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Technical Report

The Social and Economic Long Term Monitoring Program for the Great Barrier Reef

Key Findings, SELTMP 2013

Nadine Marshall, Erin Bohensky, Matt Curnock, Jeremy Goldberg, Margaret Gooch, Petina Pert, Lea Scherl, Samantha Stone-Jovicich and Renae Tobin

Australian Government
Department of the Environment

CSIRO

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JAMES COOK UNIVERSITY AUSTRALIA

Centre for Sustainable Tropical Fisheries & Aquaculture

Australian Government
Great Barrier Reef Marine Park Authority

Reef & Rainforest RESEARCH CENTRE

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Nadine A. Marshall[1], Erin Bohensky[1], Matt Curnock[1], Jeremy Goldberg[1, 2], Margaret Gooch[3], Petina Pert[4], Lea Scherl[5], Samantha Stone-Jovicich[1], Renae C. Tobin[6]

[1] CSIRO Ecosystem Sciences and Wealth from Oceans, Townsville
[2]School of Business, James Cook University, Townsville
[3] Great Barrier Reef Marine Park Authority
[4] CSIRO Ecosystem Sciences and Wealth from Oceans, Cairns
[5] NQ Dry Tropics NRM, Townsville
[6] Centre for Sustainable Tropical Fisheries and Aquaculture, James Cook University, Townsville

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March 2013

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Introduction

The Social and Economic Long Term Monitoring Program for the Great Barrier Reef (SELTMP) represents a dataset and program of national significance. The SELTMP has been designed to describe conditions and trends of the human dimension of the Great Barrier Reef (GBR) to enable better decision-making. As longitudinal data and knowledge are accumulated, its value to Reef managers and the Australian public will increase. Through web-based facilities, researchers will be able to access data for research purposes, industry will be able to use data to inform their planning and management, and Reef and regional managers will be able to better understand the complex social and economic environment within which they operate. The monitoring of conditions and trends can alert Reef managers and other decisions-makers to changes in the social-ecological system, impacts associated with planned or unplanned interventions, levels of public support, and the social and economic trade-offs associated with decision-making. The SELTMP also offers an opportunity to understand and monitor the growing threat of human actions on the Reef and its catchment and the corresponding capacity of industries and communities to face challenges such as climate change, environmental degradation, regulatory change and cultural change, and to better support ecosystem resilience. At its most basic, the SELTMP provides decision-makers with information about the people that are dependent on, and care about, the Great Barrier Reef.

The aim of the SELTMP is to assist Reef managers and other decision-makers within the region to incorporate the human dimension into planning and management of the GBR region. We do this through engaging Reef managers and other end-users at all stages of the research process. SELTMP represents a significant collaboration between government, industry, community and researchers. Through small working technical and advisory groups, some one-hundred end-users have been involved in the design and implementation of the SELTMP.

A key objective of SELTMP is to act as a reference point or 'repository' for all regional social and economic datasets. This objective has been effectively met through the commitment and willingness of data providers in the region to become integral to the effective functioning of the SELTMP.

To date, the SELTMP team has synthesized available data and collected much needed primary data to construct an up to date 2013 snapshot of the social and economic dimension of the Great Barrier Reef and its catchments. In this report we include the marine tourism industry, the commercial fishing industry, recreational users and coastal communities. Future reports will build upon this and will include Traditional Owners, ports and shipping, catchment industries and mining. We hope that this knowledge provides Reef managers and other decision makers with improved certainty to make decisions – whether they be decisions about resource protection or better ways to manage an industry or a small scale enterprise.

This technical report represents an initial attempt to synthesise key findings. Detailed information can be accessed at the NERP website or at: www.Wealth-from-Oceans-Flagship/ORCA/SELTMP

The Aims of this Report

This report is intended as an interim update for Reef managers, decision-makers, academics, industry and community leaders. We now have near-complete baseline data for several of the large user groups of the Great Barrier Reef and wish to present the key findings for each of these groups.

Analyses of these data are ongoing, and many comparisons (e.g. between user-groups) are yet to be made. Nonetheless, we provide an up-to-date general 'picture' of how these groups use and depend on the Reef, their level of well-being, and their socio-cultural context. We also list what the anticipated major drivers for the Reef and catchment for 2013 will be.

We see that the richness of the SELTMP reporting framework will grow through time as other users and industries are incorporated (e.g. Traditional Owners, shipping, mining) and longitudinal trends and relationships are identified. Readers interested in viewing the baseline data can visit the NERP web page where data representing each user group can be seen in the series of technical reports representing "SELTMP 2013".

An overview of the Great Barrier Reef and its catchment

The Great Barrier Reef is the largest and most diverse coral reef ecosystem on Earth, spanning 2,300km along the east coast of Queensland, Australia[1]. The Great Barrier Reef catchment covers 86,602.6 square kilometres[2] (Figure 1). Landscapes within the catchment are highly diverse, and many are stunning in terms of their size, complexity and beauty. They include wet tropical rainforests, forests dominated by hoop pines, eucalypts and/or melaleucas; vine thickets; palm groves; open woodlands; and grasslands. Rivers make their way from the western highlands of the catchment through floodplains to coastal areas including swamps, sand dunes, beaches and tidal flats, before emptying into the receiving waters of the Great Barrier Reef which supports thousands of marine species.

As a World Heritage listed area, the Great Barrier Reef plays an important role in community life. Human wellbeing - a state of happiness, good health and/or prosperity - is inextricably linked to environmental health (Maeler et al. 2008). Many individuals and communities have strong connections with the Reef, through culture, occupation, or through familiarity. The Reef and its catchment have been enjoyed and exploited by humans for a very long time. The Reef catchment was first occupied thousands of years ago by several groups of Indigenous Australians who used marine and coastal resources for food, shelter and sites of cultural significance. Much of the Indigenous passion and commitment to protect and preserve cultural and natural landscapes emanates from the belief that healthy country equates to healthy people. Through their kinship systems Aboriginal people are connected to land and sea and through this connection, are obliged to care for that country, as well as for one another.[3]

Today over 940,000 people live, work and play in Great Barrier Reef coastal areas, islands, and waters.[2] The Reef provides local residents, tourists and visitors with a wealth of recreational

[1] Great Barrier Reef Marine Park Authority (2009) Great Barrier Reef Outlook Report 2009. .
[2] Office of Economic and Statistical Research 2008, *Projected population by statistical division, Queensland 2006 and 2031*, Queensland Treasury, viewed 19/04/2012 http://www.oesr.qld.gov.au/queensland-by-theme/demography/population/tables/pop-proj/proj-pop-sd-qld/index.shtml.
[3] Maclean, K. , Cuthill, M. & Ross, H. (2013): Six attributes of social resilience, *Journal of Environmental Planning and Management*, DOI:10.1080/09640568.2013.763774

opportunities including beach combing, snorkelling, diving, whale watching, boating, fishing and island camping. The Reef and its catchment bring $5.77 billion into the Australian economy each year through Reef-dependent industries such as tourism and commercial fishing, and provides jobs for almost 69,000 people[4]. In 1981 The Great Barrier Reef was inscribed on the World Heritage List in recognition of its unique attributes of Outstanding Universal Value. The Great Barrier Reef Marine Park is jointly managed by Commonwealth and Queensland governments. It is managed as a multiple use park, allowing a wide variety of human activities to occur including tourism, commercial fishing, recreation, ports and shipping, scientific research and Indigenous traditional use. A number of activities including oil drilling and mining are prohibited in the Marine Park[5].

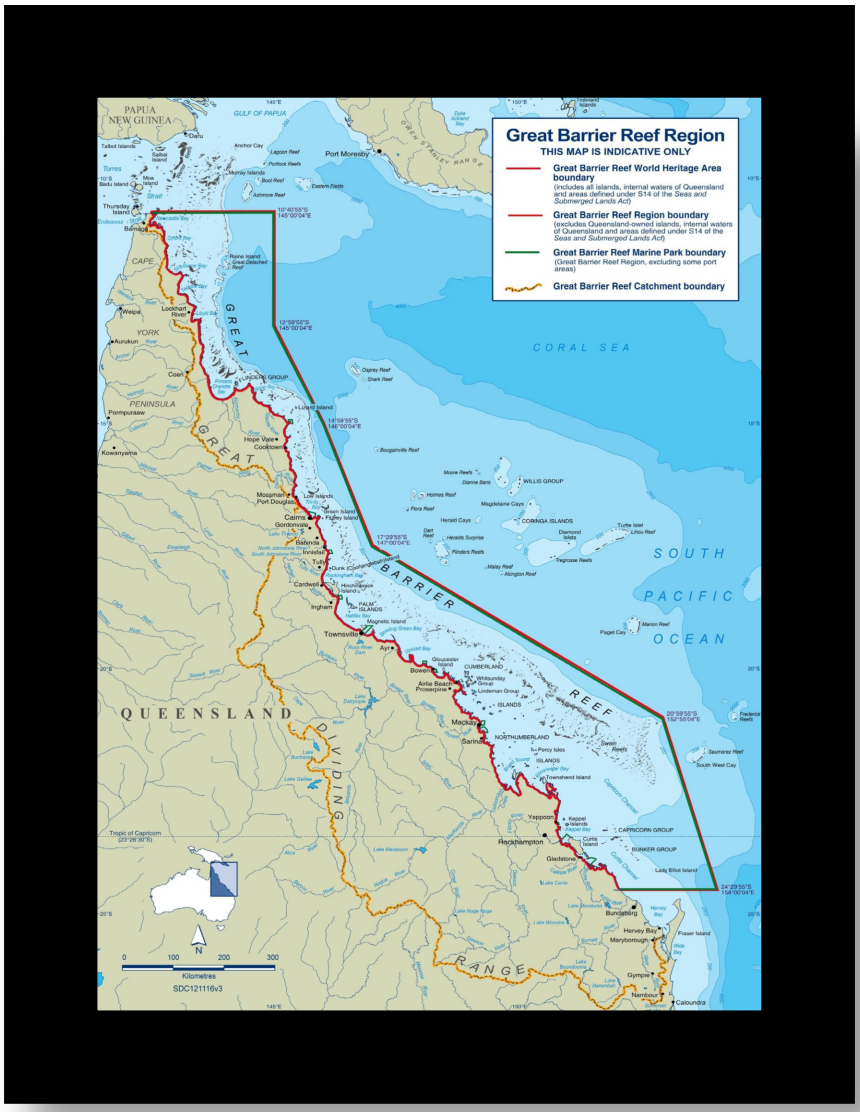

Figure 1: The study region. Source: GBRMPA

[4] Deloitte access Economics (2013)
[5] Great Barrier Reef Marine Park Authority (2009) Great Barrier Reef Outlook Report 2009.

The far northern part of the catchment (from Cooktown to Cape York), supports two coastal communities. Cooktown has 2339 residents and Hope Vale, 45km north of Cooktown, has a population of 984 permanent residents6.. 2,187 persons (36.3%) of the 6,027 people living in this far northern part of the catchment are Indigenous[7], and many maintain strong links to land and sea country. Within this part of the catchment, the Hope Vale local government area (LGA) had the largest percentage of Indigenous persons (94.1% of the LGA's population.)

As the population in this part of the catchment is small, industry is limited, although about 1.7 million tonnes of silica sand are exported annually from Cape Flattery.[84] The area also supports two small scale resorts (one at Bamaga and one at Lizard Island. The far northern part of the catchment also supports low intensity cattle grazing.

The southern two thirds of the catchment including the coastal areas from Cairns to Bundaberg is much more heavily populated. This area is largely cleared for agriculture including cattle grazing, cane growing and horticulture. There are currently 10 ports that mostly export bulk minerals/ coal and sugar. Urban centres are regularly spaced along coast from Cairns (or Port Douglas) to Bundaberg, and there are six larger centres on the coast with populations between 30,000 to 180,000 people. The two largest of these urban settlements are Cairns (population of its significant urban area is 133,911) and Townsville (population of its significant urban area is 162,292)[9.]

When considered in its entirety, the Great Barrier Reef and its catchment comprise a rich mosaic of biodiversity, geomorphology and heritage values. The condition of those values determines the quality of the cultural, social and economic benefits the community derives from the area. Pressures on the Reef have been increasing over time, and in the past fifty years, have driven widespread changes in the catchment and on the Reef. As a result, the condition of the Reef's values and the quality of benefits they provide have also changed[10].

The Design of the SELTMP

Social and economic long term monitoring offers substantial insights into the human dimension of any natural resource system. Its value, however, depends on the indicators chosen to represent the human dimension, the frequency with which those indicators are monitored, the extent to which end-users are involved in the monitoring process, and the ability of end-users to access and interpret data. This section describes how these considerations have guided and shaped the design of the SELTMP.

To design the SELTMP for the GBR we i) engaged with industry, government and community to identify their monitoring needs, ii) developed a conceptual framework to guide the choice of data to be collected, iii) identified the existing regional, state and federal databases, iv) developed a survey addressing the gaps in our knowledge, v) administered (five similar) surveys to local and national residents, tourists, tourism operators and commercial fishers, vi) identified

[6] 2011 Census QuickStats: Australia. Census Data (Australian Bureau of Statistics)

[7] The State of Queensland (Queensland Treasury and Trade) 2013. Queensland Regional Profiles: Resident Profile for FNQ Region, Government Statistician, Queensland Treasury and Trade.

[8] Cook Shire Council Cooktown and Environs Youth Development Plan 2009 – 2014
Queensland Government 2010, Queensland Ports Trade Statistics Report 2010, viewed 19/04/2012, www.tmr.qld.gov.au

[9] 2011 Census QuickStats: Australia. Census Data (Australian Bureau of Statistics)

[10] Commonwealth of Australia. (2013) Great Barrier Reef Region Strategic Assessment. Strategic Assessment Report. Draft for Public Comment

preliminary results, and vii) presented preliminary results to working group members in a two-day workshop to identify key findings and better understand how the data will be used by different groups.

SELTMP is a regional initiative involving a large number of representatives from government, industry, community and research. It is governed by a small steering committee and larger stakeholder and scientific advisory panel comprised of key representatives from each of the main potential users.

Technical aspects of the SELTMP are addressed through working groups. Each working group is led by a core team researcher and comprises members from industry, government and community. Some working groups have as little as five members within them, whilst others have over 25. These groups are focused on identifying and meeting their data needs. The eleven working groups include:

1. Traditional Owners (led by Dr Matt Curnock)
2. Commercial Fishing (led by Dr Renae Tobin)
3. Marine Tourism (led by Dr Matt Curnock)
4. Coastal Communities (led by Dr Erin Bohensky)
5. Recreation (led by Dr Renae Tobin)
6. National Residents (led by Jeremy Goldberg)
7. Human and Community Wellbeing (led by Dr Lea Scherl)
8. Drivers of Change (led by Dr Erin Bohensky)
9. Case study: Commercial fishing (led by Dr Samantha Stone-Jovicich)
10. Agricultural industries (led by Dr Nadine Marshall)
11. Ports, shipping and mining (led by Dr Nadine Marshall)

We anticipate that SELTMP will deliver annual snapshots of the human dimensions of the GBRMP. SELTMP 2011 was the inaugural year in which the design and conceptual model were developed. It assembled and presented data from a range of existing sources relevant to people and industries in the GBR and catchment. SELMTP 2012 was refined in terms of its design and included updated secondary data. SELTMP 2013 is the first year in which data gaps were addressed and primary data collected.

Future editions of SELTMP will comprise updated primary and secondary datasets where possible. Where it is not possible to include data representing that year, the most up-to-date data will be referred to (for example, census data is updated only once every five years). Where no data is available, but deemed important in describing the human dimension, we have highlighted it as a priority for primary data collection (as "xx"). We plan to address these data gaps in the coming years.

Method

Conceptual Framework

The success of such a social and economic long term monitoring program can only occur with well-translated cutting-edge data that feeds directly into current management processes. The science must be excellent, collaborative and must evolve as monitoring datasets are developed. A key component of whether the monitoring program is useful for management is determined by "what is measured". Our approach has been to take a "bottom-up" approach and ask stakeholders, and to take a "top-down" approach and consult the scientific literature. The indicators chosen to represent and monitor the human dimension through time must be specific (S), measureable (M), actionable (A), relevant (R) and timely (T) (SMART). More importantly, however, they must contribute to a conceptual understanding of how the human dimension connects with the ecological system. The framework should guide the choice of indicators, and no indicator should be measured unless it contributes to the conceptual understanding.

We have been primarily guided by the Millennium Ecosystem Assessment (2003, 2005), which established a 'big picture' conceptual overview of the relationship between people and natural resources for the purposes of assessing ecosystem condition. It is based on the "DPSIR" model which focuses on drivers, pressures, states, impacts on and responses of systems. The Millennium Ecosystem Assessment conceptual framework was developed in consultation with over 2,000 scientists. We have slightly modified the framework to reflect the human dimension of natural resources (see Figure 3).

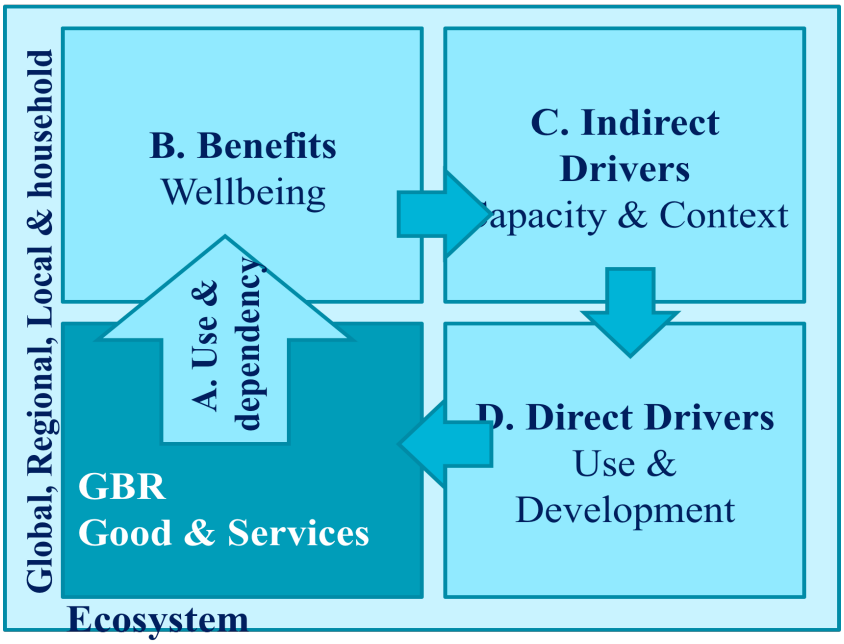

Figure 2: The SELTMP conceptual framework based on the DPSIR framework and Millenium Ecosystem Assessment Framework. The SELTMP proposes to monitor the following four pale blue boxes: A. Use and Dependency, B. Human Well-being, C. Capacity and Context, and D. Use and Development.

The conceptual framework defines the two-way relationship between the ecosystem (Great Barrier Reef and human well-being. This relationship is determined, in part, by how people use and depend on the Reef. In turn, human well-being can influence the ecosystem through influencing the socio-cultural context within which direct drivers, such as coastal development,

agricultural run-off and climate change (for example) are allowed to occur. As such, the SELTMP proposes to monitor the following four boxes (pale blue in Figure 2: i) Use and dependency, ii) Human well-being, iii) Capacity and socio-economic context, and iv) Use and development.

Human well-being, use and dependency, and the direct and indirect drivers of change can influence the Great Barrier Reef ecosystem and its services at multiple spatial scales, from local to global, and from short- to long-term.

An important premise of the SELTMP is that the social and ecological components of the Great Barrier Reef are intrinsically linked; the future of one depends on the future of the other. Human well-being is imparted to some extent through the goods and services provided by the Great Barrier Reef. The capacity of the Reef to provide goods and services is, correspondingly, determined by the wellbeing of humans and communities who influence it, via direct and indirect drivers (of change) on the ecosystem.

In sum, the important components of the human dimension that SELTMP has assessed and aims to monitor are; (A) how people use and depend on the GBR, (B) human and community wellbeing, (C) capacity and context, and (D) use and development.

Opportunities for strategies and interventions that can halt, reverse, or change a process exist at several points within the cycle. We will discuss these opportunities in future reports. Following, we describe in detail what each component represents (A-D), and provide a list of the indicators that have been indentified so as to best capture each dimension.

A. Use and Dependency

People use and are dependent on natural resources in many ways. Understanding the nature and magnitude of this relationship is important for understanding how people might be sensitive to changes in that relationship. For example, resource-protection policies are frequently implemented so as to regulate the balance between resource access and use, however, they can inadvertently compromise the ability of resource-users to adapt and be resilient. Changes in the user-resource relationship can also be brought about changes in ecosystem condition either through an extreme event such as a cyclone or coral bleaching or through environmental degradation processes. An aim of the SELTMP is to provide readers with some understanding of how people *use and are dependent on* the Reef, so that readers might be better positioned to understand the likely consequences of changes to that relationship.

Understanding why and how people are dependent on a resource may provide insight into the ability of people to cope and adapt to changes in the user-resource relationship. It may assist resource-managers, communities and industries to design and implement resource-protection strategies that not only protect ecological values but also the social systems dependent upon them. Here, we present the key components that describe the relationship between resource-users and a resource with specific reference to Reef-users and the Great Barrier Reef. We combine practical needs of the stakeholders of the region with scientific thinking and refer to: who the Reef-users are, how many there are, where they are, where they go on the reef, when they go, how they go, how much they use the Reef, what do they do to/at the reef and why they go. We

have use the following Four-Point Framework that organizes these questions (the "Ws") into social and economic factors and how the Reef is used (Figure 3). The framework guides the development and monitoring of indicators describing the relationship between people and the Reef (Figure 3):

Figure 3. The Use and Dependency framework and associated indicators

1. Activities in relation to the GBR
    - *What are people doing in the GBR?*
    - *How are people interacting with the GBR (gear etc)?*
    - *How often are people interesting with the GBR?*
    - *How much 'product' are they taking?*
2. Spatial and temporal patterns of use
    - *Where are people going to the GBR?*
    - *When are people going to the GBR?*
3. Cultural, spiritual and intellectual inspiration and experiences
    - *Identity in relation to the GBR*
    - *Place attachment to the GBR*
    - *Family dependency on the GBR*
    - *Occupational dependency on the GBR*
    - *Values of the GBR*
    - *Experiences and satisfaction from the GBR*
    - *Networks*
4. Employment, value and investment
    - *Employment figures*
    - *Financial investments*
    - *Income*
    - *Business versus lifestyle approach*

B. Human and Community Wellbeing

Although conservation and natural resource management initiatives are not primarily set up to address human and community wellbeing, they are increasingly expected to be accountable with respect to these attributes. This is in part a legacy of the Millennium Ecosystem Assessment process and its resulting frameworks, which make it clear that there are connections between ecosystem goods and services and human wellbeing (Millennium Ecosystem Assessment 2005). In doing so, they also send a strong message that what takes place in the natural environment affects the wellbeing of people and communities. Moreover, a greater responsibility to incorporate such a relationship (i.e. ecosystem goods and services and human wellbeing) as integral to management interventions and that individuals and communities will play an important role in supporting these interventions.

Social assessments of conservation initiatives and approaches to undertake these assessments are currently receiving significant attention. For example, a comprehensive global review was conducted quite recently (Schreckenberg et al 2010). The overall framework that SELTMP has developed is based on this review. It borrows from the development literature (the World Bank Attacking

Poverty framework) and was first identified as a useful framework for the conservation and natural resource management (NRM) context by Scherl et al 2004 (noting here that the concept of poverty reduction is interchangeable with the concept of human wellbeing). The framework was used to specifically address the relationship between marine protected areas and poverty reduction/human wellbeing (with indicators tailored to the marine environmental management context) in four countries (Scherl 2008, van Beukering et al., in preparation).

The SELTMP Wellbeing framework portrays human and community wellbeing as a multi-dimensional and dynamic concept whereby the dimensions are inter-linked and can affect each other and sometimes be overlapping. The generic human and community wellbeing framework, as a proposed component of the Socio-Economic Long-term Monitoring framework, is presented below in Figure 4.

Figure 4. The Human and Community Well-being Framework

1. Opportunities
    - for GBR access, employment, enjoyment, skill development (including management skills)
2. Empowerment
    - perceptions of the extent to which contributions can be made to decision-making, that governance is collaborative and effective, that knowledge and stewardship are appreciated, and that cultural values and rights are respected
3. Security
    - around health and quality of life and ecosystem, partnerships, identity and sustainability

C. Capacity and Context: Indirect Drivers

Driver: Any natural or human-induced factor that directly or indirectly causes a change in an ecosystem.

Indirect driver: A driver that operates by altering the level or rate of change of one or more direct drivers.

Identifying and monitoring drivers of change in the relationships between the Great Barrier Reef and end-users is essential for three reasons. First, to be able to interpret the data that we collect in SELTMP, we need to understand mechanisms of change in the variables of interest (Biggs et al. 2011, Ferreira et al. 2011). For example, if tourism numbers drop one year, we need to have a reasonable idea of possible causes. Second, as temporal datasets are developed, it becomes possible to anticipate outcomes, and possibly even enhance our predictive abilities – but this too is dependent on an understanding of drivers. Third, drivers are important to monitor in order to document the context or backdrop of change; in other words, in 25 years' time, what will we need to

know about 2011 to interpret what happened in the variables we monitored that year?

For SELTMP, our approach to identifying and monitoring drivers is two-fold. It includes a "bottom up", inductive component in which we elicit expert opinion through end user workshops, and a "top down" deductive approach based on a review of existing conceptual frameworks and literature. Key among these frameworks is the Millennium Ecosystem Assessment (2003, 2005) conceptual framework, which distinguishes categories of direct and indirect drivers. Among the literature, we highlight the CSIRO *Our Future World* megatrends (published annually).

The social and economic context within which management decisions are made can be important influences on the relationship that people have with the GBR. The context describes why direct drivers such as coastal development and agricultural run-off occur. The context can also indicate the extent to which 'capacity' occurs within the system to i) support management and ii) adapt to changes that are either environmentally caused or management enforced. Many of the indirect drivers that we focus on are able to describe both the context and capacity of the system to influence or support change.

We consulted other studies that identified drivers in the GBR. This included a synthesis of futures studies at global, national and regional (e.g., GBR) scales, representing several decades' worth of research on drivers and trends (Bohensky et al. 2011). We also conducted a GBR scenario planning study that interviewed 47 leaders in academia, business and government about key drivers of change and their dynamics for the region (Bohnet et al. 2008), and more recent scenarios of climate change adaptation developed by Evans et al. (2011).

Figure 5 shows the major categories of indirect drivers that are considered within SELTMP and how they influence the relationship between the GBR and end users. Indirect drivers fall into seven major categories:

Economic. Economic drivers span various issues and scales, from global to local. Global economic growth and its distribution by country, sector, and individual affects relationships between people and the Reef. How growth is distributed determines the character of demand for ecosystem services (MEA 2003). The Drivers of Change working group identified a number of aspects of the economy that influence human-environment dynamics in the GBR, including strength of the Australian dollar (Figure 2), economic growth in Asia (Figure 3), sea food markets, fuel prices and housing prices.

Social and cultural. Culture refers to the values, beliefs, and norms that a group of people share. Culture conditions individuals' and societies' perceptions of the world, influences what they consider important, and suggests courses of action that are appropriate and inappropriate.

Demographic. Population size and other demographic variables influence the use of food, fibre, clean water, energy, shelter, transport, and a wide range of ecosystem services. Increases in population decrease the per capita availability of both renewable and non-renewable resources. Population structure (age and sex) is also a key variable (Figures 5 and 6).

Politics and management. These drivers affect the use of and access to reef resources. Includes management structures, frameworks, institutions and processes; legislation and regulation; decision-making and the role of public in decision-making processes.

Communication and media. Communication and media provide mechanisms for information flows among and between managers, resource users and public, and for reflecting and shaping public perceptions and opinion about the reef (Figures 7 and 8).

Science and technology. The development and diffusion of scientific knowledge and technologies can have significant implications for ecological systems and human well-being. Rates of investment in research and development, rates of adoption of new technologies, changes in the productivity and extractive capabilities of new technologies, and the access to and dissemination of information through new technologies all have profound implications.

Reef condition. Condition of the reef is an ecosystem "service" in its own right, but is also a driver, in that it can affect reef use (e.g., by primary resource industries) and well-being of populations and industries that use the reef. Reef condition can also drive management, legislation and societal values. This category of drivers also includes *perceived* reef condition; thus they can also be categorised as "social and cultural" drivers (see above).

Figure 5. The Framework for Capacity and Context and Associated Indicators

1. Economic Drivers
    - Value of AUD
    - Interest rates / inflation
    - GDP growth rates
    - Centre of world economic "gravity"
    - Input, fuel, commodity prices
    - House prices
    - Equality (Gini index, index of socioeconomic disadvantage)
    - Demand (e.g. for fair trade products, experiences)
2. Social and Cultural Drivers
    - Environmental awareness & values
    - Participation in environmental initiatives
    - Perceptions of reef condition and threats
    - Adaptive capacity
3. Demographic Drivers
    - Population age structure
    - Population growth rate
    - Population movements/mobility
    - Number and source of migrants
4. Political and Management Drivers
    - Financial resources allocated to environment and reef management programs
    - Number of regulations passed
    - Subsidies
    - Compliance with regulations
    - Staff turnover in government agencies
    - Ownership of regional businesses
5. Communication and Media Drivers
    - Top news stories
    - Web searches
    - Use of social media
    - Media representations of GBR
    - % of population using internet for information
    - Sources of and trust in information and networks
6. Science and Technology Drivers
    - Scientific research published
    - Scientific research projects/programs funded
    - Government and private research investment
    - Scientific advances
    - Rates of adoption of new technologies
    - Changes in the productivity and extractive capabilities of new technologies
    - Access to and dissemination of information through new technologies
7. Reef Condition
    - Perceived reef condition

D. Use and Development: Direct Drivers

Driver: Any natural or human-induced factor that directly or indirectly causes a change in an ecosystem.
Direct driver: A driver that unequivocally influences ecosystem processes and can therefore be identified and measured to differing degrees of accuracy.

SELTMP is aware of the following direct drivers on the GBR: climate change and natural hazards, coastal development, agricultural industries, mining, ports and shipping (Figure X). Whilst we do not monitor climate change and natural hazards, we consider coastal development within our coastal communities technical report, and report on agricultural industries, mining, ports and shipping. These will materialise as separate technical reports that will be released for SELTMP 2014.

Figure 6. The Use and Development Framework and Associated Indicators

1. Climate Change and Natural Hazards
   Not addressed by SELTMP
2. Coastal Development
   Addressed in technical report: Coastal Communities
3. Agricultural Industries
   Will be addressed in technical report: Agricultural industries
4. Mining, ports and shipping
   Will be addressed in technical report: Mining, ports & shipping

Survey Design

The SELTMP conceptual model (Figure 2) suggests that to provide insights into the human dimension of the region, the following aspects of the social system need to be assessed and monitored: A) how people use, interact with and depend on the Reef, B) human and community wellbeing, C) indirect drivers of change (which we have identified as economic, socio-cultural, demographic, politics and management, communication and media, science and technology, reef condition- see "indirect drivers"), and D) direct drivers of change (climate change, primary production, coastal development). These conceptual elements were used to identify the indicators that would be important in representing the human dimension, and to guide the structure of the survey design.

Once indicators were identified, a master survey, or template, was designed to capture each of the important indicators. The template was used as a guide to develop five separate surveys that targeted each of the main user groups of the GBR; national residents, local residents, tourists, tourism operators and commercial fishers. These surveys can be found in Appendix 1.

Survey Administration

National residents were surveyed using online means provided by an external marketing company based in Sydney; Pollinate. This company has access to a random sample of Australians who are prepared to complete surveys in exchange for online credit points that can be converted into gifts or goods. Pollinate have been conducting their own interviews about environmental perceptions every six months since 2007. We were able to include a small number of additional questions for SELTMP 2013 in both March 2013 and September 2013. Demographic results suggest that the population at both times were representative of the Australian population with regard to age and gender. We obtained 1,002 respondents in March, and 1,000 in September.

Local residents and tourists were surveyed using face-to-face methods across 14 main population centres in each of the four sections of the GBR, from Hopevale or Elim beach in the north to Bundaberg in the south. We employed and trained 35 casual staff and deployed them to public places such as parks, shopping centres, market places, airports, marinas and sporting areas, information centres, museums, jetties, caravan parks, lookouts etc. We used a mix of "convenience sampling" and "quota sampling" (Bryman 2012) in which attempted to produce a population representative of people in categories such as age, gender, interests and occupation. We were interested in ensuring that we had sufficient individuals within each of the following interest groups to be able to represent them to a satisfactory extent: "grey nomads", backpackers, yachties, boaties, jet-skiiers, residents, domestic visitors, snorkelers, divers, and international visitors. Our sample size was to target as many people as we could within our budget. Our sample was biased towards English speaking people that appear in public places and against Cruise ship passengers. Our ability to adequately reflect Asian tourists, therefore, and for example, is likely to be limited. However, because of budget limitations, we decided that we would target our other demographies as a priority because these groups of people are relatively little known, and other researchers within the region target different ethnicities (e.g. Prideaux).

We equipped each interviewer with an iPad, into which they entered responses to either the tourist or resident survey, using the iSurvey application. The benefits of administering the survey via an ipad included instant uploads of results into an online database, and reducing the potential for error between data collection, data entry and coding processes that are characteristic of paper-based self-administered questionnaires. At the completion of the sampling period (June-August 2013), we had surveyed 3,151 local residents and 2,621(should be more) tourists across the Reef and catchment obtaining a response rate of over 53%. Tourists were defined as people who live outside the GBR catchment (east of Great Dividing Range, from Bundaberg to Cape York. Surveys were conducted in English only and the survey locations did not include hotels or group tour coaches. It is therefore likely that Asian tourists and group tour travellers are under-represented within the tourist sample.

Marine tourism operators and commercial fishers were interviewed by telephone. Since we were unable to access a contacts database for either industry due to ethical and commercial-in-confidence reasons, we built our own databases using publicly-available data and personal contacts. There is an unknown number of operators within both industries, however we estimate, based on licences issued and information on fishing activity (DAFF, unpublished data, 2013), that there are around 611 commercial fishers that have at least one license to operate in the GBRMP. Using a comprehensive web-search and snowball method, we identified 213 tourism businesses that appeared to be in current operation within the GBRWHA. Through an intense media campaign, resulting in 44 media stories across the catchment and through targeted mail-outs introducing operators to the project and inviting them to participate, we

were able to survey 201 commercial fishers and 119 marine tourism operators, achieving a response rate of 76% each.

The GBR was defined in all surveys as "all land and water from the beaches on the coast, the bays and creeks, the islands, shoals and seafloor, the open waters, and of course the coral reefs."Further, surveys were targeted at coastal towns adjacent to the GBR, and hence results should not be extrapolated to the entire catchment.

Data Analysis

Only key findings are reported in this document. Key findings for commercial fishers from existing datasets are also included. Only descriptive analyses have been performed for 2013 data. Detailed results can be observed in each of the technical reports that are associated with this report.

Key Findings

Key findings from the National Resident Survey

- The Great Barrier Reef (GBR) is considered Australia's most inspiring landmark by far (from amongst a list of 12 well-known Australian landmarks such as the Sydney Opera House, the Australian Outback, Uluru, etc.). Results found that 93% of respondents described the GBR as inspiring, and 46% believed it to be the most inspiring natural icon in Australia (the second highest was Uluru at 11%). Some 76% of Australians thought that the GBR was among the top three most inspiring icons.

- When asked what words come to mind when thinking about the GBR, 82% of the associations in the Sept. 2013 survey were 'positive' words such as beauty, diversity, fish, and corals.

- The vast majority of Australians either want to visit the GBR in the future, or have done so already. For example, results found that 37% of respondents have been to the GBR more than 12 months ago, 48% have never visited but plan to visit at some stage and 9% have visited the GBR in the last 12 months.

- Pollution, climate change and people were thought to be the biggest threats to the GBR, although 18% of respondents could not think of a single threat.

- When provided with a list of threats, respondents rated climate change as the most severe, followed by agricultural runoff, shipping and marine debris. Recreational fishing and tourism were perceived to be the least threatening.

- Australians feel proud to have the GBR listed as a World Heritage Site and also feel a responsibility to protect it. We found that 84% of respondents were proud that the GBR is a World Heritage Area. 81% agreed that it was the responsibility of all Australians to protect the GBR and 63% believed it was their responsibility to protect the GBR. 64% saw that the GBR was part of their Australian identity.

- Results also suggested that a large proportion of Australians are not confident that the GBR is well managed and do not feel optimistic about the future of the GBR. We found that 76% of Australians were concerned about the impacts of climate change on the GBR; only 54% were optimistic about the future of the GBR; 54% would be personally affected if the health of the GBR declined, and only 52% were confident the GBR is well managed.

Key findings from the Local Resident Survey

- 26% of respondents were dependent on the GBR for at least some of their household income.

- 95% of local residents had visited the GBR in their lifetime, and 88% had visited the GBR in the previous 12 months. Among these (the 88%), 63% had visited a beach as their last trip to the GBR, however 68% had been 'beyond' the beach (e.g. to a reef or island) in the previous 12 months.

- The average duration respondents had lived in the GBR catchment was 20.7 years.

- 75% of all visitors to the Great Barrier Reef rated their overall satisfaction with their experience of their recent beach and non-beach trip to the GBR as very high (i.e. rating of 8 or higher on a scale of 1 to 10; overall mean = 8.6). Factors that had the greatest positive influence on

residents' overall experience of the GBR (beyond the beach) were visual quality, weather, hospitality/company, habitat quality, and fish number. Factors that had the greatest negative influence on residents' overall experience of the GBR were number of fish, habitat quality and weather.

- Residents participated in a wide range of activities during their GBR visit, including exercising (on the beach), fishing, snorkelling, swimming & relaxing. 3% of residents surveyed owned a jetski, 5% owned a sailing vessel, and 24% owned a motor boat.

- 63% indicated that 'the place they visited most recently in the GBR is in great condition', and 33% strongly agreed with this statement (rating 9 or 10/10).

- 66% of residents indicated that there are 'not many other places better than the GBR for the recreation activities they enjoy'.

- 94% of residents indicated that they 'felt proud that the GBR is a World Heritage Area', and 75% strongly agreed with this statement (rating 9 or 10/10).

- 64% of residents indicated that "the GBR is part of my identity" and 28% strongly agreed with this statement (rating 9 or 10/10).

- 41% indicated that they live in the catchment because of the GBR. 77% planned to still reside in the catchment in five year's time. 86% planned to stay in the Reef catchment even if cyclones and floods occurred more frequently.

- The strongest values of the GBR among residents (based on ratings of agreement with a range of statements) were: (1) the GBR's aesthetic beauty (i.e. "the aesthetic beauty of the GBR is outstanding"; mean rating = 9.1/10), (2) biodiversity values ("the GBR supports a variety of life, such as fish and corals"; 9.1), (3) the GBR's World Heritage status ("I am proud that the GBR is a World Heritage Area"; 9.0)(4) the economic values of the GBR ("The GBR is a great asset for the economy of this region"; 8.9), (4) the GBR's scientific and educational values ("I value the GBR because we can learn about the environment through scientific discoveries"; 8.5), and (5) lifestyle values ("I value the GBR because it supports a desirable and active way of life"; 8.5).

- 61% of residents indicated that they felt confident the GBR is well managed. 78% supported the current rules and regulations that affect access and use of the GBR. 80% indicated that they believe they have 'fair access to the GBR compared to other user groups'.

- 81% indicated that they would be 'personally affected if the health of the GBR declined', and 54% strongly agreed with this statement. 78% would like to do more to help protect the GBR. 75% indicated that they believed they can make a personal difference in improving the health of the GBR.

- 94% agreed that "it is the responsibility of all Australians to protect the GBR". 92% agreed that "coastal residents should take steps to reduce their impacts on the GBR". 88% agreed that they have a personal responsibility to protect the GBR.

- The groups that residents trusted the most for information about the GBR ranged across research institutions (mean rating = 7.8 out of ten), friends, family & colleagues (6.3), Non-Government Organisations (6.2), government managers (5.8), industry groups (5.5), media (i.e. radio, newspapers, TV) (4.2), and social media (e.g. Facebook, Twitter) (3.8).

- The most frequently listed threats were (ranked top ten): Climate change/global warming (listed by 30% of respondents), Shipping (27%) (+12% concerned about oil spills specifically), Agricultural runoff (22%), Commercial fishing (20%), Pollution (17%), Mining (land-based) (15%), Crown-of-thorns starfish (14%), Marine debris / beach littering (14%), Tourism (12%), New ports and port expansions (12%),

- 52% of residents indicated that they believe climate change is an immediate threat requiring action. 15% indicated that they believe climate change is a serious threat, but the impacts are too distant for immediate concern. 22% indicated that they need more evidence to be convinced of the problem. 5% indicated that they believe climate change is not a threat at all. 5% indicated that they did not have a view on climate change.

Key findings from the Tourist Survey

- 70% of tourists (n=1825) had visited the GBR whilst in the area. Among these visitors, 50% paid to go on an organised tour. The GBR was an important influence on the decision to visit the area for 70% of visitors.

- Visitors to the GBR participated in a wide range of activities, most of which were nature-oriented (including snorkelling, SCUBA diving, fishing, swimming, sailing, boating, wildlife watching, scenic flights, camping, watersports, eating GBR seafood, sightseeing and photography), as well as relaxing and socialising (including partaking in weddings and/or honeymoons).

- Respondents came from 54 countries, with the highest proportion coming from within Australia (55%), followed by the UK (11%), Germany (8%) and France (6%).

- 80% of visitors to the Reef and catchment rated their overall satisfaction with their experience of the GBR as very high (i.e. rating of 8 or higher on a scale of 1 to 10; overall mean = 8.5). Highest scores were given for sightseeing & photography (mean = 8.6/10), eating GBR seafood (8.5), wildlife watching (8.5), SCUBA diving (8.4), camping and hiking (8.3) and snorkelling (8.2).

- Factors that had the greatest positive influence on tourists' overall experience of the GBR were visual or aesthetic qualities, the weather, the perceived health of the Reef/habitats, hospitality and the Reef wildlife. The absence of crowding/low numbers of people was also a positive influence.

- Factors that had the greatest negative influence on tourists' overall experience of the GBR were bad weather and issues associated with tourism operators (e.g. service, cleanliness, trip cost).

- Visitors stayed in the area for an average (median) of 10 days. 84% of international tourists were visiting for the first time.

- For 74% of international visitors, visiting the GBR was an important part of their decision to visit thearea. . International visitors rated their overall satisfaction with their experience of the GBR very highly (mean = 8.4/ 10), and 85% indicated that they would consider revisiting the GBR region in future.

- For 57% of domestic visitors, visiting the GBR was an important part of their decision to visit to the area. Domestic visitors rated their overall satisfaction with their experience of the GBR very highly (mean = 8.5/ 10), and 96% indicated that they would consider revisiting the GBR region in future.

- Backpackers represented one third of the sample of tourists (33%), who also stayed in the area for a median of 15 days. For 87% of backpackers visiting the GBR was an important part of their decision to visit the area. Backpackers rated their overall satisfaction with their experience of the GBR very highly (mean = 8.4/10), and 86% indicated that they would consider revisiting the GBR in future.

- The strongest values of the GBR among tourists (based on ratings of agreement with a range of statements) were: (1) biodiversity values (i.e. "the GBR supports a variety of life, such as fish and corals"; mean rating = 9.0/10), (2) the GBR's aesthetic beauty ("the aesthetic beauty of the GBR is outstanding"; 9.0), (3) the GBR's World Heritage status ("I feel proud that the GBR is a World Heritage Area"; 8.8), (4) the GBR's scientific and educational values ("I value the GBR because we can learn about the environment through scientific discoveries"; 8.3), and (5) lifestyle values ("I value the GBR because it supports a desirable and active way of life"; 8.0).

- Tourists were asked to list the three most serious threats to the GBR. They listed (in their own words) the most serious threats as tourism (41% of respondents), climate change/global warming (40%), commercial fishing (22%), shipping (20%), marine debris (18%), agricultural runoff (16%), COTS (11%), pollution (in general) (9%), mining (9%), water quality (8%) and coral bleaching (8%)

- Tourists placed the most trust regarding information about the GBR, from friends, family & colleagues (mean rating = 6.7 out of ten), tourist information centres (6.7), clubs, societies and other interest groups (6.1), tourism operators (5.8), media (i.e. radio, newspapers, TV) (5.6), travel agents (5.4), and social media (e.g. Facebook, Twitter) (4.8).

- When asked about their environmental behaviours, 52% of tourists indicated that they choose a tour operator based on their 'green' credentials at least some of the time. 19% indicated that they choose tour operators on this basis often or always.

- When asked about their beliefs in climate change: only 3% indicated that they believe climate change was not a threat at all. 72% believed that climate change is a serious threat (55% of tourists indicated that climate change is an immediate threat requiring action and 17% indicated that climate change is a serious threat, but the impacts are too distant for immediate concern). 18% of tourists indicated that they need more evidence to be convinced of the problem. 4% indicated that they did not have a view on climate change.

Key findings from the Tourism Operator Survey

- Our sample of 119 tourism operators consisted of 46 Reef tour operations (including live-aboard and day trips visiting reefs and islands in the GBRMP), 28 charter fishing operations, 14 island resort/accommodation operations, 7 water sports/equipment rental operations, 7 inshore cruise operations, 6 flight/helicopter operations, 6 general charter vessel operations and 5 bareboat charter operations. Respondents included 77 business owner-managers, 39 managers and three other senior staff who could speak on behalf of their company. Respondents had an average of 14 years experience in the GBR tourism industry (range 1-44yrs), and the average business age was 18 years (range 1-130 years). The operations had an average of 22 employees (range: 1-400), and operated in the GBR for a mean of 232 days in the previous 12 months (range 0-365 days). Most operators (109/119) stated that their company had insurance for its business assets.

Lifestyle values and attachment to place

- 76% of tourism operators indicated that they live in the catchment because of the GBR. 92% of tourism operators felt proud that the GBR is a World Heritage Area. 84% said that the GBR is part of their identity and 61% of respondents indicated that they "wouldn't want to be

anything other than a tourism operator". 87% agreed that "the tourism industry is not just a job, it is my lifestyle". 84% indicated that they planned to still be a tourism operator in 5 years time. 82% indicated that they were likely to remain operating in the Reef and catchment even if events such as cyclones and floods occurred more frequently.

Values of the GBR

- Tourism operators valued the GBR for its biodiversity values ("I value the GBR because it supports a variety of life such as fish and corals"; 98% agree), economic value ("The GBR is a valuable asset for the economy of this region"; 97% agree), scientific/knowledge values ("I value the GBR because we can learn about the environment through scientific discoveries"; 94% agree), international appeal ("I value the GBR because it attracts people from all over the world"; 94% agree), and lifestyle values ("The GBR contributes to my quality of life and wellbeing"; 93% agree, and "I value the GBR because it supports a desirable and active way of life"; 92% agree).

Perceptions of Reef health

- 97% of respondents agreed that "the aesthetic beauty of the GBR is outstanding", however 26% indicated that "the areas that my operation uses in the GBR are not in great condition". 62% of respondents indicated that they were optimistic about the future of the GBR.

Management perceptions

- 65% of respondents indicated that they feel confident that the GBR is well managed. 69% said they "support the current rules and regulations that affect access and use of the GBR". 18% felt that they did not have fair access to the GBR compared to other user groups. 55% indicated that "industry rules and regulations create too great a burden on [their] time".

Resilience and adaptive capacity

- 24% of respondents did not feel optimistic about the future of their business in the GBR. 39% indicated that their business did not perform as well this year as it did last year. 43% indicated that they were "confident things will turn out well for me, regardless of future regional events such as floods, cyclones or financial crises". 39% indicated that they were "uncertain how to plan for changes in the GBR … such as floods, cyclones or financial crises." 59% indicated that they have planned for their financial security in the event of a crisis.

Stewardship

- 97% felt that it was their individual responsibility to protect the GBR. 87% of respondents indicated that they "would like to do more to help protect the GBR". 94% indicated that they would be personally affected if the health of the GBR declined. 63% said they "regularly get involved in research and/or management activities for the GBR". 98% indicated that they "try to encourage other people to reduce their impacts on the GBR". 86% agreed that "it is the responsibility of all Australians to protect the GBR".

Environmental behaviours

- 90% of respondents indicated that their operation "provides interpretation for tourists that promotes conservation or sustainable use of the GBR". 88% (of applicable respondents) use fuel efficient engines. 84% separated waste created by tourists for recycling. 83% participate in industry best practices (e.g. codes of practice, MOUs). 45% participate in GBRMPA's Eye on the Reef monitoring program. 43% use green energy (e.g. solar) for at least part of their business. 28% use an emissions calculator to plan business operations. 19% use carbon offsets to counter emissions. 8% use alternative fuels (e.g. biodiesel, ethanol).

Norms and expectations
- 92% of respondents agreed that "tourism operators should take steps to reduce impacts on the GBR". 83% agreed that "industry expectations are that tourism operators should reduce their impacts on the GBR". 71% agreed that tourists "expect that tourism operators will take steps to reduce impacts on the GBR".

Belief in action
- 85% of tourism operators believed that they can make a personal difference in improving the health of the GBR. 90% indicated that they "have the knowledge and skills to reduce any impact that [their] business might have on the GBR". 14% "do not have the time and opportunity to reduce any impact that my business might have on the GBR". 76% indicated that it is not "too expensive for me to reduce any impact I might have on the GBR".

- Tourism operators were asked to list the three most serious threats to the GBR (in their own words). They listed climate change (35% of respondents), followed by agricultural run-off (29%), shipping (22%), new ports and port developments (18%), crown of thorns starfish (15%), commercial fishing (13%), cyclones (13%), water quality (13%), coastal development (13%) and tourism (8%) (*NB. preliminary data only*).

- Respondents indicated their level of trust in the following groups for information about the GBR; research institutions (e.g. CSIRO, universities) (85% of respondents indicated trust), GBRMPA (82%), other tourism operators (66%), industry groups/representative bodies (e.g. AMPTO, WCBIA, Dive QLD) (65%), NGOs & other community groups (e.g. NRM organisations) (57%), friends, family & work colleagues (52%); social media (e.g. Facebook, Twitter) (18%), and media (e.g. radio, newspapers, TV); (13%).

- 50% of respondents indicated that, "climate change is an immediate threat requiring action". 18% believe, "climate change is a serious threat, but the impacts are too distant for immediate concern". 23% indicated that they "need more evidence to be convinced of the problem". 3% believe "climate change is not a threat at all". 6% had "other views" about climate change.

Key findings from the Commercial Fishing Survey

Patterns of Use – who / how many / how often
- An average age of 55, 93% male, 85% married or with a partner, 56% with high school education or less. 81% had operated in the GBR in the previous 12 months. An average of 69% of fishing income came from the GBR in the previous 12 months.
- DAFF (2012 calendar year): The number of licenses that allowed GBR access in 2012 (1732) and those that were active in the GBR (759). 15% of these hold >1 license, giving a crude estimate of 611 active fishers in the GBR in 2012. (which means we surveyed at least 34% of the active GBR fishers).

Activities – what, where, when, how
- Surveys included all fishing types, broadly grouped to Line, Trawl, Net, Pot and Harvest fisheries.
- 67% of surveyed fishers have one main vessel and 60% accessed only one broad fishery type (c.f. 74% of fishers from DAFF data).
- Most fishing types use only 1 port, except for Net (49%) and Trawl (44%)
- Net and Pot fisheries operate very close to their home port, while Trawlers roam quite some distance away.
- 48% of fishers had no employees.
- Fishers operated on average for 118 days (SELTMP data) or 92 days (DAFF 2012 calendar year) in the GBR in the previous year.

- DAFF catch and effort data: The Fitzroy region had the highest # of effort days and overall harvest when comparing regions. The Pot fishery had the highest # of effort days but Trawl had the highest overall harvest when comparing fishery types.
- Markets (SELTMP Survey): First point of sale locations – An average of 61% (median 90%) was sold on the local market, and an average of 81% (median 100%) was sold to wholesalers.

Relationship with the GBR – why
- Surveyed fishers had lived in GBR region for 34 years (median 36, max 86 years). 71% agreed the GBR was part of their identity, and 84% disagreed that there were many other places better than the GBR for the fishing they do.
- 97% of fishers plan to be a resident of the region in the next 5 years, and 95% plan to remain even if extreme events occur more frequently.
- Most (92%) were owner-operators, and highly tied to fishing an average of 29 years fishing experience, an average of 65% (median 80%) if household income from fishing and 44% with at least one family member involved in commercial fishing.
- 90% agreed the fishing industry is a lifestyle, not just a job, and 82% still plan to be a commercial fisher in 5 years time.

Values
- When respondents were asked their values of the GBR - an average score of 9.0 was found (where 1 is strongly disagree and 10 is strongly agree) in response to "it supports a variety of life such as fish, corals" and "it is a valuable asset for the economy of this region"

Perceptions of GBR health and management
- 94% of fishers agreed the aesthetic beauty of the GBR is outstanding (average score of 9.0 / 10).
- An average score of 7.1 was found in response to "I am optimistic about the future of the GBR", but an average score of 5.2 was found in response to "I feel optimistic about the future of my business in the GBR". "I feel confident the GBR is well managed" scored 5.0, and "I support the rules and regulations that affect access to and use of the GBR" scored 4.7.

Stewardship
- Fishers would be personally affected if the health of the GBR declines (score 7.9) and most (68%) would like to do more to help protect the GBR. Most believed it is the responsibility of all Australians to reduce impacts on the GBR (score 8.3) rather than their own responsibility (score 7.7) or commercial fishers (5.6).
- When it comes to environmental behaviours, most (98% have fuel efficient events, and 81% participate in industry best practice (e.g. Codes of Conduct). Few (13%) use an emissions calculator.

Perceived threats to the GBR
- The greatest threat to the GBR perceived by respondents was found to be agricultural run-off (34% of respondents). Other threats perceived included new ports and port expansions (31%), shipping (31%), natural disasters (26%), government and regulations (19%), climate change (18%), tourism (17%), recreational fishing (16%), coastal development (14%) and crown of thorns starfish (13).
- When asked about climate change, the majority (40%) chose the statement "I need more evidence to be convinced of the problem".

Adaptive Capacity
- Risk: Fishers did not score highly (5.4 / 10) in their belief that things will turn out well for them regardless of future events / change, and they were uncertain of how to plan for changes (6.2).

- Planning, learning, experimenting...: Fishers were good at developing scenarios (6.7) and discussing problem solving with others (7.1)
- Psychological and financial buffers: They agreed they were more likely to adapt than other coastal residents (7.4) and many had planned for their financial security (6.7).
- Interest in adapting to change: They were generally interested in learning how to better prepare for change / events (6.7).

Networks and trust
- In response to the question "How much do you trust the information you receive about the GBR from…" respondents had the greatest amount of trust in other commercial fishers (average score of 6.6 / 10) (where 10 = high trust). The least amount of trust was found in the social media with an average score of 1.9. Trust in Fisheries Queensland and GBRMPA was low (4.5 and 3.9 respectively).

Economic relationship
- Secondary data revealed a GVP of $105m for fishing (excluded most harvest fisheries), (DAFF unpublished data, 2013, for 2012 calendar year). Deloitte Access Economics (DAE) calculated a GVP of $122.9m in 2011-12, with a value added estimate of $92.5m (DAE 2013).

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Appendix 1: Survey for National Residents

Sample	National representative (Age 14-64), gender, location, metro regional.

INTRODUCTION

We are conducting a survey about people's attitudes and behaviours related to several prominent social and environmental issues within Australia. Specifically, we are interested to learn more about individual and regional perceptions, and how these may correspond to behaviours and decision-making processes. The information obtained from this survey will improve our understanding of how people and communities may respond to future changes in economic, societal or environmental conditions. In addition, anonymous data collected from this survey may be shared with other research organisations (e.g. universities, government institutions, etc...) for the purposes of clarifying and better understanding the survey findings and may eventually be used to inform local and regional policy development processes.

This survey will take you 15 minutes to complete. We hope you find the subject matter interesting and the responses you provide are well considered and an honest representation of your current behaviour and attitudes.

ASK ALL

GBR1	Below is a list of places in Australia that people have said are inspiring. Please rank the following in terms of how inspiring they are to you. RANDOMISE ORDER OF DESTINATIONS						
SR PER ROW		Most	Second	Third most	Inspiring,	Not Inspiring	Don't know
	Uluru	1	2	3	4	5	99
	Bondi Beach	1	2	3	4	5	99
	Sydney Opera House	1	2	3	4	5	99
	Melbourne Cricket Ground	1	2	3	4	5	99
	The Kimberley Region	1	2	3	4	5	99
	Great Barrier Reef	1	2	3	4	5	99
	Outback Australia	1	2	3	4	5	99
	Blue Mountains	1	2	3	4	5	99
	Great Ocean Road	1	2	3	4	5	99
	Margaret River	1	2	3	4	5	99
	The Gold Coast	1	2	3	4	5	99
	Kakadu	1	2	3	4	5	99

ASK ALL

GBR2	Please list the first words that come to mind when you think of the Great Barrier Reef. You can add as many words as you like.
OE	

ASK ALL

GBR3	Which of the following statements best applies to you?	
SR	I have visited the Great Barrier Reef in the last 12 months	1
	I have visited the Great Barrier Reef, but not recently – it was more than 12 months ago	2
	I have never visited the Great Barrier Reef, but I would like to at some stage	3
	I have never visited the Great Barrier Reef, and don't intend to	4

ASK ALL

GBR4	What do you think are the three most serious threats to the Great Barrier Reef? If you don't know, please type "don't know". **PROGRAMMER NOTE: HAVE 3 SEPARATE TEXT BOXES**	
OE	**Most serious threat:**	
	Next most serious threat:	
	Third most serious threat:	

ASK ALL

GBR5	Using the scale below, from 1-10, where 1 = "Not at all threatening" and 10 = "Extremely threatening", please indicate how threatening you think each of the following is to the Great Barrier Reef. If you don't know, please tick "Don't know". **RANDOMISE ORDER OF STATEMENTS**											
SR PER ROW		1 – Not at all threatening	2	3	4	5	6	7	8	9	10 – Extremely threatening	Don't know
	Land-based mining	1	2	3	4	5	6	7	8	9	10	99
	Cyclones and tropical storms	1	2	3	4	5	6	7	8	9	10	99
	Floods	1	2	3	4	5	6	7	8	9	10	99
	Coastal development (i.e. increased buildings and people living along the coastline)	1	2	3	4	5	6	7	8	9	10	99
	Tourism activities (e.g. SCUBA diving, snorkelling, etc.)	1	2	3	4	5	6	7	8	9	10	99
	Crown of Thorns Starfish	1	2	3	4	5	6	7	8	9	10	99
	New shipping ports and port expansions	1	2	3	4	5	6	7	8	9	10	99
	Marine debris and beach littering (e.g. rubbish, discarded fishing gear, etc.)	1	2	3	4	5	6	7	8	9	10	99

	Commercial fishing	1	2	3	4	5	6	7	8	9	10	99
	Recreational fishing	1	2	3	4	5	6	7	8	9	10	99
	Climate change (i.e. leading to increased ocean temperatures, coral bleaching etc.)	1	2	3	4	5	6	7	8	9	10	99
	Shipping (i.e. very large cargo container type ships)	1	2	3	4	5	6	7	8	9	10	99
	Agricultural run-off (i.e. pesticides and fertilisers)	1	2	3	4	5	6	7	8	9	10	99

ASK ALL

GBR6	Please indicate how strongly you agree or disagree with each of the following, on the 10-point scale below, where 1=very strongly disagree and 10=very strongly agree **RANDOMISE ORDER OF STATEMENTS**

SR PER ROW		1 – very strongly disagree	2 - strongly disagree	3 - disagree	4 - slightly disagree	5 - very slightly disagree	6 - very slightly agree	7 - slightly agree	8 - agree	9 - strongly agree	10 – very strongly agree	Don't know
	I feel optimistic about the future of the Great Barrier Reef	1	2	3	4	5	6	7	8	9	10	99
	I would not be personally affected if the health of the Great Barrier Reef declined	1	2	3	4	5	6	7	8	9	10	99
	The Great Barrier Reef is part of my Australian identity	1	2	3	4	5	6	7	8	9	10	99
	I am concerned about the impacts of climate change on the Great Barrier Reef	1	2	3	4	5	6	7	8	9	10	99
	It is not my responsibility to protect the Great Barrier Reef	1	2	3	4	5	6	7	8	9	10	99
	I feel proud that the Great Barrier Reef is a world Heritage Area	1	2	3	4	5	6	7	8	9	10	99
	It is the responsibly of all Australians to protect the Great Barrier Reef	1	2	3	4	5	6	7	8	9	10	99
	I feel confident that the Great Barrier Reef is well managed	1	2	3	4	5	6	7	8	9	10	99

Researcher use: Date:_____
Location:_____

Appendix 2: Survey for Local Residents

1. What are the first words that come to mind when you think of the Great Barrier Reef?
Please list as many words as you like:

_____

_____

Section A. In this section, we would like to know how you use the Great Barrier Reef. *When we refer to "the Great Barrier Reef", this includes all land and water from the beaches on the coast, the bays and creeks, the islands, the shoals and seafloor, the open waters, and of course the coral reefs.*

and creeks, the islands, the shoals and seafloor, the open waters, and of course the coral reefs)

Please tick one box: ❑ Yes ❑ No – *if no, please go to Q.4.*

3. In the previous 12 months, how many days did you visit the Great Barrier Reef for recreation?
(*Please tick one box*):

❑ 0 days *(if 0, please go to Q.4)*
❑ 1-2 days *(once or twice a year)*
❑ 3-6 days *(every few months)*
❑ 7-12 days *(approximately monthly)*
❑ 13-24 days *(approximately fortnightly)*
❑ 25-52 days *(approximately weekly)*
❑ 53-100 days *(several times a week)*
❑ more than 100 days *(almost daily)*

4. a) Do you own a jet ski/personal jet water craft? ❑ No ❑ Yes
If yes, how often did you use it in the last 12 months? (*Please tick ONE*)

❑ Almost daily ❑ Several times a week ❑ Weekly ❑ Fortnightly
❑ Monthly ❑ Every few months ❑ Once or twice a year ❑ Not at all

b) Do you own a sailing boat? ❑ No ❑ Yes
If yes, how often did you use it in the last 12 months? (*Please tick one box*)

❑ Almost daily ❑ Several times a week ❑ Weekly ❑ Fortnightly
❑ Monthly ❑ Every few months ❑ Once or twice a year ❑ Not at all

If yes, how long is this vessel? _____ (*please circle one*: **metres** or **feet**)

c) Do you own a registered motor boat? ❑ No ❑ Yes

If yes, how often did you use it in the last 12 months? (*Please circle ONE*)

❑ Almost daily ❑ Several times a week ❑ Weekly ❑ Fortnightly
❑ Monthly ❑ Every few months ❑ Once or twice a year ❑ Not at all

If yes, how long is this vessel? _____ (*please circle one*: **metres** or **feet**)

Thinking about your most recent trip to the Great Barrier Reef (*remembering that it includes the beach, islands and inshore areas as well as the reef itself...) ...*

5. ... on this trip:

a) Where did you visit? (Please mark on the map below (*label with "recent"*), and tell us the name of this place):

_____

b) What were your main activities that you did during this visit?

_____

_____

c) Was this trip to a mainland beach? ❑ **Yes** (*please go to 7d*) ❑ **No** (*please go to 7f*)

d) Have you been on any trips BEYOND the beach in the past 12 months? (E.g. to an island and/or coral reef) ❑ **Yes** (*please go to 6e*) ❑ **No** (*please go to Q8*)

e) Where was your most recent trip beyond the beach? (Please mark on the map above (*label with "recent"*), and tell us the name of this place):

_____

f) How did you get there (*e.g. ferry, commercial tour, own boat*)?

_____

g) Where was your point of departure (*i.e. which township/city on the mainland*)?

_____

h) What were your main activities on this particular visit?

_____

_____

6. How long was this trip to the Great Barrier Reef? (*For your most recent trip beyond the beach, if applicable*)

❒ ½ day or less ❒ Full day ❒ Overnight ❒ 2 to 3 nights ❒ 4 nights or more

7. How many other people went with you in your group? (*For your most recent trip beyond the beach, if applicable*)

❒ 0 (travelled alone) ❒ 1 other person ❒ 2 to 5 others ❒ 6 to 10 ❒ more than 10

8. How satisfied were you overall with your experience? (*For your most recent trip beyond the beach, if applicable*)

Please circle one number:

Extremely Dissatisfied **1 - - - - 2 - - - - 3 - - - - 4 - - - - 5 - - - - 6 - - - - 7 - - - - 8 - - - - 9 - - - - 10** **Extremely Satisfied**

9. What had the greatest influence on your satisfaction / dissatisfaction?

_____

_____

10. Thinking about the entire Great Barrier Reef area, please mark the location of your favourite place on the map below (*Please mark with a dot and/or use an arrow to point to it. Label as "favourite"*):

b) What is the **name** of this favourite place?: _____

<<MAP PROVIDED>>>

Section B. In the following section we would like to know a bit more about your relationship with the Great Barrier Reef region.

Please read through the following statements, and then rate your level of agreement or disagreement with each statement, by circling a number on the 10-point scale below.

(where 1 = Very Strongly Disagree, and 10 = Very Strongly Agree)

Statement: *(GBR = Great Barrier Reef)*	**Very Strongly DISAGREE** 1 - - - 2 - - - 3 - - - 4 - - - 5 -	**Very Strongly AGREE** - 6 - - - 7 - - - 8 - - - 9 - - - 10
11. There are many other places that are better than the GBR for the recreation activities I enjoy	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
12. I feel proud that the GBR is a World Heritage Area	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
13. The GBR is part of my identity	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
14. I live here because of the GBR	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
15. I do not plan to be a resident of this region in the next five years	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
16. I am not likely to remain living in this region if events such as cyclones and floods occur more frequently	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
17. I value the GBR because it supports a variety of life, such as fish and corals	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
18. I value the GBR because it supports a desirable and active way of life	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
19. I value the GBR because we can learn about the environment through scientific discoveries	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
20. I value the GBR because it attracts people from all over the world	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
21. The GBR is a great asset for the economy of this region	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
22. I value the GBR for the fresh seafood it provides	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
23. The GBR contributes to my quality of life and well-being	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
24. The aesthetic beauty of the GBR is outstanding	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
25. The place that I most recently visited in the GBR is not in great condition	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
26. I feel optimistic about the future of the GBR	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10

What do you think are the three (3) most serious threats to the Great Barrier Reef?

i. _____

ii. _____

iii. _____

Again, please read through the following statements, and then rate your level of agreement or disagreement with each statement, by circling a number on the 10-point scale below.

(where 1 = Very Strongly Disagree, and 10 = Very Strongly Agree)

Statement: *(GBR = Great Barrier Reef)*	**Very Strongly DISAGREE** 1 - - - 2 - - - 3 - - - 4 - - - 5 -	**Very Strongly AGREE** - 6 - - - 7 - - - 8 - - - 9 - - - 10
27. I feel confident that the GBR is well managed	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
28. I support the current rules and regulations that affect access and use of the GBR	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
29. I do not have fair access to the GBR compared to other user groups	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
30. I would like to do more to help protect the GBR	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
31. I would not be personally affected if the health of the GBR declined	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
32. I would like to learn more about the condition of the GBR	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
33. I cannot make a personal difference in improving the health of the GBR	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
34. I try to encourage other people to reduce their impacts on the GBR	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
35. It is not my responsibility to protect the GBR	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
36. Coastal residents should take steps to reduce their impacts on the GBR	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
37. It is the responsibility of all Australians to protect the GBR	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
38. I have the necessary knowledge and skills to reduce any impact that I might have on the GBR	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10

39. I do not have the time and opportunity required to reduce any impact that I might have on the GBR	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10
40. It is too expensive for me to reduce any impact I might have on the GBR	1 - - - 2 - - - 3 - - - 4 - - - 5 -	- 6 - - - 7 - - - 8 - - - 9 - - - 10

Section C. In this section we would like to know a little more about you.

41. a) In what year were you born? 19_____

b) In what country were you born?

_____

c) What is your current home postcode? _____

d) For how many years have you lived in the Great Barrier Reef region?
(*i.e. all coastal areas between Cape York and Bundaberg*) _____ (years)

e) Do you identify as an Indigenous Australian? ❒ No ❒ Yes
or a Torres Strait islander? ❒ No ❒ Yes

f) Are you a "Fly-In-Fly-Out" worker? ❒ No ❒ Yes

42. a) To what extent does the Great Barrier Reef contribute to your household income?
(*Please tick one*)

❑ Not at all ❑ Contributes a little ❑ Contributes a lot ❑ Contributes to all of my income

b) From what industry do you obtain your main household income?

_____

43. Could you please indicate (*approximately*) the total pre-tax income for your household? (*Please tick one box*)

❒ $1 to $20,000 ❒ $60,001 to $100,000 ❒ $200,001 to $300,000
❒ $20,001 to $60,000 ❒ $100,001 to $200,000 ❒ more than $300,000

44. What is your gender? (*Please tick one*) ❒ Female ❒ Male

45. How often do you do the following? (*Please tick one box for each item*)

a. Recycle:	❑ Never	❑ Sometimes	❑ Often	❑ Always
b. Bring your own bags to the supermarket:	❑ Never	❑ Sometimes	❑ Often	❑ Always
c. Engage in environmental community programs:	❑ Never	❑ Sometimes	❑ Often	❑ Always

46. a) Do you have solar power in your home? ❒ No ❒ Yes ❒ N/A (e.g. don't own home)
b) Do you own a hybrid / electric vehicle? ❒ No ❒ Yes ❒ N/A (e.g. don't own car)

47. Which of the following statements best describes your beliefs about climate change? (*Please tick one box*)

a. ❒ Climate change is an **immediate** threat requiring action.
b. ❒ Climate change is a **serious threat**, but the impacts are too distant for immediate concern.
c. ❒ I **need more evidence** to be convinced of the problem
d. ❒ I believe that climate change is **not a threat** at all
e. ❒ I **do not have a view** on climate change

48. On a scale of 1-10, how much do you trust the information you receive about the GBR from the following groups?	**Do not trust at all**	**Trust Very Strongly**
a. Friends, and family, and/or work colleagues	1 - - - 2 - - - 3 - - - 4 - - - 5 - - - 6 - - - 7 - - - 8 - - - 9 - - - 10	
b. Government managers (e.g. GBRMPA, Fisheries Qld)	1 - - - 2 - - - 3 - - - 4 - - - 5 - - - 6 - - - 7 - - - 8 - - - 9 - - - 10	
c. Research institutions (e.g. CSIRO, Universities)	1 - - - 2 - - - 3 - - - 4 - - - 5 - - - 6 - - - 7 - - - 8 - - - 9 - - - 10	
d. Industry Groups/representatives (e.g. from tourism, fisheries)	1 - - - 2 - - - 3 - - - 4 - - - 5 - - - 6 - - - 7 - - - 8 - - - 9 - - - 10	
e. Non-Government Organisations/other community groups (e.g. NRM regional bodies)	1 - - - 2 - - - 3 - - - 4 - - - 5 - - - 6 - - - 7 - - - 8 - - - 9 - - - 10	
f. Media (i.e. radio, newspapers, TV)	1 - - - 2 - - - 3 - - - 4 - - - 5 - - - 6 - - - 7 - - - 8 - - - 9 - - - 10	
g. Social media (e.g. Facebook, Twitter)	1 - - - 2 - - - 3 - - - 4 - - - 5 - - - 6 - - - 7 - - - 8 - - - 9 - - - 10	

Thank you for your support for this research!

Appendix 3: Survey for Tourists

Date
Location

Hello! My name is _____
You may remember receiving a note from CSIRO and JCU about the Social and Economic Long Term Monitoring Programme currently underway in the Great Barrier Reef?
If so, just to remind you:

We are hoping to interview you about your connection with the Great Barrier Reef. Your participation is entirely voluntary and you are free to not answer any questions that you would prefer not to. I will give you the contact details for Nadine Marshall and Matt Curnock, the project leaders, and you can contact them anytime for more information, any concerns and updates on the latest in your industry or any other marine based industry. Do you have any questions at this stage? Would you be happy to participate in this survey?"

If not:

in conjunction with the Great Barrier Reef Marine Park Authority and James Cook University, CSIRO is leading a Social and Economic Long Term Monitoring Programme in which a snapshot of the GBR community and industries such as commercial fishing, marine tourism, recreation and ports and shipping are developed. In this snapshot, we are hoping to inform all stakeholders of the GBR region about the social and economic connection that each group has with the Great Barrier Reef. This includes how each industry uses the Reef, when, where, how and why. The up-to-date knowledge that is gained through the monitoring report will help Reef managers to make more informed and transparent decisions about use and access of the Great Barrier Reef. As part of the monitoring programme, we hope to interview as many tourism/fishing operators such as yourself periodically every few years to understand how they and their business changes. The interview will generally only take about 15 mins. All of your responses would remain confidential and would be collated in an anonymous way with everyone else's, and you would be able to access the report online. Your participation is entirely voluntary and you are free to not answer any questions that you would prefer not to. I will give you the contact details for Nadine Marshall and Matt Curnock and updates on the latest in your industry or any other marine based industry. Do you have any questions at this stage? Would you be happy to participate in this survey?

Let's start…

1. Please list the first words that come to mind when you think of the Great Barrier Reef? (*list as many words as you like)*_____
   _____

In this section we would like to know a little bit about your operation:

2. What is your role in the operation/company? (OWNER & MANAGER; MANAGER; OTHER____)
3. How long have **you** been involved in the GBR tourism industry? ___ yrs
4. How long has your current business been operating? ___ yrs
5. What are the primary types of tourism activity that your operation offers? *(tick box options: Island resort, island ferry, scuba dive only day trips, snorkel only day trip, multi-activity day trip, live-aboard dive/snorkel, live-aboard cruise, island day trip/cruise, inshore/river day cruise, inshore charter fishing, reef/offshore charter fishing, multi-purpose charter, bareboat charter, aircraft tours/charter, water sport activity &/or hire (includes kayak, jet ski), other equipment rental, guided/specialist tour, other specialist services)*

6. What tourism activity contributes **most** to your income? (same list as above. One answer only)
7. About how many days in the previous 12 months were you operating in the GBR? _____ ___dys
8. Where is your home port? *(drop down list of major towns/ports – Cooktown down to Bundaberg please)*
9. How far, on average, do you travel from your home port? *That is: do you typically operate very close to your home port or do you tend to roam across the region?*
    - ❑ very local to home port (within a 30 minute grid)
    - ❑ close to my home port (within two or three 30-minute grids)
    - ❑ I roam quite some distance from my home port (>3 – 30 minute grids)

SECTION B. In this section we would like to know a bit more about your relationship with the region

When I refer to "the Great Barrier Reef", or "GBR" for short, I mean all land and water from the beaches here on the coast, the bays and creeks, the islands, the shoals and seafloor, the open waters, and of course the coral reefs.

For the next group of questions, I'll read out a list of statements, and I'd like you to rate your agreement or disagreement with each statement, using a ten-point scale; where 1 = Very Strongly Disagree and 10 = Very Strongly Agree.

How much do you agree or disagree with each of these statements:

GBR as part of personal identity

10. There are many other places that are better than the GBR for the tourism operations I do
11. I feel proud that the GBR is a World Heritage Area
12. The GBR is part of my identity

GBR as part of occupational identity

13. I wouldn't want to be anything other than a tourism operator
14. The tourism industry to me is not just a job – it is my lifestyle
15. I plan to still be a tourism operator in five years time

Attachment to place (GBR as place, community as place)

16. I live in this region because of the GBR
17. I do not plan to still be a resident of this region in 5 years time
18. I am <u>not</u> likely to remain operating in this region if events such as cyclones and floods occur more frequently

Values

19. I value the GBR because it supports a variety of life such as fish, corals
20. I value the GBR because it supports a desirable and active way of life
21. I value the GBR because we can learn about the environment through scientific discoveries
22. I value the GBR because it attracts people from all over the world
23. The GBR is a great asset for the economy of this region.

Wellbeing (see also behaviours, values, perceptions)

24. The Great Barrier Reef contributes to my quality of life and well-being.

Perceptions of Environmental Condition

25. The aesthetic beauty of the GBR is outstanding

26. The areas that my operation uses in the GBR are NOT in great condition
27. I feel optimistic about the future of the GBR

Perceptions of threats/understanding

28. What do you think are the THREE most serious threats to the GBR? *(drop down: Mining (land-based), Cyclones, Floods, Coastal development, Tourism, Crown of Thorns Starfish (COTS), New ports and port expansions, Marine debris/beach littering, Commercial fishing, Recreational fishing, Shipping, Agricultural run-off, Climate change, Global warming, Water quality)*

Perceptions of GBR management

29. I feel confident that the GBR is well managed
30. I support the current rules and regulations that affect access and use of the GBR
31. I am optimistic about the future of my business in the GBR
32. My business has not performed as well this year as it did last year

Access to Reef resources

33. I do not have fair access to the GBR compared to other user groups
34. Industry rules and regulations create too great a burden on my time

Social Norms

Stewardship

35. I would like to do more to help protect the GBR
36. I would NOT be personally affected if the health of the GBR declined
37. I regularly get involved in research and / or management activities for the GBR

Strength of belief in an action/Motivation to Change

38. I cannot make a personal difference in improving the health of the GBR
39. I try to encourage other people to reduce their impacts on the GBR

Norms

40. It is NOT my responsibility to protect the GBR
41. Tourism operators should take steps to reduce impacts on the GBR
42. Industry expectations are that tourism operators should reduce their impacts on the GBR
43. Tourists do NOT expect that tourism operators will take steps to reduce impacts on the GBR
44. It is the responsibility of all Australians to protect the GBR.

Control belief /barriers

45. I have the knowledge and skills to reduce any impact that I might have on the GBR
46. I do NOT have the time and opportunity to reduce any impact that my business might have on the GBR
47. It is too expensive for me to reduce any impact I might have on the GBR

Adaptive capacity

Risk

48. I am confident things will turn out well for me regardless of future regional events such as floods, cyclones or financial crises
49. I am uncertain how to plan for changes in the GBR that may affect me such as floods, cyclones or financial crises

Planning, shared learning, experimenting, reorganising

50. I am good at developing scenarios for the future and planning for them
51. I discuss new ways of solving problems with others

Psychological and financial buffers

52. I am more likely to adapt to changes as a result of floods or cyclones compared to other coastal residents I know
53. I have planned for my financial security

Interest in adapting to change

54. I am interested in learning how to better prepare for significant events, such as the global financial crisis, cyclones and floods.

Behaviours

55. Do you *(YES/NO)*
    a. have fuel efficient engines
    b. use an emissions calculator to plan your business operations
    c. use Carbon offsets to counter emissions
    d. have green energy, such as solar panels, for your vessel
    e. use alternative fuels such as biodiesel and ethanol
    f. participate in industry best practices via a code of practice, or MOU
    g. participate in GBRMPA's Reef guardian fisher program
    h. provide interpretation for tourists that promotes conservation or sustainable use of the GBR?

Type of people based on their environmental concern

56. Please indicate which of these statements best describes your beliefs about climate change.
    a. Climate change is an **immediate threat** requiring **action**
    b. Climate change is a **serious threat**, but the **impacts are too distant** for immediate concern
    c. I **need more evidence** to be convinced of the problem
    d. I believe that climate change is **not a threat** at all
    e. I **do not have a view** on climate change

How networks shape/inform decision-making and appreciation of GBR

57. On a scale of 1-10, how much do you trust the information you receive about the GBR from following groups?
    a. Friends, family and/or work colleagues
    b. Government managers (e.g. GBRMPA, Queensland Parks and Wildlife, Fisheries Queensland)
    c. Research institutions (e.g. CSIRO, Unis)
    d. Industry Groups/representatives (e.g. from AMPTO, Dive QLD, WCBIA...)
    e. NGOs and other community groups such as NRM agencies
    f. Media (i.e. radio, newspapers, TV)
    g. Social media (e.g. facebook, twitter)
    h. Other tourism operators

Demographics

58. Would you mind telling me…
    a. What year were you born? 19___
    b. What is your current home postcode? ____
    c. How many years have you lived in the GBR region?
    d. Are you currently married or have a partner? Y / N
    e. Do you have any dependent children? Y / N
    f. Do you have university or TAFE education (i.e. beyond high school)? Y / N
    g. What proportion of your household income came from tourism in the last financial year?

Business related information

59. How many employees (full time equivalents) did your operation employ over the previous 12 months?
60. Do you have insurance for your business assets? Y / N
61. When did you last purchase a main vessel? ___ yrs
62. What proportion of your customers come from:
    a. Your local region: ___%
    b. elsewhere in Qld: ___%
    c. Interstate: ___%
    d. Overseas: ___%
63. Do you mind telling me your business turnover (entire revenue), for the past 12 months, in broad categories? *(read out)*

    ❒ < $20 000 ❒ $500 001 to $1m
    ❒ $20 001 to $100 000 ❒ between $1m and $5m
    ❒ $100 001 to $500 000 ❒ >$5m

64. a) Finally – would you mind if we were to contact you again for future surveys? Y/N
    b) Please confirm contact details. _____

65. Would you like Nadine and Matt's contact details? *Nadine 0439 073 010, Matt 4753 8500*
66. Gender (researcher fill in afterwards)

Appendix 4: Survey for Tourism Operators

Date _____

Location _____

Hello! My name is _____

You may remember receiving a note from CSIRO and JCU about the Social and Economic Long Term Monitoring Programme currently underway in the Great Barrier Reef?

If so, just to remind you:

We are hoping to interview you about your connection with the Great Barrier Reef. Your participation is entirely voluntary and you are free to not answer any questions that you would prefer not to. I will give you the contact details for Nadine Marshall and Matt Curnock, the project leaders, and you can contact them anytime for more information, any concerns and updates on the latest in your industry or any other marine based industry. Do you have any questions at this stage? Would you be happy to participate in this survey?"

If not:

in conjunction with the Great Barrier Reef Marine Park Authority and James Cook University, CSIRO is leading a Social and Economic Long Term Monitoring Programme in which a snapshot of the GBR community and industries such as commercial fishing, marine tourism, recreation and ports and shipping are developed. In this snapshot, we are hoping to inform all stakeholders of the GBR region about the social and economic connection that each group has with the Great Barrier Reef. This includes how each industry uses the Reef, when, where, how and why. The up-to-date knowledge that is gained through the monitoring report will help Reef managers to make more informed and transparent decisions about use and access of the Great Barrier Reef. As part of the monitoring programme, we hope to interview as many tourism/fishing operators such as yourself periodically every few years to understand how they and their business changes. The interview will generally only take about 15 mins. All of your responses would remain confidential and would be collated in an anonymous way with everyone else's, and you would be able to access the report online. Your participation is entirely voluntary and you are free to not answer any questions that you would prefer not to. I will give you the contact details for Nadine Marshall and Matt Curnock and updates on the latest in your industry or any other marine based industry. Do you have any questions at this stage? Would you be happy to participate in this survey?

Let's start…

6. Please list the first words that come to mind when you think of the Great Barrier Reef? (*list as many words as you like)*_____

In this section we would like to know a little bit about your operation:

7. What is your role in the operation/company? (OWNER & MANAGER; MANAGER; OTHER____)
8. How long have **you** been involved in the GBR tourism industry? ___ yrs
9. How long has your current business been operating? ___ yrs
10. What are the primary types of tourism activity that your operation offers? *(tick box options: Island resort, island ferry, scuba dive only day trips, snorkel only day trip, multi-activity day trip, live-aboard dive/snorkel, live-aboard cruise, island day trip/cruise, inshore/river day cruise, inshore charter fishing, reef/offshore charter fishing, multi-purpose charter, bareboat charter, aircraft tours/charter, water sport activity &/or hire (includes kayak, jet ski), other equipment rental, guided/specialist tour, other specialist services)*
11. What tourism activity contributes **most** to your income? (same list as above. One answer only)

12. About how many days in the previous 12 months were you operating in the GBR? _____ ___dys
13. Where is your home port? *(drop down list of major towns/ports – Cooktown down to Bundaberg please)*
14. How far, on average, do you travel from your home port? *That is: do you typically operate very close to your home port or do you tend to roam across the region?*
    - ❑ very local to home port (within a 30 minute grid)
    - ❑ close to my home port (within two or three 30-minute grids)
    - ❑ I roam quite some distance from my home port (>3 – 30 minute grids)

SECTION B. In this section we would like to know a bit more about your relationship with the region

When I refer to "the Great Barrier Reef", or "GBR" for short, I mean all land and water from the beaches here on the coast, the bays and creeks, the islands, the shoals and seafloor, the open waters, and of course the coral reefs.

For the next group of questions, I'll read out a list of statements, and I'd like you to rate your agreement or disagreement with each statement, using a ten-point scale; where 1 = Very Strongly Disagree and 10 = Very Strongly Agree.

How much do you agree or disagree with each of these statements:

GBR as part of personal identity

15. There are many other places that are better than the GBR for the tourism operations I do
16. I feel proud that the GBR is a World Heritage Area
17. The GBR is part of my identity

GBR as part of occupational identity

18. I wouldn't want to be anything other than a tourism operator
19. The tourism industry to me is not just a job – it is my lifestyle
20. I plan to still be a tourism operator in five years time

Attachment to place (GBR as place, community as place)

21. I live in this region because of the GBR
22. I do not plan to still be a resident of this region in 5 years time
23. I am not likely to remain operating in this region if events such as cyclones and floods occur more frequently

Values

24. I value the GBR because it supports a variety of life such as fish, corals
25. I value the GBR because it supports a desirable and active way of life
26. I value the GBR because we can learn about the environment through scientific discoveries
27. I value the GBR because it attracts people from all over the world
28. The GBR is a great asset for the economy of this region.

Wellbeing (see also behaviours, values, perceptions)

29. The Great Barrier Reef contributes to my quality of life and well-being.

Perceptions of Environmental Condition

30. The aesthetic beauty of the GBR is outstanding
31. The areas that my operation uses in the GBR are NOT in great condition
32. I feel optimistic about the future of the GBR

Perceptions of threats/understanding

33. What do you think are the THREE most serious threats to the GBR? *(drop down: Mining (land-based), Cyclones, Floods, Coastal development, Tourism, Crown of Thorns Starfish (COTS), New ports and port expansions, Marine debris/beach littering, Commercial fishing, Recreational fishing, Shipping, Agricultural run-off, Climate change, Global warming, Water quality)*

Perceptions of GBR management

34. I feel confident that the GBR is well managed
35. I support the current rules and regulations that affect access and use of the GBR
36. I am optimistic about the future of my business in the GBR
37. My business has not performed as well this year as it did last year

Access to Reef resources

38. I do not have fair access to the GBR compared to other user groups
39. Industry rules and regulations create too great a burden on my time

Social Norms

Stewardship

40. I would like to do more to help protect the GBR
41. I would NOT be personally affected if the health of the GBR declined
42. I regularly get involved in research and / or management activities for the GBR

Strength of belief in an action/Motivation to Change

43. I cannot make a personal difference in improving the health of the GBR
44. I try to encourage other people to reduce their impacts on the GBR

Norms

45. It is NOT my responsibility to protect the GBR
46. Tourism operators should take steps to reduce impacts on the GBR
47. Industry expectations are that tourism operators should reduce their impacts on the GBR
48. Tourists do NOT expect that tourism operators will take steps to reduce impacts on the GBR
49. It is the responsibility of all Australians to protect the GBR.

Control belief /barriers

50. I have the knowledge and skills to reduce any impact that I might have on the GBR
51. I do NOT have the time and opportunity to reduce any impact that my business might have on the GBR
52. It is too expensive for me to reduce any impact I might have on the GBR

Adaptive capacity

Risk

53. I am confident things will turn out well for me regardless of future regional events such as floods, cyclones or financial crises
54. I am uncertain how to plan for changes in the GBR that may affect me such as floods, cyclones or financial crises

Planning, shared learning, experimenting, reorganising

55. I am good at developing scenarios for the future and planning for them
56. I discuss new ways of solving problems with others

Psychological and financial buffers

57. I am more likely to adapt to changes as a result of floods or cyclones compared to other coastal residents I know
58. I have planned for my financial security

Interest in adapting to change

59. I am interested in learning how to better prepare for significant events, such as the global financial crisis, cyclones and floods.

Behaviours

60. Do you *(YES/NO)*
    a. have fuel efficient engines
    b. use an emissions calculator to plan your business operations
    c. use Carbon offsets to counter emissions
    d. have green energy, such as solar panels, for your vessel
    e. use alternative fuels such as biodiesel and ethanol
    f. participate in industry best practices via a code of practice, or MOU
    g. participate in GBRMPA's Reef guardian fisher program
    h. provide interpretation for tourists that promotes conservation or sustainable use of the GBR?

Type of people based on their environmental concern

61. Please indicate which of these statements best describes your beliefs about climate change.
    a. Climate change is an **immediate threat** requiring **action**
    b. Climate change is a **serious threat**, but the **impacts are too distant** for immediate concern
    c. I **need more evidence** to be convinced of the problem
    d. I believe that climate change is **not a threat** at all
    e. I **do not have a view** on climate change

How networks shape/inform decision-making and appreciation of GBR

62. On a scale of 1-10, how much do you trust the information you receive about the GBR from following groups?
    a. Friends, family and/or work colleagues
    b. Government managers (e.g. GBRMPA, Queensland Parks and Wildlife, Fisheries Queensland)
    c. Research institutions (e.g. CSIRO, Unis)
    d. Industry Groups/representatives (e.g. from AMPTO, Dive QLD, WCBIA…)
    e. NGOs and other community groups such as NRM agencies
    f. Media (i.e. radio, newspapers, TV)
    g. Social media (e.g. facebook, twitter)
    h. Other tourism operators

Demographics

63. Would you mind telling me…
    a. What year were you born? 19___
    b. What is your current home postcode? ____
    c. How many years have you lived in the GBR region?
    d. Are you currently married or have a partner? Y / N
    e. Do you have any dependent children? Y / N
    f. Do you have university or TAFE education (i.e. beyond high school)? Y / N
    g. What proportion of your household income came from tourism in the last financial year?

Business related information

64. How many employees (full time equivalents) did your operation employ over the previous 12 months?
65. Do you have insurance for your business assets? Y / N
66. When did you last purchase a main vessel? ___ yrs
67. What proportion of your customers come from:
    a. Your local region: ___%
    b. elsewhere in Qld: ___%
    c. Interstate: ___%
    d. Overseas: ___%
68. Do you mind telling me your business turnover (entire revenue), for the past 12 months, in broad categories? *(read out)*

    ❒ < $20 000 ❒ $500 001 to $1m
    ❒ $20 001 to $100 000 ❒ between $1m and $5m
    ❒ $100 001 to $500 000 ❒ >$5m

69. a) Finally – would you mind if we were to contact you again for future surveys? Y/N
    c) Please confirm contact details. _____

70. Would you like Nadine and Matt's contact details? *Nadine 0439 073 010, Matt 4753 8500*
71. Gender (researcher fill in afterwards)

Appendix 5: Survey for Commercial Fishers

Date_____

Interviewer_____

Hello! My name is _____

You may remember receiving a note from CSIRO and JCU about the Social and Economic Long Term Monitoring Programme currently underway in the Great Barrier Reef?

If so, just to remind you:

We are hoping to interview you about your connection with the Great Barrier Reef. Your participation is entirely voluntary and you are free to leave any questions that you would prefer not answer. I will give you the contact details for Nadine Marshall and Renae Tobin, the project leaders, and you can contact them anytime for more information, any concerns and updates on the latest in your industry. Do you have any questions at this stage? Would you be happy to participate in this survey?"

If not:

in conjunction with the Great Barrier Reef Marine Park Authority and the fisheries research centre at James Cook University, CSIRO is leading a Social and Economic Long Term Monitoring Programme in which a snapshot of the GBR community and industries such as commercial fishing, marine tourism, recreation and ports and shipping are developed. In this snapshot, we are hoping to inform all stakeholders of the GBR region about the social and economic connection that each group has with the Great Barrier Reef. This includes how each industry uses the Reef, when, where, how and why. The up-to-date knowledge that is gained through the monitoring report will help Reef managers to make more informed and transparent decisions about use and access of the Great Barrier Reef. As part of the monitoring programme, we hope to interview as many fishing operators such as yourself every few years to understand how fishers and their businesses change. The interview will generally only take about 15 mins. All of your responses would remain confidential and would be collated in an anonymous way with everyone else's, and you would be able to access the report online. Your participation is entirely voluntary and you are free to not answer any questions that you would prefer not to. I will give you the contact details for Nadine Marshall and Renae Tobin, the project leaders, and you can contact them anytime for more information, any concerns and updates on the latest in your industry or any other marine based industry. Do you have any questions at this stage? Would you be happy to participate in this survey?

Let's start…

72. Please list the first words that come to mind when you think of the Great Barrier Reef? (*list as many words as you like)*_____
_____

In this section we would like to know a little bit about your operation:

73. Are you a: licence owner – operator
licence owner but non-operator; OR
operator using someone else's licence? *(circle one)*
Other _____
74. Do you *(or your licence(s))*, operate in the GBR region (i.e. on Qld's east coast from Cape York south the Bundaberg, including inshore and offshore areas)? Y (*continue*) / N (*STOP – Check definition of region. Thank you for your time. This is a survey for those fishers using the GBR region*)
75. How long have you been in the commercial fishing industry? _____ *yrs*

76. About how many days in the previous 12 months were you operating in the GBR?_____ days
77. Where is your home port (where you operate from, not necessarily where you live)? *(drop down list of major towns/ports – Cooktown down to Bundaberg please)*
78. How far, on average, do you travel from your home port? *That is: do you typically fish very close to your home port or do you tend to roam across the region?*
    - ❑ very local to home port (i.e. <50km)
    - ❑ close to my home port (50-100km)
    - ❑ I roam quite some distance from my home port (>100km)
79. Do you use multiple ports? Y/N
80. Which fisheries do you operate in? *(drop down: **Trawl** – prawn, bugs, scallop, squid, **Crab** – mud, sand, **Harvest** - coral collection, aquarium fish, sea cucumber (), rocklobster (crayfish), **Line** - Spanish mackerel, reef line; **Net** - inshore net, offshore net, shark ; **other**, Can select >1)*
81. Which fishery contributes the most to your income? *(drop down same: one only)*

SECTION B. ***In this section we would like to know a bit more about your relationship with the GBR When I refer to "the Great Barrier Reef", or "GBR" for short, I mean all land and water from the beaches on the coast, the bays and creeks, the shoals, the open waters, and of course the coral reefs.***

For the next group of questions, I'll read out a list of statements, and I'd like you to rate your agreement or disagreement with each statement, using a ten-point scale; where 1 = Very Strongly **Disagree** and 10 = Very Strongly **Agree**.

How much do you agree or disagree with each of these statements:

GBR as part of personal identity

82. There are many other places that are better than the GBR for the commercial fishing I do
83. I feel proud that the GBR is a World Heritage Area
84. The GBR is part of my identity

GBR as part of occupational identity

85. I wouldn't want to be anything other than a commercial fisher
86. The fishing industry to me is not just a job – it is my lifestyle
87. I plan to still be a commercial fisher in five years time

Attachment to place (GBR as place, community as place), Personal attachment

88. I live in this region because of the GBR
89. I do not plan to be a resident of this region in the next 5 years
90. I am not likely to remain operating in this region if events such as cyclones and floods occur more frequently

Values

91. I value the GBR because it supports a variety of life such as fish, corals
92. I value the GBR because it supports a desirable and active way of life
93. I value the GBR because we can learn about the environment through scientific discoveries
94. I value the GBR because it attracts people from all over the world
95. The GBR is a great asset for the economy of this region.

Wellbeing (see also behaviours, values, perceptions)

96. The GBR contributes to my quality of life and well-being.

Perception of Environmental Condition

97. The aesthetic beauty of the GBR is outstanding
98. The habitats that I fish the most are not in great condition
99. I feel optimistic about the future of the GBR

Perceptions of threats/understanding

100. What do you think are the THREE most serious threats to the GBR? *(drop down: Mining (land-based), Cyclones, Floods, Coastal development, Tourism, Crown of Thorns Starfish (COTS), New ports and port expansions, Marine debris/beach littering, Commercial fishing, Recreational fishing, Shipping, Agricultural run-off, Climate change, Global warming, Water quality)*

Perceptions of GBR management

101. I feel confident the GBR is well managed
102. I support the current rules and regulations that affect access and use of the GBR
103. I am optimistic about the future of my business in the GBR
104. My business has not performed this year as well as it did last year

Access to Reef resources/perceptions of equity

105. I do not have fair access to the GBR compared to other user groups
106. The rules and regulations that apply to my main fishery create too great a burden on my time

Stewardship

107. I would like to do more to help protect the GBR
108. I would NOT be personally affected if the health of the GBR declined
109. I regularly get involved in research and / or management for the GBR

Strength of belief in an action/ Motivation to change

110. I cannot make a personal difference in improving the health of the GBR
111. I try to encourage other people to reduce their impacts on the GBR

Norms

112. It is NOT my responsibility to protect the GBR
113. Commercial fishers should take steps to reduce their impacts on the GBR
114. Other fishers think that all fishers should reduce their impacts on the GBR
115. Other commercial fishers think that I should reduce impacts on the GBR.
116. It is the responsibility of all Australians to protect the GBR.

Control belief /barriers

117. I have the knowledge and skills to reduce any impact that I might have on the GBR
118. I do NOT have the time and opportunity to reduce any impact that my business might have on the GBR
119. It is too expensive for me to reduce any impact I might have on the GBR

Adaptive capacity

Risk

120. I am confident things will turn out well for me regardless of future events such as floods, cyclones or management change
121. I am uncertain how to plan for changes in the GBR that may affect me such as floods, cyclones, or management change

Planning, shared learning, experimenting, reorganising

122. I am good at developing scenarios of the future of my business and planning for them
123. I discuss new ways of solving problems associated with my business with others

Psychological and financial buffers

124. I am more likely to adapt to changes as a result of floods or cyclones compared to other coastal residents I know.
125. I have planned for my financial security in the event of a crisis

Interest in adapting to change

126. I am interested in learning how to better prepare my business for significant events, such as the global financial crisis, cyclones and floods.

Behaviours

127. Do you *(YES/NO)*
    a. have fuel efficient engines
    b. use an emissions calculator to plan your business operations
    c. use Carbon offsets to counter emissions
    d. have green energy, such as solar panels, for your vessel
    e. use alternative fuels such as biodiesel and ethanol
    f. participate in industry best practices via a code of practice, or MOU
    g. participate in GBRMPA's Reef guardian fisher program

128. Please indicate which of these statements best describes your beliefs about climate change (Please READ all statements; CHOOSE ONE)
    a. Climate change is an **immediate threat** requiring action
    b. Climate change is a **serious threat**, but the impacts are too **distant** for immediate concern
    c. I **need more evidence** to be convinced of the problem
    d. I believe that climate change is **not a threat** at all
    e. I **do not have a view** on climate change

How networks shape/inform decision-making and appreciation of GBR

129. On a scale of 1-10, how much do you trust the information you receive about the GBR from the following groups?
    a. Friends, family and colleagues
    b. GBRMPA
    c. Fisheries Queensland (not QBFP) Research institutions (e.g. CSIRO, Universities)
    d. Industry Groups/representatives (e.g. from QSIA, RLC…)
    e. NGOs and other community groups such as NRM agencies
    f. Media (i.e. radio, newspapers, TV)
    g. Social media (e.g. facebook, twitter)
    h. Other commercial fishers

Demographics

130. Would you mind telling me…
    a. What year were you born? 19_____
    b. What is your current home postcode? _____
    c. How many years have you lived in the GBR region (i.e. from Cape York to Bundaberg)? _____
    d. How many years have you operated in the GBR region?_____ yrs
    e. Are you currently married or have a partner? Y / N
    f. Do you have any dependent children? Y / N

g. Do you have university or tafe education (i.e. beyond highschool)? Y / N
h. What proportion of your **household** income came from commercial fishing in the last financial year? ___ %
i. What proportion of your fishing income was from the GBR region? ___ %

Business related information

131. Do you mind telling me your business turnover (entire revenue), for the past 12 months, in broad categories? *(read out)*
❒ < $20 000 ❒ $100 000 to $200 000
❒ $20 000 to $60 000 ❒ $200 000 to $300 000
❒ $60 000 to $100 000 ❒ $300 000 to $500 000 ❒ > $500 000
132. How many employees (full time equivalents) did your fishing business employ over the previous 12 months? _____
133. How many of your family members are also commercial fishers? _____
134. Do you have income protection insurance? Y / N
135. Do you have vessel insurance? Y / N
136. How old is your **main** vessel? ___ yrs
137. When did you purchase your **main** vessel? ___ yrs
138. a) Did you buy any form of technology for your vessel in the previous 12 months? Y/N
139. What proportion of your product do you sell in:
a. the local region: ___% b. elsewhere in Qld: ___%
c. Interstate: ___% d. Overseas: ___%
140. What proportion of your product do you sell directly to different market types such as:
a. Wholesalers: ___% b. Retailers: ___%
c. Restaurants: ___% d. Members of the public: ___%
e. Other _____: ___%
141. *If you are a non-operator,* Do you mind if we also contact the person who is operating your licence, so their views can also be included? (*get contact details, including boat mark / licence number they're using)*
142. a) Finally – would you mind if we were to contact you again for future surveys? Y/N
b) Please confirm contact details. _____
143. Would you like Nadine's contact details? *Nadine 0439 073 010*

THANK YOU FOR YOUR TIME!