

# Coral reef fish fisheries: spawning aggregations and threatened species

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- ◆ Reef fish fisheries overview
- ◆ Threats to reef fishes
  - Biology
  - Spawning aggregations
- ◆ Next steps?



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# Threats to reef fishes



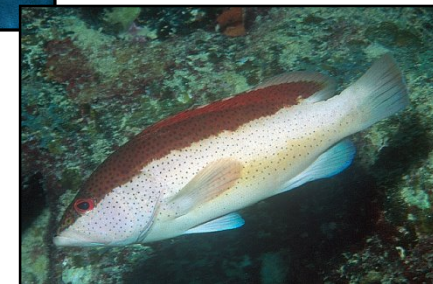
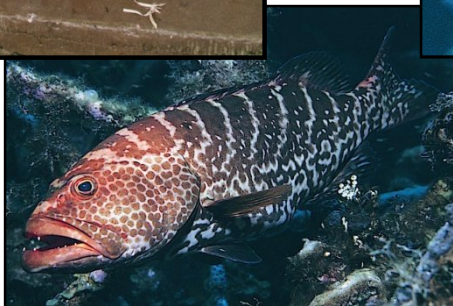
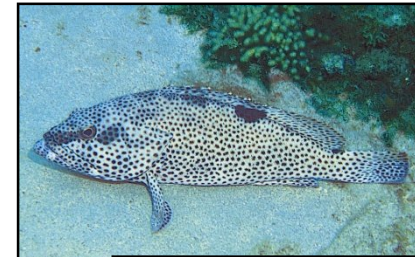
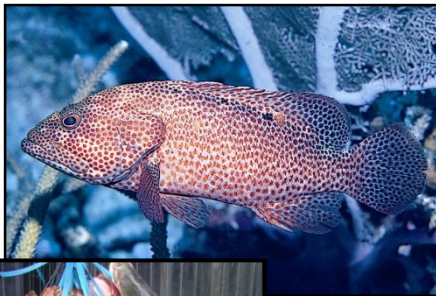
- ❑ Long-lived, late maturing, often associated with large body size, high value
- ❑ Specializations that increase susceptibility to capture (e.g. predictable spawning aggregations)

# Threatened according to IUCN Red List criteria/categories

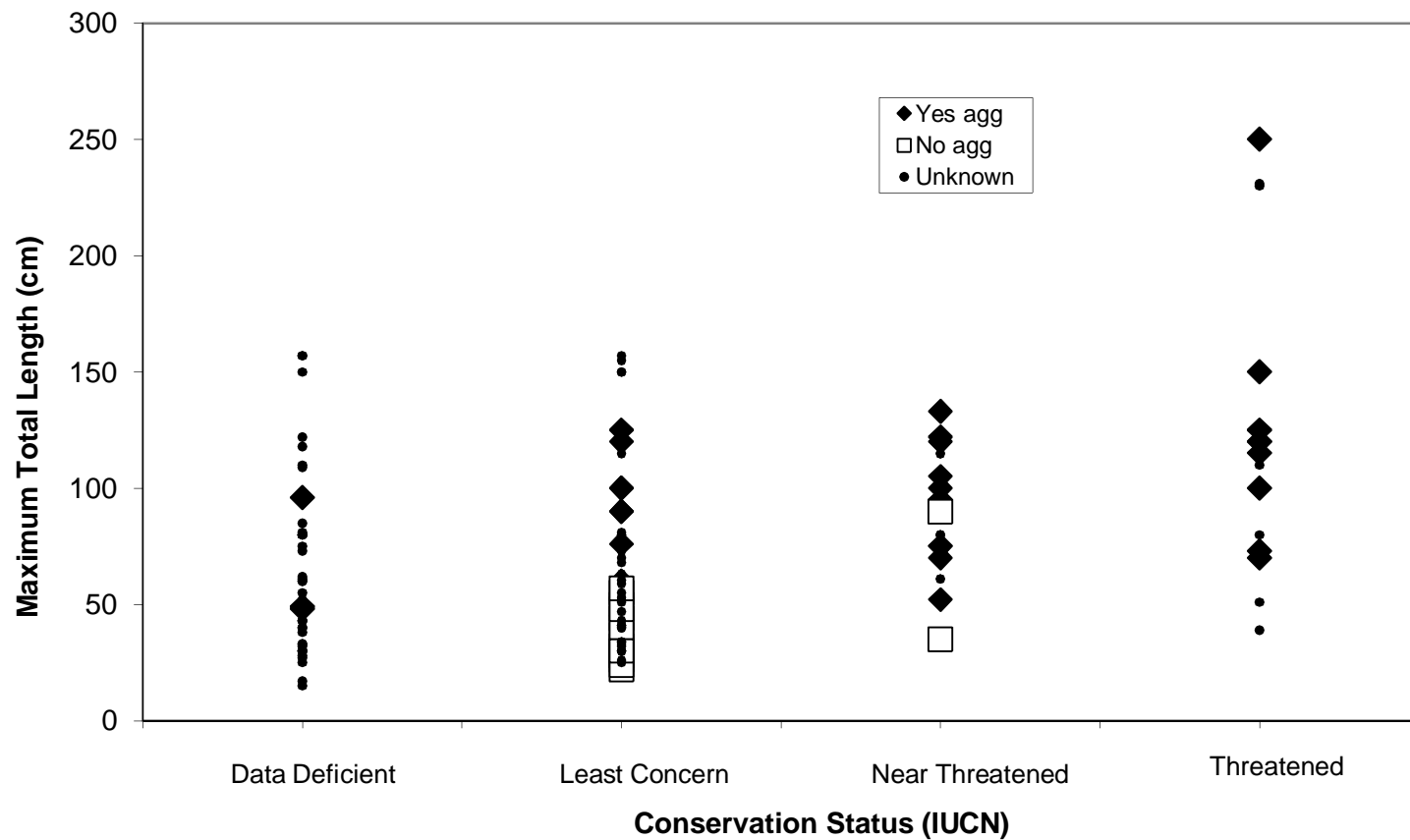




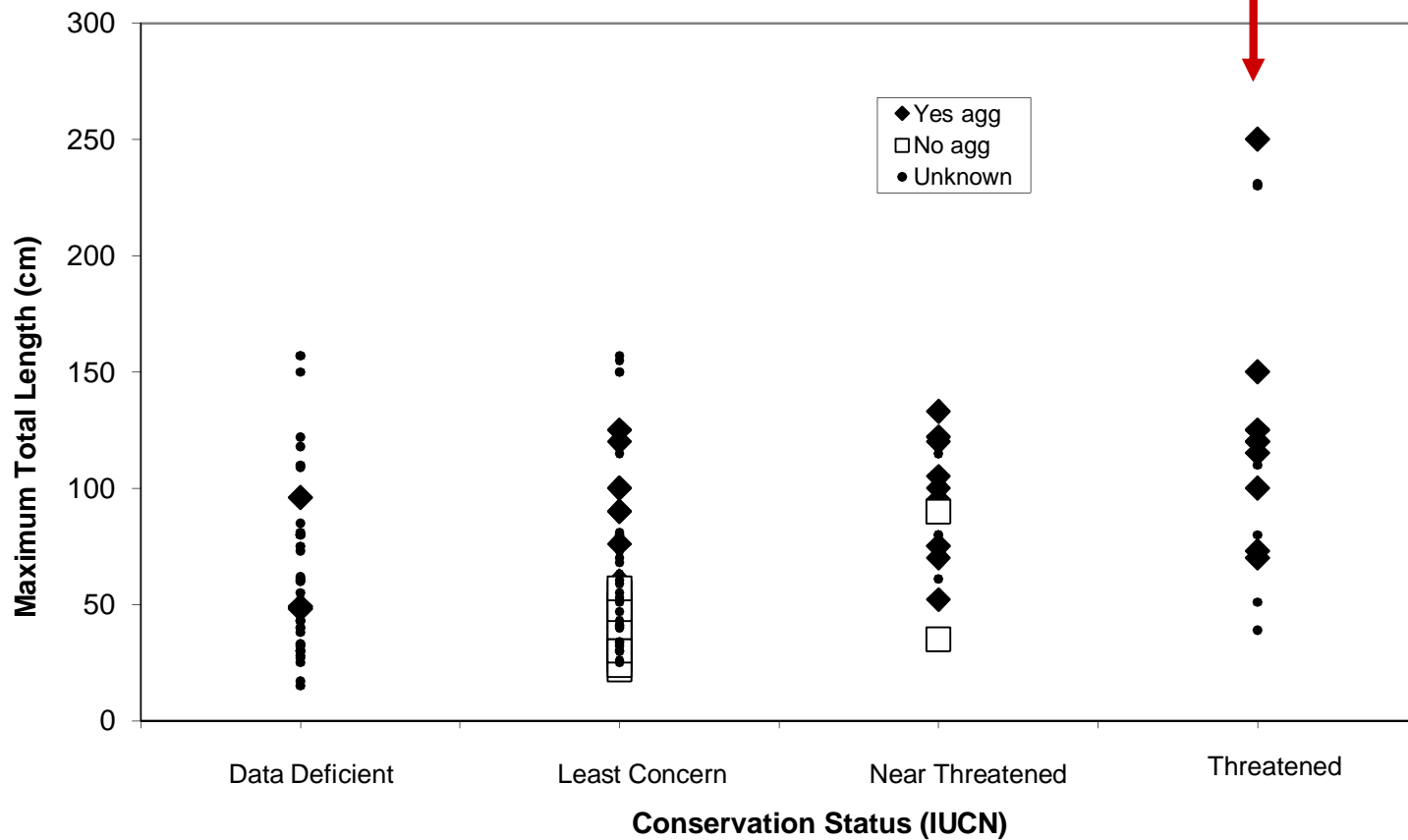
# Groupers – 162 species globally (Family Serranidae)



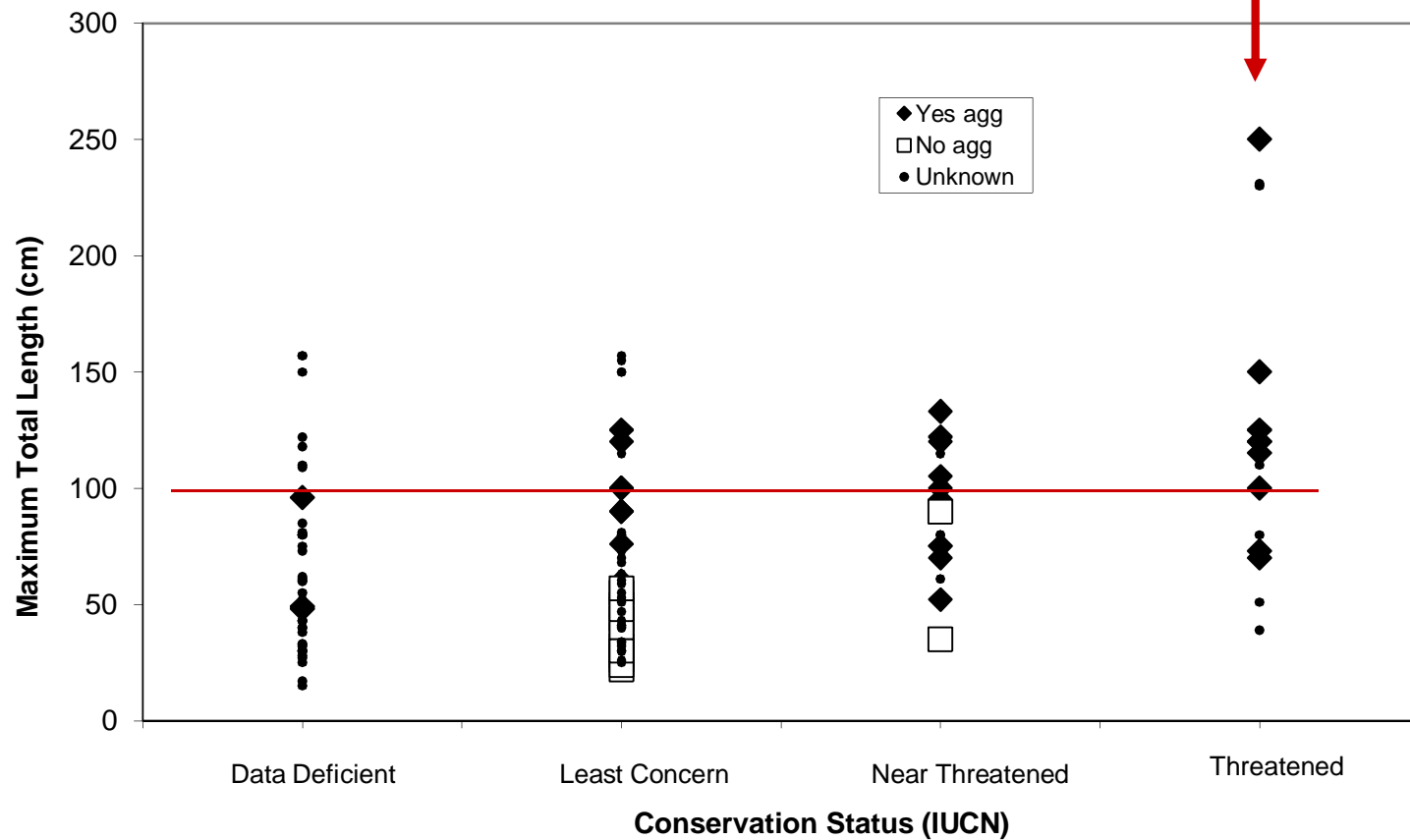
# Groupers and IUCN Red List status



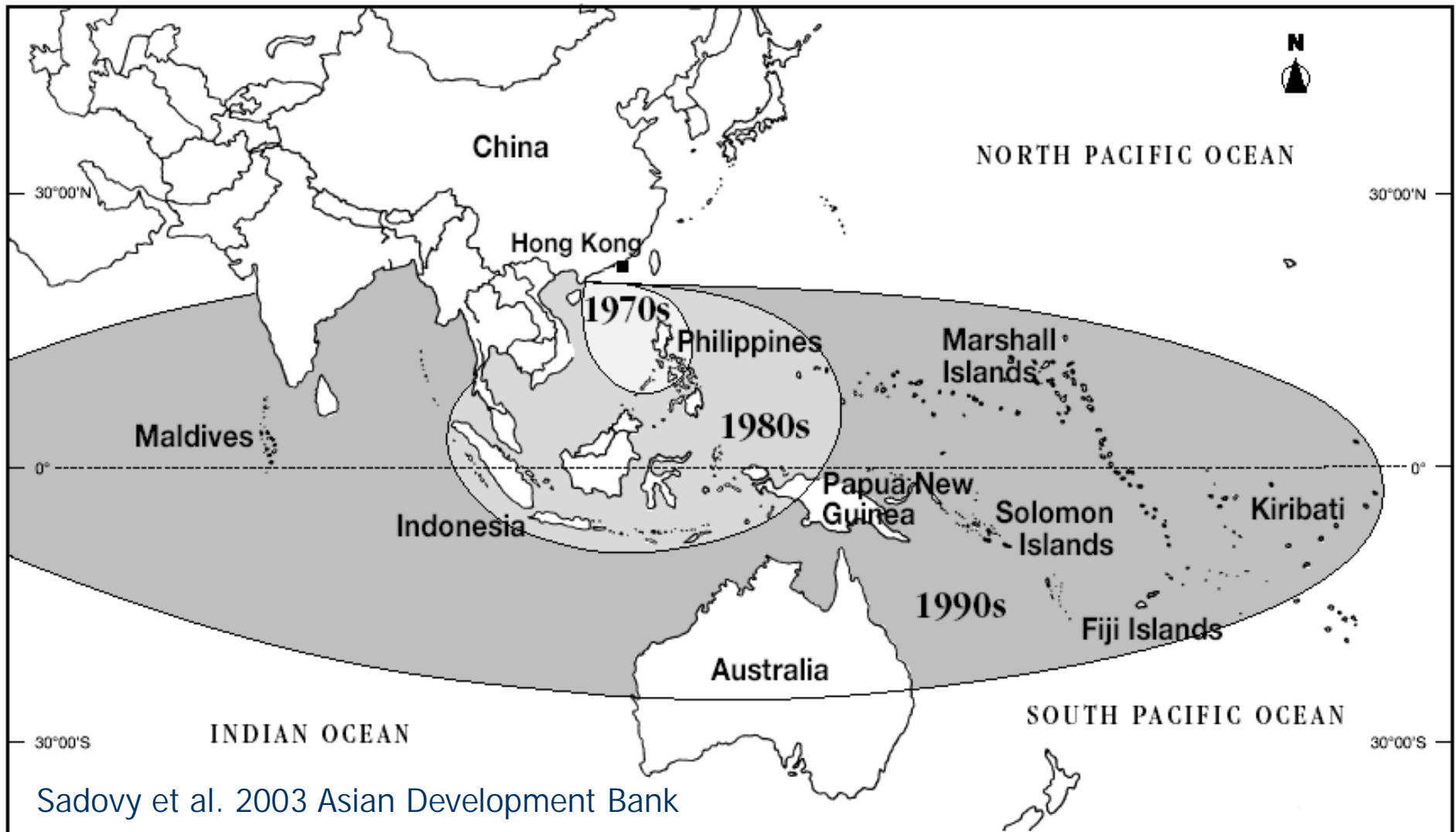
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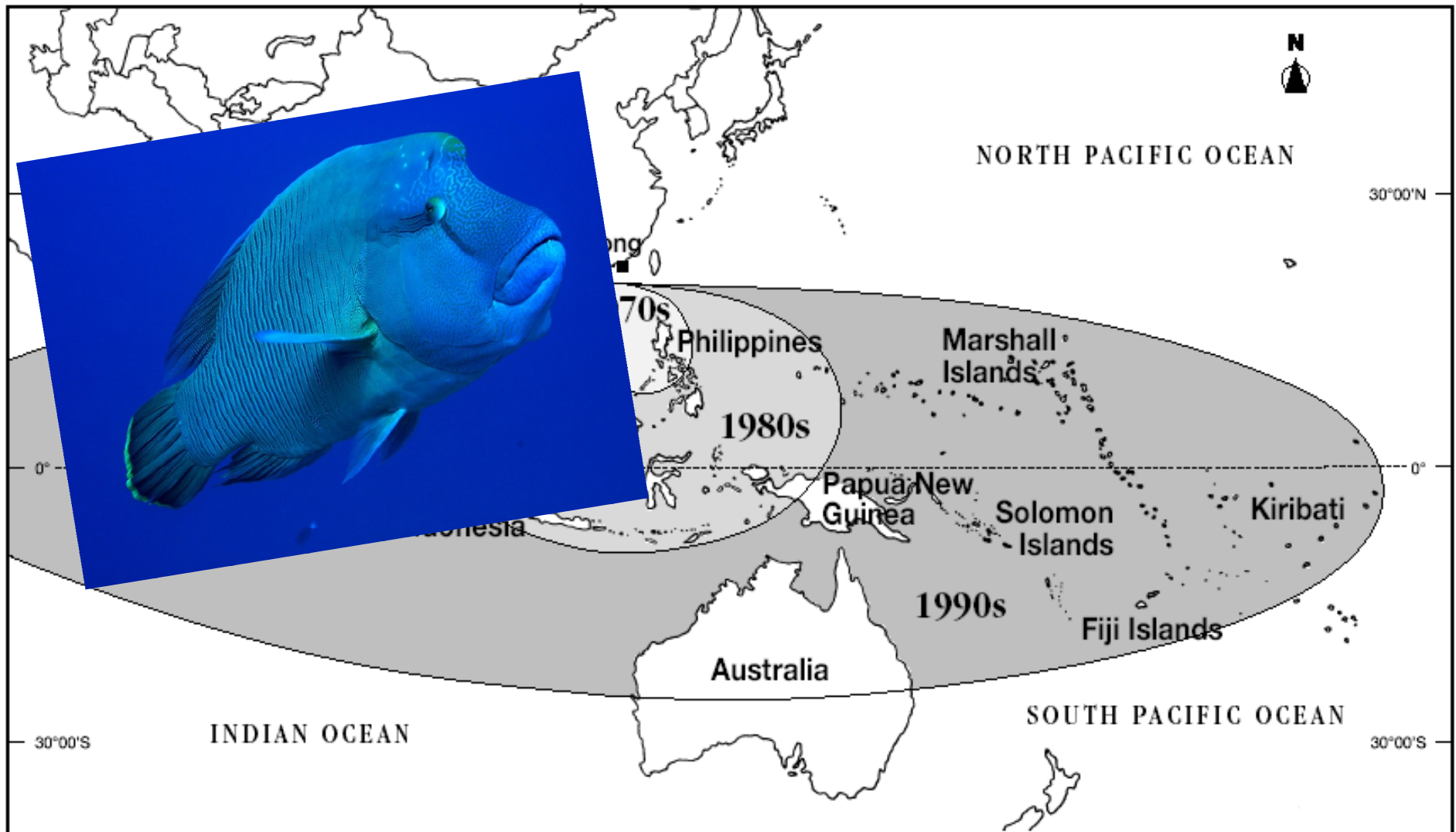
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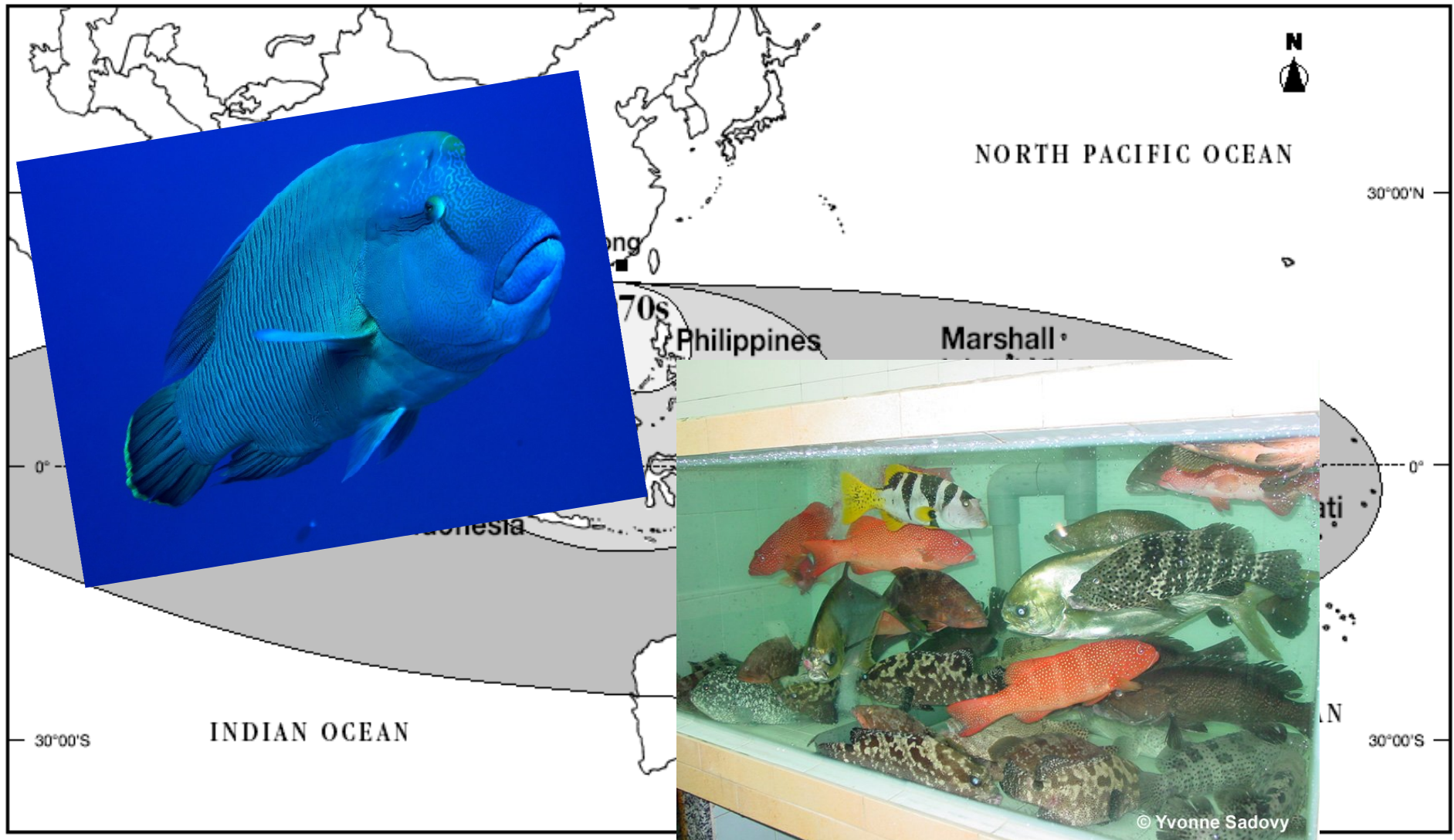




Spread of high value international  
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# Threats to reef fishes



- ❑ Long-lived, late maturing, often associated with large body size, high value
- ❑ Specializations that increase susceptibility to capture (e.g. predictable spawning aggregations and migrations)

What are  
spawning  
aggregations?

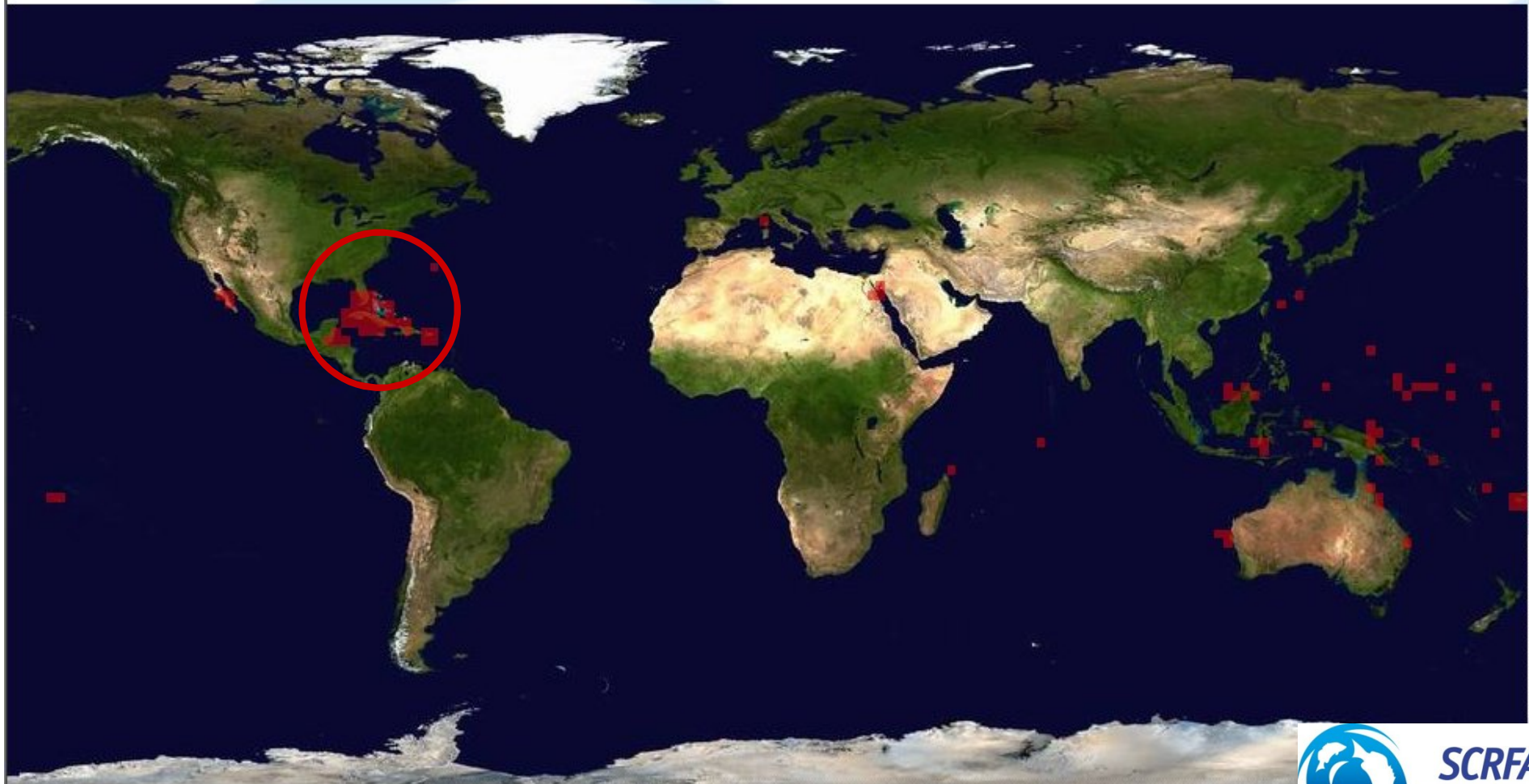


# Some aggregating species



Information of the fields returned by the search can be viewed [here](#).

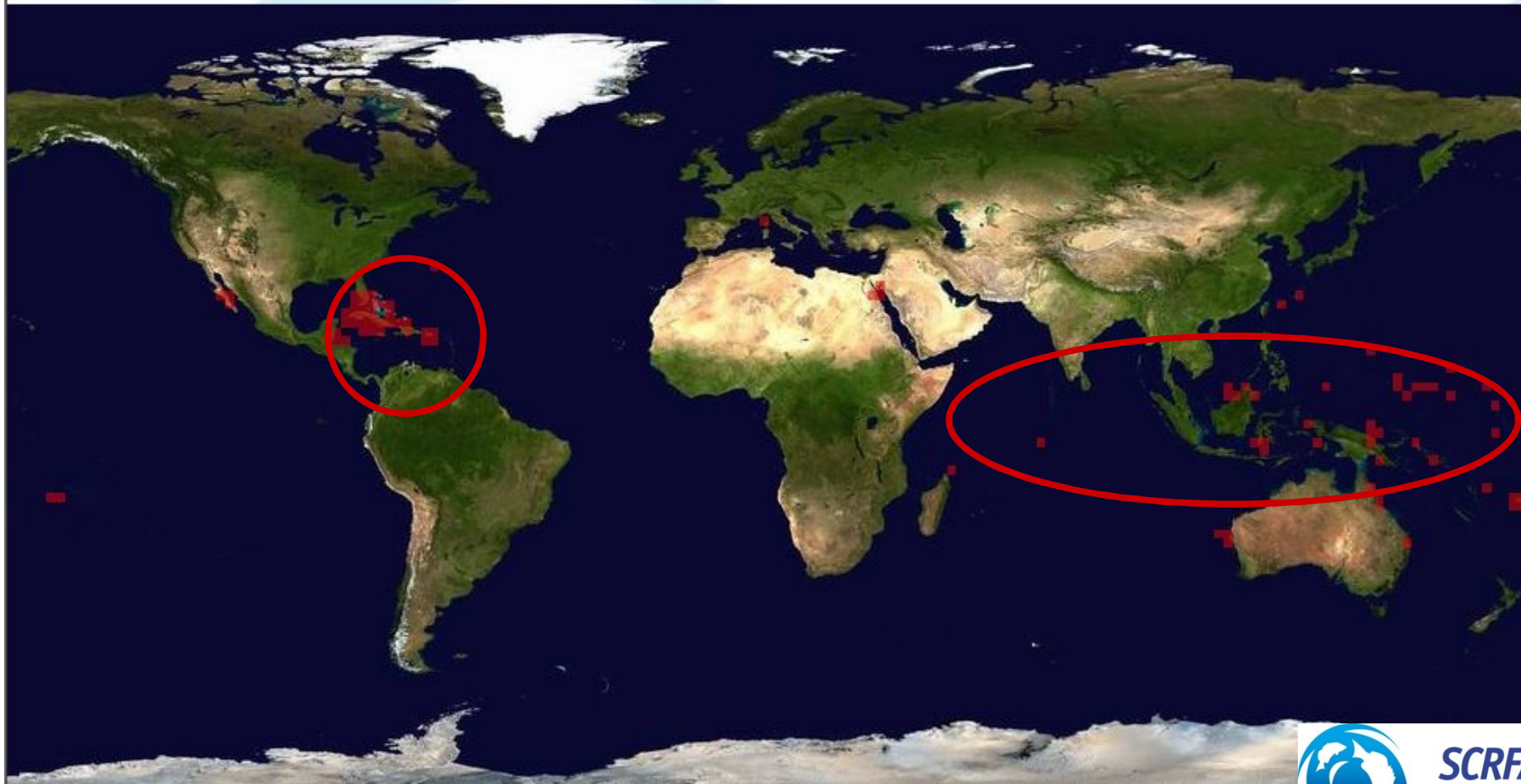
[www.SCRFA.org](http://www.SCRFA.org)

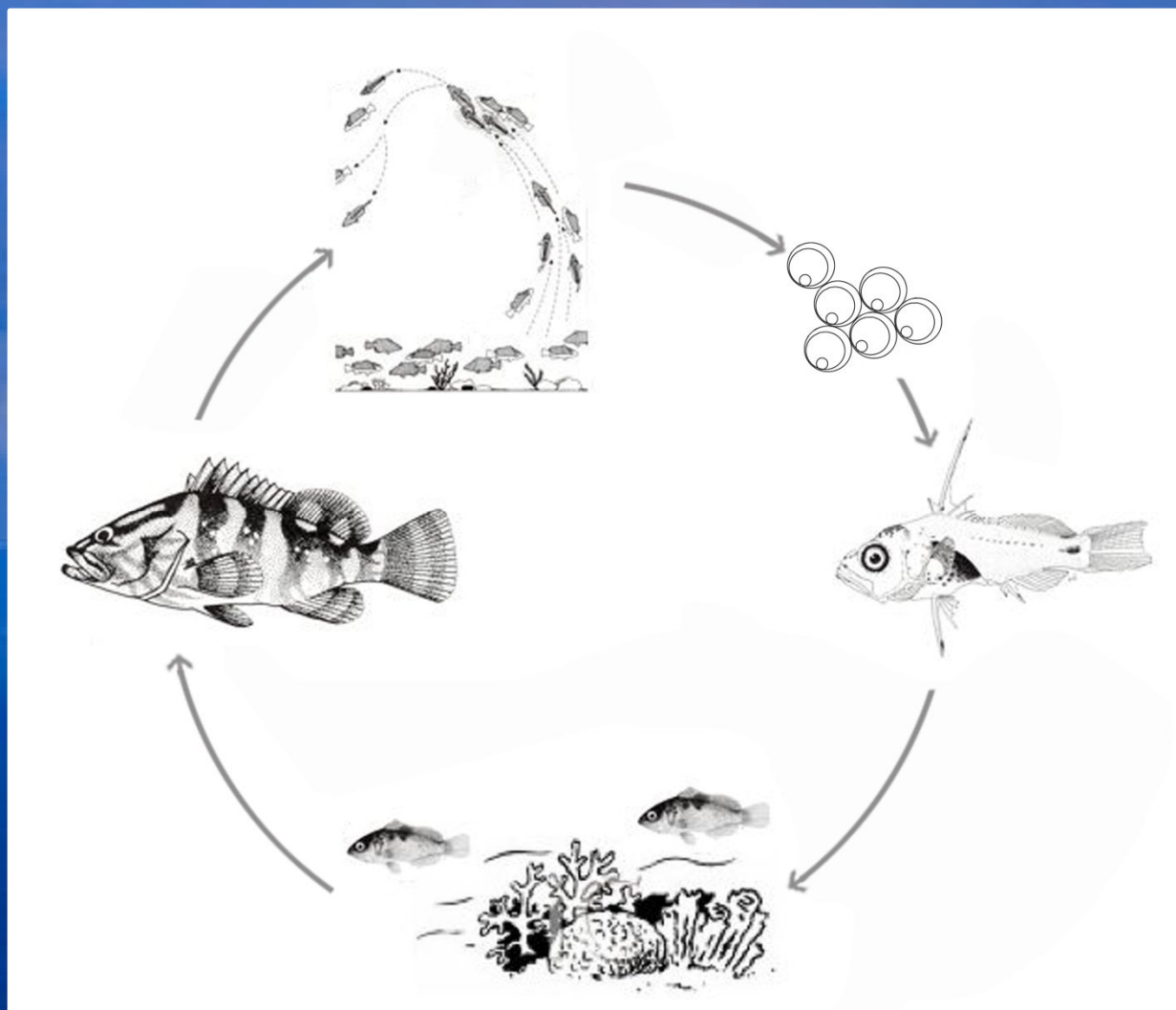




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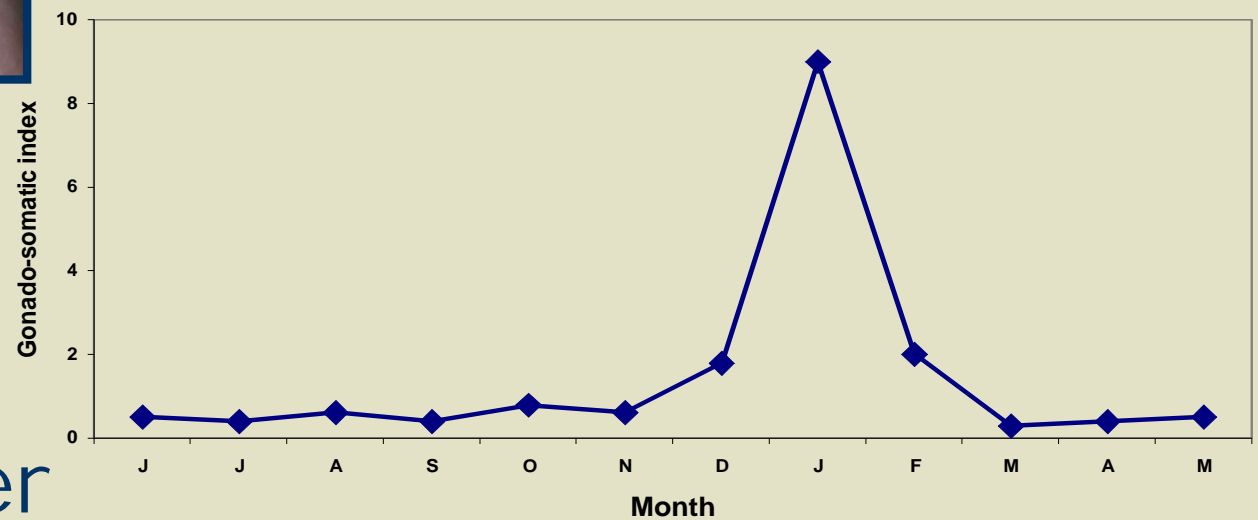








Monthly mean gonadosomatic index of Nassau grouper, showing largest ovary size in January, at peak spawning when the spawning aggregation forms



Nassau grouper









Enric Sala





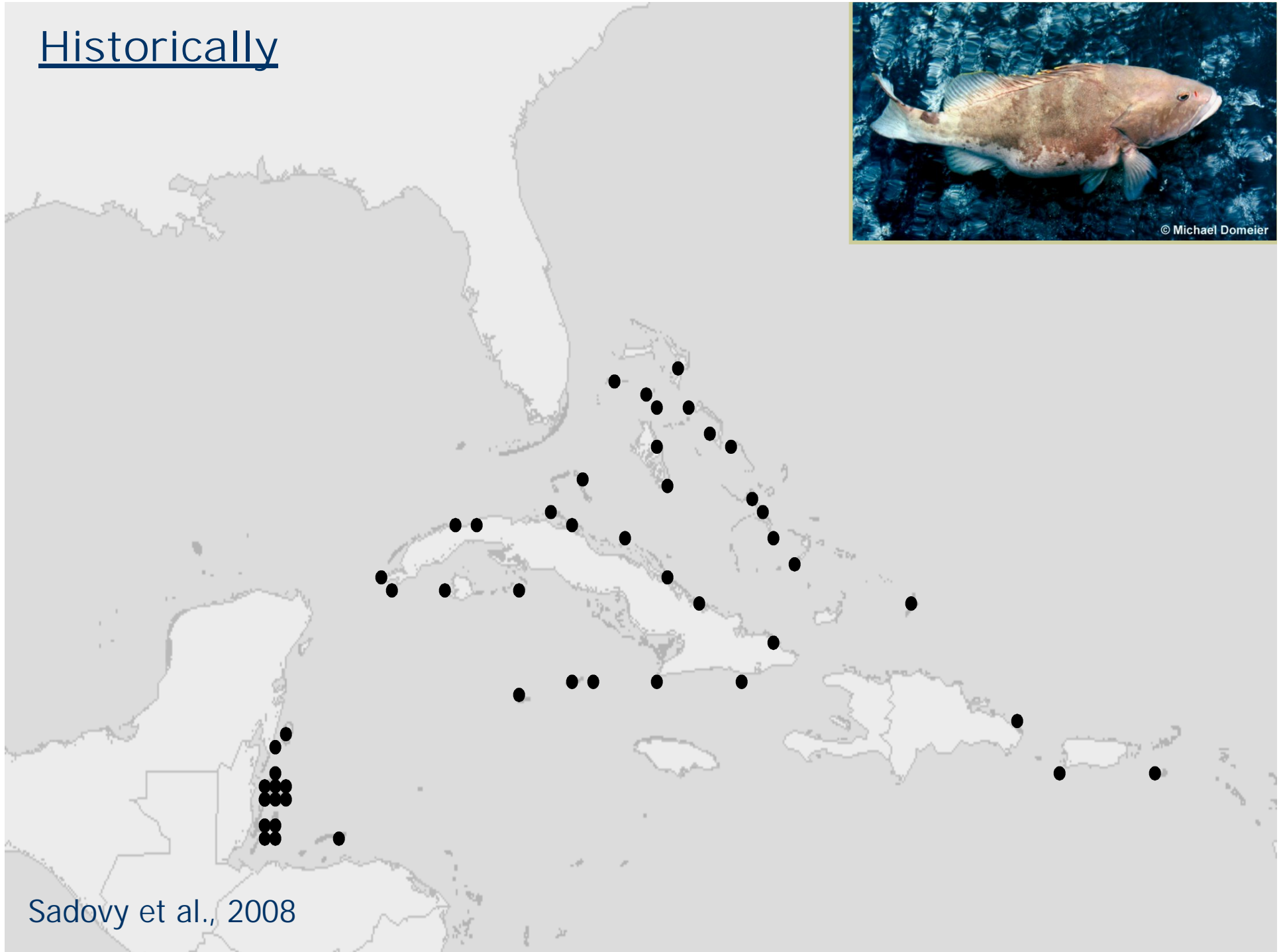


Nassau grouper project – Belize





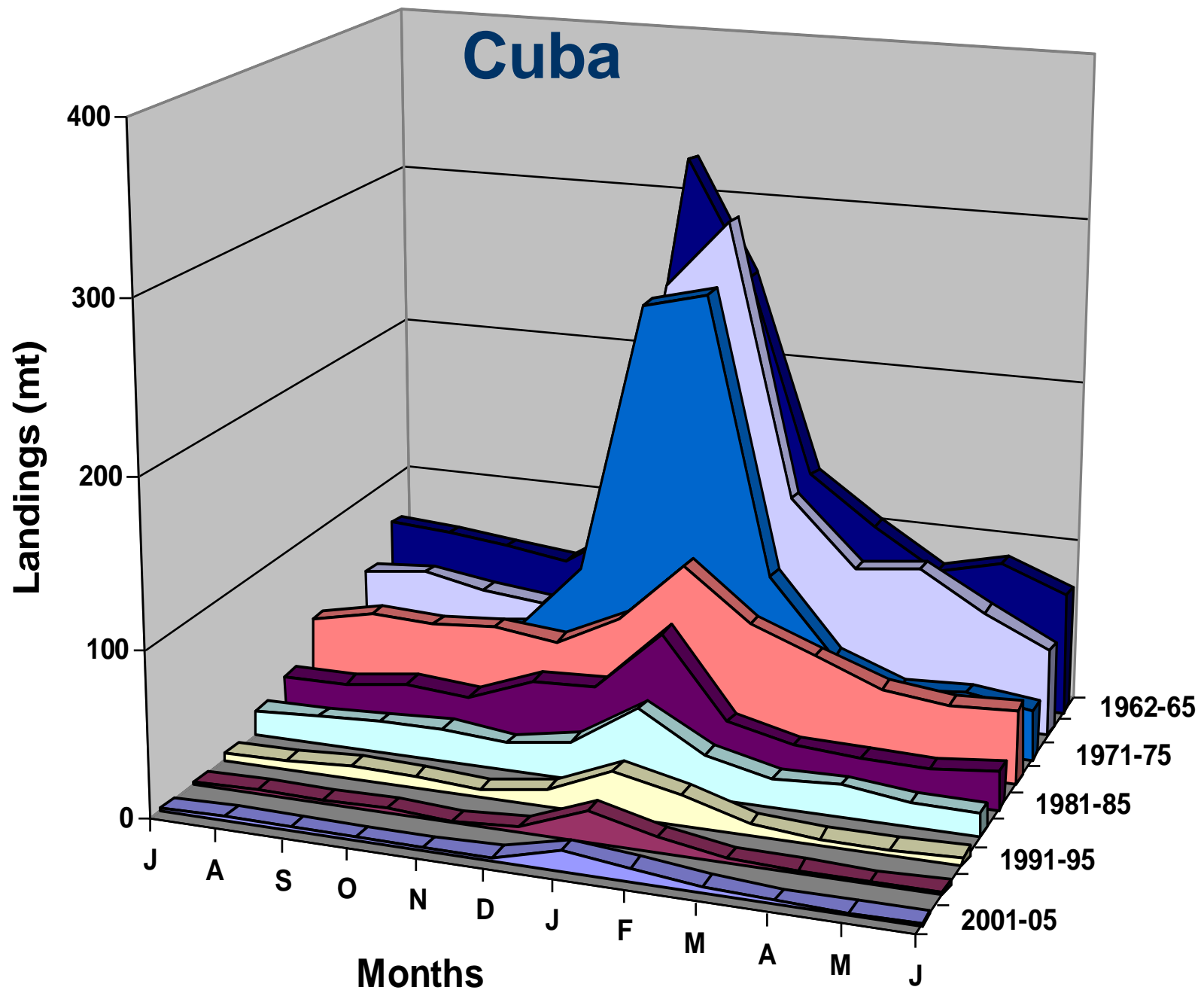
# Historically

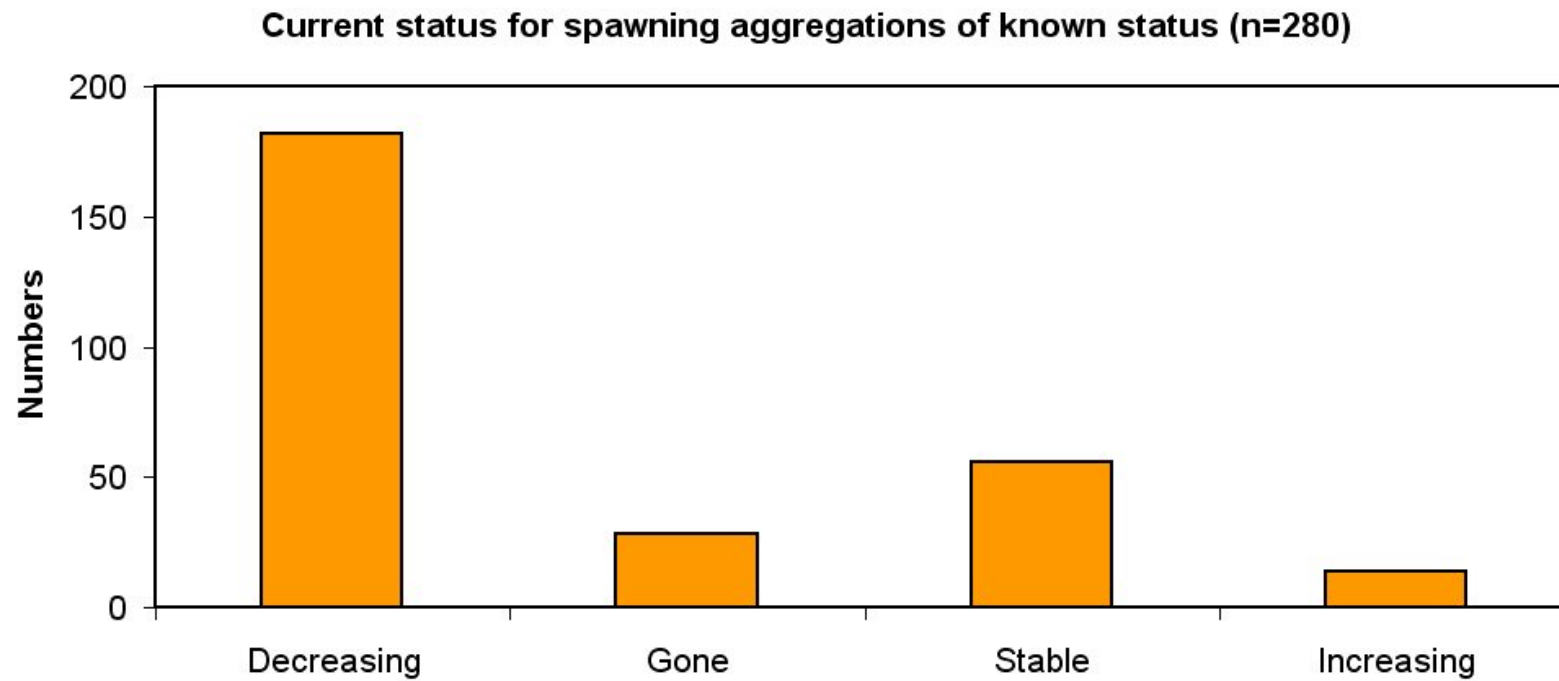


Sadovy et al., 2008

Today (threatened largely due to uncontrolled aggregation fishing)



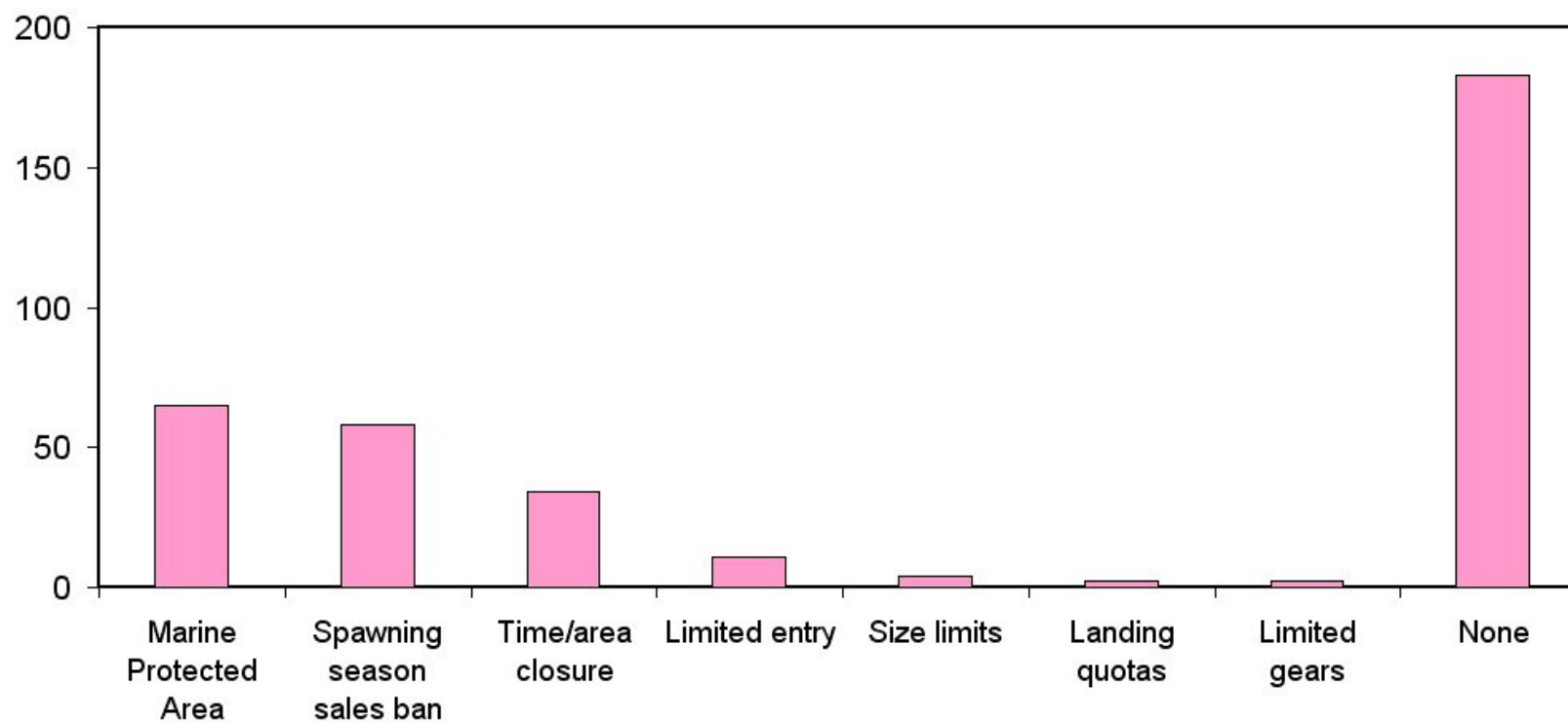




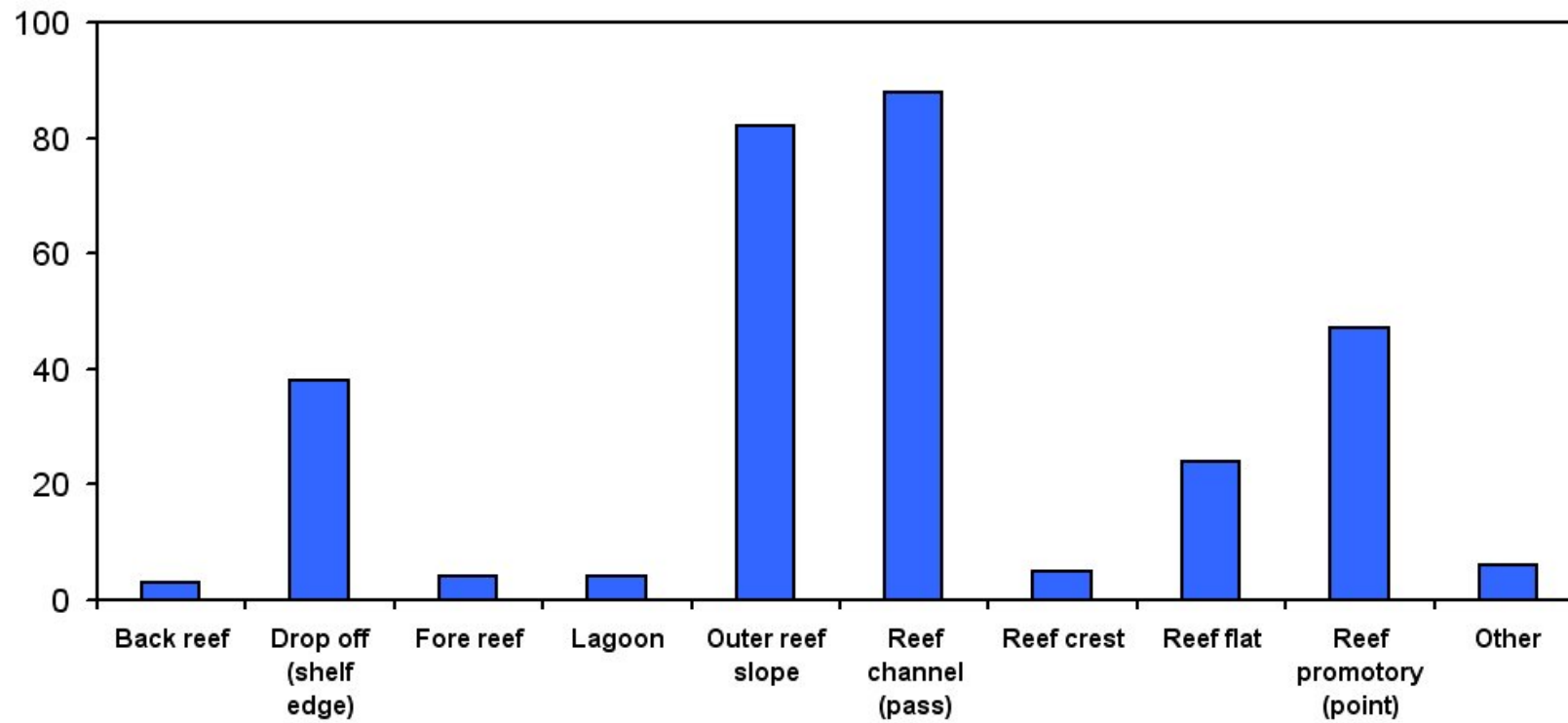
[www.scrfa.org](http://www.scrfa.org)



Types of management in place to protect spawning aggregations (n=359)

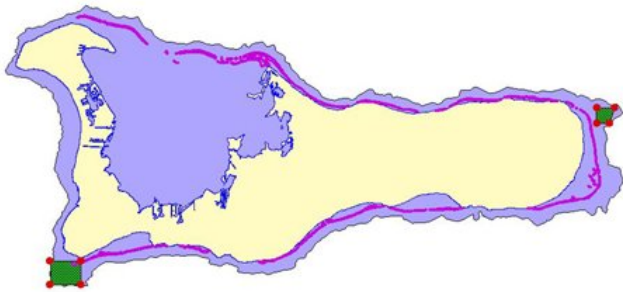


**Geomorphological types recorded at spawning aggregations sites (n=248)**



# Outer reef/shelf/drop-off

**Grand Cayman & 12-Mile Bank  
Grouper Spawning Areas**





# Next steps?



- ◆ Indicators: threatened species; spawning aggregations
- ◆ MPAs to include habitats where aggregations are common (e.g. outer reefs), and those of threatened species
- ◆ Awareness (e.g. the 'bigger picture' such as non-extractive benefits/value of aggregations)





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An underwater photograph showing a large group of fish, likely groupers, swimming in a deep blue ocean. The fish are clustered together, and the water is clear with some light filtering from above.

## *Non-extractive benefits*

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- ◆ Implementation of existing legislation and FAO Code of Conduct, Resolutions, etc. as assessed by tangible outcomes (such as convictions).
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- ◆ ICRI and fisheries – what role?



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# CITES Appendix II for sustainable international trade



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FAO Fisheries Circular No. 1023

FIMF/C1023 (En)

ISSN 0429-9329

## STOCK ASSESSMENT APPROACH FOR THE NAPOLEON FISH, *CHEILINUS UNDULATUS*, IN INDONESIA

A tool for quota-setting for data-poor fisheries under CITES Appendix II  
Non-Detriment Finding requirements



[www.humpheadwrasse.info](http://www.humpheadwrasse.info)

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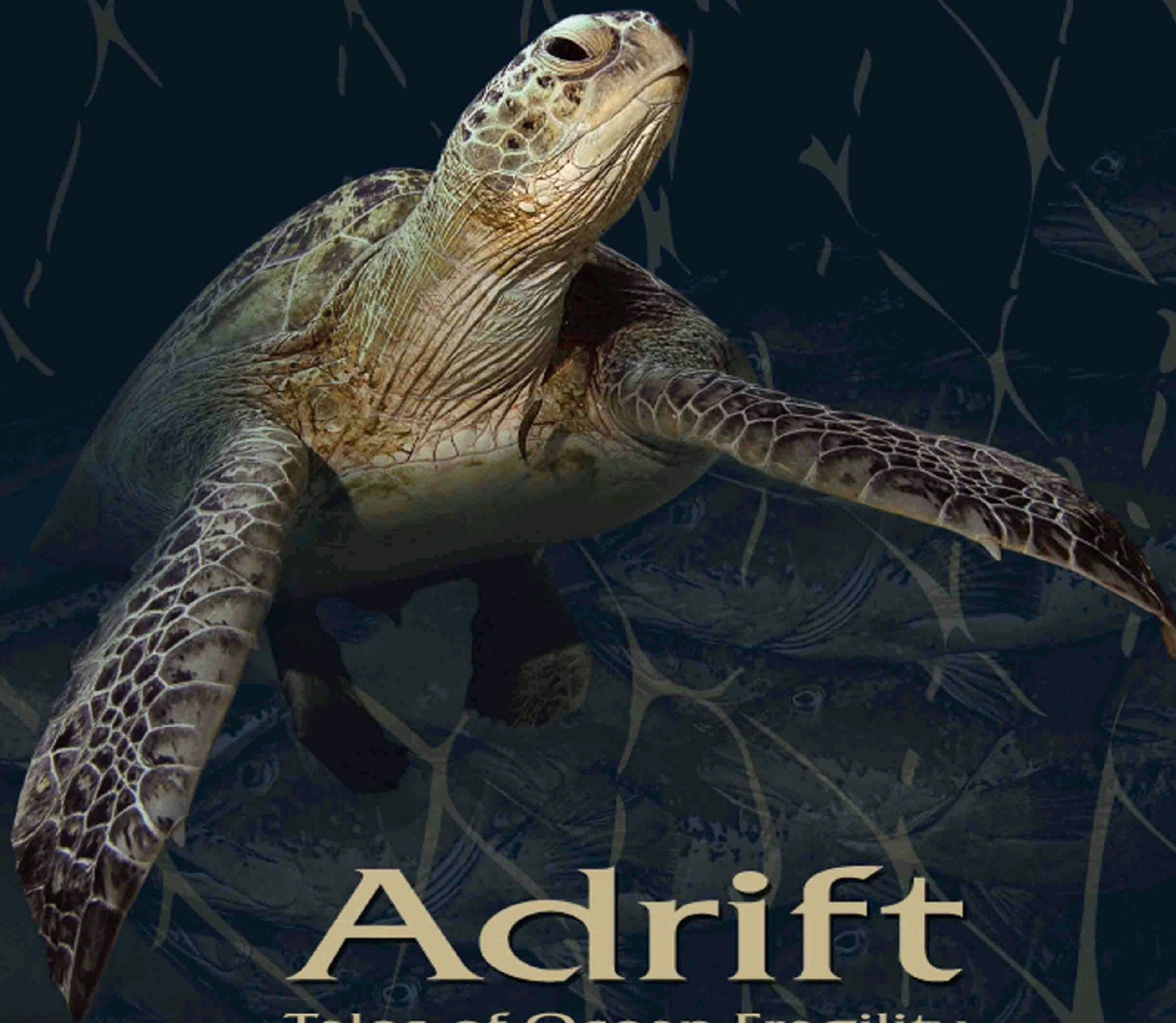
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ADRIFT Tales of Ocean Fragility



# Adrift

Tales of Ocean Fragility

