.0-116 %	**Recovery greater than upper data quality objective**
EP090S: Organotin Surrogate	EB1926789-013	AMB05	**Tripropyltin**	----	132 %	24.0-116 %	**Recovery greater than upper data quality objective**
EP090S: Organotin Surrogate	EB1926789-041	B1WAT-1019	**Tripropyltin**	----	119 %	24.0-116 %	**Recovery greater than upper data quality objective**
EP090S: Organotin Surrogate	EB1926789-042	B2WAT-1019	**Tripropyltin**	----	126 %	24.0-116 %	**Recovery greater than upper data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Soil Particle Density	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Organotin Compounds (Soluble)	4	51	7.84	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Organotin Compounds (Soluble)	1	51	1.96	5.00	NEPM 2013 B3 & ALS QC Standard
Total Metals in Fresh Water -Suite A by ORC-ICPMS	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**----**	----	----	**10-Oct-2019**	19-Oct-2019	✓
Soil Glass Jar - Unpreserved (EA055) I2SED-1019	**07-Oct-2019**	**----**	----	----	**10-Oct-2019**	21-Oct-2019	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA150: Particle Sizing							
Snap Lock Bag (EA150H) I1SED-1019	**05-Oct-2019**	**----**	----	----	**18-Oct-2019**	02-Apr-2020	✓
Snap Lock Bag (EA150H) I2SED-1019	**07-Oct-2019**	**----**	----	----	**18-Oct-2019**	04-Apr-2020	✓
EA150: Soil Classification based on Particle Size							
Snap Lock Bag (EA150H) I1SED-1019	**05-Oct-2019**	**----**	----	----	**18-Oct-2019**	02-Apr-2020	✓
Snap Lock Bag (EA150H) I2SED-1019	**07-Oct-2019**	**----**	----	----	**18-Oct-2019**	04-Apr-2020	✓
EA152: Soil Particle Density							
Snap Lock Bag (EA152) I1SED-1019	**05-Oct-2019**	**----**	----	----	**18-Oct-2019**	02-Apr-2020	✓
Snap Lock Bag (EA152) I2SED-1019	**07-Oct-2019**	**----**	----	----	**18-Oct-2019**	04-Apr-2020	✓
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES							
Soil Glass Jar - Unpreserved (EG005-SD) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**11-Oct-2019**	02-Apr-2020	✓	**14-Oct-2019**	02-Apr-2020	✓
Soil Glass Jar - Unpreserved (EG005-SD) I2SED-1019	**07-Oct-2019**	**11-Oct-2019**	04-Apr-2020	✓	**14-Oct-2019**	04-Apr-2020	✓
EG020-SD: Total Metals in Sediments by ICPMS							
Soil Glass Jar - Unpreserved (EG020-SD) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**11-Oct-2019**	02-Apr-2020	✓	**14-Oct-2019**	02-Apr-2020	✓
Soil Glass Jar - Unpreserved (EG020-SD) I2SED-1019	**07-Oct-2019**	**11-Oct-2019**	04-Apr-2020	✓	**14-Oct-2019**	04-Apr-2020	✓
EG020T: Total Metals by ICP-MS							
Soil Glass Jar - Unpreserved (EG020X-T) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**11-Oct-2019**	02-Apr-2020	✓	**14-Oct-2019**	02-Apr-2020	✓
Soil Glass Jar - Unpreserved (EG020X-T) I2SED-1019	**07-Oct-2019**	**11-Oct-2019**	04-Apr-2020	✓	**14-Oct-2019**	04-Apr-2020	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T-LL) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**11-Oct-2019**	02-Nov-2019	✓	**14-Oct-2019**	02-Nov-2019	✓
Soil Glass Jar - Unpreserved (EG035T-LL) I2SED-1019	**07-Oct-2019**	**11-Oct-2019**	04-Nov-2019	✓	**14-Oct-2019**	04-Nov-2019	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP090: Organotin Compounds							
Soil Glass Jar - Unpreserved (EP090) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**18-Oct-2019**	19-Oct-2019	✓	**23-Oct-2019**	27-Nov-2019	✓
Soil Glass Jar - Unpreserved (EP090) I2SED-1019	**07-Oct-2019**	**18-Oct-2019**	21-Oct-2019	✓	**23-Oct-2019**	27-Nov-2019	✓
EP094A: Synthetic Pyrethroids							
Soil Glass Jar - Unpreserved (EP094) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**14-Oct-2019**	19-Oct-2019	✓	**15-Oct-2019**	23-Nov-2019	✓
Soil Glass Jar - Unpreserved (EP094) I2SED-1019	**07-Oct-2019**	**14-Oct-2019**	21-Oct-2019	✓	**15-Oct-2019**	23-Nov-2019	✓
EP094B: Synergist							
Soil Glass Jar - Unpreserved (EP094) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**14-Oct-2019**	19-Oct-2019	✓	**15-Oct-2019**	23-Nov-2019	✓
Soil Glass Jar - Unpreserved (EP094) I2SED-1019	**07-Oct-2019**	**14-Oct-2019**	21-Oct-2019	✓	**15-Oct-2019**	23-Nov-2019	✓
EP202A: Phenoxyacetic Acid Herbicides by LCMS							
Soil Glass Jar - Unpreserved (EP202) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**16-Oct-2019**	19-Oct-2019	✓	**16-Oct-2019**	25-Nov-2019	✓
Soil Glass Jar - Unpreserved (EP202) I2SED-1019	**07-Oct-2019**	**16-Oct-2019**	21-Oct-2019	✓	**16-Oct-2019**	25-Nov-2019	✓
EP234A: OP Pesticides							
Soil Glass Jar - Unpreserved (EP234) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**15-Oct-2019**	19-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓
Soil Glass Jar - Unpreserved (EP234) I2SED-1019	**07-Oct-2019**	**15-Oct-2019**	21-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓
EP234B: Thiocarbamates and Carbamates							
Soil Glass Jar - Unpreserved (EP234) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**15-Oct-2019**	19-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓
Soil Glass Jar - Unpreserved (EP234) I2SED-1019	**07-Oct-2019**	**15-Oct-2019**	21-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓
EP234D: Triazinone Herbicides							
Soil Glass Jar - Unpreserved (EP234) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**15-Oct-2019**	19-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓
Soil Glass Jar - Unpreserved (EP234) I2SED-1019	**07-Oct-2019**	**15-Oct-2019**	21-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234E: Conazole and Aminopyrimidine Fungicides							
Soil Glass Jar - Unpreserved (EP234) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**15-Oct-2019**	19-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓
Soil Glass Jar - Unpreserved (EP234) I2SED-1019	**07-Oct-2019**	**15-Oct-2019**	21-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides							
Soil Glass Jar - Unpreserved (EP234) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**15-Oct-2019**	19-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓
Soil Glass Jar - Unpreserved (EP234) I2SED-1019	**07-Oct-2019**	**15-Oct-2019**	21-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓
EP234G: Chloracetanilides							
Soil Glass Jar - Unpreserved (EP234) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**15-Oct-2019**	19-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓
Soil Glass Jar - Unpreserved (EP234) I2SED-1019	**07-Oct-2019**	**15-Oct-2019**	21-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓
EP234H: Triazine Herbicides							
Soil Glass Jar - Unpreserved (EP234) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**15-Oct-2019**	19-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓
Soil Glass Jar - Unpreserved (EP234) I2SED-1019	**07-Oct-2019**	**15-Oct-2019**	21-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓
EP234I: Miscellaneous (ESI Positive Mode) Pesticides							
Soil Glass Jar - Unpreserved (EP234) I1SED-1019, I11SED-1019, I12SED-1019	**05-Oct-2019**	**15-Oct-2019**	19-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓
Soil Glass Jar - Unpreserved (EP234) I2SED-1019	**07-Oct-2019**	**15-Oct-2019**	21-Oct-2019	✓	**15-Oct-2019**	24-Nov-2019	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA025: Total Suspended Solids dried at 104 ± 2°C							
Clear Plastic Bottle - Natural (EA025)							
C1WAT-1019, C2WAT-1019, C3WAT-1019, C4WAT-1019, C5WAT-1019, C6WAT-1019, D1WAT-1019, D2WAT-1019, D3WAT-1019, D4WAT-1019, D5WAT-1019, E1WAT-1019, E2WAT-1019, E3WAT-1019, E4WAT-1019, E5WAT-1019, G1WAT-1019, G2WAT-1019, G3WAT-1019, G4WAT-1019, G5WAT-1019, A1WAT-1019, A2WAT-1019, A3WAT-1019, A4WAT-1019, A5WAT-1019, A6WAT-1019, A7WAT-1019, B1WAT-1019, B2WAT-1019, B3WAT-1019, B4WAT-1019, B5WAT-1019, B6WAT-1019, B7WAT-1019, H1WAT-1019, H2WAT-1019, H3WAT-1019, H4WAT-1019, H5WAT-1019, I1WAT-1019, I2WAT-1019, I3WAT-1019, I4WAT-1019, I5WAT-1019, I6WAT-1019	**08-Oct-2019**	**----**	----	----	**11-Oct-2019**	15-Oct-2019	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035F: Dissolved Mercury by FIMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG035F-LL)							
C1WAT-1019, C2WAT-1019, C3WAT-1019, C4WAT-1019, C5WAT-1019, C6WAT-1019, D1WAT-1019, D2WAT-1019, D3WAT-1019, D4WAT-1019, D5WAT-1019, E1WAT-1019, E2WAT-1019, E3WAT-1019, E4WAT-1019, E5WAT-1019, G1WAT-1019, G2WAT-1019, G3WAT-1019, G4WAT-1019, G5WAT-1019, A1WAT-1019, A2WAT-1019, A3WAT-1019, A4WAT-1019, A5WAT-1019, A6WAT-1019, A7WAT-1019, B1WAT-1019, B2WAT-1019, B3WAT-1019, B4WAT-1019, B5WAT-1019, B6WAT-1019, B7WAT-1019, H1WAT-1019, H2WAT-1019, H3WAT-1019, H4WAT-1019, H5WAT-1019, I1WAT-1019, I2WAT-1019, I3WAT-1019, I4WAT-1019, I5WAT-1019, I6WAT-1019	**08-Oct-2019**	**----**	----	----	**11-Oct-2019**	05-Nov-2019	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Mercury by FIMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T-LL)							
C1WAT-1019, C2WAT-1019, C3WAT-1019, C4WAT-1019, C5WAT-1019, C6WAT-1019, D1WAT-1019, D2WAT-1019, D3WAT-1019, D4WAT-1019, D5WAT-1019, E1WAT-1019, E2WAT-1019, E3WAT-1019, E4WAT-1019, E5WAT-1019, G1WAT-1019, G2WAT-1019, G3WAT-1019, G4WAT-1019, G5WAT-1019, A1WAT-1019, A2WAT-1019, A3WAT-1019, A4WAT-1019, A5WAT-1019, A6WAT-1019, A7WAT-1019, B1WAT-1019, B2WAT-1019, B3WAT-1019, B4WAT-1019, B5WAT-1019, B6WAT-1019, B7WAT-1019, H1WAT-1019, H2WAT-1019, H3WAT-1019, H4WAT-1019, H5WAT-1019, I1WAT-1019, I2WAT-1019, I3WAT-1019, I4WAT-1019, I5WAT-1019, I6WAT-1019, FB01-1019, TB01-1019, R01-1019	**08-Oct-2019**	**----**	----	----	**22-Oct-2019**	05-Nov-2019	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG093A-F)							
C1WAT-1019, C2WAT-1019, C3WAT-1019, C4WAT-1019, C5WAT-1019, C6WAT-1019, D1WAT-1019, D2WAT-1019, D3WAT-1019, D4WAT-1019, D5WAT-1019, E1WAT-1019, E2WAT-1019, E3WAT-1019, E4WAT-1019, E5WAT-1019, G1WAT-1019, G2WAT-1019, G3WAT-1019, G4WAT-1019, G5WAT-1019, A1WAT-1019, A2WAT-1019, A3WAT-1019, A4WAT-1019, A5WAT-1019, A6WAT-1019, A7WAT-1019, B1WAT-1019, B2WAT-1019, B3WAT-1019, B4WAT-1019, B5WAT-1019, B6WAT-1019, B7WAT-1019, H1WAT-1019, H2WAT-1019, H3WAT-1019, H4WAT-1019, H5WAT-1019, I1WAT-1019, I2WAT-1019, I3WAT-1019, I4WAT-1019, I5WAT-1019, I6WAT-1019	**08-Oct-2019**	**----**	----	----	**22-Oct-2019**	05-Apr-2020	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG093T: Total Metals in Saline Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093A-T)							
C1WAT-1019, C2WAT-1019, C3WAT-1019, C4WAT-1019, C5WAT-1019, C6WAT-1019, D1WAT-1019, D2WAT-1019, D3WAT-1019, D4WAT-1019, D5WAT-1019, E1WAT-1019, E2WAT-1019, E3WAT-1019, E4WAT-1019, E5WAT-1019, G1WAT-1019, G2WAT-1019, G3WAT-1019, G4WAT-1019, G5WAT-1019, A1WAT-1019, A2WAT-1019, A3WAT-1019, A4WAT-1019, A5WAT-1019, A6WAT-1019, A7WAT-1019, B1WAT-1019, B2WAT-1019, B3WAT-1019, B4WAT-1019, B5WAT-1019, B6WAT-1019, B7WAT-1019, H1WAT-1019, H2WAT-1019, H3WAT-1019, H4WAT-1019, H5WAT-1019, I1WAT-1019, I2WAT-1019, I3WAT-1019, I4WAT-1019, I5WAT-1019, I6WAT-1019, FB01-1019, TB01-1019	**08-Oct-2019**	**21-Oct-2019**	05-Apr-2020	✓	**21-Oct-2019**	05-Apr-2020	✓
EG094T: Total metals in Fresh water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094A-T)							
R01-1019	**08-Oct-2019**	**25-Oct-2019**	05-Apr-2020	✓	**25-Oct-2019**	05-Apr-2020	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP090: Organotin Compounds (Soluble)							
Amber Glass Bottle - Unpreserved (EP090S)							
G2WAT-1019, G3WAT-1019, G4WAT-1019, G5WAT-1019, A1WAT-1019, A2WAT-1019, A3WAT-1019, A4WAT-1019, A5WAT-1019, A6WAT-1019, A7WAT-1019, AMB01, B1WAT-1019, B2WAT-1019, B3WAT-1019, B4WAT-1019	**08-Oct-2019**	**14-Oct-2019**	15-Oct-2019	✓	**15-Oct-2019**	23-Nov-2019	✓
Amber Glass Bottle - Unpreserved (EP090S)							
C1WAT-1019, C2WAT-1019, C3WAT-1019, C4WAT-1019, C5WAT-1019, C6WAT-1019, AMB04, AMB05, D1WAT-1019, D2WAT-1019, D3WAT-1019, D4WAT-1019, D5WAT-1019, AMB03, E1WAT-1019, E2WAT-1019, E3WAT-1019, E4WAT-1019, E5WAT-1019, G1WAT-1019	**08-Oct-2019**	**14-Oct-2019**	15-Oct-2019	✓	**16-Oct-2019**	23-Nov-2019	✓
Amber Glass Bottle - Unpreserved (EP090S)							
B5WAT-1019, B6WAT-1019, B7WAT-1019, AMB02, H1WAT-1019, H2WAT-1019, H3WAT-1019, H4WAT-1019, H5WAT-1019, I1WAT-1019, I2WAT-1019, I3WAT-1019, I4WAT-1019, I5WAT-1019, I6WAT-1019	**08-Oct-2019**	**15-Oct-2019**	15-Oct-2019	✓	**18-Oct-2019**	24-Nov-2019	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organotin Analysis	EP090	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Soil Particle Density	EA152	0	2	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Synthetic Pyrethroids by GCMS	EP094	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fe and Al in Sediments by ICPAES	EG005-SD	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite X	EG020X-T	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Sediments by ICPMS	EG020-SD	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Organotin Analysis	EP090	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Soil Particle Density	EA152	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Synthetic Pyrethroids by GCMS	EP094	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fe and Al in Sediments by ICPAES	EG005-SD	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite X	EG020X-T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Sediments by ICPMS	EG020-SD	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Organotin Analysis	EP090	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Synthetic Pyrethroids by GCMS	EP094	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fe and Al in Sediments by ICPAES	EG005-SD	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite X	EG020X-T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Sediments by ICPMS	EG020-SD	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Organotin Analysis	EP090	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Synthetic Pyrethroids by GCMS	EP094	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite X	EG020X-T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Metals in Sediments by ICPMS	EG020-SD	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS - Low Level	EG035F-LL	5	46	**10.87**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	5	46	**10.87**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	5	46	**10.87**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organotin Compounds (Soluble)	EP090S	4	51	**7.84**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Suspended Solids	EA025	5	48	**10.42**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS - Low Level	EG035T-LL	5	49	**10.20**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	5	48	**10.42**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS - Low Level	EG035F-LL	3	46	**6.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	3	46	**6.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	3	46	**6.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organotin Compounds (Soluble)	EP090S	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids	EA025	9	48	**18.75**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS - Low Level	EG035T-LL	3	49	**6.12**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	3	48	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS - Low Level	EG035F-LL	3	46	**6.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	3	46	**6.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	3	46	**6.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organotin Compounds (Soluble)	EP090S	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids	EA025	3	48	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS - Low Level	EG035T-LL	3	49	**6.12**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	3	48	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS - Low Level	EG035F-LL	3	46	**6.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	3	46	**6.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organotin Compounds (Soluble)	EP090S	1	51	**1.96**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS - Low Level	EG035T-LL	3	49	**6.12**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	3	48	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3 - 2003
Soil Particle Density	EA152	SOIL	Soil Particle Density by AS 1289.3.5.1-2006 : Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method
Total Fe and Al in Sediments by ICPAES	EG005-SD	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3). LORs per NODG
Total Metals in Sediments by ICPMS	EG020-SD	SOIL	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector. Analyte list and LORs per NODG.
Total Metals by ICP-MS - Suite X	EG020X-T	SOIL	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS (Low Level)	EG035T-LL	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Organotin Analysis	EP090	SOIL	In house: Referenced to USEPA SW 846 - 8270D Prepared sample extracts are analysed by GC/MS coupled with high volume injection, and quanitified against an established calibration curve.
Synthetic Pyrethroids by GCMS	EP094	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.
Pesticides by LCMSMS (Positive Ion Mode)	EP234	SOIL	In house: LC-MSMS, direct injection. A sample extracted into acetonitrile, diluted with water and injected directly onto the instrument.. Analysis is by LC/MSMS, ESI Positive Mode.
Suspended Solids	EA025	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM (2013) Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS - Low Level	EG035F-LL	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS - Low Level	EG035T-LL	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020 Samples are 0.45µm filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020 Samples are 0.45µm filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3)
Organotin Compounds (Soluble)	EP090S	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by GC/MS coupled with high volume injection and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
Sample preparation for Pesticides by LCMSMS	EP234-PR	SOIL	In house

Preparation Methods	Method	Matrix	Method Descriptions
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Organotin Sample Preparation	ORG35	SOIL	In house: 20g sample is spiked with surrogate and leached in a methanol:acetic acid:UHP water mix and vacuum filtered. Reagents and solvents are added to the sample and the mixture tumbled. The butyltin compounds are simultaneously derivatised and extracted. The extract is further extracted with petroleum ether. The resultant extracts are combined and concentrated for analysis.
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	In house: Referenced to USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Organotin Sample Preparation	ORG34	WATER	In house. A specified volume of sample is spiked with surrogate, acidified and vacuum filtered. Reagents and solvent are added and the mixture tumbled. The butyltin compounds is derivitisated, extracted and the subtitution reaction completed. The extract is transferred to a separatory funnel and further extracted two times with petroleum ether. The resultant extracts are combined and concentrated for analysis.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB1929990**	Page	: 1 of 53
Client	: **BMT COMMERCIAL AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MS BETH TOKI	Contact	: Andrew Epps
Address	: PO BOX 203 SPRING HILL BRISBANE QLD 4004	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: 07 3831 6744	Telephone	: +61 7 3552 8639
Project	: B23282-4 Douglas Shoal	Date Samples Received	: 11-Nov-2019
Order number	: ----	Date Analysis Commenced	: 12-Nov-2019
C-O-C number	: ----	Issue Date	: 05-Dec-2019
Sampler	: CONOR JONES		
Site	: ----		
Quote number	: BN/165/18 B		
No. of samples received	: 61		
No. of samples analysed	: 56		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Diana Mesa	2IC Organic Chemist	Brisbane Inorganics, Stafford, QLD
Diana Mesa	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Gaston Allende	R&D Chemist	Sydney Organics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Inorganics, Stafford, QLD

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QC Lot: 2697255)									
EB1929990-001	A1-SED-1019	EG005-SD: Aluminium	7429-90-5	50	mg/kg	300	# 530	54.8	0% - 50%
		EG005-SD: Iron	7439-89-6	50	mg/kg	360	570	46.4	0% - 50%
EB1929990-013	A13-SED-1019	EG005-SD: Aluminium	7429-90-5	50	mg/kg	310	270	13.0	No Limit
		EG005-SD: Iron	7439-89-6	50	mg/kg	340	290	14.7	No Limit
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QC Lot: 2697260)									
EB1929990-025	B11-SED-1019	EG005-SD: Aluminium	7429-90-5	50	mg/kg	130	140	11.4	No Limit
		EG005-SD: Iron	7439-89-6	50	mg/kg	200	230	14.5	No Limit
EB1929990-035	D5-SED-1019	EG005-SD: Aluminium	7429-90-5	50	mg/kg	210	220	6.47	No Limit
		EG005-SD: Iron	7439-89-6	50	mg/kg	280	290	4.62	No Limit
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QC Lot: 2697273)									
EB1929990-036	D6-SED-1019	EG005-SD: Aluminium	7429-90-5	50	mg/kg	150	200	25.0	No Limit
		EG005-SD: Iron	7439-89-6	50	mg/kg	220	250	12.0	No Limit
EB1929990-046	G4-SED-1019	EG005-SD: Aluminium	7429-90-5	50	mg/kg	330	220	42.7	No Limit
		EG005-SD: Iron	7439-89-6	50	mg/kg	320	240	27.2	No Limit
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QC Lot: 2697280)									
EB1929990-056	E3-SED-1019	EG005-SD: Aluminium	7429-90-5	50	mg/kg	290	60	128	No Limit
		EG005-SD: Iron	7439-89-6	50	mg/kg	280	100	91.2	No Limit
EB1929995-006	Anonymous	EG005-SD: Aluminium	7429-90-5	50	mg/kg	470	510	8.12	0% - 50%
		EG005-SD: Iron	7439-89-6	50	mg/kg	560	600	7.71	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QC Lot: 2697258)									
EB1929990-001	A1-SED-1019	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%
EB1929990-013	A13-SED-1019	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QC Lot: 2697259)									
EB1929990-025	B11-SED-1019	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QC Lot: 2697259) - continued									
EB1929990-035	D5-SED-1019	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QC Lot: 2697272)									
EB1929990-036	D6-SED-1019	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%
EB1929990-046	G4-SED-1019	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QC Lot: 2697279)									
EB1929990-056	E3-SED-1019	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%
EB1929995-006	Anonymous	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2697265)									
EB1929990-001	A1-SED-1019	EA055: Moisture Content	----	0.1	%	19.8	19.9	0.529	0% - 50%
EB1929990-013	A13-SED-1019	EA055: Moisture Content	----	0.1	%	29.2	28.4	2.66	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2697266)									
EB1929990-025	B11-SED-1019	EA055: Moisture Content	----	0.1	%	30.5	31.9	4.58	0% - 20%
EB1929990-035	D5-SED-1019	EA055: Moisture Content	----	0.1	%	34.4	33.9	1.27	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2697277)									
EB1929990-036	D6-SED-1019	EA055: Moisture Content	----	0.1	%	33.4	34.0	1.79	0% - 20%
EB1929990-046	G4-SED-1019	EA055: Moisture Content	----	0.1	%	31.7	31.9	0.664	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2697284)									
EB1929990-056	E3-SED-1019	EA055: Moisture Content	----	0.1	%	31.0	32.5	4.72	0% - 20%
EB1929995-006	Anonymous	EA055: Moisture Content	----	0.1	%	26.6	26.7	0.00	0% - 20%
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 2697256)									
EB1929990-001	A1-SED-1019	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	<1.00	1.16	14.9	No Limit
		EG020-SD: Chromium	7440-47-3	1	mg/kg	3.9	5.6	36.6	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	50.7	# 11.0	129	0% - 20%
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	1.1	1.4	28.4	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	7.7	7.5	2.35	No Limit
		EG020-SD: Manganese	7439-96-5	10	mg/kg	14	18	25.3	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	<2.0	0.00	No Limit
EB1929990-013	A13-SED-1019	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	1.17	<1.00	15.3	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 2697256) - continued									
EB1929990-013	A13-SED-1019	EG020-SD: Chromium	7440-47-3	1	mg/kg	4.3	3.8	12.8	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	21.5	# 14.3	40.6	0% - 20%
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	14.2	# 7.6	60.2	0% - 50%
		EG020-SD: Manganese	7439-96-5	10	mg/kg	12	11	0.00	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	<2.0	0.00	No Limit
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 2697261)									
EB1929990-025	B11-SED-1019	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	1.12	1.34	17.7	No Limit
		EG020-SD: Chromium	7440-47-3	1	mg/kg	3.0	3.4	11.2	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Manganese	7439-96-5	10	mg/kg	10	10	0.00	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	<2.0	0.00	No Limit
EB1929990-035	D5-SED-1019	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	1.50	1.22	21.1	No Limit
		EG020-SD: Chromium	7440-47-3	1	mg/kg	3.6	3.2	10.3	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Manganese	7439-96-5	10	mg/kg	12	10	16.8	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	<2.0	0.00	No Limit
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 2697274)									
EB1929990-036	D6-SED-1019	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 2697274) - continued									
EB1929990-036	D6-SED-1019	EG020-SD: Arsenic	7440-38-2	1	mg/kg	1.28	1.32	2.94	No Limit
		EG020-SD: Chromium	7440-47-3	1	mg/kg	3.4	3.5	0.00	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	1.0	0.00	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Manganese	7439-96-5	10	mg/kg	10	12	11.3	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	<2.0	0.00	No Limit
EB1929990-046	G4-SED-1019	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	1.05	1.12	6.17	No Limit
		EG020-SD: Chromium	7440-47-3	1	mg/kg	4.5	3.6	22.2	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	1.2	<1.0	17.6	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Manganese	7439-96-5	10	mg/kg	13	12	0.00	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	<2.0	0.00	No Limit
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 2697281)									
EB1929990-056	E3-SED-1019	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	1.14	<1.00	13.5	No Limit
		EG020-SD: Chromium	7440-47-3	1	mg/kg	4.1	2.2	60.1	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Manganese	7439-96-5	10	mg/kg	12	<10	14.6	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	<2.0	0.00	No Limit
EB1929995-006	Anonymous	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 2697281) - continued									
EB1929995-006	Anonymous	EG020-SD: Arsenic	7440-38-2	1	mg/kg	1.52	1.30	15.6	No Limit
		EG020-SD: Chromium	7440-47-3	1	mg/kg	6.0	5.5	9.61	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	2.3	2.5	7.86	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	1.3	1.3	0.00	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	2.6	3.0	12.1	No Limit
		EG020-SD: Manganese	7439-96-5	10	mg/kg	17	18	0.00	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	<2.0	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 2697257)									
EB1929990-001	A1-SED-1019	EG020X-T: Barium	7440-39-3	0.1	mg/kg	3.9	4.7	19.3	0% - 20%
EB1929990-013	A13-SED-1019	EG020X-T: Barium	7440-39-3	0.1	mg/kg	5.7	5.3	6.69	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 2697262)									
EB1929990-025	B11-SED-1019	EG020X-T: Barium	7440-39-3	0.1	mg/kg	9.0	# 5.1	55.7	0% - 20%
EB1929990-035	D5-SED-1019	EG020X-T: Barium	7440-39-3	0.1	mg/kg	8.1	# 6.6	21.0	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 2697275)									
EB1929990-036	D6-SED-1019	EG020X-T: Barium	7440-39-3	0.1	mg/kg	5.3	5.6	5.66	0% - 20%
EB1929990-046	G4-SED-1019	EG020X-T: Barium	7440-39-3	0.1	mg/kg	6.6	7.6	13.2	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 2697282)									
EB1929995-006	Anonymous	EG020X-T: Barium	7440-39-3	0.1	mg/kg	3.3	3.8	13.4	0% - 20%
EB1929990-056	E3-SED-1019	EG020X-T: Barium	7440-39-3	0.1	mg/kg	4.9	4.6	6.02	0% - 20%
EP090: Organotin Compounds (QC Lot: 2697264)									
EB1929990-001	A1-SED-1019	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	4.1	2.2	59.5	No Limit
EB1929990-026	B12-SED-1019	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.00	No Limit
EP090: Organotin Compounds (QC Lot: 2697276)									
EB1929990-036	D6-SED-1019	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.00	No Limit
EB1929990-046	G4-SED-1019	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.00	No Limit
EP090: Organotin Compounds (QC Lot: 2697283)									
EB1929990-056	E3-SED-1019	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.00	No Limit
EB1929995-006	Anonymous	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.00	No Limit
EP094A: Synthetic Pyrethroids (QC Lot: 2697263)									
EB1929990-001	A1-SED-1019	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66 230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP094A: Synthetic Pyrethroids (QC Lot: 2697263) - continued									
EB1929990-001	A1-SED-1019	EP094: Deltamethrin & Tralomethrin	62229-77-0/66 841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EB1929990-013	A13-SED-1019	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66 230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66 841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094A: Synthetic Pyrethroids (QC Lot: 2717819)									
EB1929990-015	B1-SED-1019	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66 230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66 841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EB1929990-024	B10-SED-1019	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP094A: Synthetic Pyrethroids (QC Lot: 2717819) - continued									
EB1929990-024	B10-SED-1019	EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66 230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66 841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094A: Synthetic Pyrethroids (QC Lot: 2717820)									
EB1929990-037	D7-SED-1019	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66 230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66 841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EB1929990-047	G6-SED-1019	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66 230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66 841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP094A: Synthetic Pyrethroids (QC Lot: 2717820) - continued									
EB1929990-047	G6-SED-1019	EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094A: Synthetic Pyrethroids (QC Lot: 2717823)									
EB1929990-057	E4-SED-1019	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094A: Synthetic Pyrethroids (QC Lot: 2721656)									
EB1929990-025	B11-SED-1019	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EB1929990-053	G12-SED-1019	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP094A: Synthetic Pyrethroids (QC Lot: 2721656) - continued									
EB1929990-053	G12-SED-1019	EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66 230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66 841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094B: Synergist (QC Lot: 2697263)									
EB1929990-001	A1-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EB1929990-013	A13-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094B: Synergist (QC Lot: 2717819)									
EB1929990-015	B1-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EB1929990-024	B10-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094B: Synergist (QC Lot: 2717820)									
EB1929990-037	D7-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EB1929990-047	G6-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094B: Synergist (QC Lot: 2717823)									
EB1929990-057	E4-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094B: Synergist (QC Lot: 2721656)									
EB1929990-025	B11-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EB1929990-053	G12-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2699902)									
EB1929990-001	A1-SED-1019	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2699902) - continued									
EB1929990-011	A11-SED-1019	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2719467)									
EB1929990-015	B1-SED-1019	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EB1929990-035	D5-SED-1019	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2719467) - continued									
EB1929990-035	D5-SED-1019	EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2719469)									
EB1929990-018	B4-SED-1019	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EB1929990-047	G6-SED-1019	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2719471)									
EB1929990-057	E4-SED-1019	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2719471) - continued									
EB1929990-057	E4-SED-1019	EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EP234A: OP Pesticides (QC Lot: 2700881)									
EB1929990-001	A1-SED-1019	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EB1929990-013	A13-SED-1019	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234A: OP Pesticides (QC Lot: 2700881) - continued									
EB1929990-013	A13-SED-1019	EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP234A: OP Pesticides (QC Lot: 2719758)									
EB1929990-025	B11-SED-1019	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EB1929990-033	D3-SED-1019	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP234A: OP Pesticides (QC Lot: 2719758) - continued									
EB1929990-033	D3-SED-1019	EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP234A: OP Pesticides (QC Lot: 2719763)									
EB1929990-015	B1-SED-1019	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234A: OP Pesticides (QC Lot: 2719763) - continued									
EB1929990-015	B1-SED-1019	EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EB1929990-042	D12-SED-1019	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP234A: OP Pesticides (QC Lot: 2719766)									
EB1929990-046	G4-SED-1019	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP234A: OP Pesticides (QC Lot: 2719766) - continued									
EB1929990-046	G4-SED-1019	EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EB1929990-056	E3-SED-1019	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP234B: Thiocarbamates and Carbamates (QC Lot: 2700881)									
EB1929990-001	A1-SED-1019	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP234B: Thiocarbamates and Carbamates (QC Lot: 2700881) - continued									
EB1929990-001	A1-SED-1019	EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EB1929990-013	A13-SED-1019	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EP234B: Thiocarbamates and Carbamates (QC Lot: 2719758)									
EB1929990-025	B11-SED-1019	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EB1929990-033	D3-SED-1019	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234B: Thiocarbamates and Carbamates (QC Lot: 2719758) - continued									
EB1929990-033	D3-SED-1019	EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EP234B: Thiocarbamates and Carbamates (QC Lot: 2719763)									
EB1929990-015	B1-SED-1019	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EB1929990-042	D12-SED-1019	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EP234B: Thiocarbamates and Carbamates (QC Lot: 2719766)									
EB1929990-046	G4-SED-1019	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234B: Thiocarbamates and Carbamates (QC Lot: 2719766) - continued									
EB1929990-046	G4-SED-1019	EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EB1929990-056	E3-SED-1019	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EP234D: Triazinone Herbicides (QC Lot: 2700881)									
EB1929990-001	A1-SED-1019	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
EB1929990-013	A13-SED-1019	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
EP234D: Triazinone Herbicides (QC Lot: 2719758)									
EB1929990-025	B11-SED-1019	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
EB1929990-033	D3-SED-1019	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
EP234D: Triazinone Herbicides (QC Lot: 2719763)									
EB1929990-015	B1-SED-1019	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
EB1929990-042	D12-SED-1019	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
EP234D: Triazinone Herbicides (QC Lot: 2719766)									
EB1929990-046	G4-SED-1019	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
EB1929990-056	E3-SED-1019	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
EP234E: Conazole and Aminopyrimidine Fungicides (QC Lot: 2700881)									
EB1929990-001	A1-SED-1019	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234E: Conazole and Aminopyrimidine Fungicides (QC Lot: 2700881) - continued									
EB1929990-001	A1-SED-1019	EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	0.01	<0.01	0.00	No Limit
EB1929990-013	A13-SED-1019	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	0.01	<0.01	0.00	No Limit
EP234E: Conazole and Aminopyrimidine Fungicides (QC Lot: 2719758)									
EB1929990-025	B11-SED-1019	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
EB1929990-033	D3-SED-1019	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
EP234E: Conazole and Aminopyrimidine Fungicides (QC Lot: 2719763)									
EB1929990-015	B1-SED-1019	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
EB1929990-042	D12-SED-1019	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234E: Conazole and Aminopyrimidine Fungicides (QC Lot: 2719763) - continued									
EB1929990-042	D12-SED-1019	EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
EP234E: Conazole and Aminopyrimidine Fungicides (QC Lot: 2719766)									
EB1929990-046	G4-SED-1019	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
EB1929990-056	E3-SED-1019	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QC Lot: 2700881)									
EB1929990-001	A1-SED-1019	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	0.076	0.075	0.00	0% - 50%
		EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EB1929990-013	A13-SED-1019	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	0.006	26.8	No Limit
		EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QC Lot: 2719758)									
EB1929990-025	B11-SED-1019	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EB1929990-033	D3-SED-1019	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QC Lot: 2719758) - continued									
EB1929990-033	D3-SED-1019	EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QC Lot: 2719763)									
EB1929990-015	B1-SED-1019	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EB1929990-042	D12-SED-1019	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QC Lot: 2719766)									
EB1929990-046	G4-SED-1019	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EB1929990-056	E3-SED-1019	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EP234G: Chloracetanilides (QC Lot: 2700881)									
EB1929990-001	A1-SED-1019	EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
EB1929990-013	A13-SED-1019	EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
EP234G: Chloracetanilides (QC Lot: 2719758)									
EB1929990-025	B11-SED-1019	EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
EB1929990-033	D3-SED-1019	EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
EP234G: Chloracetanilides (QC Lot: 2719763)									
EB1929990-015	B1-SED-1019	EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
EB1929990-042	D12-SED-1019	EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
EP234G: Chloracetanilides (QC Lot: 2719766)									
EB1929990-046	G4-SED-1019	EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
EB1929990-056	E3-SED-1019	EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
EP234H: Triazine Herbicides (QC Lot: 2700881)									
EB1929990-001	A1-SED-1019	EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234H: Triazine Herbicides (QC Lot: 2700881) - continued									
EB1929990-001	A1-SED-1019	EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EB1929990-013	A13-SED-1019	EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP234H: Triazine Herbicides (QC Lot: 2719758)									
EB1929990-025	B11-SED-1019	EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EB1929990-033	D3-SED-1019	EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP234H: Triazine Herbicides (QC Lot: 2719763)									
EB1929990-015	B1-SED-1019	EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EB1929990-042	D12-SED-1019	EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234H: Triazine Herbicides (QC Lot: 2719763) - continued									
EB1929990-042	D12-SED-1019	EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP234H: Triazine Herbicides (QC Lot: 2719766)									
EB1929990-046	G4-SED-1019	EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EB1929990-056	E3-SED-1019	EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QC Lot: 2700881)									
EB1929990-001	A1-SED-1019	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EB1929990-013	A13-SED-1019	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QC Lot: 2719758)									
EB1929990-025	B11-SED-1019	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EB1929990-033	D3-SED-1019	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QC Lot: 2719763)									
EB1929990-015	B1-SED-1019	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EB1929990-042	D12-SED-1019	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QC Lot: 2719766)									
EB1929990-046	G4-SED-1019	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QC Lot: 2719766) - continued									
EB1929990-056	E3-SED-1019	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QCLot: 2697255)								
EG005-SD: Aluminium	7429-90-5	50	mg/kg	<50	12361 mg/kg	102	70.0	130
EG005-SD: Iron	7439-89-6	50	mg/kg	<50	30024 mg/kg	89.3	70.0	130
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QCLot: 2697260)								
EG005-SD: Aluminium	7429-90-5	50	mg/kg	<50	12361 mg/kg	102	70.0	130
EG005-SD: Iron	7439-89-6	50	mg/kg	<50	30024 mg/kg	88.9	70.0	130
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QCLot: 2697273)								
EG005-SD: Aluminium	7429-90-5	50	mg/kg	<50	12361 mg/kg	102	70.0	130
EG005-SD: Iron	7439-89-6	50	mg/kg	<50	30024 mg/kg	94.8	70.0	130
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QCLot: 2697280)								
EG005-SD: Aluminium	7429-90-5	50	mg/kg	<50	12361 mg/kg	102	70.0	130
EG005-SD: Iron	7439-89-6	50	mg/kg	<50	30024 mg/kg	93.4	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697258)								
EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	0.0847 mg/kg	80.3	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697259)								
EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	0.0847 mg/kg	79.7	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697272)								
EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	0.0847 mg/kg	102	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697279)								
EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	0.0847 mg/kg	91.5	70.0	130
EA152: Soil Particle Density (QCLot: 2698511)								
EA152: Soil Particle Density (Clay/Silt/Sand)	----	----	g/cm3	----	2.68 g/cm3		80.0	120
EA152: Soil Particle Density (QCLot: 2698513)								
EA152: Soil Particle Density (Clay/Silt/Sand)	----	----	g/cm3	----	2.68 g/cm3		80.0	120
EA152: Soil Particle Density (QCLot: 2698515)								
EA152: Soil Particle Density (Clay/Silt/Sand)	----	----	g/cm3	----	2.68 g/cm3		80.0	120
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697256)								
EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	----	----	----	----
EG020-SD: Arsenic	7440-38-2	1	mg/kg	<1.00	96.1 mg/kg	101	80.0	124
EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	0.74 mg/kg	100	87.0	122
EG020-SD: Chromium	7440-47-3	1	mg/kg	<1.0	15.3 mg/kg	100	79.0	129
EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	44.8 mg/kg	95.2	85.0	118
EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	----	----	----	----
EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	52.8 mg/kg	103	86.0	119

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697256) - continued								
EG020-SD: Manganese	7439-96-5	10	mg/kg	<10	----	----	----	----
EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	12.2 mg/kg	96.4	77.0	123
EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	----	----	----	----
EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	114 mg/kg	94.9	71.0	127
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697261)								
EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	----	----	----	----
EG020-SD: Arsenic	7440-38-2	1	mg/kg	<1.00	96.1 mg/kg	101	80.0	124
EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	0.74 mg/kg	102	87.0	122
EG020-SD: Chromium	7440-47-3	1	mg/kg	<1.0	15.3 mg/kg	93.8	79.0	129
EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	44.8 mg/kg	89.5	85.0	118
EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	----	----	----	----
EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	52.8 mg/kg	105	86.0	119
EG020-SD: Manganese	7439-96-5	10	mg/kg	<10	----	----	----	----
EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	12.2 mg/kg	93.4	77.0	123
EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	----	----	----	----
EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	114 mg/kg	92.0	71.0	127
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697274)								
EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	----	----	----	----
EG020-SD: Arsenic	7440-38-2	1	mg/kg	<1.00	96.1 mg/kg	93.4	80.0	124
EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	0.74 mg/kg	96.7	87.0	122
EG020-SD: Chromium	7440-47-3	1	mg/kg	<1.0	15.3 mg/kg	97.0	79.0	129
EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	44.8 mg/kg	111	85.0	118
EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	----	----	----	----
EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	52.8 mg/kg	105	86.0	119
EG020-SD: Manganese	7439-96-5	10	mg/kg	<10	----	----	----	----
EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	12.2 mg/kg	98.2	77.0	123
EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	----	----	----	----
EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	114 mg/kg	93.5	71.0	127
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697281)								
EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	----	----	----	----
EG020-SD: Arsenic	7440-38-2	1	mg/kg	<1.00	96.1 mg/kg	96.2	80.0	124
EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	0.74 mg/kg	99.5	87.0	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697281) - continued								
EG020-SD: Chromium	7440-47-3	1	mg/kg	<1.0	15.3 mg/kg	99.9	79.0	129
EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	44.8 mg/kg	91.9	85.0	118
EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	----	----	----	----
EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	52.8 mg/kg	98.6	86.0	119
EG020-SD: Manganese	7439-96-5	10	mg/kg	<10	----	----	----	----
EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	12.2 mg/kg	97.1	77.0	123
EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	----	----	----	----
EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	114 mg/kg	93.5	71.0	127
EG020T: Total Metals by ICP-MS (QCLot: 2697257)								
EG020X-T: Barium	7440-39-3	0.1	mg/kg	<0.1	77.4 mg/kg	98.2	86.0	123
EG020T: Total Metals by ICP-MS (QCLot: 2697262)								
EG020X-T: Barium	7440-39-3	0.1	mg/kg	<0.1	77.4 mg/kg	112	86.0	123
EG020T: Total Metals by ICP-MS (QCLot: 2697275)								
EG020X-T: Barium	7440-39-3	0.1	mg/kg	<0.1	77.4 mg/kg	94.8	86.0	123
EG020T: Total Metals by ICP-MS (QCLot: 2697282)								
EG020X-T: Barium	7440-39-3	0.1	mg/kg	<0.1	77.4 mg/kg	95.2	86.0	123
EP090: Organotin Compounds (QCLot: 2697264)								
EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	1.25 µgSn/kg	91.4	52.0	139
EP090: Organotin Compounds (QCLot: 2697276)								
EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	1.25 µgSn/kg	83.8	52.0	139
EP090: Organotin Compounds (QCLot: 2697283)								
EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	1.25 µgSn/kg	114	52.0	139
EP094A: Synthetic Pyrethroids (QCLot: 2697263)								
EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	0.5 mg/kg	# 69.4	70.0	130
EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	0.5 mg/kg	79.0	70.0	130
EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	0.5 mg/kg	76.4	70.0	130
EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.6	70.0	130
EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	0.5 mg/kg	80.5	70.0	130
EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	70.0	130
EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.7	70.0	130
EP094: Fenvalerate & Esfenvalerate	51630-58-1/ 66230-04-	0.05	mg/kg	<0.05	0.5 mg/kg	97.3	70.0	130
EP094: Deltamethrin & Tralomethrin	62229-77-0/ 66841-25-	0.05	mg/kg	<0.05	0.5 mg/kg	74.0	70.0	130
EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	70.0	130
EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP094A: Synthetic Pyrethroids (QCLot: 2697263) - continued								
EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	0.5 mg/kg	76.3	70.0	130
EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	70.0	130
EP094A: Synthetic Pyrethroids (QCLot: 2717819)								
EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	0.5 mg/kg	77.5	70.0	130
EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	0.5 mg/kg	84.4	70.0	130
EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	0.5 mg/kg	84.0	70.0	130
EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.9	70.0	130
EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.3	70.0	130
EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	0.5 mg/kg	83.5	70.0	130
EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	70.0	130
EP094: Fenvalerate & Esfenvalerate	51630-58-1/ 66230-04-	0.05	mg/kg	<0.05	0.5 mg/kg	88.7	70.0	130
EP094: Deltamethrin & Tralomethrin	62229-77-0/ 66841-25-	0.05	mg/kg	<0.05	0.5 mg/kg	74.6	70.0	130
EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	0.5 mg/kg	77.9	70.0	130
EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	0.5 mg/kg	95.3	70.0	130
EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	0.5 mg/kg	86.0	70.0	130
EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	0.5 mg/kg	81.0	70.0	130
EP094A: Synthetic Pyrethroids (QCLot: 2717820)								
EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	70.0	130
EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	70.0	130
EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	70.0	130
EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	70.0	130
EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	0.5 mg/kg	95.4	70.0	130
EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	0.5 mg/kg	100	70.0	130
EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	70.0	130
EP094: Fenvalerate & Esfenvalerate	51630-58-1/ 66230-04-	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	70.0	130
EP094: Deltamethrin & Tralomethrin	62229-77-0/ 66841-25-	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	70.0	130
EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.4	70.0	130
EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	0.5 mg/kg	95.5	70.0	130
EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	0.5 mg/kg	97.6	70.0	130
EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	70.0	130
EP094A: Synthetic Pyrethroids (QCLot: 2717823)								
EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	0.5 mg/kg	75.6	70.0	130
EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	0.5 mg/kg	80.2	70.0	130
EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	70.0	130
EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	70.0	130

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP094A: Synthetic Pyrethroids (QCLot: 2717823) - continued								
EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	0.5 mg/kg	81.6	70.0	130
EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.0	70.0	130
EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.5	70.0	130
EP094: Fenvalerate & Esfenvalerate	51630-58-1/ 66230-04-	0.05	mg/kg	<0.05	0.5 mg/kg	79.4	70.0	130
EP094: Deltamethrin & Tralomethrin	62229-77-0/ 66841-25-	0.05	mg/kg	<0.05	0.5 mg/kg	82.2	70.0	130
EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.0	70.0	130
EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	0.5 mg/kg	79.8	70.0	130
EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	0.5 mg/kg	81.5	70.0	130
EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	0.5 mg/kg	77.9	70.0	130
EP094A: Synthetic Pyrethroids (QCLot: 2721656)								
EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	70.0	130
EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	70.0	130
EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	0.5 mg/kg	108	70.0	130
EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	70.0	130
EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	0.5 mg/kg	96.5	70.0	130
EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.6	70.0	130
EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	118	70.0	130
EP094: Fenvalerate & Esfenvalerate	51630-58-1/ 66230-04-	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	70.0	130
EP094: Deltamethrin & Tralomethrin	62229-77-0/ 66841-25-	0.05	mg/kg	<0.05	0.5 mg/kg	99.5	70.0	130
EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	0.5 mg/kg	103	70.0	130
EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	70.0	130
EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	70.0	130
EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.1	70.0	130
EP094B: Synergist (QCLot: 2697263)								
EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	# 65.0	70.0	130
EP094B: Synergist (QCLot: 2717819)								
EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	76.0	70.0	130
EP094B: Synergist (QCLot: 2717820)								
EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	87.5	70.0	130
EP094B: Synergist (QCLot: 2717823)								
EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	75.7	70.0	130
EP094B: Synergist (QCLot: 2721656)								
EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	86.0	70.0	130
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2699902)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2699902) - continued								
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	92.4	54.4	128
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	91.3	45.5	130
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	97.3	51.7	135
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	84.4	60.0	130
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	90.3	56.8	131
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	92.8	50.0	141
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	96.0	68.5	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	98.0	50.8	141
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	89.1	40.8	126
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	98.6	57.4	139
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	95.4	38.9	137
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	85.7	48.7	129
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	84.0	49.4	106
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	85.6	53.2	128
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2719467)								
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	67.4	54.4	128
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	73.6	45.5	130
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	68.3	51.7	135
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	84.2	60.0	130
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	69.7	56.8	131
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	72.6	50.0	141
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	78.0	68.5	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	79.7	50.8	141
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	64.5	40.8	126
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	76.0	57.4	139
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	67.0	38.9	137
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	62.0	48.7	129
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	56.9	49.4	106
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	74.5	53.2	128
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2719469)								
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	75.3	54.4	128
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	61.3	45.5	130
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	79.7	51.7	135
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	86.3	60.0	130
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	71.2	56.8	131
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	72.6	50.0	141
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	79.9	68.5	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	74.5	50.8	141
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	63.0	40.8	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2719469) - continued								
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	82.6	57.4	139
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	72.2	38.9	137
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	60.7	48.7	129
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	52.3	49.4	106
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	97.7	53.2	128
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2719471)								
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	80.5	54.4	128
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	72.3	45.5	130
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	85.5	51.7	135
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	89.9	60.0	130
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	71.2	56.8	131
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	73.6	50.0	141
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	76.6	68.5	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	75.2	50.8	141
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	66.6	40.8	126
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	83.5	57.4	139
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	93.1	38.9	137
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	64.6	48.7	129
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	54.6	49.4	106
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	105	53.2	128
EP234A: OP Pesticides (QCLot: 2700881)								
EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	0.04 mg/kg	74.4	70.0	130
EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	0.04 mg/kg	102	60.0	118
EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	0.08 mg/kg	89.6	61.0	111
EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	0.02 mg/kg	93.6	65.0	101
EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	0.02 mg/kg	86.4	63.0	95.0
EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	0.04 mg/kg	90.8	70.0	130
EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	0.1 mg/kg	78.9	70.0	130
EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	0.02 mg/kg	91.2	70.0	130
EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	0.02 mg/kg	94.4	70.0	130
EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	4 mg/kg	111	70.0	130
EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	0.02 mg/kg	102	62.0	116
EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	0.1 mg/kg	113	70.0	130
EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	0.04 mg/kg	98.0	70.0	130
EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	0.08 mg/kg	95.9	67.0	123
EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	0.04 mg/kg	86.8	61.0	117
EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	0.02 mg/kg	101	70.0	130
EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	0.4 mg/kg	110	70.0	130
EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	4 mg/kg	94.4	62.0	118

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP234A: OP Pesticides (QCLot: 2700881) - continued								
EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	0.2 mg/kg	77.3	70.0	130
EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	0.02 mg/kg	88.8	63.0	103
EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	0.01 mg/kg	89.6	59.0	111
EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	0.02 mg/kg	72.8	60.0	106
EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	0.01 mg/kg	97.6	63.0	107
EP234A: OP Pesticides (QCLot: 2719758)								
EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	0.04 mg/kg	104	70.0	130
EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	0.04 mg/kg	87.6	60.0	118
EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	0.08 mg/kg	78.0	61.0	111
EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	0.02 mg/kg	85.6	65.0	101
EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	0.02 mg/kg	92.8	63.0	95.0
EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	0.04 mg/kg	83.2	70.0	130
EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	0.1 mg/kg	81.0	70.0	130
EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	0.02 mg/kg	107	70.0	130
EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	0.02 mg/kg	84.8	70.0	130
EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	4 mg/kg	85.6	70.0	130
EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	0.02 mg/kg	78.4	62.0	116
EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	0.1 mg/kg	114	70.0	130
EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	0.04 mg/kg	96.4	70.0	130
EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	0.08 mg/kg	87.2	67.0	123
EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	0.04 mg/kg	90.0	61.0	117
EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	0.02 mg/kg	84.0	70.0	130
EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	0.4 mg/kg	73.6	70.0	130
EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	4 mg/kg	83.1	62.0	118
EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	0.2 mg/kg	119	70.0	130
EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	0.02 mg/kg	79.2	63.0	103
EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	0.01 mg/kg	104	59.0	111
EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	0.02 mg/kg	84.0	60.0	106
EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	0.01 mg/kg	83.2	63.0	107
EP234A: OP Pesticides (QCLot: 2719763)								
EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	0.04 mg/kg	97.2	70.0	130
EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	0.04 mg/kg	101	60.0	118
EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	0.08 mg/kg	85.6	61.0	111
EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	0.02 mg/kg	95.2	65.0	101
EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	0.02 mg/kg	85.6	63.0	95.0
EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	0.04 mg/kg	98.8	70.0	130
EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	0.1 mg/kg	77.0	70.0	130
EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	0.02 mg/kg	93.6	70.0	130
EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	0.02 mg/kg	70.4	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP234A: OP Pesticides (QCLot: 2719763) - continued								
EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	4 mg/kg	108	70.0	130
EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	0.02 mg/kg	71.2	62.0	116
EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	0.1 mg/kg	87.2	70.0	130
EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	0.04 mg/kg	74.8	70.0	130
EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	0.08 mg/kg	78.4	67.0	123
EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	0.04 mg/kg	80.4	61.0	117
EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	0.02 mg/kg	82.4	70.0	130
EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	0.4 mg/kg	122	70.0	130
EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	4 mg/kg	92.1	62.0	118
EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	0.2 mg/kg	87.4	70.0	130
EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	0.02 mg/kg	96.0	63.0	103
EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	0.01 mg/kg	70.4	59.0	111
EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	0.02 mg/kg	96.8	60.0	106
EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	0.01 mg/kg	81.6	63.0	107
EP234A: OP Pesticides (QCLot: 2719766)								
EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	0.04 mg/kg	104	70.0	130
EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	0.04 mg/kg	87.6	60.0	118
EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	0.08 mg/kg	78.0	61.0	111
EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	0.02 mg/kg	85.6	65.0	101
EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	0.02 mg/kg	92.8	63.0	95.0
EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	0.04 mg/kg	83.2	70.0	130
EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	0.1 mg/kg	81.0	70.0	130
EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	0.02 mg/kg	107	70.0	130
EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	0.02 mg/kg	84.8	70.0	130
EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	4 mg/kg	85.6	70.0	130
EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	0.02 mg/kg	78.4	62.0	116
EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	0.1 mg/kg	114	70.0	130
EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	0.04 mg/kg	96.4	70.0	130
EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	0.08 mg/kg	87.2	67.0	123
EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	0.04 mg/kg	90.0	61.0	117
EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	0.02 mg/kg	84.0	70.0	130
EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	0.4 mg/kg	73.6	70.0	130
EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	4 mg/kg	83.1	62.0	118
EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	0.2 mg/kg	119	70.0	130
EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	0.02 mg/kg	79.2	63.0	103
EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	0.01 mg/kg	104	59.0	111
EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	0.02 mg/kg	84.0	60.0	106
EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	0.01 mg/kg	83.2	63.0	107
EP234B: Thiocarbamates and Carbamates (QCLot: 2700881)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP234B: Thiocarbamates and Carbamates (QCLot: 2700881) - continued								
EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	0.1 mg/kg	96.5	67.0	117
EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	0.2 mg/kg	74.5	70.0	130
EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	0.02 mg/kg	95.2	56.0	122
EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	0.02 mg/kg	100	70.0	130
EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	0.02 mg/kg	91.2	70.0	130
EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	0.04 mg/kg	103	70.0	130
EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	0.02 mg/kg	101	70.0	130
EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	0.02 mg/kg	100	70.0	130
EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	0.2 mg/kg	105	70.0	130
EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	0.02 mg/kg	106	70.0	130
EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	0.02 mg/kg	84.8	59.0	109
EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	0.02 mg/kg	72.0	70.0	130
EP234B: Thiocarbamates and Carbamates (QCLot: 2719758)								
EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	0.1 mg/kg	84.0	67.0	117
EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	0.2 mg/kg	76.3	70.0	130
EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	0.02 mg/kg	83.2	56.0	122
EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	0.02 mg/kg	74.4	70.0	130
EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	0.02 mg/kg	80.8	70.0	130
EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	0.04 mg/kg	84.8	70.0	130
EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	0.02 mg/kg	82.4	70.0	130
EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	0.02 mg/kg	92.0	70.0	130
EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	0.2 mg/kg	84.1	70.0	130
EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	0.02 mg/kg	79.2	70.0	130
EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	0.02 mg/kg	105	59.0	109
EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	0.02 mg/kg	79.2	70.0	130
EP234B: Thiocarbamates and Carbamates (QCLot: 2719763)								
EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	0.1 mg/kg	83.7	67.0	117
EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	0.2 mg/kg	76.2	70.0	130
EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	0.02 mg/kg	91.2	56.0	122
EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	0.02 mg/kg	72.0	70.0	130
EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	0.02 mg/kg	84.0	70.0	130
EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	0.04 mg/kg	81.2	70.0	130
EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	0.02 mg/kg	70.4	70.0	130
EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	0.02 mg/kg	80.8	70.0	130
EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	0.2 mg/kg	88.9	70.0	130
EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	0.02 mg/kg	79.2	70.0	130
EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	0.02 mg/kg	96.0	59.0	109
EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	0.02 mg/kg	101	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP234B: Thiocarbamates and Carbamates (QCLot: 2719766)								
EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	0.1 mg/kg	84.0	67.0	117
EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	0.2 mg/kg	76.3	70.0	130
EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	0.02 mg/kg	83.2	56.0	122
EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	0.02 mg/kg	74.4	70.0	130
EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	0.02 mg/kg	80.8	70.0	130
EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	0.04 mg/kg	84.8	70.0	130
EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	0.02 mg/kg	82.4	70.0	130
EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	0.02 mg/kg	92.0	70.0	130
EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	0.2 mg/kg	84.1	70.0	130
EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	0.02 mg/kg	79.2	70.0	130
EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	0.02 mg/kg	105	59.0	109
EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	0.02 mg/kg	79.2	70.0	130
EP234D: Triazinone Herbicides (QCLot: 2700881)								
EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	0.04 mg/kg	97.6	62.0	124
EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	0.04 mg/kg	94.0	65.0	119
EP234D: Triazinone Herbicides (QCLot: 2719758)								
EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	0.04 mg/kg	87.2	62.0	124
EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	0.04 mg/kg	94.0	65.0	119
EP234D: Triazinone Herbicides (QCLot: 2719763)								
EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	0.04 mg/kg	75.6	62.0	124
EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	0.04 mg/kg	76.0	65.0	119
EP234D: Triazinone Herbicides (QCLot: 2719766)								
EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	0.04 mg/kg	87.2	62.0	124
EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	0.04 mg/kg	94.0	65.0	119
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2700881)								
EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	0.08 mg/kg	93.0	70.0	130
EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	0.04 mg/kg	102	59.0	107
EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	0.04 mg/kg	96.4	62.0	106
EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	0.1 mg/kg	96.2	70.0	130
EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	0.1 mg/kg	90.6	60.0	102
EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	0.02 mg/kg	78.4	70.0	130
EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	0.02 mg/kg	95.2	62.0	98.0
EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	0.04 mg/kg	100	61.0	127
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2719758)								
EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	0.08 mg/kg	87.4	70.0	130
EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	0.04 mg/kg	80.4	59.0	107
EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	0.04 mg/kg	102	62.0	106
EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	0.1 mg/kg	99.8	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2719758) - continued								
EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	0.1 mg/kg	96.0	60.0	102
EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	0.02 mg/kg	82.4	70.0	130
EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	0.02 mg/kg	90.4	62.0	98.0
EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	0.04 mg/kg	78.4	61.0	127
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2719763)								
EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	0.08 mg/kg	88.6	70.0	130
EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	0.04 mg/kg	94.4	59.0	107
EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	0.04 mg/kg	97.6	62.0	106
EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	0.1 mg/kg	92.3	70.0	130
EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	0.1 mg/kg	88.5	60.0	102
EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	0.02 mg/kg	70.4	70.0	130
EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	0.02 mg/kg	74.4	62.0	98.0
EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	0.04 mg/kg	91.2	61.0	127
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2719766)								
EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	0.08 mg/kg	87.4	70.0	130
EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	0.04 mg/kg	80.4	59.0	107
EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	0.04 mg/kg	102	62.0	106
EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	0.1 mg/kg	99.8	70.0	130
EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	0.1 mg/kg	96.0	60.0	102
EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	0.02 mg/kg	82.4	70.0	130
EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	0.02 mg/kg	90.4	62.0	98.0
EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	0.04 mg/kg	78.4	61.0	127
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2700881)								
EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	0.04 mg/kg	101	70.0	130
EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	0.02 mg/kg	87.2	64.0	122
EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	0.04 mg/kg	98.8	58.0	108
EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	0.04 mg/kg	100	61.0	131
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2719758)								
EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	0.04 mg/kg	88.4	70.0	130
EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	0.02 mg/kg	89.6	64.0	122
EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	0.04 mg/kg	88.4	58.0	108
EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	0.04 mg/kg	100	61.0	131
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2719763)								
EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	0.04 mg/kg	76.0	70.0	130
EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	0.02 mg/kg	73.6	64.0	122
EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	0.04 mg/kg	74.4	58.0	108
EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	0.04 mg/kg	73.6	61.0	131
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2719766)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2719766) - continued								
EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	0.04 mg/kg	88.4	70.0	130
EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	0.02 mg/kg	89.6	64.0	122
EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	0.04 mg/kg	88.4	58.0	108
EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	0.04 mg/kg	100	61.0	131
EP234G: Chloracetanilides (QCLot: 2700881)								
EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	0.02 mg/kg	73.6	70.0	130
EP234G: Chloracetanilides (QCLot: 2719758)								
EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	0.02 mg/kg	88.8	70.0	130
EP234G: Chloracetanilides (QCLot: 2719763)								
EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	0.02 mg/kg	97.6	70.0	130
EP234G: Chloracetanilides (QCLot: 2719766)								
EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	0.02 mg/kg	88.8	70.0	130
EP234H: Triazine Herbicides (QCLot: 2700881)								
EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	0.02 mg/kg	91.2	70.0	130
EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	0.02 mg/kg	98.4	62.0	120
EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	0.04 mg/kg	107	70.0	130
EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	0.02 mg/kg	90.4	58.0	130
EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	0.02 mg/kg	99.2	61.0	127
EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	0.04 mg/kg	97.6	70.0	130
EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	0.02 mg/kg	92.0	63.0	117
EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	0.02 mg/kg	92.0	59.0	115
EP234H: Triazine Herbicides (QCLot: 2719758)								
EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	0.02 mg/kg	84.0	70.0	130
EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	0.02 mg/kg	84.0	62.0	120
EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	0.04 mg/kg	89.6	70.0	130
EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	0.02 mg/kg	85.6	58.0	130
EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	0.02 mg/kg	83.2	61.0	127
EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	0.04 mg/kg	85.2	70.0	130
EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	0.02 mg/kg	92.0	63.0	117
EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	0.02 mg/kg	85.6	59.0	115
EP234H: Triazine Herbicides (QCLot: 2719763)								
EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	0.02 mg/kg	75.2	70.0	130
EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	0.02 mg/kg	72.8	62.0	120
EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	0.04 mg/kg	80.8	70.0	130
EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	0.02 mg/kg	76.0	58.0	130
EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	0.02 mg/kg	76.8	61.0	127
EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	0.04 mg/kg	70.8	70.0	130
EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	0.02 mg/kg	82.4	63.0	117

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP234H: Triazine Herbicides (QCLot: 2719763) - continued								
EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	0.02 mg/kg	102	59.0	115
EP234H: Triazine Herbicides (QCLot: 2719766)								
EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	0.02 mg/kg	84.0	70.0	130
EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	0.02 mg/kg	84.0	62.0	120
EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	0.04 mg/kg	89.6	70.0	130
EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	0.02 mg/kg	85.6	58.0	130
EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	0.02 mg/kg	83.2	61.0	127
EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	0.04 mg/kg	85.2	70.0	130
EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	0.02 mg/kg	92.0	63.0	117
EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	0.02 mg/kg	85.6	59.0	115
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2700881)								
EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	0.04 mg/kg	76.8	62.0	114
EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	0.004 mg/kg	100	60.0	112
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2719758)								
EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	0.04 mg/kg	82.0	62.0	114
EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	0.004 mg/kg	84.0	60.0	112
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2719763)								
EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	0.04 mg/kg	89.6	62.0	114
EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	0.004 mg/kg	84.0	60.0	112
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2719766)								
EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	0.04 mg/kg	82.0	62.0	114
EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	0.004 mg/kg	84.0	60.0	112

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697258)							
EB1929990-003	A3-SED-1019	EG035T-LL: Mercury	7439-97-6	0.5 mg/kg	99.3	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697259)							
EB1929990-026	B12-SED-1019	EG035T-LL: Mercury	7439-97-6	0.5 mg/kg	99.5	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697272)							
EB1929990-037	D7-SED-1019	EG035T-LL: Mercury	7439-97-6	0.5 mg/kg	93.7	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697279)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697279) - continued							
EB1929990-057	E4-SED-1019	EG035T-LL: Mercury	7439-97-6	0.5 mg/kg	83.9	70.0	130
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697256)							
EB1929990-003	A3-SED-1019	EG020-SD: Arsenic	7440-38-2	100 mg/kg	106	70.0	130
		EG020-SD: Cadmium	7440-43-9	25 mg/kg	95.6	70.0	130
		EG020-SD: Chromium	7440-47-3	100 mg/kg	107	70.0	130
		EG020-SD: Copper	7440-50-8	100 mg/kg	# 27.4	70.0	130
		EG020-SD: Cobalt	7440-48-4	100 mg/kg	102	70.0	130
		EG020-SD: Lead	7439-92-1	100 mg/kg	97.0	70.0	130
		EG020-SD: Manganese	7439-96-5	100 mg/kg	117	70.0	130
		EG020-SD: Nickel	7440-02-0	100 mg/kg	96.5	70.0	130
		EG020-SD: Vanadium	7440-62-2	100 mg/kg	111	70.0	130
		EG020-SD: Zinc	7440-66-6	100 mg/kg	88.4	70.0	130
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697261)							
EB1929990-026	B12-SED-1019	EG020-SD: Arsenic	7440-38-2	100 mg/kg	107	70.0	130
		EG020-SD: Cadmium	7440-43-9	25 mg/kg	101	70.0	130
		EG020-SD: Chromium	7440-47-3	100 mg/kg	102	70.0	130
		EG020-SD: Copper	7440-50-8	100 mg/kg	92.5	70.0	130
		EG020-SD: Cobalt	7440-48-4	100 mg/kg	99.2	70.0	130
		EG020-SD: Lead	7439-92-1	100 mg/kg	102	70.0	130
		EG020-SD: Manganese	7439-96-5	100 mg/kg	112	70.0	130
		EG020-SD: Nickel	7440-02-0	100 mg/kg	92.1	70.0	130
		EG020-SD: Vanadium	7440-62-2	100 mg/kg	107	70.0	130
		EG020-SD: Zinc	7440-66-6	100 mg/kg	88.0	70.0	130
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697274)							
EB1929990-037	D7-SED-1019	EG020-SD: Arsenic	7440-38-2	100 mg/kg	99.2	70.0	130
		EG020-SD: Cadmium	7440-43-9	25 mg/kg	88.6	70.0	130
		EG020-SD: Chromium	7440-47-3	100 mg/kg	104	70.0	130
		EG020-SD: Copper	7440-50-8	100 mg/kg	91.5	70.0	130
		EG020-SD: Cobalt	7440-48-4	100 mg/kg	98.1	70.0	130
		EG020-SD: Lead	7439-92-1	100 mg/kg	98.1	70.0	130
		EG020-SD: Manganese	7439-96-5	100 mg/kg	106	70.0	130
		EG020-SD: Nickel	7440-02-0	100 mg/kg	93.2	70.0	130
		EG020-SD: Vanadium	7440-62-2	100 mg/kg	107	70.0	130
		EG020-SD: Zinc	7440-66-6	100 mg/kg	83.9	70.0	130
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697281)							
EB1929990-057	E4-SED-1019	EG020-SD: Arsenic	7440-38-2	100 mg/kg	91.8	70.0	130
		EG020-SD: Cadmium	7440-43-9	25 mg/kg	82.3	70.0	130
		EG020-SD: Chromium	7440-47-3	100 mg/kg	97.1	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697281) - continued							
EB1929990-057	E4-SED-1019	EG020-SD: Copper	7440-50-8	100 mg/kg	80.8	70.0	130
		EG020-SD: Cobalt	7440-48-4	100 mg/kg	88.2	70.0	130
		EG020-SD: Lead	7439-92-1	100 mg/kg	86.8	70.0	130
		EG020-SD: Manganese	7439-96-5	100 mg/kg	99.9	70.0	130
		EG020-SD: Nickel	7440-02-0	100 mg/kg	81.9	70.0	130
		EG020-SD: Vanadium	7440-62-2	100 mg/kg	92.6	70.0	130
		EG020-SD: Zinc	7440-66-6	100 mg/kg	76.0	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 2697257)							
EB1929990-003	A3-SED-1019	EG020X-T: Barium	7440-39-3	100 mg/kg	86.2	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 2697262)							
EB1929990-026	B12-SED-1019	EG020X-T: Barium	7440-39-3	100 mg/kg	103	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 2697275)							
EB1929990-037	D7-SED-1019	EG020X-T: Barium	7440-39-3	100 mg/kg	102	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 2697282)							
EB1929990-057	E4-SED-1019	EG020X-T: Barium	7440-39-3	100 mg/kg	75.2	70.0	130
EP090: Organotin Compounds (QCLot: 2697264)							
EB1929990-015	B1-SED-1019	EP090: Tributyltin	56573-85-4	1.25 µgSn/kg	72.9	20.0	130
EP090: Organotin Compounds (QCLot: 2697276)							
EB1929990-037	D7-SED-1019	EP090: Tributyltin	56573-85-4	1.25 µgSn/kg	81.8	20.0	130
EP090: Organotin Compounds (QCLot: 2697283)							
EB1929990-057	E4-SED-1019	EP090: Tributyltin	56573-85-4	1.25 µgSn/kg	# Not Determined	20.0	130
EP094A: Synthetic Pyrethroids (QCLot: 2697263)							
EB1929990-003	A3-SED-1019	EP094: Bioresmethrin	28434-01-07	0.5 mg/kg	67.0	60.0	140
		EP094: Bifenthrin	82657-04-3	0.5 mg/kg	81.8	60.0	140
		EP094: Phenothrin	26002-80-2	0.5 mg/kg	98.4	60.0	140
		EP094: Lambda-cyhalothrin	68085-85-8	0.5 mg/kg	89.7	60.0	140
		EP094: Permethrin	52645-53-1	0.5 mg/kg	91.8	60.0	140
		EP094: Cyfluthrin	68359-37-5	0.5 mg/kg	89.0	60.0	140
		EP094: Cypermethrin	52315-07-8	0.5 mg/kg	88.7	60.0	140
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.5 mg/kg	92.1	60.0	140
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.5 mg/kg	64.2	60.0	140
		EP094: Allethrin	584-79-2	0.5 mg/kg	88.7	60.0	140
		EP094: Transfluthrin	118712-89-3	0.5 mg/kg	88.8	60.0	140

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP094A: Synthetic Pyrethroids (QCLot: 2697263) - continued							
EB1929990-003	A3-SED-1019	EP094: Tetramethrin	7696-12-0	0.5 mg/kg	79.5	60.0	140
		EP094: Tau-fluvalinate	102851-06-9	0.5 mg/kg	102	60.0	140
EP094A: Synthetic Pyrethroids (QCLot: 2717819)							
EB1929990-017	B3-SED-1019	EP094: Bioresmethrin	28434-01-07	0.5 mg/kg	78.7	60.0	140
		EP094: Bifenthrin	82657-04-3	0.5 mg/kg	86.6	60.0	140
		EP094: Phenothrin	26002-80-2	0.5 mg/kg	88.7	60.0	140
		EP094: Lambda-cyhalothrin	68085-85-8	0.5 mg/kg	86.4	60.0	140
		EP094: Permethrin	52645-53-1	0.5 mg/kg	91.8	60.0	140
		EP094: Cyfluthrin	68359-37-5	0.5 mg/kg	90.9	60.0	140
		EP094: Cypermethrin	52315-07-8	0.5 mg/kg	93.6	60.0	140
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/6 6230-04-	0.5 mg/kg	91.0	60.0	140
		EP094: Deltamethrin & Tralomethrin	62229-77-0/6 6841-25-	0.5 mg/kg	78.1	60.0	140
		EP094: Allethrin	584-79-2	0.5 mg/kg	83.7	60.0	140
		EP094: Transfluthrin	118712-89-3	0.5 mg/kg	94.4	60.0	140
		EP094: Tetramethrin	7696-12-0	0.5 mg/kg	89.6	60.0	140
		EP094: Tau-fluvalinate	102851-06-9	0.5 mg/kg	84.0	60.0	140
EP094A: Synthetic Pyrethroids (QCLot: 2717820)							
EB1929990-038	D8-SED-1019	EP094: Bioresmethrin	28434-01-07	0.5 mg/kg	# 30.5	60.0	140
		EP094: Bifenthrin	82657-04-3	0.5 mg/kg	94.4	60.0	140
		EP094: Phenothrin	26002-80-2	0.5 mg/kg	91.8	60.0	140
		EP094: Lambda-cyhalothrin	68085-85-8	0.5 mg/kg	93.1	60.0	140
		EP094: Permethrin	52645-53-1	0.5 mg/kg	99.1	60.0	140
		EP094: Cyfluthrin	68359-37-5	0.5 mg/kg	93.0	60.0	140
		EP094: Cypermethrin	52315-07-8	0.5 mg/kg	101	60.0	140
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/6 6230-04-	0.5 mg/kg	94.4	60.0	140
		EP094: Deltamethrin & Tralomethrin	62229-77-0/6 6841-25-	0.5 mg/kg	93.4	60.0	140
		EP094: Allethrin	584-79-2	0.5 mg/kg	98.6	60.0	140
		EP094: Transfluthrin	118712-89-3	0.5 mg/kg	99.5	60.0	140
		EP094: Tetramethrin	7696-12-0	0.5 mg/kg	99.0	60.0	140
		EP094: Tau-fluvalinate	102851-06-9	0.5 mg/kg	91.1	60.0	140
EP094A: Synthetic Pyrethroids (QCLot: 2717823)							
EB1929990-058	E5-SED-1019	EP094: Bioresmethrin	28434-01-07	0.5 mg/kg	# 28.2	60.0	140
		EP094: Bifenthrin	82657-04-3	0.5 mg/kg	93.4	60.0	140
		EP094: Phenothrin	26002-80-2	0.5 mg/kg	112	60.0	140
		EP094: Lambda-cyhalothrin	68085-85-8	0.5 mg/kg	102	60.0	140

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP094A: Synthetic Pyrethroids (QCLot: 2717823) - continued							
EB1929990-058	E5-SED-1019	EP094: Permethrin	52645-53-1	0.5 mg/kg	102	60.0	140
		EP094: Cyfluthrin	68359-37-5	0.5 mg/kg	126	60.0	140
		EP094: Cypermethrin	52315-07-8	0.5 mg/kg	95.1	60.0	140
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/6230-04-	0.5 mg/kg	99.3	60.0	140
		EP094: Deltamethrin & Tralomethrin	62229-77-0/6841-25-	0.5 mg/kg	101	60.0	140
		EP094: Allethrin	584-79-2	0.5 mg/kg	106	60.0	140
		EP094: Transfluthrin	118712-89-3	0.5 mg/kg	96.2	60.0	140
		EP094: Tetramethrin	7696-12-0	0.5 mg/kg	95.5	60.0	140
		EP094: Tau-fluvalinate	102851-06-9	0.5 mg/kg	99.8	60.0	140
EP094A: Synthetic Pyrethroids (QCLot: 2721656)							
EB1929990-026	B12-SED-1019	EP094: Bioresmethrin	28434-01-07	0.5 mg/kg	72.9	60.0	140
		EP094: Bifenthrin	82657-04-3	0.5 mg/kg	92.6	60.0	140
		EP094: Phenothrin	26002-80-2	0.5 mg/kg	110	60.0	140
		EP094: Lambda-cyhalothrin	68085-85-8	0.5 mg/kg	101	60.0	140
		EP094: Permethrin	52645-53-1	0.5 mg/kg	104	60.0	140
		EP094: Cyfluthrin	68359-37-5	0.5 mg/kg	107	60.0	140
		EP094: Cypermethrin	52315-07-8	0.5 mg/kg	94.6	60.0	140
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/6230-04-	0.5 mg/kg	95.1	60.0	140
		EP094: Deltamethrin & Tralomethrin	62229-77-0/6841-25-	0.5 mg/kg	98.9	60.0	140
		EP094: Allethrin	584-79-2	0.5 mg/kg	105	60.0	140
		EP094: Transfluthrin	118712-89-3	0.5 mg/kg	91.7	60.0	140
		EP094: Tetramethrin	7696-12-0	0.5 mg/kg	100	60.0	140
		EP094: Tau-fluvalinate	102851-06-9	0.5 mg/kg	95.2	60.0	140
EP094B: Synergist (QCLot: 2697263)							
EB1929990-003	A3-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.5 mg/kg	75.7	60.0	140
EP094B: Synergist (QCLot: 2717819)							
EB1929990-017	B3-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.5 mg/kg	81.0	60.0	140
EP094B: Synergist (QCLot: 2717820)							
EB1929990-038	D8-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.5 mg/kg	93.3	60.0	140
EP094B: Synergist (QCLot: 2717823)							
EB1929990-058	E5-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.5 mg/kg	89.6	60.0	140
EP094B: Synergist (QCLot: 2721656)							
EB1929990-026	B12-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.5 mg/kg	83.6	60.0	140

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2699902)							
EB1929990-001	A1-SED-1019	EP202: Mecoprop	93-65-2	0.1 mg/kg	74.8	60.0	140
		EP202: MCPA	94-74-6	0.1 mg/kg	73.4	57.0	143
		EP202: 2.4-D	94-75-7	0.1 mg/kg	73.4	68.0	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	75.3	51.0	145
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	73.5	57.0	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	77.8	49.0	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	75.3	49.0	149
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2719467)							
EB1929990-015	B1-SED-1019	EP202: Mecoprop	93-65-2	0.1 mg/kg	71.3	60.0	140
		EP202: MCPA	94-74-6	0.1 mg/kg	62.1	57.0	143
		EP202: 2.4-D	94-75-7	0.1 mg/kg	73.5	68.0	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	64.5	51.0	145
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	68.2	57.0	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	66.5	49.0	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	61.8	49.0	149
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2719469)							
EB1929990-018	B4-SED-1019	EP202: Mecoprop	93-65-2	0.1 mg/kg	84.7	60.0	140
		EP202: MCPA	94-74-6	0.1 mg/kg	67.5	57.0	143
		EP202: 2.4-D	94-75-7	0.1 mg/kg	73.3	68.0	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	79.2	51.0	145
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	79.5	57.0	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	67.9	49.0	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	60.0	49.0	149
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2719471)							
EB1929990-057	E4-SED-1019	EP202: Mecoprop	93-65-2	0.1 mg/kg	92.2	60.0	140
		EP202: MCPA	94-74-6	0.1 mg/kg	70.3	57.0	143
		EP202: 2.4-D	94-75-7	0.1 mg/kg	72.6	68.0	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	75.6	51.0	145
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	85.6	57.0	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	66.1	49.0	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	57.1	49.0	149
EP234A: OP Pesticides (QCLot: 2700881)							
EB1929990-001	A1-SED-1019	EP234: Azinphos-ethyl	2642-71-9	0.04 mg/kg	# 58.4	70.0	130
		EP234: Azinphos-methyl	86-50-0	0.04 mg/kg	75.6	70.0	130
		EP234: Chlorfenvinphos	470-90-6	0.08 mg/kg	77.8	70.0	130
		EP234: Coumaphos	56-72-4	0.02 mg/kg	103	70.0	130
		EP234: Diazinon	333-41-5	0.02 mg/kg	# 54.4	70.0	130
		EP234: Dimethoate	60-51-5	0.04 mg/kg	82.4	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234A: OP Pesticides (QCLot: 2700881) - continued							
EB1929990-001	A1-SED-1019	EP234: Disulfoton	298-04-4	0.1 mg/kg	# 41.9	70.0	130
		EP234: Ethoprophos	13194-48-4	0.02 mg/kg	82.4	70.0	130
		EP234: Fenamiphos	22224-92-6	0.02 mg/kg	71.2	70.0	130
		EP234: Fenitrothion	122-14-5	4 mg/kg	98.9	70.0	130
		EP234: Fensulfothion	115-90-2	0.02 mg/kg	74.4	70.0	130
		EP234: Fenthion	55-38-9	0.1 mg/kg	# 56.0	70.0	130
		EP234: Malathion	121-75-5	0.04 mg/kg	82.0	70.0	130
		EP234: Mevinphos	7786-34-7	0.08 mg/kg	75.1	70.0	130
		EP234: Monocrotophos	6923-22-4	0.04 mg/kg	78.0	70.0	130
		EP234: Omethoate	1113-02-6	0.02 mg/kg	77.6	70.0	130
		EP234: Parathion	56-38-2	0.4 mg/kg	73.0	70.0	130
		EP234: Parathion-methyl	298-00-0	4 mg/kg	71.8	70.0	130
		EP234: Phorate	298-02-2	0.2 mg/kg	112	70.0	130
		EP234: Pirimiphos-methyl	29232-93-7	0.02 mg/kg	80.8	70.0	130
		EP234: Sulfotep	3689-24-5	0.01 mg/kg	# 56.0	70.0	130
		EP234: Tetrachlorvinphos	22248-79-9	0.02 mg/kg	# 53.6	70.0	130
		EP234: Triazophos	24017-47-8	0.01 mg/kg	92.8	70.0	130
EP234A: OP Pesticides (QCLot: 2719758)							
EB1929990-025	B11-SED-1019	EP234: Azinphos-ethyl	2642-71-9	0.04 mg/kg	82.0	70.0	130
		EP234: Azinphos-methyl	86-50-0	0.04 mg/kg	80.4	70.0	130
		EP234: Chlorfenvinphos	470-90-6	0.08 mg/kg	96.4	70.0	130
		EP234: Coumaphos	56-72-4	0.02 mg/kg	93.6	70.0	130
		EP234: Diazinon	333-41-5	0.02 mg/kg	92.0	70.0	130
		EP234: Dimethoate	60-51-5	0.04 mg/kg	88.0	70.0	130
		EP234: Disulfoton	298-04-4	0.1 mg/kg	75.2	70.0	130
		EP234: Ethoprophos	13194-48-4	0.02 mg/kg	108	70.0	130
		EP234: Fenamiphos	22224-92-6	0.02 mg/kg	101	70.0	130
		EP234: Fenitrothion	122-14-5	4 mg/kg	90.6	70.0	130
		EP234: Fensulfothion	115-90-2	0.02 mg/kg	84.0	70.0	130
		EP234: Fenthion	55-38-9	0.1 mg/kg	104	70.0	130
		EP234: Malathion	121-75-5	0.04 mg/kg	108	70.0	130
		EP234: Mevinphos	7786-34-7	0.08 mg/kg	89.4	70.0	130
		EP234: Monocrotophos	6923-22-4	0.04 mg/kg	93.2	70.0	130
		EP234: Omethoate	1113-02-6	0.02 mg/kg	91.2	70.0	130
		EP234: Parathion	56-38-2	0.4 mg/kg	85.2	70.0	130
		EP234: Parathion-methyl	298-00-0	4 mg/kg	92.6	70.0	130
		EP234: Phorate	298-02-2	0.2 mg/kg	101	70.0	130
		EP234: Pirimiphos-methyl	29232-93-7	0.02 mg/kg	84.0	70.0	130
		EP234: Sulfotep	3689-24-5	0.01 mg/kg	80.0	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234A: OP Pesticides (QCLot: 2719758) - continued							
EB1929990-025	B11-SED-1019	EP234: Tetrachlorvinphos	22248-79-9	0.02 mg/kg	93.6	70.0	130
		EP234: Triazophos	24017-47-8	0.01 mg/kg	94.4	70.0	130
EP234A: OP Pesticides (QCLot: 2719763)							
EB1929990-015	B1-SED-1019	EP234: Azinphos-ethyl	2642-71-9	0.04 mg/kg	98.8	70.0	130
		EP234: Azinphos-methyl	86-50-0	0.04 mg/kg	85.6	70.0	130
		EP234: Chlorfenvinphos	470-90-6	0.08 mg/kg	89.8	70.0	130
		EP234: Coumaphos	56-72-4	0.02 mg/kg	70.4	70.0	130
		EP234: Diazinon	333-41-5	0.02 mg/kg	82.4	70.0	130
		EP234: Dimethoate	60-51-5	0.04 mg/kg	101	70.0	130
		EP234: Disulfoton	298-04-4	0.1 mg/kg	91.0	70.0	130
		EP234: Ethoprophos	13194-48-4	0.02 mg/kg	100	70.0	130
		EP234: Fenamiphos	22224-92-6	0.02 mg/kg	95.2	70.0	130
		EP234: Fenitrothion	122-14-5	4 mg/kg	73.9	70.0	130
		EP234: Fensulfothion	115-90-2	0.02 mg/kg	73.6	70.0	130
		EP234: Fenthion	55-38-9	0.1 mg/kg	77.9	70.0	130
		EP234: Malathion	121-75-5	0.04 mg/kg	92.8	70.0	130
		EP234: Mevinphos	7786-34-7	0.08 mg/kg	85.5	70.0	130
		EP234: Monocrotophos	6923-22-4	0.04 mg/kg	77.6	70.0	130
		EP234: Omethoate	1113-02-6	0.02 mg/kg	81.6	70.0	130
		EP234: Parathion	56-38-2	0.4 mg/kg	81.6	70.0	130
		EP234: Parathion-methyl	298-00-0	4 mg/kg	100	70.0	130
		EP234: Phorate	298-02-2	0.2 mg/kg	101	70.0	130
		EP234: Pirimiphos-methyl	29232-93-7	0.02 mg/kg	92.8	70.0	130
		EP234: Sulfotep	3689-24-5	0.01 mg/kg	75.2	70.0	130
		EP234: Tetrachlorvinphos	22248-79-9	0.02 mg/kg	70.4	70.0	130
		EP234: Triazophos	24017-47-8	0.01 mg/kg	84.8	70.0	130
EP234A: OP Pesticides (QCLot: 2719766)							
EB1929990-046	G4-SED-1019	EP234: Azinphos-ethyl	2642-71-9	0.04 mg/kg	82.0	70.0	130
		EP234: Azinphos-methyl	86-50-0	0.04 mg/kg	80.4	70.0	130
		EP234: Chlorfenvinphos	470-90-6	0.08 mg/kg	96.4	70.0	130
		EP234: Coumaphos	56-72-4	0.02 mg/kg	93.6	70.0	130
		EP234: Diazinon	333-41-5	0.02 mg/kg	92.0	70.0	130
		EP234: Dimethoate	60-51-5	0.04 mg/kg	88.0	70.0	130
		EP234: Disulfoton	298-04-4	0.1 mg/kg	75.2	70.0	130
		EP234: Ethoprophos	13194-48-4	0.02 mg/kg	108	70.0	130
		EP234: Fenamiphos	22224-92-6	0.02 mg/kg	101	70.0	130
		EP234: Fenitrothion	122-14-5	4 mg/kg	90.6	70.0	130
		EP234: Fensulfothion	115-90-2	0.02 mg/kg	84.0	70.0	130
		EP234: Fenthion	55-38-9	0.1 mg/kg	104	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234A: OP Pesticides (QCLot: 2719766) - continued							
EB1929990-046	G4-SED-1019	EP234: Malathion	121-75-5	0.04 mg/kg	108	70.0	130
		EP234: Mevinphos	7786-34-7	0.08 mg/kg	89.4	70.0	130
		EP234: Monocrotophos	6923-22-4	0.04 mg/kg	93.2	70.0	130
		EP234: Omethoate	1113-02-6	0.02 mg/kg	91.2	70.0	130
		EP234: Parathion	56-38-2	0.4 mg/kg	85.5	70.0	130
		EP234: Parathion-methyl	298-00-0	4 mg/kg	92.6	70.0	130
		EP234: Phorate	298-02-2	0.2 mg/kg	101	70.0	130
		EP234: Pirimiphos-methyl	29232-93-7	0.02 mg/kg	84.0	70.0	130
		EP234: Sulfotep	3689-24-5	0.01 mg/kg	80.0	70.0	130
		EP234: Tetrachlorvinphos	22248-79-9	0.02 mg/kg	93.6	70.0	130
		EP234: Triazophos	24017-47-8	0.01 mg/kg	94.4	70.0	130
EP234B: Thiocarbamates and Carbamates (QCLot: 2700881)							
EB1929990-001	A1-SED-1019	EP234: Aldicarb	116-06-3	0.1 mg/kg	75.2	70.0	130
		EP234: Bendiocarb	22781-23-3	0.2 mg/kg	90.2	70.0	130
		EP234: Benomyl	17804-35-2	0.02 mg/kg	76.0	70.0	130
		EP234: Carbaryl	63-25-2	0.02 mg/kg	86.4	70.0	130
		EP234: Carbofuran	1563-66-2	0.02 mg/kg	76.8	70.0	130
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.04 mg/kg	89.6	70.0	130
		EP234: Methiocarb	2032-65-7	0.02 mg/kg	91.2	70.0	130
		EP234: Methomyl	16752-77-5	0.02 mg/kg	97.6	70.0	130
		EP234: Molinate	2212-67-1	0.2 mg/kg	71.3	70.0	130
		EP234: Oxamyl	23135-22-0	0.02 mg/kg	88.8	70.0	130
		EP234: Thiobencarb	28249-77-6	0.02 mg/kg	# 60.0	70.0	130
		EP234: Thiodicarb	59669-26-0	0.02 mg/kg	# 0.800	70.0	130
EP234B: Thiocarbamates and Carbamates (QCLot: 2719758)							
EB1929990-025	B11-SED-1019	EP234: Aldicarb	116-06-3	0.1 mg/kg	87.5	70.0	130
		EP234: Bendiocarb	22781-23-3	0.2 mg/kg	114	70.0	130
		EP234: Benomyl	17804-35-2	0.02 mg/kg	96.8	70.0	130
		EP234: Carbaryl	63-25-2	0.02 mg/kg	92.0	70.0	130
		EP234: Carbofuran	1563-66-2	0.02 mg/kg	89.6	70.0	130
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.04 mg/kg	94.8	70.0	130
		EP234: Methiocarb	2032-65-7	0.02 mg/kg	101	70.0	130
		EP234: Methomyl	16752-77-5	0.02 mg/kg	124	70.0	130
		EP234: Molinate	2212-67-1	0.2 mg/kg	94.6	70.0	130
		EP234: Oxamyl	23135-22-0	0.02 mg/kg	109	70.0	130
		EP234: Thiobencarb	28249-77-6	0.02 mg/kg	88.0	70.0	130
		EP234: Thiodicarb	59669-26-0	0.02 mg/kg	# 0.00	70.0	130
EP234B: Thiocarbamates and Carbamates (QCLot: 2719763)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234B: Thiocarbamates and Carbamates (QCLot: 2719763) - continued							
EB1929990-015	B1-SED-1019	EP234: Aldicarb	116-06-3	0.1 mg/kg	87.7	70.0	130
		EP234: Bendiocarb	22781-23-3	0.2 mg/kg	118	70.0	130
		EP234: Benomyl	17804-35-2	0.02 mg/kg	84.0	70.0	130
		EP234: Carbaryl	63-25-2	0.02 mg/kg	88.8	70.0	130
		EP234: Carbofuran	1563-66-2	0.02 mg/kg	70.4	70.0	130
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.04 mg/kg	89.6	70.0	130
		EP234: Methiocarb	2032-65-7	0.02 mg/kg	103	70.0	130
		EP234: Methomyl	16752-77-5	0.02 mg/kg	77.6	70.0	130
		EP234: Molinate	2212-67-1	0.2 mg/kg	76.5	70.0	130
		EP234: Oxamyl	23135-22-0	0.02 mg/kg	115	70.0	130
		EP234: Thiobencarb	28249-77-6	0.02 mg/kg	94.4	70.0	130
		EP234: Thiodicarb	59669-26-0	0.02 mg/kg	# 0.00	70.0	130
EP234B: Thiocarbamates and Carbamates (QCLot: 2719766)							
EB1929990-046	G4-SED-1019	EP234: Aldicarb	116-06-3	0.1 mg/kg	87.5	70.0	130
		EP234: Bendiocarb	22781-23-3	0.2 mg/kg	114	70.0	130
		EP234: Benomyl	17804-35-2	0.02 mg/kg	96.8	70.0	130
		EP234: Carbaryl	63-25-2	0.02 mg/kg	92.0	70.0	130
		EP234: Carbofuran	1563-66-2	0.02 mg/kg	89.6	70.0	130
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.04 mg/kg	94.8	70.0	130
		EP234: Methiocarb	2032-65-7	0.02 mg/kg	101	70.0	130
		EP234: Methomyl	16752-77-5	0.02 mg/kg	125	70.0	130
		EP234: Molinate	2212-67-1	0.2 mg/kg	94.6	70.0	130
		EP234: Oxamyl	23135-22-0	0.02 mg/kg	109	70.0	130
		EP234: Thiobencarb	28249-77-6	0.02 mg/kg	89.6	70.0	130
		EP234: Thiodicarb	59669-26-0	0.02 mg/kg	# 0.00	70.0	130
EP234D: Triazinone Herbicides (QCLot: 2700881)							
EB1929990-001	A1-SED-1019	EP234: Hexazinone	51235-04-2	0.04 mg/kg	78.8	70.0	130
		EP234: Metribuzin	21087-64-9	0.04 mg/kg	78.4	70.0	130
EP234D: Triazinone Herbicides (QCLot: 2719758)							
EB1929990-025	B11-SED-1019	EP234: Hexazinone	51235-04-2	0.04 mg/kg	97.2	70.0	130
		EP234: Metribuzin	21087-64-9	0.04 mg/kg	87.6	70.0	130
EP234D: Triazinone Herbicides (QCLot: 2719763)							
EB1929990-015	B1-SED-1019	EP234: Hexazinone	51235-04-2	0.04 mg/kg	71.6	70.0	130
		EP234: Metribuzin	21087-64-9	0.04 mg/kg	95.6	70.0	130
EP234D: Triazinone Herbicides (QCLot: 2719766)							
EB1929990-046	G4-SED-1019	EP234: Hexazinone	51235-04-2	0.04 mg/kg	97.2	70.0	130
		EP234: Metribuzin	21087-64-9	0.04 mg/kg	87.2	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2700881)							
EB1929990-001	A1-SED-1019	EP234: Cyproconazole	94361-06-5	0.08 mg/kg	89.0	70.0	130
		EP234: Flusilazole	85509-19-9	0.04 mg/kg	100	70.0	130
		EP234: Hexaconazole	79983-71-4	0.04 mg/kg	99.2	70.0	130
		EP234: Paclobutrazole	76738-62-0	0.1 mg/kg	81.9	70.0	130
		EP234: Propiconazole	60207-90-1	0.1 mg/kg	80.5	70.0	130
		EP234: Tebuconazole	107534-96-3	0.02 mg/kg	71.2	70.0	130
		EP234: Cyprodinil	121552-61-2	0.02 mg/kg	87.2	70.0	130
		EP234: Pyrimethanil	53112-28-0	0.04 mg/kg	70.4	70.0	130
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2719758)							
EB1929990-025	B11-SED-1019	EP234: Cyproconazole	94361-06-5	0.08 mg/kg	95.4	70.0	130
		EP234: Flusilazole	85509-19-9	0.04 mg/kg	92.4	70.0	130
		EP234: Hexaconazole	79983-71-4	0.04 mg/kg	107	70.0	130
		EP234: Paclobutrazole	76738-62-0	0.1 mg/kg	96.6	70.0	130
		EP234: Propiconazole	60207-90-1	0.1 mg/kg	95.7	70.0	130
		EP234: Tebuconazole	107534-96-3	0.02 mg/kg	116	70.0	130
		EP234: Cyprodinil	121552-61-2	0.02 mg/kg	114	70.0	130
		EP234: Pyrimethanil	53112-28-0	0.04 mg/kg	92.0	70.0	130
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2719763)							
EB1929990-015	B1-SED-1019	EP234: Cyproconazole	94361-06-5	0.08 mg/kg	95.0	70.0	130
		EP234: Flusilazole	85509-19-9	0.04 mg/kg	72.0	70.0	130
		EP234: Hexaconazole	79983-71-4	0.04 mg/kg	70.4	70.0	130
		EP234: Paclobutrazole	76738-62-0	0.1 mg/kg	92.5	70.0	130
		EP234: Propiconazole	60207-90-1	0.1 mg/kg	87.5	70.0	130
		EP234: Tebuconazole	107534-96-3	0.02 mg/kg	92.8	70.0	130
		EP234: Cyprodinil	121552-61-2	0.02 mg/kg	94.4	70.0	130
		EP234: Pyrimethanil	53112-28-0	0.04 mg/kg	92.0	70.0	130
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2719766)							
EB1929990-046	G4-SED-1019	EP234: Cyproconazole	94361-06-5	0.08 mg/kg	95.4	70.0	130
		EP234: Flusilazole	85509-19-9	0.04 mg/kg	92.4	70.0	130
		EP234: Hexaconazole	79983-71-4	0.04 mg/kg	107	70.0	130
		EP234: Paclobutrazole	76738-62-0	0.1 mg/kg	96.6	70.0	130
		EP234: Propiconazole	60207-90-1	0.1 mg/kg	96.2	70.0	130
		EP234: Tebuconazole	107534-96-3	0.02 mg/kg	118	70.0	130
		EP234: Cyprodinil	121552-61-2	0.02 mg/kg	117	70.0	130
		EP234: Pyrimethanil	53112-28-0	0.04 mg/kg	91.6	70.0	130
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2700881)							
EB1929990-001	A1-SED-1019	EP234: Diuron	330-54-1	0.04 mg/kg	# Not Determined	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2700881) - continued							
EB1929990-001	A1-SED-1019	EP234: Fluometuron	2164-17-2	0.02 mg/kg	75.2	70.0	130
		EP234: Tebuthiuron	34014-18-1	0.04 mg/kg	78.0	70.0	130
		EP234: Bromacil	314-40-9	0.04 mg/kg	74.4	70.0	130
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2719758)							
EB1929990-025	B11-SED-1019	EP234: Diuron	330-54-1	0.04 mg/kg	88.8	70.0	130
		EP234: Fluometuron	2164-17-2	0.02 mg/kg	85.6	70.0	130
		EP234: Tebuthiuron	34014-18-1	0.04 mg/kg	92.8	70.0	130
		EP234: Bromacil	314-40-9	0.04 mg/kg	88.4	70.0	130
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2719763)							
EB1929990-015	B1-SED-1019	EP234: Diuron	330-54-1	0.04 mg/kg	87.2	70.0	130
		EP234: Fluometuron	2164-17-2	0.02 mg/kg	71.2	70.0	130
		EP234: Tebuthiuron	34014-18-1	0.04 mg/kg	77.6	70.0	130
		EP234: Bromacil	314-40-9	0.04 mg/kg	85.6	70.0	130
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2719766)							
EB1929990-046	G4-SED-1019	EP234: Diuron	330-54-1	0.04 mg/kg	88.8	70.0	130
		EP234: Fluometuron	2164-17-2	0.02 mg/kg	85.6	70.0	130
		EP234: Tebuthiuron	34014-18-1	0.04 mg/kg	92.8	70.0	130
		EP234: Bromacil	314-40-9	0.04 mg/kg	88.4	70.0	130
EP234G: Chloracetanilides (QCLot: 2700881)							
EB1929990-001	A1-SED-1019	EP234: Metolachlor	51218-45-2	0.02 mg/kg	92.8	70.0	130
EP234G: Chloracetanilides (QCLot: 2719758)							
EB1929990-025	B11-SED-1019	EP234: Metolachlor	51218-45-2	0.02 mg/kg	92.0	70.0	130
EP234G: Chloracetanilides (QCLot: 2719763)							
EB1929990-015	B1-SED-1019	EP234: Metolachlor	51218-45-2	0.02 mg/kg	73.6	70.0	130
EP234G: Chloracetanilides (QCLot: 2719766)							
EB1929990-046	G4-SED-1019	EP234: Metolachlor	51218-45-2	0.02 mg/kg	92.0	70.0	130
EP234H: Triazine Herbicides (QCLot: 2700881)							
EB1929990-001	A1-SED-1019	EP234: Ametryn	834-12-8	0.02 mg/kg	72.8	70.0	130
		EP234: Atrazine	1912-24-9	0.02 mg/kg	80.8	70.0	130
		EP234: Cyanazine	21725-46-2	0.04 mg/kg	72.8	70.0	130
		EP234: Prometryn	7287-19-6	0.02 mg/kg	72.0	70.0	130
		EP234: Propazine	139-40-2	0.02 mg/kg	84.8	70.0	130
		EP234: Simazine	122-34-9	0.04 mg/kg	76.0	70.0	130
		EP234: Terbuthylazine	5915-41-3	0.02 mg/kg	85.6	70.0	130
		EP234: Terbutryn	886-50-0	0.02 mg/kg	73.6	70.0	130
EP234H: Triazine Herbicides (QCLot: 2719758)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234H: Triazine Herbicides (QCLot: 2719758) - continued							
EB1929990-025	B11-SED-1019	EP234: Ametryn	834-12-8	0.02 mg/kg	84.0	70.0	130
		EP234: Atrazine	1912-24-9	0.02 mg/kg	92.0	70.0	130
		EP234: Cyanazine	21725-46-2	0.04 mg/kg	77.2	70.0	130
		EP234: Prometryn	7287-19-6	0.02 mg/kg	100	70.0	130
		EP234: Propazine	139-40-2	0.02 mg/kg	96.0	70.0	130
		EP234: Simazine	122-34-9	0.04 mg/kg	89.6	70.0	130
		EP234: Terbuthylazine	5915-41-3	0.02 mg/kg	99.2	70.0	130
		EP234: Terbutryn	886-50-0	0.02 mg/kg	87.2	70.0	130
EP234H: Triazine Herbicides (QCLot: 2719763)							
EB1929990-015	B1-SED-1019	EP234: Ametryn	834-12-8	0.02 mg/kg	88.0	70.0	130
		EP234: Atrazine	1912-24-9	0.02 mg/kg	90.4	70.0	130
		EP234: Cyanazine	21725-46-2	0.04 mg/kg	74.4	70.0	130
		EP234: Prometryn	7287-19-6	0.02 mg/kg	84.8	70.0	130
		EP234: Propazine	139-40-2	0.02 mg/kg	82.4	70.0	130
		EP234: Simazine	122-34-9	0.04 mg/kg	78.8	70.0	130
		EP234: Terbuthylazine	5915-41-3	0.02 mg/kg	84.8	70.0	130
		EP234: Terbutryn	886-50-0	0.02 mg/kg	88.8	70.0	130
EP234H: Triazine Herbicides (QCLot: 2719766)							
EB1929990-046	G4-SED-1019	EP234: Ametryn	834-12-8	0.02 mg/kg	84.0	70.0	130
		EP234: Atrazine	1912-24-9	0.02 mg/kg	92.0	70.0	130
		EP234: Cyanazine	21725-46-2	0.04 mg/kg	77.2	70.0	130
		EP234: Prometryn	7287-19-6	0.02 mg/kg	100	70.0	130
		EP234: Propazine	139-40-2	0.02 mg/kg	96.0	70.0	130
		EP234: Simazine	122-34-9	0.04 mg/kg	89.2	70.0	130
		EP234: Terbuthylazine	5915-41-3	0.02 mg/kg	99.2	70.0	130
		EP234: Terbutryn	886-50-0	0.02 mg/kg	87.2	70.0	130
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2700881)							
EB1929990-001	A1-SED-1019	EP234: Fenarimol	60168-88-9	0.04 mg/kg	71.6	70.0	130
		EP234: Irgarol	28159-98-0	0.004 mg/kg	88.0	70.0	130
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2719758)							
EB1929990-025	B11-SED-1019	EP234: Fenarimol	60168-88-9	0.04 mg/kg	112	70.0	130
		EP234: Irgarol	28159-98-0	0.004 mg/kg	84.0	70.0	130
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2719763)							
EB1929990-015	B1-SED-1019	EP234: Fenarimol	60168-88-9	0.04 mg/kg	70.4	70.0	130
		EP234: Irgarol	28159-98-0	0.004 mg/kg	88.0	70.0	130
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2719766)							
EB1929990-046	G4-SED-1019	EP234: Fenarimol	60168-88-9	0.04 mg/kg	112	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2719766) - continued							
EB1929990-046	G4-SED-1019	EP234: Irgarol	28159-98-0	0.004 mg/kg	80.0	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB1929990**	Page	: 1 of 36
Client	: **BMT COMMERCIAL AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MS BETH TOKI	Telephone	: +61 7 3552 8639
Project	: B23282-4 Douglas Shoal	Date Samples Received	: 11-Nov-2019
Site	: ----	Issue Date	: 05-Dec-2019
Sampler	: CONOR JONES	No. of samples received	: 61
Order number	: ----	No. of samples analysed	: 56

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)-SD: Total Metals in Sediments by ICP-A	EB1929990--001	A1-SED-1019	**Aluminium**	7429-90-5	54.8 %	0% - 50%	**RPD exceeds LOR based limits**
EG020-SD: Total Metals in Sediments by ICPMS	EB1929990--001	A1-SED-1019	**Copper**	7440-50-8	129 %	0% - 20%	**RPD exceeds LOR based limits**
EG020-SD: Total Metals in Sediments by ICPMS	EB1929990--013	A13-SED-1019	**Copper**	7440-50-8	40.6 %	0% - 20%	**RPD exceeds LOR based limits**
EG020-SD: Total Metals in Sediments by ICPMS	EB1929990--013	A13-SED-1019	**Zinc**	7440-66-6	60.2 %	0% - 50%	**RPD exceeds LOR based limits**
EG020T: Total Metals by ICP-MS	EB1929990--025	B11-SED-1019	**Barium**	7440-39-3	55.7 %	0% - 20%	**RPD exceeds LOR based limits**
EG020T: Total Metals by ICP-MS	EB1929990--035	D5-SED-1019	**Barium**	7440-39-3	21.0 %	0% - 20%	**RPD exceeds LOR based limits**
Laboratory Control Spike (LCS) Recoveries							
EP094A: Synthetic Pyrethroids	QC-2697263-002	----	**Bioresmethrin**	28434-01-07	69.4 %	70.0-130%	**Recovery less than lower control limit**
EP094B: Synergist	QC-2697263-002	----	**Piperonyl Butoxide**	63993-73-7	65.0 %	70.0-130%	**Recovery less than lower control limit**
Matrix Spike (MS) Recoveries							
EG020-SD: Total Metals in Sediments by ICPMS	EB1929990--003	A3-SED-1019	**Copper**	7440-50-8	27.4 %	70.0-130%	**Recovery less than lower data quality objective**
EP094A: Synthetic Pyrethroids	EB1929990--038	D8-SED-1019	**Bioresmethrin**	28434-01-07	30.5 %	60.0-140%	**Recovery less than lower data quality objective**
EP094A: Synthetic Pyrethroids	EB1929990--058	E5-SED-1019	**Bioresmethrin**	28434-01-07	28.2 %	60.0-140%	**Recovery less than lower data quality objective**
EP234A: OP Pesticides	EB1929990--001	A1-SED-1019	**Azinphos-ethyl**	2642-71-9	58.4 %	70.0-130%	**Recovery less than lower data quality objective**
EP234A: OP Pesticides	EB1929990--001	A1-SED-1019	**Diazinon**	333-41-5	54.4 %	70.0-130%	**Recovery less than lower data quality objective**
EP234A: OP Pesticides	EB1929990--001	A1-SED-1019	**Disulfoton**	298-04-4	41.9 %	70.0-130%	**Recovery less than lower data quality objective**
EP234A: OP Pesticides	EB1929990--001	A1-SED-1019	**Fenthion**	55-38-9	56.0 %	70.0-130%	**Recovery less than lower data quality objective**
EP234A: OP Pesticides	EB1929990--001	A1-SED-1019	**Sulfotep**	3689-24-5	56.0 %	70.0-130%	**Recovery less than lower data quality objective**
EP234A: OP Pesticides	EB1929990--001	A1-SED-1019	**Tetrachlorvinphos**	22248-79-9	53.6 %	70.0-130%	**Recovery less than lower data quality objective**
EP234B: Thiocarbamates and Carbamates	EB1929990--001	A1-SED-1019	**Thiobencarb**	28249-77-6	60.0 %	70.0-130%	**Recovery less than lower data quality objective**
EP234B: Thiocarbamates and Carbamates	EB1929990--001	A1-SED-1019	**Thiodicarb**	59669-26-0	0.800 %	70.0-130%	**Recovery less than lower data quality objective**
EP234B: Thiocarbamates and Carbamates	EB1929990--025	B11-SED-1019	**Thiodicarb**	59669-26-0	0.00 %	70.0-130%	**Recovery less than lower data quality objective**
EP234B: Thiocarbamates and Carbamates	EB1929990--015	B1-SED-1019	**Thiodicarb**	59669-26-0	0.00 %	70.0-130%	**Recovery less than lower data quality objective**
EP234B: Thiocarbamates and Carbamates	EB1929990--046	G4-SED-1019	**Thiodicarb**	59669-26-0	0.00 %	70.0-130%	**Recovery less than lower data quality objective**

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP090S: Organotin Surrogate	EB1929990-020	B6-SED-1019	**Tripropyltin**	----	196 %	35.0-130 %	**Recovery greater than upper data quality objective**
EP090S: Organotin Surrogate	EB1929990-050	G9-SED-1019	**Tripropyltin**	----	31.1 %	35.0-130 %	**Recovery less than lower data quality objective**
EP094S: Pesticide Surrogate	EB1929990-038	D8-SED-1019	**DEF**	78-48-8	116 %	10.0-110 %	**Recovery greater than upper data quality objective**
EP094S: Pesticide Surrogate	EB1929990-056	E3-SED-1019	**DEF**	78-48-8	111 %	10.0-110 %	**Recovery greater than upper data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / **Container** / Client Sample ID(s)	*Extraction / Preparation*			*Analysis*		
	Date extracted	*Due for extraction*	***Days overdue***	*Date analysed*	*Due for analysis*	***Days overdue***
EP094A: Synthetic Pyrethroids						
Sediment Glass Jar - Frozen (NAGD)						
B1-SED-1019	25-Nov-2019	19-Nov-2019	**6**	----	----	----
Soil Glass Jar - Frozen						
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D11-SED-1019, D12-SED-1019	26-Nov-2019	18-Nov-2019	**8**	----	----	----
Soil Glass Jar - Frozen						
B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	25-Nov-2019	19-Nov-2019	**6**	----	----	----
Soil Glass Jar - Frozen						
G10-SED-1019, G11-SED-1019	26-Nov-2019	20-Nov-2019	**6**	----	----	----
Soil Glass Jar - Unpreserved						
D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019, D10-SED-1019	25-Nov-2019	18-Nov-2019	**7**	----	----	----
Soil Glass Jar - Unpreserved						
E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	22-Nov-2019	20-Nov-2019	**2**	----	----	----
Soil Glass Jar - Unpreserved						
G9-SED-1019	25-Nov-2019	20-Nov-2019	**5**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP094A: Synthetic Pyrethroids - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
G1-SED-1019, G2-SED-1019, G3-SED-1019, G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019	25-Nov-2019	20-Nov-2019	**5**	----	----	----
Soil Glass Jar - Unpreserved						
G12-SED-1019	26-Nov-2019	20-Nov-2019	**6**	----	----	----
EP094B: Synergist						
Sediment Glass Jar - Frozen (NAGD)						
B1-SED-1019	25-Nov-2019	19-Nov-2019	**6**	----	----	----
Soil Glass Jar - Frozen						
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D11-SED-1019, D12-SED-1019	26-Nov-2019	18-Nov-2019	**8**	----	----	----
Soil Glass Jar - Frozen						
B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	25-Nov-2019	19-Nov-2019	**6**	----	----	----
Soil Glass Jar - Frozen						
G10-SED-1019, G11-SED-1019	26-Nov-2019	20-Nov-2019	**6**	----	----	----
Soil Glass Jar - Unpreserved						
D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019, D10-SED-1019	25-Nov-2019	18-Nov-2019	**7**	----	----	----
Soil Glass Jar - Unpreserved						
E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	22-Nov-2019	20-Nov-2019	**2**	----	----	----
Soil Glass Jar - Unpreserved						
G9-SED-1019	25-Nov-2019	20-Nov-2019	**5**	----	----	----
Soil Glass Jar - Unpreserved						
G1-SED-1019, G2-SED-1019, G3-SED-1019, G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019	25-Nov-2019	20-Nov-2019	**5**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP094B: Synergist - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
G12-SED-1019	26-Nov-2019	20-Nov-2019	**6**	----	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS						
Soil Glass Jar - Unpreserved						
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019, D10-SED-1019, D11-SED-1019, D12-SED-1019	03-Dec-2019	18-Nov-2019	**15**	----	----	----
Soil Glass Jar - Unpreserved						
B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	02-Dec-2019	19-Nov-2019	**13**	----	----	----
Soil Glass Jar - Unpreserved						
B1-SED-1019, B3-SED-1019	03-Dec-2019	19-Nov-2019	**14**	----	----	----
Soil Glass Jar - Unpreserved						
G1-SED-1019, G2-SED-1019, G3-SED-1019, G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	02-Dec-2019	20-Nov-2019	**12**	----	----	----
EP234A: OP Pesticides						
Soil Glass Jar - Unpreserved						
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	01-Dec-2019	18-Nov-2019	**13**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP234A: OP Pesticides - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
D10-SED-1019, D11-SED-1019, D12-SED-1019	28-Nov-2019	18-Nov-2019	**10**	----	----	----
Soil Glass Jar - Unpreserved						
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	28-Nov-2019	19-Nov-2019	**9**	----	----	----
Soil Glass Jar - Unpreserved						
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	01-Dec-2019	20-Nov-2019	**11**	----	----	----
Soil Glass Jar - Unpreserved						
G1-SED-1019, G2-SED-1019, G3-SED-1019	28-Nov-2019	20-Nov-2019	**8**	----	----	----
EP234B: Thiocarbamates and Carbamates						
Soil Glass Jar - Unpreserved						
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	01-Dec-2019	18-Nov-2019	**13**	----	----	----
Soil Glass Jar - Unpreserved						
D10-SED-1019, D11-SED-1019, D12-SED-1019	28-Nov-2019	18-Nov-2019	**10**	----	----	----
Soil Glass Jar - Unpreserved						
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	28-Nov-2019	19-Nov-2019	**9**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP234B: Thiocarbamates and Carbamates - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	01-Dec-2019	20-Nov-2019	**11**	----	----	----
Soil Glass Jar - Unpreserved						
G1-SED-1019, G2-SED-1019, G3-SED-1019	28-Nov-2019	20-Nov-2019	**8**	----	----	----
EP234D: Triazinone Herbicides						
Soil Glass Jar - Unpreserved						
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	01-Dec-2019	18-Nov-2019	**13**	----	----	----
Soil Glass Jar - Unpreserved						
D10-SED-1019, D11-SED-1019, D12-SED-1019	28-Nov-2019	18-Nov-2019	**10**	----	----	----
Soil Glass Jar - Unpreserved						
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	28-Nov-2019	19-Nov-2019	**9**	----	----	----
Soil Glass Jar - Unpreserved						
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	01-Dec-2019	20-Nov-2019	**11**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP234D: Triazinone Herbicides - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
G1-SED-1019, G2-SED-1019, G3-SED-1019	28-Nov-2019	20-Nov-2019	**8**	----	----	----
EP234E: Conazole and Aminopyrimidine Fungicides						
Soil Glass Jar - Unpreserved						
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	01-Dec-2019	18-Nov-2019	**13**	----	----	----
Soil Glass Jar - Unpreserved						
D10-SED-1019, D11-SED-1019, D12-SED-1019	28-Nov-2019	18-Nov-2019	**10**	----	----	----
Soil Glass Jar - Unpreserved						
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	28-Nov-2019	19-Nov-2019	**9**	----	----	----
Soil Glass Jar - Unpreserved						
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	01-Dec-2019	20-Nov-2019	**11**	----	----	----
Soil Glass Jar - Unpreserved						
G1-SED-1019, G2-SED-1019, G3-SED-1019	28-Nov-2019	20-Nov-2019	**8**	----	----	----
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides - Analysis Holding Time						
Soil Glass Jar - Unpreserved B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	01-Dec-2019	18-Nov-2019	**13**	----	----	----
Soil Glass Jar - Unpreserved D10-SED-1019, D11-SED-1019, D12-SED-1019	28-Nov-2019	18-Nov-2019	**10**	----	----	----
Soil Glass Jar - Unpreserved B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	28-Nov-2019	19-Nov-2019	**9**	----	----	----
Soil Glass Jar - Unpreserved G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	01-Dec-2019	20-Nov-2019	**11**	----	----	----
Soil Glass Jar - Unpreserved G1-SED-1019, G2-SED-1019, G3-SED-1019	28-Nov-2019	20-Nov-2019	**8**	----	----	----
EP234G: Chloracetanilides						
Soil Glass Jar - Unpreserved B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	01-Dec-2019	18-Nov-2019	**13**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP234G: Chloracetanilides - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
D10-SED-1019, D11-SED-1019, D12-SED-1019	28-Nov-2019	18-Nov-2019	**10**	----	----	----
Soil Glass Jar - Unpreserved						
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	28-Nov-2019	19-Nov-2019	**9**	----	----	----
Soil Glass Jar - Unpreserved						
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	01-Dec-2019	20-Nov-2019	**11**	----	----	----
Soil Glass Jar - Unpreserved						
G1-SED-1019, G2-SED-1019, G3-SED-1019	28-Nov-2019	20-Nov-2019	**8**	----	----	----
EP234H: Triazine Herbicides						
Soil Glass Jar - Unpreserved						
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	01-Dec-2019	18-Nov-2019	**13**	----	----	----
Soil Glass Jar - Unpreserved						
D10-SED-1019, D11-SED-1019, D12-SED-1019	28-Nov-2019	18-Nov-2019	**10**	----	----	----
Soil Glass Jar - Unpreserved						
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	28-Nov-2019	19-Nov-2019	**9**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP234H: Triazine Herbicides - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	01-Dec-2019	20-Nov-2019	**11**	----	----	----
Soil Glass Jar - Unpreserved						
G1-SED-1019, G2-SED-1019, G3-SED-1019	28-Nov-2019	20-Nov-2019	**8**	----	----	----
EP234I: Miscellaneous (ESI Positive Mode) Pesticides						
Soil Glass Jar - Unpreserved						
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	01-Dec-2019	18-Nov-2019	**13**	----	----	----
Soil Glass Jar - Unpreserved						
D10-SED-1019, D11-SED-1019, D12-SED-1019	28-Nov-2019	18-Nov-2019	**10**	----	----	----
Soil Glass Jar - Unpreserved						
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	28-Nov-2019	19-Nov-2019	**9**	----	----	----
Soil Glass Jar - Unpreserved						
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	01-Dec-2019	20-Nov-2019	**11**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP234I: Miscellaneous (ESI Positive Mode) Pesticides - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
G1-SED-1019, G2-SED-1019, G3-SED-1019	28-Nov-2019	20-Nov-2019	**8**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type / Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Soil Particle Density	0	56	0.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Sediment Glass Jar - Frozen (NAGD) (EA055)							
B1-SED-1019	**05-Nov-2019**	**----**	----	----	**12-Nov-2019**	03-May-2020	✓
Soil Glass Jar - Frozen (EA055)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**----**	----	----	**12-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Frozen (EA055)							
B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**----**	----	----	**12-Nov-2019**	03-May-2020	✓
Soil Glass Jar - Frozen (EA055)							
G10-SED-1019, G11-SED-1019	**06-Nov-2019**	**----**	----	----	**12-Nov-2019**	04-May-2020	✓
Soil Glass Jar - Unpreserved (EA055)							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C) - Continued								
D1-SED-1019,	D2-SED-1019,	**04-Nov-2019**	**----**	----	----	**12-Nov-2019**	18-Nov-2019	✓
D3-SED-1019,	D4-SED-1019,							
D5-SED-1019,	D6-SED-1019,							
D7-SED-1019,	D8-SED-1019,							
D9-SED-1019,	D10-SED-1019							
Soil Glass Jar - Unpreserved (EA055)								
A1-SED-1019,	A3-SED-1019,	**05-Nov-2019**	**----**	----	----	**12-Nov-2019**	19-Nov-2019	✓
A4-SED-1019,	A6-SED-1019,							
A7-SED-1019,	A8-SED-1019,							
A9-SED-1019,	A10-SED-1019,							
A11-SED-1019,	A12-SED-1019,							
A13-SED-1019,	A14-SED-1019							
Soil Glass Jar - Unpreserved (EA055)								
G1-SED-1019,	G2-SED-1019,	**06-Nov-2019**	**----**	----	----	**12-Nov-2019**	20-Nov-2019	✓
G3-SED-1019,	G4-SED-1019,							
G6-SED-1019,	G7-SED-1019,							
G8-SED-1019,	G9-SED-1019,							
G12-SED-1019,	E1-SED-1019,							
E2-SED-1019,	E3-SED-1019,							
E4-SED-1019,	E5-SED-1019,							
E6-SED-1019,	E7-SED-1019							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA150: Particle Sizing							
Snap Lock Bag (EA150H)							
D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019, D10-SED-1019	**04-Nov-2019**	**----**	----	----	**28-Nov-2019**	02-May-2020	✓
Snap Lock Bag (EA150H)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**----**	----	----	**28-Nov-2019**	03-May-2020	✓
Snap Lock Bag (EA150H)							
G1-SED-1019, G2-SED-1019, G3-SED-1019, G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**----**	----	----	**28-Nov-2019**	04-May-2020	✓
Soil Glass Jar - Frozen (EA150H)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**----**	----	----	**28-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Frozen (EA150H)							
G11-SED-1019	**06-Nov-2019**	**----**	----	----	**28-Nov-2019**	04-May-2020	✓
Soil Glass Jar - Unpreserved (EA150H)							
A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**----**	----	----	**28-Nov-2019**	03-May-2020	✓
Soil Glass Jar - Unpreserved (EA150H)							
G12-SED-1019	**06-Nov-2019**	**----**	----	----	**28-Nov-2019**	04-May-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA150: Soil Classification based on Particle Size							
Snap Lock Bag (EA150H)							
D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019, D10-SED-1019	**04-Nov-2019**	**----**	----	----	**28-Nov-2019**	02-May-2020	✓
Snap Lock Bag (EA150H)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**----**	----	----	**28-Nov-2019**	03-May-2020	✓
Snap Lock Bag (EA150H)							
G1-SED-1019, G2-SED-1019, G3-SED-1019, G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**----**	----	----	**28-Nov-2019**	04-May-2020	✓
Soil Glass Jar - Frozen (EA150H)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**----**	----	----	**28-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Frozen (EA150H)							
G11-SED-1019	**06-Nov-2019**	**----**	----	----	**28-Nov-2019**	04-May-2020	✓
Soil Glass Jar - Unpreserved (EA150H)							
A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**----**	----	----	**28-Nov-2019**	03-May-2020	✓
Soil Glass Jar - Unpreserved (EA150H)							
G12-SED-1019	**06-Nov-2019**	**----**	----	----	**28-Nov-2019**	04-May-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA152: Soil Particle Density							
Snap Lock Bag (EA152)							
D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019, D10-SED-1019	**04-Nov-2019**	**----**	----	----	**28-Nov-2019**	02-May-2020	✓
Snap Lock Bag (EA152)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**----**	----	----	**28-Nov-2019**	03-May-2020	✓
Snap Lock Bag (EA152)							
G1-SED-1019, G2-SED-1019, G3-SED-1019, G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**----**	----	----	**28-Nov-2019**	04-May-2020	✓
Soil Glass Jar - Frozen (EA152)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**----**	----	----	**28-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Frozen (EA152)							
G11-SED-1019	**06-Nov-2019**	**----**	----	----	**28-Nov-2019**	04-May-2020	✓
Soil Glass Jar - Unpreserved (EA152)							
A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**----**	----	----	**28-Nov-2019**	03-May-2020	✓
Soil Glass Jar - Unpreserved (EA152)							
G12-SED-1019	**06-Nov-2019**	**----**	----	----	**28-Nov-2019**	04-May-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES							
Sediment Glass Jar - Frozen (NAGD) (EG005-SD)							
B1-SED-1019	**05-Nov-2019**	**12-Nov-2019**	03-May-2020	✓	**21-Nov-2019**	03-May-2020	✓
Soil Glass Jar - Frozen (EG005-SD)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019	**04-Nov-2019**	**12-Nov-2019**	02-May-2020	✓	**21-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Frozen (EG005-SD)							
D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**13-Nov-2019**	02-May-2020	✓	**14-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Frozen (EG005-SD)							
B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**12-Nov-2019**	03-May-2020	✓	**21-Nov-2019**	03-May-2020	✓
Soil Glass Jar - Frozen (EG005-SD)							
G10-SED-1019, G11-SED-1019	**06-Nov-2019**	**13-Nov-2019**	04-May-2020	✓	**14-Nov-2019**	04-May-2020	✓
Soil Glass Jar - Unpreserved (EG005-SD)							
D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019	**04-Nov-2019**	**12-Nov-2019**	02-May-2020	✓	**21-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Unpreserved (EG005-SD)							
D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019, D10-SED-1019	**04-Nov-2019**	**13-Nov-2019**	02-May-2020	✓	**14-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Unpreserved (EG005-SD)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**12-Nov-2019**	03-May-2020	✓	**21-Nov-2019**	03-May-2020	✓
Soil Glass Jar - Unpreserved (EG005-SD)							
G1-SED-1019, G2-SED-1019, G3-SED-1019, G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**13-Nov-2019**	04-May-2020	✓	**14-Nov-2019**	04-May-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020-SD: Total Metals in Sediments by ICPMS							
Sediment Glass Jar - Frozen (NAGD) (EG020-SD)							
B1-SED-1019	**05-Nov-2019**	**12-Nov-2019**	03-May-2020	✓	**21-Nov-2019**	03-May-2020	✓
Soil Glass Jar - Frozen (EG020-SD)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019	**04-Nov-2019**	**12-Nov-2019**	02-May-2020	✓	**21-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Frozen (EG020-SD)							
D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**13-Nov-2019**	02-May-2020	✓	**14-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Frozen (EG020-SD)							
B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**12-Nov-2019**	03-May-2020	✓	**21-Nov-2019**	03-May-2020	✓
Soil Glass Jar - Frozen (EG020-SD)							
G10-SED-1019, G11-SED-1019	**06-Nov-2019**	**13-Nov-2019**	04-May-2020	✓	**14-Nov-2019**	04-May-2020	✓
Soil Glass Jar - Unpreserved (EG020-SD)							
D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019	**04-Nov-2019**	**12-Nov-2019**	02-May-2020	✓	**21-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Unpreserved (EG020-SD)							
D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019, D10-SED-1019	**04-Nov-2019**	**13-Nov-2019**	02-May-2020	✓	**14-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Unpreserved (EG020-SD)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**12-Nov-2019**	03-May-2020	✓	**21-Nov-2019**	03-May-2020	✓
Soil Glass Jar - Unpreserved (EG020-SD)							
G1-SED-1019, G2-SED-1019, G3-SED-1019, G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**13-Nov-2019**	04-May-2020	✓	**14-Nov-2019**	04-May-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Sediment Glass Jar - Frozen (NAGD) (EG020X-T)							
B1-SED-1019	**05-Nov-2019**	**12-Nov-2019**	03-May-2020	✓	**21-Nov-2019**	03-May-2020	✓
Soil Glass Jar - Frozen (EG020X-T)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019	**04-Nov-2019**	**12-Nov-2019**	02-May-2020	✓	**21-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Frozen (EG020X-T)							
D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**13-Nov-2019**	02-May-2020	✓	**14-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Frozen (EG020X-T)							
B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**12-Nov-2019**	03-May-2020	✓	**21-Nov-2019**	03-May-2020	✓
Soil Glass Jar - Frozen (EG020X-T)							
G10-SED-1019, G11-SED-1019	**06-Nov-2019**	**13-Nov-2019**	04-May-2020	✓	**14-Nov-2019**	04-May-2020	✓
Soil Glass Jar - Unpreserved (EG020X-T)							
D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019	**04-Nov-2019**	**12-Nov-2019**	02-May-2020	✓	**21-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Unpreserved (EG020X-T)							
D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019, D10-SED-1019	**04-Nov-2019**	**13-Nov-2019**	02-May-2020	✓	**14-Nov-2019**	02-May-2020	✓
Soil Glass Jar - Unpreserved (EG020X-T)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**12-Nov-2019**	03-May-2020	✓	**21-Nov-2019**	03-May-2020	✓
Soil Glass Jar - Unpreserved (EG020X-T)							
G1-SED-1019, G2-SED-1019, G3-SED-1019, G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**13-Nov-2019**	04-May-2020	✓	**14-Nov-2019**	04-May-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Sediment Glass Jar - Frozen (NAGD) (EG035T-LL)							
B1-SED-1019	**05-Nov-2019**	**12-Nov-2019**	31-Dec-2019	✓	**22-Nov-2019**	31-Dec-2019	✓
Soil Glass Jar - Frozen (EG035T-LL)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019	**04-Nov-2019**	**12-Nov-2019**	30-Dec-2019	✓	**22-Nov-2019**	30-Dec-2019	✓
Soil Glass Jar - Frozen (EG035T-LL)							
D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**13-Nov-2019**	30-Dec-2019	✓	**14-Nov-2019**	30-Dec-2019	✓
Soil Glass Jar - Frozen (EG035T-LL)							
B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**12-Nov-2019**	31-Dec-2019	✓	**22-Nov-2019**	31-Dec-2019	✓
Soil Glass Jar - Frozen (EG035T-LL)							
G10-SED-1019, G11-SED-1019	**06-Nov-2019**	**13-Nov-2019**	01-Jan-2020	✓	**14-Nov-2019**	01-Jan-2020	✓
Soil Glass Jar - Unpreserved (EG035T-LL)							
D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019	**04-Nov-2019**	**12-Nov-2019**	02-Dec-2019	✓	**22-Nov-2019**	02-Dec-2019	✓
Soil Glass Jar - Unpreserved (EG035T-LL)							
D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019, D10-SED-1019	**04-Nov-2019**	**13-Nov-2019**	02-Dec-2019	✓	**14-Nov-2019**	02-Dec-2019	✓
Soil Glass Jar - Unpreserved (EG035T-LL)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**12-Nov-2019**	03-Dec-2019	✓	**22-Nov-2019**	03-Dec-2019	✓
Soil Glass Jar - Unpreserved (EG035T-LL)							
G1-SED-1019, G2-SED-1019, G3-SED-1019, G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**13-Nov-2019**	04-Dec-2019	✓	**14-Nov-2019**	04-Dec-2019	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP090: Organotin Compounds							
Sediment Glass Jar - Frozen (NAGD) (EP090)							
B1-SED-1019	**05-Nov-2019**	**15-Nov-2019**	31-Dec-2019	✓	**22-Nov-2019**	25-Dec-2019	✓
Soil Glass Jar - Frozen (EP090)							
D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**14-Nov-2019**	30-Dec-2019	✓	**25-Nov-2019**	24-Dec-2019	✓
Soil Glass Jar - Frozen (EP090)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019	**04-Nov-2019**	**15-Nov-2019**	30-Dec-2019	✓	**22-Nov-2019**	25-Dec-2019	✓
Soil Glass Jar - Frozen (EP090)							
B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**15-Nov-2019**	31-Dec-2019	✓	**22-Nov-2019**	25-Dec-2019	✓
Soil Glass Jar - Frozen (EP090)							
G10-SED-1019, G11-SED-1019	**06-Nov-2019**	**14-Nov-2019**	01-Jan-2020	✓	**25-Nov-2019**	24-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP090)							
D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019, D10-SED-1019	**04-Nov-2019**	**14-Nov-2019**	18-Nov-2019	✓	**25-Nov-2019**	24-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP090)							
D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019	**04-Nov-2019**	**15-Nov-2019**	18-Nov-2019	✓	**22-Nov-2019**	25-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP090)							
A1-SED-1019	**05-Nov-2019**	**15-Nov-2019**	19-Nov-2019	✓	**22-Nov-2019**	25-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP090)							
E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**12-Nov-2019**	20-Nov-2019	✓	**14-Nov-2019**	22-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP090)							
G1-SED-1019, G2-SED-1019, G3-SED-1019, G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019	**06-Nov-2019**	**14-Nov-2019**	20-Nov-2019	✓	**25-Nov-2019**	24-Dec-2019	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP094A: Synthetic Pyrethroids							
Sediment Glass Jar - Frozen (NAGD) (EP094)							
B1-SED-1019	**05-Nov-2019**	**25-Nov-2019**	19-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Frozen (EP094)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**26-Nov-2019**	18-Nov-2019	×	**27-Nov-2019**	05-Jan-2020	✓
Soil Glass Jar - Frozen (EP094)							
B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**25-Nov-2019**	19-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Frozen (EP094)							
G10-SED-1019, G11-SED-1019	**06-Nov-2019**	**26-Nov-2019**	20-Nov-2019	×	**27-Nov-2019**	05-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP094)							
D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019, D10-SED-1019	**04-Nov-2019**	**25-Nov-2019**	18-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP094)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**14-Nov-2019**	19-Nov-2019	✓	**15-Nov-2019**	24-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP094)							
E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**22-Nov-2019**	20-Nov-2019	×	**25-Nov-2019**	01-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP094)							
G9-SED-1019	**06-Nov-2019**	**25-Nov-2019**	20-Nov-2019	×	**02-Dec-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP094)							
G1-SED-1019, G2-SED-1019, G3-SED-1019, G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019	**06-Nov-2019**	**25-Nov-2019**	20-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP094)							
G12-SED-1019	**06-Nov-2019**	**26-Nov-2019**	20-Nov-2019	×	**27-Nov-2019**	05-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP094B: Synergist							
Sediment Glass Jar - Frozen (NAGD) (EP094)							
B1-SED-1019	**05-Nov-2019**	**25-Nov-2019**	19-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Frozen (EP094)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**26-Nov-2019**	18-Nov-2019	×	**27-Nov-2019**	05-Jan-2020	✓
Soil Glass Jar - Frozen (EP094)							
B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**25-Nov-2019**	19-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Frozen (EP094)							
G10-SED-1019, G11-SED-1019	**06-Nov-2019**	**26-Nov-2019**	20-Nov-2019	×	**27-Nov-2019**	05-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP094)							
D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019, D10-SED-1019	**04-Nov-2019**	**25-Nov-2019**	18-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP094)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**14-Nov-2019**	19-Nov-2019	✓	**15-Nov-2019**	24-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP094)							
E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**22-Nov-2019**	20-Nov-2019	×	**25-Nov-2019**	01-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP094)							
G9-SED-1019	**06-Nov-2019**	**25-Nov-2019**	20-Nov-2019	×	**02-Dec-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP094)							
G1-SED-1019, G2-SED-1019, G3-SED-1019, G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019	**06-Nov-2019**	**25-Nov-2019**	20-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP094)							
G12-SED-1019	**06-Nov-2019**	**26-Nov-2019**	20-Nov-2019	×	**27-Nov-2019**	05-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP202A: Phenoxyacetic Acid Herbicides by LCMS							
Soil Glass Jar - Unpreserved (EP202)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019, D10-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**03-Dec-2019**	18-Nov-2019	×	**03-Dec-2019**	12-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP202)							
B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**02-Dec-2019**	19-Nov-2019	×	**03-Dec-2019**	11-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP202)							
B1-SED-1019, B3-SED-1019	**05-Nov-2019**	**03-Dec-2019**	19-Nov-2019	×	**03-Dec-2019**	12-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP202)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**14-Nov-2019**	19-Nov-2019	✓	**14-Nov-2019**	24-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP202)							
G1-SED-1019, G2-SED-1019, G3-SED-1019, G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**02-Dec-2019**	20-Nov-2019	×	**03-Dec-2019**	11-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234A: OP Pesticides							
Soil Glass Jar - Unpreserved (EP234)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	**04-Nov-2019**	**01-Dec-2019**	18-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
D10-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**28-Nov-2019**	18-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**14-Nov-2019**	19-Nov-2019	✓	**14-Nov-2019**	24-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP234)							
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**28-Nov-2019**	19-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**01-Dec-2019**	20-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G1-SED-1019, G2-SED-1019, G3-SED-1019	**06-Nov-2019**	**28-Nov-2019**	20-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234B: Thiocarbamates and Carbamates							
Soil Glass Jar - Unpreserved (EP234)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	**04-Nov-2019**	**01-Dec-2019**	18-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
D10-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**28-Nov-2019**	18-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**14-Nov-2019**	19-Nov-2019	✓	**14-Nov-2019**	24-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP234)							
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**28-Nov-2019**	19-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**01-Dec-2019**	20-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G1-SED-1019, G2-SED-1019, G3-SED-1019	**06-Nov-2019**	**28-Nov-2019**	20-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234D: Triazinone Herbicides							
Soil Glass Jar - Unpreserved (EP234)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	**04-Nov-2019**	**01-Dec-2019**	18-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
D10-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**28-Nov-2019**	18-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**14-Nov-2019**	19-Nov-2019	✓	**14-Nov-2019**	24-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP234)							
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**28-Nov-2019**	19-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**01-Dec-2019**	20-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G1-SED-1019, G2-SED-1019, G3-SED-1019	**06-Nov-2019**	**28-Nov-2019**	20-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234E: Conazole and Aminopyrimidine Fungicides							
Soil Glass Jar - Unpreserved (EP234)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	**04-Nov-2019**	**01-Dec-2019**	18-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
D10-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**28-Nov-2019**	18-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**14-Nov-2019**	19-Nov-2019	✓	**14-Nov-2019**	24-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP234)							
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**28-Nov-2019**	19-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**01-Dec-2019**	20-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G1-SED-1019, G2-SED-1019, G3-SED-1019	**06-Nov-2019**	**28-Nov-2019**	20-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides							
Soil Glass Jar - Unpreserved (EP234)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	**04-Nov-2019**	**01-Dec-2019**	18-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
D10-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**28-Nov-2019**	18-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**14-Nov-2019**	19-Nov-2019	✓	**14-Nov-2019**	24-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP234)							
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**28-Nov-2019**	19-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**01-Dec-2019**	20-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G1-SED-1019, G2-SED-1019, G3-SED-1019	**06-Nov-2019**	**28-Nov-2019**	20-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234G: Chloracetanilides							
Soil Glass Jar - Unpreserved (EP234)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	**04-Nov-2019**	**01-Dec-2019**	18-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
D10-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**28-Nov-2019**	18-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**14-Nov-2019**	19-Nov-2019	✓	**14-Nov-2019**	24-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP234)							
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**28-Nov-2019**	19-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**01-Dec-2019**	20-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G1-SED-1019, G2-SED-1019, G3-SED-1019	**06-Nov-2019**	**28-Nov-2019**	20-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234H: Triazine Herbicides							
Soil Glass Jar - Unpreserved (EP234)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	**04-Nov-2019**	**01-Dec-2019**	18-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
D10-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**28-Nov-2019**	18-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**14-Nov-2019**	19-Nov-2019	✓	**14-Nov-2019**	24-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP234)							
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**28-Nov-2019**	19-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**01-Dec-2019**	20-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G1-SED-1019, G2-SED-1019, G3-SED-1019	**06-Nov-2019**	**28-Nov-2019**	20-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234I: Miscellaneous (ESI Positive Mode) Pesticides							
Soil Glass Jar - Unpreserved (EP234)							
B11-SED-1019, B12-SED-1019, B13-SED-1019, B14-SED-1019, B15-SED-1019, B16-SED-1019, D1-SED-1019, D2-SED-1019, D3-SED-1019, D4-SED-1019, D5-SED-1019, D6-SED-1019, D7-SED-1019, D8-SED-1019, D9-SED-1019	**04-Nov-2019**	**01-Dec-2019**	18-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
D10-SED-1019, D11-SED-1019, D12-SED-1019	**04-Nov-2019**	**28-Nov-2019**	18-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
A1-SED-1019, A3-SED-1019, A4-SED-1019, A6-SED-1019, A7-SED-1019, A8-SED-1019, A9-SED-1019, A10-SED-1019, A11-SED-1019, A12-SED-1019, A13-SED-1019, A14-SED-1019	**05-Nov-2019**	**14-Nov-2019**	19-Nov-2019	✓	**14-Nov-2019**	24-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP234)							
B1-SED-1019, B3-SED-1019, B4-SED-1019, B5-SED-1019, B6-SED-1019, B7-SED-1019, B8-SED-1019, B10-SED-1019	**05-Nov-2019**	**28-Nov-2019**	19-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G4-SED-1019, G6-SED-1019, G7-SED-1019, G8-SED-1019, G9-SED-1019, G10-SED-1019, G11-SED-1019, G12-SED-1019, E1-SED-1019, E2-SED-1019, E3-SED-1019, E4-SED-1019, E5-SED-1019, E6-SED-1019, E7-SED-1019	**06-Nov-2019**	**01-Dec-2019**	20-Nov-2019	×	**02-Dec-2019**	10-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
G1-SED-1019, G2-SED-1019, G3-SED-1019	**06-Nov-2019**	**28-Nov-2019**	20-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	8	71	**11.27**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organotin Analysis	EP090	6	60	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234	8	56	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	7	64	**10.94**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Soil Particle Density	EA152	0	56	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Synthetic Pyrethroids by GCMS	EP094	9	60	**15.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fe and Al in Sediments by ICPAES	EG005-SD	8	71	**11.27**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	8	71	**11.27**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite X	EG020X-T	8	71	**11.27**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Sediments by ICPMS	EG020-SD	8	71	**11.27**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Organotin Analysis	EP090	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234	4	56	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	4	64	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Soil Particle Density	EA152	3	56	**5.36**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Synthetic Pyrethroids by GCMS	EP094	5	60	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fe and Al in Sediments by ICPAES	EG005-SD	4	71	**5.63**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	4	71	**5.63**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite X	EG020X-T	4	71	**5.63**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Sediments by ICPMS	EG020-SD	4	71	**5.63**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Organotin Analysis	EP090	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234	4	56	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	4	64	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Synthetic Pyrethroids by GCMS	EP094	5	60	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fe and Al in Sediments by ICPAES	EG005-SD	4	71	**5.63**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	4	71	**5.63**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite X	EG020X-T	4	71	**5.63**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Sediments by ICPMS	EG020-SD	4	71	**5.63**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Organotin Analysis	EP090	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234	4	56	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	4	64	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Synthetic Pyrethroids by GCMS	EP094	5	60	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	4	71	**5.63**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite X	EG020X-T	4	71	**5.63**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Metals in Sediments by ICPMS	EG020-SD	4	71	**5.63**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 6.1 and Table 1 (14 day holding time).
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3 - 2003
Soil Particle Density	EA152	SOIL	Soil Particle Density by AS 1289.3.5.1-2006 : Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method
Total Fe and Al in Sediments by ICPAES	EG005-SD	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3). LORs per NODG
Total Metals in Sediments by ICPMS	EG020-SD	SOIL	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector. Analyte list and LORs per NODG.
Total Metals by ICP-MS - Suite X	EG020X-T	SOIL	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS (Low Level)	EG035T-LL	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Organotin Analysis	EP090	SOIL	In house: Referenced to USEPA SW 846 - 8270D Prepared sample extracts are analysed by GC/MS coupled with high volume injection, and quanitified against an established calibration curve.
Synthetic Pyrethroids by GCMS	EP094	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.
Pesticides by LCMSMS (Positive Ion Mode)	EP234	SOIL	In house: LC-MSMS, direct injection. A sample extracted into acetonitrile, diluted with water and injected directly onto the instrument.. Analysis is by LC/MSMS, ESI Positive Mode.

Preparation Methods	Method	Matrix	Method Descriptions

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
Sample preparation for Pesticides by LCMSMS	EP234-PR	SOIL	In house
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Organotin Sample Preparation	ORG35	SOIL	In house: 20g sample is spiked with surrogate and leached in a methanol:acetic acid:UHP water mix and vacuum filtered. Reagents and solvents are added to the sample and the mixture tumbled. The butyltin compounds are simultaneously derivatised and extracted. The extract is further extracted with petroleum ether. The resultant extracts are combined and concentrated for analysis.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB1929995**	Page	: 1 of 38
Client	: **BMT COMMERCIAL AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MS BETH TOKI	Contact	: Andrew Epps
Address	: PO BOX 203 SPRING HILL BRISBANE QLD 4004	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: 07 3831 6744	Telephone	: +61 7 3552 8639
Project	: B23282-4 Douglas Shoal	Date Samples Received	: 11-Nov-2019
Order number	: ----	Date Analysis Commenced	: 12-Nov-2019
C-O-C number	: ----	Issue Date	: 06-Dec-2019
Sampler	: CONOR JONES		
Site	: ----		
Quote number	: BN/165/18 B		
No. of samples received	: 47		
No. of samples analysed	: 47		

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Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Diana Mesa	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Sarah Ashworth	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QC Lot: 2697280)									
EB1929990-056	Anonymous	EG005-SD: Aluminium	7429-90-5	50	mg/kg	290	60	128	No Limit
		EG005-SD: Iron	7439-89-6	50	mg/kg	280	100	91.2	No Limit
EB1929995-006	C2-SED-1019	EG005-SD: Aluminium	7429-90-5	50	mg/kg	470	510	8.12	0% - 50%
		EG005-SD: Iron	7439-89-6	50	mg/kg	560	600	7.71	0% - 50%
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QC Lot: 2697290)									
EB1929995-016	C12-SED-1019	EG005-SD: Aluminium	7429-90-5	50	mg/kg	510	620	18.8	0% - 50%
		EG005-SD: Iron	7439-89-6	50	mg/kg	650	760	15.0	0% - 50%
EB1929995-026	I14-SED-1019	EG005-SD: Aluminium	7429-90-5	50	mg/kg	220	230	0.00	No Limit
		EG005-SD: Iron	7439-89-6	50	mg/kg	300	330	8.86	No Limit
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QC Lot: 2697297)									
EB1929995-047	G5-SED-1019	EG005-SD: Aluminium	7429-90-5	50	mg/kg	150	200	26.2	No Limit
		EG005-SD: Iron	7439-89-6	50	mg/kg	230	270	15.8	No Limit
EB1929995-036	H10-SED-1019	EG005-SD: Aluminium	7429-90-5	50	mg/kg	250	260	4.39	No Limit
		EG005-SD: Iron	7439-89-6	50	mg/kg	330	320	3.95	No Limit
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QC Lot: 2697279)									
EB1929990-056	Anonymous	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%
EB1929995-006	C2-SED-1019	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QC Lot: 2697293)									
EB1929995-016	C12-SED-1019	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%
EB1929995-026	I14-SED-1019	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QC Lot: 2697300)									
EB1929995-047	G5-SED-1019	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%
EB1929995-036	H10-SED-1019	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.00	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2697284)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2697284) - continued									
EB1929990-056	Anonymous	EA055: Moisture Content	----	0.1	%	31.0	32.5	4.72	0% - 20%
EB1929995-006	C2-SED-1019	EA055: Moisture Content	----	0.1	%	26.6	26.7	0.00	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2697295)									
EB1929995-016	C12-SED-1019	EA055: Moisture Content	----	0.1	%	19.6	19.8	0.712	0% - 50%
EB1929995-026	I14-SED-1019	EA055: Moisture Content	----	0.1	%	21.3	20.9	1.59	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2697302)									
EB1929995-036	H10-SED-1019	EA055: Moisture Content	----	0.1	%	31.3	31.0	1.26	0% - 20%
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 2697281)									
EB1929990-056	Anonymous	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	1.14	<1.00	13.5	No Limit
		EG020-SD: Chromium	7440-47-3	1	mg/kg	4.1	2.2	60.1	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Manganese	7439-96-5	10	mg/kg	12	<10	14.6	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	<2.0	0.00	No Limit
EB1929995-006	C2-SED-1019	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	1.52	1.30	15.6	No Limit
		EG020-SD: Chromium	7440-47-3	1	mg/kg	6.0	5.5	9.61	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	2.3	2.5	7.86	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	1.3	1.3	0.00	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	2.6	3.0	12.1	No Limit
		EG020-SD: Manganese	7439-96-5	10	mg/kg	17	18	0.00	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	<2.0	0.00	No Limit
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 2697291)									
EB1929995-016	C12-SED-1019	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 2697291) - continued									
EB1929995-016	C12-SED-1019	EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	1.41	1.87	27.9	No Limit
		EG020-SD: Chromium	7440-47-3	1	mg/kg	4.3	4.8	10.0	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	1.8	1.7	0.00	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	1.3	1.5	17.5	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	1.8	1.8	0.00	No Limit
		EG020-SD: Manganese	7439-96-5	10	mg/kg	18	21	17.4	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	2.4	16.9	No Limit
EB1929995-026	I14-SED-1019	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	1.39	1.48	6.49	No Limit
		EG020-SD: Chromium	7440-47-3	1	mg/kg	6.2	5.6	10.0	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Manganese	7439-96-5	10	mg/kg	18	20	10.4	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	<2.0	0.00	No Limit
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 2697298)									
EB1929995-047	G5-SED-1019	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	1.23	1.41	13.5	No Limit
		EG020-SD: Chromium	7440-47-3	1	mg/kg	4.2	4.7	12.5	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	1.1	0.00	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Manganese	7439-96-5	10	mg/kg	11	14	21.4	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	<2.0	0.00	No Limit
EB1929995-036	H10-SED-1019	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	0.1	0.00	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 2697298) - continued									
EB1929995-036	H10-SED-1019	EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	1.50	1.62	7.90	No Limit
		EG020-SD: Chromium	7440-47-3	1	mg/kg	8.3	9.1	9.34	No Limit
		EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	1.0	1.2	16.5	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	<1.0	0.00	No Limit
		EG020-SD: Manganese	7439-96-5	10	mg/kg	19	19	0.00	No Limit
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	2.0	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 2697282)									
EB1929995-006	C2-SED-1019	EG020X-T: Barium	7440-39-3	0.1	mg/kg	3.3	3.8	13.4	0% - 20%
EB1929990-056	Anonymous	EG020X-T: Barium	7440-39-3	0.1	mg/kg	4.9	4.6	6.02	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 2697292)									
EB1929995-016	C12-SED-1019	EG020X-T: Barium	7440-39-3	0.1	mg/kg	4.5	4.1	9.04	0% - 20%
EB1929995-026	I14-SED-1019	EG020X-T: Barium	7440-39-3	0.1	mg/kg	6.9	6.4	7.45	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 2697299)									
EB1929995-036	H10-SED-1019	EG020X-T: Barium	7440-39-3	0.1	mg/kg	7.2	8.4	15.6	0% - 20%
EP090: Organotin Compounds (QC Lot: 2697283)									
EB1929990-056	Anonymous	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.00	No Limit
EB1929995-006	C2-SED-1019	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.00	No Limit
EP090: Organotin Compounds (QC Lot: 2697294)									
EB1929995-016	C12-SED-1019	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.00	No Limit
EB1929995-026	I14-SED-1019	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.00	No Limit
EP090: Organotin Compounds (QC Lot: 2697301)									
EB1929995-036	H10-SED-1019	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.00	No Limit
EB1929995-047	G5-SED-1019	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.00	No Limit
EP094A: Synthetic Pyrethroids (QC Lot: 2717821)									
EB1929995-001	E9-SED-1019	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP094A: Synthetic Pyrethroids (QC Lot: 2717821) - continued									
EB1929995-001	E9-SED-1019	EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EB1929995-011	C7-SED-1019	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094A: Synthetic Pyrethroids (QC Lot: 2717822)									
EB1929995-021	I7-SED-1019	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EB1929995-031	H5-SED-1019	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP094A: Synthetic Pyrethroids (QC Lot: 2717822) - continued									
EB1929995-031	H5-SED-1019	EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094A: Synthetic Pyrethroids (QC Lot: 2717823)									
EB1929990-057	Anonymous	EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/66230-04-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Deltamethrin & Tralomethrin	62229-77-0/66841-25-	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094B: Synergist (QC Lot: 2717821)									
EB1929995-001	E9-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EB1929995-011	C7-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094B: Synergist (QC Lot: 2717822)									
EB1929995-021	I7-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EB1929995-031	H5-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP094B: Synergist (QC Lot: 2717823)									
EB1929990-057	Anonymous	EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2719233)									
EB1929995-030	H4-SED-1019	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2719233) - continued									
EB1929995-030	H4-SED-1019	EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EB1929995-039	A2-B-SED-1019	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2719462)									
EB1929995-001	E9-SED-1019	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EB1929995-011	C7-SED-1019	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2719462) - continued									
EB1929995-011	C7-SED-1019	EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2722113)									
EB1929995-012	C8-SED-1019	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EB1929995-022	I8-SED-1019	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2722113) - continued									
EB1929995-022	I8-SED-1019	EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EP234A: OP Pesticides (QC Lot: 2719769)									
EB1929995-001	E9-SED-1019	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EB1929995-011	C7-SED-1019	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP234A: OP Pesticides (QC Lot: 2719769) - continued									
EB1929995-011	C7-SED-1019	EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP234A: OP Pesticides (QC Lot: 2719770)									
EB1929995-030	H4-SED-1019	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EB1929995-039	A2-B-SED-1019	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234A: OP Pesticides (QC Lot: 2719770) - continued									
EB1929995-039	A2-B-SED-1019	EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP234A: OP Pesticides (QC Lot: 2722042)									
EB1929995-012	C8-SED-1019	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EB1929995-022	I8-SED-1019	EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	<0.001	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP234A: OP Pesticides (QC Lot: 2722042) - continued									
EB1929995-022	I8-SED-1019	EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	<0.010	0.00	No Limit
		EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP234B: Thiocarbamates and Carbamates (QC Lot: 2719769)									
EB1929995-001	E9-SED-1019	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EB1929995-011	C7-SED-1019	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234B: Thiocarbamates and Carbamates (QC Lot: 2719769) - continued									
EB1929995-011	C7-SED-1019	EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EP234B: Thiocarbamates and Carbamates (QC Lot: 2719770)									
EB1929995-030	H4-SED-1019	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EB1929995-039	A2-B-SED-1019	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EP234B: Thiocarbamates and Carbamates (QC Lot: 2722042)									
EB1929995-012	C8-SED-1019	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234B: Thiocarbamates and Carbamates (QC Lot: 2722042) - continued									
EB1929995-012	C8-SED-1019	EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EB1929995-022	I8-SED-1019	EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	<1	0.00	No Limit
EP234D: Triazinone Herbicides (QC Lot: 2719769)									
EB1929995-001	E9-SED-1019	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
EB1929995-011	C7-SED-1019	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
EP234D: Triazinone Herbicides (QC Lot: 2719770)									
EB1929995-030	H4-SED-1019	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
EB1929995-039	A2-B-SED-1019	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
EP234D: Triazinone Herbicides (QC Lot: 2722042)									
EB1929995-012	C8-SED-1019	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
EB1929995-022	I8-SED-1019	EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
EP234E: Conazole and Aminopyrimidine Fungicides (QC Lot: 2719769)									
EB1929995-001	E9-SED-1019	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234E: Conazole and Aminopyrimidine Fungicides (QC Lot: 2719769) - continued									
EB1929995-001	E9-SED-1019	EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
EB1929995-011	C7-SED-1019	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
EP234E: Conazole and Aminopyrimidine Fungicides (QC Lot: 2719770)									
EB1929995-030	H4-SED-1019	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
EB1929995-039	A2-B-SED-1019	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
EP234E: Conazole and Aminopyrimidine Fungicides (QC Lot: 2722042)									
EB1929995-012	C8-SED-1019	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
EB1929995-022	I8-SED-1019	EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	<0.004	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP234E: Conazole and Aminopyrimidine Fungicides (QC Lot: 2722042) - continued									
EB1929995-022	I8-SED-1019	EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	<0.004	0.00	No Limit
		EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QC Lot: 2719769)									
EB1929995-001	E9-SED-1019	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EB1929995-011	C7-SED-1019	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QC Lot: 2719770)									
EB1929995-030	H4-SED-1019	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EB1929995-039	A2-B-SED-1019	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QC Lot: 2722042)									
EB1929995-012	C8-SED-1019	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EB1929995-022	I8-SED-1019	EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EP234G: Chloracetanilides (QC Lot: 2719769)									
EB1929995-001	E9-SED-1019	EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
EB1929995-011	C7-SED-1019	EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
EP234G: Chloracetanilides (QC Lot: 2719770)									
EB1929995-030	H4-SED-1019	EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
EB1929995-039	A2-B-SED-1019	EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
EP234G: Chloracetanilides (QC Lot: 2722042)									
EB1929995-012	C8-SED-1019	EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234G: Chloracetanilides (QC Lot: 2722042) - continued									
EB1929995-022	I8-SED-1019	EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
EP234H: Triazine Herbicides (QC Lot: 2719769)									
EB1929995-001	E9-SED-1019	EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EB1929995-011	C7-SED-1019	EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP234H: Triazine Herbicides (QC Lot: 2719770)									
EB1929995-030	H4-SED-1019	EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EB1929995-039	A2-B-SED-1019	EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP234H: Triazine Herbicides (QC Lot: 2722042)									
EB1929995-012	C8-SED-1019	EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234H: Triazine Herbicides (QC Lot: 2722042) - continued									
EB1929995-012	C8-SED-1019	EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EB1929995-022	I8-SED-1019	EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	<0.002	0.00	No Limit
		EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
		EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QC Lot: 2719769)									
EB1929995-001	E9-SED-1019	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EB1929995-011	C7-SED-1019	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QC Lot: 2719770)									
EB1929995-030	H4-SED-1019	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EB1929995-039	A2-B-SED-1019	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QC Lot: 2722042)									
EB1929995-012	C8-SED-1019	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit
EB1929995-022	I8-SED-1019	EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
		EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	<0.005	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QCLot: 2697280)								
EG005-SD: Aluminium	7429-90-5	50	mg/kg	<50	12361 mg/kg	102	70.0	130
EG005-SD: Iron	7439-89-6	50	mg/kg	<50	30024 mg/kg	93.4	70.0	130
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QCLot: 2697290)								
EG005-SD: Aluminium	7429-90-5	50	mg/kg	<50	12361 mg/kg	126	70.0	130
EG005-SD: Iron	7439-89-6	50	mg/kg	<50	30024 mg/kg	114	70.0	130
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QCLot: 2697297)								
EG005-SD: Aluminium	7429-90-5	50	mg/kg	<50	12361 mg/kg	102	70.0	130
EG005-SD: Iron	7439-89-6	50	mg/kg	<50	30024 mg/kg	91.9	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697279)								
EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	0.0847 mg/kg	91.5	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697293)								
EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	0.0847 mg/kg	104	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697300)								
EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	0.0847 mg/kg	92.7	70.0	130
EA152: Soil Particle Density (QCLot: 2698505)								
EA152: Soil Particle Density (Clay/Silt/Sand)	----	----	g/cm3	----	2.68 g/cm3		80.0	120
EA152: Soil Particle Density (QCLot: 2698507)								
EA152: Soil Particle Density (Clay/Silt/Sand)	----	----	g/cm3	----	2.68 g/cm3		80.0	120
EA152: Soil Particle Density (QCLot: 2698509)								
EA152: Soil Particle Density (Clay/Silt/Sand)	----	----	g/cm3	----	2.68 g/cm3		80.0	120
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697281)								
EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	----	----	----	----
EG020-SD: Arsenic	7440-38-2	1	mg/kg	<1.00	96.1 mg/kg	96.2	80.0	124
EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	0.74 mg/kg	99.5	87.0	122
EG020-SD: Chromium	7440-47-3	1	mg/kg	<1.0	15.3 mg/kg	99.9	79.0	129
EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	44.8 mg/kg	91.9	85.0	118
EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	----	----	----	----
EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	52.8 mg/kg	98.6	86.0	119
EG020-SD: Manganese	7439-96-5	10	mg/kg	<10	----	----	----	----
EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	12.2 mg/kg	97.1	77.0	123
EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697281) - continued								
EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	114 mg/kg	93.5	71.0	127
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697291)								
EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	----	----	----	----
EG020-SD: Arsenic	7440-38-2	1	mg/kg	<1.00	96.1 mg/kg	118	80.0	124
EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	0.74 mg/kg	116	87.0	122
EG020-SD: Chromium	7440-47-3	1	mg/kg	<1.0	15.3 mg/kg	121	79.0	129
EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	44.8 mg/kg	115	85.0	118
EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	----	----	----	----
EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	52.8 mg/kg	113	86.0	119
EG020-SD: Manganese	7439-96-5	10	mg/kg	<10	----	----	----	----
EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	12.31 mg/kg	116	77.0	123
EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	----	----	----	----
EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	114 mg/kg	117	71.0	127
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697298)								
EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	----	----	----	----
EG020-SD: Arsenic	7440-38-2	1	mg/kg	<1.00	96.1 mg/kg	94.0	80.0	124
EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	0.74 mg/kg	88.1	87.0	122
EG020-SD: Chromium	7440-47-3	1	mg/kg	<1.0	15.3 mg/kg	101	79.0	129
EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	44.8 mg/kg	87.2	85.0	118
EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	----	----	----	----
EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	52.8 mg/kg	90.2	86.0	119
EG020-SD: Manganese	7439-96-5	10	mg/kg	<10	----	----	----	----
EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	12.2 mg/kg	92.0	77.0	123
EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	----	----	----	----
EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	114 mg/kg	111	71.0	127
EG020T: Total Metals by ICP-MS (QCLot: 2697282)								
EG020X-T: Barium	7440-39-3	0.1	mg/kg	<0.1	77.4 mg/kg	95.2	86.0	123
EG020T: Total Metals by ICP-MS (QCLot: 2697292)								
EG020X-T: Barium	7440-39-3	0.1	mg/kg	<0.1	77.4 mg/kg	116	86.0	123
EG020T: Total Metals by ICP-MS (QCLot: 2697299)								
EG020X-T: Barium	7440-39-3	0.1	mg/kg	<0.1	77.4 mg/kg	86.9	86.0	123
EP090: Organotin Compounds (QCLot: 2697283)								
EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	1.25 µgSn/kg	114	52.0	139
EP090: Organotin Compounds (QCLot: 2697294)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP090: Organotin Compounds (QCLot: 2697294) - continued								
EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	1.25 µgSn/kg	134	52.0	139
EP090: Organotin Compounds (QCLot: 2697301)								
EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	1.25 µgSn/kg	123	52.0	139
EP094A: Synthetic Pyrethroids (QCLot: 2717821)								
EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	0.5 mg/kg	84.7	70.0	130
EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	70.0	130
EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	70.0	130
EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.3	70.0	130
EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	0.5 mg/kg	99.2	70.0	130
EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.9	70.0	130
EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.5	70.0	130
EP094: Fenvalerate & Esfenvalerate	51630-58-1/ 66230-04-	0.05	mg/kg	<0.05	0.5 mg/kg	89.3	70.0	130
EP094: Deltamethrin & Tralomethrin	62229-77-0/ 66841-25-	0.05	mg/kg	<0.05	0.5 mg/kg	93.4	70.0	130
EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	70.0	130
EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	0.5 mg/kg	85.3	70.0	130
EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	70.0	130
EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	70.0	130
EP094A: Synthetic Pyrethroids (QCLot: 2717822)								
EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	0.5 mg/kg	77.6	70.0	130
EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	0.5 mg/kg	81.4	70.0	130
EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.5	70.0	130
EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.9	70.0	130
EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	0.5 mg/kg	86.5	70.0	130
EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	0.5 mg/kg	86.1	70.0	130
EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	70.0	130
EP094: Fenvalerate & Esfenvalerate	51630-58-1/ 66230-04-	0.05	mg/kg	<0.05	0.5 mg/kg	86.1	70.0	130
EP094: Deltamethrin & Tralomethrin	62229-77-0/ 66841-25-	0.05	mg/kg	<0.05	0.5 mg/kg	85.7	70.0	130
EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	0.5 mg/kg	78.8	70.0	130
EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	0.5 mg/kg	89.8	70.0	130
EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	0.5 mg/kg	88.0	70.0	130
EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	0.5 mg/kg	80.2	70.0	130
EP094A: Synthetic Pyrethroids (QCLot: 2717823)								
EP094: Bioresmethrin	28434-01-07	0.05	mg/kg	<0.05	0.5 mg/kg	75.6	70.0	130
EP094: Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	0.5 mg/kg	80.2	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP094A: Synthetic Pyrethroids (QCLot: 2717823) - continued								
EP094: Phenothrin	26002-80-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	70.0	130
EP094: Lambda-cyhalothrin	68085-85-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	70.0	130
EP094: Permethrin	52645-53-1	0.05	mg/kg	<0.05	0.5 mg/kg	81.6	70.0	130
EP094: Cyfluthrin	68359-37-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.0	70.0	130
EP094: Cypermethrin	52315-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.5	70.0	130
EP094: Fenvalerate & Esfenvalerate	51630-58-1/ 66230-04-	0.05	mg/kg	<0.05	0.5 mg/kg	79.4	70.0	130
EP094: Deltamethrin & Tralomethrin	62229-77-0/ 66841-25-	0.05	mg/kg	<0.05	0.5 mg/kg	82.2	70.0	130
EP094: Allethrin	584-79-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.0	70.0	130
EP094: Transfluthrin	118712-89-3	0.05	mg/kg	<0.05	0.5 mg/kg	79.8	70.0	130
EP094: Tetramethrin	7696-12-0	0.05	mg/kg	<0.05	0.5 mg/kg	81.5	70.0	130
EP094: Tau-fluvalinate	102851-06-9	0.05	mg/kg	<0.05	0.5 mg/kg	77.9	70.0	130
EP094B: Synergist (QCLot: 2717821)								
EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	70.0	130
EP094B: Synergist (QCLot: 2717822)								
EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	77.2	70.0	130
EP094B: Synergist (QCLot: 2717823)								
EP094: Piperonyl Butoxide	63993-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	75.7	70.0	130
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2719233)								
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	65.3	54.4	128
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	96.4	45.5	130
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	74.6	51.7	135
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	73.8	60.0	130
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	68.5	56.8	131
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	70.1	50.0	141
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	98.2	68.5	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	83.5	50.8	141
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	68.6	40.8	126
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	72.9	57.4	139
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	81.2	38.9	137
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	69.3	48.7	129
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	79.3	49.4	106
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	68.1	53.2	128
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2719462)								
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	66.9	54.4	128
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	76.1	45.5	130
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	66.2	51.7	135

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2719462) - continued								
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	71.4	60.0	130
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	73.7	56.8	131
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	77.1	50.0	141
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	75.1	68.5	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	69.0	50.8	141
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	67.2	40.8	126
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	77.8	57.4	139
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	73.0	38.9	137
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	65.3	48.7	129
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	68.4	49.4	106
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	71.9	53.2	128
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2722113)								
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	76.9	54.4	128
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	76.5	45.5	130
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	102	51.7	135
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	103	60.0	130
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	75.8	56.8	131
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	91.5	50.0	141
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	98.2	68.5	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	101	50.8	141
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	103	40.8	126
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	96.2	57.4	139
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	75.0	38.9	137
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	79.6	48.7	129
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	84.2	49.4	106
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	88.9	53.2	128
EP234A: OP Pesticides (QCLot: 2719769)								
EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	0.04 mg/kg	92.0	70.0	130
EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	0.04 mg/kg	82.0	60.0	118
EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	0.08 mg/kg	75.0	61.0	111
EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	0.02 mg/kg	98.4	65.0	101
EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	0.02 mg/kg	72.0	63.0	95.0
EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	0.04 mg/kg	82.0	70.0	130
EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	0.1 mg/kg	93.8	70.0	130
EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	0.02 mg/kg	90.4	70.0	130
EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	0.02 mg/kg	72.0	70.0	130
EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	4 mg/kg	97.7	70.0	130
EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	0.02 mg/kg	84.0	62.0	116
EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	0.1 mg/kg	92.3	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP234A: OP Pesticides (QCLot: 2719769) - continued								
EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	0.04 mg/kg	82.8	70.0	130
EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	0.08 mg/kg	91.0	67.0	123
EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	0.04 mg/kg	91.2	61.0	117
EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	0.02 mg/kg	83.2	70.0	130
EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	0.4 mg/kg	92.9	70.0	130
EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	4 mg/kg	98.1	62.0	118
EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	0.2 mg/kg	72.6	70.0	130
EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	0.02 mg/kg	70.4	63.0	103
EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	0.01 mg/kg	92.8	59.0	111
EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	0.02 mg/kg	80.8	60.0	106
EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	0.01 mg/kg	80.0	63.0	107
EP234A: OP Pesticides (QCLot: 2719770)								
EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	0.04 mg/kg	104	70.0	130
EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	0.04 mg/kg	87.6	60.0	118
EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	0.08 mg/kg	78.0	61.0	111
EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	0.02 mg/kg	85.6	65.0	101
EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	0.02 mg/kg	92.8	63.0	95.0
EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	0.04 mg/kg	83.2	70.0	130
EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	0.1 mg/kg	81.0	70.0	130
EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	0.02 mg/kg	107	70.0	130
EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	0.02 mg/kg	84.8	70.0	130
EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	4 mg/kg	85.6	70.0	130
EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	0.02 mg/kg	78.4	62.0	116
EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	0.1 mg/kg	114	70.0	130
EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	0.04 mg/kg	96.4	70.0	130
EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	0.08 mg/kg	87.2	67.0	123
EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	0.04 mg/kg	90.0	61.0	117
EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	0.02 mg/kg	84.0	70.0	130
EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	0.4 mg/kg	73.6	70.0	130
EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	4 mg/kg	83.1	62.0	118
EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	0.2 mg/kg	119	70.0	130
EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	0.02 mg/kg	79.2	63.0	103
EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	0.01 mg/kg	104	59.0	111
EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	0.02 mg/kg	84.0	60.0	106
EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	0.01 mg/kg	83.2	63.0	107
EP234A: OP Pesticides (QCLot: 2722042)								
EP234: Azinphos-ethyl	2642-71-9	0.005	mg/kg	<0.005	0.04 mg/kg	97.2	70.0	130
EP234: Azinphos-methyl	86-50-0	0.005	mg/kg	<0.005	0.04 mg/kg	101	60.0	118
EP234: Chlorfenvinphos	470-90-6	0.005	mg/kg	<0.005	0.08 mg/kg	85.6	61.0	111

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP234A: OP Pesticides (QCLot: 2722042) - continued								
EP234: Coumaphos	56-72-4	0.002	mg/kg	<0.002	0.02 mg/kg	95.2	65.0	101
EP234: Diazinon	333-41-5	0.002	mg/kg	<0.002	0.02 mg/kg	85.6	63.0	95.0
EP234: Dimethoate	60-51-5	0.004	mg/kg	<0.004	0.04 mg/kg	98.8	70.0	130
EP234: Disulfoton	298-04-4	0.01	mg/kg	<0.01	0.1 mg/kg	77.0	70.0	130
EP234: Ethoprophos	13194-48-4	0.002	mg/kg	<0.002	0.02 mg/kg	93.6	70.0	130
EP234: Fenamiphos	22224-92-6	0.002	mg/kg	<0.002	0.02 mg/kg	70.4	70.0	130
EP234: Fenitrothion	122-14-5	0.5	mg/kg	<0.5	4 mg/kg	108	70.0	130
EP234: Fensulfothion	115-90-2	0.005	mg/kg	<0.005	0.02 mg/kg	71.2	62.0	116
EP234: Fenthion	55-38-9	0.01	mg/kg	<0.010	0.1 mg/kg	87.2	70.0	130
EP234: Malathion	121-75-5	0.005	mg/kg	<0.005	0.04 mg/kg	74.8	70.0	130
EP234: Mevinphos	7786-34-7	0.005	mg/kg	<0.005	0.08 mg/kg	78.4	67.0	123
EP234: Monocrotophos	6923-22-4	0.005	mg/kg	<0.005	0.04 mg/kg	80.4	61.0	117
EP234: Omethoate	1113-02-6	0.002	mg/kg	<0.002	0.02 mg/kg	82.4	70.0	130
EP234: Parathion	56-38-2	0.05	mg/kg	<0.05	0.4 mg/kg	122	70.0	130
EP234: Parathion-methyl	298-00-0	0.5	mg/kg	<0.5	4 mg/kg	92.1	62.0	118
EP234: Phorate	298-02-2	0.02	mg/kg	<0.02	0.2 mg/kg	87.4	70.0	130
EP234: Pirimiphos-methyl	29232-93-7	0.002	mg/kg	<0.002	0.02 mg/kg	96.0	63.0	103
EP234: Sulfotep	3689-24-5	0.001	mg/kg	<0.001	0.01 mg/kg	70.4	59.0	111
EP234: Tetrachlorvinphos	22248-79-9	0.002	mg/kg	<0.002	0.02 mg/kg	96.8	60.0	106
EP234: Triazophos	24017-47-8	0.001	mg/kg	<0.001	0.01 mg/kg	81.6	63.0	107
EP234B: Thiocarbamates and Carbamates (QCLot: 2719769)								
EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	0.1 mg/kg	70.4	67.0	117
EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	0.2 mg/kg	95.3	70.0	130
EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	0.02 mg/kg	80.8	56.0	122
EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	0.02 mg/kg	73.6	70.0	130
EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	0.02 mg/kg	80.8	70.0	130
EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	0.04 mg/kg	92.0	70.0	130
EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	0.02 mg/kg	92.8	70.0	130
EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	0.02 mg/kg	70.4	70.0	130
EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	0.2 mg/kg	81.3	70.0	130
EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	0.02 mg/kg	74.4	70.0	130
EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	0.02 mg/kg	86.4	59.0	109
EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	0.02 mg/kg	97.6	70.0	130
EP234B: Thiocarbamates and Carbamates (QCLot: 2719770)								
EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	0.1 mg/kg	84.0	67.0	117
EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	0.2 mg/kg	76.3	70.0	130
EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	0.02 mg/kg	83.2	56.0	122
EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	0.02 mg/kg	74.4	70.0	130
EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	0.02 mg/kg	80.8	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP234B: Thiocarbamates and Carbamates (QCLot: 2719770) - continued								
EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	0.04 mg/kg	84.8	70.0	130
EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	0.02 mg/kg	82.4	70.0	130
EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	0.02 mg/kg	92.0	70.0	130
EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	0.2 mg/kg	84.1	70.0	130
EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	0.02 mg/kg	79.2	70.0	130
EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	0.02 mg/kg	105	59.0	109
EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	0.02 mg/kg	79.2	70.0	130
EP234B: Thiocarbamates and Carbamates (QCLot: 2722042)								
EP234: Aldicarb	116-06-3	0.01	mg/kg	<0.01	0.1 mg/kg	83.7	67.0	117
EP234: Bendiocarb	22781-23-3	1	mg/kg	<1	0.2 mg/kg	76.2	70.0	130
EP234: Benomyl	17804-35-2	0.005	mg/kg	<0.005	0.02 mg/kg	91.2	56.0	122
EP234: Carbaryl	63-25-2	0.002	mg/kg	<0.002	0.02 mg/kg	72.0	70.0	130
EP234: Carbofuran	1563-66-2	0.002	mg/kg	<0.002	0.02 mg/kg	84.0	70.0	130
EP234: 3-Hydroxy Carbofuran	16655-82-6	0.005	mg/kg	<0.005	0.04 mg/kg	81.2	70.0	130
EP234: Methiocarb	2032-65-7	0.002	mg/kg	<0.002	0.02 mg/kg	70.4	70.0	130
EP234: Methomyl	16752-77-5	0.002	mg/kg	<0.002	0.02 mg/kg	80.8	70.0	130
EP234: Molinate	2212-67-1	0.02	mg/kg	<0.02	0.2 mg/kg	81.8	70.0	130
EP234: Oxamyl	23135-22-0	0.002	mg/kg	<0.002	0.02 mg/kg	79.2	70.0	130
EP234: Thiobencarb	28249-77-6	0.002	mg/kg	<0.002	0.02 mg/kg	96.0	59.0	109
EP234: Thiodicarb	59669-26-0	0.002	mg/kg	<0.002	0.02 mg/kg	101	70.0	130
EP234D: Triazinone Herbicides (QCLot: 2719769)								
EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	0.04 mg/kg	76.0	62.0	124
EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	0.04 mg/kg	78.0	65.0	119
EP234D: Triazinone Herbicides (QCLot: 2719770)								
EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	0.04 mg/kg	87.2	62.0	124
EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	0.04 mg/kg	94.0	65.0	119
EP234D: Triazinone Herbicides (QCLot: 2722042)								
EP234: Hexazinone	51235-04-2	0.004	mg/kg	<0.004	0.04 mg/kg	75.6	62.0	124
EP234: Metribuzin	21087-64-9	0.004	mg/kg	<0.004	0.04 mg/kg	76.0	65.0	119
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2719769)								
EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	0.08 mg/kg	86.4	70.0	130
EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	0.04 mg/kg	96.8	59.0	107
EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	0.04 mg/kg	99.6	62.0	106
EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	0.1 mg/kg	70.4	70.0	130
EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	0.1 mg/kg	87.8	60.0	102
EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	0.02 mg/kg	78.4	70.0	130
EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	0.02 mg/kg	70.4	62.0	98.0
EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	0.04 mg/kg	81.6	61.0	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2719770)								
EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	0.08 mg/kg	87.4	70.0	130
EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	0.04 mg/kg	80.4	59.0	107
EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	0.04 mg/kg	102	62.0	106
EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	0.1 mg/kg	99.8	70.0	130
EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	0.1 mg/kg	96.0	60.0	102
EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	0.02 mg/kg	82.4	70.0	130
EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	0.02 mg/kg	90.4	62.0	98.0
EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	0.04 mg/kg	78.4	61.0	127
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2722042)								
EP234: Cyproconazole	94361-06-5	0.004	mg/kg	<0.004	0.08 mg/kg	88.6	70.0	130
EP234: Flusilazole	85509-19-9	0.004	mg/kg	<0.004	0.04 mg/kg	94.4	59.0	107
EP234: Hexaconazole	79983-71-4	0.004	mg/kg	<0.004	0.04 mg/kg	97.6	62.0	106
EP234: Paclobutrazole	76738-62-0	0.01	mg/kg	<0.01	0.1 mg/kg	92.3	70.0	130
EP234: Propiconazole	60207-90-1	0.01	mg/kg	<0.01	0.1 mg/kg	88.5	60.0	102
EP234: Tebuconazole	107534-96-3	0.002	mg/kg	<0.002	0.02 mg/kg	70.4	70.0	130
EP234: Cyprodinil	121552-61-2	0.002	mg/kg	<0.002	0.02 mg/kg	74.4	62.0	98.0
EP234: Pyrimethanil	53112-28-0	0.005	mg/kg	<0.005	0.04 mg/kg	91.2	61.0	127
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2719769)								
EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	0.04 mg/kg	75.2	70.0	130
EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	0.02 mg/kg	75.2	64.0	122
EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	0.04 mg/kg	73.2	58.0	108
EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	0.04 mg/kg	92.8	61.0	131
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2719770)								
EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	0.04 mg/kg	88.4	70.0	130
EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	0.02 mg/kg	89.6	64.0	122
EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	0.04 mg/kg	88.4	58.0	108
EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	0.04 mg/kg	100	61.0	131
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2722042)								
EP234: Diuron	330-54-1	0.005	mg/kg	<0.005	0.04 mg/kg	76.0	70.0	130
EP234: Fluometuron	2164-17-2	0.002	mg/kg	<0.002	0.02 mg/kg	73.6	64.0	122
EP234: Tebuthiuron	34014-18-1	0.005	mg/kg	<0.005	0.04 mg/kg	74.4	58.0	108
EP234: Bromacil	314-40-9	0.005	mg/kg	<0.005	0.04 mg/kg	73.6	61.0	131
EP234G: Chloracetanilides (QCLot: 2719769)								
EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	0.02 mg/kg	80.8	70.0	130
EP234G: Chloracetanilides (QCLot: 2719770)								
EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	0.02 mg/kg	88.8	70.0	130
EP234G: Chloracetanilides (QCLot: 2722042)								
EP234: Metolachlor	51218-45-2	0.002	mg/kg	<0.002	0.02 mg/kg	97.6	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP234H: Triazine Herbicides (QCLot: 2719769)								
EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	0.02 mg/kg	88.8	70.0	130
EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	0.02 mg/kg	74.4	62.0	120
EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	0.04 mg/kg	78.4	70.0	130
EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	0.02 mg/kg	83.2	58.0	130
EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	0.02 mg/kg	77.6	61.0	127
EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	0.04 mg/kg	77.6	70.0	130
EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	0.02 mg/kg	72.8	63.0	117
EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	0.02 mg/kg	105	59.0	115
EP234H: Triazine Herbicides (QCLot: 2719770)								
EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	0.02 mg/kg	84.0	70.0	130
EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	0.02 mg/kg	84.0	62.0	120
EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	0.04 mg/kg	89.6	70.0	130
EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	0.02 mg/kg	85.6	58.0	130
EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	0.02 mg/kg	83.2	61.0	127
EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	0.04 mg/kg	85.2	70.0	130
EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	0.02 mg/kg	92.0	63.0	117
EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	0.02 mg/kg	85.6	59.0	115
EP234H: Triazine Herbicides (QCLot: 2722042)								
EP234: Ametryn	834-12-8	0.002	mg/kg	<0.002	0.02 mg/kg	75.2	70.0	130
EP234: Atrazine	1912-24-9	0.002	mg/kg	<0.002	0.02 mg/kg	72.8	62.0	120
EP234: Cyanazine	21725-46-2	0.005	mg/kg	<0.005	0.04 mg/kg	80.8	70.0	130
EP234: Prometryn	7287-19-6	0.002	mg/kg	<0.002	0.02 mg/kg	76.0	58.0	130
EP234: Propazine	139-40-2	0.002	mg/kg	<0.002	0.02 mg/kg	76.8	61.0	127
EP234: Simazine	122-34-9	0.005	mg/kg	<0.005	0.04 mg/kg	70.8	70.0	130
EP234: Terbuthylazine	5915-41-3	0.002	mg/kg	<0.002	0.02 mg/kg	82.4	63.0	117
EP234: Terbutryn	886-50-0	0.1	mg/kg	<0.1	0.02 mg/kg	102	59.0	115
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2719769)								
EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	0.04 mg/kg	70.8	62.0	114
EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	0.004 mg/kg	72.0	60.0	112
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2719770)								
EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	0.04 mg/kg	82.0	62.0	114
EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	0.004 mg/kg	84.0	60.0	112
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2722042)								
EP234: Fenarimol	60168-88-9	0.005	mg/kg	<0.005	0.04 mg/kg	89.6	62.0	114
EP234: Irgarol	28159-98-0	0.001	mg/kg	<0.001	0.004 mg/kg	84.0	60.0	112

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697279)							
EB1929990-057	Anonymous	EG035T-LL: Mercury	7439-97-6	0.5 mg/kg	83.9	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697293)							
EB1929995-017	I3-SED-1019	EG035T-LL: Mercury	7439-97-6	0.5 mg/kg	77.3	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 2697300)							
EB1929995-037	H11-SED-1019	EG035T-LL: Mercury	7439-97-6	0.5 mg/kg	# 63.4	70.0	130
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697281)							
EB1929990-057	Anonymous	EG020-SD: Arsenic	7440-38-2	100 mg/kg	91.8	70.0	130
		EG020-SD: Cadmium	7440-43-9	25 mg/kg	82.3	70.0	130
		EG020-SD: Chromium	7440-47-3	100 mg/kg	97.1	70.0	130
		EG020-SD: Copper	7440-50-8	100 mg/kg	80.8	70.0	130
		EG020-SD: Cobalt	7440-48-4	100 mg/kg	88.2	70.0	130
		EG020-SD: Lead	7439-92-1	100 mg/kg	86.8	70.0	130
		EG020-SD: Manganese	7439-96-5	100 mg/kg	99.9	70.0	130
		EG020-SD: Nickel	7440-02-0	100 mg/kg	81.9	70.0	130
		EG020-SD: Vanadium	7440-62-2	100 mg/kg	92.6	70.0	130
		EG020-SD: Zinc	7440-66-6	100 mg/kg	76.0	70.0	130
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697291)							
EB1929995-017	I3-SED-1019	EG020-SD: Arsenic	7440-38-2	100 mg/kg	101	70.0	130
		EG020-SD: Cadmium	7440-43-9	25 mg/kg	91.0	70.0	130
		EG020-SD: Chromium	7440-47-3	100 mg/kg	90.4	70.0	130
		EG020-SD: Copper	7440-50-8	100 mg/kg	89.3	70.0	130
		EG020-SD: Cobalt	7440-48-4	100 mg/kg	97.3	70.0	130
		EG020-SD: Lead	7439-92-1	100 mg/kg	91.2	70.0	130
		EG020-SD: Manganese	7439-96-5	100 mg/kg	93.4	70.0	130
		EG020-SD: Nickel	7440-02-0	100 mg/kg	84.2	70.0	130
		EG020-SD: Vanadium	7440-62-2	100 mg/kg	103	70.0	130
		EG020-SD: Zinc	7440-66-6	100 mg/kg	87.1	70.0	130
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697298)							
EB1929995-037	H11-SED-1019	EG020-SD: Arsenic	7440-38-2	100 mg/kg	113	70.0	130
		EG020-SD: Cadmium	7440-43-9	25 mg/kg	93.7	70.0	130
		EG020-SD: Chromium	7440-47-3	100 mg/kg	111	70.0	130
		EG020-SD: Copper	7440-50-8	100 mg/kg	97.0	70.0	130
		EG020-SD: Cobalt	7440-48-4	100 mg/kg	105	70.0	130
		EG020-SD: Lead	7439-92-1	100 mg/kg	86.9	70.0	130
		EG020-SD: Manganese	7439-96-5	100 mg/kg	109	70.0	130
		EG020-SD: Nickel	7440-02-0	100 mg/kg	100	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 2697298) - continued							
EB1929995-037	H11-SED-1019	EG020-SD: Vanadium	7440-62-2	100 mg/kg	120	70.0	130
		EG020-SD: Zinc	7440-66-6	100 mg/kg	92.6	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 2697282)							
EB1929990-057	Anonymous	EG020X-T: Barium	7440-39-3	100 mg/kg	75.2	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 2697292)							
EB1929995-017	I3-SED-1019	EG020X-T: Barium	7440-39-3	100 mg/kg	101	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 2697299)							
EB1929995-037	H11-SED-1019	EG020X-T: Barium	7440-39-3	100 mg/kg	94.7	70.0	130
EP090: Organotin Compounds (QCLot: 2697283)							
EB1929990-057	Anonymous	EP090: Tributyltin	56573-85-4	1.25 µgSn/kg	# Not Determined	20.0	130
EP090: Organotin Compounds (QCLot: 2697294)							
EB1929995-017	I3-SED-1019	EP090: Tributyltin	56573-85-4	1.25 µgSn/kg	92.9	20.0	130
EP090: Organotin Compounds (QCLot: 2697301)							
EB1929995-037	H11-SED-1019	EP090: Tributyltin	56573-85-4	1.25 µgSn/kg	96.3	20.0	130
EP094A: Synthetic Pyrethroids (QCLot: 2717821)							
EB1929995-002	E10-SED-1019	EP094: Bioresmethrin	28434-01-07	0.5 mg/kg	# 14.9	60.0	140
		EP094: Bifenthrin	82657-04-3	0.5 mg/kg	82.2	60.0	140
		EP094: Phenothrin	26002-80-2	0.5 mg/kg	87.4	60.0	140
		EP094: Lambda-cyhalothrin	68085-85-8	0.5 mg/kg	86.5	60.0	140
		EP094: Permethrin	52645-53-1	0.5 mg/kg	91.0	60.0	140
		EP094: Cyfluthrin	68359-37-5	0.5 mg/kg	87.9	60.0	140
		EP094: Cypermethrin	52315-07-8	0.5 mg/kg	79.5	60.0	140
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/6 6230-04-	0.5 mg/kg	80.0	60.0	140
		EP094: Deltamethrin & Tralomethrin	62229-77-0/6 6841-25-	0.5 mg/kg	85.7	60.0	140
		EP094: Allethrin	584-79-2	0.5 mg/kg	89.2	60.0	140
		EP094: Transfluthrin	118712-89-3	0.5 mg/kg	79.2	60.0	140
		EP094: Tetramethrin	7696-12-0	0.5 mg/kg	86.4	60.0	140
		EP094: Tau-fluvalinate	102851-06-9	0.5 mg/kg	77.3	60.0	140
EP094A: Synthetic Pyrethroids (QCLot: 2717822)							
EB1929995-022	I8-SED-1019	EP094: Bioresmethrin	28434-01-07	0.5 mg/kg	72.2	60.0	140
		EP094: Bifenthrin	82657-04-3	0.5 mg/kg	95.8	60.0	140
		EP094: Phenothrin	26002-80-2	0.5 mg/kg	92.4	60.0	140
		EP094: Lambda-cyhalothrin	68085-85-8	0.5 mg/kg	91.7	60.0	140

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP094A: Synthetic Pyrethroids (QCLot: 2717822) - continued							
EB1929995-022	I8-SED-1019	EP094: Permethrin	52645-53-1	0.5 mg/kg	96.5	60.0	140
		EP094: Cyfluthrin	68359-37-5	0.5 mg/kg	92.9	60.0	140
		EP094: Cypermethrin	52315-07-8	0.5 mg/kg	101	60.0	140
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/6 6230-04-	0.5 mg/kg	94.7	60.0	140
		EP094: Deltamethrin & Tralomethrin	62229-77-0/6 6841-25-	0.5 mg/kg	95.9	60.0	140
		EP094: Allethrin	584-79-2	0.5 mg/kg	89.7	60.0	140
		EP094: Transfluthrin	118712-89-3	0.5 mg/kg	98.8	60.0	140
		EP094: Tetramethrin	7696-12-0	0.5 mg/kg	99.0	60.0	140
		EP094: Tau-fluvalinate	102851-06-9	0.5 mg/kg	90.8	60.0	140
EP094A: Synthetic Pyrethroids (QCLot: 2717823)							
EB1929990-058	Anonymous	EP094: Bioresmethrin	28434-01-07	0.5 mg/kg	# 28.2	60.0	140
		EP094: Bifenthrin	82657-04-3	0.5 mg/kg	93.4	60.0	140
		EP094: Phenothrin	26002-80-2	0.5 mg/kg	112	60.0	140
		EP094: Lambda-cyhalothrin	68085-85-8	0.5 mg/kg	102	60.0	140
		EP094: Permethrin	52645-53-1	0.5 mg/kg	102	60.0	140
		EP094: Cyfluthrin	68359-37-5	0.5 mg/kg	126	60.0	140
		EP094: Cypermethrin	52315-07-8	0.5 mg/kg	95.1	60.0	140
		EP094: Fenvalerate & Esfenvalerate	51630-58-1/6 6230-04-	0.5 mg/kg	99.3	60.0	140
		EP094: Deltamethrin & Tralomethrin	62229-77-0/6 6841-25-	0.5 mg/kg	101	60.0	140
		EP094: Allethrin	584-79-2	0.5 mg/kg	106	60.0	140
		EP094: Transfluthrin	118712-89-3	0.5 mg/kg	96.2	60.0	140
		EP094: Tetramethrin	7696-12-0	0.5 mg/kg	95.5	60.0	140
		EP094: Tau-fluvalinate	102851-06-9	0.5 mg/kg	99.8	60.0	140
EP094B: Synergist (QCLot: 2717821)							
EB1929995-002	E10-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.5 mg/kg	76.2	60.0	140
EP094B: Synergist (QCLot: 2717822)							
EB1929995-022	I8-SED-1019	EP094: Piperonyl Butoxide	63993-73-7	0.5 mg/kg	87.4	60.0	140
EP094B: Synergist (QCLot: 2717823)							
EB1929990-058	Anonymous	EP094: Piperonyl Butoxide	63993-73-7	0.5 mg/kg	89.6	60.0	140
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2719233)							
EB1929995-030	H4-SED-1019	EP202: Mecoprop	93-65-2	0.1 mg/kg	73.8	60.0	140
		EP202: MCPA	94-74-6	0.1 mg/kg	67.4	57.0	143
		EP202: 2.4-D	94-75-7	0.1 mg/kg	89.6	68.0	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	71.5	51.0	145

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2719233) - continued							
EB1929995-030	H4-SED-1019	EP202: 2.4.5-T	93-76-5	0.1 mg/kg	73.2	57.0	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	59.2	49.0	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	59.4	49.0	149
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2719462)							
EB1929995-001	E9-SED-1019	EP202: Mecoprop	93-65-2	0.1 mg/kg	77.1	60.0	140
		EP202: MCPA	94-74-6	0.1 mg/kg	79.4	57.0	143
		EP202: 2.4-D	94-75-7	0.1 mg/kg	78.2	68.0	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	86.4	51.0	145
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	97.0	57.0	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	# 43.5	49.0	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	50.6	49.0	149
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2722113)							
EB1929995-012	C8-SED-1019	EP202: Mecoprop	93-65-2	0.1 mg/kg	81.2	60.0	140
		EP202: MCPA	94-74-6	0.1 mg/kg	68.4	57.0	143
		EP202: 2.4-D	94-75-7	0.1 mg/kg	87.3	68.0	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	82.4	51.0	145
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	97.8	57.0	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	71.8	49.0	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	65.6	49.0	149
EP234A: OP Pesticides (QCLot: 2719769)							
EB1929995-001	E9-SED-1019	EP234: Azinphos-ethyl	2642-71-9	0.04 mg/kg	79.2	70.0	130
		EP234: Azinphos-methyl	86-50-0	0.04 mg/kg	72.0	70.0	130
		EP234: Chlorfenvinphos	470-90-6	0.08 mg/kg	88.2	70.0	130
		EP234: Coumaphos	56-72-4	0.02 mg/kg	74.4	70.0	130
		EP234: Diazinon	333-41-5	0.02 mg/kg	74.4	70.0	130
		EP234: Dimethoate	60-51-5	0.04 mg/kg	71.2	70.0	130
		EP234: Disulfoton	298-04-4	0.1 mg/kg	70.7	70.0	130
		EP234: Ethoprophos	13194-48-4	0.02 mg/kg	88.0	70.0	130
		EP234: Fenamiphos	22224-92-6	0.02 mg/kg	72.8	70.0	130
		EP234: Fenitrothion	122-14-5	4 mg/kg	92.6	70.0	130
		EP234: Fensulfothion	115-90-2	0.02 mg/kg	70.4	70.0	130
		EP234: Fenthion	55-38-9	0.1 mg/kg	95.5	70.0	130
		EP234: Malathion	121-75-5	0.04 mg/kg	95.6	70.0	130
		EP234: Mevinphos	7786-34-7	0.08 mg/kg	95.0	70.0	130
		EP234: Monocrotophos	6923-22-4	0.04 mg/kg	90.4	70.0	130
		EP234: Omethoate	1113-02-6	0.02 mg/kg	76.8	70.0	130
		EP234: Parathion	56-38-2	0.4 mg/kg	92.6	70.0	130
		EP234: Parathion-methyl	298-00-0	4 mg/kg	98.0	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234A: OP Pesticides (QCLot: 2719769) - continued							
EB1929995-001	E9-SED-1019	EP234: Phorate	298-02-2	0.2 mg/kg	81.7	70.0	130
		EP234: Pirimiphos-methyl	29232-93-7	0.02 mg/kg	80.8	70.0	130
		EP234: Sulfotep	3689-24-5	0.01 mg/kg	76.8	70.0	130
		EP234: Tetrachlorvinphos	22248-79-9	0.02 mg/kg	84.0	70.0	130
		EP234: Triazophos	24017-47-8	0.01 mg/kg	91.2	70.0	130
EP234A: OP Pesticides (QCLot: 2719770)							
EB1929995-030	H4-SED-1019	EP234: Azinphos-ethyl	2642-71-9	0.04 mg/kg	82.0	70.0	130
		EP234: Azinphos-methyl	86-50-0	0.04 mg/kg	80.4	70.0	130
		EP234: Chlorfenvinphos	470-90-6	0.08 mg/kg	96.4	70.0	130
		EP234: Coumaphos	56-72-4	0.02 mg/kg	93.6	70.0	130
		EP234: Diazinon	333-41-5	0.02 mg/kg	92.8	70.0	130
		EP234: Dimethoate	60-51-5	0.04 mg/kg	88.0	70.0	130
		EP234: Disulfoton	298-04-4	0.1 mg/kg	74.9	70.0	130
		EP234: Ethoprophos	13194-48-4	0.02 mg/kg	108	70.0	130
		EP234: Fenamiphos	22224-92-6	0.02 mg/kg	101	70.0	130
		EP234: Fenitrothion	122-14-5	4 mg/kg	90.6	70.0	130
		EP234: Fensulfothion	115-90-2	0.02 mg/kg	84.0	70.0	130
		EP234: Fenthion	55-38-9	0.1 mg/kg	104	70.0	130
		EP234: Malathion	121-75-5	0.04 mg/kg	108	70.0	130
		EP234: Mevinphos	7786-34-7	0.08 mg/kg	89.4	70.0	130
		EP234: Monocrotophos	6923-22-4	0.04 mg/kg	93.2	70.0	130
		EP234: Omethoate	1113-02-6	0.02 mg/kg	91.2	70.0	130
		EP234: Parathion	56-38-2	0.4 mg/kg	85.5	70.0	130
		EP234: Parathion-methyl	298-00-0	4 mg/kg	92.6	70.0	130
		EP234: Phorate	298-02-2	0.2 mg/kg	101	70.0	130
		EP234: Pirimiphos-methyl	29232-93-7	0.02 mg/kg	84.0	70.0	130
		EP234: Sulfotep	3689-24-5	0.01 mg/kg	80.0	70.0	130
		EP234: Tetrachlorvinphos	22248-79-9	0.02 mg/kg	93.6	70.0	130
		EP234: Triazophos	24017-47-8	0.01 mg/kg	94.4	70.0	130
EP234A: OP Pesticides (QCLot: 2722042)							
EB1929995-012	C8-SED-1019	EP234: Azinphos-ethyl	2642-71-9	0.04 mg/kg	98.8	70.0	130
		EP234: Azinphos-methyl	86-50-0	0.04 mg/kg	85.6	70.0	130
		EP234: Chlorfenvinphos	470-90-6	0.08 mg/kg	89.8	70.0	130
		EP234: Coumaphos	56-72-4	0.02 mg/kg	70.4	70.0	130
		EP234: Diazinon	333-41-5	0.02 mg/kg	85.6	70.0	130
		EP234: Dimethoate	60-51-5	0.04 mg/kg	101	70.0	130
		EP234: Disulfoton	298-04-4	0.1 mg/kg	91.0	70.0	130
		EP234: Ethoprophos	13194-48-4	0.02 mg/kg	100	70.0	130
		EP234: Fenamiphos	22224-92-6	0.02 mg/kg	95.2	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234A: OP Pesticides (QCLot: 2722042) - continued							
EB1929995-012	C8-SED-1019	EP234: Fenitrothion	122-14-5	4 mg/kg	73.9	70.0	130
		EP234: Fensulfothion	115-90-2	0.02 mg/kg	73.6	70.0	130
		EP234: Fenthion	55-38-9	0.1 mg/kg	77.8	70.0	130
		EP234: Malathion	121-75-5	0.04 mg/kg	92.8	70.0	130
		EP234: Mevinphos	7786-34-7	0.08 mg/kg	85.5	70.0	130
		EP234: Monocrotophos	6923-22-4	0.04 mg/kg	77.6	70.0	130
		EP234: Omethoate	1113-02-6	0.02 mg/kg	81.6	70.0	130
		EP234: Parathion	56-38-2	0.4 mg/kg	81.6	70.0	130
		EP234: Parathion-methyl	298-00-0	4 mg/kg	100	70.0	130
		EP234: Phorate	298-02-2	0.2 mg/kg	101	70.0	130
		EP234: Pirimiphos-methyl	29232-93-7	0.02 mg/kg	93.6	70.0	130
		EP234: Sulfotep	3689-24-5	0.01 mg/kg	76.8	70.0	130
		EP234: Tetrachlorvinphos	22248-79-9	0.02 mg/kg	70.4	70.0	130
		EP234: Triazophos	24017-47-8	0.01 mg/kg	84.8	70.0	130
EP234B: Thiocarbamates and Carbamates (QCLot: 2719769)							
EB1929995-001	E9-SED-1019	EP234: Aldicarb	116-06-3	0.1 mg/kg	72.3	70.0	130
		EP234: Bendiocarb	22781-23-3	0.2 mg/kg	95.9	70.0	130
		EP234: Benomyl	17804-35-2	0.02 mg/kg	86.4	70.0	130
		EP234: Carbaryl	63-25-2	0.02 mg/kg	82.4	70.0	130
		EP234: Carbofuran	1563-66-2	0.02 mg/kg	70.4	70.0	130
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.04 mg/kg	78.8	70.0	130
		EP234: Methiocarb	2032-65-7	0.02 mg/kg	97.6	70.0	130
		EP234: Methomyl	16752-77-5	0.02 mg/kg	70.4	70.0	130
		EP234: Molinate	2212-67-1	0.2 mg/kg	71.4	70.0	130
		EP234: Oxamyl	23135-22-0	0.02 mg/kg	80.8	70.0	130
		EP234: Thiobencarb	28249-77-6	0.02 mg/kg	89.6	70.0	130
		EP234: Thiodicarb	59669-26-0	0.02 mg/kg	# 0.00	70.0	130
EP234B: Thiocarbamates and Carbamates (QCLot: 2719770)							
EB1929995-030	H4-SED-1019	EP234: Aldicarb	116-06-3	0.1 mg/kg	87.5	70.0	130
		EP234: Bendiocarb	22781-23-3	0.2 mg/kg	114	70.0	130
		EP234: Benomyl	17804-35-2	0.02 mg/kg	96.8	70.0	130
		EP234: Carbaryl	63-25-2	0.02 mg/kg	92.0	70.0	130
		EP234: Carbofuran	1563-66-2	0.02 mg/kg	89.6	70.0	130
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.04 mg/kg	94.8	70.0	130
		EP234: Methiocarb	2032-65-7	0.02 mg/kg	101	70.0	130
		EP234: Methomyl	16752-77-5	0.02 mg/kg	125	70.0	130
		EP234: Molinate	2212-67-1	0.2 mg/kg	94.2	70.0	130
		EP234: Oxamyl	23135-22-0	0.02 mg/kg	109	70.0	130
		EP234: Thiobencarb	28249-77-6	0.02 mg/kg	88.8	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234B: Thiocarbamates and Carbamates (QCLot: 2719770) - continued							
EB1929995-030	H4-SED-1019	EP234: Thiodicarb	59669-26-0	0.02 mg/kg	# 0.00	70.0	130
EP234B: Thiocarbamates and Carbamates (QCLot: 2722042)							
EB1929995-012	C8-SED-1019	EP234: Aldicarb	116-06-3	0.1 mg/kg	87.7	70.0	130
		EP234: Bendiocarb	22781-23-3	0.2 mg/kg	118	70.0	130
		EP234: Benomyl	17804-35-2	0.02 mg/kg	84.0	70.0	130
		EP234: Carbaryl	63-25-2	0.02 mg/kg	88.8	70.0	130
		EP234: Carbofuran	1563-66-2	0.02 mg/kg	70.4	70.0	130
		EP234: 3-Hydroxy Carbofuran	16655-82-6	0.04 mg/kg	89.6	70.0	130
		EP234: Methiocarb	2032-65-7	0.02 mg/kg	103	70.0	130
		EP234: Methomyl	16752-77-5	0.02 mg/kg	78.4	70.0	130
		EP234: Molinate	2212-67-1	0.2 mg/kg	70.1	70.0	130
		EP234: Oxamyl	23135-22-0	0.02 mg/kg	115	70.0	130
		EP234: Thiobencarb	28249-77-6	0.02 mg/kg	93.6	70.0	130
		EP234: Thiodicarb	59669-26-0	0.02 mg/kg	# 0.00	70.0	130
EP234D: Triazinone Herbicides (QCLot: 2719769)							
EB1929995-001	E9-SED-1019	EP234: Hexazinone	51235-04-2	0.04 mg/kg	82.0	70.0	130
		EP234: Metribuzin	21087-64-9	0.04 mg/kg	79.2	70.0	130
EP234D: Triazinone Herbicides (QCLot: 2719770)							
EB1929995-030	H4-SED-1019	EP234: Hexazinone	51235-04-2	0.04 mg/kg	97.2	70.0	130
		EP234: Metribuzin	21087-64-9	0.04 mg/kg	87.6	70.0	130
EP234D: Triazinone Herbicides (QCLot: 2722042)							
EB1929995-012	C8-SED-1019	EP234: Hexazinone	51235-04-2	0.04 mg/kg	71.6	70.0	130
		EP234: Metribuzin	21087-64-9	0.04 mg/kg	95.6	70.0	130
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2719769)							
EB1929995-001	E9-SED-1019	EP234: Cyproconazole	94361-06-5	0.08 mg/kg	71.6	70.0	130
		EP234: Flusilazole	85509-19-9	0.04 mg/kg	86.8	70.0	130
		EP234: Hexaconazole	79983-71-4	0.04 mg/kg	93.2	70.0	130
		EP234: Paclobutrazole	76738-62-0	0.1 mg/kg	74.1	70.0	130
		EP234: Propiconazole	60207-90-1	0.1 mg/kg	75.0	70.0	130
		EP234: Tebuconazole	107534-96-3	0.02 mg/kg	85.6	70.0	130
		EP234: Cyprodinil	121552-61-2	0.02 mg/kg	87.2	70.0	130
		EP234: Pyrimethanil	53112-28-0	0.04 mg/kg	71.6	70.0	130
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2719770)							
EB1929995-030	H4-SED-1019	EP234: Cyproconazole	94361-06-5	0.08 mg/kg	95.4	70.0	130
		EP234: Flusilazole	85509-19-9	0.04 mg/kg	92.4	70.0	130
		EP234: Hexaconazole	79983-71-4	0.04 mg/kg	107	70.0	130
		EP234: Paclobutrazole	76738-62-0	0.1 mg/kg	96.6	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2719770) - continued							
EB1929995-030	H4-SED-1019	EP234: Propiconazole	60207-90-1	0.1 mg/kg	95.2	70.0	130
		EP234: Tebuconazole	107534-96-3	0.02 mg/kg	115	70.0	130
		EP234: Cyprodinil	121552-61-2	0.02 mg/kg	117	70.0	130
		EP234: Pyrimethanil	53112-28-0	0.04 mg/kg	92.0	70.0	130
EP234E: Conazole and Aminopyrimidine Fungicides (QCLot: 2722042)							
EB1929995-012	C8-SED-1019	EP234: Cyproconazole	94361-06-5	0.08 mg/kg	95.0	70.0	130
		EP234: Flusilazole	85509-19-9	0.04 mg/kg	72.0	70.0	130
		EP234: Hexaconazole	79983-71-4	0.04 mg/kg	70.4	70.0	130
		EP234: Paclobutrazole	76738-62-0	0.1 mg/kg	92.5	70.0	130
		EP234: Propiconazole	60207-90-1	0.1 mg/kg	89.1	70.0	130
		EP234: Tebuconazole	107534-96-3	0.02 mg/kg	91.2	70.0	130
		EP234: Cyprodinil	121552-61-2	0.02 mg/kg	94.4	70.0	130
		EP234: Pyrimethanil	53112-28-0	0.04 mg/kg	92.0	70.0	130
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2719769)							
EB1929995-001	E9-SED-1019	EP234: Diuron	330-54-1	0.04 mg/kg	73.6	70.0	130
		EP234: Fluometuron	2164-17-2	0.02 mg/kg	89.6	70.0	130
		EP234: Tebuthiuron	34014-18-1	0.04 mg/kg	88.0	70.0	130
		EP234: Bromacil	314-40-9	0.04 mg/kg	85.6	70.0	130
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2719770)							
EB1929995-030	H4-SED-1019	EP234: Diuron	330-54-1	0.04 mg/kg	88.8	70.0	130
		EP234: Fluometuron	2164-17-2	0.02 mg/kg	85.6	70.0	130
		EP234: Tebuthiuron	34014-18-1	0.04 mg/kg	92.8	70.0	130
		EP234: Bromacil	314-40-9	0.04 mg/kg	88.4	70.0	130
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 2722042)							
EB1929995-012	C8-SED-1019	EP234: Diuron	330-54-1	0.04 mg/kg	87.2	70.0	130
		EP234: Fluometuron	2164-17-2	0.02 mg/kg	71.2	70.0	130
		EP234: Tebuthiuron	34014-18-1	0.04 mg/kg	77.6	70.0	130
		EP234: Bromacil	314-40-9	0.04 mg/kg	85.2	70.0	130
EP234G: Chloracetanilides (QCLot: 2719769)							
EB1929995-001	E9-SED-1019	EP234: Metolachlor	51218-45-2	0.02 mg/kg	74.4	70.0	130
EP234G: Chloracetanilides (QCLot: 2719770)							
EB1929995-030	H4-SED-1019	EP234: Metolachlor	51218-45-2	0.02 mg/kg	92.0	70.0	130
EP234G: Chloracetanilides (QCLot: 2722042)							
EB1929995-012	C8-SED-1019	EP234: Metolachlor	51218-45-2	0.02 mg/kg	72.8	70.0	130
EP234H: Triazine Herbicides (QCLot: 2719769)							
EB1929995-001	E9-SED-1019	EP234: Ametryn	834-12-8	0.02 mg/kg	74.4	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234H: Triazine Herbicides (QCLot: 2719769) - continued							
EB1929995-001	E9-SED-1019	EP234: Atrazine	1912-24-9	0.02 mg/kg	127	70.0	130
		EP234: Cyanazine	21725-46-2	0.04 mg/kg	83.2	70.0	130
		EP234: Prometryn	7287-19-6	0.02 mg/kg	72.8	70.0	130
		EP234: Propazine	139-40-2	0.02 mg/kg	91.2	70.0	130
		EP234: Simazine	122-34-9	0.04 mg/kg	73.6	70.0	130
		EP234: Terbuthylazine	5915-41-3	0.02 mg/kg	72.8	70.0	130
		EP234: Terbutryn	886-50-0	0.02 mg/kg	72.0	70.0	130
EP234H: Triazine Herbicides (QCLot: 2719770)							
EB1929995-030	H4-SED-1019	EP234: Ametryn	834-12-8	0.02 mg/kg	84.0	70.0	130
		EP234: Atrazine	1912-24-9	0.02 mg/kg	92.0	70.0	130
		EP234: Cyanazine	21725-46-2	0.04 mg/kg	77.2	70.0	130
		EP234: Prometryn	7287-19-6	0.02 mg/kg	100	70.0	130
		EP234: Propazine	139-40-2	0.02 mg/kg	96.0	70.0	130
		EP234: Simazine	122-34-9	0.04 mg/kg	89.6	70.0	130
		EP234: Terbuthylazine	5915-41-3	0.02 mg/kg	99.2	70.0	130
		EP234: Terbutryn	886-50-0	0.02 mg/kg	87.2	70.0	130
EP234H: Triazine Herbicides (QCLot: 2722042)							
EB1929995-012	C8-SED-1019	EP234: Ametryn	834-12-8	0.02 mg/kg	88.0	70.0	130
		EP234: Atrazine	1912-24-9	0.02 mg/kg	90.4	70.0	130
		EP234: Cyanazine	21725-46-2	0.04 mg/kg	74.4	70.0	130
		EP234: Prometryn	7287-19-6	0.02 mg/kg	84.8	70.0	130
		EP234: Propazine	139-40-2	0.02 mg/kg	82.4	70.0	130
		EP234: Simazine	122-34-9	0.04 mg/kg	78.8	70.0	130
		EP234: Terbuthylazine	5915-41-3	0.02 mg/kg	84.8	70.0	130
		EP234: Terbutryn	886-50-0	0.02 mg/kg	88.8	70.0	130
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2719769)							
EB1929995-001	E9-SED-1019	EP234: Fenarimol	60168-88-9	0.04 mg/kg	119	70.0	130
		EP234: Irgarol	28159-98-0	0.004 mg/kg	76.0	70.0	130
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2719770)							
EB1929995-030	H4-SED-1019	EP234: Fenarimol	60168-88-9	0.04 mg/kg	112	70.0	130
		EP234: Irgarol	28159-98-0	0.004 mg/kg	80.0	70.0	130
EP234I: Miscellaneous (ESI Positive Mode) Pesticides (QCLot: 2722042)							
EB1929995-012	C8-SED-1019	EP234: Fenarimol	60168-88-9	0.04 mg/kg	70.4	70.0	130
		EP234: Irgarol	28159-98-0	0.004 mg/kg	84.0	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB1929995**	Page	: 1 of 34
Client	: **BMT COMMERCIAL AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MS BETH TOKI	Telephone	: +61 7 3552 8639
Project	: B23282-4 Douglas Shoal	Date Samples Received	: 11-Nov-2019
Site	: ----	Issue Date	: 06-Dec-2019
Sampler	: CONOR JONES	No. of samples received	: 47
Order number	: ----	No. of samples analysed	: 47

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG035T: Total Recoverable Mercury by FIMS (Low Lev	EB1929995--037	H11-SED-1019	**Mercury**	7439-97-6	63.4 %	70.0-130%	**Recovery less than lower data quality objective**
EP094A: Synthetic Pyrethroids	EB1929995--002	E10-SED-1019	**Bioresmethrin**	28434-01-07	14.9 %	60.0-140%	**Recovery less than lower data quality objective**
EP094A: Synthetic Pyrethroids	EB1929990--058	Anonymous	**Bioresmethrin**	28434-01-07	28.2 %	60.0-140%	**Recovery less than lower data quality objective**
EP202A: Phenoxyacetic Acid Herbicides by LCMS	EB1929995--001	E9-SED-1019	**Picloram**	1918-02-1	43.5 %	49.0-138%	**Recovery less than lower data quality objective**
EP234B: Thiocarbamates and Carbamates	EB1929995--001	E9-SED-1019	**Thiodicarb**	59669-26-0	0.00 %	70.0-130%	**Recovery less than lower data quality objective**
EP234B: Thiocarbamates and Carbamates	EB1929995--030	H4-SED-1019	**Thiodicarb**	59669-26-0	0.00 %	70.0-130%	**Recovery less than lower data quality objective**
EP234B: Thiocarbamates and Carbamates	EB1929995--012	C8-SED-1019	**Thiodicarb**	59669-26-0	0.00 %	70.0-130%	**Recovery less than lower data quality objective**

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP090S: Organotin Surrogate	EB1929995-037	H11-SED-1019	**Tripropyltin**	----	154 %	35.0-130 %	**Recovery greater than upper data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method	*Extraction / Preparation*			*Analysis*		
Container / Client Sample ID(s)	*Date extracted*	*Due for extraction*	***Days overdue***	*Date analysed*	*Due for analysis*	***Days overdue***
EP094A: Synthetic Pyrethroids						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP094A: Synthetic Pyrethroids - Analysis Holding Time Compliance						
Sediment Glass Jar - Frozen (NAGD)						
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019, C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	22-Nov-2019	21-Nov-2019	1	----	----	----
EP094B: Synergist						
Sediment Glass Jar - Frozen (NAGD)						
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019, C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	22-Nov-2019	21-Nov-2019	1	----	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS						
Soil Glass Jar - Unpreserved						
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	22-Nov-2019	21-Nov-2019	1	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Analysis Holding Time Compliance							
Soil Glass Jar - Unpreserved							
C8-SED-1019,	C9-SED-1019,	25-Nov-2019	21-Nov-2019	4	----	----	----
C10-SED-1019,	C11-SED-1019,						
C12-SED-1019,	I3-SED-1019,						
I4-SED-1019,	I5-SED-1019,						
I6-SED-1019,	I7-SED-1019,						
I8-SED-1019,	I9-SED-1019,						
I13-SED-1019,	I14-SED-1019						
Soil Glass Jar - Unpreserved							
I10-SED-1019		25-Nov-2019	23-Nov-2019	2	----	----	----
EP234A: OP Pesticides							
Soil Glass Jar - Unpreserved							
E9-SED-1019,	E10-SED-1019,	25-Nov-2019	21-Nov-2019	4	----	----	----
E11-SED-1019,	E12-SED-1019,						
C1-SED-1019,	C2-SED-1019,						
C3-SED-1019,	C4-SED-1019,						
C5-SED-1019,	C6-SED-1019,						
C7-SED-1019							
Soil Glass Jar - Unpreserved							
C8-SED-1019,	C9-SED-1019,	28-Nov-2019	21-Nov-2019	7	----	----	----
C10-SED-1019,	C11-SED-1019,						
C12-SED-1019,	I3-SED-1019,						
I4-SED-1019,	I5-SED-1019,						
I6-SED-1019,	I7-SED-1019,						
I8-SED-1019,	I9-SED-1019,						
I13-SED-1019,	I14-SED-1019						
Soil Glass Jar - Unpreserved							
H3-SED-1019,	H4-SED-1019,	02-Dec-2019	23-Nov-2019	9	----	----	----
H5-SED-1019,	H6-SED-1019,						
H7-SED-1019,	H8-SED-1019,						
H9-SED-1019,	H10-SED-1019,						
H11-SED-1019,	H12-SED-1019,						
A2-B-SED-1019,	A5-B-SED-1019,						
B2-B-SED-1019,	B9-B-SED-1019,						
E8-B-SED-1019,	G5-SED-1019						
Soil Glass Jar - Unpreserved							
H1-SED-1019,	H2-SED-1019	25-Nov-2019	23-Nov-2019	2	----	----	----
Soil Glass Jar - Unpreserved							
I10-SED-1019		28-Nov-2019	23-Nov-2019	5	----	----	----
EP234B: Thiocarbamates and Carbamates							

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP234B: Thiocarbamates and Carbamates - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	25-Nov-2019	21-Nov-2019	**4**	----	----	----
Soil Glass Jar - Unpreserved						
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	28-Nov-2019	21-Nov-2019	**7**	----	----	----
Soil Glass Jar - Unpreserved						
H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	02-Dec-2019	23-Nov-2019	**9**	----	----	----
Soil Glass Jar - Unpreserved						
H1-SED-1019, H2-SED-1019	25-Nov-2019	23-Nov-2019	**2**	----	----	----
Soil Glass Jar - Unpreserved						
I10-SED-1019	28-Nov-2019	23-Nov-2019	**5**	----	----	----
EP234D: Triazinone Herbicides						
Soil Glass Jar - Unpreserved						
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	25-Nov-2019	21-Nov-2019	**4**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP234D: Triazinone Herbicides - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	28-Nov-2019	21-Nov-2019	**7**	----	----	----
Soil Glass Jar - Unpreserved						
H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	02-Dec-2019	23-Nov-2019	**9**	----	----	----
Soil Glass Jar - Unpreserved						
H1-SED-1019, H2-SED-1019	25-Nov-2019	23-Nov-2019	**2**	----	----	----
Soil Glass Jar - Unpreserved						
I10-SED-1019	28-Nov-2019	23-Nov-2019	**5**	----	----	----
EP234E: Conazole and Aminopyrimidine Fungicides						
Soil Glass Jar - Unpreserved						
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	25-Nov-2019	21-Nov-2019	**4**	----	----	----
Soil Glass Jar - Unpreserved						
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	28-Nov-2019	21-Nov-2019	**7**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP234E: Conazole and Aminopyrimidine Fungicides - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	02-Dec-2019	23-Nov-2019	**9**	----	----	----
Soil Glass Jar - Unpreserved						
H1-SED-1019, H2-SED-1019	25-Nov-2019	23-Nov-2019	**2**	----	----	----
Soil Glass Jar - Unpreserved						
I10-SED-1019	28-Nov-2019	23-Nov-2019	**5**	----	----	----
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides						
Soil Glass Jar - Unpreserved						
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	25-Nov-2019	21-Nov-2019	**4**	----	----	----
Soil Glass Jar - Unpreserved						
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	28-Nov-2019	21-Nov-2019	**7**	----	----	----
Soil Glass Jar - Unpreserved						
H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	02-Dec-2019	23-Nov-2019	**9**	----	----	----
Soil Glass Jar - Unpreserved						
H1-SED-1019, H2-SED-1019	25-Nov-2019	23-Nov-2019	**2**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides - Analysis Holding Time						
Soil Glass Jar - Unpreserved						
I10-SED-1019	28-Nov-2019	23-Nov-2019	**5**	----	----	----
EP234G: Chloracetanilides						
Soil Glass Jar - Unpreserved						
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	25-Nov-2019	21-Nov-2019	**4**	----	----	----
Soil Glass Jar - Unpreserved						
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	28-Nov-2019	21-Nov-2019	**7**	----	----	----
Soil Glass Jar - Unpreserved						
H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	02-Dec-2019	23-Nov-2019	**9**	----	----	----
Soil Glass Jar - Unpreserved						
H1-SED-1019, H2-SED-1019	25-Nov-2019	23-Nov-2019	**2**	----	----	----
Soil Glass Jar - Unpreserved						
I10-SED-1019	28-Nov-2019	23-Nov-2019	**5**	----	----	----
EP234H: Triazine Herbicides						
Soil Glass Jar - Unpreserved						
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	25-Nov-2019	21-Nov-2019	**4**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP234H: Triazine Herbicides - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	28-Nov-2019	21-Nov-2019	**7**	----	----	----
Soil Glass Jar - Unpreserved						
H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	02-Dec-2019	23-Nov-2019	**9**	----	----	----
Soil Glass Jar - Unpreserved						
H1-SED-1019, H2-SED-1019	25-Nov-2019	23-Nov-2019	**2**	----	----	----
Soil Glass Jar - Unpreserved						
I10-SED-1019	28-Nov-2019	23-Nov-2019	**5**	----	----	----
EP234I: Miscellaneous (ESI Positive Mode) Pesticides						
Soil Glass Jar - Unpreserved						
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	25-Nov-2019	21-Nov-2019	**4**	----	----	----
Soil Glass Jar - Unpreserved						
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	28-Nov-2019	21-Nov-2019	**7**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP234I: Miscellaneous (ESI Positive Mode) Pesticides - Analysis Holding Time Compliance							
Soil Glass Jar - Unpreserved							
H3-SED-1019,	H4-SED-1019,	02-Dec-2019	23-Nov-2019	**9**	----	----	----
H5-SED-1019,	H6-SED-1019,						
H7-SED-1019,	H8-SED-1019,						
H9-SED-1019,	H10-SED-1019,						
H11-SED-1019,	H12-SED-1019,						
A2-B-SED-1019,	A5-B-SED-1019,						
B2-B-SED-1019,	B9-B-SED-1019,						
E8-B-SED-1019,	G5-SED-1019						
Soil Glass Jar - Unpreserved							
H1-SED-1019,	H2-SED-1019	25-Nov-2019	23-Nov-2019	**2**	----	----	----
Soil Glass Jar - Unpreserved							
I10-SED-1019		28-Nov-2019	23-Nov-2019	**5**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type / Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Soil Particle Density	0	44	0.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Sediment Glass Jar - Frozen (NAGD) (EA055)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019, C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**----**	----	----	**12-Nov-2019**	05-May-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EA055)							
I10-SED-1019, H1-SED-1019, H2-SED-1019, H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**----**	----	----	**12-Nov-2019**	07-May-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA150: Particle Sizing							
Sediment Glass Jar - Frozen (NAGD) (EA150H)							
E11-SED-1019, E12-SED-1019, C11-SED-1019, C12-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**----**	----	----	**22-Nov-2019**	05-May-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EA150H)							
H11-SED-1019, H12-SED-1019	**09-Nov-2019**	**----**	----	----	**22-Nov-2019**	07-May-2020	✓
Snap Lock Bag (EA150H)							
E9-SED-1019, E10-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019, C8-SED-1019, C9-SED-1019, C10-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019	**07-Nov-2019**	**----**	----	----	**22-Nov-2019**	05-May-2020	✓
Snap Lock Bag (EA150H)							
I10-SED-1019, H1-SED-1019, H2-SED-1019, H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**----**	----	----	**22-Nov-2019**	07-May-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA150: Soil Classification based on Particle Size							
Sediment Glass Jar - Frozen (NAGD) (EA150H)							
E11-SED-1019, E12-SED-1019, C11-SED-1019, C12-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**----**	----	----	**22-Nov-2019**	05-May-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EA150H)							
H11-SED-1019, H12-SED-1019	**09-Nov-2019**	**----**	----	----	**22-Nov-2019**	07-May-2020	✓
Snap Lock Bag (EA150H)							
E9-SED-1019, E10-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019, C8-SED-1019, C9-SED-1019, C10-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019	**07-Nov-2019**	**----**	----	----	**22-Nov-2019**	05-May-2020	✓
Snap Lock Bag (EA150H)							
I10-SED-1019, H1-SED-1019, H2-SED-1019, H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**----**	----	----	**22-Nov-2019**	07-May-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA152: Soil Particle Density							
Sediment Glass Jar - Frozen (NAGD) (EA152)							
E11-SED-1019, E12-SED-1019, C11-SED-1019, C12-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**----**	----	----	**22-Nov-2019**	05-May-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EA152)							
H11-SED-1019, H12-SED-1019	**09-Nov-2019**	**----**	----	----	**22-Nov-2019**	07-May-2020	✓
Snap Lock Bag (EA152)							
E9-SED-1019, E10-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019, C8-SED-1019, C9-SED-1019, C10-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019	**07-Nov-2019**	**----**	----	----	**22-Nov-2019**	05-May-2020	✓
Snap Lock Bag (EA152)							
I10-SED-1019, H1-SED-1019, H2-SED-1019, H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**----**	----	----	**22-Nov-2019**	07-May-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES							
Sediment Glass Jar - Frozen (NAGD) (EG005-SD)							
C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**13-Nov-2019**	05-May-2020	✓	**13-Nov-2019**	05-May-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EG005-SD)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019, C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019	**07-Nov-2019**	**13-Nov-2019**	05-May-2020	✓	**14-Nov-2019**	05-May-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EG005-SD)							
I10-SED-1019, H1-SED-1019, H2-SED-1019, H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019	**09-Nov-2019**	**13-Nov-2019**	07-May-2020	✓	**13-Nov-2019**	07-May-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EG005-SD)							
H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**13-Nov-2019**	07-May-2020	✓	**15-Nov-2019**	07-May-2020	✓
Soil Glass Jar - Unpreserved (EG005-SD)							
MESS-4 CRM, PACS-3 CRM	**09-Nov-2019**	**13-Nov-2019**	07-May-2020	✓	**15-Nov-2019**	07-May-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020-SD: Total Metals in Sediments by ICPMS							
Sediment Glass Jar - Frozen (NAGD) (EG020-SD)							
C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**13-Nov-2019**	05-May-2020	✓	**13-Nov-2019**	05-May-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EG020-SD)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019, C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019	**07-Nov-2019**	**13-Nov-2019**	05-May-2020	✓	**14-Nov-2019**	05-May-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EG020-SD)							
I10-SED-1019, H1-SED-1019, H2-SED-1019, H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019	**09-Nov-2019**	**13-Nov-2019**	07-May-2020	✓	**13-Nov-2019**	07-May-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EG020-SD)							
H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**13-Nov-2019**	07-May-2020	✓	**15-Nov-2019**	07-May-2020	✓
Soil Glass Jar - Unpreserved (EG020-SD)							
MESS-4 CRM, PACS-3 CRM	**09-Nov-2019**	**13-Nov-2019**	07-May-2020	✓	**15-Nov-2019**	07-May-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Sediment Glass Jar - Frozen (NAGD) (EG020X-T)							
C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**13-Nov-2019**	05-May-2020	✓	**13-Nov-2019**	05-May-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EG020X-T)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019, C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019	**07-Nov-2019**	**13-Nov-2019**	05-May-2020	✓	**14-Nov-2019**	05-May-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EG020X-T)							
I10-SED-1019, H1-SED-1019, H2-SED-1019, H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019	**09-Nov-2019**	**13-Nov-2019**	07-May-2020	✓	**13-Nov-2019**	07-May-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EG020X-T)							
H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**13-Nov-2019**	07-May-2020	✓	**15-Nov-2019**	07-May-2020	✓
Soil Glass Jar - Unpreserved (EG020X-T)							
MESS-4 CRM	**09-Nov-2019**	**13-Nov-2019**	07-May-2020	✓	**15-Nov-2019**	07-May-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Sediment Glass Jar - Frozen (NAGD) (EG035T-LL)							
C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**13-Nov-2019**	02-Jan-2020	✓	**13-Nov-2019**	02-Jan-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EG035T-LL)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019, C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019	**07-Nov-2019**	**13-Nov-2019**	02-Jan-2020	✓	**14-Nov-2019**	02-Jan-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EG035T-LL)							
I10-SED-1019, H1-SED-1019, H2-SED-1019, H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019	**09-Nov-2019**	**13-Nov-2019**	04-Jan-2020	✓	**13-Nov-2019**	04-Jan-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EG035T-LL)							
H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**13-Nov-2019**	04-Jan-2020	✓	**15-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EG035T-LL)							
MESS-4 CRM, PACS-3 CRM	**09-Nov-2019**	**13-Nov-2019**	07-Dec-2019	✓	**15-Nov-2019**	07-Dec-2019	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP090: Organotin Compounds							
Sediment Glass Jar - Frozen (NAGD) (EP090) E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019, C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019	**07-Nov-2019**	**12-Nov-2019**	02-Jan-2020	✓	**14-Nov-2019**	22-Dec-2019	✓
Sediment Glass Jar - Frozen (NAGD) (EP090) C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**12-Nov-2019**	02-Jan-2020	✓	**18-Nov-2019**	22-Dec-2019	✓
Sediment Glass Jar - Frozen (NAGD) (EP090) I10-SED-1019, H1-SED-1019, H2-SED-1019, H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019	**09-Nov-2019**	**12-Nov-2019**	04-Jan-2020	✓	**18-Nov-2019**	22-Dec-2019	✓
Sediment Glass Jar - Frozen (NAGD) (EP090) H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, MESS-4 CRM, PACS-3 CRM, SOPH-1 CRM, G5-SED-1019	**09-Nov-2019**	**13-Nov-2019**	04-Jan-2020	✓	**15-Nov-2019**	23-Dec-2019	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP094A: Synthetic Pyrethroids							
Sediment Glass Jar - Frozen (NAGD) (EP094)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019, C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**22-Nov-2019**	21-Nov-2019	×	**25-Nov-2019**	01-Jan-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EP094)							
I10-SED-1019, H1-SED-1019, H2-SED-1019, H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**22-Nov-2019**	23-Nov-2019	✓	**25-Nov-2019**	01-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP094B: Synergist							
Sediment Glass Jar - Frozen (NAGD) (EP094)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019, C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**22-Nov-2019**	21-Nov-2019	×	**25-Nov-2019**	01-Jan-2020	✓
Sediment Glass Jar - Frozen (NAGD) (EP094)							
I10-SED-1019, H1-SED-1019, H2-SED-1019, H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**22-Nov-2019**	23-Nov-2019	✓	**25-Nov-2019**	01-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP202A: Phenoxyacetic Acid Herbicides by LCMS							
Soil Glass Jar - Unpreserved (EP202)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	**07-Nov-2019**	**22-Nov-2019**	21-Nov-2019	×	**26-Nov-2019**	01-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP202)							
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**25-Nov-2019**	21-Nov-2019	×	**02-Dec-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP202)							
H1-SED-1019, H2-SED-1019, H3-SED-1019	**09-Nov-2019**	**22-Nov-2019**	23-Nov-2019	✓	**26-Nov-2019**	01-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP202)							
H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**23-Nov-2019**	23-Nov-2019	✓	**04-Dec-2019**	02-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP202)							
I10-SED-1019	**09-Nov-2019**	**25-Nov-2019**	23-Nov-2019	×	**02-Dec-2019**	04-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234A: OP Pesticides							
Soil Glass Jar - Unpreserved (EP234)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	**07-Nov-2019**	**25-Nov-2019**	21-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**28-Nov-2019**	21-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**02-Dec-2019**	23-Nov-2019	×	**02-Dec-2019**	11-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H1-SED-1019, H2-SED-1019	**09-Nov-2019**	**25-Nov-2019**	23-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
I10-SED-1019	**09-Nov-2019**	**28-Nov-2019**	23-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234B: Thiocarbamates and Carbamates							
Soil Glass Jar - Unpreserved (EP234)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	**07-Nov-2019**	**25-Nov-2019**	21-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**28-Nov-2019**	21-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**02-Dec-2019**	23-Nov-2019	×	**02-Dec-2019**	11-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H1-SED-1019, H2-SED-1019	**09-Nov-2019**	**25-Nov-2019**	23-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
I10-SED-1019	**09-Nov-2019**	**28-Nov-2019**	23-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234D: Triazinone Herbicides							
Soil Glass Jar - Unpreserved (EP234)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	**07-Nov-2019**	**25-Nov-2019**	21-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**28-Nov-2019**	21-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**02-Dec-2019**	23-Nov-2019	×	**02-Dec-2019**	11-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H1-SED-1019, H2-SED-1019	**09-Nov-2019**	**25-Nov-2019**	23-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
I10-SED-1019	**09-Nov-2019**	**28-Nov-2019**	23-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234E: Conazole and Aminopyrimidine Fungicides							
Soil Glass Jar - Unpreserved (EP234)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	**07-Nov-2019**	**25-Nov-2019**	21-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**28-Nov-2019**	21-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**02-Dec-2019**	23-Nov-2019	×	**02-Dec-2019**	11-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H1-SED-1019, H2-SED-1019	**09-Nov-2019**	**25-Nov-2019**	23-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
I10-SED-1019	**09-Nov-2019**	**28-Nov-2019**	23-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides							
Soil Glass Jar - Unpreserved (EP234)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	**07-Nov-2019**	**25-Nov-2019**	21-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**28-Nov-2019**	21-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**02-Dec-2019**	23-Nov-2019	×	**02-Dec-2019**	11-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H1-SED-1019, H2-SED-1019	**09-Nov-2019**	**25-Nov-2019**	23-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
I10-SED-1019	**09-Nov-2019**	**28-Nov-2019**	23-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234G: Chloracetanilides							
Soil Glass Jar - Unpreserved (EP234)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	**07-Nov-2019**	**25-Nov-2019**	21-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**28-Nov-2019**	21-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**02-Dec-2019**	23-Nov-2019	×	**02-Dec-2019**	11-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H1-SED-1019, H2-SED-1019	**09-Nov-2019**	**25-Nov-2019**	23-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
I10-SED-1019	**09-Nov-2019**	**28-Nov-2019**	23-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234H: Triazine Herbicides							
Soil Glass Jar - Unpreserved (EP234)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	**07-Nov-2019**	**25-Nov-2019**	21-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**28-Nov-2019**	21-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**02-Dec-2019**	23-Nov-2019	×	**02-Dec-2019**	11-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H1-SED-1019, H2-SED-1019	**09-Nov-2019**	**25-Nov-2019**	23-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
I10-SED-1019	**09-Nov-2019**	**28-Nov-2019**	23-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP234I: Miscellaneous (ESI Positive Mode) Pesticides							
Soil Glass Jar - Unpreserved (EP234)							
E9-SED-1019, E10-SED-1019, E11-SED-1019, E12-SED-1019, C1-SED-1019, C2-SED-1019, C3-SED-1019, C4-SED-1019, C5-SED-1019, C6-SED-1019, C7-SED-1019	**07-Nov-2019**	**25-Nov-2019**	21-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
C8-SED-1019, C9-SED-1019, C10-SED-1019, C11-SED-1019, C12-SED-1019, I3-SED-1019, I4-SED-1019, I5-SED-1019, I6-SED-1019, I7-SED-1019, I8-SED-1019, I9-SED-1019, I13-SED-1019, I14-SED-1019	**07-Nov-2019**	**28-Nov-2019**	21-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H3-SED-1019, H4-SED-1019, H5-SED-1019, H6-SED-1019, H7-SED-1019, H8-SED-1019, H9-SED-1019, H10-SED-1019, H11-SED-1019, H12-SED-1019, A2-B-SED-1019, A5-B-SED-1019, B2-B-SED-1019, B9-B-SED-1019, E8-B-SED-1019, G5-SED-1019	**09-Nov-2019**	**02-Dec-2019**	23-Nov-2019	×	**02-Dec-2019**	11-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
H1-SED-1019, H2-SED-1019	**09-Nov-2019**	**25-Nov-2019**	23-Nov-2019	×	**25-Nov-2019**	04-Jan-2020	✓
Soil Glass Jar - Unpreserved (EP234)							
I10-SED-1019	**09-Nov-2019**	**28-Nov-2019**	23-Nov-2019	×	**28-Nov-2019**	07-Jan-2020	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	5	50	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organotin Analysis	EP090	6	53	**11.32**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234	6	44	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	6	44	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Soil Particle Density	EA152	0	44	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Synthetic Pyrethroids by GCMS	EP094	5	48	**10.42**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fe and Al in Sediments by ICPAES	EG005-SD	6	51	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	6	51	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite X	EG020X-T	5	50	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Sediments by ICPMS	EG020-SD	6	51	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Organotin Analysis	EP090	3	53	**5.66**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Soil Particle Density	EA152	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Synthetic Pyrethroids by GCMS	EP094	3	48	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fe and Al in Sediments by ICPAES	EG005-SD	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite X	EG020X-T	3	50	**6.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Sediments by ICPMS	EG020-SD	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Organotin Analysis	EP090	3	53	**5.66**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Synthetic Pyrethroids by GCMS	EP094	3	48	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fe and Al in Sediments by ICPAES	EG005-SD	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite X	EG020X-T	3	50	**6.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Sediments by ICPMS	EG020-SD	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Organotin Analysis	EP090	3	53	**5.66**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by LCMSMS (Positive Ion Mode)	EP234	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Synthetic Pyrethroids by GCMS	EP094	3	48	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite X	EG020X-T	3	50	**6.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Metals in Sediments by ICPMS	EG020-SD	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 6.1 and Table 1 (14 day holding time).
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3 - 2003
Soil Particle Density	EA152	SOIL	Soil Particle Density by AS 1289.3.5.1-2006 : Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method
Total Fe and Al in Sediments by ICPAES	EG005-SD	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3). LORs per NODG
Total Metals in Sediments by ICPMS	EG020-SD	SOIL	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector. Analyte list and LORs per NODG.
Total Metals by ICP-MS - Suite X	EG020X-T	SOIL	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS (Low Level)	EG035T-LL	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Organotin Analysis	EP090	SOIL	In house: Referenced to USEPA SW 846 - 8270D Prepared sample extracts are analysed by GC/MS coupled with high volume injection, and quanitified against an established calibration curve.
Synthetic Pyrethroids by GCMS	EP094	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.
Pesticides by LCMSMS (Positive Ion Mode)	EP234	SOIL	In house: LC-MSMS, direct injection. A sample extracted into acetonitrile, diluted with water and injected directly onto the instrument.. Analysis is by LC/MSMS, ESI Positive Mode.

Preparation Methods	Method	Matrix	Method Descriptions

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
Sample preparation for Pesticides by LCMSMS	EP234-PR	SOIL	In house
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Organotin Sample Preparation	ORG35	SOIL	In house: 20g sample is spiked with surrogate and leached in a methanol:acetic acid:UHP water mix and vacuum filtered. Reagents and solvents are added to the sample and the mixture tumbled. The butyltin compounds are simultaneously derivatised and extracted. The extract is further extracted with petroleum ether. The resultant extracts are combined and concentrated for analysis.

Appendix E BRUV Habitat Images and Tabulated Data

E.1 BRUV Habitat Images



Figure E-1 Event 1 (spring 2019) BRUV Habitat Images, locations mA, mB, mC, and mD

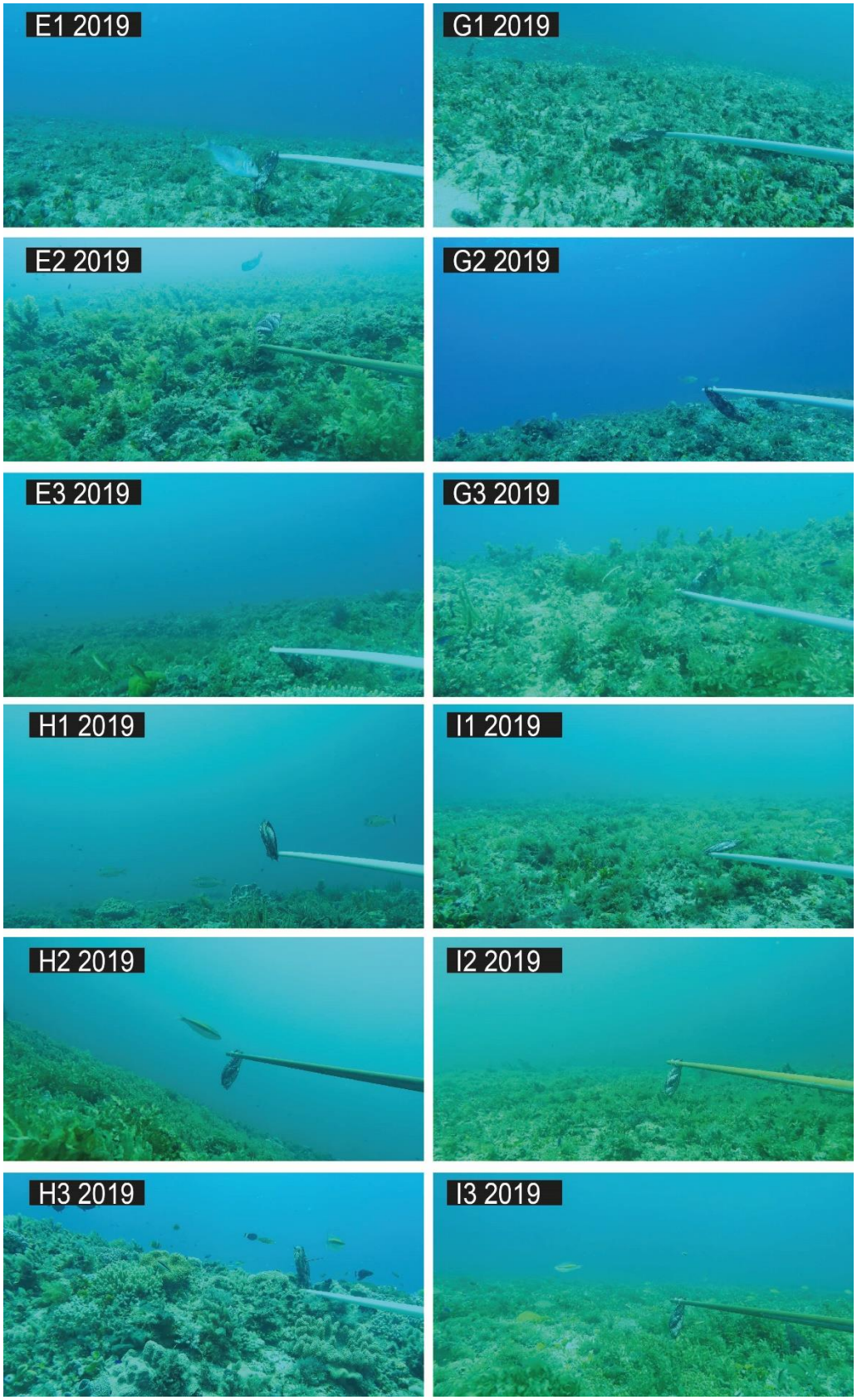


Figure E-2 Event 1 (spring 2019) BRUV Habitat Images, locations mE, mG, mH, and mI



Figure E-3 Event 2 (autumn 2020) BRUV habitat images, locations mA, mB, mC, and mD



Figure E-4 Event 2 (autumn 2020) BRUV habitat images, locations mE, mG, mH, and mI

E.2 Tabulated BRUV Data

Event	Treat.	Location	Rep	Filename	Frame	Time (mins)	Remed. period	Length (mm)	Precision (mm)	RMS (mm)	Range_(mm)	Type	Tape Reader	Family	Genus	Species	CAABI Code	Weight (g)
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	18079	27.77	Before	224.90	27.00	9.83	4746.63	Fish	LP	Acanthuridae	*Naso*	*unicornis*	37 437031	236.65
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	18079	27.77	Before	236.06	17.19	3.92	4693.89	Fish	LP	Acanthuridae	*Naso*	*unicornis*	37 437031	273.48
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	21554	29.70	Before	245.11	2.27	5.50	1439.79	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	328.43
E1 10/2019	Remed.	mA	1	A1_1_left.MP4	7762	4.32	Before	246.74	1.43	7.76	1815.83	Fish	LP	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	54.86
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	21554	29.70	Before	246.89	3.30	1.30	1680.57	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	335.46
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	12371	24.60	Before	254.44	7.66	4.26	2507.62	Fish	LP	Serranidae	*Epinephelus*	*fasciatus*	37 311014	242.34
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	18079	27.77	Before	260.25	36.57	1.52	4931.54	Fish	LP	Acanthuridae	*Naso*	*unicornis*	37 437031	366.05
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	21574	29.72	Before	262.82	2.83	5.27	1486.48	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	402.95
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	21554	29.70	Before	264.54	1.74	1.70	1290.68	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	410.71
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	18007	27.73	Before	278.67	54.74	6.07	5778.07	Fish	LP	Acanthuridae	*Naso*	*unicornis*	37 437031	449.04
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	11296	24.00	Before	281.38	9.56	3.88	2847.61	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	653.77
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	21554	29.70	Before	295.63	2.78	13.90	1256.09	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	568.82
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	19224	28.41	Before	333.03	32.02	10.19	5966.92	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	983.27
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	19224	28.41	Before	346.82	37.47	5.04	5239.02	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	1111.03
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	19224	28.41	Before	374.24	17.43	7.07	4629.98	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	1397.06
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	10749	23.70	Before	411.98	10.17	6.38	3697.05	Fish	LP	Echeneidae	*Echeneis*	*naucrates*	37 336001	408.82
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	10749	23.70	Before	530.96	10.84	8.38	3660.62	Fish	LP	Echeneidae	*Echeneis*	*naucrates*	37 336001	942.01
E1 10/2019	Remed.	mA	1	A1_2_left.MP4	25736	32.03	Before	2140.15	124.42	36.12	8936.34	Elasmobranch	LP	Carcharhinidae	*Galeocerdo*	*cuvier*	37 018022	117674.29
E1 10/2019	Remed.	mA	2	A2_1_left.MP4	23059	12.82	Before	366.12	2.20	10.06	2143.98	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	1488.32
E1 10/2019	Remed.	mA	3	A3_1_left.MP4	5023	2.79	Before	241.90	55.22	31.21	8812.85	Fish	LP	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	237.08
E1 10/2019	Remed.	mA	3	A3_1_left.MP4	2738	1.52	Before	287.45	15.86	30.31	3952.08	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	698.86
E1 10/2019	Remed.	mA	3	A3_1_left.MP4	17633	9.81	Before	287.97	5.91	10.31	1936.78	Fish	LP	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	80.48
E1 10/2019	Remed.	mA	3	A3_1_left.MP4	2738	1.52	Before	425.70	40.71	25.13	4914.89	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	2384.08
E1 10/2019	Remed.	mA	3	A3_1_left.MP4	26220	14.58	Before	427.11	98.73	32.73	10451.47	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	2079.47
E1 10/2019	Remed.	mA	3	A3_2_left.MP4	15379	26.27	Before	551.50	148.06	59.48	10068.41	Fish	LP	Acanthuridae	*Naso*	*unicornis*	37 437031	3452.12
E1 10/2019	Remed.	mA	3	A3_1_left.MP4	23188	12.90	Before	924.93	5.14	26.03	2598.84	Elasmobranch	LP	Hemiscylliidae	*Chiloscyllium*	*punctatum*	37 013008	7308.30
E1 10/2019	Remed.	mA	3	A3_3_left.MP4	21916	47.62	Before	2799.44	7.78	21.76	2982.85	Elasmobranch	LP	Carcharhinidae	*Galeocerdo*	*cuvier*	37 018022	274194.50
E1 10/2019	Nearfield	mB	1	B1_1_left.MP4	4396	2.44	Before	206.06	13.91	4.12	3192.28	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	197.49
E1 10/2019	Nearfield	mB	1	B1_1_left.MP4	4332	2.41	Before	222.37	14.40	3.83	5517.86	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	246.88
E1 10/2019	Nearfield	mB	1	B1_1_left.MP4	6072	3.38	Before	223.32	2.74	0.73	2100.34	Fish	LP	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	42.84
E1 10/2019	Nearfield	mB	1	B1_1_left.MP4	6366	3.54	Before	255.77	17.98	2.19	5339.72	Fish	LP	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	59.98
E1 10/2019	Nearfield	mB	1	B1_1_left.MP4	4476	2.49	Before	260.86	2.29	4.24	2167.88	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	516.01
E1 10/2019	Nearfield	mB	1	B1_1_left.MP4	4332	2.41	Before	267.50	6.96	3.77	2169.85	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	424.35
E1 10/2019	Nearfield	mB	1	B1_1_left.MP4	9218	5.13	Before	286.35	7.60	4.93	4270.25	Fish	LP	Serranidae	*Plectropomus*	*sp*		361.64
E1 10/2019	Nearfield	mB	1	B1_1_left.MP4	4332	2.41	Before	287.83	5.27	0.41	3262.20	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	525.93
E1 10/2019	Nearfield	mB	1	B1_1_left.MP4	4368	2.43	Before	288.43	8.55	0.55	2201.92	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	529.15
E1 10/2019	Nearfield	mB	1	B1_1_left.MP4	4519	2.51	Before	290.54	2.80	1.63	2215.15	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	722.60
E1 10/2019	Nearfield	mB	1	B1_1_left.MP4	14957	8.32	Before	300.50	2.86	5.94	3055.58	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	444.45
E1 10/2019	Nearfield	mB	1	B1_1_left.MP4	4348	2.42	Before	323.22	85.75	20.29	7196.98	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	738.86
E1 10/2019	Nearfield	mB	1	B1_1_left.MP4	4529	2.52	Before	331.17	2.77	4.10	2187.87	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	1087.73
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7866	4.37	Before	223.13	50.92	38.78	7955.20	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	226.42

Event	Treat.	Location	Rep	Filename	Frame	Time (mins)	Remed. period	Length (mm)	Precision (mm)	RMS (mm)	Range_(mm)	Type	Tape Reader	Family	Genus	Species	CAABI Code	Weight (g)
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7866	4.37	Before	237.26	19.20	5.80	7869.81	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	274.36
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	6806	3.78	Before	245.51	18.73	1.83	5941.09	Fish	LP	Acanthuridae	*Naso*	*unicornis*	37 437031	307.52
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7113	3.96	Before	248.99	25.85	13.73	5670.88	Fish	LP	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	45.42
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7153	3.98	Before	257.77	32.48	12.48	5139.81	Fish	LP	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	49.98
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	14148	7.87	Before	263.37	24.34	19.16	5850.27	Fish	LP	Acanthuridae	*Naso*	*lituratus*	37 437029	370.13
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7153	3.98	Before	265.72	26.02	8.57	5422.99	Fish	LP	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	54.35
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7192	4.00	Before	268.05	22.72	5.07	4982.39	Fish	LP	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	55.68
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7886	4.39	Before	272.45	32.38	10.06	5525.26	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	422.84
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	17242	9.59	Before	273.08	4.84	0.40	1747.66	Fish	LP	Carangidae	*Pseudocaranx*	*dentex*	37 337082	252.65
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	17272	9.61	Before	281.19	4.04	7.26	2155.61	Fish	LP	Carangidae	*Pseudocaranx*	*dentex*	37 337082	274.68
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	13933	7.75	Before	281.60	4.41	8.24	1737.38	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	493.25
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	4174	2.32	Before	285.45	5.93	11.71	2589.05	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	683.76
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7866	4.37	Before	290.47	18.51	18.72	4734.66	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	516.61
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	17709	9.85	Before	291.79	4.31	4.29	2856.00	Fish	LP	Balistidae	*Sufflamen*	*fraenatum*	37 465014	643.63
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	6806	3.78	Before	291.95	27.55	4.08	5383.43	Fish	LP	Acanthuridae	*Naso*	*unicornis*	37 437031	516.07
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	20950	11.65	Before	292.64	1.44	18.19	1135.98	Fish	LP	Lutjanidae	*Lutjanus*	*adetii*	37 346033	398.65
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	6806	3.78	Before	295.83	16.33	8.54	5193.55	Fish	LP	Acanthuridae	*Naso*	*unicornis*	37 437031	536.80
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7866	4.37	Before	297.10	13.72	23.49	5822.94	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	554.43
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	13940	7.75	Before	300.78	9.87	4.94	2445.28	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	598.34
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7866	4.37	Before	308.52	30.90	13.28	6996.24	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	623.85
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7866	4.37	Before	309.10	43.38	42.03	7661.55	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	627.53
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	13006	7.23	Before	309.46	1.80	4.46	1716.87	Fish	LP	Lutjanidae	*Lutjanus*	*fulviflamma*	37 346034	468.03
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7856	4.37	Before	312.47	57.34	18.08	7641.12	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	649.17
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7866	4.37	Before	313.77	40.54	0.37	7623.61	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	657.69
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7866	4.37	Before	317.88	16.55	9.23	5575.06	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	685.00
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7866	4.37	Before	318.59	86.71	14.95	9284.90	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	689.77
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7866	4.37	Before	318.96	40.07	7.12	8233.78	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	692.29
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7153	3.98	Before	319.77	38.78	12.40	5462.25	Fish	LP	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	90.63
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	6806	3.78	Before	323.33	10.38	6.15	5829.16	Fish	LP	Acanthuridae	*Naso*	*unicornis*	37 437031	700.11
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	13933	7.75	Before	325.78	6.99	5.00	2274.49	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	756.15
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7197	4.00	Before	328.37	9.20	18.91	7828.80	Fish	LP	Acanthuridae	*Acanthurus*	*sp*		97.51
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7866	4.37	Before	328.82	11.29	14.68	5720.70	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	761.44
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7866	4.37	Before	332.74	20.57	5.17	5679.74	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	790.21
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	11307	6.29	Before	338.13	14.88	5.79	3824.50	Fish	LP	Serranidae	*Plectropomus*	*sp*		582.25
E1 10/2019	Nearfield	mB	2	B2_2_left.MP4	15971	26.60	Before	339.25	8.25	9.05	3960.98	Fish	LP	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	120.84
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	6786	3.77	Before	344.79	39.78	8.37	5581.83	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	1091.63
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7153	3.98	Before	351.13	24.42	3.22	3952.62	Fish	LP	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	117.34
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7153	3.98	Before	353.78	27.10	13.09	4382.80	Fish	LP	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	119.79
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7153	3.98	Before	362.94	52.74	9.73	5711.60	Fish	LP	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	128.56
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7192	4.00	Before	366.44	46.48	12.88	5564.09	Fish	LP	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	132.01
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	6786	3.77	Before	367.50	11.41	5.91	4212.50	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	1322.63
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7153	3.98	Before	371.15	33.05	5.93	5498.38	Fish	LP	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	136.75

Event	Treat.	Location	Rep	Filename	Frame	Time (mins)	Remed. period	Length (mm)	Precision (mm)	RMS (mm)	Range_(mm)	Type	Tape Reader	Family	Genus	Species	CAABI Code	Weight (g)
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7153	3.98	Before	381.57	78.81	26.98	7669.32	Fish	LP	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	147.62
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7884	4.38	Before	400.62	33.59	15.73	7087.98	Fish	LP	Labridae	*Scarus*	*rubroviolaceus*	37 386028	1680.54
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7956	4.42	Before	416.91	56.50	12.26	6248.71	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	1599.95
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	6766	3.76	Before	418.37	30.66	7.86	5362.58	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	1953.92
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	6786	3.77	Before	446.66	27.49	9.43	5329.08	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	2379.37
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7866	4.37	Before	448.08	91.37	30.57	8441.25	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	2004.60
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	6801	3.78	Before	453.99	9.73	31.92	3372.86	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	2498.82
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7896	4.39	Before	454.96	121.45	23.68	8791.06	Fish	LP	Acanthuridae	*Naso*	*brevirostris*	37 437026	2102.49
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	6806	3.78	Before	483.66	36.76	20.28	7243.98	Fish	LP	Acanthuridae	*Naso*	*unicornis*	37 437031	2332.18
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	7885	4.38	Before	537.87	90.22	17.46	8837.94	Fish	LP	Labridae	*Scarus*	*rubroviolaceus*	37 386028	4199.57
E1 10/2019	Nearfield	mB	2	B2_1_left.MP4	17286	9.61	Before	806.57	2.83	6.47	2285.42	Fish	LP	Echeneidae	*Echeneis*	*naucrates*	37 336001	3727.81
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	15470	0.01	Before	244.71	0.89	7.48	1171.34	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	326.86
E1 10/2019	Nearfield	mB	3	B3_2_left.MP4	22235	0.02	Before	260.83	1.78	11.74	1856.64	Fish	CMJ	Siganidae	*Siganus*	*canaliculatus*	37 438004	226.57
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	15506	0.01	Before	267.77	3.84	3.46	1802.74	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	425.58
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	17542	0.01	Before	270.77	7.50	6.99	3811.59	Fish	CMJ	Acanthuridae	*Naso*	*brachycentron*	37 437025	414.73
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	26775	0.01	Before	272.38	5.15	9.43	2258.66	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	590.59
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	13508	0.01	Before	277.23	2.38	12.22	2274.98	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	329.60
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	15506	0.01	Before	277.27	5.12	12.90	2316.41	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	471.38
E1 10/2019	Nearfield	mB	3	B3_2_left.MP4	22235	0.02	Before	280.23	2.25	12.66	2140.32	Fish	CMJ	Siganidae	*Siganus*	*canaliculatus*	37 438004	281.19
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	26775	0.01	Before	282.21	3.57	7.03	2036.81	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	659.80
E1 10/2019	Nearfield	mB	3	B3_2_left.MP4	22235	0.02	Before	287.55	1.49	9.95	1505.10	Fish	CMJ	Siganidae	*Siganus*	*canaliculatus*	37 438004	303.91
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	4600	0.00	Before	289.86	28.51	12.14	4801.15	Fish	CMJ	Acanthuridae	*Naso*	*tonganus*	37 437047	647.46
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	15470	0.01	Before	291.06	2.67	4.56	1303.32	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	543.43
E1 10/2019	Nearfield	mB	3	B3_2_left.MP4	22235	0.02	Before	292.13	3.34	3.10	2014.18	Fish	CMJ	Siganidae	*Siganus*	*canaliculatus*	37 438004	318.71
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	19665	0.01	Before	292.89	6.65	9.51	3167.34	Fish	CMJ	Labridae	*Scarus*	*sp*		634.66
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	15470	0.01	Before	304.60	3.01	3.71	1629.19	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	620.89
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	15470	0.01	Before	312.97	1.70	6.62	1435.67	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	672.25
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	15470	0.01	Before	314.66	1.24	4.55	1400.19	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	682.95
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	18572	0.01	Before	321.44	1.55	2.23	1788.99	Fish	CMJ	Labridae	*Hologymnosus*	*doliatus*	37 384127	307.10
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	4600	0.00	Before	341.30	18.81	27.76	3412.86	Fish	CMJ	Acanthuridae	*Naso*	*tonganus*	37 437047	1058.65
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	4600	0.00	Before	346.18	5.60	123.25	2285.23	Fish	CMJ	Acanthuridae	*Naso*	*tonganus*	37 437047	1104.85
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	4600	0.00	Before	405.24	27.72	12.67	4418.31	Fish	CMJ	Acanthuridae	*Naso*	*tonganus*	37 437047	1775.08
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	4600	0.00	Before	412.68	40.02	8.40	5024.39	Fish	CMJ	Acanthuridae	*Naso*	*tonganus*	37 437047	1875.02
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	4600	0.00	Before	421.65	12.94	13.89	5557.43	Fish	CMJ	Acanthuridae	*Naso*	*tonganus*	37 437047	2000.48
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	4600	0.00	Before	421.77	6.28	14.44	4069.80	Fish	CMJ	Acanthuridae	*Naso*	*tonganus*	37 437047	2002.17
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	8467	0.00	Before	434.38	27.67	15.40	5153.50	Fish	CMJ	Haemulidae	*Plectorhinchus*	*unicolor*	37 350013	1197.69
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	4600	0.00	Before	463.18	36.17	17.16	5057.33	Fish	CMJ	Acanthuridae	*Naso*	*tonganus*	37 437047	2654.10
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	4600	0.00	Before	561.70	32.09	29.75	4554.86	Fish	CMJ	Acanthuridae	*Naso*	*tonganus*	37 437047	4742.73
E1 10/2019	Nearfield	mB	3	B3_1_left.MP4	8624	0.00	Before	628.37	65.39	14.42	6901.42	Fish	CMJ	Labridae	*Scarus*	*niger*	37 386021	8683.47
E1 10/2019	Remed.	mC	1	C1_1_left.MP4	26203	14.57	Before	256.59	2.36	3.37	1568.14	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	375.57
E1 10/2019	Remed.	mC	1	C1_1_left.MP4	21477	11.94	Before	351.48	5.40	8.66	2733.40	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	1310.16
E1 10/2019	Remed.	mC	1	C1_2_left.MP4	5725	20.90	Before	357.31	1.39	5.49	1818.36	Fish	LP	Echeneidae	*Echeneis*	*naucrates*	37 336001	255.94

Event	Treat.	Location	Rep	Filename	Frame	Time (mins)	Remed. period	Length (mm)	Precision (mm)	RMS (mm)	Range_(mm)	Type	Tape Reader	Family	Genus	Species	CAABI Code	Weight (g)
E1 10/2019	Remed.	mC	1	C1_1_left.MP4	21477	11.94	Before	367.21	6.30	12.79	3213.50	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	1502.22
E1 10/2019	Remed.	mC	1	C1_1_left.MP4	2305	1.28	Before	482.99	32.61	6.98	5580.38	Fish	LP	Labridae	*Scarus*	*sp*		3005.34
E1 10/2019	Remed.	mC	1	C1_2_left.MP4	5701	20.89	Before	489.03	2.86	2.13	1985.22	Fish	LP	Echeneidae	*Echeneis*	*naucrates*	37 336001	718.64
E1 10/2019	Remed.	mC	1	C1_2_left.MP4	5701	20.89	Before	1913.14	3.58	1.95	1900.84	Elasmobranch	LP	Ginglymostomatidae	*Nebrius*	*ferrugineus*	37 013010	53446.19
E1 10/2019	Remed.	mC	2	C2_1_left.MP4	17636	9.81	Before	270.26	9.69	6.74	2521.37	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	437.30
E1 10/2019	Remed.	mC	2	C2_1_left.MP4	17696	9.84	Before	277.19	1.75	8.02	1287.33	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	470.99
E1 10/2019	Remed.	mC	2	C2_1_left.MP4	23318	12.97	Before	321.25	18.36	28.18	6889.38	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	540.08
E1 10/2019	Remed.	mC	2	C2_1_left.MP4	23318	12.97	Before	372.67	20.41	7.01	4729.62	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	833.07
E1 10/2019	Remed.	mC	2	C2_2_left.MP4	23044	30.53	Before	1848.40	200.84	0.50	12157.22	Elasmobranch	LP	Carcharhinidae	*Carcharhinus*	*leucas*	37018021	49222.27
E1 10/2019	Remed.	mC	3	C3_2_Left.MP4	3948	0.01	Before	261.01	12.90	35.97	3053.23	Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	91.08
E1 10/2019	Remed.	mC	3	C3_1_Left.MP4	23487	0.01	Before	346.95	1.79	22.81	1797.85	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1258.06
E1 10/2019	Remed.	mC	3	C3_1_Left.MP4	23487	0.01	Before	393.67	6.18	22.95	2356.70	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1867.08
E1 10/2019	Remed.	mC	3	C3_1_Left.MP4	9446	0.00	Before	627.79	2.50	23.52	1690.29	Fish	CMJ	Dasyatidae	*Neotrygon*	*kuhlii*	37 035903	5387.57
E1 10/2019	Remed.	mC	3	C3_2_Left.MP4	12318	0.02	Before	902.18	23.28	86.05	8512.26	Fish	CMJ	Sphyrnidae	*Sphyrna*	*lewini*	37 019001	15683.53
E1 10/2019	Remed.	mC	3	C3_2_Left.MP4	3948	0.01	Before	1668.60	20.58	47.35	3286.24	Elasmobranch	CMJ	Mobulidae	*Mobula*	*sp*		62510.53
E1 10/2019	Nearfield	mD	1	D1_1_left.MP4	12817	7.13	Before	241.71	4.32	2.29	2097.14	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	315.25
E1 10/2019	Nearfield	mD	1	D1_1_left.MP4	12817	7.13	Before	250.24	2.21	5.45	1729.50	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	348.98
E1 10/2019	Nearfield	mD	1	D1_1_left.MP4	12787	7.11	Before	253.70	1.87	0.04	1598.10	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	363.31
E1 10/2019	Nearfield	mD	1	D1_1_left.MP4	12797	7.12	Before	257.60	2.90	3.74	1936.07	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	379.93
E1 10/2019	Nearfield	mD	1	D1_1_left.MP4	16136	8.97	Before	260.32	8.75	1.02	2453.08	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	512.68
E1 10/2019	Nearfield	mD	1	D1_1_left.MP4	12787	7.11	Before	263.32	3.50	3.39	1614.83	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	405.17
E1 10/2019	Nearfield	mD	1	D1_1_left.MP4	12787	7.11	Before	280.41	1.32	3.99	1418.07	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	487.18
E1 10/2019	Nearfield	mD	1	D1_1_left.MP4	16095	8.95	Before	310.59	4.61	3.86	2155.41	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	890.17
E1 10/2019	Nearfield	mD	1	D1_2_left.MP4	20295	29.00	Before	460.67	62.33	4.74	6858.15	Elasmobranch	LP	Dasyatidae	*Dasyatidae*	*sp*		31549.63
E1 10/2019	Nearfield	mD	1	D1_1_left.MP4	2676	1.49	Before	655.83	7.22	3.24	2428.19	Fish	LP	Echeneidae	*Echeneis*	*naucrates*	37 336001	1887.30
E1 10/2019	Nearfield	mD	2	D2_1_left.MP4	24794	13.79	Before	301.69	3.30	8.05	1561.75	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	603.67
E1 10/2019	Nearfield	mD	2	D2_1_left.MP4	24208	13.46	Before	351.13	118.63	52.29	11013.40	Fish	LP	Acanthuridae	*Acanthurus*	*sp*		117.33
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	22421	30.19	Before	367.42	53.36	33.40	7566.67	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	1321.80
E1 10/2019	Nearfield	mD	2	D2_1_left.MP4	22803	12.68	Before	376.02	23.27	24.80	5411.22	Fish	LP	Serranidae	*Plectropomus*	*maculatus*	37 311012	705.06
E1 10/2019	Nearfield	mD	2	D2_1_left.MP4	29024	16.14	Before	407.95	8.51	9.51	2954.20	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	2087.01
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	22420	30.19	Before	417.65	15.16	22.26	8547.95	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	1943.86
E1 10/2019	Nearfield	mD	2	D2_1_left.MP4	6056	3.37	Before	434.62	27.52	30.14	5299.56	Fish	LP	Serranidae	*Plectropomus*	*sp*		1195.30
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	22430	30.19	Before	446.32	73.80	25.07	7544.17	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	2373.78
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	22420	30.19	Before	446.32	25.22	18.68	7530.11	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	2373.92
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	4036	19.96	Before	457.93	4.58	9.07	2130.20	Fish	LP	Balistidae	*Abalistes*	*stellaris*	37 465011	180.91
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	22420	30.19	Before	482.05	14.04	23.34	7283.71	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	2993.18
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	22420	30.19	Before	505.89	54.18	13.15	8644.52	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	3461.19
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	22420	30.19	Before	522.99	28.08	28.65	5776.08	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	3825.45
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	22420	30.19	Before	527.11	45.23	35.50	8665.70	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	3916.88
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	22420	30.19	Before	532.43	21.83	4.48	6664.95	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	4037.13
E1 10/2019	Nearfield	mD	2	D2_1_left.MP4	22803	12.68	Before	533.00	23.44	26.92	5380.75	Fish	LP	Serranidae	*Plectropomus*	*maculatus*	37 311012	2126.65
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	22479	30.22	Before	539.58	114.48	34.52	8786.18	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	4202.59

Event	Treat.	Location	Rep	Filename	Frame	Time (mins)	Remed. period	Length (mm)	Precision (mm)	RMS (mm)	Range_(mm)	Type	Tape Reader	Family	Genus	Species	CAABI Code	Weight (g)
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	22451	30.20	Before	544.82	111.73	25.76	9219.52	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	4326.45
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	22420	30.19	Before	596.95	40.28	20.21	5893.58	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	5696.21
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	22421	30.19	Before	598.31	130.63	21.86	10033.74	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	5735.34
E1 10/2019	Nearfield	mD	2	D2_2_left.MP4	10462	23.54	Before	900.77	3.36	7.78	1952.33	Elasmobranch	LP	Hemiscylliidae	*Chiloscyllium*	*punctatum*	37 013008	6725.37
E1 10/2019	Nearfield	mD	3	D3_2_left.MP4	3462	19.64	Before	245.32	55.70	41.12	6794.93	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	245.81
E1 10/2019	Nearfield	mD	3	D3_2_left.MP4	19333	28.47	Before	258.10	3.90	18.36	2287.65	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	382.09
E1 10/2019	Nearfield	mD	3	D3_2_left.MP4	19167	28.38	Before	262.18	3.55	21.89	1795.85	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	400.07
E1 10/2019	Nearfield	mD	3	D3_2_left.MP4	19167	28.38	Before	278.20	3.79	2.77	2246.61	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	476.00
E1 10/2019	Nearfield	mD	3	D3_2_left.MP4	19167	28.38	Before	298.19	2.39	11.79	1695.01	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	583.38
E1 10/2019	Nearfield	mD	3	D3_2_left.MP4	19167	28.38	Before	304.45	4.98	20.36	2268.98	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	620.01
E1 10/2019	Nearfield	mD	3	D3_2_left.MP4	21069	29.43	Before	304.86	43.62	7.65	5676.62	Fish	LP	Echeneidae	*Echeneis*	*naucrates*	37 336001	151.80
E1 10/2019	Nearfield	mD	3	D3_2_left.MP4	19167	28.38	Before	318.99	4.20	9.61	1567.67	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	710.84
E1 10/2019	Nearfield	mD	3	D3_2_left.MP4	19167	28.38	Before	320.47	4.65	9.07	2115.98	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	720.60
E1 10/2019	Nearfield	mD	3	D3_2_left.MP4	21069	29.43	Before	490.22	12.75	21.15	4308.51	Fish	LP	Echeneidae	*Echeneis*	*naucrates*	37 336001	724.39
E1 10/2019	Nearfield	mD	3	D3_2_left.MP4	21169	29.49	Before	2357.38	20.56	25.92	4219.14	Elasmobranch	LP	Ginglymostomatidae	*Nebrius*	*ferrugineus*	37 013010	101676.31
E1 10/2019	Remed.	mE	1	E1_1_left.MP4	7937	4.41	Before	293.64	1.79	2.04	1810.76	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	557.68
E1 10/2019	Remed.	mE	1	E1_1_left.MP4	7937	4.41	Before	300.00	4.01	4.28	1859.18	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	593.84
E1 10/2019	Remed.	mE	1	E1_1_left.MP4	10650	5.92	Before	303.02	2.50	2.59	1938.15	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	824.06
E1 10/2019	Remed.	mE	1	E1_1_left.MP4	7937	4.41	Before	317.92	3.40	1.27	2126.40	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	703.92
E1 10/2019	Remed.	mE	1	E1_1_left.MP4	27765	15.44	Before	325.00	6.20	3.57	3087.99	Fish	CMJ	Balistidae	*Abalistes*	*stellaris*	37 465011	71.39
E1 10/2019	Remed.	mE	1	E1_2_left.MP4	27392	32.95	Before	441.38	7.32	13.93	6355.73	Fish	CMJ	Lethrinidae	*Lethrinus*	*nebulosus*	37 351008	1204.79
E1 10/2019	Remed.	mE	1	E1_1_left.MP4	6588	3.66	Before	503.47	12.46	4.68	3167.86	Fish	CMJ	Labridae	*Choerodon*	*schoenleinii*	37 384010	2607.50
E1 10/2019	Remed.	mE	1	E1_1_left.MP4	16700	9.29	Before	530.56	2.79	16.60	2173.41	Fish	CMJ	Haemulidae	*Diagramma*	*pictum*	37 350003	2190.65
E1 10/2019	Remed.	mE	1	E1_2_left.MP4	31396	35.18	Before	553.31	10.59	5.02	3774.34	Fish	CMJ	Scombridae	*Scomberomorus*	*queenslandicus*	37 441014	986.84
E1 10/2019	Remed.	mE	1	E1_1_left.MP4	16700	9.29	Before	555.55	3.26	5.18	1860.84	Fish	CMJ	Haemulidae	*Diagramma*	*pictum*	37 350003	2517.24
E1 10/2019	Remed.	mE	1	E1_2_left.MP4	19703	28.67	Before	630.95	6.39	6.26	5710.44	Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	1661.77
E1 10/2019	Remed.	mE	2	E2_1_Left.MP4	17373	9.66	Before	289.92	6.96	37.58	3085.77	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	717.80
E1 10/2019	Remed.	mE	2	E2_1_Left.MP4	17373	9.66	Before	314.98	3.27	18.23	1935.46	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	930.06
E1 10/2019	Remed.	mE	2	E2_2_left.MP4	655	18.08	Before	780.16	2.16	23.15	1196.70	Elasmobranch	CMJ	Hemiscylliidae	*Chiloscyllium*	*punctatum*	37 013008	4282.43
E1 10/2019	Remed.	mE	3	E3_1_left.MP4	4027	2.24	Before	261.48	14.21	21.55	4870.06	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	519.84
E1 10/2019	Remed.	mE	3	E3_1_left.MP4	4027	2.24	Before	280.40	3.43	12.74	2421.02	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	646.62
E1 10/2019	Remed.	mE	3	E3_2_left.MP4	23109	30.57	Before	347.59	7.73	0.59	3851.08	Fish	CMJ	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	679.77
E1 10/2019	Remed.	mE	3	E3_2_left.MP4	22855	30.43	Before	349.66	1.81	7.22	1829.49	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	930.34
E1 10/2019	Remed.	mE	3	E3_1_left.MP4	4027	2.24	Before	421.43	23.57	7.36	5652.73	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	2310.07
E1 10/2019	Remed.	mE	3	E3_2_left.MP4	12250	24.53	Before	725.19	16.54	3.21	4482.78	Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	2627.21
E1 10/2019	Remed.	mE	3	E3_1_left.MP4	4027	2.24	Before	979.58	66.56	20.68	6272.05	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	32238.38
E1 10/2019	Nearfield	mG	1	G1_1_left.MP4	30327	16.87	Before	268.71	5.17	1.05	2931.77	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	429.97
E1 10/2019	Nearfield	mG	1	G1_1_left.MP4	31519	17.53	Before	273.87	4.54	2.91	2335.65	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	600.78
E1 10/2019	Nearfield	mG	1	G1_1_left.MP4	30327	16.87	Before	282.55	2.76	4.60	2027.69	Fish	LP	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	498.15
E1 10/2019	Nearfield	mG	1	G1_1_left.MP4	31511	17.52	Before	306.77	18.04	11.07	4058.71	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	856.32
E1 10/2019	Nearfield	mG	2	G2_2_Left.MP4	15742	26.47	Before	201.49	9.33	12.26	10684.38	Fish	CMJ	Labridae	*Scarus*	*sp*		786.22
E1 10/2019	Nearfield	mG	2	G2_1_Left.MP4	8237	4.58	Before	251.71	36.06	13.78	6310.17	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	355.02

Event	Treat.	Location	Rep	Filename	Frame	Time (mins)	Remed. period	Length (mm)	Precision (mm)	RMS (mm)	Range_(mm)	Type	Tape Reader	Family	Genus	Species	CAABI Code	Weight (g)
E1 10/2019	Nearfield	mG	2	G2_1_Left.MP4	8491	4.72	Before	254.40	8.57	2.27	3615.90	Fish	CMJ	Siganidae	*Siganus*	*sp*		210.16
E1 10/2019	Nearfield	mG	2	G2_1_Left.MP4	8237	4.58	Before	298.50	5.49	4.03	2465.62	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	198.35
E1 10/2019	Nearfield	mG	2	G2_1_Left.MP4	8237	4.58	Before	316.31	1.70	1.28	1524.60	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	693.52
E1 10/2019	Nearfield	mG	2	G2_1_Left.MP4	11916	6.63	Before	362.06	37.52	24.14	6231.16	Fish	CMJ	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	765.68
E1 10/2019	Nearfield	mG	2	G2_2_Left.MP4	14070	25.54	Before	400.23	104.22	20.94	8817.73	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	943.86
E1 10/2019	Nearfield	mG	2	G2_2_Left.MP4	15742	26.47	Before	424.00	153.27	7.00	10536.16	Fish	CMJ	Labridae	*Scarus*	*sp*		2004.49
E1 10/2019	Nearfield	mG	2	G2_2_Left.MP4	13057	24.98	Before	450.76	43.04	2.46	6974.32	Fish	CMJ	Lutjanidae	*Symphorus*	*nametophorus*	37 346017	2318.72
E1 10/2019	Nearfield	mG	2	G2_2_Left.MP4	15742	26.47	Before	476.96	98.35	23.07	10003.63	Fish	CMJ	Labridae	*Scarus*	*sp*		2890.35
E1 10/2019	Nearfield	mG	2	G2_2_Left.MP4	7981	22.16	Before	497.81	119.93	14.55	9086.12	Fish	CMJ	Acanthuridae	*Naso*	*tonganus*	37 437047	3297.47
E1 10/2019	Nearfield	mG	2	G2_2_Left.MP4	7981	22.16	Before	512.40	94.32	16.16	7911.98	Fish	CMJ	Acanthuridae	*Naso*	*tonganus*	37 437047	3597.00
E1 10/2019	Nearfield	mG	2	G2_2_Left.MP4	24169	31.16	Before	596.43	1.44	3.76	1587.59	Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	1380.98
E1 10/2019	Nearfield	mG	3	G3_1_left.MP4	2516	1.40	Before	315.45	12.54	11.65	2851.19	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	934.36
E1 10/2019	Nearfield	mG	3	G3_2_left.MP4	259	17.86	Before	389.98	2.19	4.61	1803.77	Fish	LP	Balistidae	*Abalistes*	*stellaris*	37 465011	117.03
E1 10/2019	Ref.	mH	1	H1_2_left.MP4	6230	21.18	Before	203.72	18.26	12.85	3316.05	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	142.90
E1 10/2019	Ref.	mH	1	H1_1_left.MP4	11566	NA	Before	205.10	5.54	15.03	2313.01	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	228.57
E1 10/2019	Ref.	mH	1	H1_2_left.MP4	6230	38.90	Before	211.68	3.08	3.42	1514.17	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	159.83
E1 10/2019	Ref.	mH	1	H1_2_left.MP4	6230	21.18	Before	214.10	26.72	22.26	4317.85	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	165.21
E1 10/2019	Ref.	mH	1	H1_2_left.MP4	6230	21.18	Before	215.49	22.13	17.07	4179.49	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	168.36
E1 10/2019	Ref.	mH	1	H1_2_left.MP4	6230	21.18	Before	228.52	6.11	10.56	2573.03	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	199.84
E1 10/2019	Ref.	mH	1	H1_1_left.MP4	9079	NA	Before	229.39	1.70	25.50	2246.02	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	345.26
E1 10/2019	Ref.	mH	1	H1_1_left.MP4	11560	6.43	Before	230.37	5.14	9.21	1970.15	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	324.29
E1 10/2019	Ref.	mH	1	H1_1_left.MP4	11427	NA	Before	239.86	13.69	10.15	3512.51	Fish	LP	Labridae	*Scarus*	*sp*		341.08
E1 10/2019	Ref.	mH	1	H1_2_left.MP4	6230	21.18	Before	244.32	23.16	24.90	5633.80	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	242.90
E1 10/2019	Ref.	mH	1	H1_2_left.MP4	6230	21.18	Before	250.63	3.93	3.77	1745.60	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	261.67
E1 10/2019	Ref.	mH	1	H1_1_left.MP4	11566	6.43	Before	257.41	8.09	10.07	2775.92	Fish	LP	Acanthuridae	*Naso*	*tonganus*	37 437047	452.87
E1 10/2019	Ref.	mH	1	H1_2_left.MP4	6230	21.18	Before	267.54	27.63	15.72	4201.22	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	316.61
E1 10/2019	Ref.	mH	1	H1_1_left.MP4	9079	5.05	Before	280.00	2.80	21.41	2758.38	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	643.75
E1 10/2019	Ref.	mH	1	H1_2_left.MP4	6395	21.27	Before	296.32	38.38	18.01	4779.33	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	426.61
E1 10/2019	Ref.	mH	1	H1_2_left.MP4	6230	21.18	Before	301.84	31.35	8.40	4766.45	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	450.25
E1 10/2019	Ref.	mH	1	H1_1_left.MP4	11427	6.35	Before	350.87	28.01	13.92	4787.57	Fish	LP	Labridae	*Scarus*	*sp*		1112.76
E1 10/2019	Ref.	mH	1	H1_2_left.MP4	25620	49.68	Before	459.27	11.38	31.74	5361.93	Fish	LP	Lutjanidae	*Symphorus*	*nametophorus*	37 346017	2450.09
E1 10/2019	Ref.	mH	1	H1_2_left.MP4	25620	31.97	Before	747.96	50.30	10.76	8819.41	Fish	LP	Lutjanidae	*Symphorus*	*nametophorus*	37 346017	10313.02
E1 10/2019	Ref.	mH	2	H2_1_left.MP4	28242	15.71	Before	224.82	19.49	14.40	3538.14	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	190.54
E1 10/2019	Ref.	mH	2	H2_1_left.MP4	28272	15.72	Before	238.73	8.65	8.60	2301.80	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	227.03
E1 10/2019	Ref.	mH	2	H2_1_left.MP4	18429	10.25	Before	242.71	2.49	2.67	1893.42	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	411.88
E1 10/2019	Ref.	mH	2	H2_1_left.MP4	28242	15.71	Before	248.98	12.92	6.39	3225.31	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	256.67
E1 10/2019	Ref.	mH	2	H2_1_left.MP4	20247	11.26	Before	320.55	31.55	22.66	6417.57	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	982.43
E1 10/2019	Ref.	mH	2	H2_1_left.MP4	18464	10.27	Before	441.34	35.71	10.11	5139.84	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	2668.57
E1 10/2019	Ref.	mH	2	H2_1_left.MP4	20194	11.23	Before	481.65	58.50	19.68	5992.53	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	3506.65
E1 10/2019	Ref.	mH	2	H2_2_left.MP4	9172	22.82	Before	596.85	3.64	17.24	2000.55	Fish	LP	Echeneidae	*Echeneis*	*naucrates*	37 336001	1384.20
E1 10/2019	Ref.	mH	2	H2_1_left.MP4	8680	4.83	Before	931.27	103.63	22.38	9427.93	Fish	LP	Lutjanidae	*Symphorus*	*nametophorus*	37 346017	19675.99
E1 10/2019	Ref.	mH	2	H2_1_left.MP4	21328	11.86	Before	998.69	16.82	20.35	3275.41	Elasmobranch	LP	Hemiscylliidae	*Chiloscyllium*	*punctatum*	37 013008	9299.15

Event	Treat.	Location	Rep	Filename	Frame	Time (mins)	Remed. period	Length (mm)	Precision (mm)	RMS (mm)	Range_(mm)	Type	Tape Reader	Family	Genus	Species	CAABI Code	Weight (g)
E1 10/2019	Ref.	mH	3	H3_2_left.MP4	23171	0.02	Before	208.67	0.64	1.17	812.61	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	291.87
E1 10/2019	Ref.	mH	3	H3_2_left.MP4	23171	0.02	Before	230.86	2.76	2.68	1366.54	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	319.78
E1 10/2019	Ref.	mH	3	H3_1_left.MP4	17186	0.01	Before	277.62	1.99	3.22	1153.38	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	131.06
E1 10/2019	Ref.	mH	3	H3_1_left.MP4	6619	0.00	Before	286.81	1.14	2.30	1192.27	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	174.00
E1 10/2019	Ref.	mH	3	H3_2_left.MP4	23171	0.02	Before	304.76	3.14	1.90	1318.86	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	379.15
E1 10/2019	Ref.	mH	3	H3_1_left.MP4	26156	0.01	Before	315.14	2.14	0.81	1597.38	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	931.47
E1 10/2019	Ref.	mI	1	I1_1_left.MP4	27621	15.36	Before	204.02	7.80	16.22	2354.64	Fish	LP	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	123.04
E1 10/2019	Ref.	mI	1	I1_1_left.MP4	27621	15.36	Before	214.67	29.26	26.86	4899.06	Fish	LP	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	141.91
E1 10/2019	Ref.	mI	1	I1_1_left.MP4	14189	7.89	Before	235.32	7.78	18.17	2505.99	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	373.94
E1 10/2019	Ref.	mI	1	I1_1_left.MP4	28455	15.82	Before	264.58	3.70	23.54	2660.47	Fish	LP	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	306.50
E1 10/2019	Ref.	mI	1	I1_1_left.MP4	14189	7.89	Before	280.42	4.37	13.44	2117.40	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	646.77
E1 10/2019	Ref.	mI	2	I2_2_left.MP4	5566	20.81	Before	200.68	0.95	4.27	1190.02	Fish	LP	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	117.47
E1 10/2019	Ref.	mI	2	I2_2_left.MP4	3983	19.93	Before	284.54	5.88	17.21	3817.89	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	1171.27
E1 10/2019	Ref.	mI	2	I2_1_left.MP4	8958	4.98	Before	339.10	9.31	10.37	2759.64	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	676.99
E1 10/2019	Ref.	mI	3	I3_1_left.MP4	8796	4.89	Before	207.23	3.22	8.59	1542.43	Fish	LP	Pinguipedidae	*Parapercis*	*sp1*		110.35
E1 10/2019	Ref.	mI	3	I3_1_left.MP4	3662	2.04	Before	223.04	4.85	6.50	1811.62	Fish	LP	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	157.98
E1 10/2019	Ref.	mI	3	I3_1_left.MP4	30069	16.72	Before	263.38	6.44	14.45	3800.64	Fish	LP	Labridae	*Choerodon*	*venustus*	37 384042	531.73
E1 10/2019	Ref.	mI	3	I3_1_left.MP4	24810	13.80	Before	847.79	3.21	16.07	1813.16	Elasmobranch	LP	Hemiscylliidae	*Chiloscyllium*	*punctatum*	37 013008	5559.75
E2 04/2020	Remed.	mA	1	A1L-1.MP4	7109	4.74	Before	212.34	26.41	6.67	4318.80	Fish	CMJ	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	145.01
E2 04/2020	Remed.	mA	1	A1L-1.MP4	9339	6.23	Before	216.21	4.52	18.76	2427.65	Fish	CMJ	Carangidae	*Carangoides*	*orthogrammus*	37 337057	118.70
E2 04/2020	Remed.	mA	1	A1L-1.MP4	9339	6.23	Before	239.16	4.03	16.33	2183.78	Fish	CMJ	Carangidae	*Caranx*	*melampygus*	37 337050	180.79
E2 04/2020	Remed.	mA	1	A1L-1.MP4	9907	6.60	Before	245.63	15.84	6.96	5351.71	Fish	CMJ	Acanthuridae	*Naso*	*unicornis*	37 437031	307.96
E2 04/2020	Remed.	mA	1	A1L-2.MP4	693	18.16	Before	258.95	7.10	7.33	2780.67	Fish	CMJ	Siganidae	*Siganus*	*argenteus*	37 438007	229.81
E2 04/2020	Remed.	mA	1	A1L-1.MP4	13261	8.84	Before	261.67	13.28	11.35	4925.77	Fish	CMJ	Nemipteridae	*Scolopsis*	*monogramma*	37 347028	63.47
E2 04/2020	Remed.	mA	1	A1L-2.MP4	693	18.16	Before	283.58	5.61	6.24	2769.18	Fish	CMJ	Siganidae	*Siganus*	*argenteus*	37 438007	301.25
E2 04/2020	Remed.	mA	1	A1L-1.MP4	9339	6.23	Before	286.41	5.08	12.23	2363.29	Fish	CMJ	Carangidae	*Carangoides*	*orthogrammus*	37 337057	273.62
E2 04/2020	Remed.	mA	1	A1L-1.MP4	5486	3.66	Before	287.84	2.55	2.67	1441.29	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	526.01
E2 04/2020	Remed.	mA	1	A1L-1.MP4	7732	5.15	Before	288.95	14.43	11.93	2767.24	Fish	CMJ	Serranidae	*Epinephelus*	*merra*	37 311063	347.41
E2 04/2020	Remed.	mA	1	A1L-2.MP4	693	18.16	Before	293.57	2.52	4.22	2343.46	Fish	CMJ	Siganidae	*Siganus*	*argenteus*	37 438007	333.99
E2 04/2020	Remed.	mA	1	A1L-1.MP4	5486	3.66	Before	298.67	1.69	3.57	1493.43	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	586.16
E2 04/2020	Remed.	mA	1	A1L-2.MP4	21383	31.95	Before	336.90	1.54	6.97	1403.28	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1459.95
E2 04/2020	Remed.	mA	1	A1L-1.MP4	3887	2.59	Before	370.73	2.68	1.86	1755.26	Fish	CMJ	Nemipteridae	*Scolopsis*	*monogramma*	37 347028	150.58
E2 04/2020	Remed.	mA	1	A1L-1.MP4	26447	17.63	Before	411.23	16.39	5.91	4568.12	Fish	CMJ	Labridae	*Choerodon*	*schoenleinii*	37 384010	1147.68
E2 04/2020	Remed.	mA	1	A1L-2.MP4	5680	21.48	Before	709.06	65.60	12.02	6158.14	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	4859.29
E2 04/2020	Remed.	mA	1	A1L-1.MP4	10223	6.82	Before	793.04	3.84	1.52	2274.20	Fish	CMJ	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	3962.77
E2 04/2020	Remed.	mA	3	A3L-1.MP4	25012	16.67	Before	414.12				Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	2187.18
E2 04/2020	Remed.	mA	3	A3L-1.MP4	4351	2.90	Before	723.36				Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	2605.46
E2 04/2020	Nearfield	mB	1	B1L_2.MP4	8341	23.26	Before	229.15	6.46	6.37	3239.90	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	269.60
E2 04/2020	Nearfield	mB	1	B1L_2.MP4	11005	25.03	Before	229.60	3.60	7.30	2136.99	Fish	CMJ	Balistidae	*Sufflamen*	*fraenatum*	37 465014	317.57
E2 04/2020	Nearfield	mB	1	B1L_2.MP4	23305	33.23	Before	278.34	9.08	10.47	3089.64	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	333.40
E2 04/2020	Nearfield	mB	1	B1L_2.MP4	8341	23.26	Before	281.87	1.32	2.90	1442.40	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	494.68
E2 04/2020	Nearfield	mB	1	B1L_1.MP4	13935	9.29	Before	303.30	3.79	5.99	2112.62	Fish	CMJ	Nemipteridae	*Scolopsis*	*monogramma*	37 347028	91.53

Event	Treat.	Location	Rep	Filename	Frame	Time (mins)	Remed. period	Length (mm)	Precision (mm)	RMS (mm)	Range_(mm)	Type	Tape Reader	Family	Genus	Species	CAABI Code	Weight (g)
E2 04/2020	Nearfield	mB	1	B1L_2.MP4	1593	18.76	Before	304.60	9.68	9.56	2628.36	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	837.59
E2 04/2020	Nearfield	mB	1	B1L_2.MP4	1593	18.76	Before	308.11	4.64	5.82	2478.59	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	868.13
E2 04/2020	Nearfield	mB	1	B1L_2.MP4	24007	33.70	Before	317.83	9.34	6.44	2715.12	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	487.59
E2 04/2020	Nearfield	mB	1	B1L_2.MP4	8341	23.26	Before	320.81	3.68	4.60	1627.12	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	722.82
E2 04/2020	Nearfield	mB	1	B1L_1.MP4	13898	9.27	Before	452.89	2.97	9.93	2167.43	Fish	CMJ	Carangidae	*Pseudocaranx*	*dentex*	37 337082	1070.89
E2 04/2020	Nearfield	mB	1	B1L_1.MP4	20440	13.63	Before	576.10	21.05	13.80	4522.10	Fish	CMJ	Carangidae	*Alectis*	*ciliaris*	37 337018	1612.39
E2 04/2020	Nearfield	mB	1	B1L_1.MP4	22180	14.79	Before	649.10	4.61	3.76	2065.08	Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	1824.38
E2 04/2020	Nearfield	mB	1	B1L_1.MP4	3307	2.20	Before	657.28	11.13	7.69	5343.23	Fish	CMJ	Scombridae	*Scomberomorus*	*commerson*	37 441007	1661.18
E2 04/2020	Nearfield	mB	1	B1L_2.MP4	25131	34.45	Before	705.33	5.77	1.77	3183.91	Fish	CMJ	Monacanthidae	*Aluterus*	*scriptus*	37 465045	4543.16
E2 04/2020	Nearfield	mB	1	B1L_1.MP4	3307	2.20	Before	752.99	11.69	11.01	4971.94	Fish	CMJ	Scombridae	*Scomberomorus*	*commerson*	37 441007	2505.89
E2 04/2020	Nearfield	mB	1	B1L_1.MP4	3307	2.20	Before	762.27	16.33	9.61	4856.74	Fish	CMJ	Scombridae	*Scomberomorus*	*commerson*	37 441007	2600.46
E2 04/2020	Nearfield	mB	1	B1L_1.MP4	3307	2.20	Before	799.11	15.31	1.57	4814.52	Fish	CMJ	Scombridae	*Scomberomorus*	*commerson*	37 441007	2999.39
E2 04/2020	Nearfield	mB	1	B1L_1.MP4	3307	2.20	Before	871.65	16.49	3.67	5449.44	Fish	CMJ	Scombridae	*Scomberomorus*	*commerson*	37 441007	3900.83
E2 04/2020	Nearfield	mB	1	B1L_1.MP4	3307	2.20	Before	974.21	44.92	18.17	5778.53	Fish	CMJ	Scombridae	*Scomberomorus*	*commerson*	37 441007	5460.81
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	18395	12.26	Before	206.07	39.28	9.21	5873.53	Fish	CMJ	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	149.40
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	221.34	6.11	6.67	2907.30	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	32.82
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	241.74	6.86	13.70	2610.68	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	41.86
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	247.13	4.32	19.92	3259.94	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	44.49
E2 04/2020	Nearfield	mB	2	B2L-2.MP4	17104	29.10	Before	266.68	11.56	23.08	3778.10	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	5976.37
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	267.58	10.95	12.63	2935.21	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	55.41
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	267.60	7.69	8.74	3223.06	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	55.42
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	268.83	4.66	12.54	3172.91	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	56.13
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	18395	12.26	Before	274.48	58.61	19.18	5899.30	Fish	CMJ	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	341.12
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	26157	17.44	Before	278.43	13.17	10.61	3722.71	Fish	CMJ	Labridae	*Coris*	*gaimard*	37 384094	302.57
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	281.08	10.24	9.17	3207.35	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	63.47
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	3292	2.19	Before	288.08	2.94	14.25	2832.21	Fish	CMJ	Nemipteridae	*Scolopsis*	*monogramma*	37 347028	80.56
E2 04/2020	Nearfield	mB	2	B2L-2.MP4	17104	29.10	Before	295.33	16.85	14.18	5022.10	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	294.93
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	299.44	6.02	9.42	2495.25	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	75.60
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	304.24	10.13	22.01	2951.32	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	78.98
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	16402	10.93	Before	312.28	5.19	8.03	2028.33	Fish	CMJ	Labridae	*Choerodon*	*schoenleinii*	37 384010	663.31
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	2145	1.43	Before	316.74	13.87	16.20	3901.86	Fish	CMJ	Acanthuridae	*Naso*	*unicornis*	37 437031	658.31
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	16402	10.93	Before	326.95	26.32	31.87	4674.67	Fish	CMJ	Labridae	*Choerodon*	*schoenleinii*	37 384010	756.57
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	330.86	4.81	32.30	2775.49	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	99.57
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	331.36	5.01	19.27	3117.00	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	99.99
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	333.56	9.99	26.75	3150.65	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	101.83
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	344.17	6.74	30.13	3146.91	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	111.02
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	2984	1.99	Before	352.55	5.29	18.51	2350.10	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1322.59
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	363.50	4.51	23.97	3417.53	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	129.10
E2 04/2020	Nearfield	mB	2	B2L-2.MP4	17104	29.10	Before	388.37	7.64	19.32	4522.24	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	395.08
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	20627	13.75	Before	390.22	13.12	4.42	4627.51	Fish	CMJ	Pomacanthidae	*Pomacanthus*	*semicirculatus*	37 365080	961.48
E2 04/2020	Nearfield	mB	2	B2L-2.MP4	17104	29.10	Before	391.76	33.18	30.43	4908.14	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	865.90
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	4992	3.33	Before	395.71	29.36	11.34	4730.76	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	163.22

Event	Treat.	Location	Rep	Filename	Frame	Time (mins)	Remed. period	Length (mm)	Precision (mm)	RMS (mm)	Range_(mm)	Type	Tape Reader	Family	Genus	Species	CAABI Code	Weight (g)
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	2984	1.99	Before	424.23	11.19	19.32	4254.95	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	2358.43
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	20627	13.75	Before	463.48	8.79	15.94	2770.27	Fish	CMJ	Pomacanthidae	*Pomacanthus*	*semicirculatus*	37 365080	1578.07
E2 04/2020	Nearfield	mB	2	B2L-2.MP4	17104	29.10	Before	501.54	23.15	23.10	4577.97	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	887.78
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	20280	13.52	Before	737.57	2.14	9.77	1902.73	Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	2777.60
E2 04/2020	Nearfield	mB	2	B2L-1.MP4	8620	5.75	Before	762.16	44.50	25.92	5848.70	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	1801.73
E2 04/2020	Nearfield	mB	3	B3L_1.MP4	2517	1.68	Before	252.86	17.96	9.34	3565.00	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	47.40
E2 04/2020	Nearfield	mB	3	B3L_1.MP4	11256	7.50	Before	293.50	1.89	8.12	1236.26	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	745.82
E2 04/2020	Nearfield	mB	3	B3L_1.MP4	9493	6.33	Before	339.13	3.49	8.88	1980.53	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	850.61
E2 04/2020	Nearfield	mB	3	B3L_2.MP4	15077	27.75	Before	389.12	1.72	9.00	1718.36	Fish	CMJ	Nemipteridae	*Scolopsis*	*monogramma*	37 347028	169.79
E2 04/2020	Nearfield	mB	3	B3L_1.MP4	21729	14.49	Before	416.04	3.85	6.81	1590.97	Fish	CMJ	Carangidae	*Carangoides*	*gymnostethus*	37 337022	1066.35
E2 04/2020	Nearfield	mB	3	B3L_2.MP4	15077	27.75	Before	426.33	1.24	8.49	1478.04	Fish	CMJ	Nemipteridae	*Scolopsis*	*monogramma*	37 347028	212.95
E2 04/2020	Nearfield	mB	3	B3L_1.MP4	21729	14.49	Before	443.40	2.46	6.76	1421.98	Fish	CMJ	Carangidae	*Carangoides*	*gymnostethus*	37 337022	1284.32
E2 04/2020	Nearfield	mB	3	B3L_1.MP4	16703	11.14	Before	488.09	3.35	5.40	1647.30	Fish	CMJ	Haemulidae	*Diagramma*	*pictum*	37 350003	1702.93
E2 04/2020	Nearfield	mB	3	B3L_2.MP4	8653	23.47	Before	526.40	5.28	5.62	2404.33	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	2069.71
E2 04/2020	Nearfield	mB	3	B3L_1.MP4	17424	11.62	Before	1022.97	30.70	18.25	4513.15	Fish	CMJ	Scombridae	*Scomberomorus*	*commerson*	37 441007	6329.89
E2 04/2020	Remed.	mC	1	C1L-1.MP4	25429	16.95	Before	203.44	11.05	2.20	2829.55	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	237.25
E2 04/2020	Remed.	mC	1	C1L-1.MP4	25429	16.95	Before	209.20	3.93	3.77	1715.89	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	258.88
E2 04/2020	Remed.	mC	1	C1L-2.MP4	2241	19.19	Before	386.56	1.30	2.04	1460.87	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1763.64
E2 04/2020	Remed.	mC	1	C1L-1.MP4	7803	5.20	Before	733.32	16.01	11.95	3774.31	Fish	CMJ	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	3157.88
E2 04/2020	Remed.	mC	1	C1L-1.MP4	7803	5.20	Before	786.50	37.98	13.76	5028.90	Fish	CMJ	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	3868.80
E2 04/2020	Remed.	mC	2	C2L-1.MP4	10106	6.74	Before	217.00	2.41	6.96	1873.03	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	290.29
E2 04/2020	Remed.	mC	2	C2L-1.MP4	23663	15.78	Before	599.57	15.07	31.03	5520.92	Fish	CMJ	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	1761.08
E2 04/2020	Remed.	mC	2	C2L-1.MP4	23517	15.68	Before	686.48	9.41	10.73	2538.09	Fish	CMJ	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	2607.77
E2 04/2020	Remed.	mC	2	C2L-1.MP4	23517	15.68	Before	775.39	4.78	16.28	2354.67	Fish	CMJ	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	3712.43
E2 04/2020	Remed.	mC	2	C2L-1.MP4	23517	15.68	Before	796.47	5.51	14.88	3297.43	Fish	CMJ	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	4012.79
E2 04/2020	Remed.	mC	3	C3L-1.MP4	5608	3.74	Before	213.39	3.00	8.87	1994.69	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	218.79
E2 04/2020	Remed.	mC	3	C3L-1.MP4	13128	8.75	Before	643.15	26.21	10.64	4222.75	Fish	CMJ	Scombridae	*Scomberomorus*	*commerson*	37 441007	1555.46
E2 04/2020	Remed.	mC	3	C3L-1.MP4	16504	11.00	Before	767.94	6.31	8.42	2105.73	Fish	CMJ	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	3609.90
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	5651	3.77	Before	209.33	19.35	12.17	4953.31	Fish	CMJ	Acanthuridae	*Naso*	*unicornis*	37 437031	190.98
E2 04/2020	Nearfield	mD	1	D1L-2.MP4	4867	20.94	Before	263.76	10.73	1.60	5565.90	Fish	CMJ	Labridae	*Coris*	*gaimard*	37 384094	849.46
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	1774	1.18	Before	276.36	27.09	13.13	4898.72	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	60.58
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	21378	14.25	Before	317.47	3.31	2.06	2055.51	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	700.96
E2 04/2020	Nearfield	mD	1	D1L-2.MP4	21417	31.98	Before	321.15	5.54	4.19	5273.66	Fish	CMJ	Pomacanthidae	*Pomacanthus*	*semicirculatus*	37 365080	548.62
E2 04/2020	Nearfield	mD	1	D1L-2.MP4	2294	19.23	Before	342.37	3.57	0.57	1851.87	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	2107.96
E2 04/2020	Nearfield	mD	1	D1L-2.MP4	2294	19.23	Before	342.70	2.87	2.73	2113.32	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	256.38
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	16355	10.90	Before	352.22	39.10	8.39	6461.80	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	654.46
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	16355	10.90	Before	353.85	56.69	21.33	6605.49	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	663.19
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	21378	14.25	Before	354.13	1.65	1.50	2004.98	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	965.64
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	5711	3.81	Before	354.61	46.60	27.95	5401.56	Fish	CMJ	Labridae	*Cheilinus*	*fasciatus*	37 384066	1206.92
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	1774	1.18	Before	360.84	42.55	18.92	5292.40	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	126.52
E2 04/2020	Nearfield	mD	1	D1L-2.MP4	21417	31.98	Before	363.43	37.98	14.11	6312.94	Fish	CMJ	Pomacanthidae	*Pomacanthus*	*semicirculatus*	37 365080	783.36
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	16355	10.90	Before	393.67	33.13	13.36	4743.40	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	900.22

Event	Treat.	Location	Rep	Filename	Frame	Time (mins)	Remed. period	Length (mm)	Precision (mm)	RMS (mm)	Range_(mm)	Type	Tape Reader	Family	Genus	Species	CAABI Code	Weight (g)
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	1806	1.20	Before	406.80	30.07	13.14	4481.55	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	176.15
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	16562	11.04	Before	407.25	3.68	9.98	3849.70	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	992.08
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	5471	3.65	Before	409.26	10.00	6.87	2553.06	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1210.55
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	11789	7.86	Before	440.68	5.82	2.94	2733.04	Fish	CMJ	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	231.18
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	18887	12.59	Before	447.95	23.84	4.74	4901.23	Fish	CMJ	Lutjanidae	*Symphorus*	*nametophorus*	37 346017	2276.32
E2 04/2020	Nearfield	mD	1	D1L-1.MP4	16808	11.21	Before	478.66	18.91	13.32	3797.79	Fish	CMJ	Acanthuridae	*Naso*	*tonganus*	37 437047	2930.14
E2 04/2020	Nearfield	mD	1	D1L-2.MP4	21782	32.22	Before	862.04	2.01	4.89	1875.84	Fish	CMJ	Serranidae	*Epinephelus*	*coioides*	37 311007	9863.70
E2 04/2020	Nearfield	mD	3	D3L-1.MP4	24210	16.14	Before	256.09	5.92	8.13	2891.14	Fish	CMJ	Labridae	*Choerodon*	*anchorago*	37 384071	487.35
E2 04/2020	Nearfield	mD	3	D3L-2.MP4	2093	19.09	Before	275.85	4.73	6.61	1926.71	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	614.44
E2 04/2020	Nearfield	mD	3	D3L-1.MP4	24184	16.12	Before	282.74	2.88	6.05	1592.23	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	499.16
E2 04/2020	Nearfield	mD	3	D3L-1.MP4	24210	16.14	Before	301.58	2.71	7.13	1904.54	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	603.06
E2 04/2020	Nearfield	mD	3	D3L-1.MP4	24184	16.12	Before	315.74	1.31	3.90	1407.69	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	689.85
E2 04/2020	Nearfield	mD	3	D3L-1.MP4	24210	16.14	Before	327.16	3.91	10.34	1834.93	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	765.57
E2 04/2020	Nearfield	mD	3	D3L-2.MP4	2785	19.55	Before	329.71	4.10	7.52	2215.80	Fish	CMJ	Lutjanidae	*Lutjanus*	*adetii*	37 346033	561.48
E2 04/2020	Nearfield	mD	3	D3L-1.MP4	24210	16.14	Before	331.04	1.83	6.87	1385.74	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	792.46
E2 04/2020	Nearfield	mD	3	D3L-1.MP4	24210	16.14	Before	338.22	3.40	3.82	1674.50	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	843.94
E2 04/2020	Nearfield	mD	3	D3L-2.MP4	2080	19.08	Before	379.80	6.07	10.89	1996.97	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1669.12
E2 04/2020	Nearfield	mD	3	D3L-1.MP4	26510	17.67	Before	469.32	18.30	14.29	3294.90	Fish	CMJ	Serranidae	*Plectropomus*	*leopardus*	37 311078	1489.65
E2 04/2020	Nearfield	mD	3	D3L-2.MP4	19238	30.52	Before	472.06	7.14	9.70	2936.07	Fish	CMJ	Labridae	*Choerodon*	*schoenleinii*	37 384010	2167.91
E2 04/2020	Nearfield	mD	3	D3L-1.MP4	13917	9.28	Before	521.14	0.76	6.51	902.29	Fish	CMJ	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	1172.78
E2 04/2020	Nearfield	mD	3	D3L-1.MP4	9576	6.38	Before	863.67	3.45	8.00	1865.64	Fish	CMJ	Serranidae	*Epinephelus*	*coioides*	37 311007	9920.50
E2 04/2020	Remed.	mE	1	E1L-1.MP4	5530	3.69	Before	303.95	2.99	2.25	2229.04	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	617.06
E2 04/2020	Remed.	mE	1	E1L-1.MP4	16063	10.71	Before	319.92	18.02	7.48	3533.00	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	976.40
E2 04/2020	Remed.	mE	1	E1L-1.MP4	16063	10.71	Before	352.12	5.85	2.92	2296.21	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1317.52
E2 04/2020	Remed.	mE	1	E1L-1.MP4	7951	5.30	Before	562.63	28.27	9.27	4084.09	Fish	CMJ	Scombridae	*Scomberomorus*	*commerson*	37 441007	1038.01
E2 04/2020	Remed.	mE	1	E1L-1.MP4	14338	9.56	Before	680.49	2.48	1.08	1906.70	Fish	CMJ	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	2542.39
E2 04/2020	Remed.	mE	2	E2L-1.MP4	15590	10.39	Before	344.16	7.67	10.25	2824.98	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1226.68
E2 04/2020	Remed.	mE	2	E2L-2.MP4	19885	30.95	Before	358.47	3.40	12.71	2456.28	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1393.24
E2 04/2020	Remed.	mE	2	E2L-2.MP4	19692	30.83	Before	407.99	6.38	6.46	2298.12	Fish	CMJ	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	190.95
E2 04/2020	Remed.	mE	3	E3L-1.MP4	2516	1.68	Before	220.89	3.01	6.86	2978.76	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	306.82
E2 04/2020	Remed.	mE	3	E3L-1.MP4	2669	1.78	Before	289.44	8.55	14.08	3971.63	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	714.04
E2 04/2020	Remed.	mE	3	E3L-2.MP4	13640	26.79	Before	350.20	14.03	10.40	3277.80	Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	239.56
E2 04/2020	Remed.	mE	3	E3L-2.MP4	17790	29.56	Before	354.06	2.13	7.68	1763.41	Fish	CMJ	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	134.34
E2 04/2020	Remed.	mE	3	E3L-2.MP4	15436	27.99	Before	392.00	4.84	16.81	4374.02	Fish	CMJ	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	965.54
E2 04/2020	Remed.	mE	3	E3L-2.MP4	13640	26.79	Before	540.73	11.82	9.54	3852.74	Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	1000.26
E2 04/2020	Remed.	mE	3	E3L-2.MP4	12920	26.31	Before	2636.63	11.76	12.60	3830.74	Elasmobranch	CMJ	Carcharhinidae	*Galeocerdo*	*cuvier*	37 018022	227032.22
E2 04/2020	Remed.	mE	3	E3L-2.MP4	13649	26.80	Before	2647.45	13.81	12.65	3714.23	Elasmobranch	CMJ	Carcharhinidae	*Galeocerdo*	*cuvier*	37 018022	229981.62
E2 04/2020	Nearfield	mG	1	G1L-1.MP4	2634	1.76	Before	292.94				Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	741.41
E2 04/2020	Nearfield	mG	1	G1L-1.MP4	2534	1.69	Before	295.13				Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	758.85
E2 04/2020	Nearfield	mG	1	G1L-1.MP4	2371	1.58	Before	352.52				Fish	CMJ	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	132.90
E2 04/2020	Nearfield	mG	1	G1L-1.MP4	8371	5.58	Before	393.72				Fish	CMJ	Labridae	*Choerodon*	*schoenleinii*	37 384010	1288.75
E2 04/2020	Nearfield	mG	1	G1L-1.MP4	20892	13.93	Before	616.45				Fish	CMJ	Lutjanidae	*Symphorus*	*nametophorus*	37 346017	5832.96

Event	Treat.	Location	Rep	Filename	Frame	Time (mins)	Remed. period	Length (mm)	Precision (mm)	RMS (mm)	Range_(mm)	Type	Tape Reader	Family	Genus	Species	CAABI Code	Weight (g)
E2 04/2020	Nearfield	mG	2	G2L-1.MP4	14867	9.91	Before	307.24	2.67	11.33	1524.50	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	636.80
E2 04/2020	Nearfield	mG	2	G2L-1.MP4	16715	11.14	Before	325.89	23.79	26.34	4061.15	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	756.90
E2 04/2020	Nearfield	mG	2	G2L-1.MP4	14867	9.91	Before	333.46	3.32	9.58	1507.00	Fish	CMJ	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	809.59
E2 04/2020	Nearfield	mG	2	G2L-1.MP4	1858	1.24	Before	368.68	3.03	2.87	1926.06	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1521.10
E2 04/2020	Nearfield	mG	2	G2L-1.MP4	1863	1.24	Before	415.63	5.84	3.30	2692.38	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	2212.18
E2 04/2020	Nearfield	mG	2	G2L-2.MP4	12208	25.84	Before	446.51	18.12	25.71	3624.47	Fish	CMJ	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	238.83
E2 04/2020	Nearfield	mG	2	G2L-1.MP4	20765	13.84	Before	494.47	7.32	19.06	2205.10	Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	745.30
E2 04/2020	Nearfield	mG	2	G2L-1.MP4	14842	9.89	Before	625.30	19.59	9.48	3739.38	Fish	CMJ	Labridae	*Choerodon*	*schoenleinii*	37 384010	4852.52
E2 04/2020	Nearfield	mG	3	G3L-1.MP4	3124	2.08	Before	329.40	2.25	7.62	2024.41	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1069.70
E2 04/2020	Nearfield	mG	3	G3L-1.MP4	5646	3.76	Before	384.89	8.27	19.47	4481.14	Fish	CMJ	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	915.30
E2 04/2020	Ref.	mH	1	H1L-2.MP4	12044	25.73	Before	206.82	3.07	3.23	2139.38	Fish	CMJ	Mullidae	*Parupeneus*	*multifasciatus*	37 355026	209.59
E2 04/2020	Ref.	mH	1	H1L-1.MP4	20508	13.67	Before	226.03	2.84	1.31	1890.49	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	163.98
E2 04/2020	Ref.	mH	1	H1L-1.MP4	22532	15.02	Before	232.33	13.20	9.72	3139.04	Fish	CMJ	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	37.51
E2 04/2020	Ref.	mH	1	H1L-1.MP4	12407	8.27	Before	259.38	4.28	2.71	2309.10	Fish	CMJ	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	289.24
E2 04/2020	Ref.	mH	1	H1L-1.MP4	26181	17.45	Before	263.01	8.28	2.51	4062.25	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	529.41
E2 04/2020	Ref.	mH	1	H1L-1.MP4	22720	15.15	Before	272.07	8.89	7.37	3018.27	Fish	CMJ	Serranidae	*Plectropomus*	*maculatus*	37 311012	253.22
E2 04/2020	Ref.	mH	1	H1L-1.MP4	26146	17.43	Before	301.64	5.00	2.53	2499.23	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	812.39
E2 04/2020	Ref.	mH	1	H1L-1.MP4	14286	9.52	Before	323.08	3.49	1.57	2280.63	Fish	CMJ	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	107.05
E2 04/2020	Ref.	mH	1	H1L-2.MP4	8709	23.50	Before	589.38	2.69	2.72	2701.04	Fish	CMJ	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	1675.73
E2 04/2020	Ref.	mH	1	H1L-1.MP4	2438	1.63	Before	773.20	4.32	5.05	2815.44	Fish	CMJ	Lutjanidae	*Symphorus*	*nametophorus*	37 346017	11372.63
E2 04/2020	Ref.	mH	2	H2L-1.MP4	7365	4.91	Before	201.18	13.43	13.82	2898.92	Fish	CMJ	Balistidae	*Sufflamen*	*fraenatum*	37 465014	215.16
E2 04/2020	Ref.	mH	2	H2L-1.MP4	14960	9.97	Before	204.18	1.74	2.88	1497.29	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	123.30
E2 04/2020	Ref.	mH	2	H2L-1.MP4	14871	9.91	Before	204.30	6.45	7.69	2399.88	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	123.51
E2 04/2020	Ref.	mH	2	H2L-1.MP4	18815	12.54	Before	205.60	14.79	7.93	3356.75	Fish	CMJ	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	146.78
E2 04/2020	Ref.	mH	2	H2L-1.MP4	14730	9.82	Before	208.72	2.63	9.75	1466.55	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	131.16
E2 04/2020	Ref.	mH	2	H2L-1.MP4	14730	9.82	Before	258.30	2.15	3.71	1476.20	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	238.41
E2 04/2020	Ref.	mH	2	H2L-1.MP4	13829	9.22	Before	262.24	2.44	4.62	1980.79	Fish	CMJ	Acanthuridae	*Naso*	*tonganus*	37 437047	478.96
E2 04/2020	Ref.	mH	2	H2L-1.MP4	18811	12.54	Before	266.28	2.39	13.49	2062.06	Fish	CMJ	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	312.28
E2 04/2020	Ref.	mH	2	H2L-1.MP4	15256	10.17	Before	268.95	1.61	6.73	1428.15	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	567.68
E2 04/2020	Ref.	mH	2	H2L-1.MP4	15304	10.20	Before	313.25	3.58	10.48	1989.38	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	914.20
E2 04/2020	Ref.	mH	2	H2L-1.MP4	9144	6.10	Before	347.07	14.04	8.98	3242.37	Fish	CMJ	Labridae	*Choerodon*	*schoenleinii*	37 384010	897.85
E2 04/2020	Ref.	mH	2	H2L-1.MP4	15271	10.18	Before	354.06	5.64	10.81	2240.36	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1340.38
E2 04/2020	Ref.	mH	2	H2L-1.MP4	15236	10.16	Before	355.21	2.63	13.34	2505.94	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1354.01
E2 04/2020	Ref.	mH	2	H2L-2.MP4	8651	23.46	Before	2444.80	34.10	28.08	4987.58	Elasmobranch	CMJ	Ginglymostomatidae	*Nebrius*	*ferrugineus*	37 013010	113743.65
E2 04/2020	Ref.	mH	3	H3L-1.MP4	8417	5.61	Before	215.53	21.17	21.75	4477.05	Fish	CMJ	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	151.51
E2 04/2020	Ref.	mH	3	H3L-1.MP4	14633	9.76	Before	218.41	2.18	14.58	1482.80	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	296.20
E2 04/2020	Ref.	mH	3	H3L-1.MP4	14640	9.76	Before	229.30	2.36	12.73	1425.79	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	344.86
E2 04/2020	Ref.	mH	3	H3L-1.MP4	5912	3.94	Before	232.65	7.82	31.00	3358.58	Fish	CMJ	Mullidae	*Parupeneus*	*spilurus*	37 355015	201.69
E2 04/2020	Ref.	mH	3	H3L-1.MP4	14189	9.46	Before	233.17	9.19	19.56	2836.53	Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	62.84
E2 04/2020	Ref.	mH	3	H3L-1.MP4	8297	5.53	Before	245.79	6.88	18.55	2080.77	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	207.43
E2 04/2020	Ref.	mH	3	H3L-1.MP4	15333	10.22	Before	286.54	1.89	14.45	1645.35	Fish	CMJ	Lethrinidae	*Lethrinus*	*sp*		296.86
E2 04/2020	Ref.	mH	3	H3L-1.MP4	8533	5.69	Before	292.31	6.56	23.42	2396.55	Fish	CMJ	Serranidae	*Epinephelus*	*quoyanus*	37 311040	332.26

Event	Treat.	Location	Rep	Filename	Frame	Time (mins)	Remed. period	Length (mm)	Precision (mm)	RMS (mm)	Range_(mm)	Type	Tape Reader	Family	Genus	Species	CAABI Code	Weight (g)
E2 04/2020	Ref.	mH	3	H3L-1.MP4	14633	9.76	Before	310.48	9.40	19.59	2621.32	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	889.11
E2 04/2020	Ref.	mH	3	H3L-1.MP4	14432	9.62	Before	313.74	1.17	9.30	1251.38	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	918.68
E2 04/2020	Ref.	mH	3	H3L-1.MP4	8297	5.53	Before	334.27	6.12	17.88	2102.53	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	491.32
E2 04/2020	Ref.	mH	3	H3L-1.MP4	14633	9.76	Before	350.74	2.18	10.41	1560.29	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1301.52
E2 04/2020	Ref.	mH	3	H3L-1.MP4	14090	9.39	Before	358.70	7.88	8.69	2502.27	Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	259.22
E2 04/2020	Ref.	mH	3	H3L-1.MP4	19880	13.25	Before	367.93	1.75	11.42	1564.09	Fish	CMJ	Lethrinidae	*Lethrinus*	*rubrioperculatus*	37 351012	625.36
E2 04/2020	Ref.	mH	3	H3L-1.MP4	15233	10.16	Before	370.43	1.45	6.88	1232.21	Fish	CMJ	Lethrinidae	*Lethrinus*	*sp*		638.09
E2 04/2020	Ref.	mH	3	H3L-1.MP4	14189	9.46	Before	383.07	5.72	14.34	2992.23	Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	321.80
E2 04/2020	Ref.	mH	3	H3L-1.MP4	14189	9.46	Before	395.92	9.33	37.36	2939.99	Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	358.68
E2 04/2020	Ref.	mH	3	H3L-1.MP4	14090	9.39	Before	536.15	10.70	11.10	2797.30	Fish	CMJ	Echeneidae	*Echeneis*	*naucrates*	37 336001	972.62
E2 04/2020	Ref.	mH	3	H3L-1.MP4	14184	9.46	Before	2202.25	9.20	15.97	2393.73	Elasmobranch	CMJ	Ginglymostomatidae	*Nebrius*	*ferrugineus*	37 013010	82445.64
E2 04/2020	Ref.	mH	3	H3L-1.MP4	14064	9.38	Before	2665.36	11.80	41.14	3320.35	Elasmobranch	CMJ	Ginglymostomatidae	*Nebrius*	*ferrugineus*	37 013010	148410.17
E2 04/2020	Ref.	ml	1	I1L-2.MP4	4730	20.85	Before	204.99	2.31	2.72	1632.33	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	124.68
E2 04/2020	Ref.	ml	1	I1L-2.MP4	4730	20.85	Before	232.17	1.63	1.98	1205.87	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	176.78
E2 04/2020	Ref.	ml	1	I1L-2.MP4	4555	20.73	Before	244.09	3.47	10.78	1989.70	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	203.44
E2 04/2020	Ref.	ml	1	I1L-2.MP4	5877	21.62	Before	284.02	4.22	1.34	2387.53	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	673.12
E2 04/2020	Ref.	ml	1	I1L-2.MP4	5988	21.69	Before	302.58	3.49	4.49	2545.27	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	820.32
E2 04/2020	Ref.	ml	2	I2L-2.MP4	2568	19.41	Before	374.37	2.80	22.62	2084.02	Fish	CMJ	Lethrinidae	*Lethrinus*	*rubrioperculatus*	37 351012	658.53
E2 04/2020	Ref.	ml	2	I2L-2.MP4	2480	19.35	Before	636.26	13.74	38.15	3734.02	Fish	CMJ	Scombridae	*Scomberomorus*	*commerson*	37 441007	1505.63
E2 04/2020	Ref.	ml	2	I2L-1.MP4	11154	7.44	Before	871.79	4.06	11.99	1813.07	Fish	CMJ	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	5214.95
E2 04/2020	Ref.	ml	3	I3L-1.MP4	19314	12.88	Before	201.68	1.54	5.63	1409.33	Fish	CMJ	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	119.13
E2 04/2020	Ref.	ml	3	I3L-1.MP4	16347	10.90	Before	292.74	2.74	11.35	2004.07	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	739.79
E2 04/2020	Ref.	ml	3	I3L-2.MP4	778	18.22	Before	327.69	2.31	3.34	1449.24	Fish	CMJ	Labridae	*Choerodon*	*venustus*	37 384042	1052.40

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	Remediation	m_A	1	A1_2_left.MP4	19223	28.4078	Before	Acanthuridae	*Naso*	*tonganus*	37 437047	3
E1_10/2019	Remediation	m_A	1	A1_2_left.MP4	18097	27.7816	Before	Acanthuridae	*Naso*	*unicornis*	37 437031	4
E1_10/2019	Remediation	m_A	1	A1_2_left.MP4	2136	18.9056	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	2
E1_10/2019	Remediation	m_A	1	A1_1_left.MP4	9480	5.2719	Before	Blennidae	*Ecsenius*	*bicolor*	37 408022	1
E1_10/2019	Remediation	m_A	1	A1_2_left.MP4	10711	23.6742	Before	Carangidae	*Selaroides*	*leptolepsis*	37 337015	2
E1_10/2019	Remediation	m_A	1	A1_2_left.MP4	9315	22.8979	Before	Carcharhinidae	*Galeocerdo*	*cuvier*	37 018022	1
E1_10/2019	Remediation	m_A	1	A1_2_left.MP4	10749	23.6953	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	2
E1_10/2019	Remediation	m_A	1	A1_1_left.MP4	31124	17.3084	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	10
E1_10/2019	Remediation	m_A	1	A1_2_left.MP4	11296	23.9995	Before	Labridae	*Choerodon*	*venustus*	37 384042	1
E1_10/2019	Remediation	m_A	1	A1_1_left.MP4	9555	5.3136	Before	Labridae	*Coris*	*sp*		2
E1_10/2019	Remediation	m_A	1	A1_1_left.MP4	6064	3.3723	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	5
E1_10/2019	Remediation	m_A	1	A1_1_left.MP4	9437	5.248	Before	Labridae	*Halichoeres*	*sp*		2
E1_10/2019	Remediation	m_A	1	A1_1_left.MP4	11881	6.6072	Before	Labridae	*Thalassoma*	*lunare*	37 384167	1
E1_10/2019	Remediation	m_A	1	A1_2_left.MP4	21554	29.7041	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	6
E1_10/2019	Remediation	m_A	1	A1_1_left.MP4	7762	4.3165	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	1
E1_10/2019	Remediation	m_A	1	A1_1_left.MP4	12459	6.9286	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	1
E1_10/2019	Remediation	m_A	1	A1_1_left.MP4	5646	3.1398	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	24
E1_10/2019	Remediation	m_A	1	A1_2_left.MP4	6909	21.5599	Before	Pomacentridae	*Pomacentrus*	*coelestis*	37 372111	5
E1_10/2019	Remediation	m_A	1	A1_1_left.MP4	23565	13.1048	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	3
E1_10/2019	Remediation	m_A	1	A1_2_left.MP4	12366	24.5946	Before	Serranidae	*Epinephelus*	*fasciatus*	37 311014	1
E1_10/2019	Remediation	m_A	1	A1_1_left.MP4	27150	15.0984	Before	Serranidae	*Plectropomus*	*maculatus*	37 311012	1
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	6927	3.8522	Before	Acanthuridae	*Naso*	*unicornis*	37 437031	1
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	3717	2.0671	Before	Apogonidae	*Apogon*	*sp*		24
E1_10/2019	Remediation	m_A	2	A2_2_left.MP4	20572	29.158	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	1
E1_10/2019	Remediation	m_A	2	A2_2_left.MP4	20136	28.9156	Before	Caesionidae	*Pterocaesio*	*marri*	37 346068	62
E1_10/2019	Remediation	m_A	2	A2_2_left.MP4	7819	22.0659	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	17

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	12063	6.7084	Before	Labridae		*sp*		3
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	23059	12.8234	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	7542	4.1942	Before	Labridae	*Cirrhilabrus*	*punctatus*	37 384083	2
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	5885	3.2727	Before	Labridae	*Coris*	*pictoides*	37 384096	2
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	3086	1.7162	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	1
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	2994	1.665	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	3861	2.1471	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	3
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	6187	3.4407	Before	Labridae	*Thalassoma*	*lunare*	37 384167	4
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	26786	14.896	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	1
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	17548	9.7586	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	5
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	17931	9.9716	Before	Nemipteridae	*Pentapodus*	*sp*	0	1
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	11182	6.2184	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	1
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	6135	3.4117	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	3
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	3300	1.8352	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	31
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	2994	1.665	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	20
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	3212	1.7862	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	1
E1_10/2019	Remediation	m_A	2	A2_1_left.MP4	3079	1.7123	Before	Serranidae	*Diploprion*	*bifasciatum*	37 312002	1
E1_10/2019	Remediation	m_A	3	A3_1_left.MP4	26219	14.5807	Before	Acanthuridae	*Naso*	*tonganus*	37 437047	1
E1_10/2019	Remediation	m_A	3	A3_2_left.MP4	15378	26.2696	Before	Acanthuridae	*Naso*	*unicornis*	37 437031	1
E1_10/2019	Remediation	m_A	3	A3_1_left.MP4	9681	5.3837	Before	Apogonidae	*Ostorhinchus*	*angustatus*	37 327042	2
E1_10/2019	Remediation	m_A	3	A3_1_left.MP4	8996	5.0028	Before	Balistidae		*sp*		1
E1_10/2019	Remediation	m_A	3	A3_1_left.MP4	22558	12.5448	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	1
E1_10/2019	Remediation	m_A	3	A3_3_left.MP4	21916	47.6231	Before	Carcharhinidae	*Galeocerdo*	*cuvier*	37 018022	1
E1_10/2019	Remediation	m_A	3	A3_1_left.MP4	23188	12.8951	Before	Hemiscylliidae	*Chiloscyllium*	*punctatum*	37 013008	1
E1_10/2019	Remediation	m_A	3	A3_1_left.MP4	4866	2.706	Before	Labridae		*sp*		1
E1_10/2019	Remediation	m_A	3	A3_1_left.MP4	2738	1.5226	Before	Labridae	*Choerodon*	*venustus*	37 384042	2

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	Remediation	m_A	3	A3_1_left.MP4	5110	2.8417	Before	Labridae	*Coris*	*pictoides*	37 384096	2
E1_10/2019	Remediation	m_A	3	A3_1_left.MP4	7243	4.0279	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	3
E1_10/2019	Remediation	m_A	3	A3_1_left.MP4	7604	4.2287	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	5
E1_10/2019	Remediation	m_A	3	A3_1_left.MP4	17629	9.8037	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	1
E1_10/2019	Remediation	m_A	3	A3_1_left.MP4	5022	2.7928	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	1
E1_10/2019	Remediation	m_A	3	A3_1_left.MP4	28604	15.907	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	12
E1_10/2019	Remediation	m_A	3	A3_1_left.MP4	28253	15.7118	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	9
E1_10/2019	NearField	m_B	1	B1_1_left.MP4	24058	13.3789	Before	Apogonidae	*Apogon*	*sp*		1
E1_10/2019	NearField	m_B	1	B1_1_left.MP4	4529	2.5186	Before	Labridae	*Choerodon*	*venustus*	37 384042	3
E1_10/2019	NearField	m_B	1	B1_2_left.MP4	2272	18.9812	Before	Labridae	*Cirrhilabrus*	*punctatus*	37 384083	3
E1_10/2019	NearField	m_B	1	B1_2_left.MP4	9451	22.9735	Before	Labridae	*Coris*	*batuensis*	37 384098	1
E1_10/2019	NearField	m_B	1	B1_1_left.MP4	26028	14.4745	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2
E1_10/2019	NearField	m_B	1	B1_2_left.MP4	381	17.9296	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	3
E1_10/2019	NearField	m_B	1	B1_1_left.MP4	2689	1.4954	Before	Labridae	*Thalassoma*	*lunare*	37 384167	1
E1_10/2019	NearField	m_B	1	B1_1_left.MP4	4331	2.4085	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	6
E1_10/2019	NearField	m_B	1	B1_1_left.MP4	14957	8.3178	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	1
E1_10/2019	NearField	m_B	1	B1_1_left.MP4	6076	3.3789	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	2
E1_10/2019	NearField	m_B	1	B1_1_left.MP4	21544	11.9809	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	1
E1_10/2019	NearField	m_B	1	B1_1_left.MP4	27672	15.3887	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	11
E1_10/2019	NearField	m_B	1	B1_1_left.MP4	29213	16.2457	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	1
E1_10/2019	NearField	m_B	1	B1_1_left.MP4	9218	5.1262	Before	Serranidae	*Plectropomus*	*sp*		1
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	7152	3.9773	Before	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	12
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	7192	3.9996	Before	Acanthuridae	*Acanthurus*	*sp*		1
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	7865	4.3738	Before	Acanthuridae	*Naso*	*brevirostris*	37 437026	18
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	14147	7.8673	Before	Acanthuridae	*Naso*	*lituratus*	37 437029	1
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	6785	3.7732	Before	Acanthuridae	*Naso*	*tonganus*	37 437047	5

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	6805	3.7843	Before	Acanthuridae	*Naso*	*unicornis*	37 437031	5
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	3190	1.774	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	1
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	17709	9.8482	Before	Balistidae	*Sufflamen*	*fraenatum*	37 465014	1
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	17242	9.5885	Before	Carangidae	*Pseudocaranx*	*dentex*	37 337082	2
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	14079	7.8295	Before	Chaetodontidae	*Chaetodon*	*melannotus*	37 365043	2
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	4437	2.4675	Before	Chaetodontidae	*Coradion*	*chrysozonus*	37 365004	1
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	17286	9.6129	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	1
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	2308	1.2835	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	2
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	4174	2.3212	Before	Labridae	*Choerodon*	*venustus*	37 384042	1
E1_10/2019	NearField	m_B	2	B2_2_left.MP4	11516	24.1219	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	3
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	7883	4.3838	Before	Labridae	*Scarus*	*rubroviolaceus*	37 386028	2
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	13933	7.7483	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	3
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	20950	11.6505	Before	Lutjanidae	*Lutjanus*	*adetii*	37 346033	1
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	13006	7.2328	Before	Lutjanidae	*Lutjanus*	*fulviflamma*	37 346034	1
E1_10/2019	NearField	m_B	2	B2_2_left.MP4	15929	26.576	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	1
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	8636	4.8026	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	1
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	12092	6.7245	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	1
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	2312	1.2857	Before	Pomacentridae	*Pomacentrus*	*coelestis*	37 372111	4
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	3190	1.774	Before	Pomacentridae	*Pomacentrus*	*sp*		1
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	6959	3.87	Before	Serranidae	*Diploprion*	*bifasciatum*	37 312002	1
E1_10/2019	NearField	m_B	2	B2_1_left.MP4	11307	6.2879	Before	Serranidae	*Plectropomus*	*sp*		1
E1_10/2019	NearField	m_B	3	B3_1_left.MP4	14387	0.005556	Before	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	3
E1_10/2019	NearField	m_B	3	B3_2_left.MP4	10902	0.016514	Before	Acanthuridae	*Naso*	*annulatus*	37 437024	1
E1_10/2019	NearField	m_B	3	B3_1_left.MP4	17542	0.006775	Before	Acanthuridae	*Naso*	*brachycentron*	37 437025	1
E1_10/2019	NearField	m_B	3	B3_1_left.MP4	4600	0.001777	Before	Acanthuridae	*Naso*	*tonganus*	37 437047	13
E1_10/2019	NearField	m_B	3	B3_1_left.MP4	14387	0.005556	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	NearField	m_B	3	B3_2_left.MP4	5097	0.014272	Before	Chaetodontidae	*Chaetodon*	*rainfordi*	37 365053	4
E1_10/2019	NearField	m_B	3	B3_1_left.MP4	3411	0.001317	Before	Chaetodontidae	*Chaetodon*	*trifascialis*	37 365058	2
E1_10/2019	NearField	m_B	3	B3_1_left.MP4	8467	0.00327	Before	Haemulidae	*Plectorhinchus*	*unicolor*	37 350013	1
E1_10/2019	NearField	m_B	3	B3_1_left.MP4	26775	0.01034	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E1_10/2019	NearField	m_B	3	B3_2_left.MP4	2337	0.013206	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	1
E1_10/2019	NearField	m_B	3	B3_1_left.MP4	18572	0.007172	Before	Labridae	*Hologymnosus*	*doliatus*	37 384127	1
E1_10/2019	NearField	m_B	3	B3_1_left.MP4	8624	0.00333	Before	Labridae	*Scarus*	*niger*	37 386021	1
E1_10/2019	NearField	m_B	3	B3_1_left.MP4	19665	0.007594	Before	Labridae	*Scarus*	*sp*		2
E1_10/2019	NearField	m_B	3	B3_2_left.MP4	2608	0.013311	Before	Labridae	*Thalassoma*	*lunare*	37 384167	5
E1_10/2019	NearField	m_B	3	B3_1_left.MP4	15470	0.005974	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	7
E1_10/2019	NearField	m_B	3	B3_2_left.MP4	6664	0.014878	Before	Pinguipedidae	*Parapercis*	*clathrata*	37 390013	2
E1_10/2019	NearField	m_B	3	B3_2_left.MP4	9435	0.015948	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	1
E1_10/2019	NearField	m_B	3	B3_1_left.MP4	8467	0.00327	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	9
E1_10/2019	NearField	m_B	3	B3_1_left.MP4	13508	0.005217	Before	Serranidae	*Plectropomus*	*leopardus*	37 311078	1
E1_10/2019	NearField	m_B	3	B3_2_left.MP4	22235	0.020891	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	4
E1_10/2019	NearField	m_B	3	B3_1_left.MP4	3414	0.001318	Before	Zanclidae	*Zanclus*	*cornutus*	37 437001	2
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	16185	9.0007	Before	Apogonidae	*Apogon*	*sp*		4
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	8464	4.7069	Before	Apogonidae	*Ostorhinchus*	*angustatus*	37 327042	3
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	15478	8.6075	Before	Caesionidae	*Pterocaesio*	*tile*	37 346063	2
E1_10/2019	Remediation	m_C	1	C1_2_left.MP4	5701	20.8881	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	2
E1_10/2019	Remediation	m_C	1	C1_2_left.MP4	5701	20.8881	Before	Ginglymostomatidae	*Nebrius*	*ferrugineus*	37 013010	1
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	23041	12.8134	Before	Labridae		*sp*	0	2
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	21477	11.9436	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	2577	1.4331	Before	Labridae	*Coris*	*pictoides*	37 384096	2
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	2052	1.1411	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	1
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	2853	1.5866	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	22826	12.6938	Before	Labridae	*Leptojulis*	*cyanopleura*	37 384027	7
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	6007	3.3406	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	4
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	2305	1.2818	Before	Labridae	*Scarus*	*sp*		1
E1_10/2019	Remediation	m_C	1	C1_2_left.MP4	11449	24.0846	Before	Labridae	*Thalassoma*	*lunare*	37 384167	4
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	26203	14.5718	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	1
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	2853	1.5866	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	1
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	9975	5.5472	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	2
E1_10/2019	Remediation	m_C	1	C1_2_left.MP4	6319	21.2318	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	1
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	9592	5.3342	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	17
E1_10/2019	Remediation	m_C	1	C1_2_left.MP4	11002	23.836	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	20
E1_10/2019	Remediation	m_C	1	C1_1_left.MP4	15826	8.801	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	1
E1_10/2019	Remediation	m_C	2	C2_2_left.MP4	12653	24.7542	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	2
E1_10/2019	Remediation	m_C	2	C2_2_left.MP4	23079	30.5522	Before	Carcharhinidae	*Carcharhinus*	*leucas*	37018021	1
E1_10/2019	Remediation	m_C	2	C2_1_left.MP4	14031	7.8028	Before	Labridae	*Choerodon*	*venustus*	37 384042	3
E1_10/2019	Remediation	m_C	2	C2_1_left.MP4	18376	10.2191	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E1_10/2019	Remediation	m_C	2	C2_1_left.MP4	3428	1.9063	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	3
E1_10/2019	Remediation	m_C	2	C2_1_left.MP4	17272	9.6052	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1
E1_10/2019	Remediation	m_C	2	C2_1_left.MP4	2130	1.1845	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	1
E1_10/2019	Remediation	m_C	2	C2_1_left.MP4	2130	1.1845	Before	Labridae	*Thalassoma*	*lunare*	37 384167	1
E1_10/2019	Remediation	m_C	2	C2_1_left.MP4	17636	9.8076	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	2
E1_10/2019	Remediation	m_C	2	C2_1_left.MP4	23317	12.9668	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	2
E1_10/2019	Remediation	m_C	2	C2_1_left.MP4	5552	3.0875	Before	Monacanthidae		*sp*		1
E1_10/2019	Remediation	m_C	2	C2_1_left.MP4	5326	2.9618	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	2
E1_10/2019	Remediation	m_C	2	C2_1_left.MP4	14002	7.7867	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	1
E1_10/2019	Remediation	m_C	2	C2_1_left.MP4	2130	1.1845	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	2
E1_10/2019	Remediation	m_C	2	C2_2_left.MP4	9193	22.83	Before	Pomacentridae	*Pomacentrus*	*coelestis*	37 372111	4

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	Remediation	m_C	2	C2_1_left.MP4	17272	9.6052	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	1
E1_10/2019	Remediation	m_C	3	C3_1_Left.MP4	9446	0.003648	Before	Dasyatidae	*Neotrygon*	*kuhlii*	37 035903	1
E1_10/2019	Remediation	m_C	3	C3_2_Left.MP4	3948	0.013829	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	1
E1_10/2019	Remediation	m_C	3	C3_1_Left.MP4	23487	0.00907	Before	Labridae	*Choerodon*	*venustus*	37 384042	3
E1_10/2019	Remediation	m_C	3	C3_1_Left.MP4	12337	0.004764	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E1_10/2019	Remediation	m_C	3	C3_1_Left.MP4	15829	0.006113	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	1
E1_10/2019	Remediation	m_C	3	C3_2_Left.MP4	5368	0.014377	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	1
E1_10/2019	Remediation	m_C	3	C3_1_Left.MP4	12337	0.004764	Before	Labridae	*Thalassoma*	*lunare*	37 384167	1
E1_10/2019	Remediation	m_C	3	C3_1_Left.MP4	20940	0.008087	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	1
E1_10/2019	Remediation	m_C	3	C3_2_Left.MP4	3948	0.013829	Before	Mobulidae	*Mobula*	*sp*		1
E1_10/2019	Remediation	m_C	3	C3_1_Left.MP4	13572	0.005241	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	1
E1_10/2019	Remediation	m_C	3	C3_1_Left.MP4	20940	0.008087	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	1
E1_10/2019	Remediation	m_C	3	C3_1_Left.MP4	30767	0.011882	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	10
E1_10/2019	Remediation	m_C	3	C3_2_Left.MP4	12318	0.017061	Before	Sphyrnidae	*Sphyrna*	*lewini*	37 019001	1
E1_10/2019	NearField	m_D	1	D1_2_left.MP4	20275	28.9929	Before	Dasyatidae		*sp*		1
E1_10/2019	NearField	m_D	1	D1_1_left.MP4	2676	1.4882	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	1
E1_10/2019	NearField	m_D	1	D1_2_left.MP4	7266	21.7584	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	4
E1_10/2019	NearField	m_D	1	D1_1_left.MP4	29278	16.2818	Before	Labridae		*sp*		1
E1_10/2019	NearField	m_D	1	D1_1_left.MP4	16095	8.9506	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E1_10/2019	NearField	m_D	1	D1_2_left.MP4	12693	24.7764	Before	Labridae	*Coris*	*pictoides*	37 384096	2
E1_10/2019	NearField	m_D	1	D1_1_left.MP4	10215	5.6807	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	12
E1_10/2019	NearField	m_D	1	D1_2_left.MP4	6319	21.2318	Before	Labridae	*Leptojulis*	*cyanopleura*	37 384027	12
E1_10/2019	NearField	m_D	1	D1_1_left.MP4	12787	7.111	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	6
E1_10/2019	NearField	m_D	1	D1_2_left.MP4	19551	28.5902	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	2
E1_10/2019	NearField	m_D	1	D1_1_left.MP4	4345	2.4163	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	1
E1_10/2019	NearField	m_D	2	D2_1_left.MP4	24183	13.4484	Before	Acanthuridae	*Acanthurus*	*sp*		1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	NearField	m_D	2	D2_2_left.MP4	22419	30.1852	Before	Acanthuridae	*Naso*	*tonganus*	37 437047	14
E1_10/2019	NearField	m_D	2	D2_2_left.MP4	4036	19.9622	Before	Balistidae	*Abalistes*	*stellaris*	37 465011	1
E1_10/2019	NearField	m_D	2	D2_2_left.MP4	10352	23.4746	Before	Hemiscylliidae	*Chiloscyllium*	*punctatum*	37 013008	1
E1_10/2019	NearField	m_D	2	D2_1_left.MP4	29024	16.1406	Before	Labridae	*Choerodon*	*venustus*	37 384042	1
E1_10/2019	NearField	m_D	2	D2_1_left.MP4	11787	6.5549	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	6
E1_10/2019	NearField	m_D	2	D2_1_left.MP4	24694	13.7326	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	1
E1_10/2019	NearField	m_D	2	D2_1_left.MP4	5008	2.785	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	2
E1_10/2019	NearField	m_D	2	D2_1_left.MP4	22802	12.6804	Before	Serranidae	*Plectropomus*	*maculatus*	37 311012	2
E1_10/2019	NearField	m_D	2	D2_1_left.MP4	6055	3.3673	Before	Serranidae	*Plectropomus*	*sp*		1
E1_10/2019	NearField	m_D	3	D3_2_left.MP4	9166	22.815	Before	Acanthuridae	*Naso*	*unicornis*	37 437031	1
E1_10/2019	NearField	m_D	3	D3_1_left.MP4	26340	14.648	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	1
E1_10/2019	NearField	m_D	3	D3_2_left.MP4	23102	30.565	Before	Caesionidae	*Pterocaesio*	*marri*	37 346068	15
E1_10/2019	NearField	m_D	3	D3_2_left.MP4	21068	29.4338	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	2
E1_10/2019	NearField	m_D	3	D3_2_left.MP4	21169	29.49	Before	Ginglymostomatidae	*Nebrius*	*ferrugineus*	37 013010	1
E1_10/2019	NearField	m_D	3	D3_2_left.MP4	14650	25.8647	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	12
E1_10/2019	NearField	m_D	3	D3_2_left.MP4	23873	30.9937	Before	Labridae		*sp*		3
E1_10/2019	NearField	m_D	3	D3_2_left.MP4	23869	30.9915	Before	Labridae	*Choerodon*	*venustus*	37 384042	5
E1_10/2019	NearField	m_D	3	D3_1_left.MP4	11189	6.2223	Before	Labridae	*Coris*	*pictoides*	37 384096	3
E1_10/2019	NearField	m_D	3	D3_1_left.MP4	3562	1.9809	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	3
E1_10/2019	NearField	m_D	3	D3_2_left.MP4	19308	28.4551	Before	Labridae	*Leptojulis*	*cyanopleura*	37 384027	6
E1_10/2019	NearField	m_D	3	D3_1_left.MP4	6191	3.4429	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	5
E1_10/2019	NearField	m_D	3	D3_1_left.MP4	6010	3.3422	Before	Labridae	*Thalassoma*	*lunare*	37 384167	3
E1_10/2019	NearField	m_D	3	D3_2_left.MP4	19166	28.3761	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	7
E1_10/2019	NearField	m_D	3	D3_2_left.MP4	3461	19.6424	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	1
E1_10/2019	NearField	m_D	3	D3_2_left.MP4	21859	29.8737	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	3
E1_10/2019	NearField	m_D	3	D3_2_left.MP4	21859	29.8737	Before	Mullidae	*Parupeneus*	*spilurus*	37 355015	1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	NearField	m_D	3	D3_2_left.MP4	5442	20.7441	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	1
E1_10/2019	NearField	m_D	3	D3_1_left.MP4	8519	4.7375	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	2
E1_10/2019	NearField	m_D	3	D3_2_left.MP4	23182	30.6095	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	13
E1_10/2019	Remediation	m_E	1	E1_1_left.MP4	27765	15.4404	Before	Balistidae	*Abalistes*	*stellaris*	37 465011	1
E1_10/2019	Remediation	m_E	1	E1_2_left.MP4	19703	28.6748	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	1
E1_10/2019	Remediation	m_E	1	E1_1_left.MP4	22972	12.775	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	55
E1_10/2019	Remediation	m_E	1	E1_1_left.MP4	16700	9.2871	Before	Haemulidae	*Diagramma*	*pictum*	37 350003	2
E1_10/2019	Remediation	m_E	1	E1_1_left.MP4	6588	3.6637	Before	Labridae	*Choerodon*	*schoenleinii*	37 384010	1
E1_10/2019	Remediation	m_E	1	E1_1_left.MP4	10650	5.9226	Before	Labridae	*Choerodon*	*venustus*	37 384042	1
E1_10/2019	Remediation	m_E	1	E1_2_left.MP4	25899	32.1204	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	2
E1_10/2019	Remediation	m_E	1	E1_1_left.MP4	7937	4.4139	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	3
E1_10/2019	Remediation	m_E	1	E1_2_left.MP4	27392	32.9507	Before	Lethrinidae	*Lethrinus*	*nebulosus*	37 351008	1
E1_10/2019	Remediation	m_E	1	E1_1_left.MP4	25719	14.3026	Before	Pinguipedidae	*Parapercis*	*clathrata*	37 390013	1
E1_10/2019	Remediation	m_E	1	E1_1_left.MP4	15156	8.4284	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	1
E1_10/2019	Remediation	m_E	1	E1_2_left.MP4	25899	32.1204	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	6
E1_10/2019	Remediation	m_E	1	E1_2_left.MP4	31396	35.1774	Before	Scombridae	*Scomberomorus*	*queenslandicus*	37 441014	1
E1_10/2019	Remediation	m_E	2	E2_2_left.MP4	655	18.082	Before	Hemiscylliidae	*Chiloscyllium*	*punctatum*	37 013008	1
E1_10/2019	Remediation	m_E	2	E2_1_Left.MP4	17373	9.6613	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E1_10/2019	Remediation	m_E	2	E2_2_left.MP4	16933	27.1343	Before	Labridae	*Coris*	*pictoides*	37 384096	2
E1_10/2019	Remediation	m_E	2	E2_1_Left.MP4	4444	2.4714	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	7
E1_10/2019	Remediation	m_E	2	E2_1_Left.MP4	4242	2.359	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2
E1_10/2019	Remediation	m_E	2	E2_1_Left.MP4	5749	3.1971	Before	Labridae	*Leptojulis*	*cyanopleura*	37 384027	1
E1_10/2019	Remediation	m_E	2	E2_1_Left.MP4	4242	2.359	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	9
E1_10/2019	Remediation	m_E	2	E2_1_Left.MP4	21524	11.9697	Before	Labridae	*Thalassoma*	*lunare*	37 384167	1
E1_10/2019	Remediation	m_E	2	E2_1_Left.MP4	6292	3.4991	Before	Pinguipedidae	*Parapercis*	*clathrata*	37 390013	1
E1_10/2019	Remediation	m_E	2	E2_1_Left.MP4	11194	6.2251	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	2
E1_10/2019	Remediation	m_E	2	E2_1_Left.MP4	23867	13.2727	Before	Pomacentridae	*Amphiprion*	*chrysopterus*	37 372021	1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	Remediation	m_E	2	E2_1_Left.MP4	9523	5.2958	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	31
E1_10/2019	Remediation	m_E	2	E2_2_left.MP4	3971	19.926	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	9
E1_10/2019	Remediation	m_E	2	E2_1_Left.MP4	30909	17.1888	Before	Pseudochromidae	*Ogilbyina*	*novaehollandiae*	37 313009	1
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	23728	13.1954	Before	Apogonidae	*Cheilodipterus*	*quinquelineatus*	37 327090	1
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	29750	16.5443	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	1
E1_10/2019	Remediation	m_E	3	E3_2_left.MP4	12250	24.5301	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	1
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	4027	2.2395	Before	Labridae	*Choerodon*	*venustus*	37 384042	4
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	3443	1.9147	Before	Labridae	*Coris*	*pictoides*	37 384096	2
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	5551	3.087	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	3311	1.8413	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	6
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	9630	5.3554	Before	Labridae	*Stethojulis*	*strigiventer*	37 384156	1
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	23263	12.9368	Before	Labridae	*Thalassoma*	*lunare*	37 384167	3
E1_10/2019	Remediation	m_E	3	E3_2_left.MP4	22855	30.4276	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	1
E1_10/2019	Remediation	m_E	3	E3_2_left.MP4	19971	28.8238	Before	Lethrinidae	*Lethrinus*	*atkinsoni*	37 351013	1
E1_10/2019	Remediation	m_E	3	E3_2_left.MP4	23109	30.5689	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	1
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	6987	3.8855	Before	Lutjanidae	*Aprion*	*virescens*	37 346027	1
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	3983	2.215	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	1
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	21353	11.8746	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	1
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	4027	2.2395	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	1
E1_10/2019	Remediation	m_E	3	E3_2_left.MP4	23723	30.9103	Before	Pomacentridae	*Dascyllus*	*reticulatus*	37 372074	4
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	2202	1.2246	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	12
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	14130	7.8579	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	2
E1_10/2019	Remediation	m_E	3	E3_1_left.MP4	8991	5	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	8
E1_10/2019	NearField	m_G	1	G1_2_left.MP4	13428	25.1852	Before	Blennidae		*sp*	0	1
E1_10/2019	NearField	m_G	1	G1_1_left.MP4	2589	1.4398	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	9
E1_10/2019	NearField	m_G	1	G1_1_left.MP4	12942	7.1972	Before	Labridae		*sp0*	0	1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	NearField	m_G	1	G1_1_left.MP4	31510	17.5231	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E1_10/2019	NearField	m_G	1	G1_1_left.MP4	20111	11.184	Before	Labridae	*Coris*	*pictoides*	37 384096	4
E1_10/2019	NearField	m_G	1	G1_1_left.MP4	3673	2.0426	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	6
E1_10/2019	NearField	m_G	1	G1_2_left.MP4	19833	28.7471	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1
E1_10/2019	NearField	m_G	1	G1_1_left.MP4	4788	2.6627	Before	Labridae	*Leptojulis*	*cyanopleura*	37 384027	2
E1_10/2019	NearField	m_G	1	G1_1_left.MP4	5403	3.0047	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	4
E1_10/2019	NearField	m_G	1	G1_1_left.MP4	30327	16.8652	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	2
E1_10/2019	NearField	m_G	1	G1_1_left.MP4	3140	1.7462	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	1
E1_10/2019	NearField	m_G	1	G1_1_left.MP4	23232	12.9196	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	9
E1_10/2019	NearField	m_G	2	G2_2_Left.MP4	7981	22.156	Before	Acanthuridae	*Naso*	*tonganus*	37 437047	2
E1_10/2019	NearField	m_G	2	G2_1_Left.MP4	20915	11.6311	Before	Acanthuridae	*Naso*	*unicornis*	37 437031	2
E1_10/2019	NearField	m_G	2	G2_1_Left.MP4	20118	11.1878	Before	Blennidae	*Ecsenius*	*bicolor*	37 408022	1
E1_10/2019	NearField	m_G	2	G2_2_Left.MP4	24169	31.1583	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	1
E1_10/2019	NearField	m_G	2	G2_1_Left.MP4	2436	1.3547	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	58
E1_10/2019	NearField	m_G	2	G2_1_Left.MP4	8237	4.5807	Before	Labridae	*Choerodon*	*venustus*	37 384042	1
E1_10/2019	NearField	m_G	2	G2_1_Left.MP4	10457	5.8153	Before	Labridae	*Coris*	*pictoides*	37 384096	3
E1_10/2019	NearField	m_G	2	G2_1_Left.MP4	13192	7.3362	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	2
E1_10/2019	NearField	m_G	2	G2_1_Left.MP4	12542	6.9747	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	5
E1_10/2019	NearField	m_G	2	G2_2_Left.MP4	15742	26.472	Before	Labridae	*Scarus*	*sp*		4
E1_10/2019	NearField	m_G	2	G2_1_Left.MP4	8237	4.5807	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	2
E1_10/2019	NearField	m_G	2	G2_1_Left.MP4	11916	6.6266	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	1
E1_10/2019	NearField	m_G	2	G2_2_Left.MP4	13057	24.9788	Before	Lutjanidae	*Symphorus*	*nametophorus*	37 346017	1
E1_10/2019	NearField	m_G	2	G2_1_Left.MP4	14038	7.8067	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	1
E1_10/2019	NearField	m_G	2	G2_2_Left.MP4	10012	23.2855	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	1
E1_10/2019	NearField	m_G	2	G2_1_Left.MP4	8711	4.8443	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	14
E1_10/2019	NearField	m_G	2	G2_2_Left.MP4	21742	29.8087	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	NearField	m_G	2	G2_2_Left.MP4	14070	25.5422	Before	Serranidae	*Plectropomus*	*leopardus*	37 311078	1
E1_10/2019	NearField	m_G	2	G2_1_Left.MP4	8491	4.7219	Before	Siganidae	*Siganus*	*sp*	0	1
E1_10/2019	NearField	m_G	3	G3_1_left.MP4	7032	3.9106	Before	Apogonidae	*Apogon*	*sp*	0	1
E1_10/2019	NearField	m_G	3	G3_2_left.MP4	259	17.8617	Before	Balistidae	*Abalistes*	*stellaris*	37 465011	1
E1_10/2019	NearField	m_G	3	G3_1_left.MP4	24212	13.4646	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	1
E1_10/2019	NearField	m_G	3	G3_1_left.MP4	30107	16.7428	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	4
E1_10/2019	NearField	m_G	3	G3_2_left.MP4	15204	26.1728	Before	Hemiscylliidae	*Chiloscyllium*	*punctatum*	37 013008	1
E1_10/2019	NearField	m_G	3	G3_1_left.MP4	5887	3.2738	Before	Labridae		*sp*	0	1
E1_10/2019	NearField	m_G	3	G3_1_left.MP4	2536	1.4103	Before	Labridae	*Choerodon*	*venustus*	37 384042	1
E1_10/2019	NearField	m_G	3	G3_1_left.MP4	3729	2.0737	Before	Labridae	*Coris*	*pictoides*	37 384096	4
E1_10/2019	NearField	m_G	3	G3_1_left.MP4	3165	1.7601	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	2
E1_10/2019	NearField	m_G	3	G3_1_left.MP4	6439	3.5808	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	3
E1_10/2019	NearField	m_G	3	G3_2_left.MP4	19593	28.6136	Before	Labridae	*Leptojulis*	*cyanopleura*	37 384027	1
E1_10/2019	NearField	m_G	3	G3_1_left.MP4	7201	4.0046	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	10
E1_10/2019	NearField	m_G	3	G3_2_left.MP4	2129	18.9017	Before	Labridae	*Thalassoma*	*lunare*	37 384167	4
E1_10/2019	NearField	m_G	3	G3_1_left.MP4	6910	3.8427	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	2
E1_10/2019	NearField	m_G	3	G3_1_left.MP4	24234	13.4768	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	1
E1_10/2019	NearField	m_G	3	G3_1_left.MP4	23527	13.0836	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	5
E1_10/2019	NearField	m_G	3	G3_2_left.MP4	10596	23.6103	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	9
E1_10/2019	NearField	m_G	3	G3_1_left.MP4	2361	1.313	Before	Pomacentridae	*Pomacentrus*	*coelestis*	37 372111	2
E1_10/2019	NearField	m_G	3	G3_1_left.MP4	11581	6.4403	Before	Pseudochromidae	*Ogilbyina*	*sp*		1
E1_10/2019	NearField	m_G	3	G3_2_left.MP4	8747	22.582	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	3
E1_10/2019	Control	m_H	1	H1_1_left.MP4	6929	3.8533	Before	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	1
E1_10/2019	Control	m_H	1	H1_1_left.MP4	11560	6.4286	Before	Acanthuridae	*Naso*	*tonganus*	37 437047	2
E1_10/2019	Control	m_H	1	H1_2_left.MP4	68	17.7555	Before	Acanthuridae	*Naso*	*unicornis*	37 437031	1
E1_10/2019	Control	m_H	1	H1_2_left.MP4	2889	19.3243	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	Control	m_H	1	H1_2_left.MP4	9850	23.1954	Before	Chaetodontidae	*Coradion*	*chrysozonus*	37 365004	1
E1_10/2019	Control	m_H	1	H1_1_left.MP4	9079	5.0489	Before	Labridae	*Choerodon*	*venustus*	37 384042	1
E1_10/2019	Control	m_H	1	H1_2_left.MP4	20828	29.3004	Before	Labridae	*Coris*	*pictoides*	37 384096	2
E1_10/2019	Control	m_H	1	H1_1_left.MP4	6575	3.6564	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1
E1_10/2019	Control	m_H	1	H1_2_left.MP4	934	18.2371	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	4
E1_10/2019	Control	m_H	1	H1_1_left.MP4	11427	6.3547	Before	Labridae	*Scarus*	*sp*		1
E1_10/2019	Control	m_H	1	H1_2_left.MP4	1031	18.2911	Before	Labridae	*Thalassoma*	*lunare*	37 384167	2
E1_10/2019	Control	m_H	1	H1_2_left.MP4	6230	21.1823	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	10
E1_10/2019	Control	m_H	1	H1_2_left.MP4	25620	31.9653	Before	Lutjanidae	*Symphorus*	*nametophorus*	37 346017	1
E1_10/2019	Control	m_H	1	H1_1_left.MP4	28409	15.7986	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	1
E1_10/2019	Control	m_H	1	H1_2_left.MP4	2623	19.1764	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	1
E1_10/2019	Control	m_H	1	H1_1_left.MP4	7431	4.1325	Before	Pinguipedidae	*Parapercis*	*clathrata*	37 390013	1
E1_10/2019	Control	m_H	1	H1_1_left.MP4	12236	6.8046	Before	Pomacanthidae	*Centropyge*	*bicolor*	37 365022	2
E1_10/2019	Control	m_H	1	H1_2_left.MP4	423	17.9529	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	4
E1_10/2019	Control	m_H	1	H1_2_left.MP4	1451	18.5246	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	1
E1_10/2019	Control	m_H	1	H1_2_left.MP4	1327	18.4557	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	21
E1_10/2019	Control	m_H	1	H1_1_left.MP4	11560	NA	Before	Acanthuridae	*Naso*	*tonganus*	37 437047	2
E1_10/2019	Control	m_H	1	H1_1_left.MP4	6575	NA	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1
E1_10/2019	Control	m_H	1	H1_1_left.MP4	11427	NA	Before	Labridae	*Scarus*	*sp*	0	1
E1_10/2019	Control	m_H	1	H1_1_left.MP4	28409	NA	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	1
E1_10/2019	Control	m_H	1	H1_1_left.MP4	7431	NA	Before	Pinguipedidae	*Parapercis*	*clathrata*	37 390013	1
E1_10/2019	Control	m_H	1	H1_1_left.MP4	12236	NA	Before	Pomacanthidae	*Centropyge*	*bicolor*	37 365022	2
E1_10/2019	Control	m_H	1	H1_2_left.MP4	68	35.4732	Before	Acanthuridae	*Naso*	*unicornis*	37 437031	1
E1_10/2019	Control	m_H	1	H1_2_left.MP4	2889	37.042	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	1
E1_10/2019	Control	m_H	1	H1_2_left.MP4	9850	40.9131	Before	Chaetodontidae	*Coradion*	*chrysozonus*	37 365004	1
E1_10/2019	Control	m_H	1	H1_2_left.MP4	20828	47.0181	Before	Labridae	*Coris*	*pictoides*	37 384096	2

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	Control	m_H	1	H1_2_left.MP4	1031	36.0088	Before	Labridae	*Thalassoma*	*lunare*	37 384167	2
E1_10/2019	Control	m_H	1	H1_2_left.MP4	6230	38.9	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	10
E1_10/2019	Control	m_H	1	H1_2_left.MP4	25620	49.683	Before	Lutjanidae	*Symphorus*	*nametophorus*	37 346017	1
E1_10/2019	Control	m_H	1	H1_2_left.MP4	423	35.6706	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	4
E1_10/2019	Control	m_H	1	H1_2_left.MP4	1451	36.2423	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	1
E1_10/2019	Control	m_H	1	H1_2_left.MP4	1327	36.1734	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	21
E1_10/2019	Control	m_H	2	H2_1_left.MP4	23489	13.0625	Before	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	5
E1_10/2019	Control	m_H	2	H2_1_left.MP4	21328	11.8607	Before	Hemiscylliidae	*Chiloscyllium*	*punctatum*	37 013008	1
E1_10/2019	Control	m_H	2	H2_1_left.MP4	18464	10.268	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E1_10/2019	Control	m_H	2	H2_1_left.MP4	8860	4.9271	Before	Mullidae	*Parupeneus*	*spilurus*	37 355015	3
E1_10/2019	Control	m_H	2	H2_1_left.MP4	18915	10.5188	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	2
E1_10/2019	Control	m_H	2	H2_1_left.MP4	27615	15.357	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	6
E1_10/2019	Control	m_H	2	H2_2_left.MP4	9172	22.8184	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	1
E1_10/2019	Control	m_H	2	H2_2_left.MP4	3808	19.8354	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	13
E1_10/2019	Control	m_H	2	H2_2_left.MP4	4281	20.0984	Before	Pomacentridae	*Pomacentrus*	*coelestis*	37 372111	1
E1_10/2019	Control	m_H	3	H3_2_left.MP4	12092	0.016974	Before	Acanthuridae	*Acanthurus*	*dussumieri*	37 437008	1
E1_10/2019	Control	m_H	3	H3_1_left.MP4	17186	0.006637	Before	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	4
E1_10/2019	Control	m_H	3	H3_1_left.MP4	30341	0.011717	Before	Acanthuridae	*Naso*	*brachycentron*	37 437025	1
E1_10/2019	Control	m_H	3	H3_1_left.MP4	20649	0.007974	Before	Apogonidae	*Apogon*	*sp*		5
E1_10/2019	Control	m_H	3	H3_1_left.MP4	10964	0.004234	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	1
E1_10/2019	Control	m_H	3	H3_2_left.MP4	15840	0.018421	Before	Balistidae	*Sufflamen*	*fraenatum*	37 465014	1
E1_10/2019	Control	m_H	3	H3_1_left.MP4	6470	0.002499	Before	Chaetodontidae	*Chaetodon*	*kleinii*	37 365040	2
E1_10/2019	Control	m_H	3	H3_1_left.MP4	26156	0.010101	Before	Labridae	*Choerodon*	*venustus*	37 384042	1
E1_10/2019	Control	m_H	3	H3_1_left.MP4	6408	0.002475	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E1_10/2019	Control	m_H	3	H3_1_left.MP4	6408	0.002475	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	1
E1_10/2019	Control	m_H	3	H3_1_left.MP4	16338	0.006309	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	Control	m_H	3	H3_1_left.MP4	6297	0.002432	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	11
E1_10/2019	Control	m_H	3	H3_1_left.MP4	8870	0.003425	Before	Labridae	*Stethojulis*	*bandanensis*	37 384154	1
E1_10/2019	Control	m_H	3	H3_2_left.MP4	23449	0.02136	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	1
E1_10/2019	Control	m_H	3	H3_1_left.MP4	3982	0.001538	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	3
E1_10/2019	Control	m_H	3	H3_1_left.MP4	4092	0.00158	Before	Mullidae	*Parupeneus*	*spilurus*	37 355015	1
E1_10/2019	Control	m_H	3	H3_2_left.MP4	23171	0.021252	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	4
E1_10/2019	Control	m_H	3	H3_1_left.MP4	11122	0.004295	Before	Pinguipedidae	*Parapercis*	*clathrata*	37 390013	2
E1_10/2019	Control	m_H	3	H3_1_left.MP4	8767	0.003386	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	3
E1_10/2019	Control	m_H	3	H3_1_left.MP4	6408	0.002475	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	2
E1_10/2019	Control	m_H	3	H3_1_left.MP4	29206	0.011279	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	13
E1_10/2019	Control	m_H	3	H3_2_left.MP4	16210	0.018564	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	2
E1_10/2019	Control	m_I	1	I1_1_left.MP4	29603	16.4626	Before	Acanthuridae	*Naso*	*unicornis*	37 437031	1
E1_10/2019	Control	m_I	1	I1_1_left.MP4	31094	17.2917	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	2
E1_10/2019	Control	m_I	1	I1_1_left.MP4	2321	1.2907	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	33
E1_10/2019	Control	m_I	1	I1_1_left.MP4	14189	7.8907	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E1_10/2019	Control	m_I	1	I1_1_left.MP4	5318	2.9574	Before	Labridae	*Coris*	*pictoides*	37 384096	3
E1_10/2019	Control	m_I	1	I1_1_left.MP4	4767	2.651	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	20
E1_10/2019	Control	m_I	1	I1_1_left.MP4	19952	11.0955	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2
E1_10/2019	Control	m_I	1	I1_1_left.MP4	7852	4.3666	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	2
E1_10/2019	Control	m_I	1	I1_1_left.MP4	28455	15.8241	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	1
E1_10/2019	Control	m_I	1	I1_1_left.MP4	27620	15.3598	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	3
E1_10/2019	Control	m_I	1	I1_1_left.MP4	6718	3.736	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	2
E1_10/2019	Control	m_I	1	I1_2_left.MP4	1534	18.5708	Before	Pomacentridae	*Pomacentrus*	*coelestis*	37 372111	15
E1_10/2019	Control	m_I	2	I2_1_left.MP4	7191	3.999	Before	Balistidae	*Rhinecanthus*	*rectangulus*	37 465073	2
E1_10/2019	Control	m_I	2	I2_1_left.MP4	5523	3.0714	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	1
E1_10/2019	Control	m_I	2	I2_1_left.MP4	21954	12.2089	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	6
E1_10/2019	Control	m_I	2	I2_1_left.MP4	8958	4.9816	Before	Labridae	*Choerodon*	*venustus*	37 384042	1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	Control	m_l	2	l2_1_left.MP4	10638	5.9159	Before	Labridae	*Coris*	*pictoides*	37 384096	5
E1_10/2019	Control	m_l	2	l2_1_left.MP4	5982	3.3267	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	3
E1_10/2019	Control	m_l	2	l2_1_left.MP4	5559	3.0914	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	8
E1_10/2019	Control	m_l	2	l2_1_left.MP4	2773	1.5421	Before	Labridae	*Thalassoma*	*lunare*	37 384167	1
E1_10/2019	Control	m_l	2	l2_2_left.MP4	13075	24.9889	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	4
E1_10/2019	Control	m_l	2	l2_1_left.MP4	25340	14.0919	Before	Lethrinidae	*Lethrinus*	*sp*	0	2
E1_10/2019	Control	m_l	2	l2_1_left.MP4	22796	12.6771	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	3
E1_10/2019	Control	m_l	2	l2_1_left.MP4	3241	1.8024	Before	Mullidae	*Parupeneus*	*spilurus*	37 355015	2
E1_10/2019	Control	m_l	2	l2_2_left.MP4	5566	20.813	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	6
E1_10/2019	Control	m_l	2	l2_1_left.MP4	20948	11.6494	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	1
E1_10/2019	Control	m_l	2	l2_2_left.MP4	5861	20.9771	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	7
E1_10/2019	Control	m_l	2	l2_1_left.MP4	3342	1.8585	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	43
E1_10/2019	Control	m_l	3	l3_1_left.MP4	9716	5.4032	Before	Balistidae	*Rhinecanthus*	*rectangulus*	37 465073	2
E1_10/2019	Control	m_l	3	l3_1_left.MP4	24808	13.796	Before	Hemiscylliidae	*Chiloscyllium*	*punctatum*	37 013008	1
E1_10/2019	Control	m_l	3	l3_1_left.MP4	3657	2.0337	Before	Labridae		*sp*		1
E1_10/2019	Control	m_l	3	l3_1_left.MP4	30068	16.7211	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E1_10/2019	Control	m_l	3	l3_1_left.MP4	2941	1.6355	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E1_10/2019	Control	m_l	3	l3_1_left.MP4	3718	2.0676	Before	Labridae	*Halichoeres*	*nebulosus*	37 384113	3
E1_10/2019	Control	m_l	3	l3_1_left.MP4	5796	3.2232	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1
E1_10/2019	Control	m_l	3	l3_1_left.MP4	12607	7.0109	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	8
E1_10/2019	Control	m_l	3	l3_2_left.MP4	10177	23.3772	Before	Labridae	*Thalassoma*	*lunare*	37 384167	3
E1_10/2019	Control	m_l	3	l3_1_left.MP4	10833	6.0244	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	16
E1_10/2019	Control	m_l	3	l3_1_left.MP4	3360	1.8685	Before	Lethrinidae	*Lethrinus*	*sp*	0	1
E1_10/2019	Control	m_l	3	l3_1_left.MP4	3711	2.0637	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	7
E1_10/2019	Control	m_l	3	l3_1_left.MP4	12123	6.7417	Before	Mullidae	*Parupeneus*	*spilurus*	37 355015	2
E1_10/2019	Control	m_l	3	l3_1_left.MP4	3660	2.0354	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	2

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E1_10/2019	Control	m_I	3	I3_1_left.MP4	8795	4.891	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	2
E1_10/2019	Control	m_I	3	I3_1_left.MP4	4388	2.4402	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	2
E1_10/2019	Control	m_I	3	I3_1_left.MP4	20365	11.3252	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	7
E1_10/2019	Control	m_I	3	I3_1_left.MP4	13598	7.562	Before	Pomacentridae	*Pomacentrus*	*coelestis*	37 372111	2
E1_10/2019	Control	m_I	3	I3_1_left.MP4	28766	15.9971	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	48
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	9887	37.9971	Before	Acanthuridae	*Naso*	*unicornis*	37 437031	1
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	7109	53.9971	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	1
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	23687	63.9971	Before	Blennidae	*Meiacanthus*	*grammistes*	37 408005	1
E2_04/2020	Remediation	m_A	1	A1L-2.MP4	8221	77.9971	Before	Blennidae	*Salarias*	*sp*		1
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	10223	87.9971	Before	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	1
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	9339	96.9971	Before	Carangidae	*Carangoides*	*orthogrammus*	37 337057	2
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	9339	97.9971	Before	Carangidae	*Caranx*	*melampygus*	37 337050	1
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	2494	106.9971	Before	Chaetodontidae	*Chaetodon*	*rainfordi*	37 365053	3
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	7485	109.9971	Before	Chaetodontidae	*Coradion*	*altivelis*	37 365018	1
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	4445	120.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	124
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	26447	139.9971	Before	Labridae	*Choerodon*	*schoenleinii*	37 384010	1
E2_04/2020	Remediation	m_A	1	A1L-2.MP4	1317	147.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	1
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	3597	191.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	5
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	3887	213.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	6473	241.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	3
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	3347	263.9971	Before	Labridae	*Stethojulis*	*strigiventer*	37 384156	1
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	5486	283.9971	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	2
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	13261	344.9971	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347028	2
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	6886	358.9971	Before	Pinguipedidae	*Parapercis*	*clathrata*	37 390013	2
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	26330	362.9971	Before	Pinguipedidae	*Parapercis*	*cylindrica*	37 390041	1
E2_04/2020	Remediation	m_A	1	A1L-2.MP4	22711	391.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	48

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	Remediation	m_A	1	A1L-2.MP4	21129	418.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	56
E2_04/2020	Remediation	m_A	1	A1L-2.MP4	23392	442.9971	Before	Pomacentridae	*Pomacentrus*	*coelestis*	37 372111	5
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	3892	448.9971	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	2
E2_04/2020	Remediation	m_A	1	A1L-2.MP4	18815	463.9971	Before	Pseudochromidae	*Pseudochromis*	*sp*		1
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	7732	471.9971	Before	Serranidae	*Epinephelus*	*merra*	37 311063	1
E2_04/2020	Remediation	m_A	1	A1L-2.MP4	5680	473.9971	Before	Serranidae	*Plectropomus*	*leopardus*	37 311078	1
E2_04/2020	Remediation	m_A	1	A1L-2.MP4	693	480.9971	Before	Siganidae	*Siganus*	*argenteus*	37 438007	3
E2_04/2020	Remediation	m_A	1	A1L-1.MP4	25826	490.9971	Before	Tetraodontidae	*Canthigaster*	*valentini*	37 467043	1
E2_04/2020	Remediation	m_A	2	A2L-1.MP4	7560	30.9971	Before	Acanthuridae	*Naso*	*brachycentron*	37 437025	1
E2_04/2020	Remediation	m_A	2	A2L-1.MP4	4590	121.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	130
E2_04/2020	Remediation	m_A	2	A2L-1.MP4	3778	171.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E2_04/2020	Remediation	m_A	2	A2L-1.MP4	10893	192.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	3
E2_04/2020	Remediation	m_A	2	A2L-1.MP4	4147	214.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	3
E2_04/2020	Remediation	m_A	2	A2L-2.MP4	19593	233.9971	Before	Labridae	*Leptojulis*	*cyanopleura*	37 384027	1
E2_04/2020	Remediation	m_A	2	A2L-1.MP4	3038	242.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	1
E2_04/2020	Remediation	m_A	2	A2L-1.MP4	2584	271.9971	Before	Labridae	*Thalassoma*	*lunare*	37 384167	1
E2_04/2020	Remediation	m_A	2	A2L-1.MP4	4088	336.9971	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	1
E2_04/2020	Remediation	m_A	2	A2L-1.MP4	4144	359.9971	Before	Pinguipedidae	*Parapercis*	*clathrata*	37 390013	3
E2_04/2020	Remediation	m_A	2	A2L-2.MP4	12301	392.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	7
E2_04/2020	Remediation	m_A	2	A2L-1.MP4	1603	419.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	12
E2_04/2020	Remediation	m_A	2	A2L-1.MP4	12551	449.9971	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	1
E2_04/2020	Remediation	m_A	3	A3L-2.MP4	13708	65.9971	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	1
E2_04/2020	Remediation	m_A	3	A3L-1.MP4	4351	111.9971	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	1
E2_04/2020	Remediation	m_A	3	A3L-2.MP4	2512	122.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	131
E2_04/2020	Remediation	m_A	3	A3L-1.MP4	2366	148.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	1
E2_04/2020	Remediation	m_A	3	A3L-1.MP4	4467	172.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	Remediation	m_A	3	A3L-1.MP4	6449	215.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1
E2_04/2020	Remediation	m_A	3	A3L-1.MP4	5242	243.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	3
E2_04/2020	Remediation	m_A	3	A3L-1.MP4	11701	272.9971	Before	Labridae	*Thalassoma*	*lunare*	37 384167	1
E2_04/2020	Remediation	m_A	3	A3L-1.MP4	5620	360.9971	Before	Pinguipedidae	*Parapercis*	*clathrata*	37 390013	2
E2_04/2020	Remediation	m_A	3	A3L-2.MP4	3300	393.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	36
E2_04/2020	Remediation	m_A	3	A3L-1.MP4	19582	420.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	15
E2_04/2020	Remediation	m_A	3	A3L-1.MP4	3514	450.9971	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	2
E2_04/2020	NearField	m_B	1	B1L_1.MP4	5912	54.9971	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	1
E2_04/2020	NearField	m_B	1	B1L_2.MP4	11005	61.9971	Before	Balistidae	*Sufflamen*	*fraenatum*	37 465014	1
E2_04/2020	NearField	m_B	1	B1L_1.MP4	20440	86.9971	Before	Carangidae	*Alectis*	*ciliaris*	37 337018	1
E2_04/2020	NearField	m_B	1	B1L_1.MP4	13898	101.9971	Before	Carangidae	*Pseudocaranx*	*dentex*	37 337082	1
E2_04/2020	NearField	m_B	1	B1L_1.MP4	22180	112.9971	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	1
E2_04/2020	NearField	m_B	1	B1L_1.MP4	3476	123.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	2
E2_04/2020	NearField	m_B	1	B1L_2.MP4	1593	149.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E2_04/2020	NearField	m_B	1	B1L_1.MP4	4785	173.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	2
E2_04/2020	NearField	m_B	1	B1L_1.MP4	7931	193.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	1
E2_04/2020	NearField	m_B	1	B1L_1.MP4	5142	234.9971	Before	Labridae	*Leptojulis*	*cyanopleura*	37 384027	2
E2_04/2020	NearField	m_B	1	B1L_1.MP4	6139	244.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	1
E2_04/2020	NearField	m_B	1	B1L_2.MP4	8341	284.9971	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	3
E2_04/2020	NearField	m_B	1	B1L_2.MP4	25131	319.9971	Before	Monacanthidae	*Aluterus*	*scriptus*	37 465045	1
E2_04/2020	NearField	m_B	1	B1L_1.MP4	13935	345.9971	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347028	1
E2_04/2020	NearField	m_B	1	B1L_1.MP4	11559	394.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	33
E2_04/2020	NearField	m_B	1	B1L_1.MP4	3298	415.9971	Before	Pomacentridae	*Chrysiptera*	*rollandi*	37 372067	3
E2_04/2020	NearField	m_B	1	B1L_1.MP4	11254	421.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	18
E2_04/2020	NearField	m_B	1	B1L_1.MP4	4786	446.9971	Before	Pomacentridae	*Pomacentrus*	*wardi*	37 372127	5
E2_04/2020	NearField	m_B	1	B1L_1.MP4	3298	464.9971	Before	Scombridae	*Scomberomorus*	*commerson*	37 441007	6
E2_04/2020	NearField	m_B	1	B1L_2.MP4	23201	474.9971	Before	Serranidae	*Plectropomus*	*leopardus*	37 311078	2

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	NearField	m_B	2	B2L-1.MP4	4992	17.9971	Before	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	19
E2_04/2020	NearField	m_B	2	B2L-1.MP4	2083	29.9971	Before	Acanthuridae	*Acanthurus*	*xanthopterus*	37 437020	1
E2_04/2020	NearField	m_B	2	B2L-1.MP4	25116	34.9971	Before	Acanthuridae	*Naso*	*tonganus*	37 437047	12
E2_04/2020	NearField	m_B	2	B2L-1.MP4	2145	38.9971	Before	Acanthuridae	*Naso*	*unicornis*	37 437031	1
E2_04/2020	NearField	m_B	2	B2L-1.MP4	6741	55.9971	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	1
E2_04/2020	NearField	m_B	2	B2L-1.MP4	9975	78.9971	Before	Blennidae	*Salarias*	*sp*		2
E2_04/2020	NearField	m_B	2	B2L-1.MP4	3784	108.9971	Before	Chaetodontidae	*Chelmon*	*rostratus*	37 365017	1
E2_04/2020	NearField	m_B	2	B2L-2.MP4	9353	110.9971	Before	Chaetodontidae	*Coradion*	*altivelis*	37 365018	1
E2_04/2020	NearField	m_B	2	B2L-1.MP4	20280	113.9971	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	1
E2_04/2020	NearField	m_B	2	B2L-1.MP4	13935	124.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	3
E2_04/2020	NearField	m_B	2	B2L-1.MP4	16402	140.9971	Before	Labridae	*Choerodon*	*schoenleinii*	37 384010	2
E2_04/2020	NearField	m_B	2	B2L-1.MP4	2984	150.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E2_04/2020	NearField	m_B	2	B2L-1.MP4	26157	169.9971	Before	Labridae	*Coris*	*gaimard*	37 384094	1
E2_04/2020	NearField	m_B	2	B2L-1.MP4	5358	174.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E2_04/2020	NearField	m_B	2	B2L-1.MP4	2915	194.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	3
E2_04/2020	NearField	m_B	2	B2L-1.MP4	25732	216.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2
E2_04/2020	NearField	m_B	2	B2L-1.MP4	2937	245.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	1
E2_04/2020	NearField	m_B	2	B2L-1.MP4	3292	346.9971	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347028	1
E2_04/2020	NearField	m_B	2	B2L-1.MP4	18395	379.9971	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	2
E2_04/2020	NearField	m_B	2	B2L-1.MP4	20627	388.9971	Before	Pomacanthidae	*Pomacanthus*	*semicirculatus*	37 365080	2
E2_04/2020	NearField	m_B	2	B2L-1.MP4	2449	395.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	24
E2_04/2020	NearField	m_B	2	B2L-1.MP4	2937	422.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	9
E2_04/2020	NearField	m_B	2	B2L-2.MP4	17104	475.9971	Before	Serranidae	*Plectropomus*	*leopardus*	37 311078	5
E2_04/2020	NearField	m_B	2	B2L-1.MP4	6956	489.9971	Before	Siganidae	*Siganus*	*punctatus*	37 438003	1
E2_04/2020	NearField	m_B	3	B3L_1.MP4	2517	18.9971	Before	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	1
E2_04/2020	NearField	m_B	3	B3L_2.MP4	10779	79.9971	Before	Blennidae	*Salarias*	*sp*		1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	NearField	m_B	3	B3L_2.MP4	13554	95.9971	Before	Carangidae	*Carangoides*	*gymnostethus*	37 337022	3
E2_04/2020	NearField	m_B	3	B3L_1.MP4	16703	135.9971	Before	Haemulidae	*Diagramma*	*pictum*	37 350003	1
E2_04/2020	NearField	m_B	3	B3L_1.MP4	11256	151.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	1
E2_04/2020	NearField	m_B	3	B3L_1.MP4	11735	175.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E2_04/2020	NearField	m_B	3	B3L_2.MP4	7073	195.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	2
E2_04/2020	NearField	m_B	3	B3L_1.MP4	21269	264.9971	Before	Labridae	*Stethojulis*	*strigiventer*	37 384156	1
E2_04/2020	NearField	m_B	3	B3L_1.MP4	9493	285.9971	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	1
E2_04/2020	NearField	m_B	3	B3L_2.MP4	15077	347.9971	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347028	2
E2_04/2020	NearField	m_B	3	B3L_1.MP4	12417	423.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	8
E2_04/2020	NearField	m_B	3	B3L_2.MP4	4665	443.9971	Before	Pomacentridae	*Pomacentrus*	*coelestis*	37 372111	11
E2_04/2020	NearField	m_B	3	B3L_1.MP4	25216	447.9971	Before	Pomacentridae	*Pomacentrus*	*wardi*	37 372127	5
E2_04/2020	NearField	m_B	3	B3L_2.MP4	5095	451.9971	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	1
E2_04/2020	NearField	m_B	3	B3L_1.MP4	17424	465.9971	Before	Scombridae	*Scomberomorus*	*commerson*	37 441007	1
E2_04/2020	NearField	m_B	3	B3L_2.MP4	8653	476.9971	Before	Serranidae	*Plectropomus*	*leopardus*	37 311078	1
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	2758	26.9971	Before	Acanthuridae	*Acanthurus*	*dussumieri*	37 437008	3
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	10432	41.9971	Before	Apogonidae	*Apogon*	*sp*		51
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	14376	66.9971	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	1
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	9619	85.9971	Before	Caesionidae	*Pterocaesio*	*sp*		1
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	7803	88.9971	Before	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	2
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	25539	103.9971	Before	Chaetodontidae	*Chaetodon*	*kleinii*	37 365040	2
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	10757	125.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	2
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	25429	152.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	5
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	2218	176.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	5308	196.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	1
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	2218	217.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1
E2_04/2020	Remediation	m_C	1	C1L-2.MP4	7973	246.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	2

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	26255	261.9971	Before	Labridae	*Stethojulis*	*bandanensis*	37 384154	1
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	5743	273.9971	Before	Labridae	*Thalassoma*	*lunare*	37 384167	3
E2_04/2020	Remediation	m_C	1	C1L-2.MP4	7066	297.9971	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	2
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	18729	321.9971	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	4
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	4792	361.9971	Before	Pinguipedidae	*Parapercis*	*clathrata*	37 390013	1
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	7603	396.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	4
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	3073	424.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	7
E2_04/2020	Remediation	m_C	1	C1L-1.MP4	26021	481.9971	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	1
E2_04/2020	Remediation	m_C	2	C2L-1.MP4	23517	89.9971	Before	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	4
E2_04/2020	Remediation	m_C	2	C2L-1.MP4	10106	153.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	1
E2_04/2020	Remediation	m_C	2	C2L-2.MP4	8427	177.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	2
E2_04/2020	Remediation	m_C	2	C2L-1.MP4	1620	197.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	3
E2_04/2020	Remediation	m_C	2	C2L-1.MP4	13675	218.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2
E2_04/2020	Remediation	m_C	2	C2L-1.MP4	2973	235.9971	Before	Labridae	*Leptojulis*	*cyanopleura*	37 384027	1
E2_04/2020	Remediation	m_C	2	C2L-1.MP4	15353	262.9971	Before	Labridae	*Stethojulis*	*bandanensis*	37 384154	2
E2_04/2020	Remediation	m_C	2	C2L-1.MP4	1529	265.9971	Before	Labridae	*Stethojulis*	*strigiventer*	37 384156	1
E2_04/2020	Remediation	m_C	2	C2L-1.MP4	8968	298.9971	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	2
E2_04/2020	Remediation	m_C	2	C2L-1.MP4	7261	310.9971	Before	Lethrinidae	*Lethrinus*	*sp*		1
E2_04/2020	Remediation	m_C	2	C2L-1.MP4	1470	337.9971	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	1
E2_04/2020	Remediation	m_C	2	C2L-2.MP4	18311	348.9971	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	4
E2_04/2020	Remediation	m_C	2	C2L-1.MP4	6927	363.9971	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	2
E2_04/2020	Remediation	m_C	2	C2L-1.MP4	4207	397.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	5
E2_04/2020	Remediation	m_C	2	C2L-1.MP4	5010	425.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	10
E2_04/2020	Remediation	m_C	2	C2L-1.MP4	12071	452.9971	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	1
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	14271	64.9971	Before	Blennidae	*Meiacanthus*	*grammistes*	37 408005	1
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	16504	90.9971	Before	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	1857	138.9971	Before	Labridae	*Choerodon*	*jordani*	37 384077	1
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	2179	154.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	6
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	3476	178.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	19094	198.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	3
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	8259	219.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	4434	236.9971	Before	Labridae	*Leptojulis*	*cyanopleura*	37 384027	4
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	5608	286.9971	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	1
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	7746	295.9971	Before	Lethrinidae	*Lethrinus*	*lentjan*	37 351007	1
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	6736	299.9971	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	3
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	5789	322.9971	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	4
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	2810	349.9971	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	2
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	23627	364.9971	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	3
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	4434	398.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	2
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	4980	426.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	1
E2_04/2020	Remediation	m_C	3	C3L-1.MP4	13128	466.9971	Before	Scombridae	*Scomberomorus*	*commerson*	37 441007	1
E2_04/2020	NearField	m_D	1	D1L-1.MP4	1814	19.9971	Before	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	4
E2_04/2020	NearField	m_D	1	D1L-1.MP4	16808	35.9971	Before	Acanthuridae	*Naso*	*tonganus*	37 437047	1
E2_04/2020	NearField	m_D	1	D1L-1.MP4	5651	39.9971	Before	Acanthuridae	*Naso*	*unicornis*	37 437031	1
E2_04/2020	NearField	m_D	1	D1L-2.MP4	3774	56.9971	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	1
E2_04/2020	NearField	m_D	1	D1L-2.MP4	15377	80.9971	Before	Blennidae	*Salarias*	*sp*		1
E2_04/2020	NearField	m_D	1	D1L-1.MP4	5711	136.9971	Before	Labridae	*Cheilinus*	*fasciatus*	37 384066	1
E2_04/2020	NearField	m_D	1	D1L-2.MP4	2294	155.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E2_04/2020	NearField	m_D	1	D1L-2.MP4	4867	170.9971	Before	Labridae	*Coris*	*gaimard*	37 384094	1
E2_04/2020	NearField	m_D	1	D1L-2.MP4	11639	199.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	3
E2_04/2020	NearField	m_D	1	D1L-1.MP4	10514	220.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1
E2_04/2020	NearField	m_D	1	D1L-2.MP4	17422	247.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	2

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	NearField	m_D	1	D1L-1.MP4	1739	274.9971	Before	Labridae	*Thalassoma*	*lunare*	37 384167	1
E2_04/2020	NearField	m_D	1	D1L-1.MP4	21378	287.9971	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	2
E2_04/2020	NearField	m_D	1	D1L-1.MP4	18887	316.9971	Before	Lutjanidae	*Symphorus*	*nametophorus*	37 346017	1
E2_04/2020	NearField	m_D	1	D1L-1.MP4	11789	350.9971	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	1
E2_04/2020	NearField	m_D	1	D1L-1.MP4	13080	365.9971	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	1
E2_04/2020	NearField	m_D	1	D1L-2.MP4	21417	389.9971	Before	Pomacanthidae	*Pomacanthus*	*semicirculatus*	37 365080	1
E2_04/2020	NearField	m_D	1	D1L-1.MP4	23059	399.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	16
E2_04/2020	NearField	m_D	1	D1L-1.MP4	1663	413.9971	Before	Pomacentridae	*Chrysiptera*	*flavipinnis*	37 372061	1
E2_04/2020	NearField	m_D	1	D1L-1.MP4	2424	427.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	12
E2_04/2020	NearField	m_D	1	D1L-2.MP4	1308	453.9971	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	1
E2_04/2020	NearField	m_D	1	D1L-2.MP4	21782	469.9971	Before	Serranidae	*Epinephelus*	*coioides*	37 311007	1
E2_04/2020	NearField	m_D	1	D1L-1.MP4	16355	477.9971	Before	Serranidae	*Plectropomus*	*leopardus*	37 311078	4
E2_04/2020	NearField	m_D	2	D2L-2.MP4	9451	20.9971	Before	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	1
E2_04/2020	NearField	m_D	2	D2L-1.MP4	3231	27.9971	Before	Acanthuridae	*Acanthurus*	*dussumieri*	37 437008	3
E2_04/2020	NearField	m_D	2	D2L-1.MP4	4682	31.9971	Before	Acanthuridae	*Naso*	*fageni*	37 437027	4
E2_04/2020	NearField	m_D	2	D2L-1.MP4	3997	40.9971	Before	Acanthuridae	*Naso*	*vlamingii*	37 437032	1
E2_04/2020	NearField	m_D	2	D2L-1.MP4	2017	42.9971	Before	Apogonidae	*Apogon*	*sp*		5
E2_04/2020	NearField	m_D	2	D2L-2.MP4	15600	57.9971	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	1
E2_04/2020	NearField	m_D	2	D2L-2.MP4	5160	67.9971	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	1
E2_04/2020	NearField	m_D	2	D2L-2.MP4	19736	126.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	2
E2_04/2020	NearField	m_D	2	D2L-1.MP4	3487	156.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	3
E2_04/2020	NearField	m_D	2	D2L-1.MP4	3360	179.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E2_04/2020	NearField	m_D	2	D2L-1.MP4	1387	200.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	3
E2_04/2020	NearField	m_D	2	D2L-1.MP4	4620	221.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1
E2_04/2020	NearField	m_D	2	D2L-1.MP4	1952	275.9971	Before	Labridae	*Thalassoma*	*lunare*	37 384167	2
E2_04/2020	NearField	m_D	2	D2L-1.MP4	2404	300.9971	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	3

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	NearField	m_D	2	D2L-1.MP4	4401	323.9971	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	1
E2_04/2020	NearField	m_D	2	D2L-1.MP4	11948	351.9971	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	3
E2_04/2020	NearField	m_D	2	D2L-1.MP4	2531	366.9971	Before	Pinguipedidae	*Parapercis*	*strictiCeps*	37 390019	1
E2_04/2020	NearField	m_D	2	D2L-1.MP4	4401	380.9971	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	2
E2_04/2020	NearField	m_D	2	D2L-1.MP4	10350	400.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	7
E2_04/2020	NearField	m_D	2	D2L-1.MP4	2911	428.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	6
E2_04/2020	NearField	m_D	2	D2L-1.MP4	3681	482.9971	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	1
E2_04/2020	NearField	m_D	3	D3L-1.MP4	1991	58.9971	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	1
E2_04/2020	NearField	m_D	3	D3L-1.MP4	13917	91.9971	Before	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	1
E2_04/2020	NearField	m_D	3	D3L-2.MP4	8729	127.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	22
E2_04/2020	NearField	m_D	3	D3L-1.MP4	24210	137.9971	Before	Labridae	*Choerodon*	*anchorago*	37 384071	1
E2_04/2020	NearField	m_D	3	D3L-2.MP4	19238	141.9971	Before	Labridae	*Choerodon*	*schoenleinii*	37 384010	1
E2_04/2020	NearField	m_D	3	D3L-2.MP4	2080	157.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E2_04/2020	NearField	m_D	3	D3L-1.MP4	4885	180.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	2
E2_04/2020	NearField	m_D	3	D3L-1.MP4	1666	201.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	3
E2_04/2020	NearField	m_D	3	D3L-1.MP4	22658	222.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2
E2_04/2020	NearField	m_D	3	D3L-1.MP4	10541	248.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	1
E2_04/2020	NearField	m_D	3	D3L-1.MP4	24210	288.9971	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	6
E2_04/2020	NearField	m_D	3	D3L-2.MP4	2785	315.9971	Before	Lutjanidae	*Lutjanus*	*adetii*	37 346033	1
E2_04/2020	NearField	m_D	3	D3L-1.MP4	3516	352.9971	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	1
E2_04/2020	NearField	m_D	3	D3L-1.MP4	5989	367.9971	Before	Pinguipedidae	*Parapercis*	*strictiCeps*	37 390019	2
E2_04/2020	NearField	m_D	3	D3L-2.MP4	5606	401.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	2
E2_04/2020	NearField	m_D	3	D3L-1.MP4	23564	429.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	13
E2_04/2020	NearField	m_D	3	D3L-2.MP4	12015	454.9971	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	2
E2_04/2020	NearField	m_D	3	D3L-1.MP4	9576	470.9971	Before	Serranidae	*Epinephelus*	*coioides*	37 311007	1
E2_04/2020	NearField	m_D	3	D3L-1.MP4	26510	478.9971	Before	Serranidae	*Plectropomus*	*leopardus*	37 311078	1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	Remediation	m_E	1	E1L-1.MP4	23147	81.9971	Before	Blennidae	*Salarias*	*sp*		1
E2_04/2020	Remediation	m_E	1	E1L-1.MP4	14338	92.9971	Before	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	1
E2_04/2020	Remediation	m_E	1	E1L-1.MP4	16063	158.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E2_04/2020	Remediation	m_E	1	E1L-1.MP4	4026	181.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E2_04/2020	Remediation	m_E	1	E1L-1.MP4	7458	202.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	2
E2_04/2020	Remediation	m_E	1	E1L-1.MP4	14731	223.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2
E2_04/2020	Remediation	m_E	1	E1L-1.MP4	19617	249.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	4
E2_04/2020	Remediation	m_E	1	E1L-1.MP4	5530	289.9971	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	1
E2_04/2020	Remediation	m_E	1	E1L-1.MP4	25051	402.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	10
E2_04/2020	Remediation	m_E	1	E1L-1.MP4	1915	430.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	8
E2_04/2020	Remediation	m_E	1	E1L-1.MP4	18164	455.9971	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	2
E2_04/2020	Remediation	m_E	1	E1L-1.MP4	7950	467.9971	Before	Scombridae	*Scomberomorus*	*commerson*	37 441007	1
E2_04/2020	Remediation	m_E	2	E2L-1.MP4	21904	68.9971	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	4
E2_04/2020	Remediation	m_E	2	E2L-1.MP4	10575	128.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	2
E2_04/2020	Remediation	m_E	2	E2L-1.MP4	22058	145.9971	Before	Labridae	*Choerodon*	*sp*		1
E2_04/2020	Remediation	m_E	2	E2L-1.MP4	15590	159.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	1
E2_04/2020	Remediation	m_E	2	E2L-1.MP4	1479	182.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	2
E2_04/2020	Remediation	m_E	2	E2L-1.MP4	2130	203.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	5
E2_04/2020	Remediation	m_E	2	E2L-1.MP4	3959	212.9971	Before	Labridae	*Halichoeres*	*sp*		1
E2_04/2020	Remediation	m_E	2	E2L-1.MP4	19139	224.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2
E2_04/2020	Remediation	m_E	2	E2L-1.MP4	7493	237.9971	Before	Labridae	*Leptojulis*	*cyanopleura*	37 384027	2
E2_04/2020	Remediation	m_E	2	E2L-1.MP4	2299	250.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	7
E2_04/2020	Remediation	m_E	2	E2L-1.MP4	2025	266.9971	Before	Labridae	*Stethojulis*	*strigiventer*	37 384156	1
E2_04/2020	Remediation	m_E	2	E2L-2.MP4	13485	276.9971	Before	Labridae	*Thalassoma*	*lunare*	37 384167	1
E2_04/2020	Remediation	m_E	2	E2L-2.MP4	19692	353.9971	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	1
E2_04/2020	Remediation	m_E	2	E2L-1.MP4	2323	368.9971	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	Remediation	m_E	2	E2L-1.MP4	1559	403.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	17
E2_04/2020	Remediation	m_E	2	E2L-2.MP4	14616	431.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	14
E2_04/2020	Remediation	m_E	2	E2L-1.MP4	3424	456.9971	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	1
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	1431	21.9971	Before	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	1
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	2946	28.9971	Before	Acanthuridae	*Acanthurus*	*dussumieri*	37 437008	2
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	20005	43.9971	Before	Apogonidae	*Apogon*	*sp*		5
E2_04/2020	Remediation	m_E	3	E3L-2.MP4	6476	69.9971	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	2
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	5541	76.9971	Before	Blennidae	*Petroscirtes*	*sp*		1
E2_04/2020	Remediation	m_E	3	E3L-2.MP4	13671	98.9971	Before	Carangidae	*Gnathanodon*	*speciosus*	37 337012	1
E2_04/2020	Remediation	m_E	3	E3L-2.MP4	12920	102.9971	Before	Carcharhinidae	*Galeocerdo*	*cuvier*	37 018022	1
E2_04/2020	Remediation	m_E	3	E3L-2.MP4	13640	114.9971	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	3
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	23356	129.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	6
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	2253	146.9971	Before	Labridae	*Choerodon*	*sp*		2
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	2516	160.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	5
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	1431	183.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	4426	204.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	1
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	2424	225.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	6976	238.9971	Before	Labridae	*Leptojulis*	*cyanopleura*	37 384027	1
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	4426	251.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	3
E2_04/2020	Remediation	m_E	3	E3L-2.MP4	14174	277.9971	Before	Labridae	*Thalassoma*	*lunare*	37 384167	3
E2_04/2020	Remediation	m_E	3	E3L-2.MP4	14950	301.9971	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	2
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	1783	324.9971	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	2
E2_04/2020	Remediation	m_E	3	E3L-2.MP4	17646	354.9971	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	2
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	20950	369.9971	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	1
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	1453	404.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	8
E2_04/2020	Remediation	m_E	3	E3L-1.MP4	13876	432.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	16
E2_04/2020	NearField	m_G	1	G1L-1.MP4	8627	130.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	8

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	NearField	m_G	1	G1L-1.MP4	8371	142.9971	Before	Labridae	*Choerodon*	*schoenleinii*	37 384010	1
E2_04/2020	NearField	m_G	1	G1L-1.MP4	2327	161.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E2_04/2020	NearField	m_G	1	G1L-1.MP4	2371	184.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	3
E2_04/2020	NearField	m_G	1	G1L-1.MP4	1626	205.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	1
E2_04/2020	NearField	m_G	1	G1L-1.MP4	4619	226.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	1
E2_04/2020	NearField	m_G	1	G1L-1.MP4	2257	239.9971	Before	Labridae	*Leptojulis*	*cyanopleura*	37 384027	1
E2_04/2020	NearField	m_G	1	G1L-1.MP4	3251	252.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	5
E2_04/2020	NearField	m_G	1	G1L-1.MP4	3095	267.9971	Before	Labridae	*Stethojulis*	*strigiventer*	37 384156	1
E2_04/2020	NearField	m_G	1	G1L-1.MP4	20892	317.9971	Before	Lutjanidae	*Symphorus*	*nametophorus*	37 346017	1
E2_04/2020	NearField	m_G	1	G1L-1.MP4	2371	355.9971	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	1
E2_04/2020	NearField	m_G	1	G1L-1.MP4	1966	370.9971	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	1
E2_04/2020	NearField	m_G	1	G1L-1.MP4	3532	405.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	4
E2_04/2020	NearField	m_G	1	G1L-1.MP4	2838	433.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	16
E2_04/2020	NearField	m_G	1	G1L-1.MP4	5799	457.9971	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	1
E2_04/2020	NearField	m_G	2	G2L-2.MP4	9973	44.9971	Before	Apogonidae	*Apogon*	*sp*		7
E2_04/2020	NearField	m_G	2	G2L-1.MP4	4308	70.9971	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	1
E2_04/2020	NearField	m_G	2	G2L-1.MP4	9897	82.9971	Before	Caesionidae	*Pterocaesio*	*chrysozona*	99 379085	110
E2_04/2020	NearField	m_G	2	G2L-1.MP4	20765	115.9971	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	1
E2_04/2020	NearField	m_G	2	G2L-1.MP4	14338	131.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	8
E2_04/2020	NearField	m_G	2	G2L-1.MP4	14842	143.9971	Before	Labridae	*Choerodon*	*schoenleinii*	37 384010	1
E2_04/2020	NearField	m_G	2	G2L-1.MP4	1858	162.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E2_04/2020	NearField	m_G	2	G2L-1.MP4	3835	185.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E2_04/2020	NearField	m_G	2	G2L-1.MP4	6048	227.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2
E2_04/2020	NearField	m_G	2	G2L-1.MP4	15877	253.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	6
E2_04/2020	NearField	m_G	2	G2L-1.MP4	4556	268.9971	Before	Labridae	*Stethojulis*	*strigiventer*	37 384156	1
E2_04/2020	NearField	m_G	2	G2L-1.MP4	3482	278.9971	Before	Labridae	*Thalassoma*	*lunare*	37 384167	1
E2_04/2020	NearField	m_G	2	G2L-1.MP4	16715	290.9971	Before	Lethrinidae	*Gymnocranius*	*audleyi*	37 351018	3

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	NearField	m_G	2	G2L-2.MP4	13231	302.9971	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	1
E2_04/2020	NearField	m_G	2	G2L-1.MP4	19032	356.9971	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	1
E2_04/2020	NearField	m_G	2	G2L-1.MP4	5928	371.9971	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	2
E2_04/2020	NearField	m_G	2	G2L-2.MP4	12806	381.9971	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	1
E2_04/2020	NearField	m_G	2	G2L-2.MP4	12752	406.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	65
E2_04/2020	NearField	m_G	2	G2L-2.MP4	11362	434.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	80
E2_04/2020	NearField	m_G	2	G2L-1.MP4	4256	458.9971	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	1
E2_04/2020	NearField	m_G	2	G2L-1.MP4	8041	462.9971	Before	Pseudochromidae	*Pseudochromis*	*quinquedentatus*	37 313001	1
E2_04/2020	NearField	m_G	3	G3L-1.MP4	1724	45.9971	Before	Apogonidae	*Apogon*	*sp*		4
E2_04/2020	NearField	m_G	3	G3L-1.MP4	1711	71.9971	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	1
E2_04/2020	NearField	m_G	3	G3L-1.MP4	1864	83.9971	Before	Caesionidae	*Pterocaesio*	*chrysozona*	99 379085	11
E2_04/2020	NearField	m_G	3	G3L-1.MP4	10152	116.9971	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	1
E2_04/2020	NearField	m_G	3	G3L-2.MP4	12207	132.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	22
E2_04/2020	NearField	m_G	3	G3L-1.MP4	3124	163.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E2_04/2020	NearField	m_G	3	G3L-1.MP4	9714	186.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	3
E2_04/2020	NearField	m_G	3	G3L-1.MP4	1905	206.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	4
E2_04/2020	NearField	m_G	3	G3L-1.MP4	16303	228.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2
E2_04/2020	NearField	m_G	3	G3L-1.MP4	2224	254.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	4
E2_04/2020	NearField	m_G	3	G3L-1.MP4	2536	269.9971	Before	Labridae	*Stethojulis*	*strigiventer*	37 384156	1
E2_04/2020	NearField	m_G	3	G3L-1.MP4	14797	279.9971	Before	Labridae	*Thalassoma*	*lunare*	37 384167	3
E2_04/2020	NearField	m_G	3	G3L-1.MP4	4137	303.9971	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	2
E2_04/2020	NearField	m_G	3	G3L-1.MP4	22838	325.9971	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	4
E2_04/2020	NearField	m_G	3	G3L-1.MP4	4192	372.9971	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	3
E2_04/2020	NearField	m_G	3	G3L-1.MP4	6982	407.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	25
E2_04/2020	NearField	m_G	3	G3L-1.MP4	2788	435.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	29
E2_04/2020	NearField	m_G	3	G3L-1.MP4	4531	459.9971	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	3
E2_04/2020	NearField	m_G	3	G3L-1.MP4	5475	483.9971	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	2

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	Control	m_H	1	H1L-1.MP4	6409	16.9971	Before	Acanthuridae	*Acanthurus*	*dussumieri*	37 437008	1
E2_04/2020	Control	m_H	1	H1L-1.MP4	22532	22.9971	Before	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	3
E2_04/2020	Control	m_H	1	H1L-1.MP4	4455	46.9971	Before	Apogonidae	*Apogon*	*sp*		1
E2_04/2020	Control	m_H	1	H1L-1.MP4	14006	59.9971	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	1
E2_04/2020	Control	m_H	1	H1L-2.MP4	2054	75.9971	Before	Blennidae	*Meiacanthus*	*luteus*	37 408054	1
E2_04/2020	Control	m_H	1	H1L-2.MP4	8709	93.9971	Before	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	1
E2_04/2020	Control	m_H	1	H1L-2.MP4	19117	104.9971	Before	Chaetodontidae	*Chaetodon*	*kleinii*	37 365040	1
E2_04/2020	Control	m_H	1	H1L-1.MP4	4977	133.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	61
E2_04/2020	Control	m_H	1	H1L-1.MP4	26146	164.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	4
E2_04/2020	Control	m_H	1	H1L-2.MP4	14913	187.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E2_04/2020	Control	m_H	1	H1L-1.MP4	2812	207.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	2
E2_04/2020	Control	m_H	1	H1L-1.MP4	10563	229.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2
E2_04/2020	Control	m_H	1	H1L-2.MP4	17397	255.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	4
E2_04/2020	Control	m_H	1	H1L-1.MP4	12407	304.9971	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	1
E2_04/2020	Control	m_H	1	H1L-1.MP4	1958	318.9971	Before	Lutjanidae	*Symphorus*	*nametophorus*	37 346017	1
E2_04/2020	Control	m_H	1	H1L-1.MP4	22391	326.9971	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	3
E2_04/2020	Control	m_H	1	H1L-2.MP4	12044	332.9971	Before	Mullidae	*Parupeneus*	*multifasciatus*	37 355026	1
E2_04/2020	Control	m_H	1	H1L-2.MP4	12400	333.9971	Before	Mullidae	*Parupeneus*	*spilurus*	37 355015	1
E2_04/2020	Control	m_H	1	H1L-2.MP4	14086	335.9971	Before	Nemipteridae	*Pentapodus*	*nagasakiensis*	37 347012	5
E2_04/2020	Control	m_H	1	H1L-1.MP4	20499	338.9971	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	4
E2_04/2020	Control	m_H	1	H1L-1.MP4	14286	357.9971	Before	Nemipteridae	*Scolopsis*	*monogramma*	37 347006	1
E2_04/2020	Control	m_H	1	H1L-2.MP4	19880	373.9971	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	3
E2_04/2020	Control	m_H	1	H1L-1.MP4	4270	382.9971	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	1
E2_04/2020	Control	m_H	1	H1L-1.MP4	18865	387.9971	Before	Pomacanthidae	*Chaetodontoplus*	*personifer*	37 365008	4
E2_04/2020	Control	m_H	1	H1L-1.MP4	2812	408.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	2
E2_04/2020	Control	m_H	1	H1L-1.MP4	4250	414.9971	Before	Pomacentridae	*Chrysiptera*	*flavipinnis*	37 372061	1
E2_04/2020	Control	m_H	1	H1L-1.MP4	21609	436.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	48

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	Control	m_H	1	H1L-2.MP4	3804	460.9971	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	2
E2_04/2020	Control	m_H	1	H1L-1.MP4	22720	479.9971	Before	Serranidae	*Plectropomus*	*maculatus*	37 311012	1
E2_04/2020	Control	m_H	2	H2L-1.MP4	12677	23.9971	Before	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	4
E2_04/2020	Control	m_H	2	H2L-2.MP4	13870	32.9971	Before	Acanthuridae	*Naso*	*fageni*	37 437027	2
E2_04/2020	Control	m_H	2	H2L-1.MP4	13829	36.9971	Before	Acanthuridae	*Naso*	*tonganus*	37 437047	1
E2_04/2020	Control	m_H	2	H2L-1.MP4	1684	47.9971	Before	Apogonidae	*Apogon*	*sp*		92
E2_04/2020	Control	m_H	2	H2L-1.MP4	7365	62.9971	Before	Balistidae	*Sufflamen*	*fraenatum*	37 465014	1
E2_04/2020	Control	m_H	2	H2L-2.MP4	8650	99.9971	Before	Carangidae	*Gnathanodon*	*speciosus*	37 337012	4
E2_04/2020	Control	m_H	2	H2L-1.MP4	3844	107.9971	Before	Chaetodontidae	*Chaetodon*	*rainfordi*	37 365053	2
E2_04/2020	Control	m_H	2	H2L-2.MP4	8650	118.9971	Before	Ginglymostomatidae	*Nebrius*	*ferrugineus*	37 013010	1
E2_04/2020	Control	m_H	2	H2L-1.MP4	9144	144.9971	Before	Labridae	*Choerodon*	*schoenleinii*	37 384010	1
E2_04/2020	Control	m_H	2	H2L-1.MP4	15271	165.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	4
E2_04/2020	Control	m_H	2	H2L-1.MP4	10613	188.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	1
E2_04/2020	Control	m_H	2	H2L-1.MP4	23291	230.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2
E2_04/2020	Control	m_H	2	H2L-1.MP4	6883	256.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	7
E2_04/2020	Control	m_H	2	H2L-1.MP4	5995	270.9971	Before	Labridae	*Stethojulis*	*strigiventer*	37 384156	2
E2_04/2020	Control	m_H	2	H2L-2.MP4	18326	280.9971	Before	Labridae	*Thalassoma*	*lunare*	37 384167	2
E2_04/2020	Control	m_H	2	H2L-1.MP4	22115	291.9971	Before	Lethrinidae	*Lethrinus*	*rubrioperculatus*	37 351012	5
E2_04/2020	Control	m_H	2	H2L-1.MP4	18811	305.9971	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	6
E2_04/2020	Control	m_H	2	H2L-1.MP4	14440	320.9971	Before	Monacanthidae	*Cantheschenia*	*grandisquamis*	37 465052	1
E2_04/2020	Control	m_H	2	H2L-1.MP4	21794	327.9971	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	1
E2_04/2020	Control	m_H	2	H2L-1.MP4	14730	339.9971	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	5
E2_04/2020	Control	m_H	2	H2L-1.MP4	21173	374.9971	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	2
E2_04/2020	Control	m_H	2	H2L-1.MP4	6685	383.9971	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	2
E2_04/2020	Control	m_H	2	H2L-1.MP4	2242	409.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	36
E2_04/2020	Control	m_H	2	H2L-1.MP4	7282	416.9971	Before	Pomacentridae	*Dascyllus*	*trimaculatus*	37 372075	2
E2_04/2020	Control	m_H	2	H2L-2.MP4	17323	437.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	42

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	Control	m_H	2	H2L-1.MP4	23291	444.9971	Before	Pomacentridae	*Pomacentrus*	*coelestis*	37 372111	2
E2_04/2020	Control	m_H	2	H2L-1.MP4	17793	484.9971	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	8
E2_04/2020	Control	m_H	3	H3L-1.MP4	2956	24.9971	Before	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	2
E2_04/2020	Control	m_H	3	H3L-1.MP4	7183	33.9971	Before	Acanthuridae	*Naso*	*fageni*	37 437027	1
E2_04/2020	Control	m_H	3	H3L-1.MP4	7805	60.9971	Before	Balistidae	*Sufflamen*	*chrysopterum*	37 465079	1
E2_04/2020	Control	m_H	3	H3L-2.MP4	10040	84.9971	Before	Caesionidae	*Pterocaesio*	*chrysozona*	99 379085	13
E2_04/2020	Control	m_H	3	H3L-1.MP4	13426	100.9971	Before	Carangidae	*Gnathanodon*	*speciosus*	37 337012	4
E2_04/2020	Control	m_H	3	H3L-1.MP4	5208	105.9971	Before	Chaetodontidae	*Chaetodon*	*kleinii*	37 365040	2
E2_04/2020	Control	m_H	3	H3L-1.MP4	14189	117.9971	Before	Echeneidae	*Echeneis*	*naucrates*	37 336001	5
E2_04/2020	Control	m_H	3	H3L-1.MP4	14052	119.9971	Before	Ginglymostomatidae	*Nebrius*	*ferrugineus*	37 013010	2
E2_04/2020	Control	m_H	3	H3L-1.MP4	14633	166.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	4
E2_04/2020	Control	m_H	3	H3L-1.MP4	2466	208.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	1
E2_04/2020	Control	m_H	3	H3L-1.MP4	2471	231.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	2
E2_04/2020	Control	m_H	3	H3L-2.MP4	1319	257.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	2
E2_04/2020	Control	m_H	3	H3L-1.MP4	4604	281.9971	Before	Labridae	*Thalassoma*	*lunare*	37 384167	2
E2_04/2020	Control	m_H	3	H3L-1.MP4	14830	292.9971	Before	Lethrinidae	*Lethrinus*	*rubrioperculatus*	37 351012	11
E2_04/2020	Control	m_H	3	H3L-1.MP4	14830	296.9971	Before	Lethrinidae	*Lethrinus*	*lentjan*	37 351007	1
E2_04/2020	Control	m_H	3	H3L-1.MP4	9532	306.9971	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	3
E2_04/2020	Control	m_H	3	H3L-1.MP4	15290	311.9971	Before	Lethrinidae	*Lethrinus*	*sp*		2
E2_04/2020	Control	m_H	3	H3L-1.MP4	19880	313.9971	Before	Lethrinidae	*Lethrinus*	*rubrioperculatus*	37 351012	1
E2_04/2020	Control	m_H	3	H3L-1.MP4	2995	328.9971	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	2
E2_04/2020	Control	m_H	3	H3L-1.MP4	5912	334.9971	Before	Mullidae	*Parupeneus*	*spilurus*	37 355015	1
E2_04/2020	Control	m_H	3	H3L-1.MP4	8297	340.9971	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	2
E2_04/2020	Control	m_H	3	H3L-1.MP4	15565	375.9971	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	2
E2_04/2020	Control	m_H	3	H3L-1.MP4	3309	384.9971	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	3
E2_04/2020	Control	m_H	3	H3L-2.MP4	10040	410.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	74
E2_04/2020	Control	m_H	3	H3L-1.MP4	17905	438.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	8

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	Control	m_H	3	H3L-1.MP4	8434	472.9971	Before	Serranidae	*Epinephelus*	*quoyanus*	37 311040	1
E2_04/2020	Control	m_H	3	H3L-1.MP4	4867	485.9971	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	8
E2_04/2020	Control	m_I	1	I1L-1.MP4	5076	48.9971	Before	Apogonidae	*Apogon*	*sp*		1
E2_04/2020	Control	m_I	1	I1L-2.MP4	8142	50.9971	Before	Balistidae	*Rhinecanthus*	*rectangulus*	37 465073	1
E2_04/2020	Control	m_I	1	I1L-1.MP4	18166	72.9971	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	2
E2_04/2020	Control	m_I	1	I1L-2.MP4	5877	167.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	2
E2_04/2020	Control	m_I	1	I1L-1.MP4	18209	189.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	2
E2_04/2020	Control	m_I	1	I1L-1.MP4	2073	209.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	6
E2_04/2020	Control	m_I	1	I1L-1.MP4	17175	232.9971	Before	Labridae	*Labroides*	*dimidiatus*	37 384028	3
E2_04/2020	Control	m_I	1	I1L-1.MP4	2470	258.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	5
E2_04/2020	Control	m_I	1	I1L-2.MP4	10847	282.9971	Before	Labridae	*Thalassoma*	*lunare*	37 384167	2
E2_04/2020	Control	m_I	1	I1L-2.MP4	20711	307.9971	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	6
E2_04/2020	Control	m_I	1	I1L-2.MP4	708	329.9971	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	2
E2_04/2020	Control	m_I	1	I1L-2.MP4	4547	341.9971	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	4
E2_04/2020	Control	m_I	1	I1L-1.MP4	12571	376.9971	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	3
E2_04/2020	Control	m_I	1	I1L-1.MP4	20912	385.9971	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	3
E2_04/2020	Control	m_I	1	I1L-2.MP4	17727	411.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	2
E2_04/2020	Control	m_I	1	I1L-2.MP4	6742	439.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	23
E2_04/2020	Control	m_I	1	I1L-1.MP4	5526	461.9971	Before	Pseudochromidae	*Pseudochromis*	*fuscus*	37 313006	1
E2_04/2020	Control	m_I	1	I1L-2.MP4	19140	486.9971	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	12
E2_04/2020	Control	m_I	2	I2L-1.MP4	9086	51.9971	Before	Balistidae	*Rhinecanthus*	*rectangulus*	37 465073	1
E2_04/2020	Control	m_I	2	I2L-1.MP4	1533	73.9971	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	1
E2_04/2020	Control	m_I	2	I2L-1.MP4	11154	94.9971	Before	Carangidae	*Carangoides*	*fulvoguttatus*	37 337037	1
E2_04/2020	Control	m_I	2	I2L-1.MP4	6891	134.9971	Before	Gobidae	*Ptereleotris*	*microlepis*	37 435019	12
E2_04/2020	Control	m_I	2	I2L-1.MP4	26442	190.9971	Before	Labridae	*Coris*	*pictoides*	37 384096	3
E2_04/2020	Control	m_I	2	I2L-1.MP4	13002	210.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	4
E2_04/2020	Control	m_I	2	I2L-2.MP4	3285	240.9971	Before	Labridae	*Pseudojuloides*	*elongatus*	37 384148	1

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	Control	m_l	2	l2L-1.MP4	2838	259.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	2
E2_04/2020	Control	m_l	2	l2L-1.MP4	20153	293.9971	Before	Lethrinidae	*Lethrinus*	*rubrioperculatus*	37 351012	4
E2_04/2020	Control	m_l	2	l2L-2.MP4	14885	308.9971	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	11
E2_04/2020	Control	m_l	2	l2L-1.MP4	4605	312.9971	Before	Lethrinidae	*Lethrinus*	*sp*		4
E2_04/2020	Control	m_l	2	l2L-2.MP4	2568	314.9971	Before	Lethrinidae	*Lethrinus*	*rubrioperculatus*	37 351012	1
E2_04/2020	Control	m_l	2	l2L-2.MP4	9318	330.9971	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	1
E2_04/2020	Control	m_l	2	l2L-1.MP4	1941	342.9971	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	1
E2_04/2020	Control	m_l	2	l2L-1.MP4	7647	377.9971	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	2
E2_04/2020	Control	m_l	2	l2L-1.MP4	21546	440.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	25
E2_04/2020	Control	m_l	2	l2L-1.MP4	13734	445.9971	Before	Pomacentridae	*Pomacentrus*	*coelestis*	37 372111	2
E2_04/2020	Control	m_l	2	l2L-2.MP4	2480	468.9971	Before	Scombridae	*Scomberomorus*	*commerson*	37 441007	1
E2_04/2020	Control	m_l	2	l2L-1.MP4	2305	487.9971	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	13
E2_04/2020	Control	m_l	3	l3L-1.MP4	2115	25.9971	Before	Acanthuridae	*Acanthurus*	*grammoptilus*	37 437002	1
E2_04/2020	Control	m_l	3	l3L-2.MP4	2217	49.9971	Before	Apogonidae	*Apogon*	*sp*		2
E2_04/2020	Control	m_l	3	l3L-1.MP4	9019	52.9971	Before	Balistidae	*Rhinecanthus*	*rectangulus*	37 465073	1
E2_04/2020	Control	m_l	3	l3L-1.MP4	12924	74.9971	Before	Blennidae	*Meiacanthus*	*lineatus*	37 408053	2
E2_04/2020	Control	m_l	3	l3L-1.MP4	16347	168.9971	Before	Labridae	*Choerodon*	*venustus*	37 384042	1
E2_04/2020	Control	m_l	3	l3L-1.MP4	2733	211.9971	Before	Labridae	*Halichoeres*	*nebulosus*	37 384118	2
E2_04/2020	Control	m_l	3	l3L-1.MP4	14065	260.9971	Before	Labridae	*Pseudolabrus*	*guentheri*	37 384150	3
E2_04/2020	Control	m_l	3	l3L-1.MP4	24540	294.9971	Before	Lethrinidae	*Lethrinus*	*rubrioperculatus*	37 351012	1
E2_04/2020	Control	m_l	3	l3L-2.MP4	91	309.9971	Before	Lethrinidae	*Lethrinus*	*miniatus*	37 351009	8
E2_04/2020	Control	m_l	3	l3L-1.MP4	19405	331.9971	Before	Mullidae	*Parupeneus*	*barberinoides*	37 355021	3
E2_04/2020	Control	m_l	3	l3L-1.MP4	19314	343.9971	Before	Nemipteridae	*Pentapodus*	*paradiseus*	37 347028	1
E2_04/2020	Control	m_l	3	l3L-2.MP4	12941	378.9971	Before	Pinguipedidae	*Parapercis*	*stricticeps*	37 390019	2
E2_04/2020	Control	m_l	3	l3L-1.MP4	2115	386.9971	Before	Pomacanthidae	*Chaetodontoplus*	*meredithi*	37 365065	4
E2_04/2020	Control	m_l	3	l3L-1.MP4	4438	390.9971	Before	Pomacentridae	*Amphiprion*	*ocellaris*	37 372025	1
E2_04/2020	Control	m_l	3	l3L-1.MP4	25859	412.9971	Before	Pomacentridae	*Chromis*	*nitida*	37 372049	4

Event	Treatment	Location	Replicate	Filename	Frame	Time (mins)	Remed Period	Family	Genus	Species	Code	MaxN
E2_04/2020	Control	m_l	3	l3L-1.MP4	4648	417.9971	Before	Pomacentridae	*Dascyllus*	*trimaculatus*	37 372075	3
E2_04/2020	Control	m_l	3	l3L-1.MP4	23914	441.9971	Before	Pomacentridae	*Pomacentrus*	*australis*	37 372107	17
E2_04/2020	Control	m_l	3	l3L-1.MP4	16083	488.9971	Before	Siganidae	*Siganus*	*canaliculatus*	37 438004	18

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