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**REEF MONITORING TRUST FIELD TRIP**

**SEPTEMBER 1989**

- C. Baldwin, Great Barrier Reef Marine  
Park Authority**
- D. Fisk, Reef Research and Information  
Services**
- M. Furnas, Australian Institute of  
Marine Science**
- D. Kinsey, Great Barrier Reef Marine  
Park Authority**

**October 1990**



**GREAT BARRIER REEF**  
MARINE PARK AUTHORITY

Research and Monitoring

## Final Report Details

*Res can  
in photos  
in colour.*

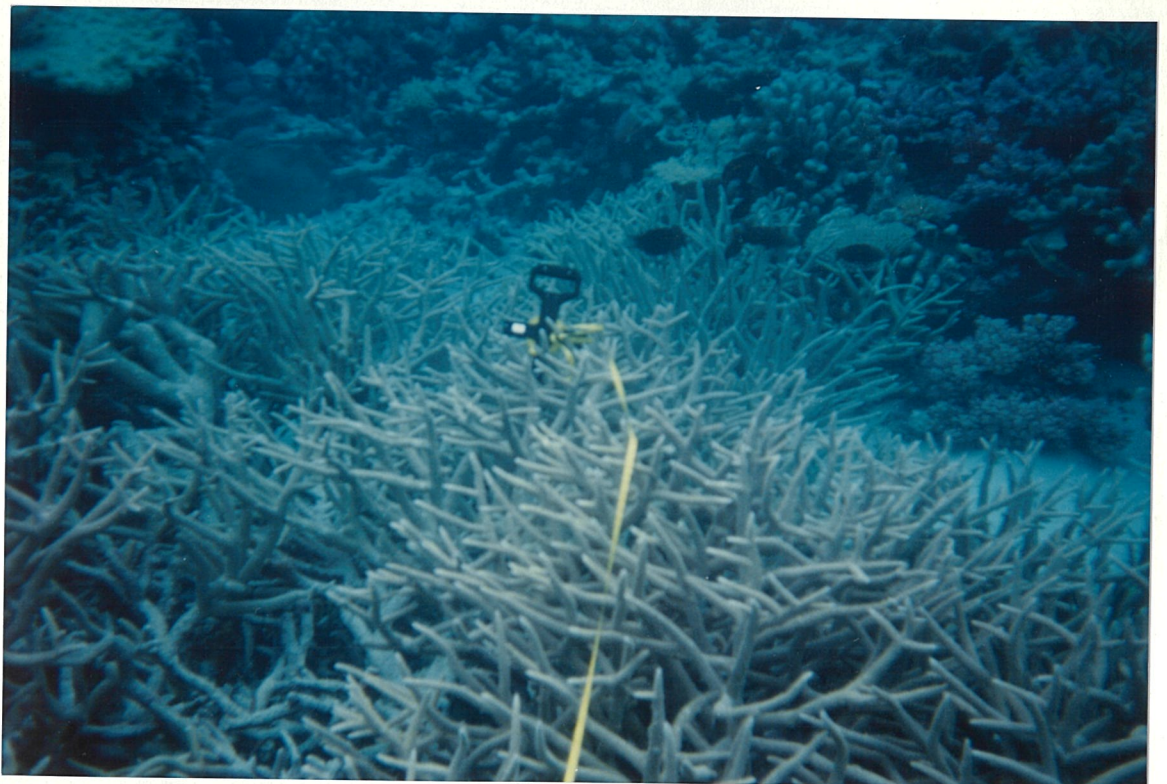
Project Number:	437
File Number:	Unknown
Date Received:	Unknown
Receiving Officer:	Unknown
Report Author (s):	Baldwin, C., Fisk, D., Furnas, M. and Kinsey, D.
Report Date:	1990
Report title:	Reef monitoring trust field trip, September 1989
Source:	Report to the Great Barrier Reef Marine Park Authority, 47p.
Access conditions:	Release status unknown
Format, location and label details of electronic copy of report (if received):	Unknown
Date details entered into R&M Publications database:	22/10/97 R. Partridge

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Diver using survey tape  
for line transects -  
Great Detached Reef  
back reef edge

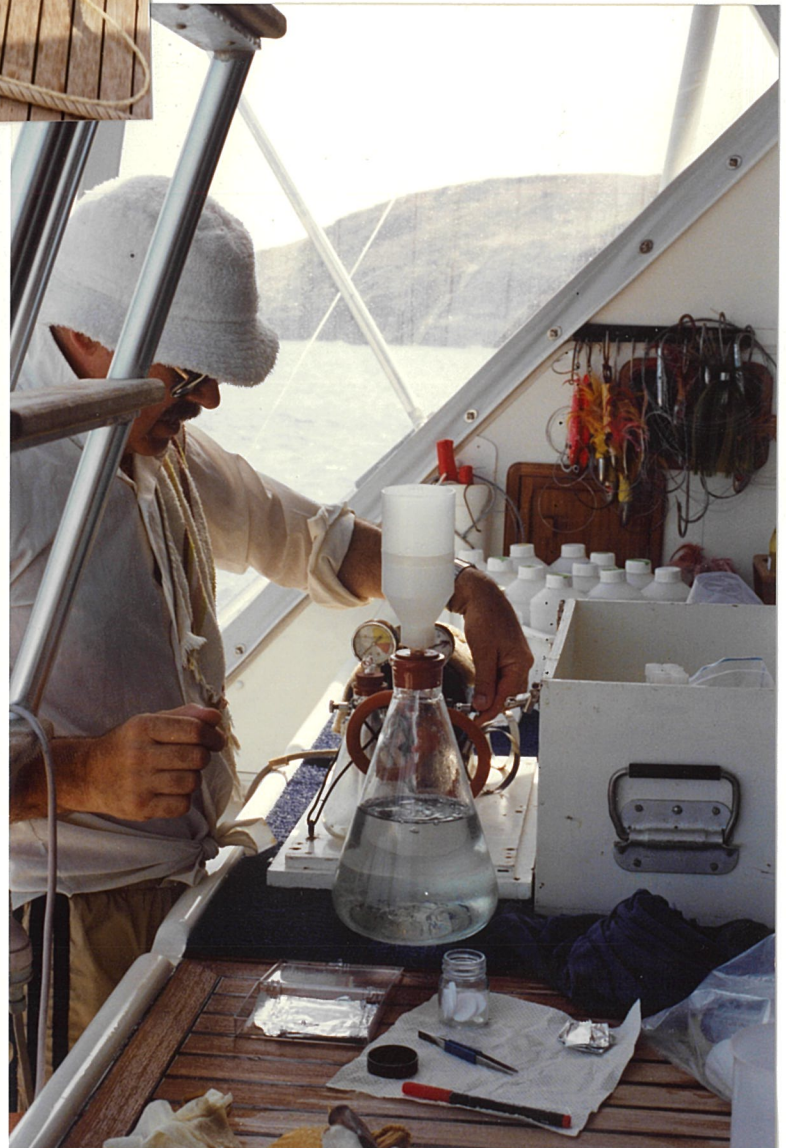






Taking water temperature

Niskin bottle (grey) on mat  
for taking water samples  
at depth



Filtering water samples  
on the boat



*retiformis*, *Leptastrea transversa*.

## Raine Island Reef

The two areas visited were: 1. the reef flat on the northern side using a traverse running north-westwards from approximately 2/3 along the northern cay beach, closest to the tower on the SE side of the cay, out to the outer reef flat; 2. the extreme N-NW slope close to the cay (Figure 2).

### 1. Northern Reef Flat

At the start of the traverse on the base of the beach slope, the near shore community consists of small *Porites* spp microatolls and an occasional faviid mostly *Goniastrea favulus* and *Platygyra pini*. The alga *Ralfsia expressa* (tar spot) is a conspicuous feature on this sand/rubble and solid platform substrate.

At approximately 10 - 15 m out from the beach base, there is a distinctive faviid zone consisting of *Platygyra pini*, *Goniastrea aspera*, and *G. retiformis*. *Pocillopora damicornis* becomes more abundant seaward of this faviid zone.

Close to the extreme outer edge of the flat there is an algal-foraminifera zone consisting of racemose species such as *Caulerpa racemosa* and *Halophila ovalis*, and 2 extremely abundant small foram species clinging to the algae. The thick algae-foram matrix covers the solid platform substrate. One of the forams is probably *Calcarina* spp, as the forams are 1-2 mm diameter and light brown in colour. Less abundant are tufts of the calcareous red algae *Yamadella cenomyce*.

### 2. Northern Slope Close to the Cay

The area examined is the closest point to the cay and protected from the SE Trades and so is the most likely anchorage used by visiting boats. The narrow reef flat closest to the beach consists of pools with *Favia* spp, *Favites* spp, and *Porites* spp, colonies of the alcyonarian *Lobophyton* spp, and the holothurian *Stichopus chloronotus*. The community on the outer edge of the reef flat was comprised of *Lobophyton* spp, *Acropora pulchra*, *A. millepora*, *A. aspera*, and *A. hyacinthus* (which was the most common coral).

The back reef slope beyond the edge of the flat where there is no steep dropoff, has extensive staghorn *Acropora* spp thickets consisting of *Acropora nobilis*, *A. formosa*, and *A. yongei*. The corallivore mollusc *Drupella* spp was obvious in small patches within the staghorn coral. On the steeper dropoff along the northern edge there is a diverse coral assemblage of *Acropora* spp and faviid species. No species lists were taken though the very large colonies of *Galaxea astreata* on the upper margins of the dropoff, were of note.



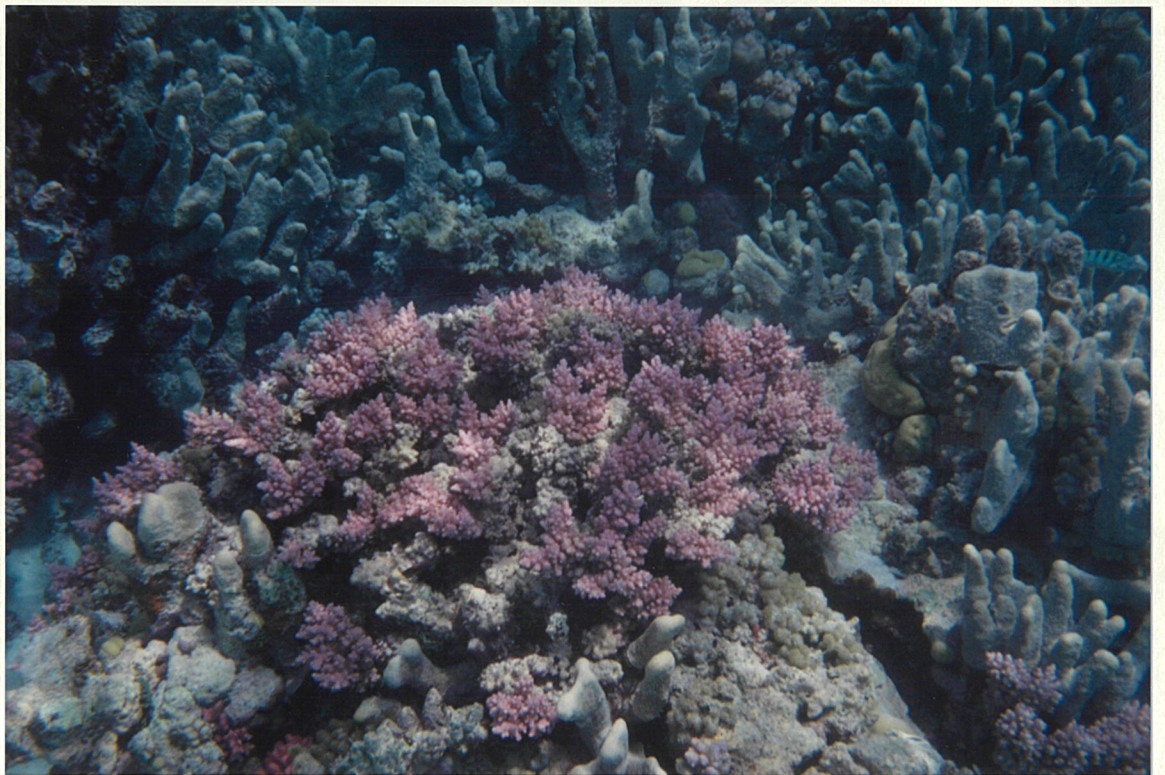


Fig.3-4 Southern boulder beach, looking NW, location of fig.3-5



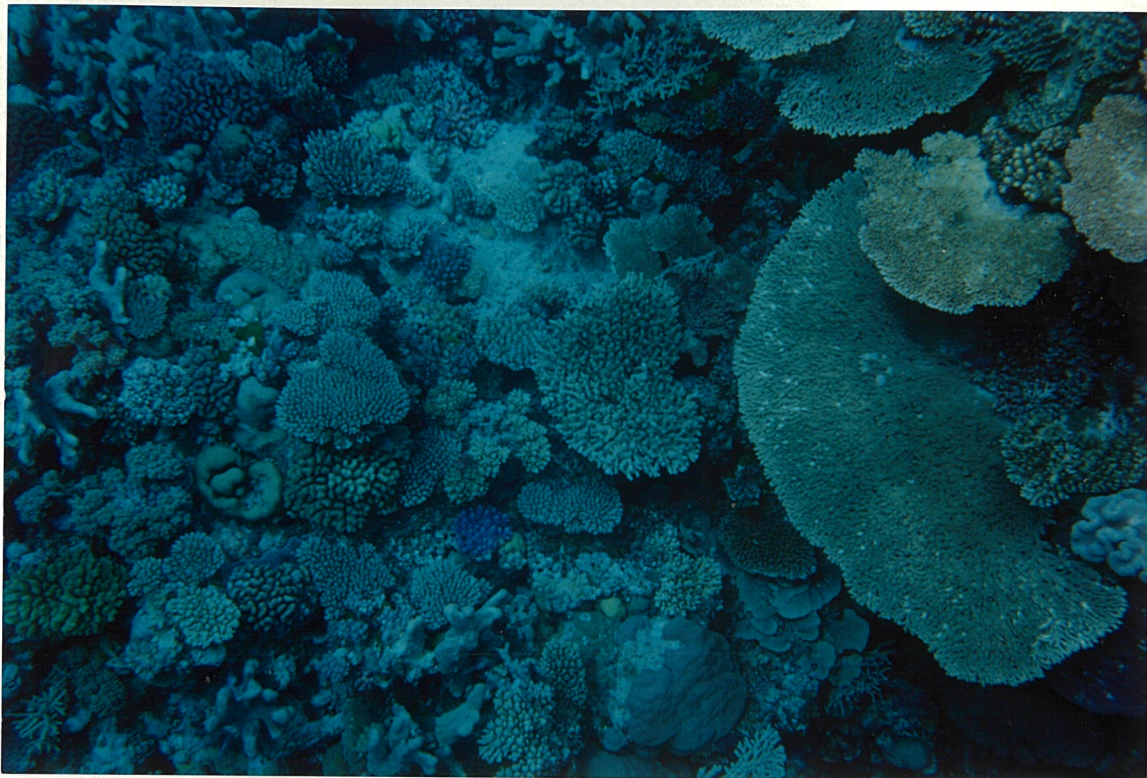
Fig.3-5 Dead in situ Goniastera, MHWN





Clear water; colourful coral; large monospecific stands -  
typical of outer shelf undisturbed reef



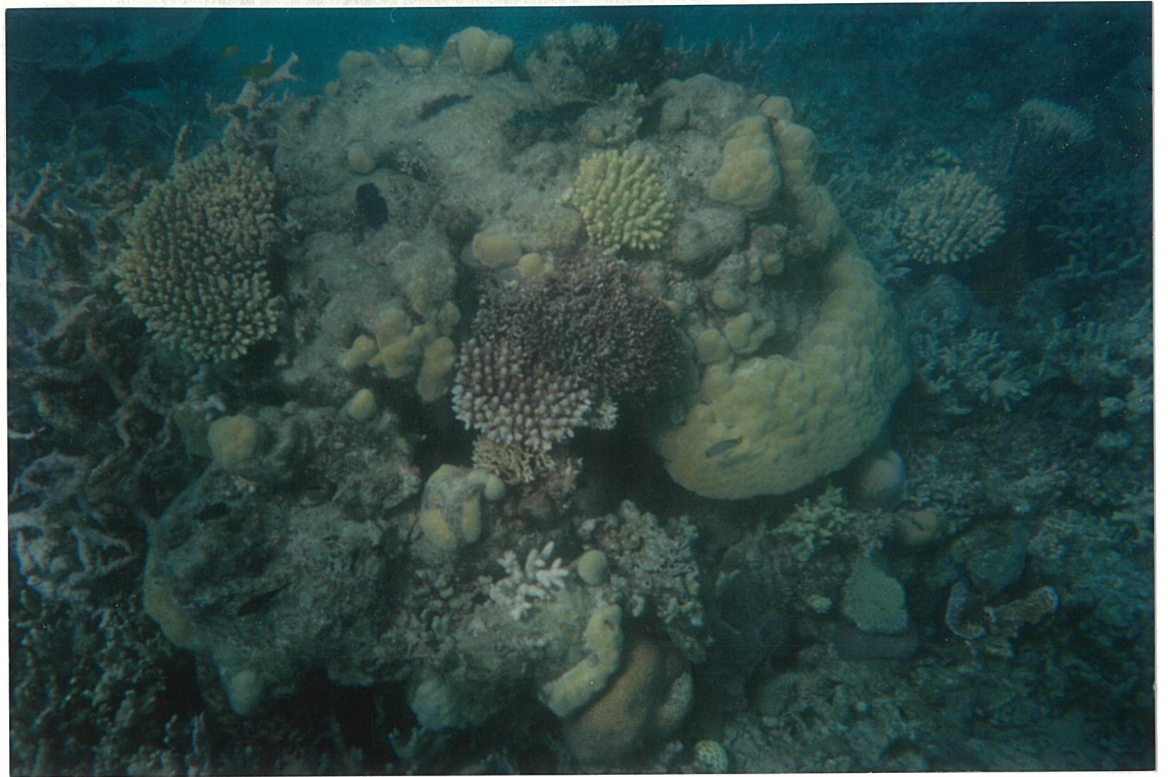


Great Detached Reef - north opening, outer flanks of reef with diverse coral assemblage



Great Detached Reef - north opening, back reef edge showing *Acropora palifera* (club-shaped in background) and the most common plate coral *Acropora clathrata* (foreground)





Sir Charles Hardy Reef - water colour typical of inner reefs  
- little coral colour



Star Reef - shallow reef flat of outer shelf reef  
- clear water; vivid coral colours

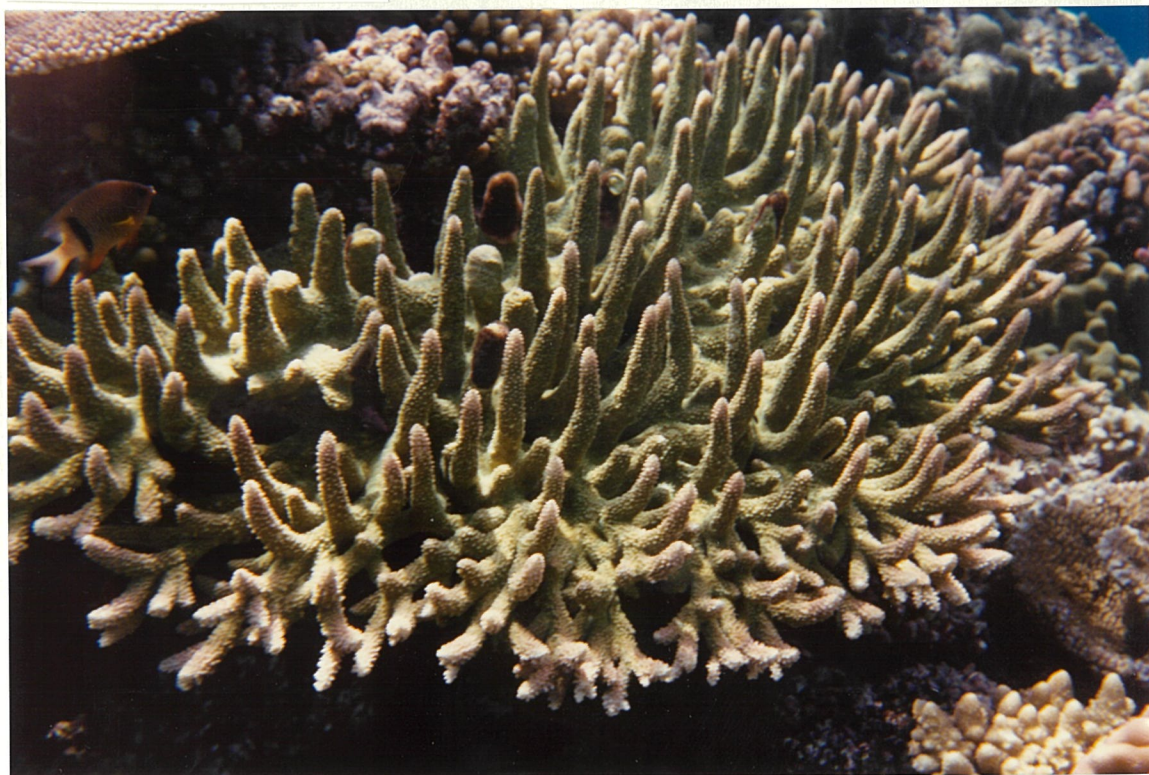


Great Detached north opening

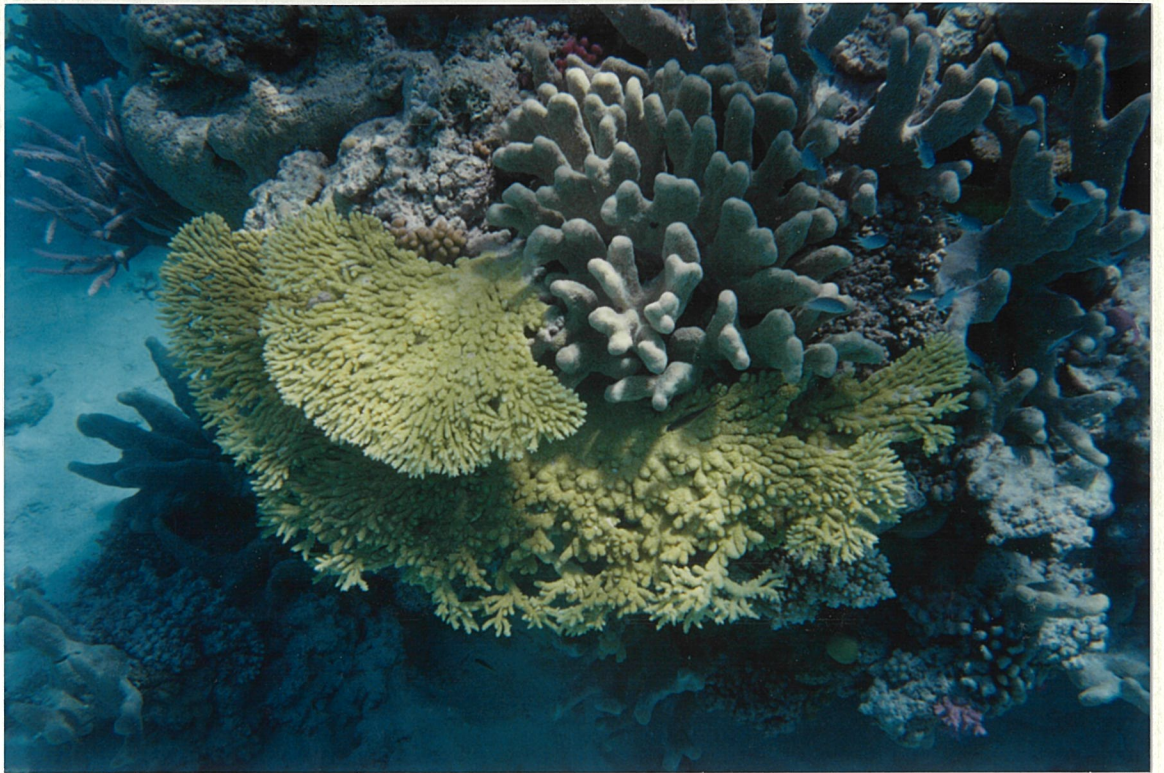
*Acropora palifera*



*Acropora robusta*





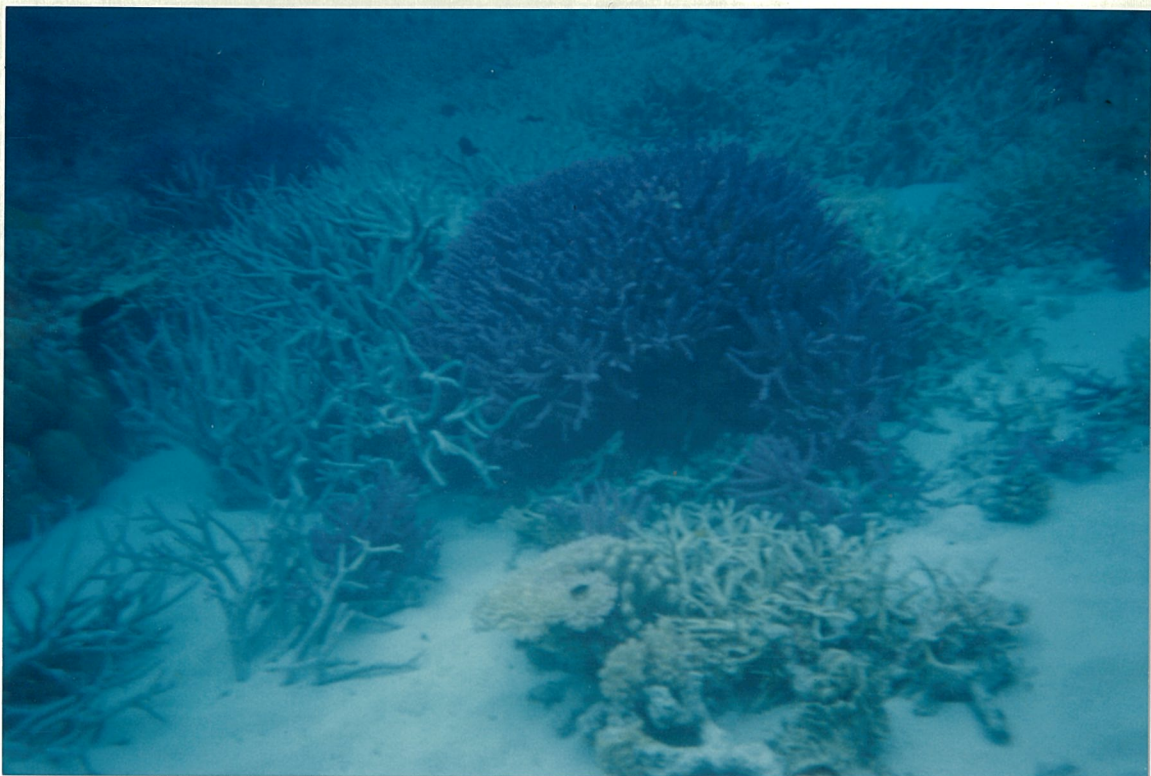


Great Detached Reef - north opening, back reef margin  
showing dominant corals: *Acropora palifera* (club shaped),  
*A. clathrata* (plate)



Great Detached Reef - north opening  
*A. palifera*, *A. loripes* (purple), *A. longicyathus* (above *A.*  
*loripes*)

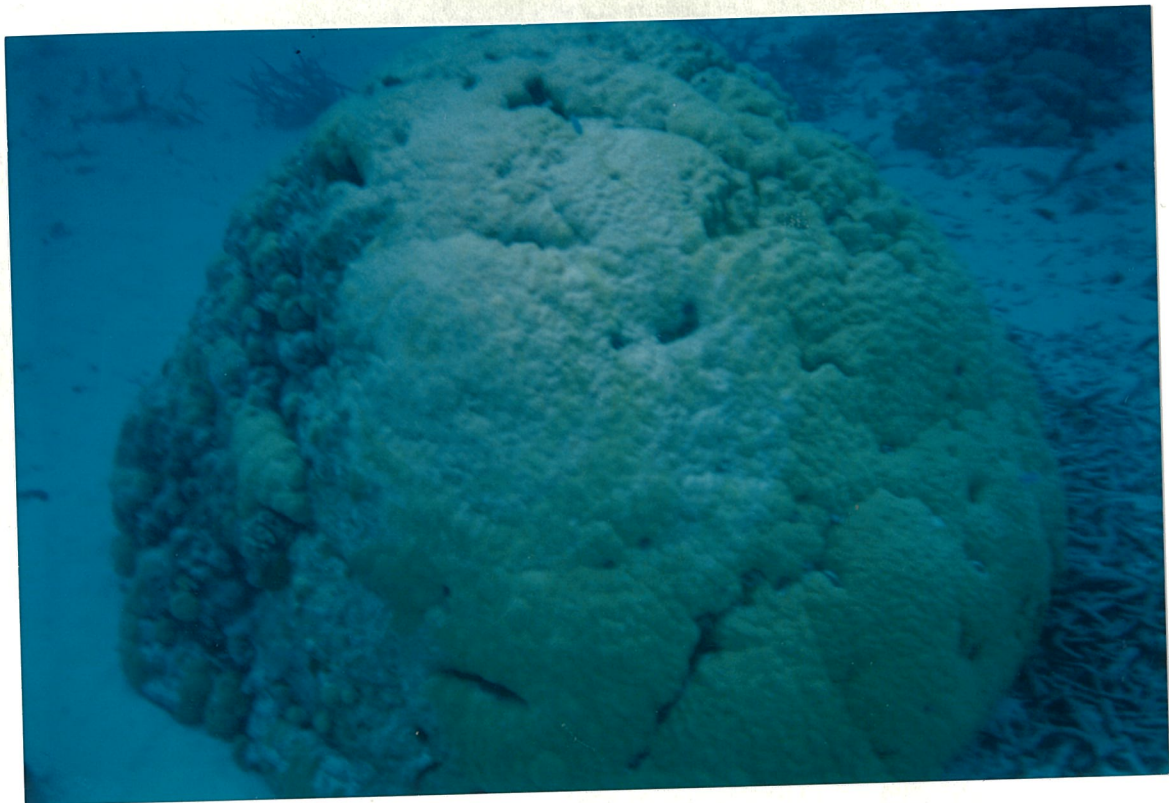




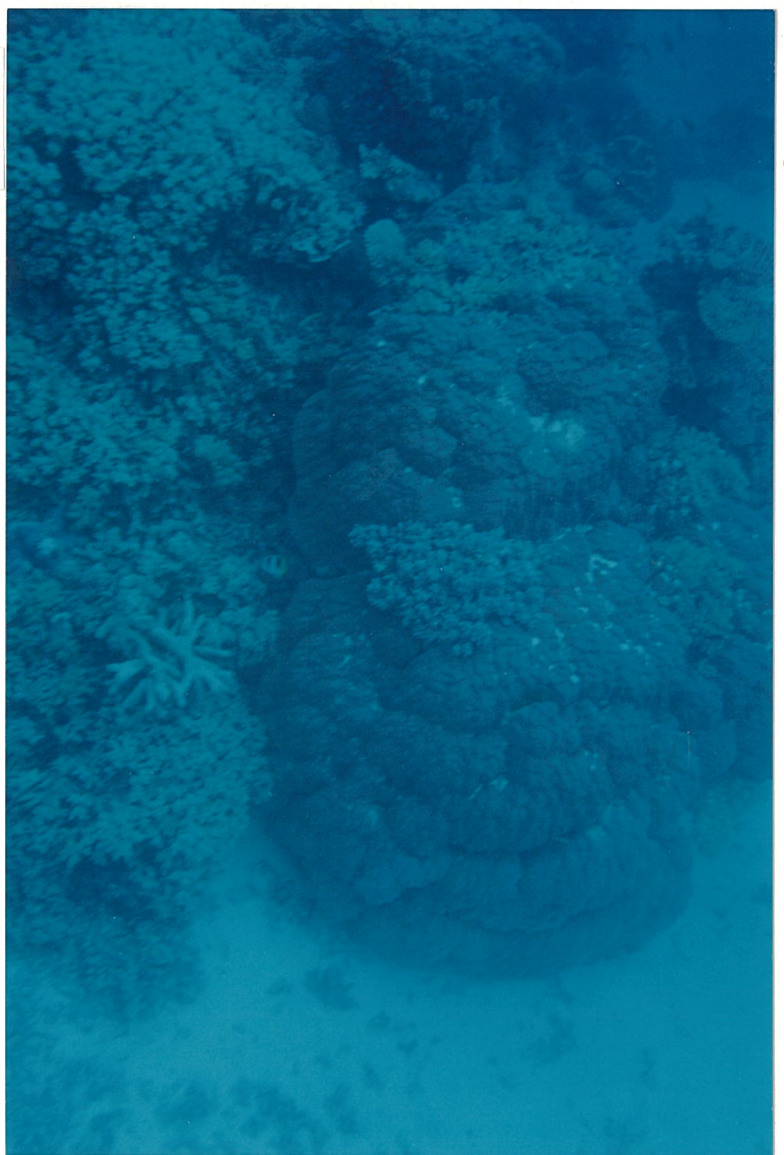
Great Detached Reef - shallow backreef zone  
typical with sandy substrate and large stands of  
arborescent *Acropora*

Backreef zone - deeper water - large *Porites* bommie  
back from anchor

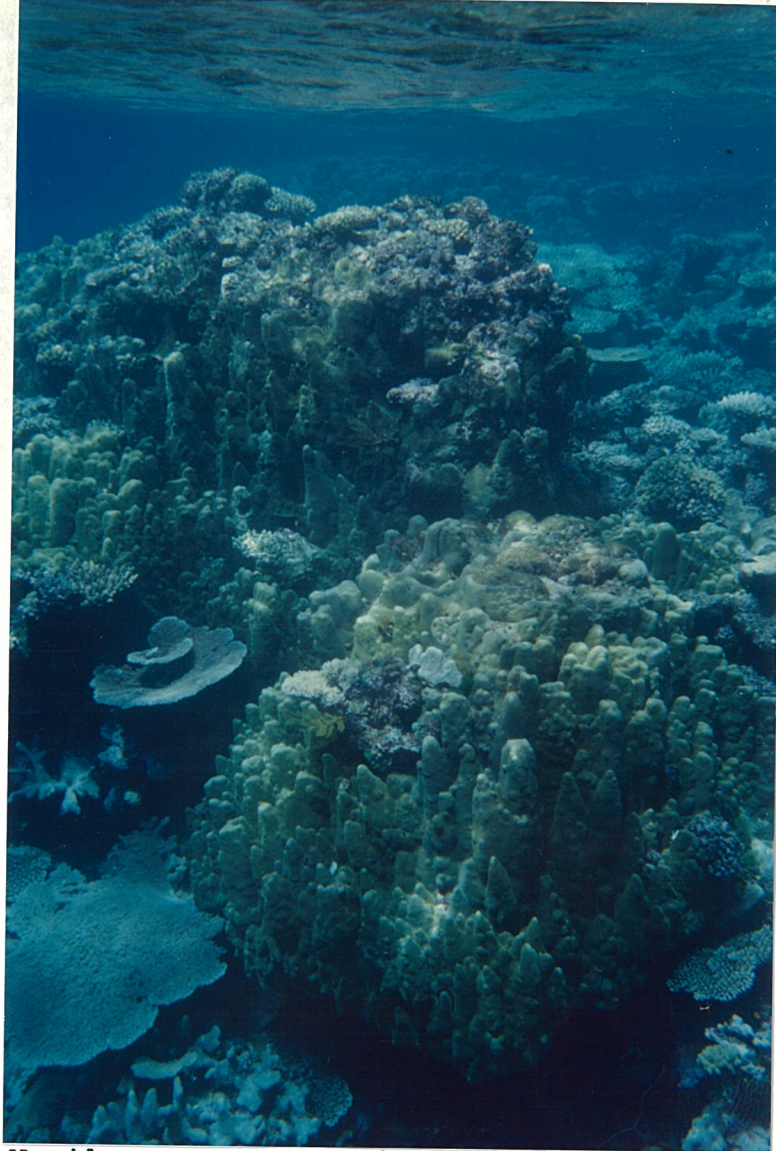




Great Detached Reef Backreef  
Typical features:  
large colonies and  
monospecific stands







North passage, Great Detached  
massive *Porites* with columnar  
growth form



Great Detached Reef - north east  
anchor and ballast from unknown wreck

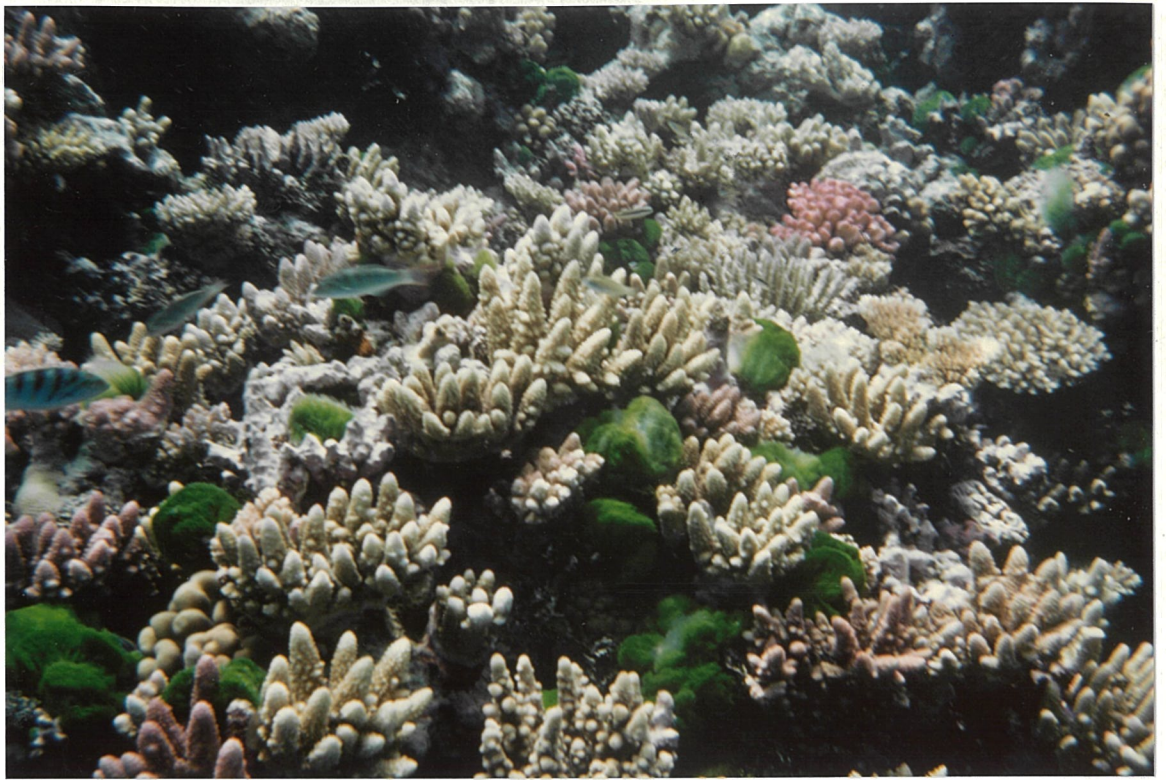




Raine Island reef flat  
microatolls in foreground

Raine Island Reef -  
nw slope -  
example of slope  
community with  
damsel fish





Star Reef - shallow lagoon - Chlorodesmus (green alga)



Star Reef - shallow lagoon edge



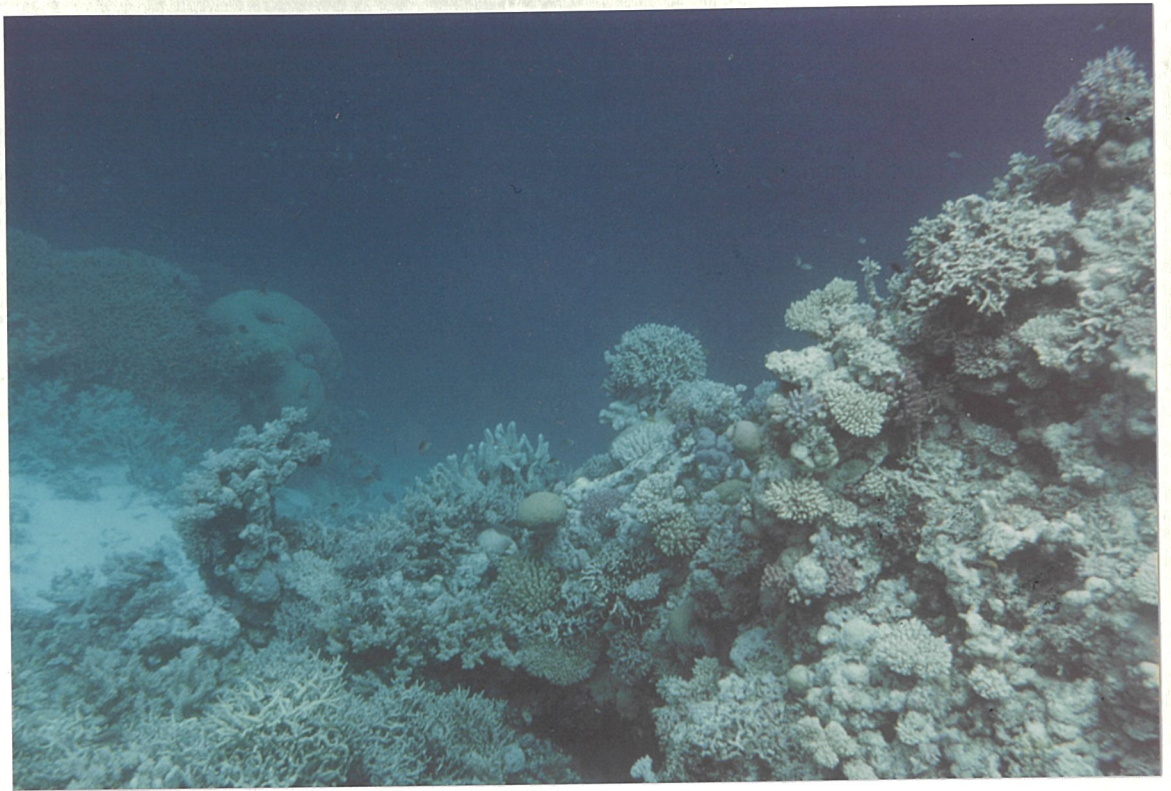


Star Reef - algal grazers

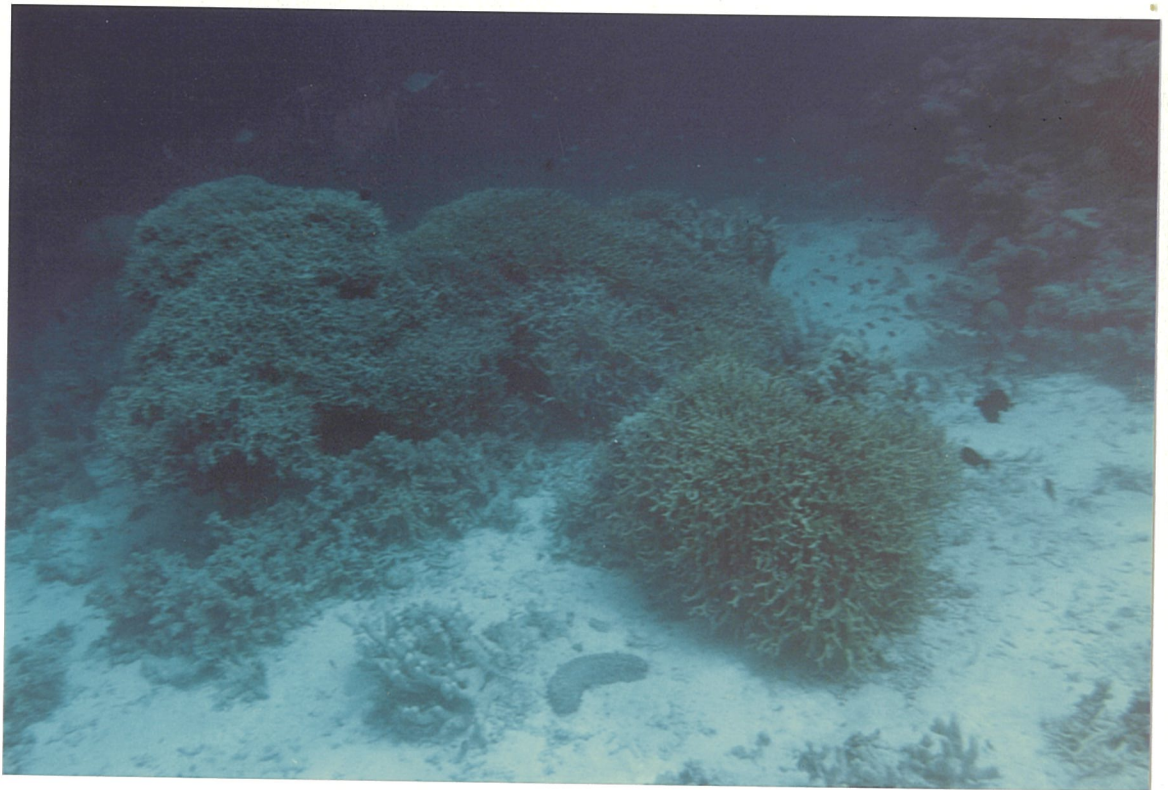


Star Reef - inner lagoon edge



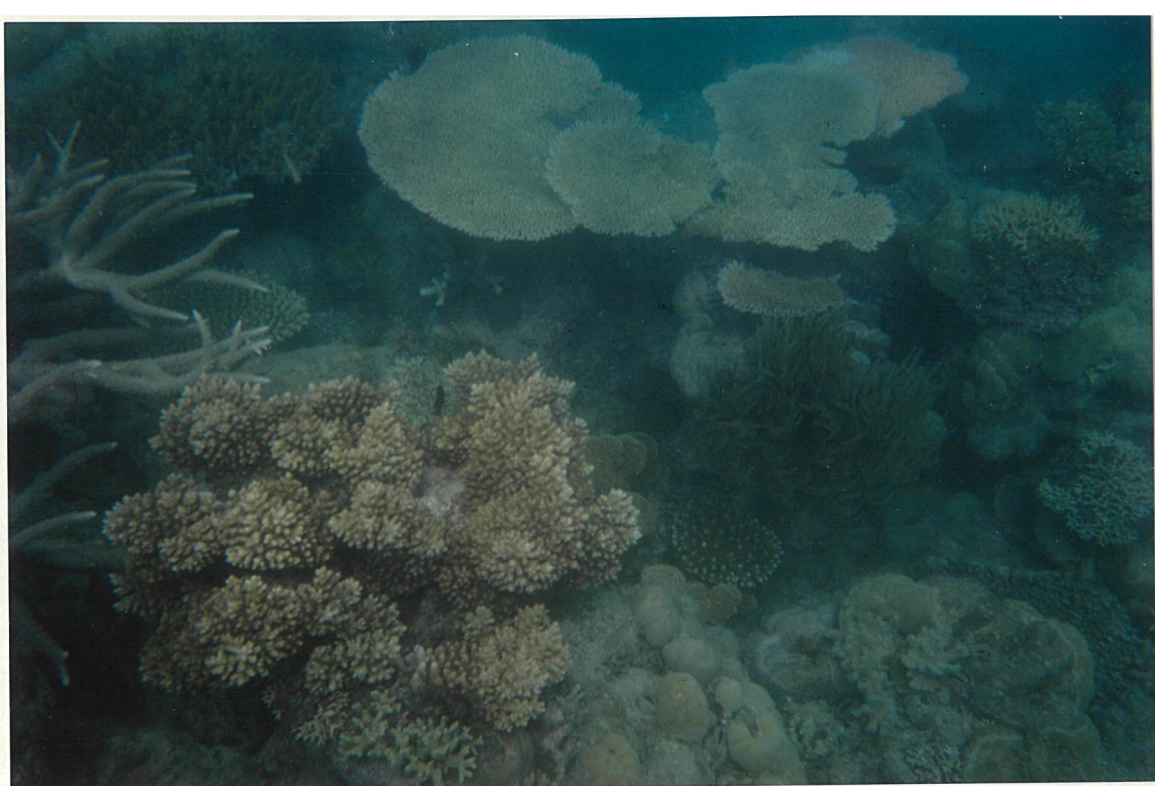


Star Reef - outer slope



Star Reef - outer slope, sheltered lower front ledge with low wave action and turbidity - *Porites cylindrica* (branching) - same as occurs in shallow nearshore zones with similar turbidity



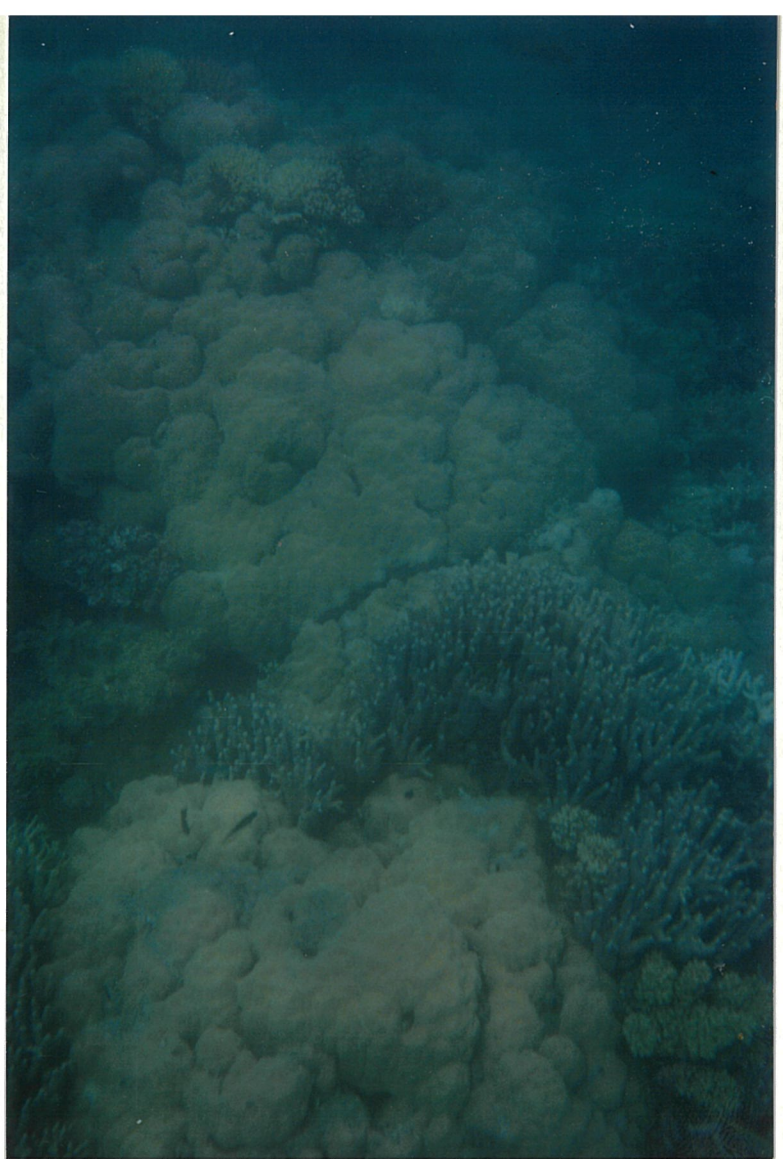


Common species on western side of Sir Charles Hardy:  
*Acropora grandis* (branching, left); *A. Longicyathus*  
(centre left); *A. latistella* (tabular form, top right).  
Typical of turbid waters



Sir Charles Hardy Reef  
typical undisturbed  
habitat characterised  
by large monospecific  
stands; fields of  
branching *Porites*  
*cylindrica* and colonies  
of *Echinopora lamellosa*  
(foliose forms)

note turbid water



Dominance of massive *Porites*  
and branching *Porites cylindrica*,  
south west Sir Charles Hardy Reef







Callianassa mounds, east side of cay,  
Fisher Island, Piper Group



Beach rock, exposed hard platform of reef flat,  
south end Fisher Is.





Enteromorpha/algal zone  
east side of Fisher Is (in Piper Group)



Faviid and *Acropora millepora* zone  
*T. crocea* (burrowing clams)





Boulder zone, east side of Fisher Island



Flattened rock zone - ancient beach rock, southeast Fisher Is.





*Goniastrea/A. millepora* zone - outer west side, Fisher Is

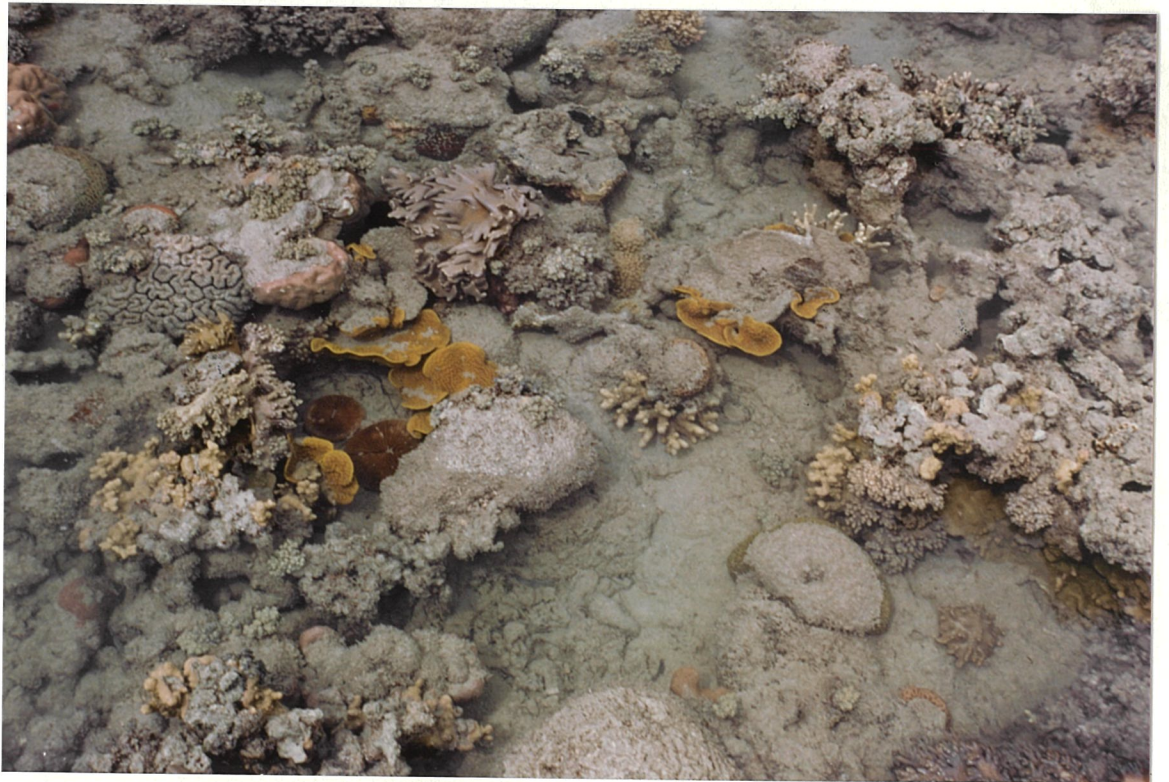


Fisher Is. - dark water running out of beach sand at low tide; H<sub>2</sub>S odour





Faviid zone, east side Fisher Is - tops of colonies are dead



Back reef flat, east side Fisher - yellow coral *Turbinaria reniformis*; naturally occurring turbidity; effect of silt