

Cook Islands Marine Park Rapid Reef Assessment

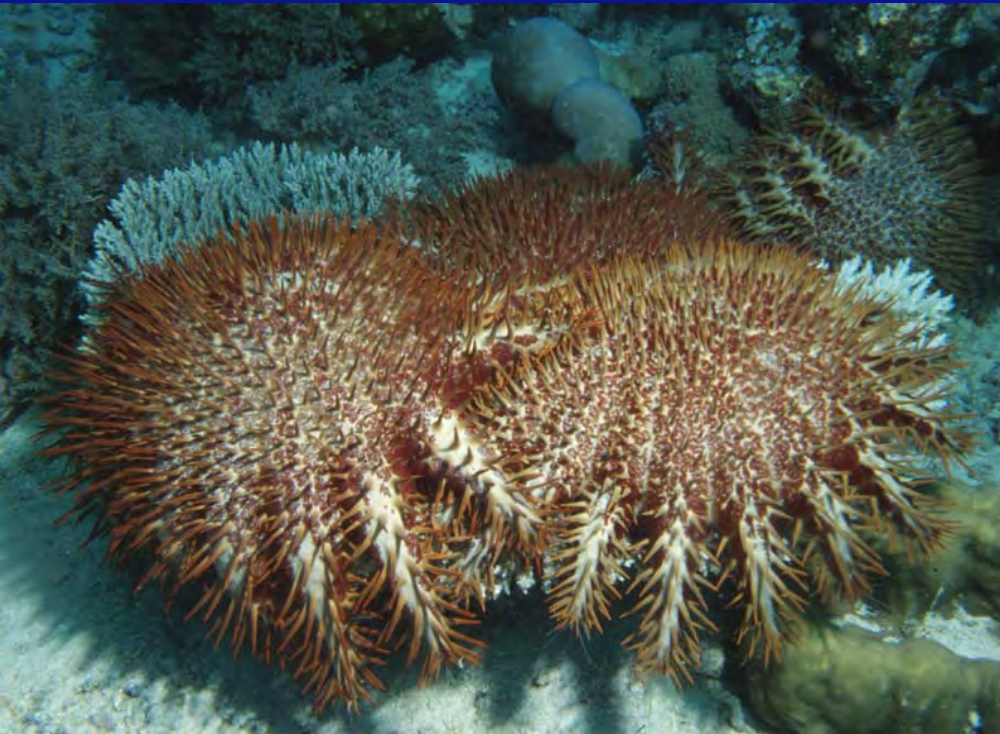


Teina Rongo
Office of the Prime Minister
Cook Islands



Disturbances that influence coral reef ecosystems in the southern Cook Islands

Crown-of-thorn starfish



Photos from Dr. Robert van Woesik

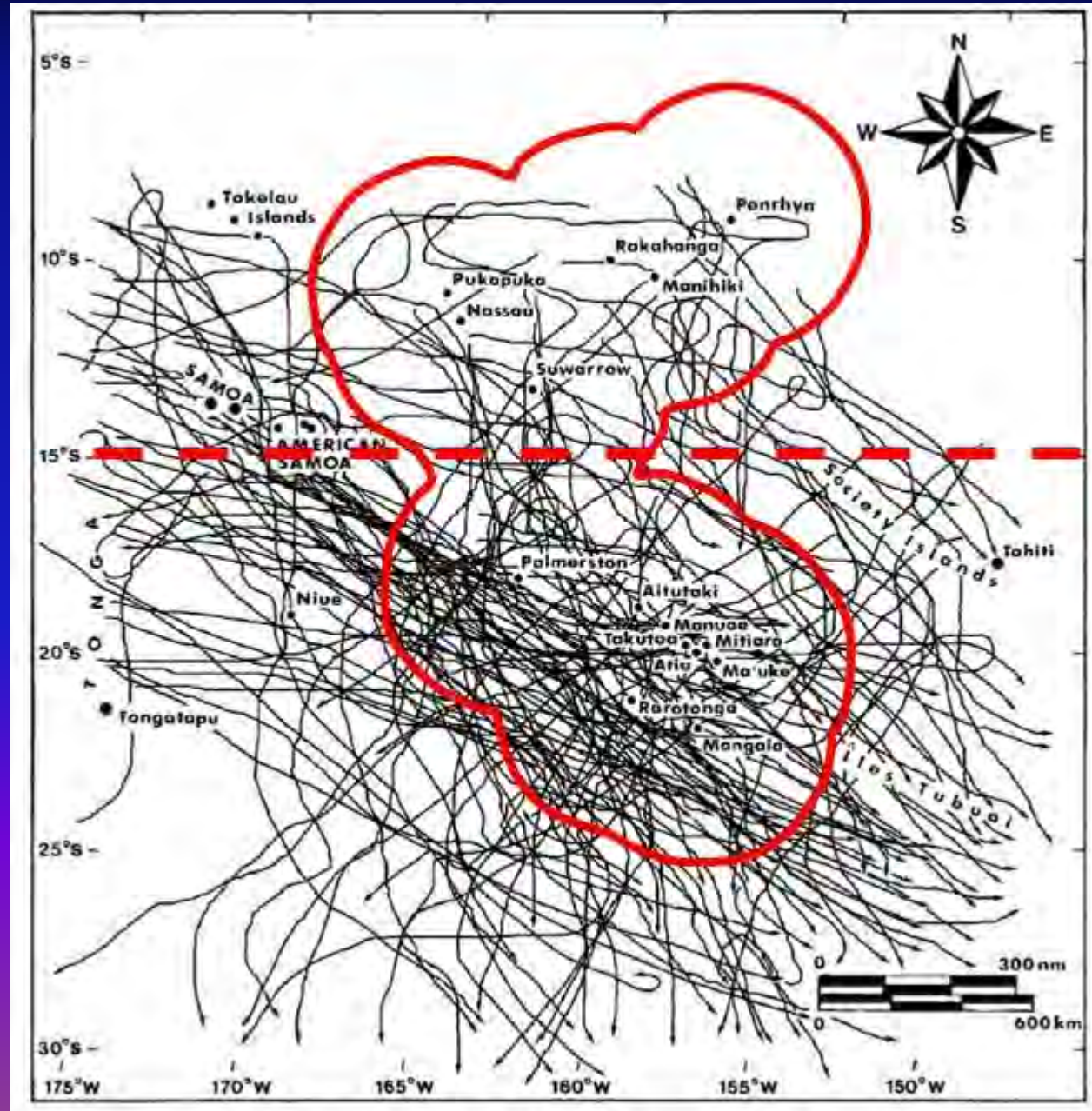
Cyclones



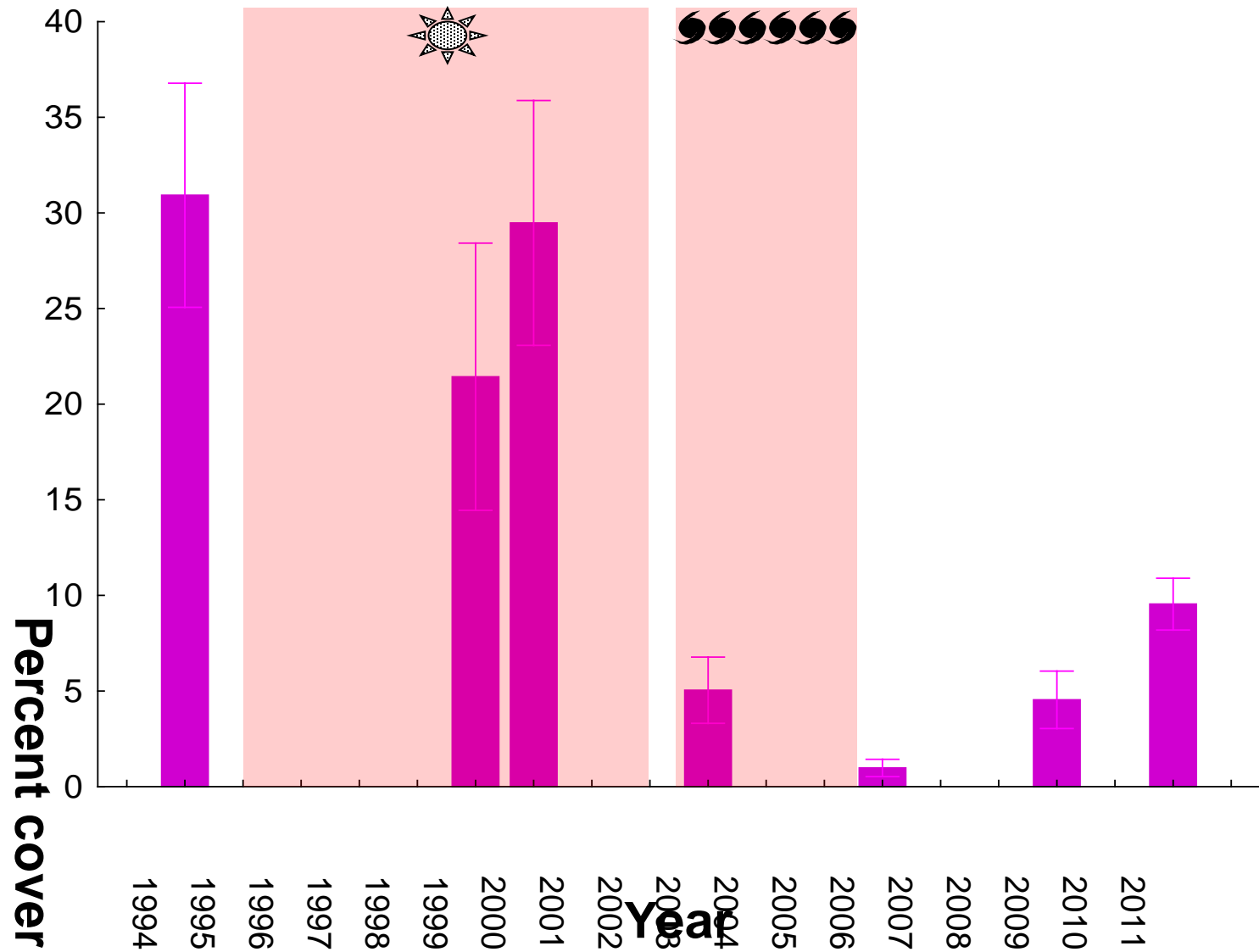
Cyclone tracks in the Cook Islands



Tracks of 104 cyclones in the Cook Islands from 1820–2006 (de Scally, 2008)



Hard coral cover for Rarotonga



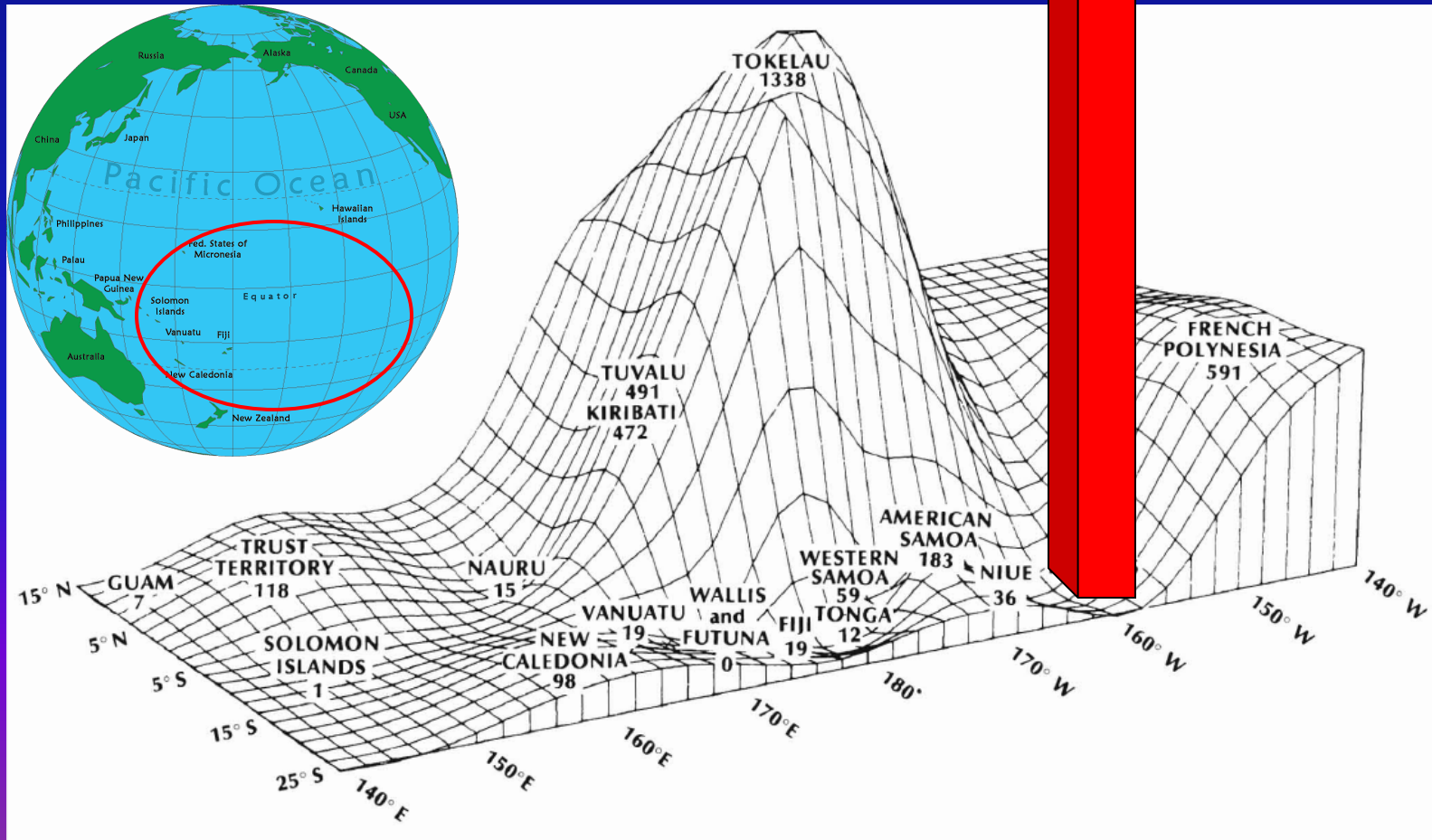
Friedman test (2006 – 2011)

$\chi^2 = 63, p < 0.001$

Ciguatera fish poisoning

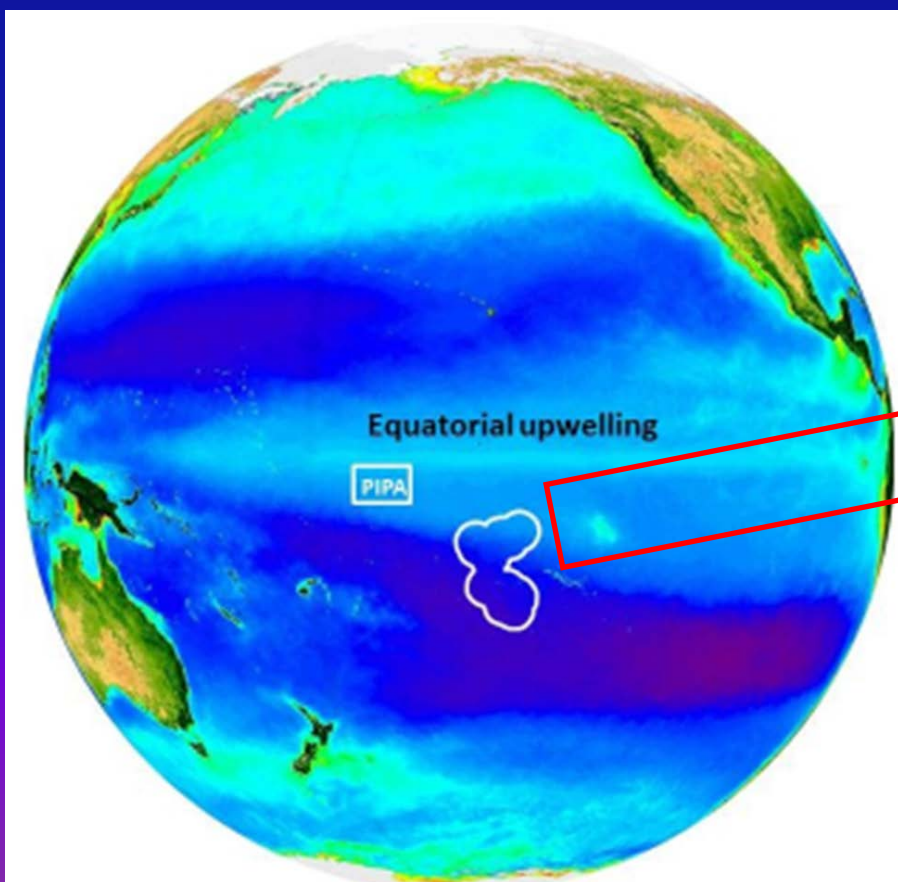
1994 – 2006: 1,790 per 100,000 population per year

Rongo et al. (2009)



Lewis (1986) *Marine Fisheries Review* 48, p. 8.

Globe: http://www.free-extras.com/images/pacific_ocean_globe-12033.htm



Rapid Assessment of Coral Reefs in the southern Cook Islands



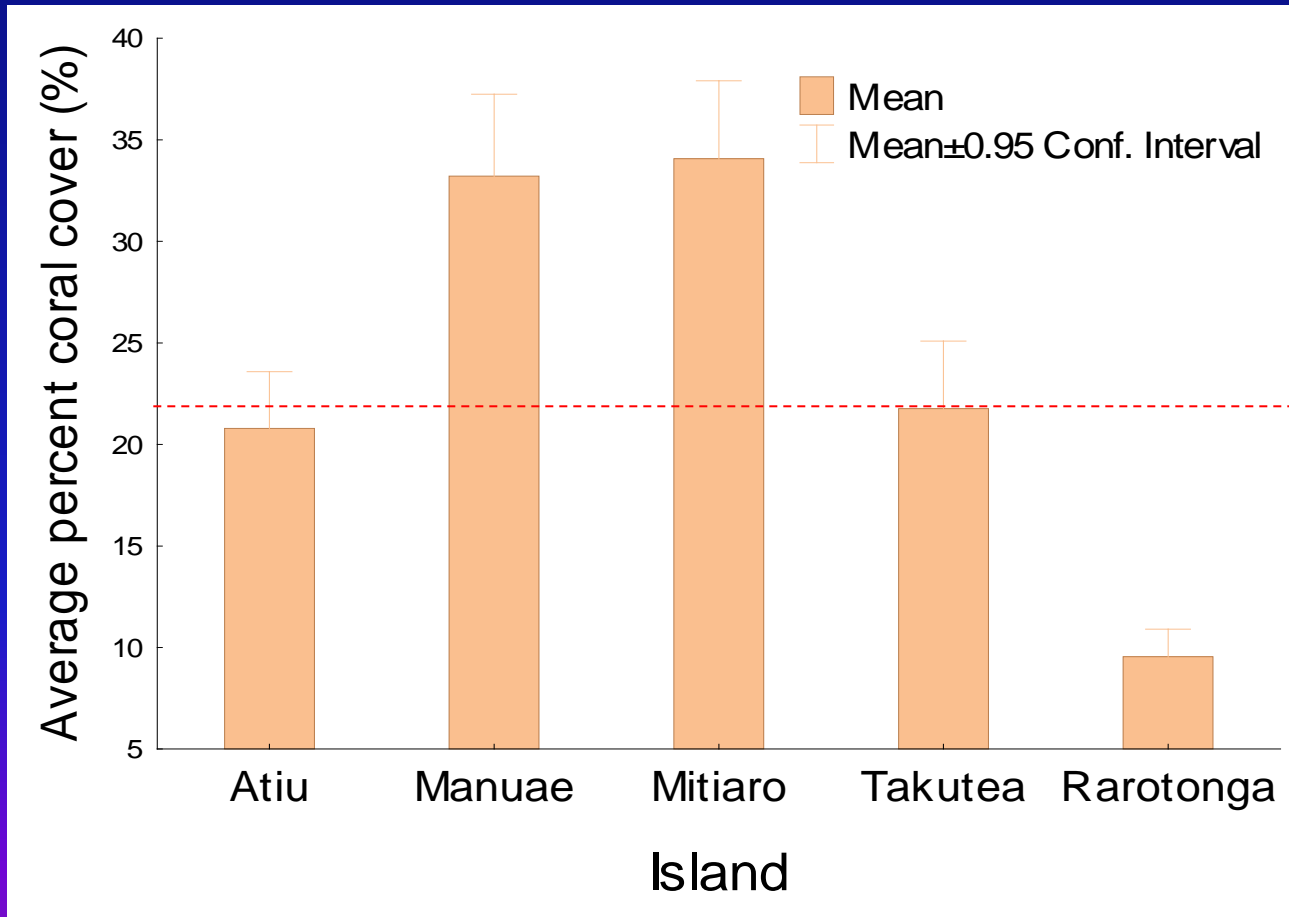




Capacity Building



Coral cover



Average coral cover of the four islands surveyed in 2013; coral cover for Rarotonga was taken the 2011 survey (Rongo, 2011). Dotted line indicated the average coral cover of 22.1% in 2003 estimated from 2,667 reefs within the Indo-Pacific (Bruno & Selig, 2007)

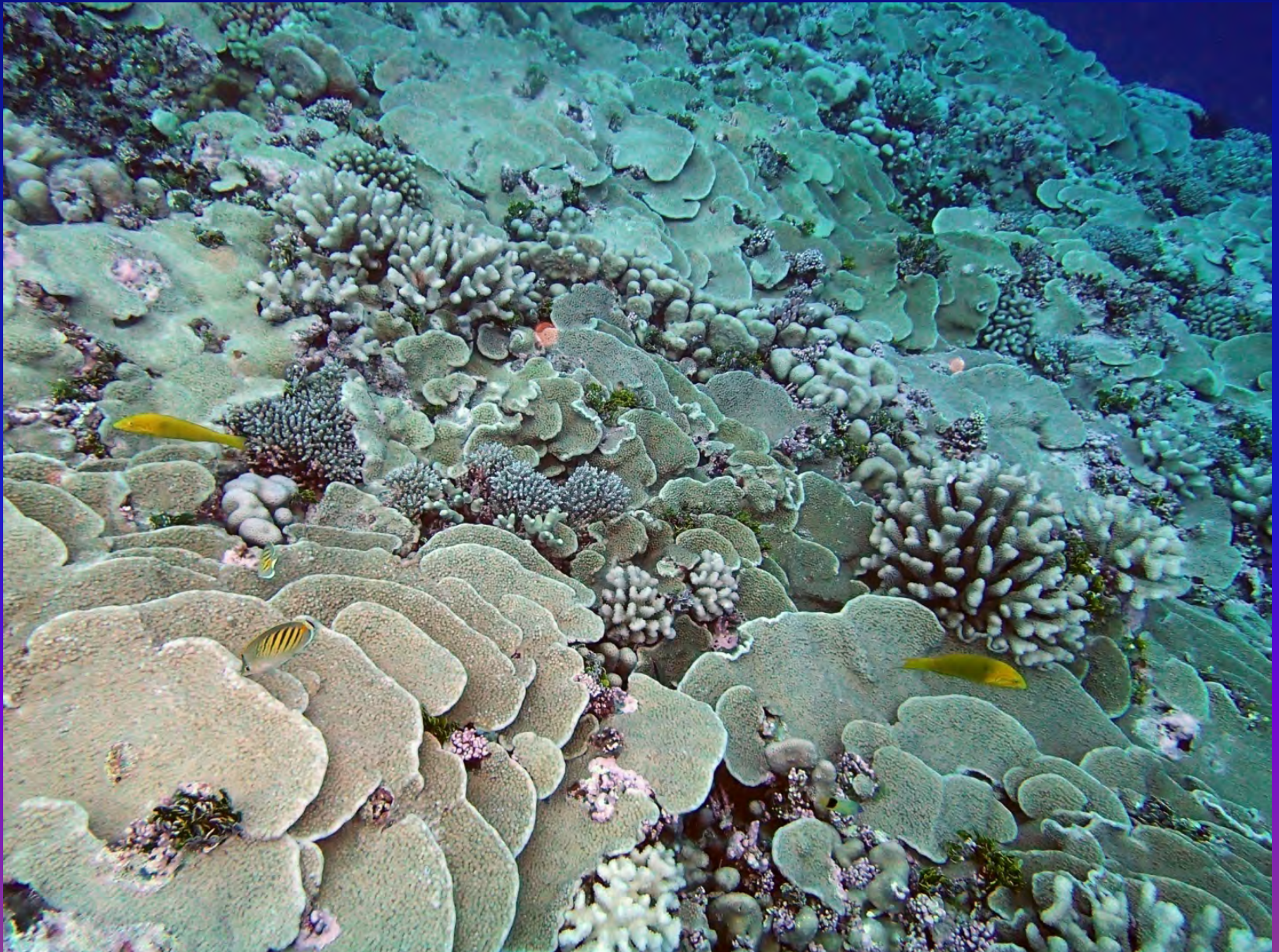
Giant Clam (*Tridacna maxima*)



On average clam density is around 3 Individuals per m^2 . In some cases up to 50 individuals per m^2 .



Healthy Reefs



Degradation and Recovery



Aitutaki

Aitutaki

Manuae

Takutea

Mitiaro

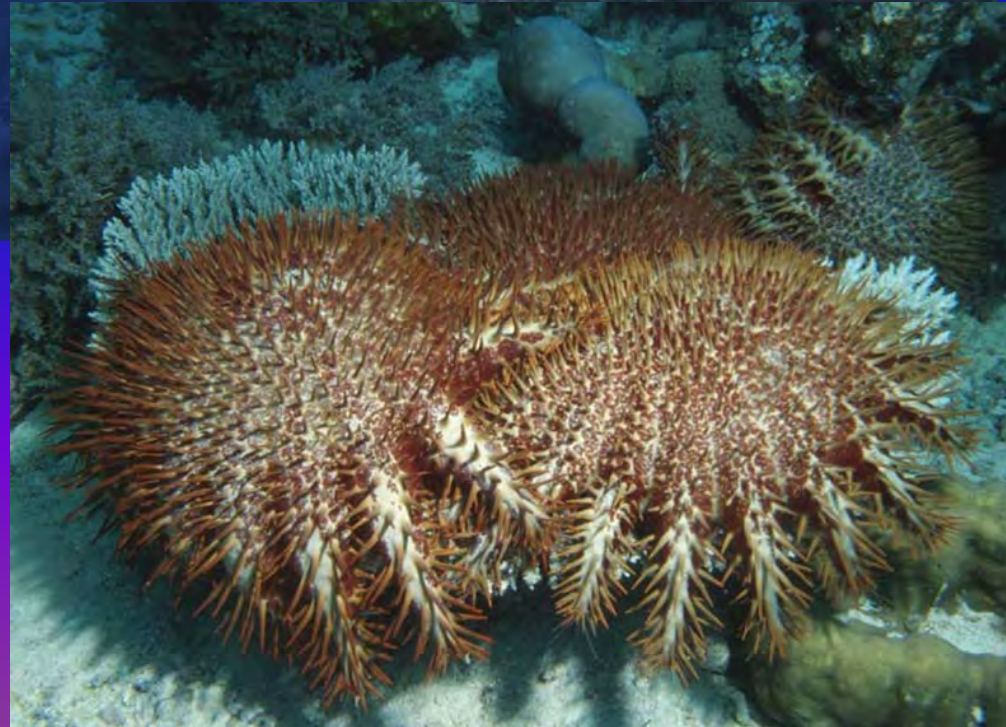
Atiu

Mauke

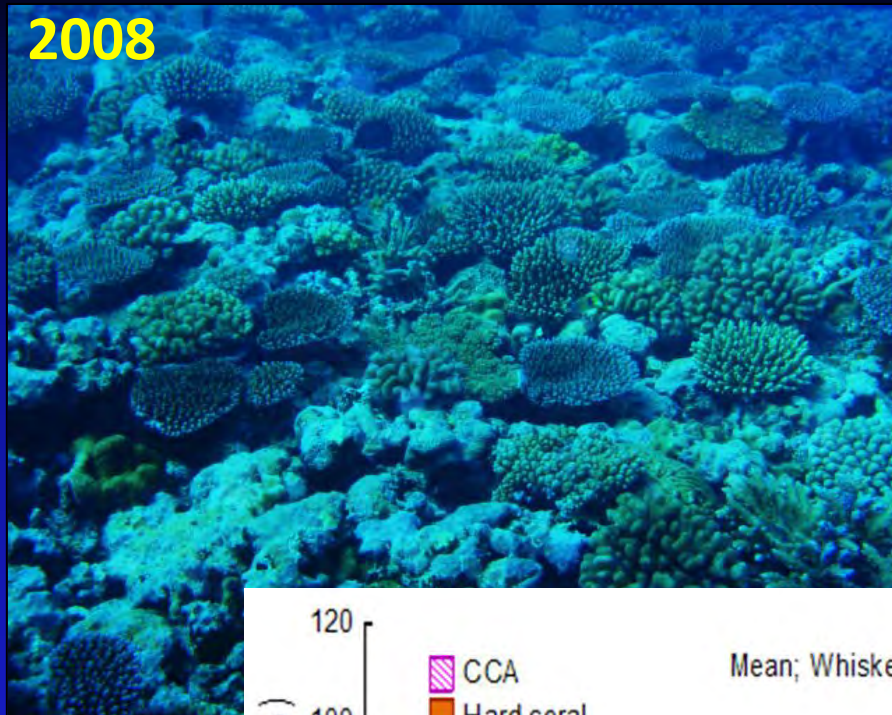
Rarotonga



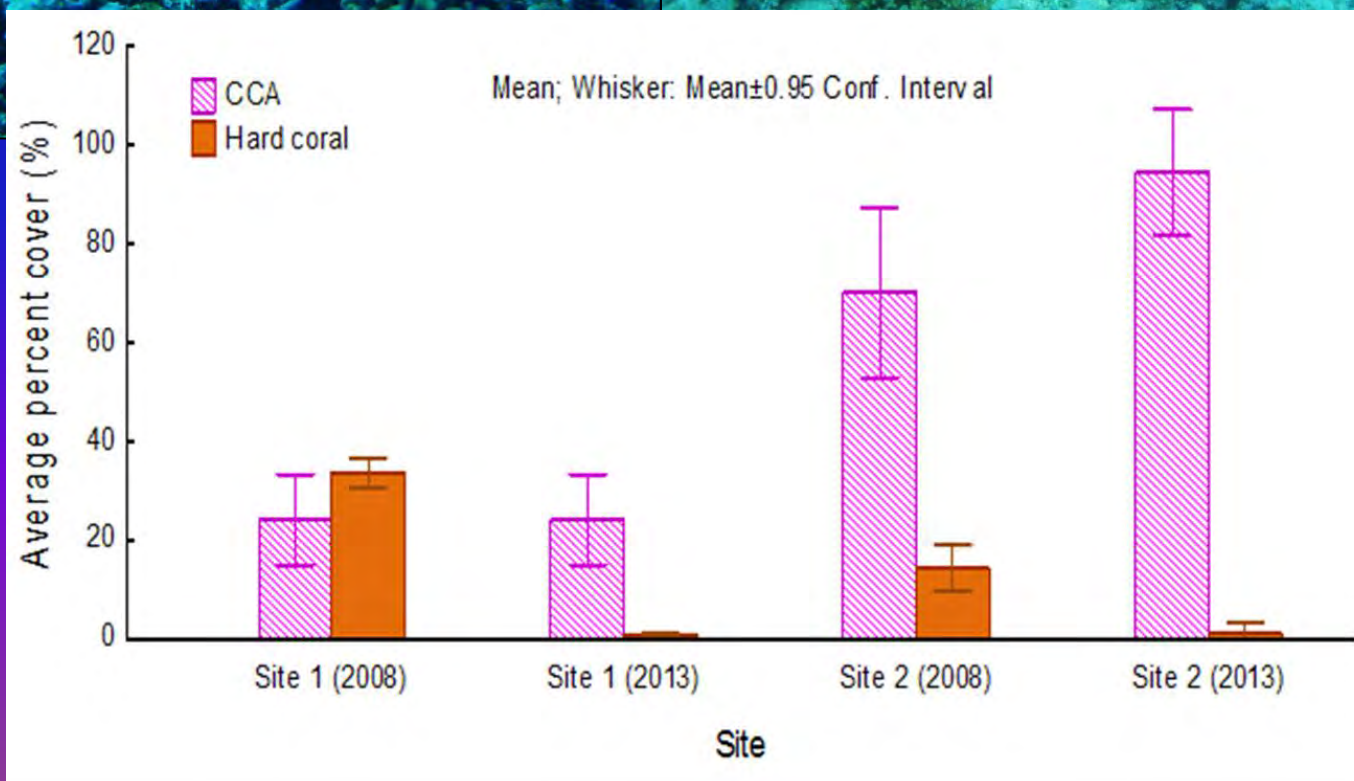
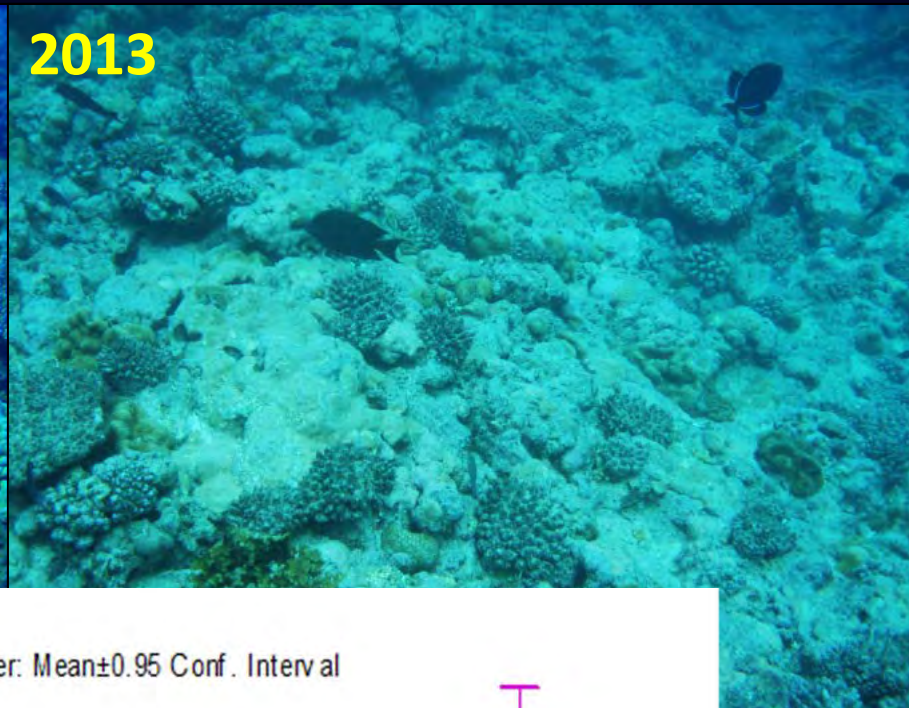
COTS Predation



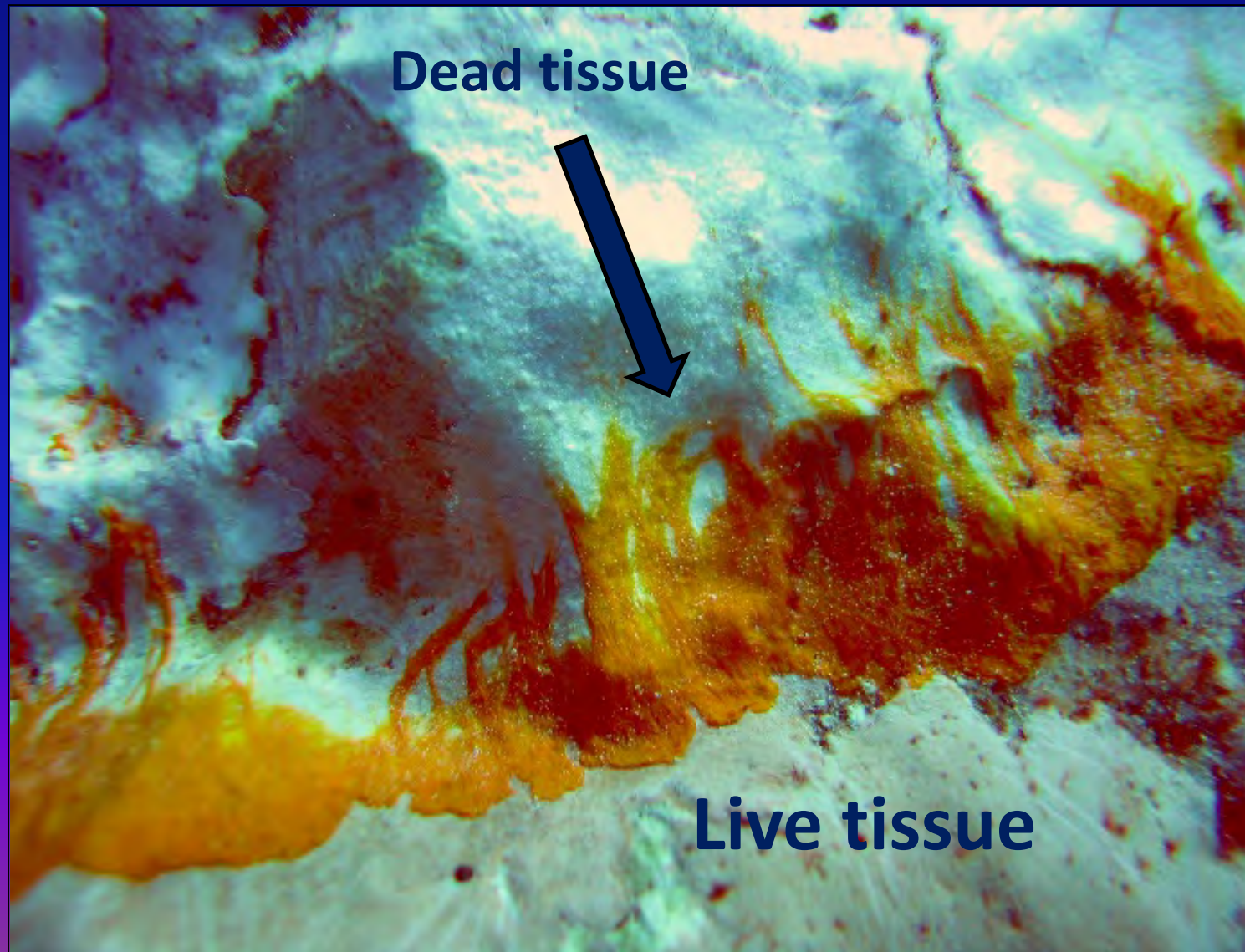
2008



2013



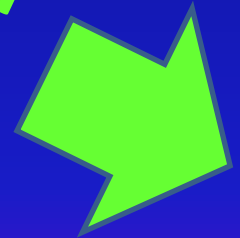
Coralline Lethal Orange Disease



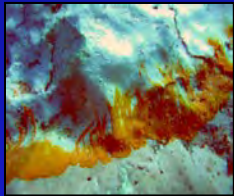
Eutrophic conditions and macro-algal dominated



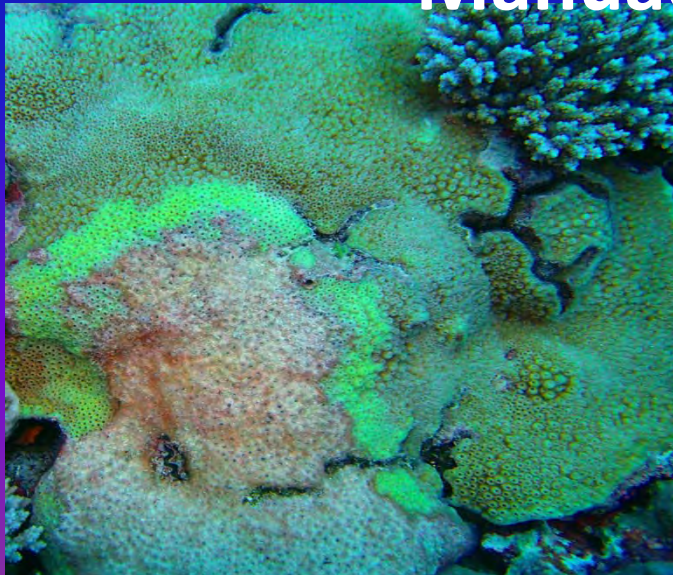
Southeastward direction of disturbance



Aitutaki



Manuae



Coral disease (yellow-band)

Takutea



Atiu



Mitiaro



Colony Size

Southeastward direction of recovery

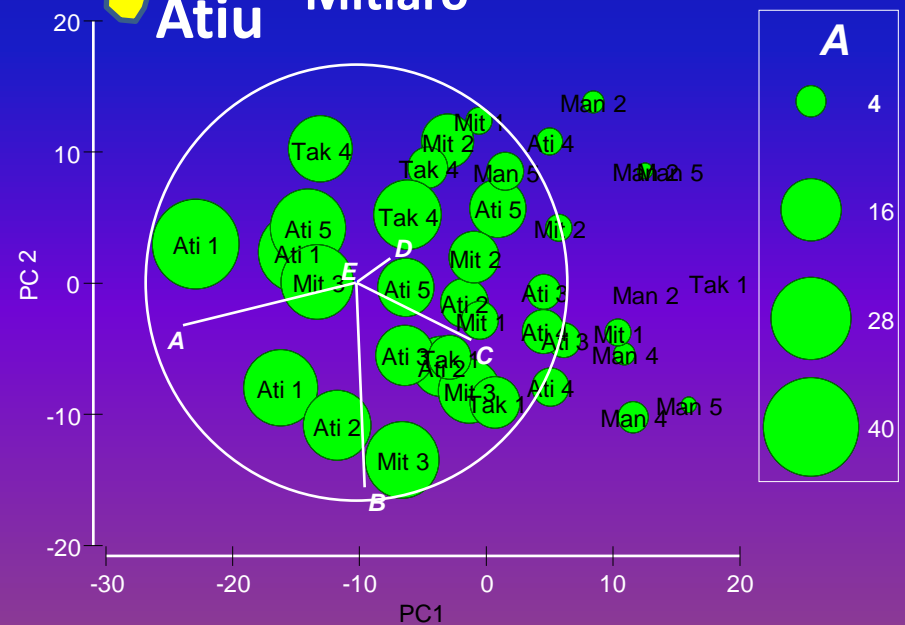
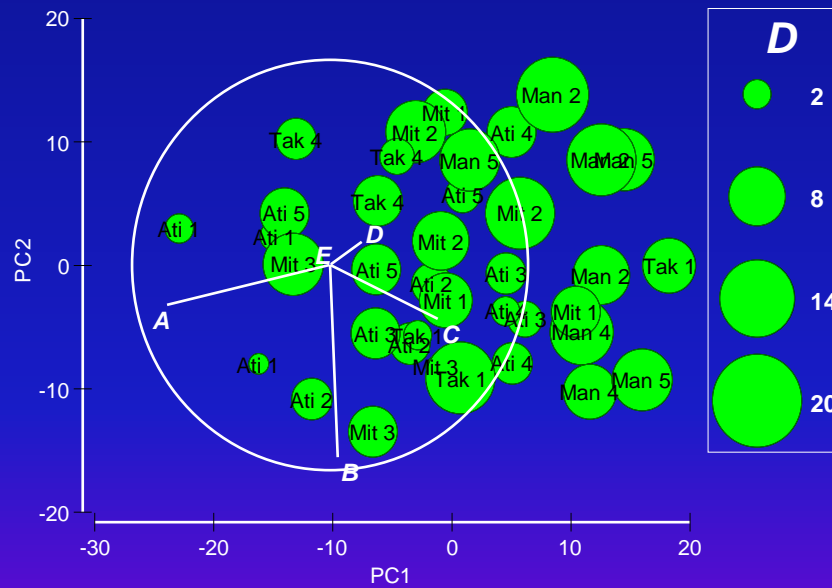
Aitutaki

Manuae

Takutea

Atiu

Mitiaro



Summary

- Reefs are recovering
- High degree of similarity
- Baseline Information for some islands
- Managing the island of Aitutaki may benefit the rest of the island chain