

STATUS AND TRENDS OF CORAL REEFS OF THE PACIFIC

Serge PLANES

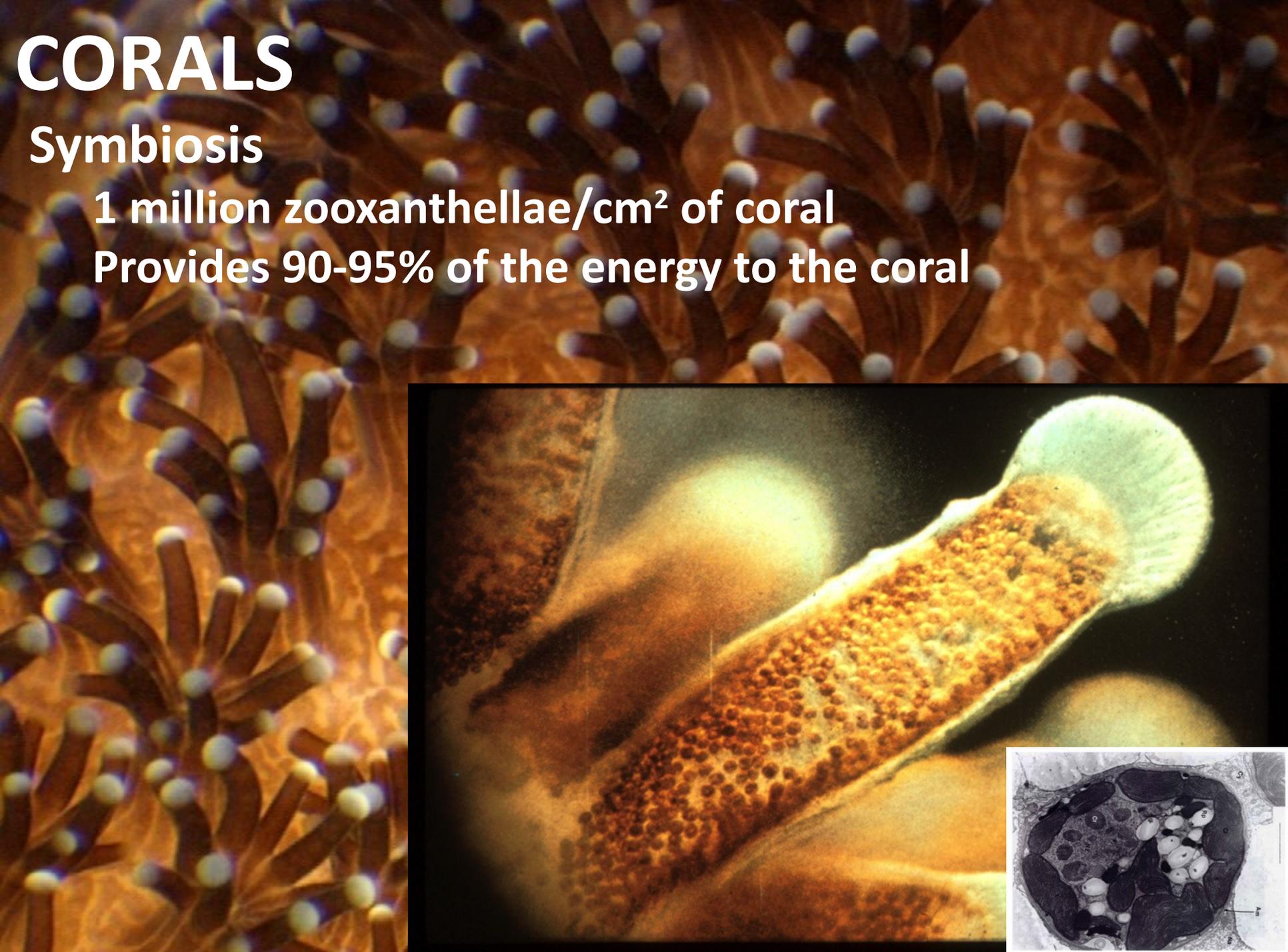


CORALS

Symbiosis

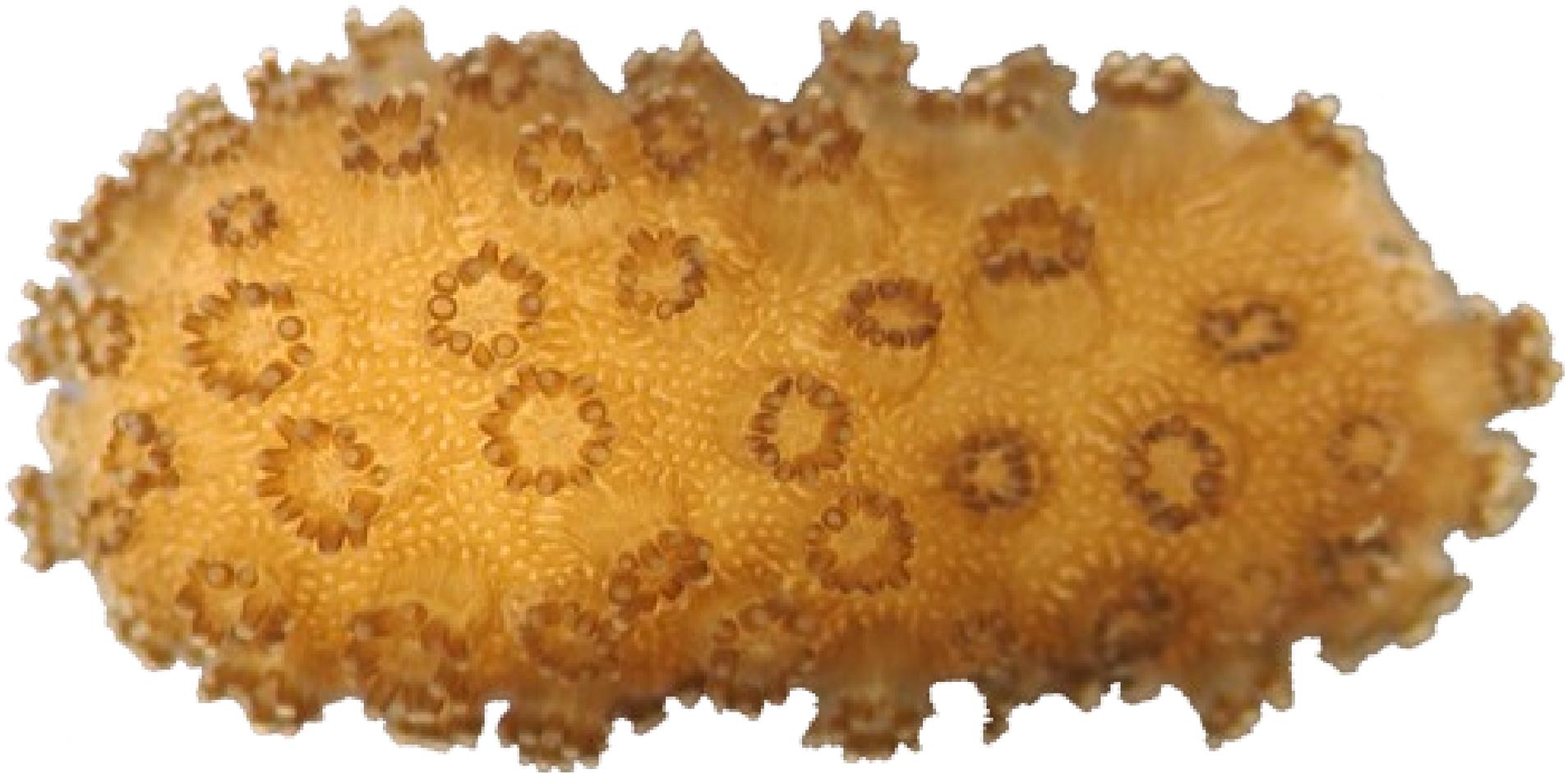
1 million zooxanthellae/cm² of coral

Provides 90-95% of the energy to the coral



CORALS

A colony of clones



CORALS

Massive colonies



CORAL REEFS

Coral reefs : the largest bio-construction on earth



CORAL REEFS

Coral reefs : a tiny part of the Ocean

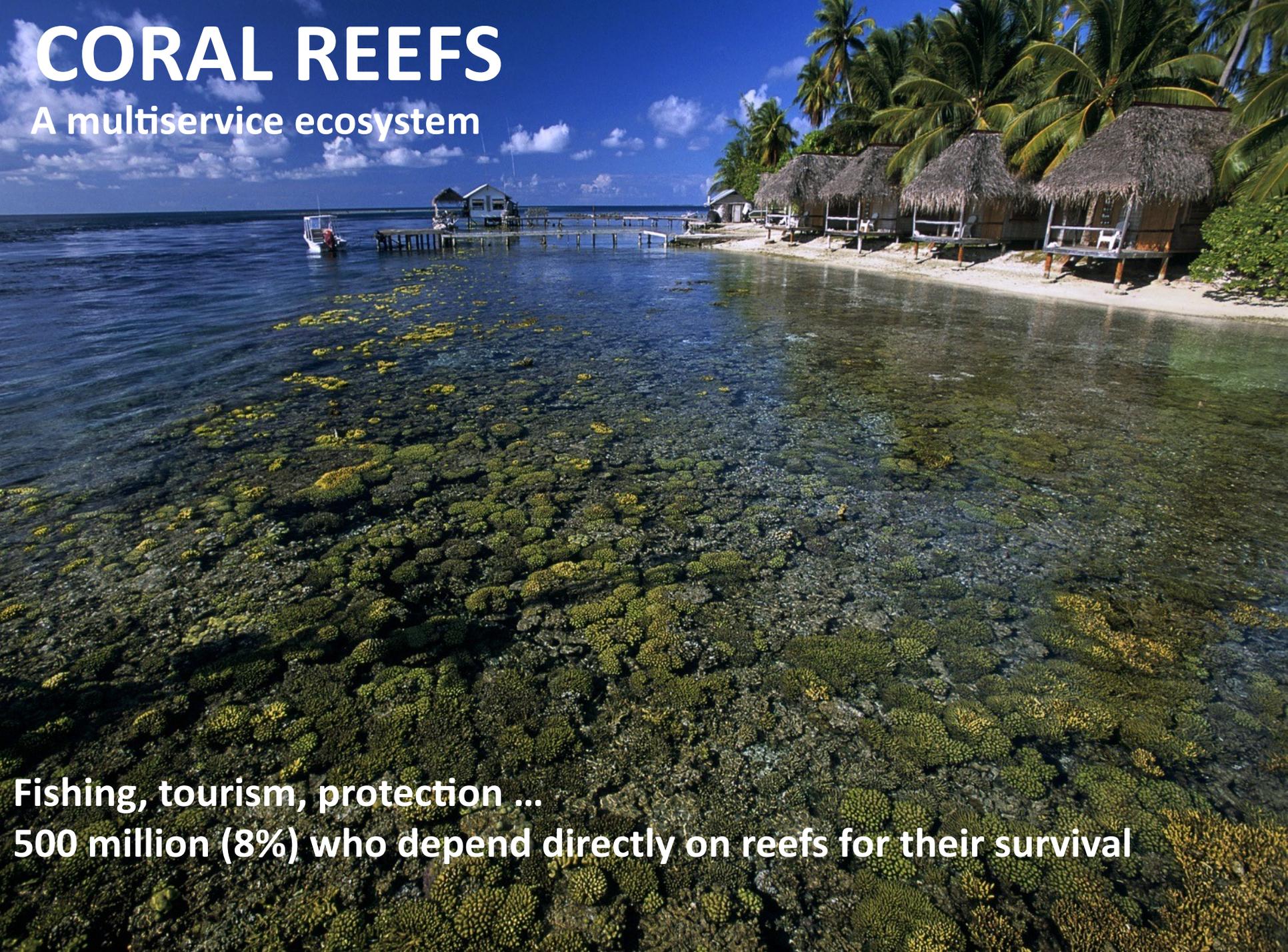
300,000 km² (0.2% of the surface of oceans)

30 % of the biodiversity of oceans



CORAL REEFS

A multiservice ecosystem



Fishing, tourism, protection ...

500 million (8%) who depend directly on reefs for their survival

CORAL REEFS

In the world

Rank	Country and geographical locations	Reef Area	Percentage of world total
1	Indonesia, Republic of	51,020	17.95%
2	Australia	48,960	17.22%
3	Philippines, Republic of the	25,060	8.81%
4	France Including: Clipperton, Mayotte, Réunion, Guadeloupe, Martinique, New Caledonia, French Polynesia, Wallis and Futuna Islands	14,280	5.02%

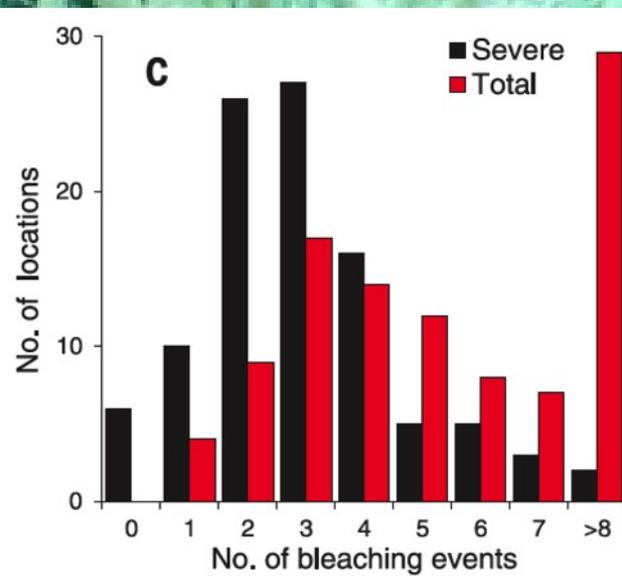
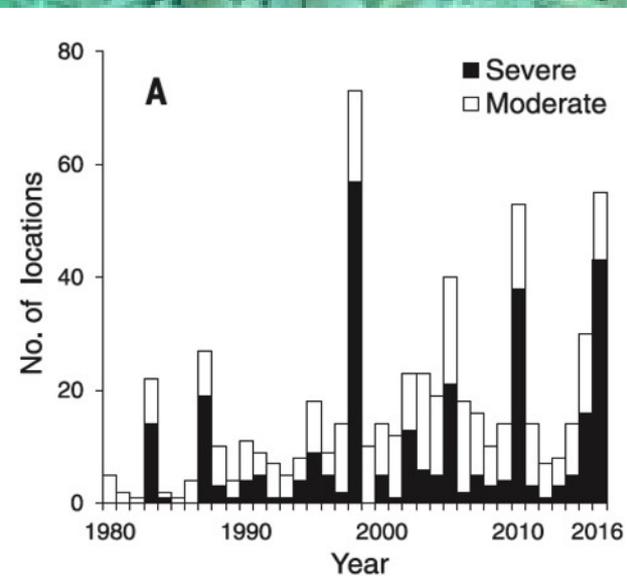
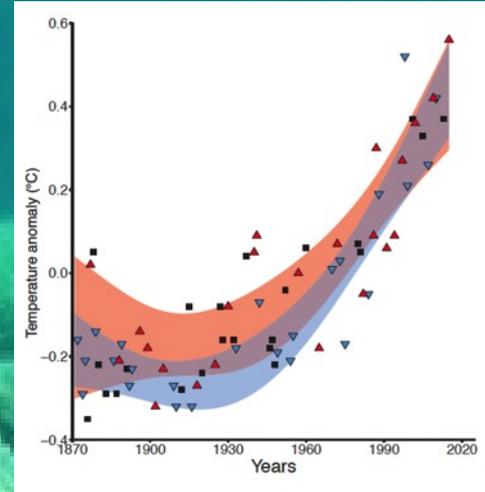
**1 km² of coral reefs =
all biodiversity of French mainland coasts**

CORAL REEFS AND CLIMATE CHANGE

Increased ocean temperatures

Increase in bleaching events

=> increase mortality



GLOBAL CORAL REEF MONITORING NETWORK STATUS AND TRENDS OF CORAL REEFS

=> Important to evaluate, measure, quantify, assign values to changes

=> Tool for management and conservation



STATUS OF CORAL REEFS OF THE PACIFIC AND OUTLOOK: 2011

ANDREW CHIN, THIERRY KARIN GERHARDT, ERIK



Status and Trends of Caribbean Coral Reefs 1970-2012

EDITED BY JEREMY JACKSON · MARY DONOVAN · KATIE CRAMER



Coral reef status report for the Western Indian Ocean (2017)

Edited by

David Obura, Mishal Gudka, Fouad Abdou Rabi, Suraj Bacha Gian, Lionel Bigot, Jude Bignon, Sarah Freed, Jean Maharavo, Vikash Munbodhe, Jelvas Mvaura, Sean Porter, Ervan Sola, Julien Wickel, Saleh Yahya and Said Ahamada

STATUS AND TRENDS OF CORAL REEFS OF THE PACIFIC



STATUS AND TRENDS OF CORAL REEFS OF THE PACIFIC

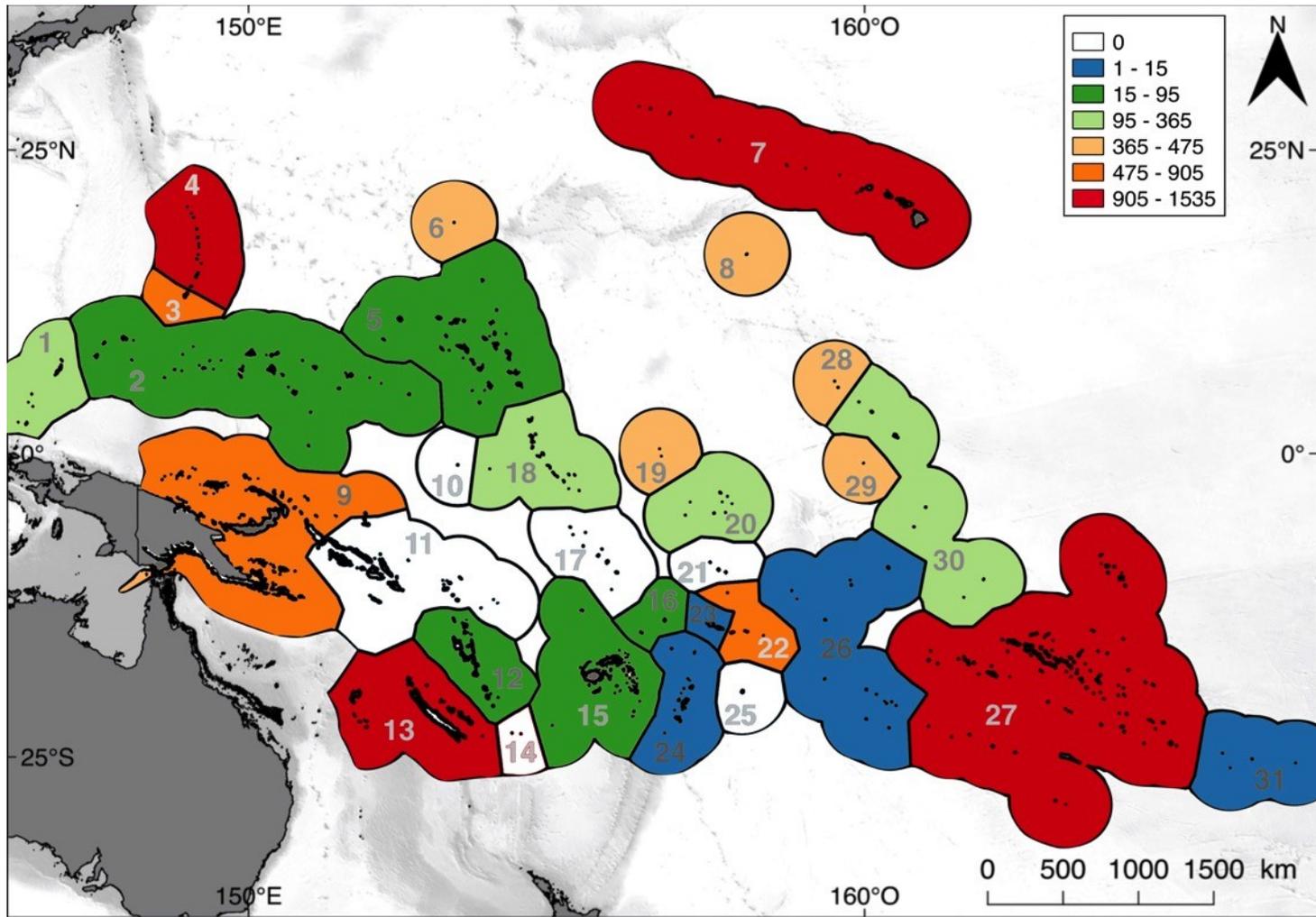
EDITED BY

CHARLOTTE MORITZ · JASON VII · WARREN LEE LONG
JERKER TAMELANDER · AURÉLIE THOMASSIN · SERGE PLANES

STATUS AND TRENDS OF CORAL REEFS OF THE PACIFIC

THE PACIFIC

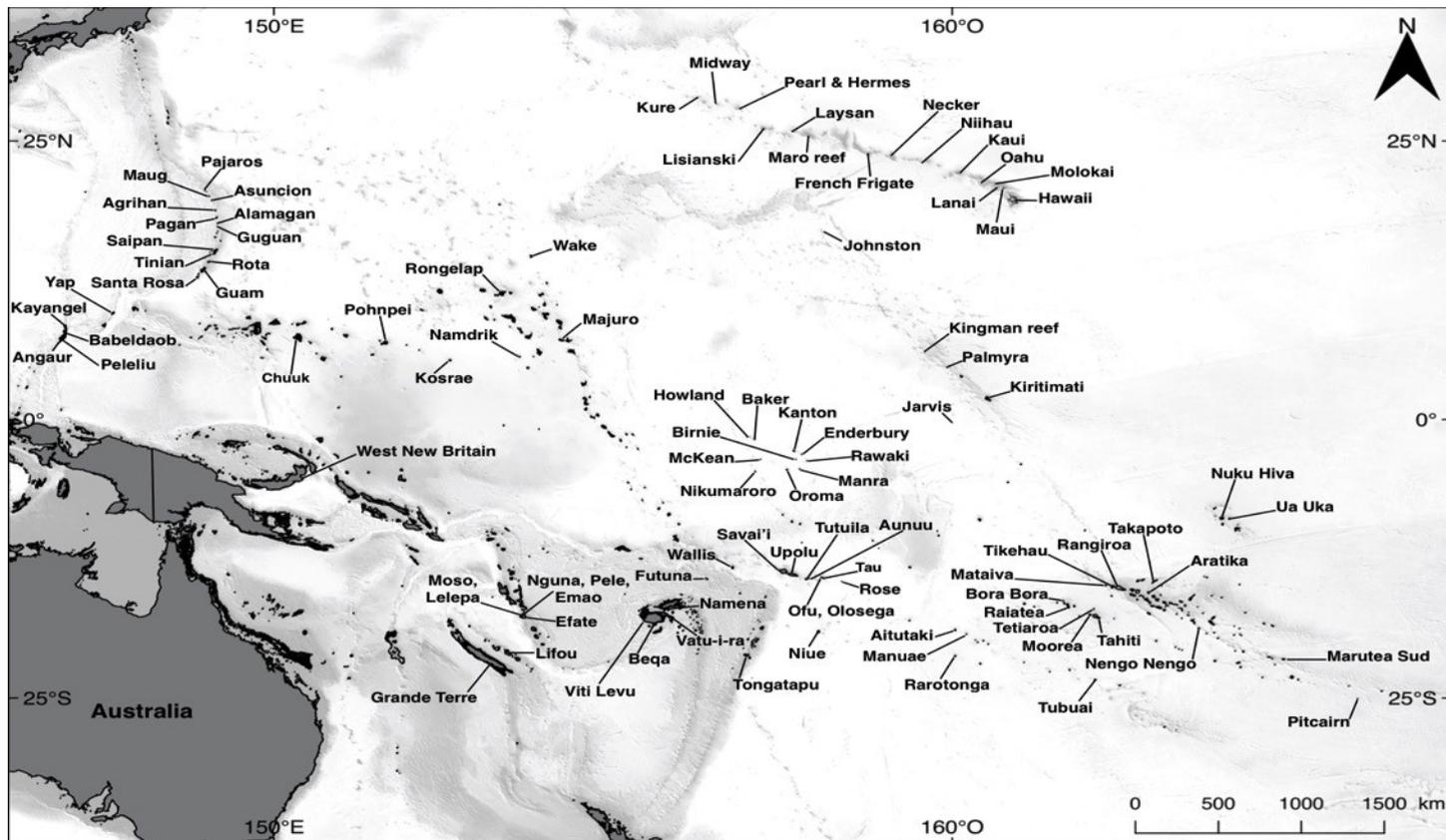
- 25% (about 66,000 km²) of the coral reefs on the planet
- 25,000 islands - 23 countries



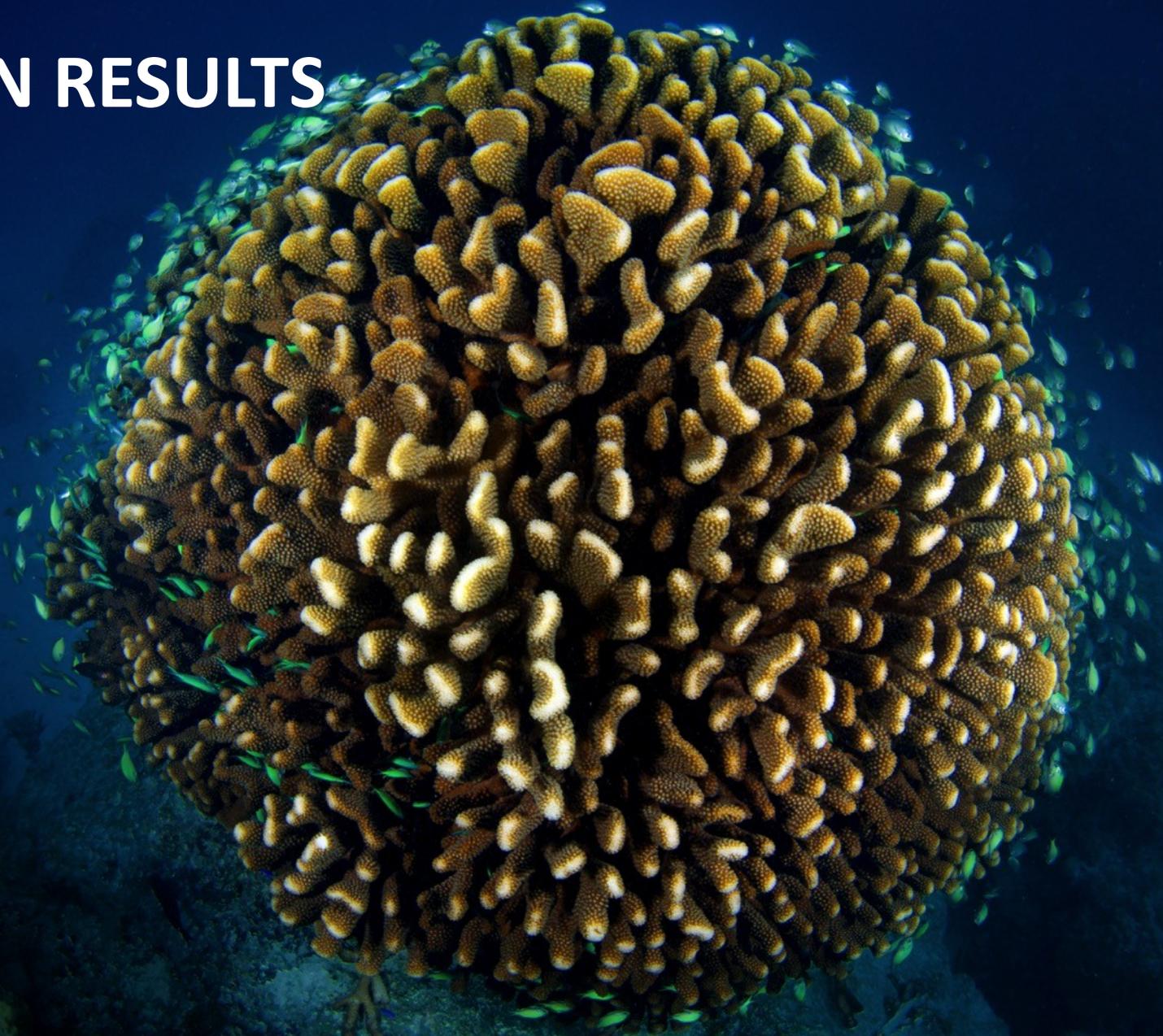
STATUS AND TRENDS OF CORAL REEFS OF THE PACIFIC

THE PRESENT WORK

- A collaborative regional effort
- 200 people contacted across all Pacific nations
- Data from 128 islands, including 19 different countries and territories
- More than 20,000 surveys (benthos and fish) / About 50 time series
- Spread across the Pacific, some locations with more effort than others

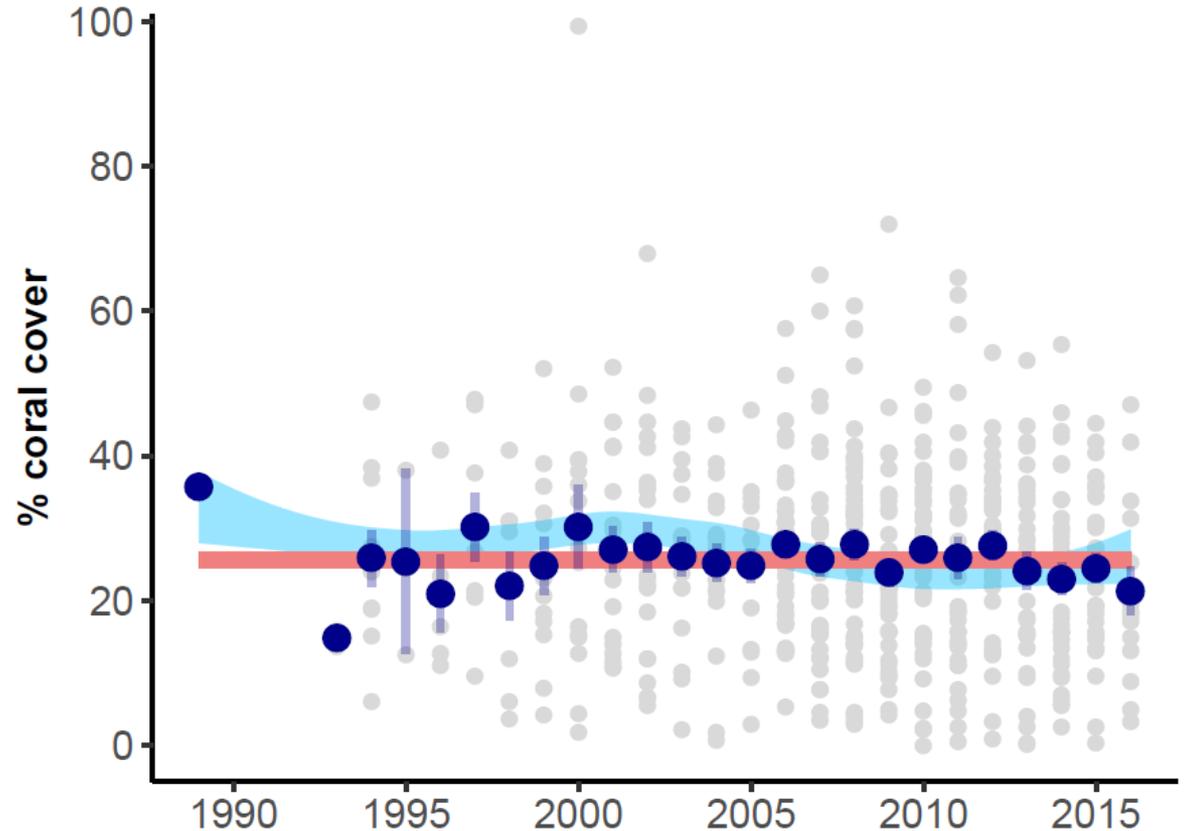
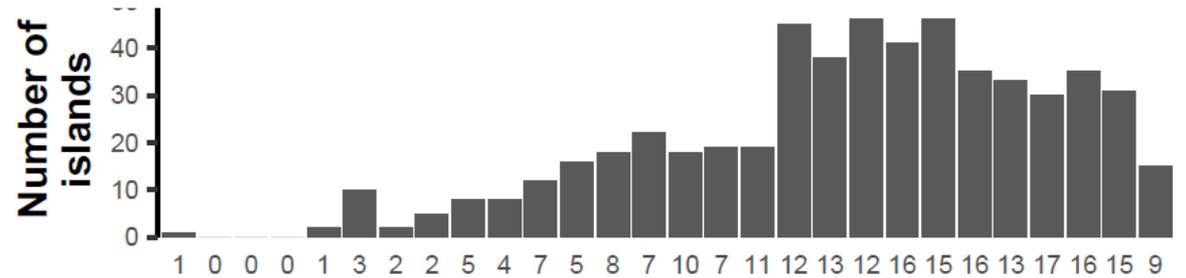


MAIN RESULTS



CORALS

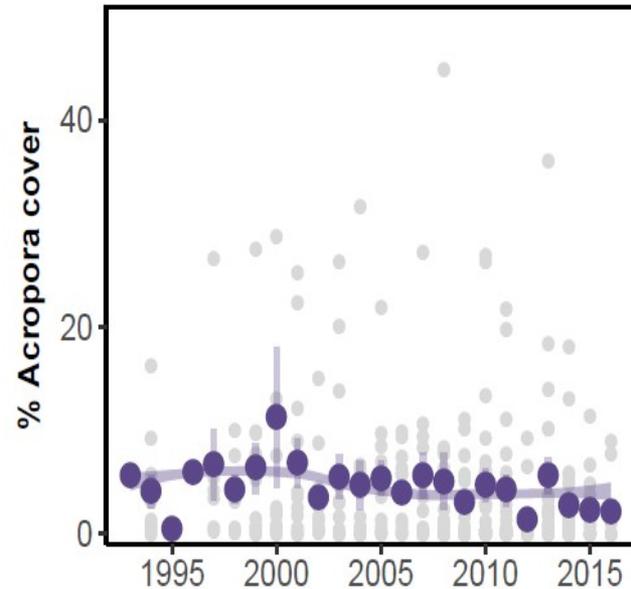
- Mean (25%)
- Live coral cover Stable over the 25 years
- Only a slight decrease (5%) in the last 12 years



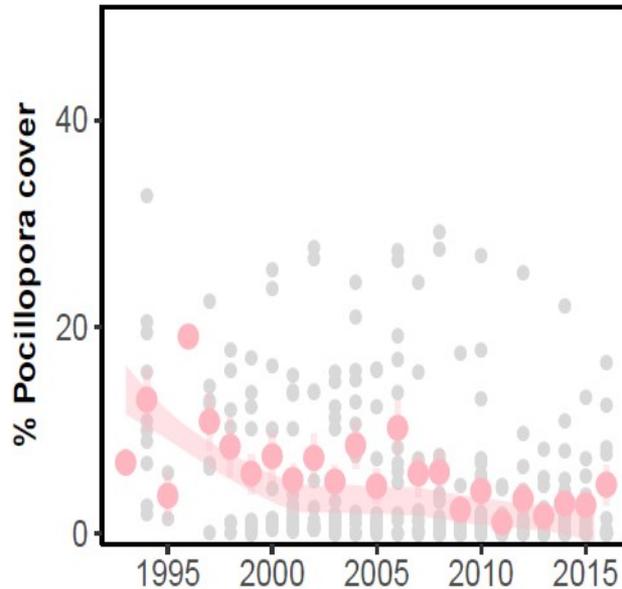
CORALS

Change varies among taxa

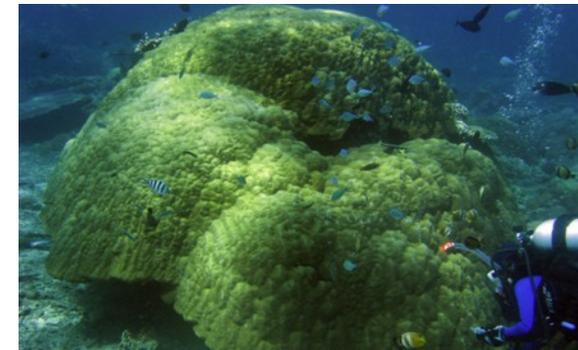
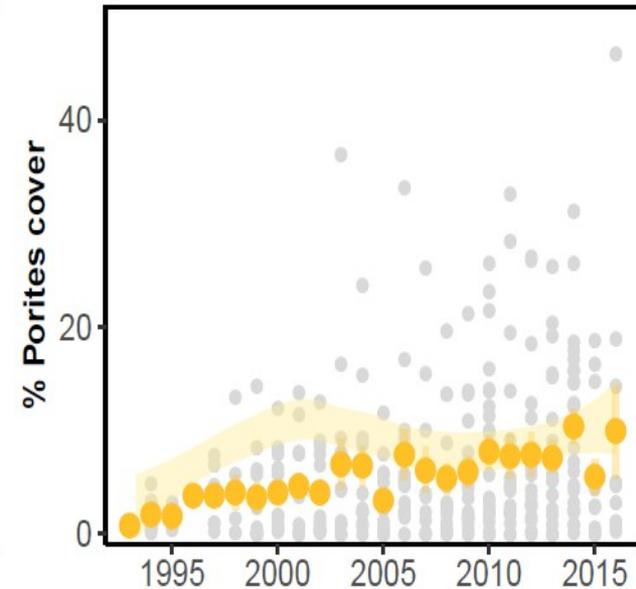
***POCILLIPORA* DECREASED**



***ACROPORA* STABLE**

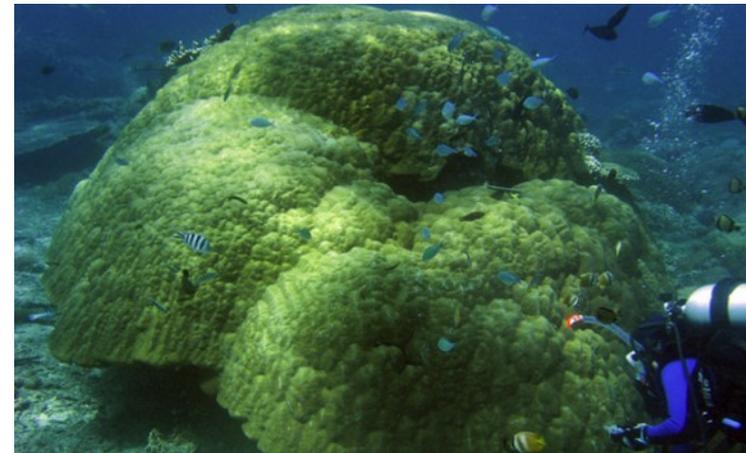
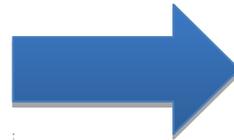
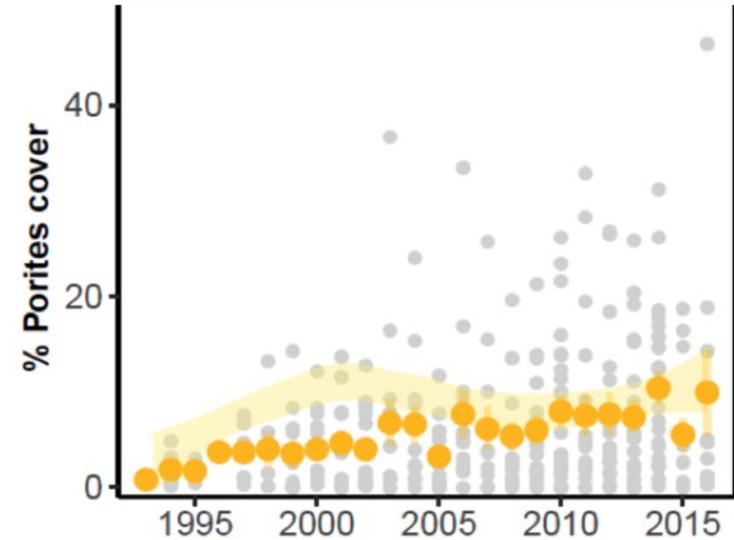


***PORITES* INCREASED**

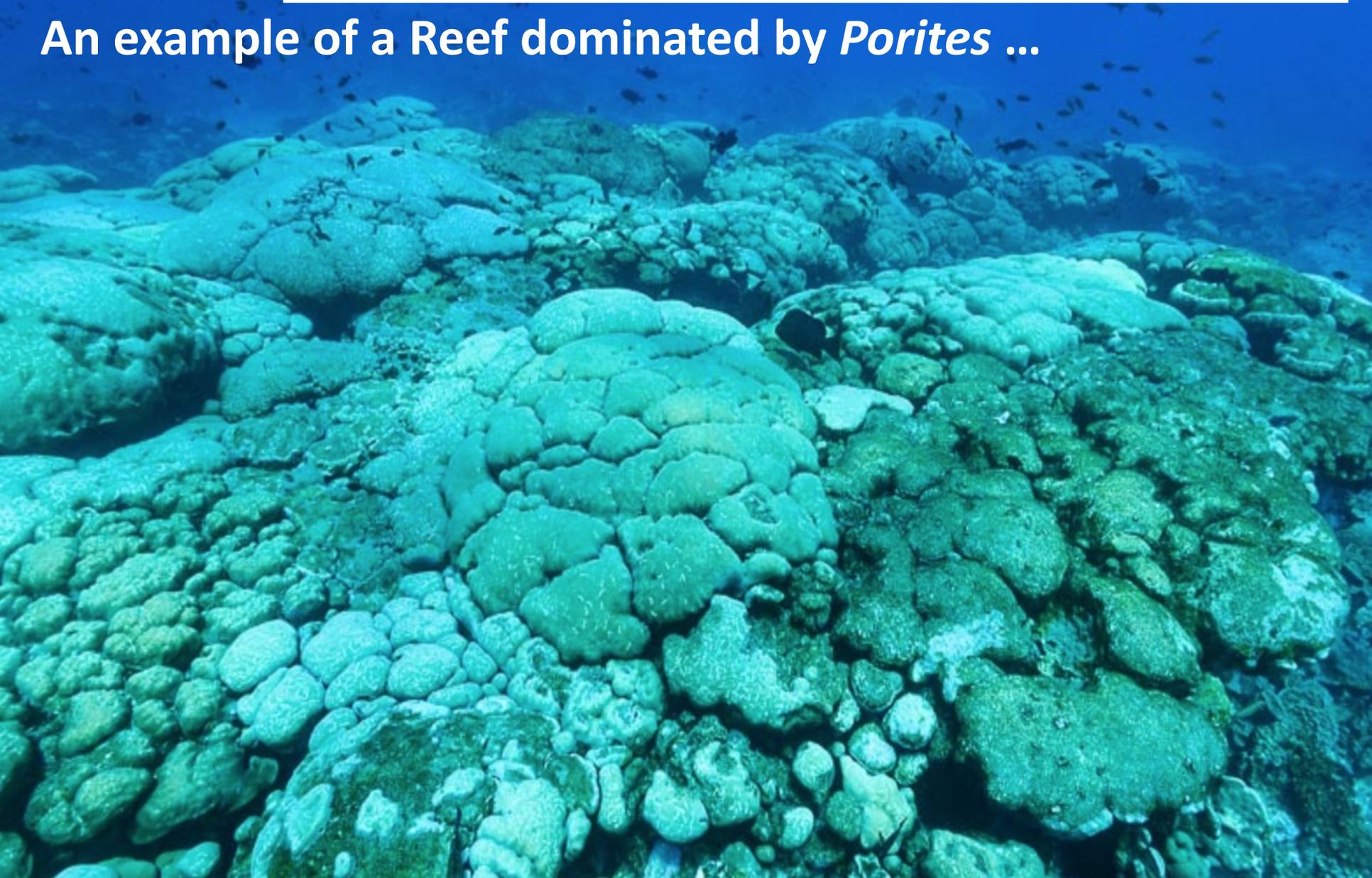


CORALS

- *Porites* increased
- Coral Reefs are changing (new dominance)
- Functions on coral reefs are changing (Different habitats)

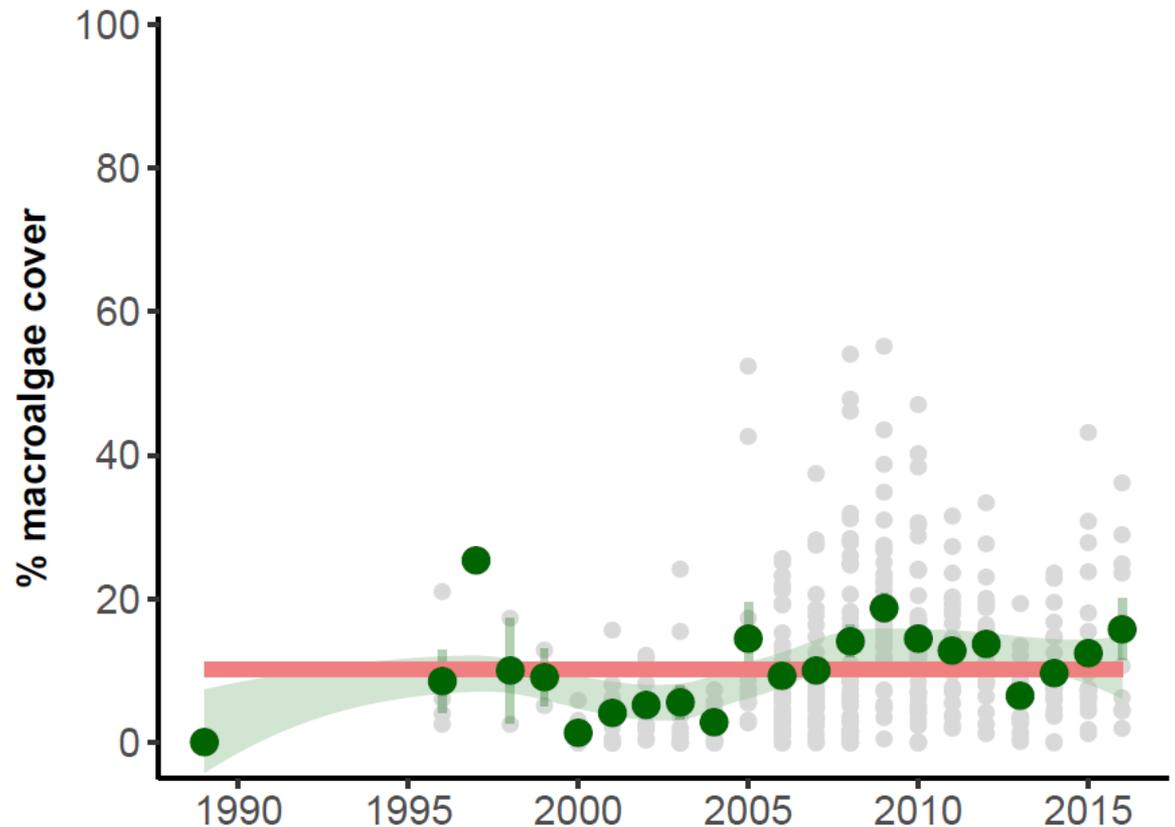
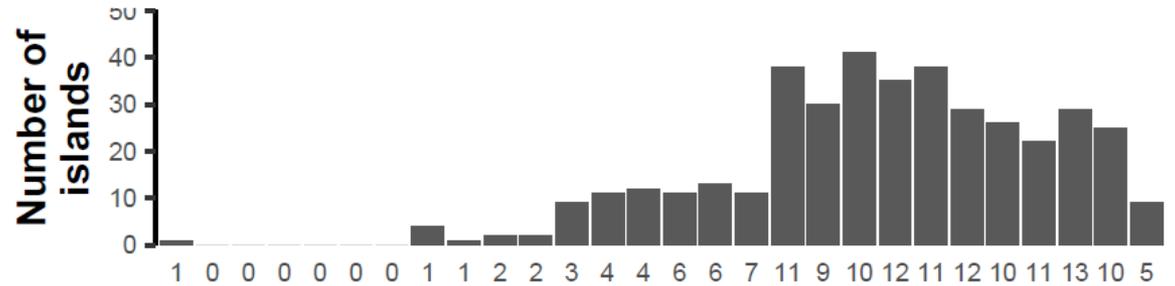


An example of a Reef dominated by *Porites* ...



ALGAE

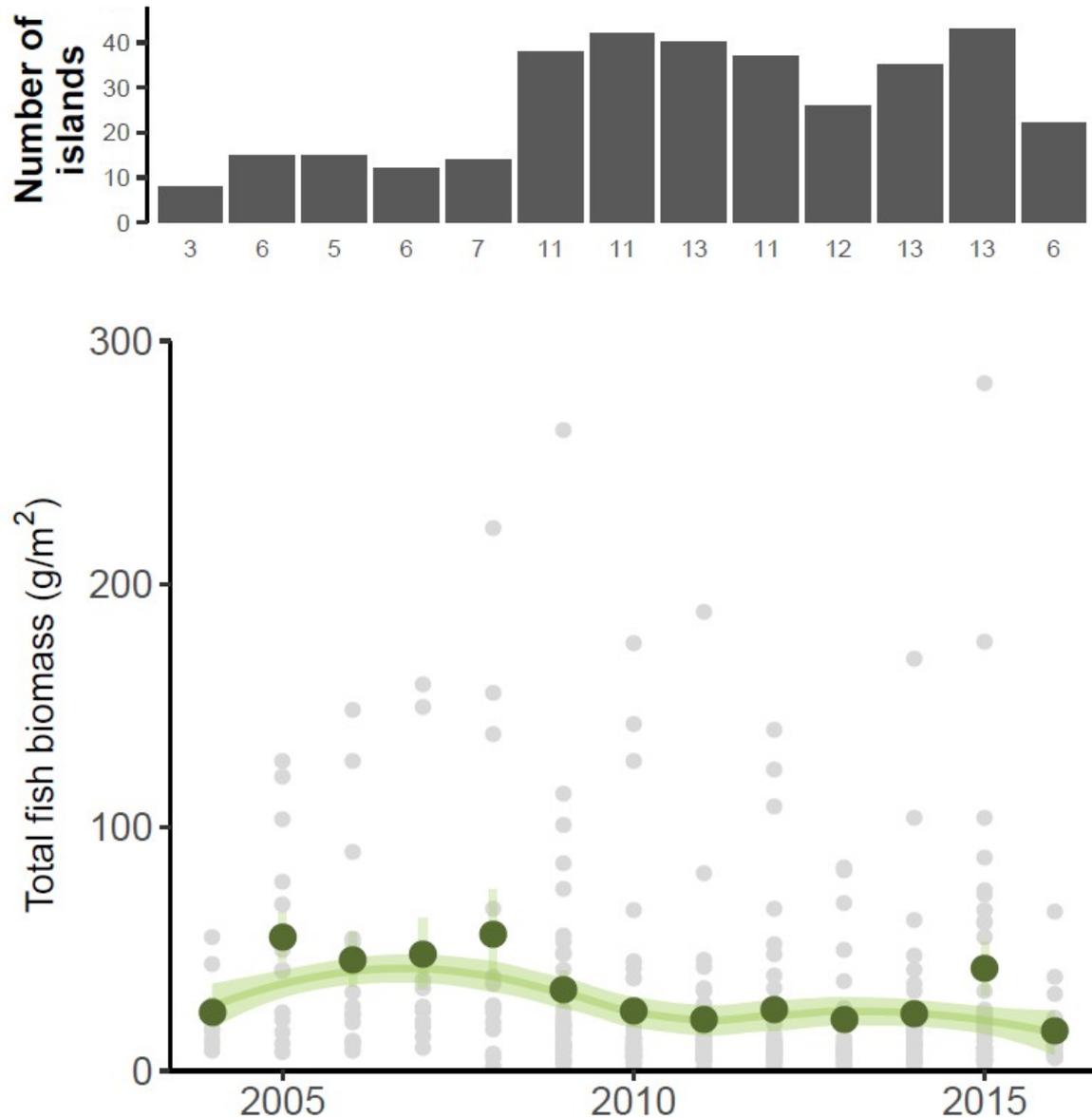
- Algal cover highly variable over the 25 years
- But no overall trends
- Up and Down since 1995



FISH

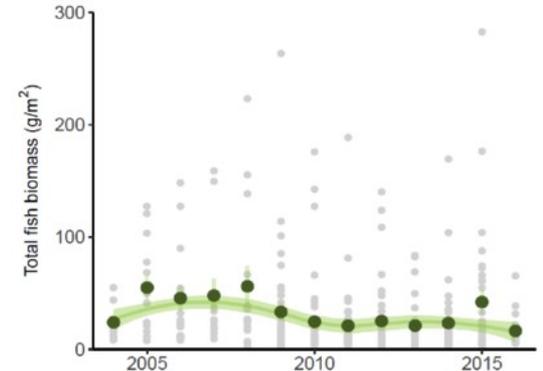
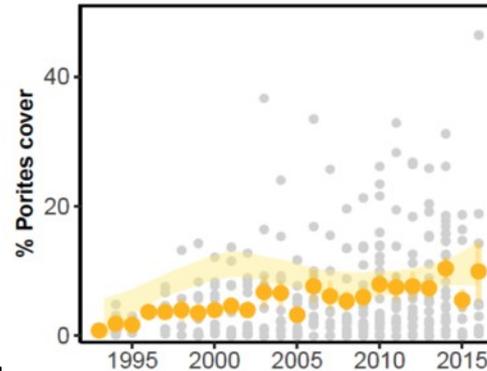
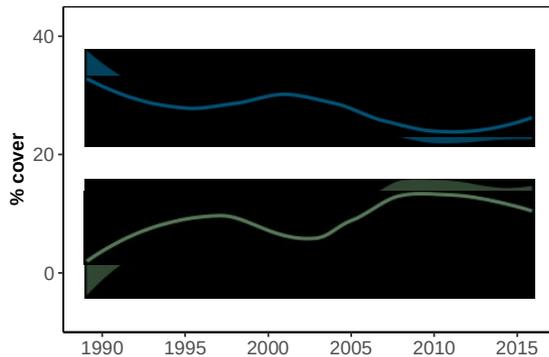
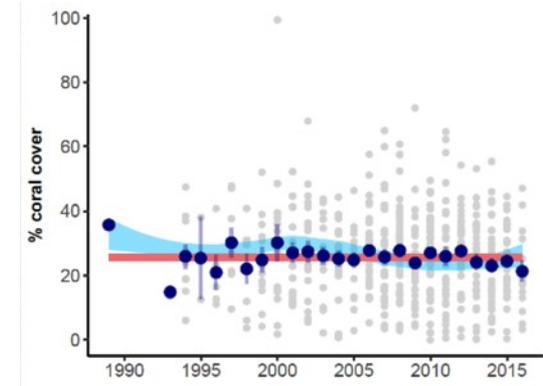
- Total Herbivore fish
Biomass

- Slow decrease



TAKE HOME MESSAGE

- Corals are not significantly declining in the Pacific
- Corals are still the main cover in the Pacific
- Coral assemblages are changing



→ REEFS ARE CHANGING IN THE PACIFIC AND LIKELY TO CHANGE EVEN MORE

=> What will future coral reefs look like ?

=> What will be the consequences for reef services in the future ?

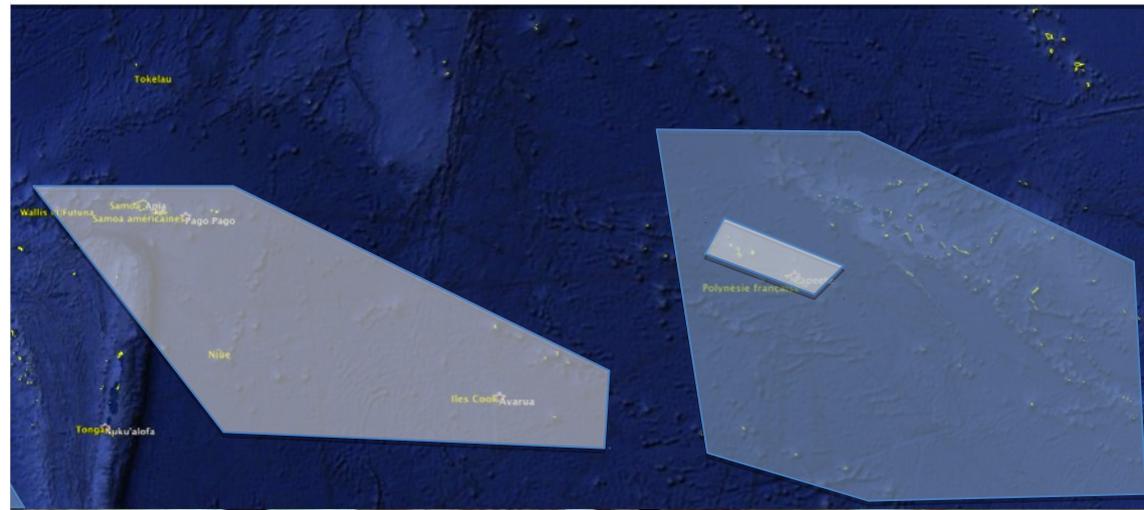
CONTEXT



BLEACHING

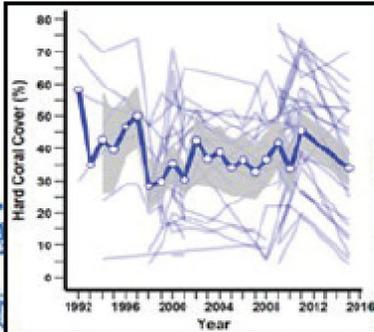
- Coral reefs bleached in 2015, 2016, and in 2017

...but this bleaching was highly variable through space

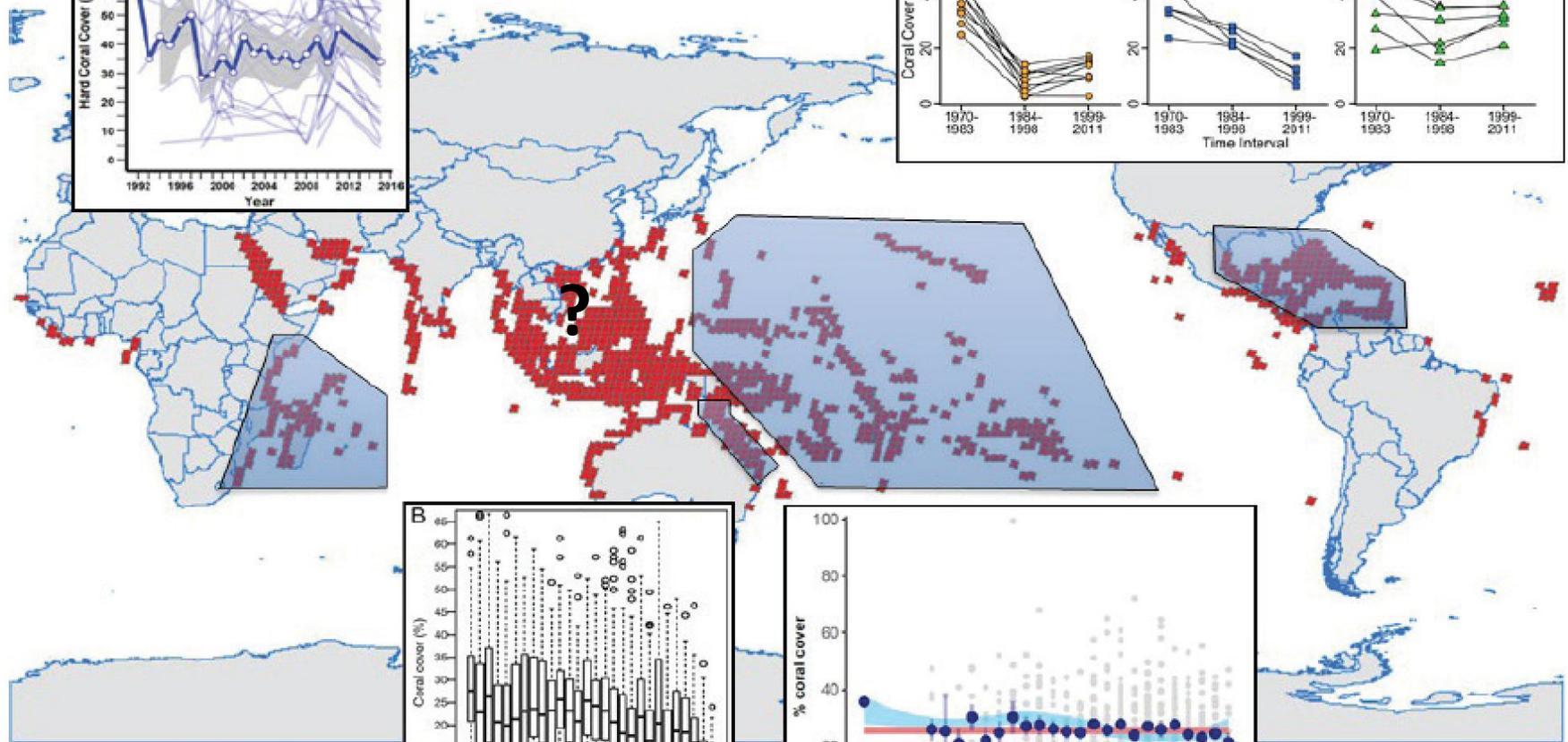
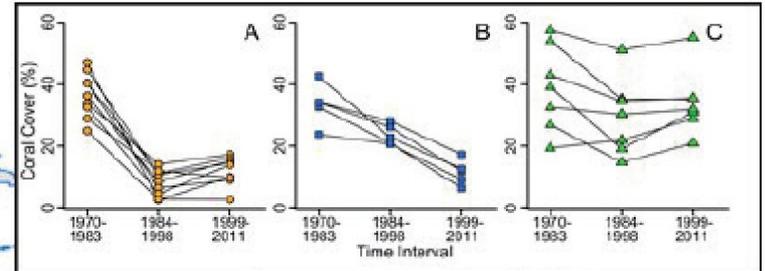


PACIFIC vs. OTHER REGIONS

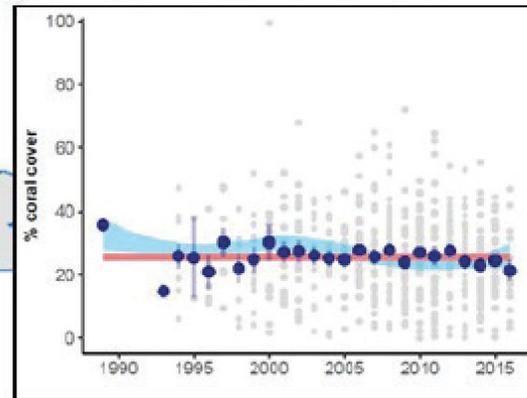
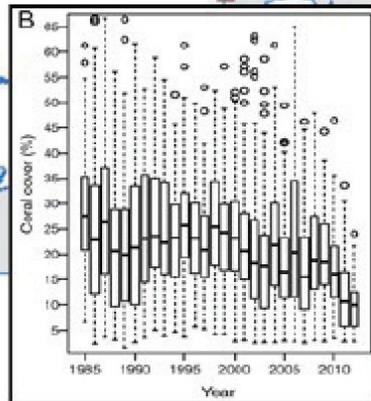
SWIO (4%)



Caribbean (7%)



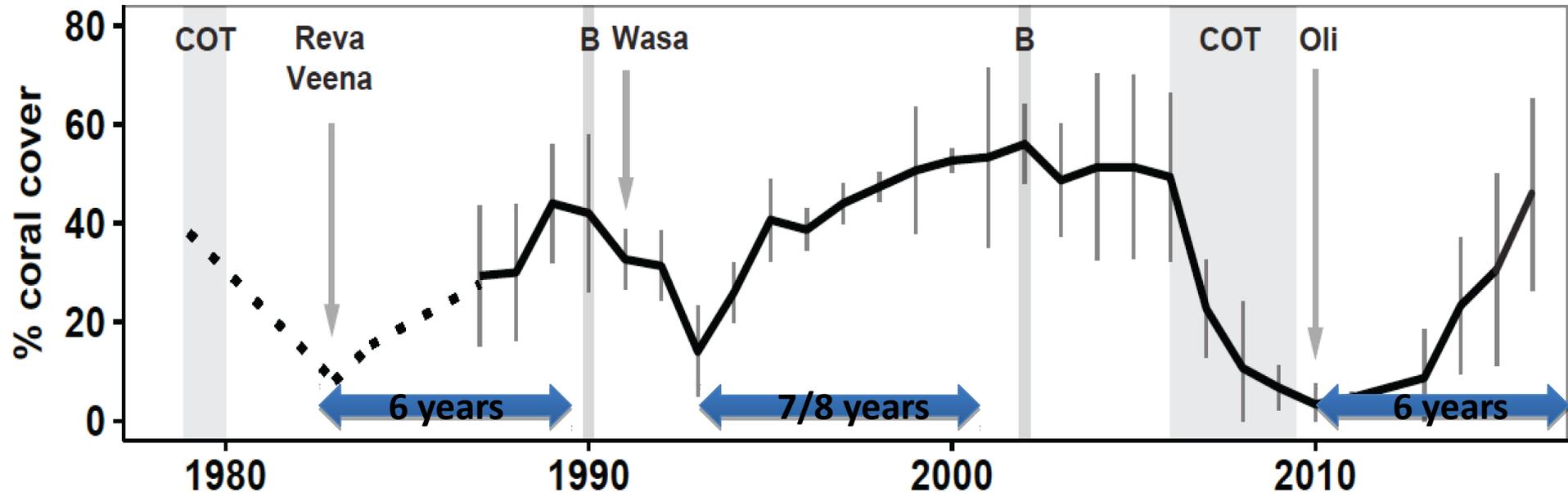
Great Barrier Reef (15%)



Pacific (25%)

CORAL REEF RECOVERY

The story for corals in Moorea shows a dynamic natural recovery



Natural recovery, natural resilience are keys



STATUS AND TRENDS OF CORAL REEFS

THANK YOU

