

Management of Reef Fish Spawning Aggregations

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With the support of:



SCRFA
SOCIETY FOR THE CONSERVATION
OF REEF FISH AGGREGATIONS





- **Reef fisheries >10% of global fishery landings**
- **Support and nourish millions**
- **Pressures to exploit them growing**
- **Many valuable species aggregate to spawn and are easily overfished**
- **Little management, conservation or monitoring**

Aggregating fishes make up circa 70% of Fiji coastal catches; most of the 22 reported aggregations undergoing decline





What are spawning aggregations and why are they so important?



© Michael I



cm scale

Pat Colin



Pat Colin



Spawning aggregations



- **Global and local trends**
- **Threatened fisheries and species**
- **Challenges to management**
- **Possible solutions**

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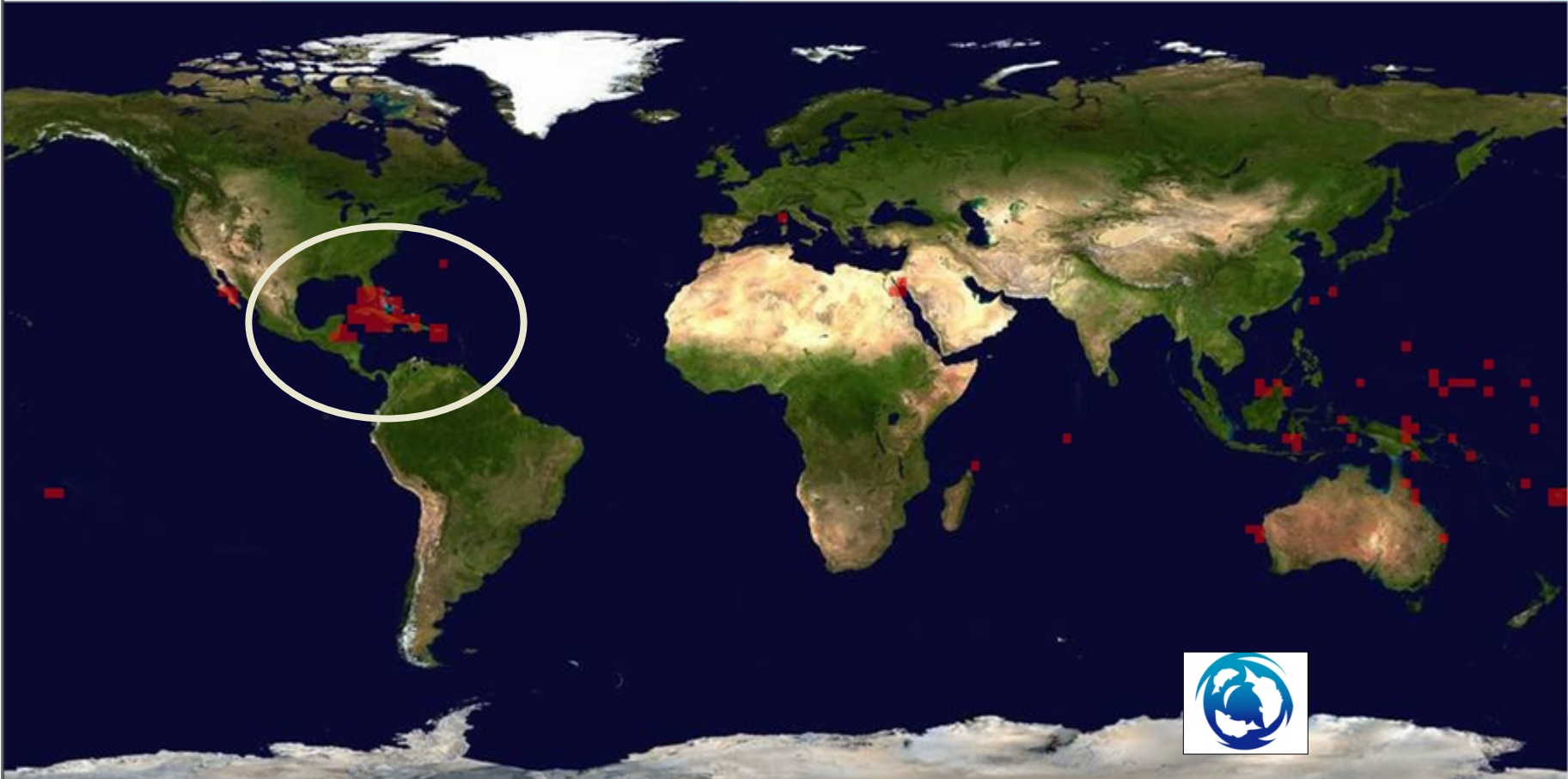
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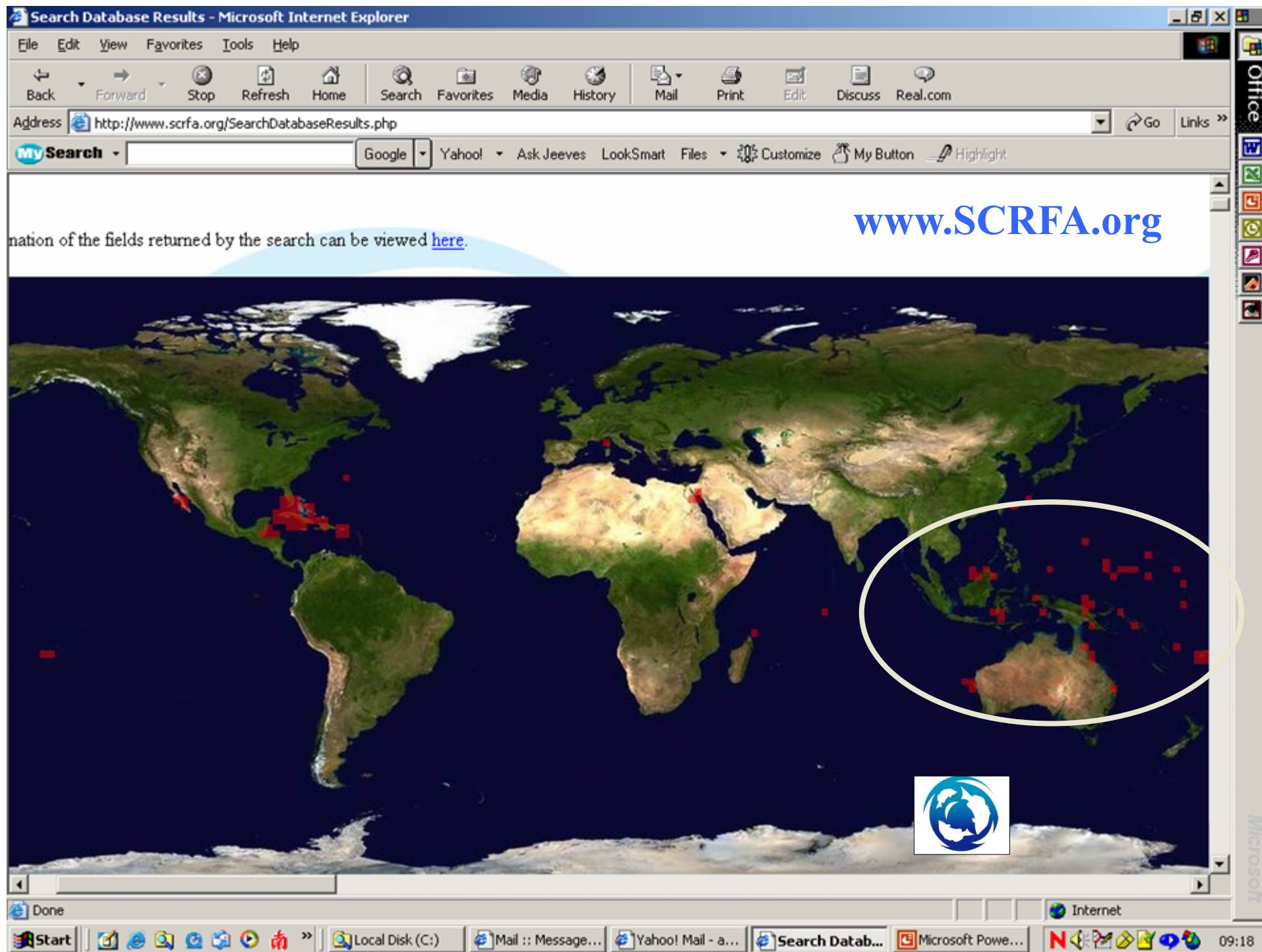
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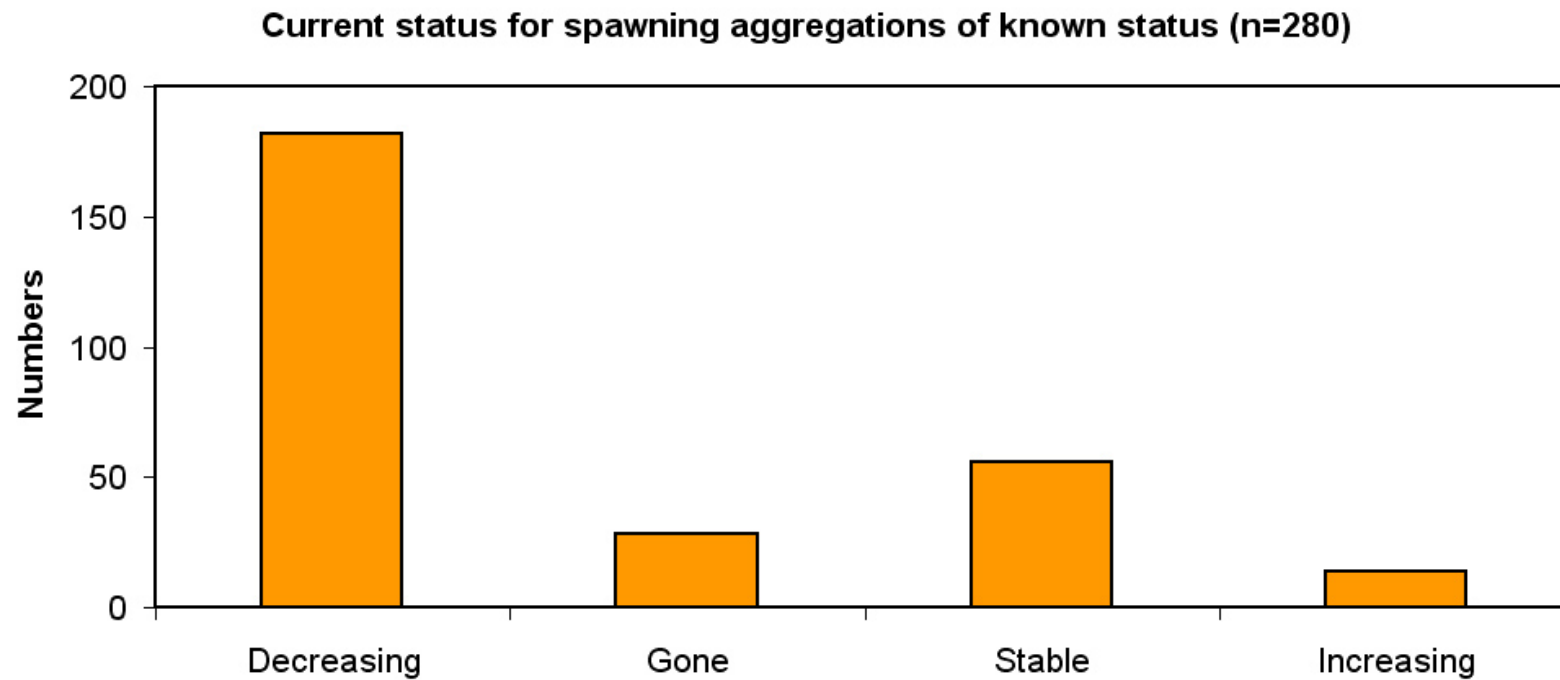
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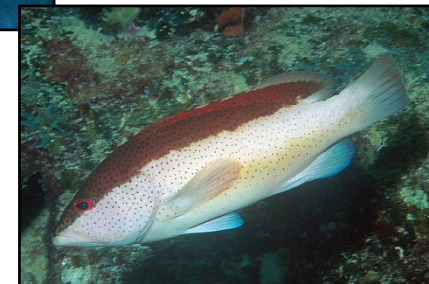
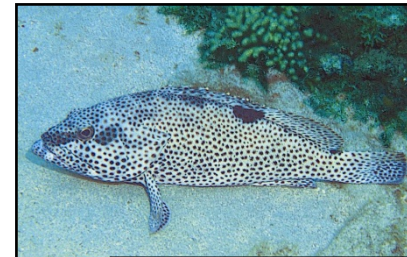


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162 groupers globally

25% threatened or near-threatened (IUCN Red List) partly due to aggregation fishing

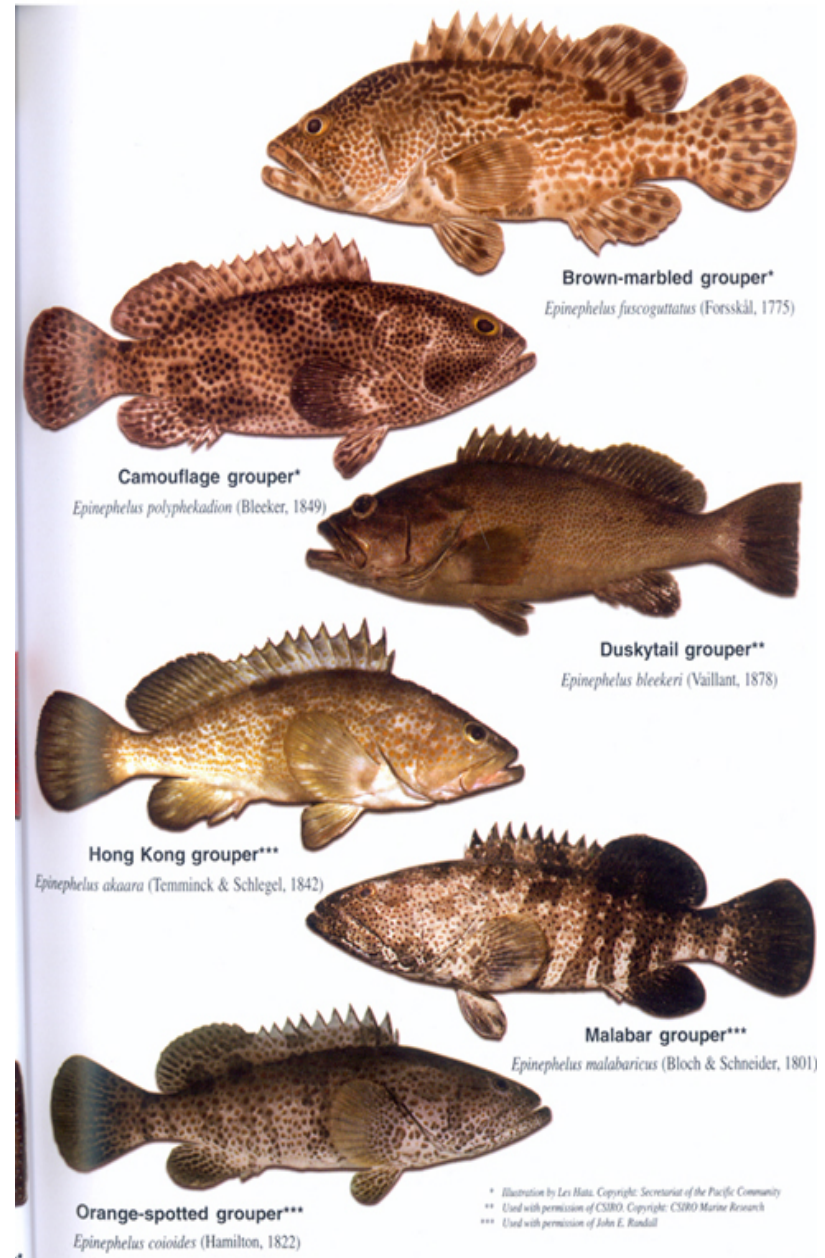
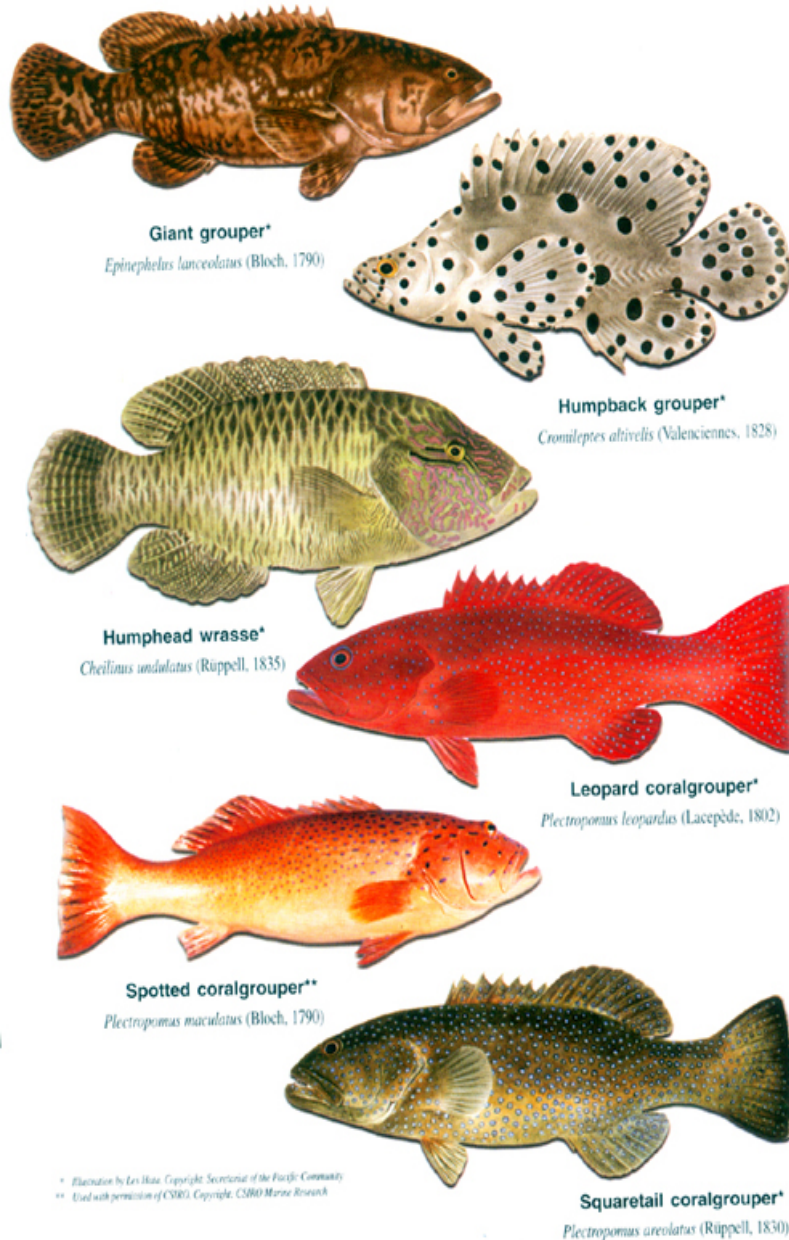


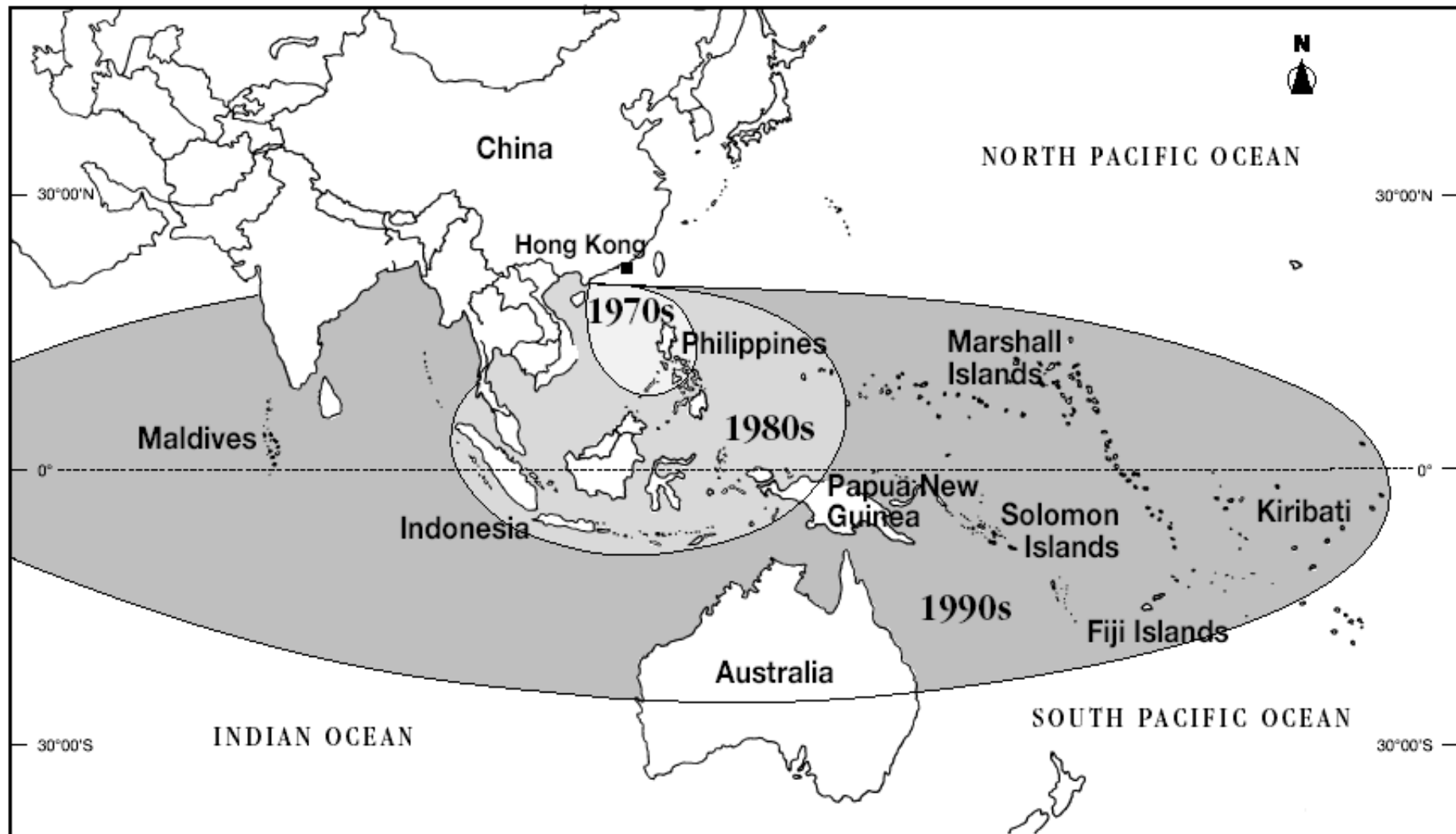
Sadovy et al., in prep

Live Reef Food-Fish Trade




Many of the major species in live reef food fish trade aggregate to spawn





**Spread of live reef food fish trade source countries
For fish 1970s to 1990/2000s**

An underwater photograph showing a large school of fish, possibly groupers, swimming in clear blue water. The fish are clustered together, with some individuals more prominent than others. The lighting is bright, suggesting sunlight filtering down from the surface.

A major impediment to management is the lack of awareness of exploited aggregations and their status and the impacts of exploitation on aggregations and on the fisheries they support

Illusions of plenty from the many fish caught in aggregations make it difficult to convince people to manage proactively





Vulnerable seabird colonies and turtle nesting beaches often receive protection.....





... and many regulations protect berried (with eggs) lobsters ...





Non-extractive benefits

**Ripe adults are
the capital and
spawning
aggregations
produce interest
(eggs)**



© Seapics

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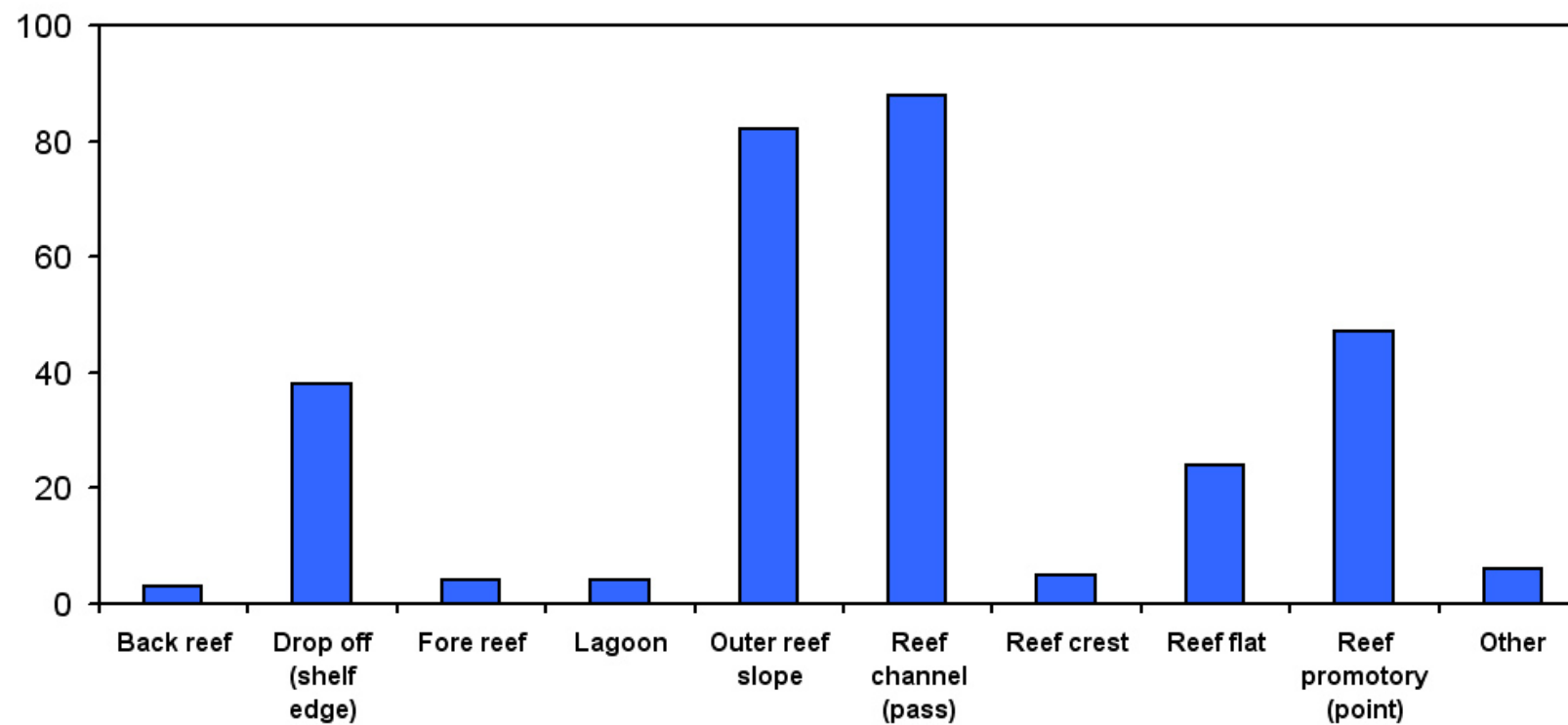


Spawning aggregations

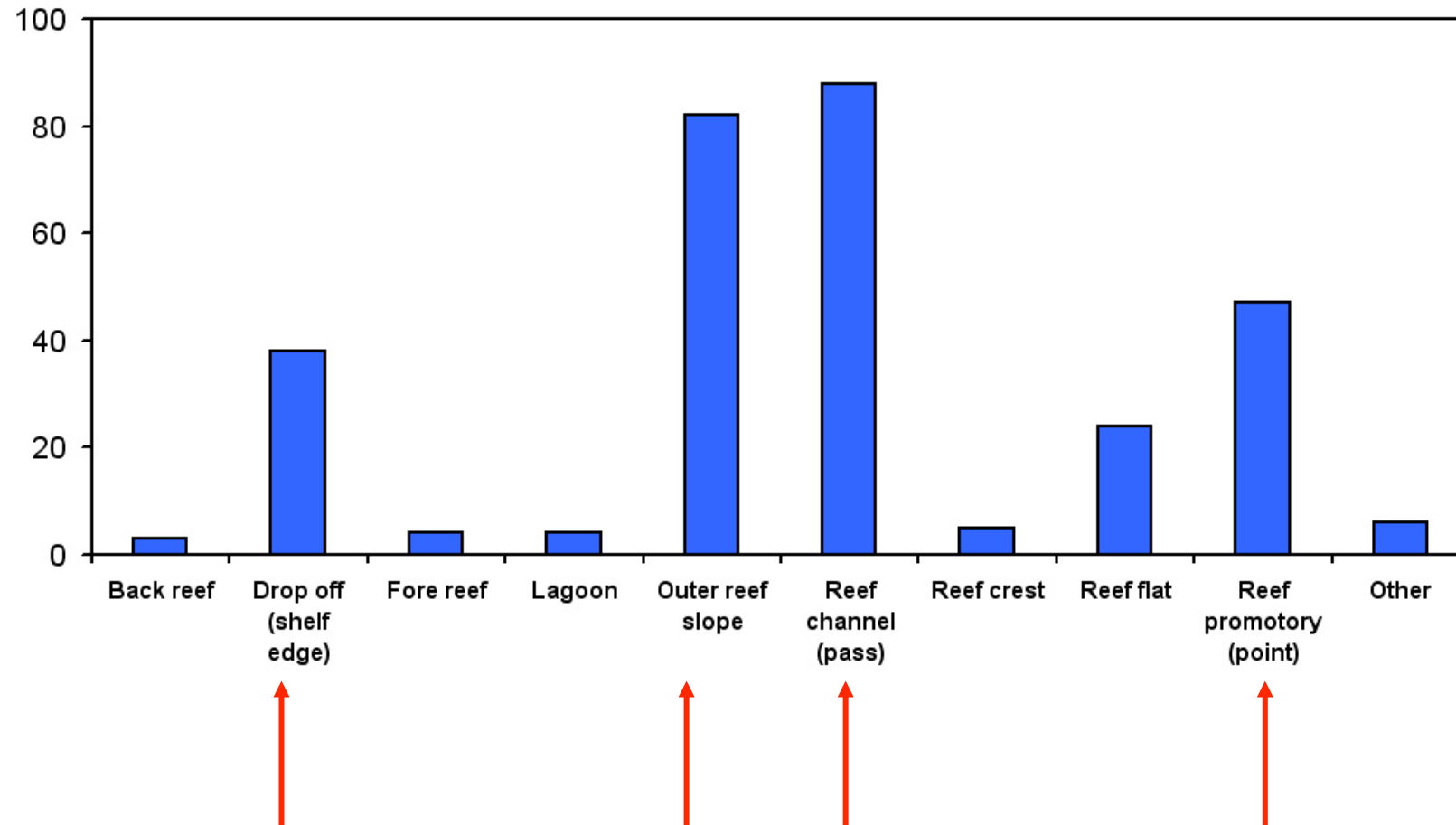


- **Global and local trends**
- **Threatened fisheries and species**
- **Challenges to management**
- **Possible solutions**

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



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Spatial protection

**Outer reef areas
often not included in
MPAs or otherwise
managed**



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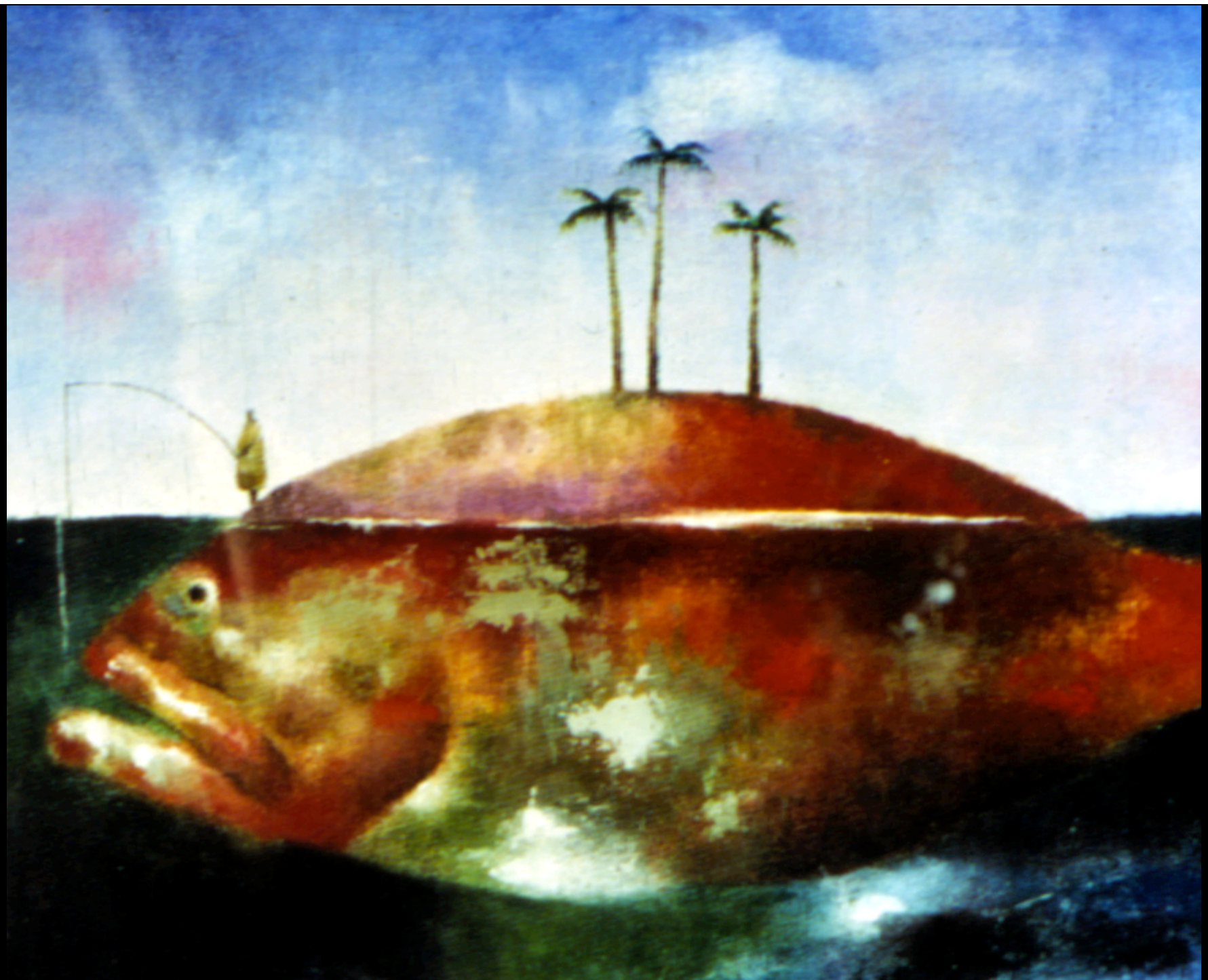
Preserving spawning aggregations and the fisheries they support

- ♦ **Recognize general need for management**
- ♦ **Map exploited aggregations/seasonality**
- ♦ **Consider spatial/seasonal protection etc.**
- ♦ **Spawning aggregations as indicators?**
- ♦ **Instruments, accords, guidelines, resolutions...: IUCN; ICRI; Micronesian Challenge; FAO; EBM**

Aggregations as indicators?

Candidates as indicators of general reef fishery condition can signal:

- (a) pressures on fishery resources caused by human activities (fishing);**
- (b) environmental state (aggregation condition relevant to some baseline);**
- (c) societal response by the degree to which they are managed effectively.**





Myths about the sea

“The sea has endless fish: we will never run out”

“There are not enough data for management”

“Aquaculture will solve overfishing and all our seafood needs”

“Fish still here but they moved somewhere else”

“Fish declines not due to fishing – instead pollution, boats, global climate change....”

“MPAs alone can manage reef fisheries”