Global Ocean Refuge System (GLORES)

Lance Morgan PhD, President

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We work to save wild ocean places for us and future generations

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This means protecting and recovering diversity and abundance

UN Food and Agriculture Organization's latest assessment (2012)

85% of global marine fish stocks are

- "overfished, depleted or recovering"**(32%)**
- "fully exploited" **(53%)**

More than 60% of straddling stocks and other high seas fishes are overfished, depleted or recovering

- ~2x the global average

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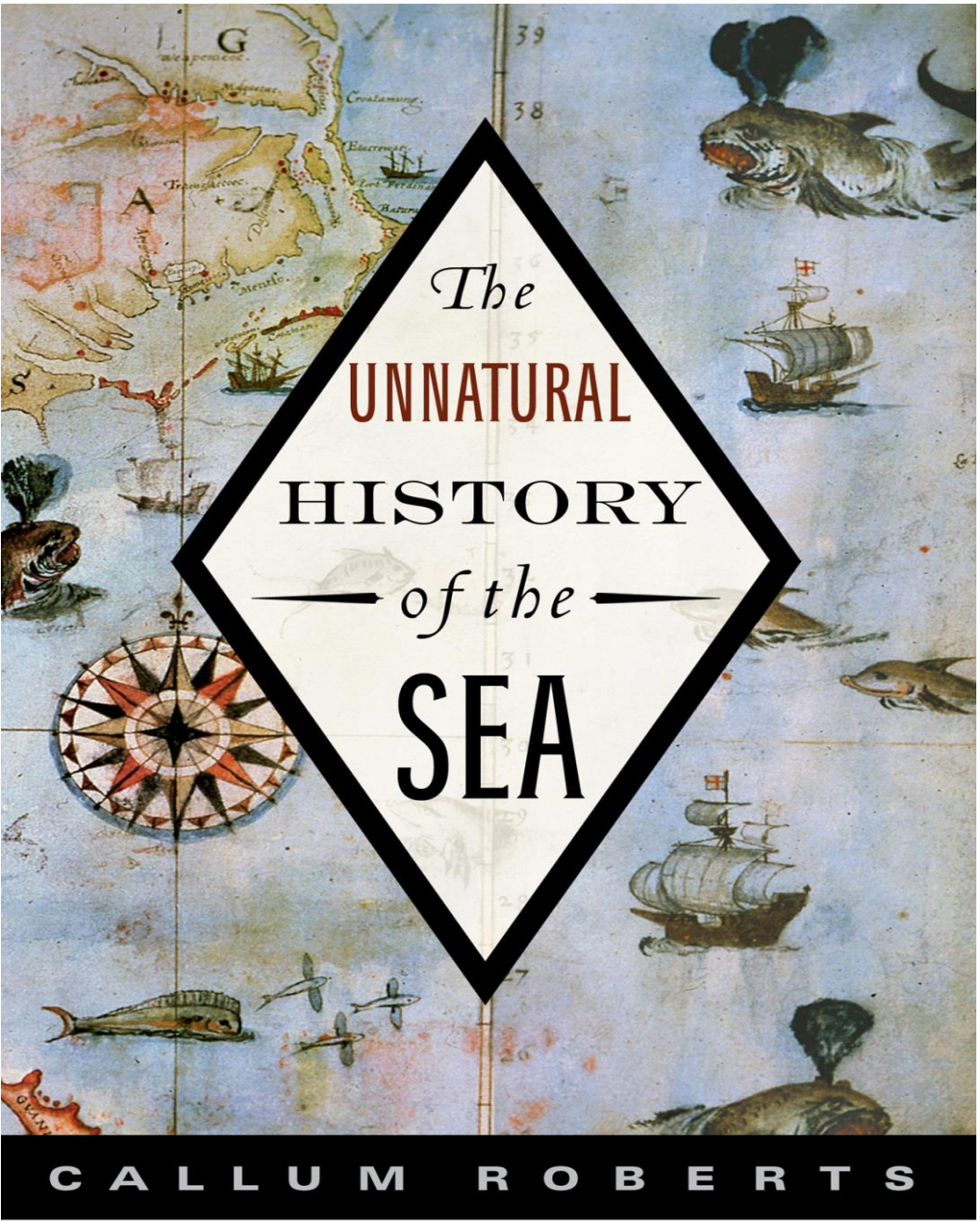
Much fishing is still illegal, unreported and unregulated (IUU)



Fishing emptied life from rivers, lakes and estuaries, then coastal waters, now the high seas

Callum Roberts (2007)

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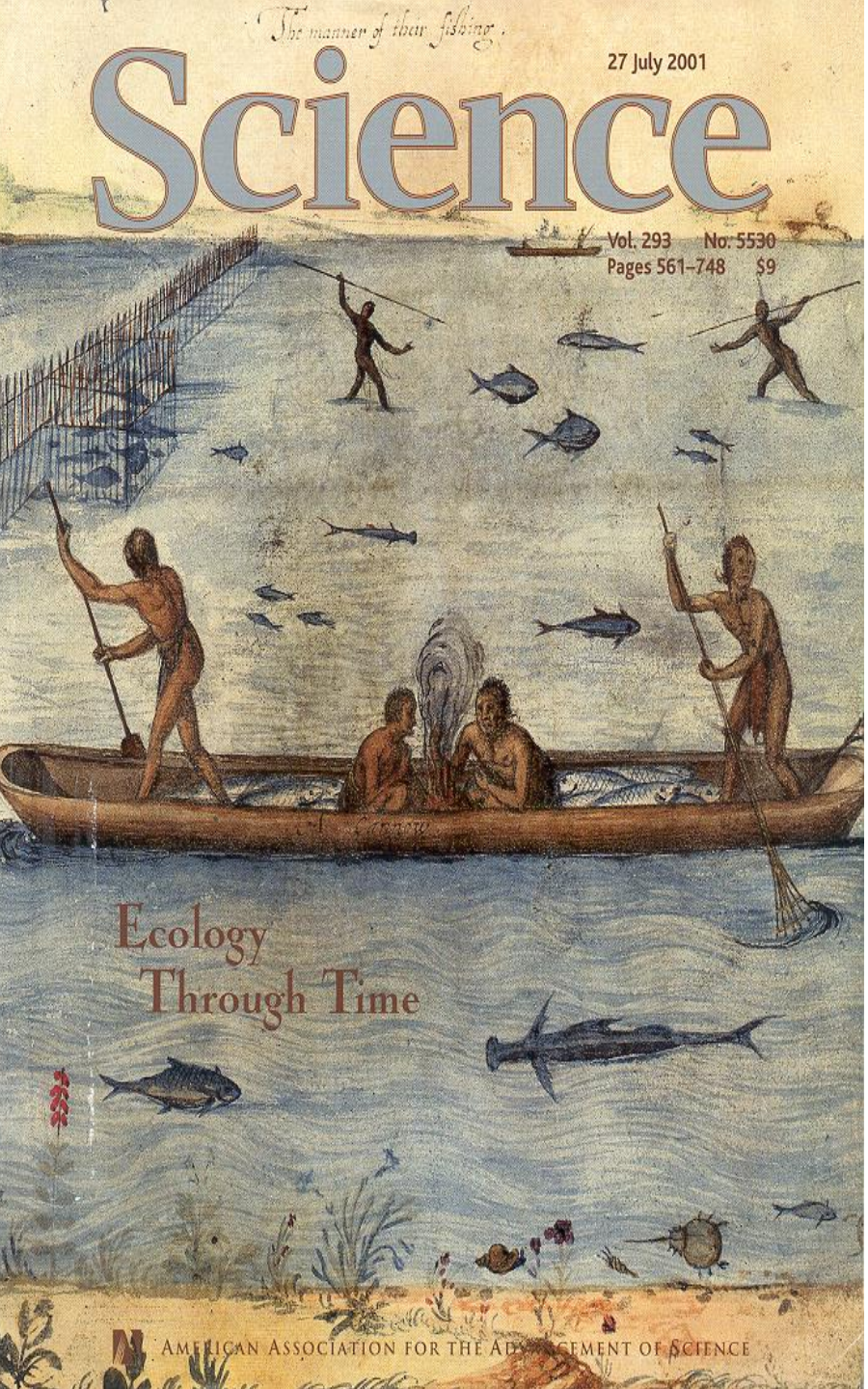
Loss of apex predatory sharks has cascading effects

Ransom Myers & coauthors (2007)
Science 315: 1846-1850



Overfishing leads to ecosystem collapse around the world

Jeremy Jackson & coauthors
(2001) *Science* 293: 629-638

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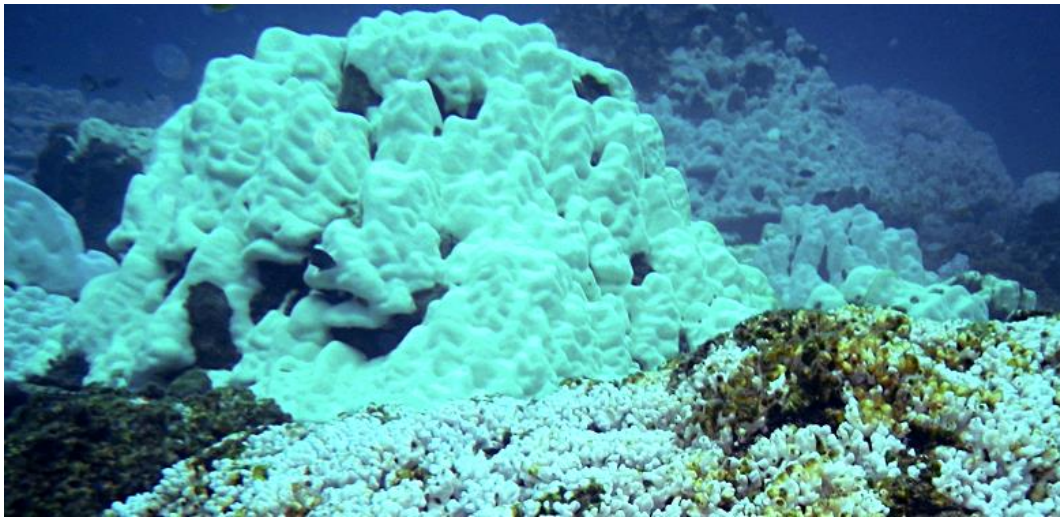
Elevated CO_2 makes it worse by warming and acidifiying the sea



Humans will also suffer

Vulnerability of national economies to potential climate-induced changes in fisheries

- High
- Moderate
- Low
- Very low
- No data available

19 of the 33 countries included in the High Vulnerability class are Least Developed Countries.

For some of the most strongly fishery dependent countries (Benin, Chad, Comoros, Maldives, the Republic of Korea, São Tomé and Principe) vulnerability data are not available.

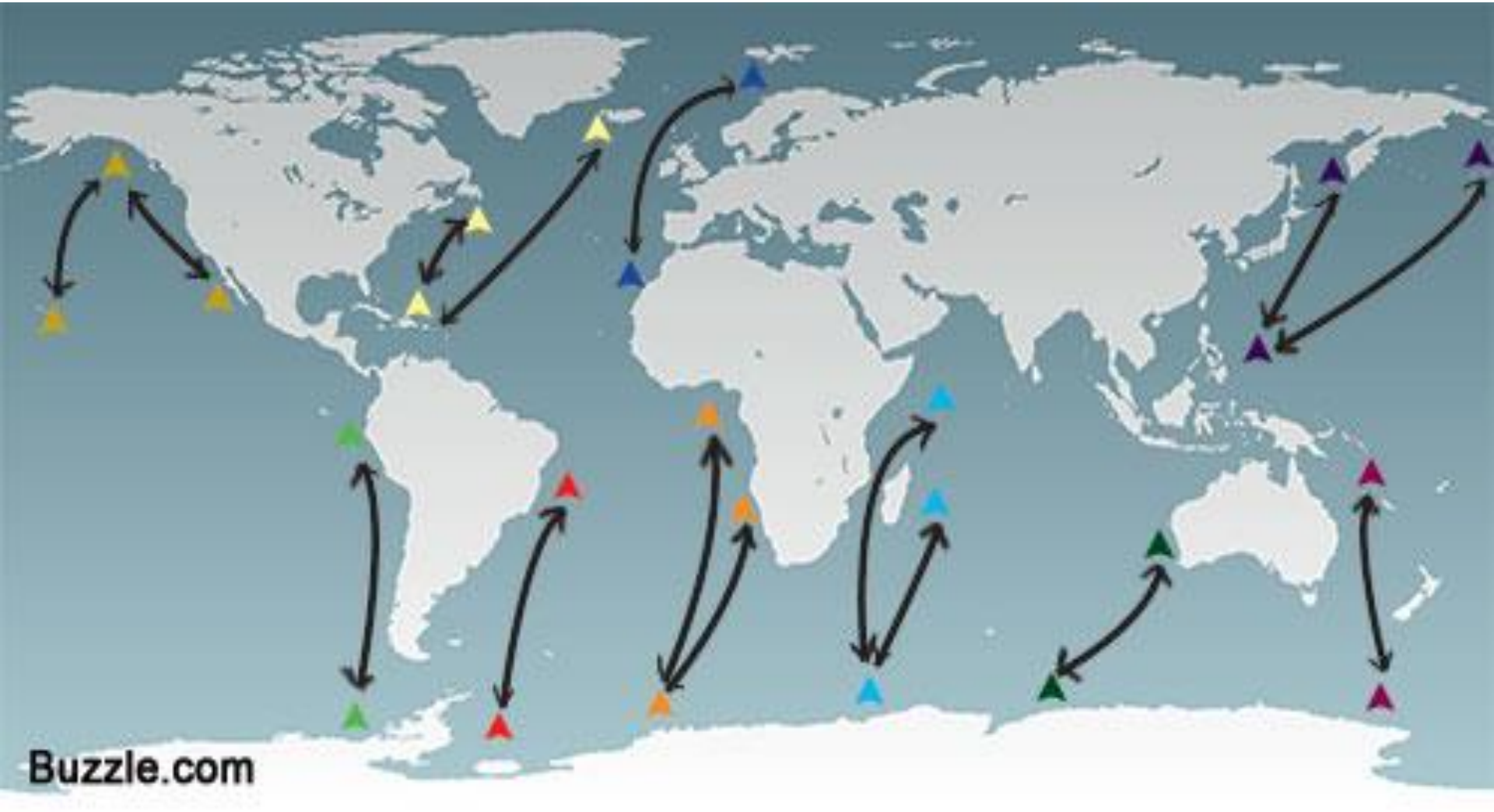
Source: E. H. Allison et al, Vulnerability of national economies to the impacts of climate changes on fisheries, Fish and Fisheries, 2009, 10, pp. 173-196.

Marine protected areas are key

- Some crucial things occur only in certain places
- Protecting places is far less knowledge-intensive and costly than managing species one-by-one

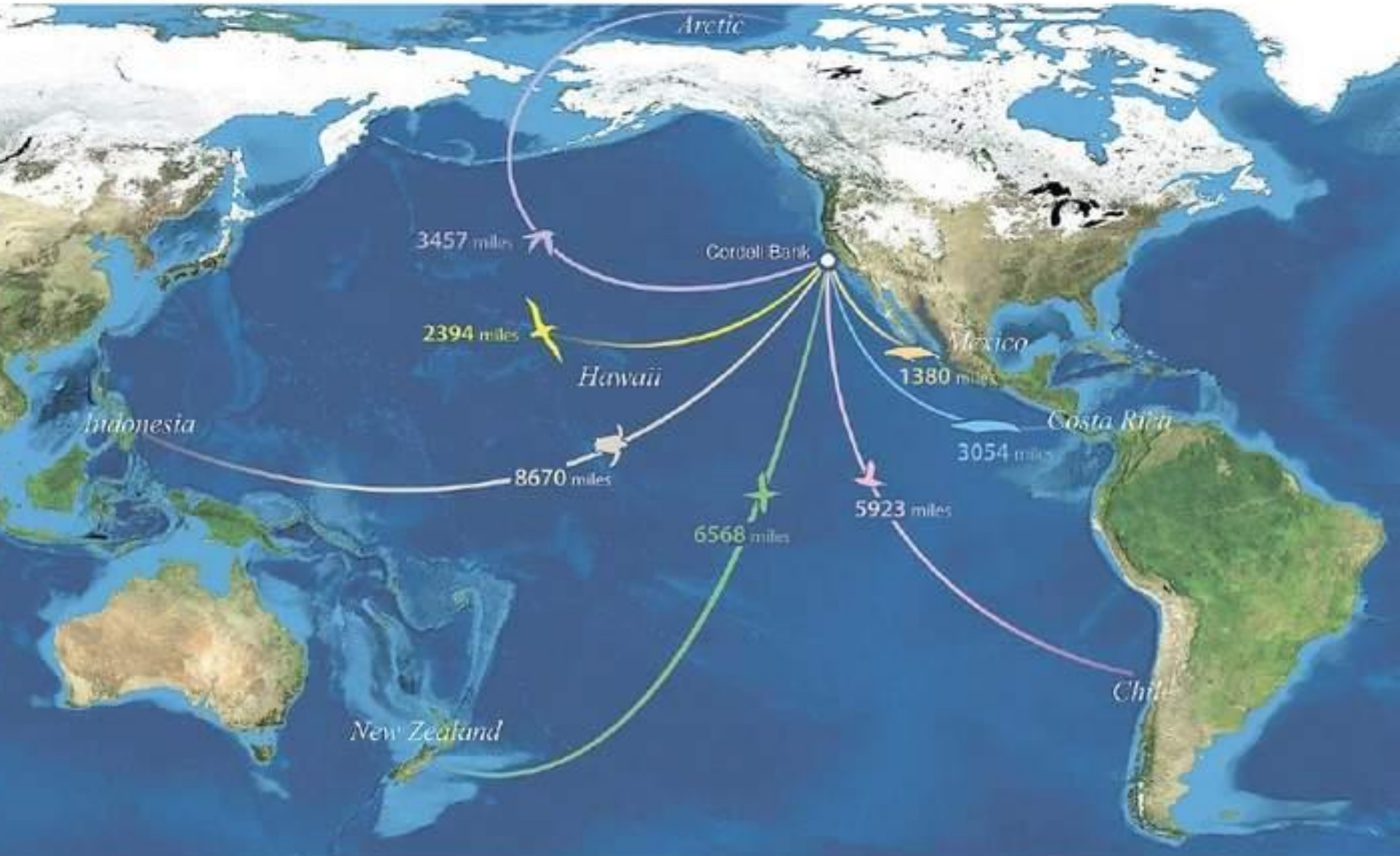
Pelagic species concentrate in certain places where food is abundant

Some species (e.g. humpback whales) do predictable long-distance migration



Fishes and corals concentrate on offshore seamounts and banks

Destination Cordell Bank



Reserves are a powerful conservation tool

Marine Reserves

- Increasing evidence shows ecological benefits of full no-take reserves
- Benefits of other types of MPAs vary by protection levels

Sarah Lester and Ben Halpern (2008) *Marine Ecology Progress Series* 367:49-56

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Large fish diversity and abundance are higher in MPAs that have been strongly protected for enough time, are large enough and are isolated

Graham Edgar & coauthors (2014) *Nature* 506: 216-220

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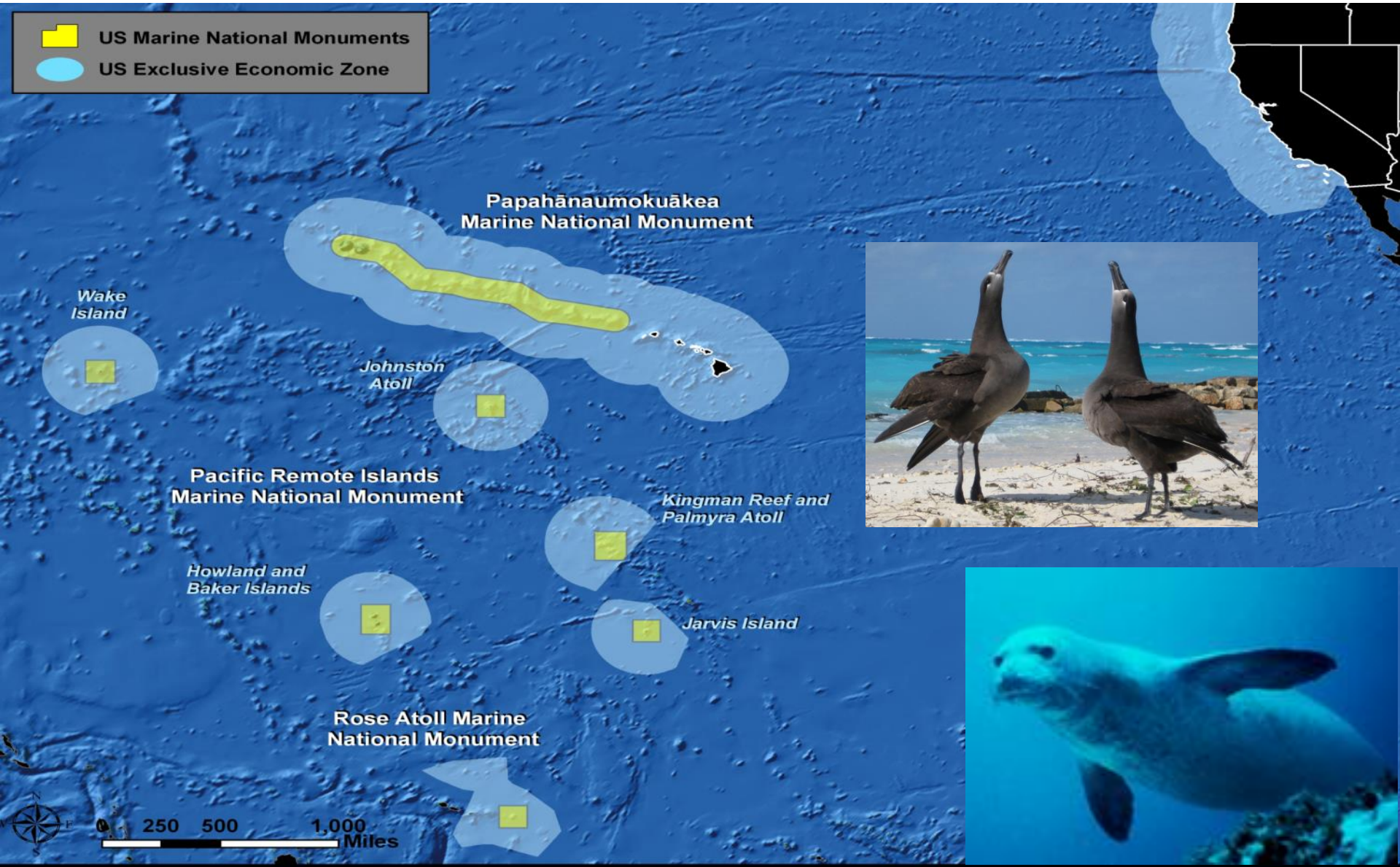
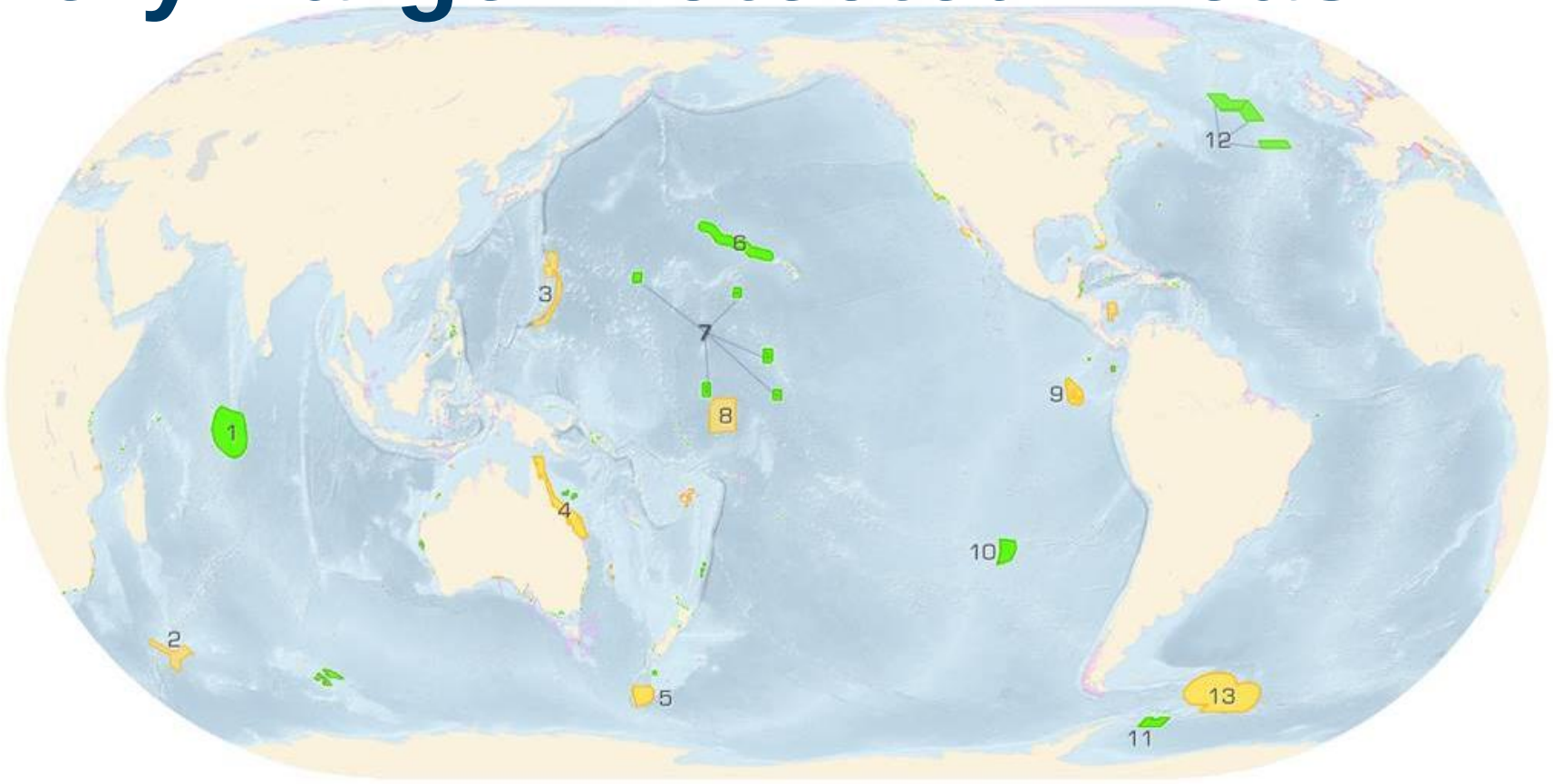
We have made significant progress



Very Large Protected Areas



Marine Protected Areas ≥ 75,000 km²

1 Chagos Marine Protected Area (UK, 2010) 640,000 km²

2 Prince Edward Islands Marine Protected Area (South Africa, 2009) 180,000 km²

3 Mariana Trench Marine National Monument (USA, 2009) 246,608 km²

4 Great Barrier Reef Marine Park (Australia, 1975)

5 Macquarie Island Commonwealth Marine Reserve (Australia, 1999) 162,000 km²

6 Papahānaumokuākea Marine National Monument (USA, 2006) 362,074 km²

7 Pacific Remote Islands Marine National Monument (USA, 2009) 225,040 km²

8 Phoenix Islands Protected Area (Kiribati, 2006)

9 Galapagos Marine Reserve (Ecuador, 1998) 133,000 km²

10 Motu Motiro Hiva Marine Park (Chile, 2010) 150,000 km²

11 South Orkney Marine Protected Area (CCAMLR, 2009) 94,000 km²

Legend: No Take, Multi-Use

12 Northeast Atlantic High Seas MPAs (OSPAR)
Charlie-Gibbs North (2012): 178,651 km²
Charlie-Gibbs South (2010): 145,420 km²
North of Azores (2010): 93,416 km²

13 S. Georgia & S. Sandwich Islands Marine Protected Area (UK, 2012) 1,070,000 km²

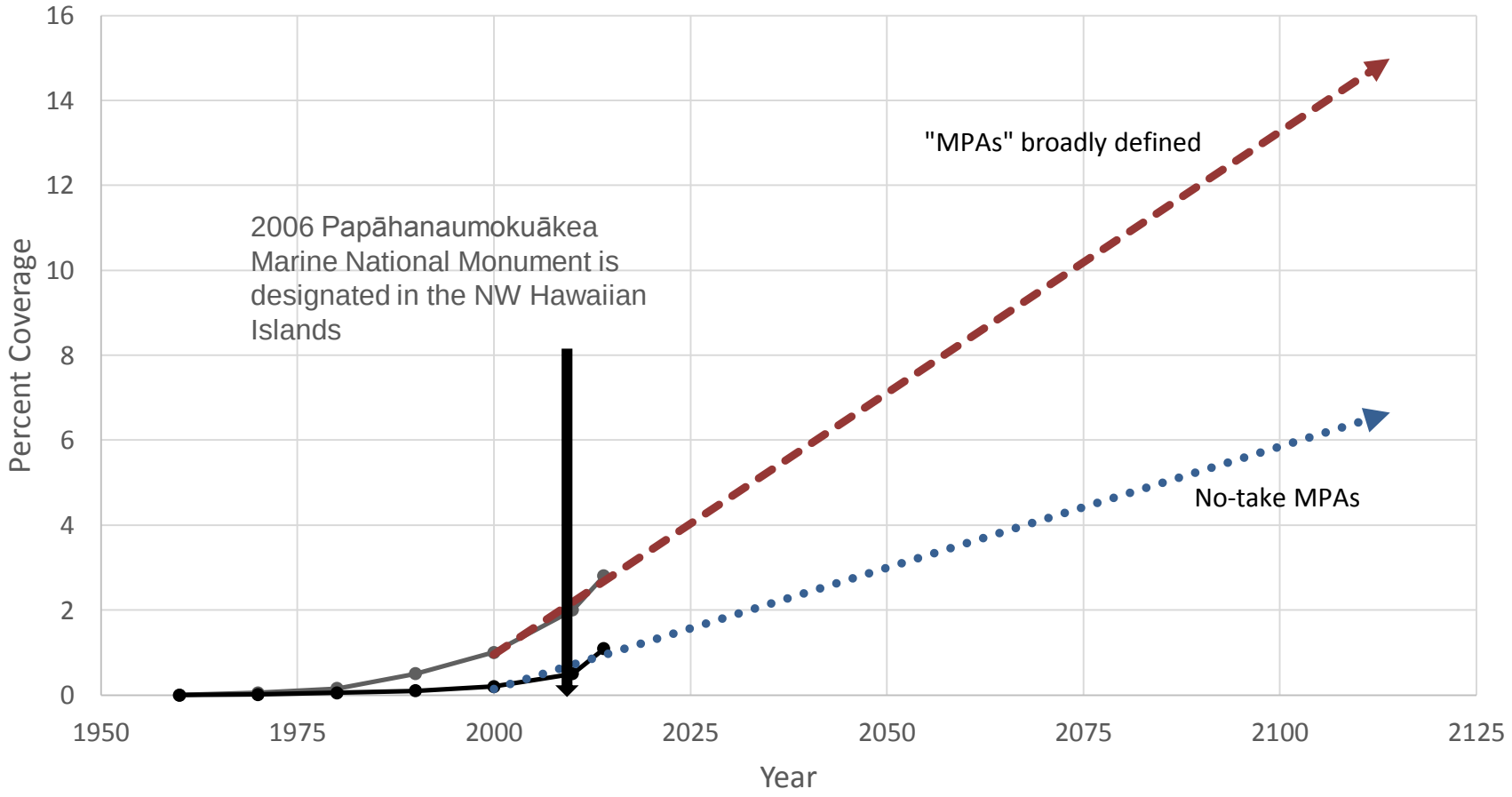
ScienceNews
MAGAZINE OF THE SOCIETY FOR SCIENCE & THE PUBLIC

Big fish return to Mexican marine park

Enlarge Image

A 1.2-meter-long gulf grouper (*Mycteroperca jordani*) is among the large predators that have returned to Cabo Pulmo National Marine Park after a fishing ban. Credit: Octavio Aburto/iLCP

At current rates, it will take more than a century to reach 20%



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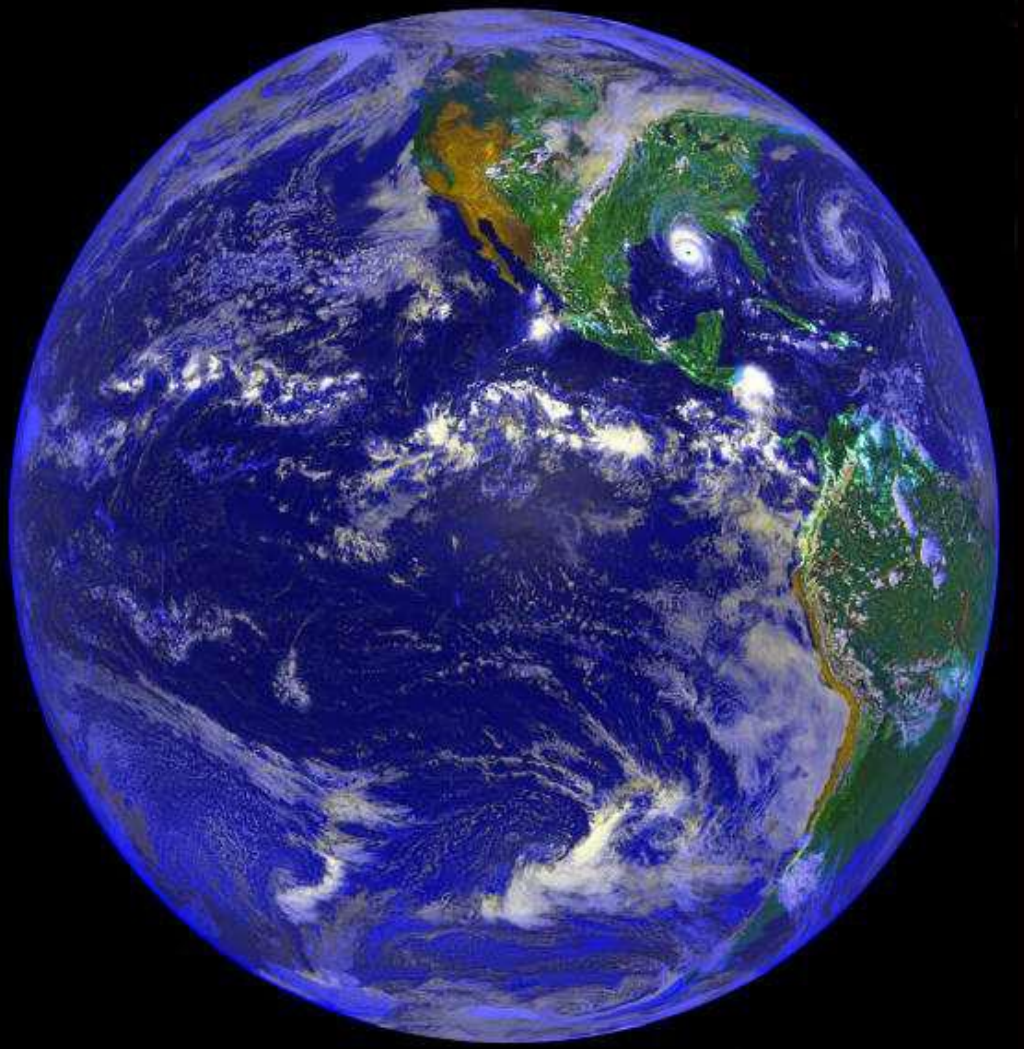
Global Ocean Refuge System



Why a Global Ocean Refuge System?

- Oceans are in peril and we need to accelerate protection
- MPAs are the most cost-effective means to recover and maintain biological diversity and abundance
- Well-located, strongly protected areas recover

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Seed Vaults?

Svalbard
Global Seed Vault

GLOBAL
Ocean Refuge
SYSTEM

What would the Global Ocean Refuge System do?

- Establish clear standards for MPAs
- Use the incentive of Global Ocean Refuge status to reach 20% (or more?) MPA target by 2030
- This status will confer prestige and increase return on investment for business and government

LEED for marine protected areas

GLORES' clear, science-based standards will improve effectiveness of protected areas worldwide

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Incentivize marine protected areas

- Prestige, being part of an elite system of marine protected areas
- Achieving GLORES status attracts funding from:
  - development institutions
  - private philanthropy
  - travel and tourism

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Global Ocean Refuge criteria

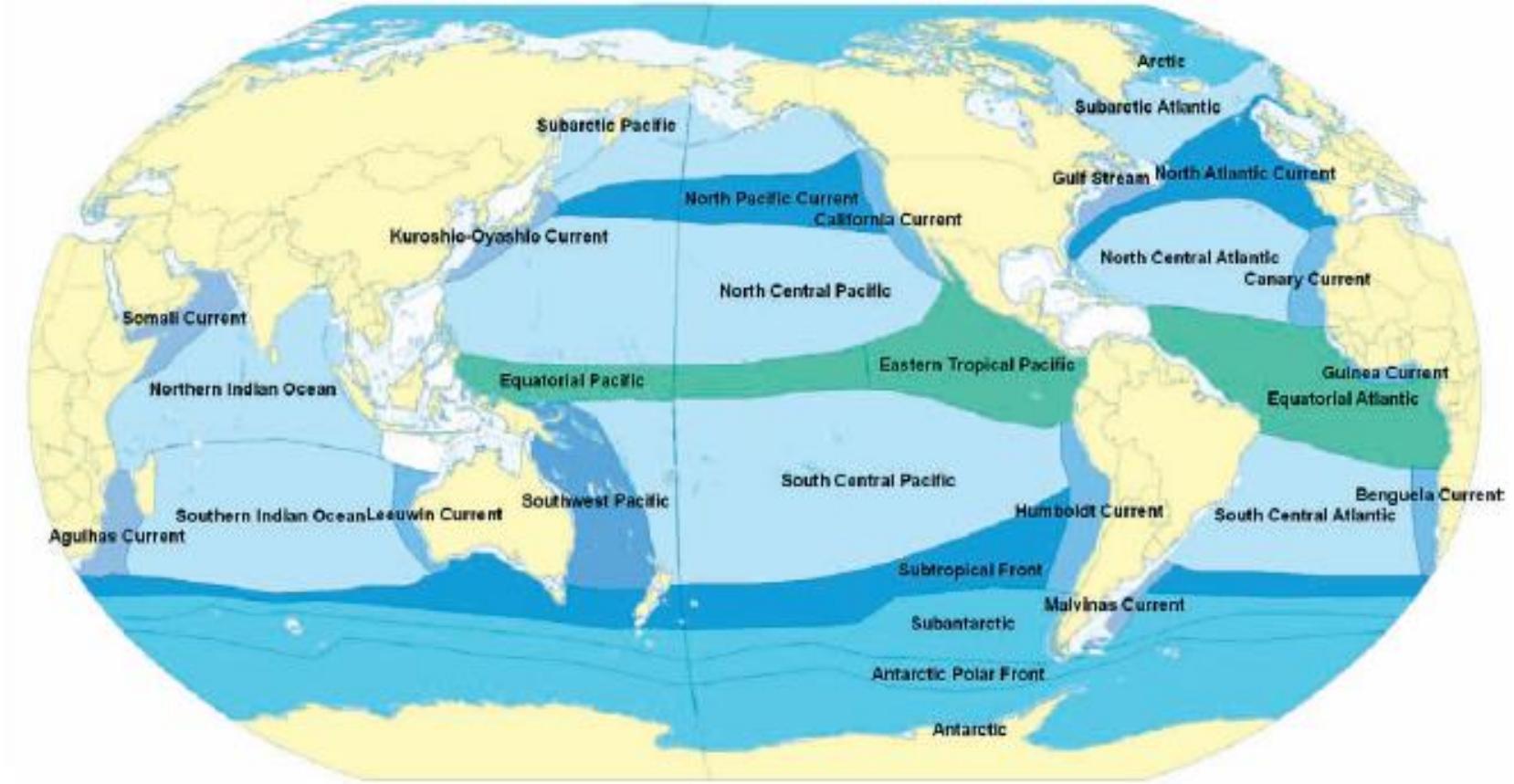
- Ecological importance
- Strong protection against destructive activities
- Adequate enforcement

Ecologically important places

- Unique ecosystems
- Ecosystems with high species richness
- Essential breeding, feeding or nursery habitats, and migration routes
- Sites that offer meta-population benefits



GLORES will encourage protection of all ecosystem types in every geographic region



Global Open Oceans and Deep Seabed (2009) Biogeographic Classification UNESCO-IOC

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Many MPAs don’t offer strong protection

- Most protect against only one or a very few threats (e.g., oil and gas drilling)
- Some even allow very damaging activities (e.g., bottom trawling)

GlobalOceanRefuge.org

- Uses science as basis for global system of marine protected areas
- Incentivizes NGOs to work together
- Encourages governments to compete for prestige and funding

“Never doubt that a small group of thoughtful, committed citizens can change the world;

indeed, it's the only thing that ever has.”

— Margaret Mead

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