

Rethinking Ocean Governance as if Ecosystems Mattered

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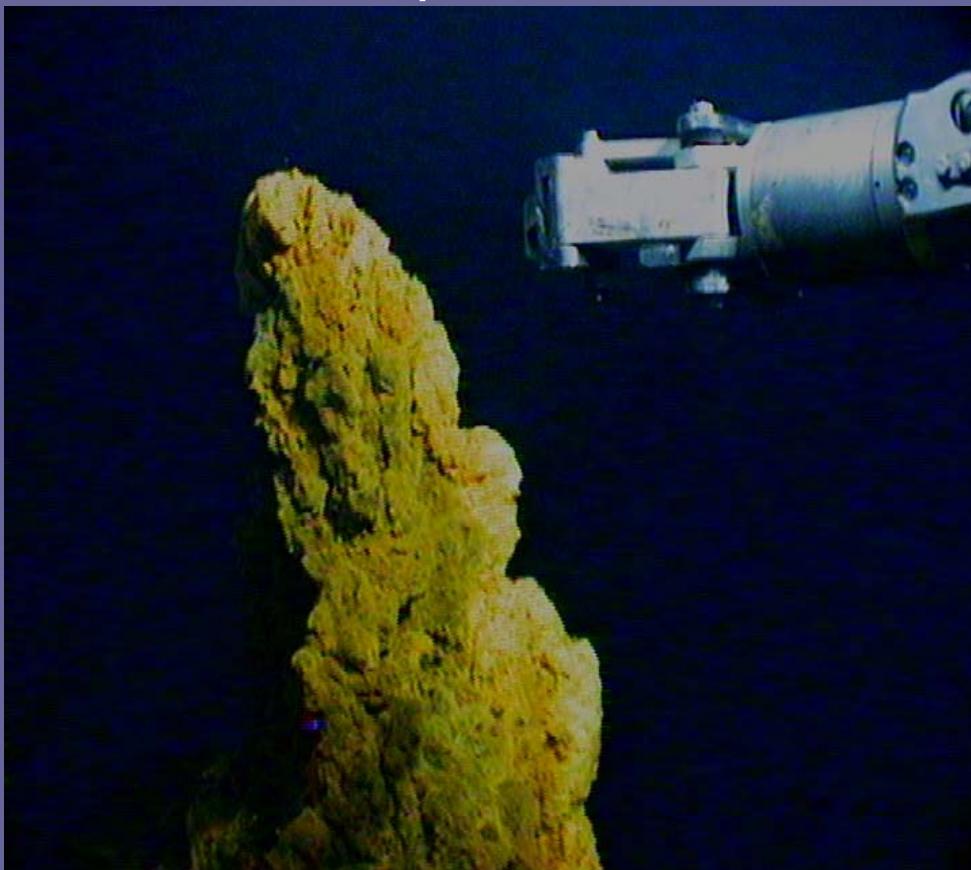
Marine Protected Areas Federal Advisory Committee
October 10, 2006 - Newport, Oregon

Hotel in Moorea
Courtesy of Heike Schroeder

21st Century: The transparent ocean

Satellite tags, ROVs, underwater cameras

- Deepsea vent exploration for minerals and pharmaceuticals



Source: Nautalus Minerals



Source: www.tunaresearch.org

Outline

- Who owns the oceans?
- What is the role of government?
- Diagnoses of the problem
- Place-based approaches to Ecosystem-Based Management
 - MSP and Ocean Zoning
- How do we transition to ecosystem based, sea use management?

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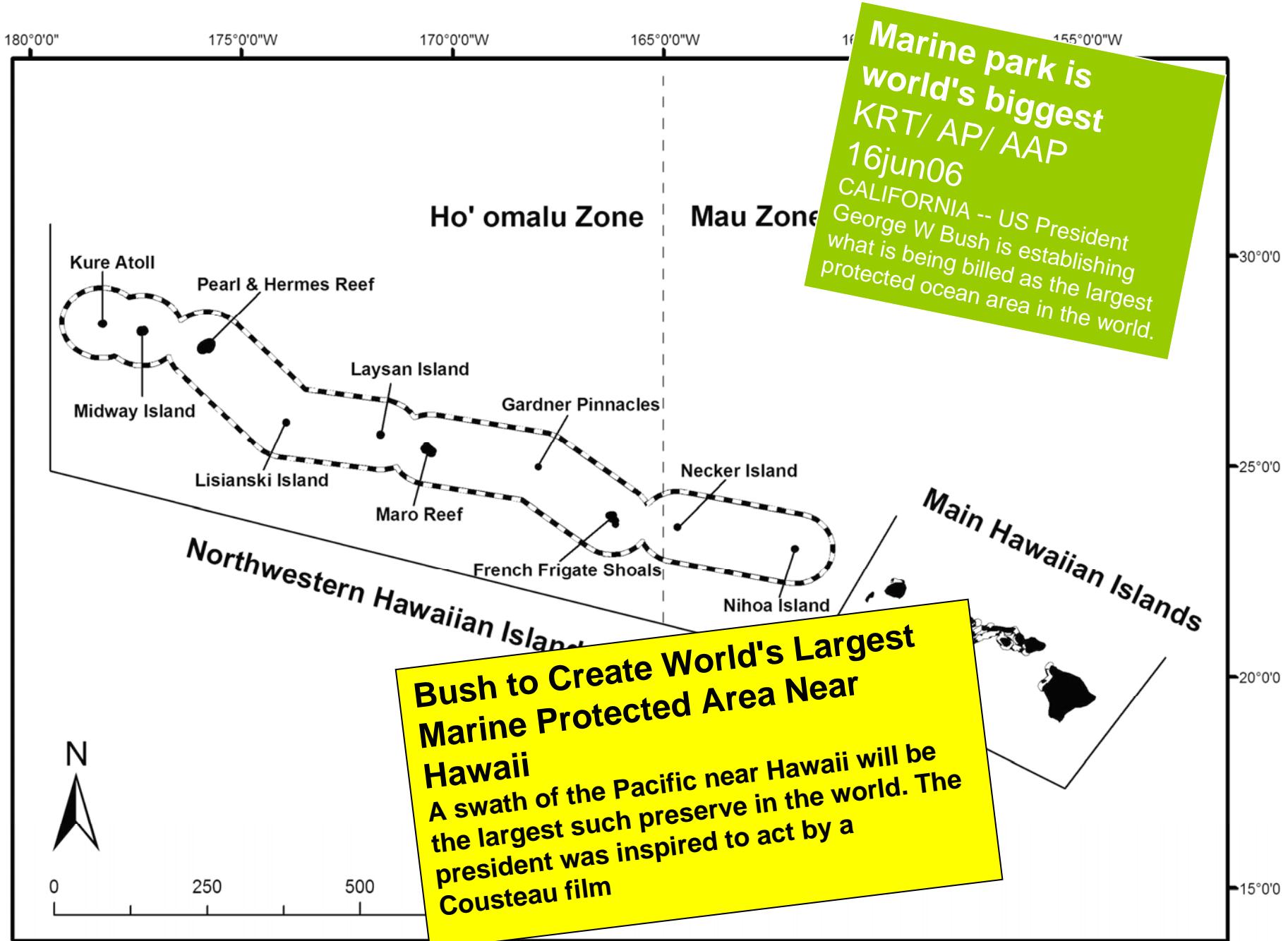
Who owns the oceans?

Floating hotel
(‘permanently
moored’)



Floating day-use
tourism pontoons
(‘permanently moored’)

All photos: GBRMPA



**Marine park is
world's biggest**
KRT/AP/AAP
16jun06

CALIFORNIA -- US President
George W Bush is establishing
what is being billed as the largest
protected ocean area in the world.

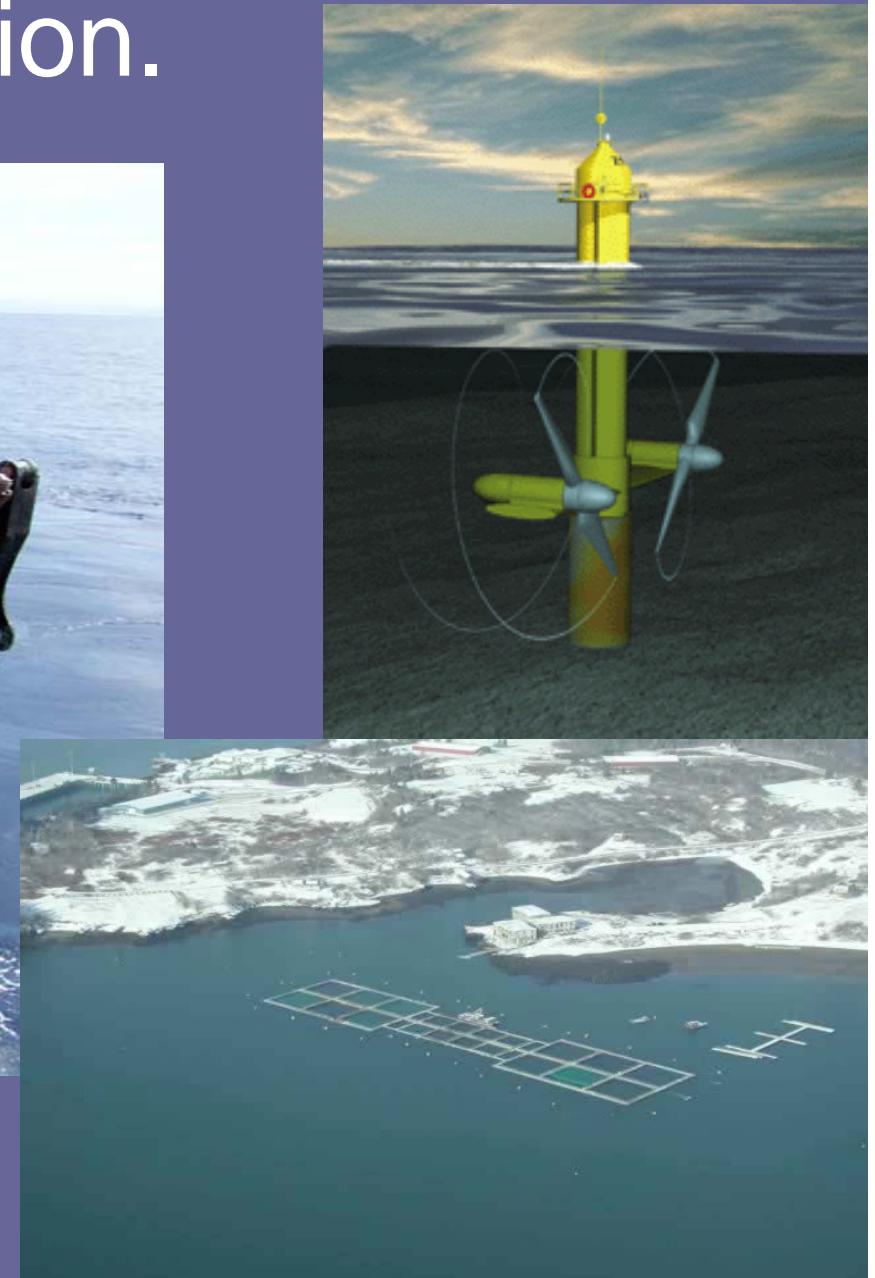
**Bush to Create World's Largest
Marine Protected Area Near
Hawaii**

A swath of the Pacific near Hawaii will be
the largest such preserve in the world. The
president was inspired to act by a
Cousteau film

Technology creates opportunity and pressure for privatization.



Photo courtesy of Nautilus Minerals



Property rights

- **Private property** bundle of rights belongs to identifiable owner (legal person)
- **Public property** – bundle of rights belongs to the government or state
- **Common property** – bundle of rights belongs to a group

TERRITORIAL SEA BASELINE

CONTINENTAL SHELF

Sovereign rights for exploring and exploiting non-living resources of sea-bed and subsoil, plus sedentary species.

Payment for exploitation beyond 200nM

THE
AREA

Common
heritage
of man-
kind

EXCLUSIVE ECONOMIC ZONE

Sovereign rights for exploring, exploiting, conserving and managing living and non-living resources of the water, sea-bed and subsoil

Give access to surplus allowable catch

HIGH SEAS

200nM

CONTIGUOUS
ZONE

24nM

TERRITORIAL
SEA

12nM

Sea Level

SHELF



UPPER
SLOPE

PLATEAU
OR
TERRACE

LOWER
SLOPE

RISE

DEEP
OCEAN

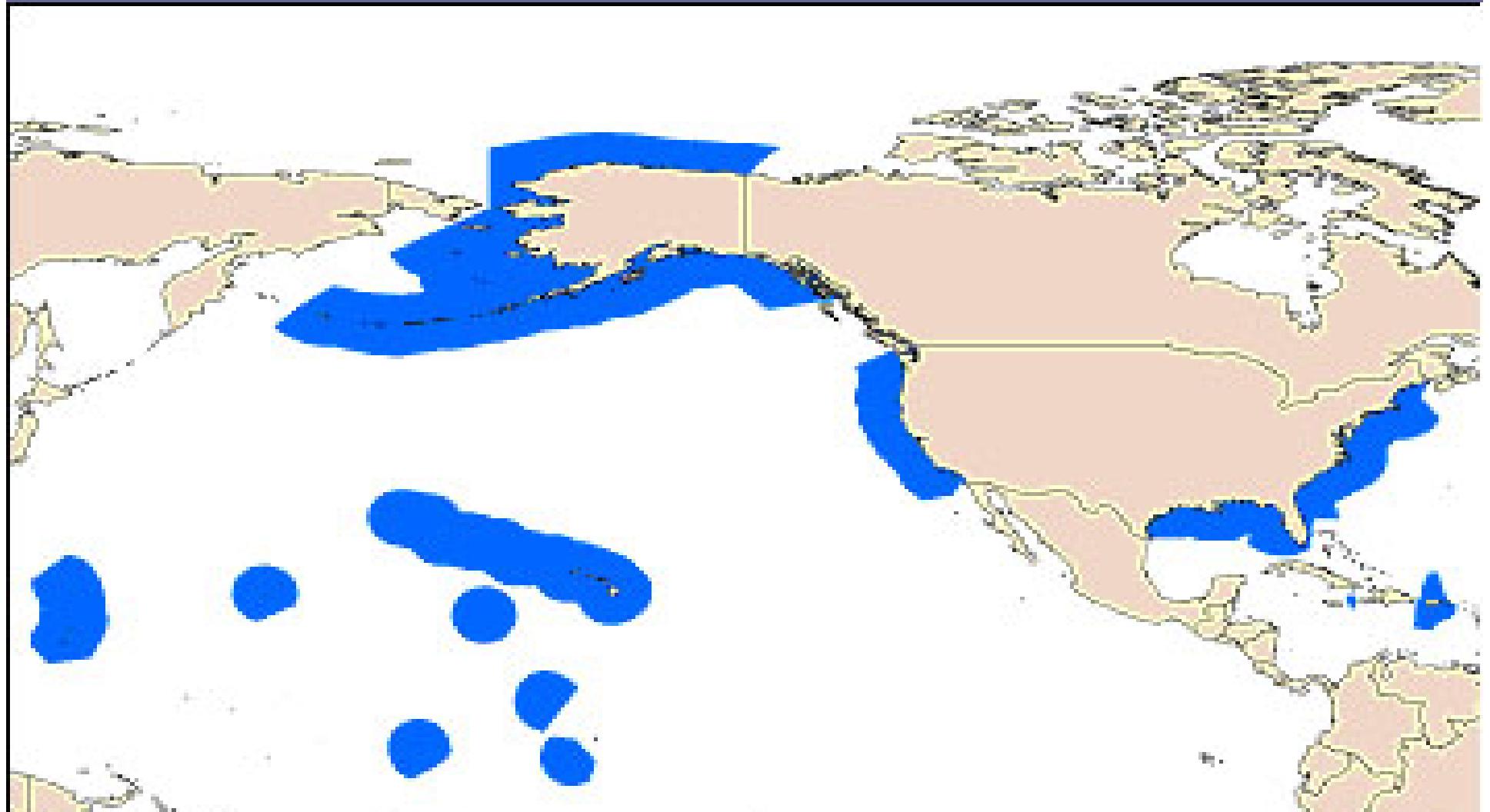
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Public trust or trusteeship

- 1. Common property resources are held in trust for the benefit of the community (current and future).**
- 2. They cannot be permanently converted to private property.**
- 3. The government protects the productive capacity of the trust resources.**
- 4. Private uses are permitted but must be consistent with public trust purposes.**
- 5. Purposes change to reflect societies' changing knowledge, perception, and values.**

“Quite possibly, by 2010 a map of the United States EEZ will look more like the plat of a subdivision than a map of ocean space.” James E. Bailey, III, 1985



Rights and Rules

are social constructs that reflect societies'
changing concepts



**A future scenario from
the Belgian Part of North
Sea planning project:
Wind farms, fisheries,
and sand & gravel
extraction in exclusive
concession zones**

Key distinctions

- *Imperium* – exercise of authority
 - Under US Constitution, the federal government exercises rights under the commerce clause
- *Dominium* – property rights
 - Under the US Constitution, the federal government exercises rights under the property clause

Federal/State Battle over OCS

1947 Supreme Court decisions:

- *United States v. California*
- *United States v. Louisiana*



Justice Black writing for the majority in *United States v. California* (1947)

“One may choose to say...that the United States has ‘national dominion’ over navigable streams. But the power to regulate commerce over these streams, and its continued exercise, do not change the *imperium* of the United States into *dominium* over the land below the waters.”

“New Discourses on Ocean Rights: Property Rights, the Public Trust and Ocean Governance”

Forthcoming in JELL
Journal of Environmental Law & Litigation,
spring 2007
Available in preprint at

<http://law.bepress.com/expresso/eps/1537>

Key Points

1. There is no need to privatize common property.
2. Governments can use regulatory authority to provide security for activities requiring substantial long-term investment.
3. The public trust doctrine is flexible enough to incorporate protection of the public interest in ecosystem services.

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SUSTAINABILITY

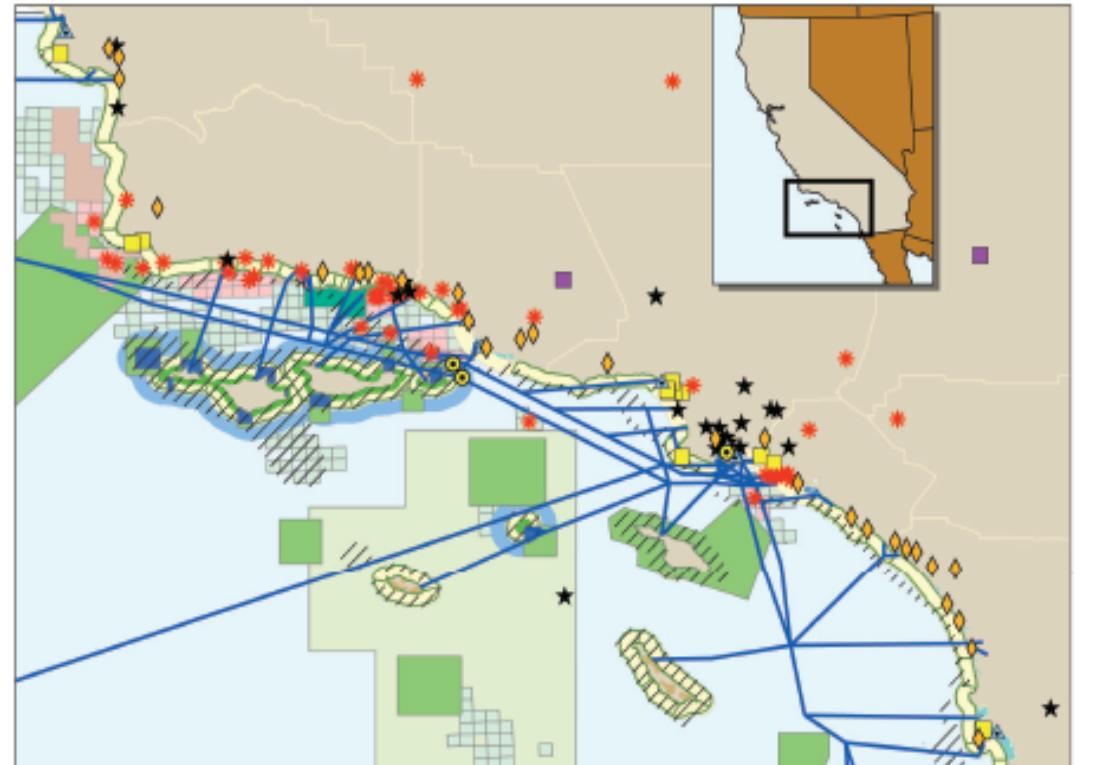
Resolving Mismatches in U.S. Ocean Governance

L. B. Crowder,^{1*} G. Osherenko,² O. R. Young,³ S. Airamé,² E. A. Norse,⁴ N. Baron,⁵ J. C. Day,⁶ F. Douvère,⁷ C. N. Ehler,⁷ B. S. Halpern,⁵ S. J. Langdon,⁸ K. L. McLeod,⁹ J. C. Ogden,¹⁰ R. E. Peach,¹¹ A. A. Rosenberg,¹² J. A. Wilson¹³

That the oceans are in serious trouble is no longer news. Fisheries are declining, formerly abundant species are now rare, food webs are altered, and coastal ecosystems are polluted and degraded. Invasive species and diseases are proliferating and the oceans are warming (*1*). Because these changes are largely due to failures of governance, reversing them will require new, more effective governance systems.

Historically, ocean management has focused on individual sectors. In the United States, at least 20 federal agencies implement over 140 federal ocean-related statutes. This is like a scenario in which a number of specialist physicians, who are not communicating well, treat a patient with multiple medical problems. The combined treatment can exacerbate rather than solve problems. Separate regimes for fisheries, aquaculture, marine mammal

Problems in ocean resource management derive from governance, not science. Ocean zoning would replace mismatched and fragmented approaches with integrated regulatory domains.



Diagnosis of the Problem

- Fragmentation of management authority
- Spatial mismatches between scale of governance and ecological system.
- Temporal mismatches between governance and ecological processes.

Marine spatial planning and ocean zoning

will be useful tools for
allocating ocean space
and resolving conflicts.



Next Steps for California Ocean Management



California and the World Ocean Conference
September 20, 2006

NCEAS Working Group

More Important

Ecosystem-based management
requires us to deal with an unruly
species



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Marine Activities

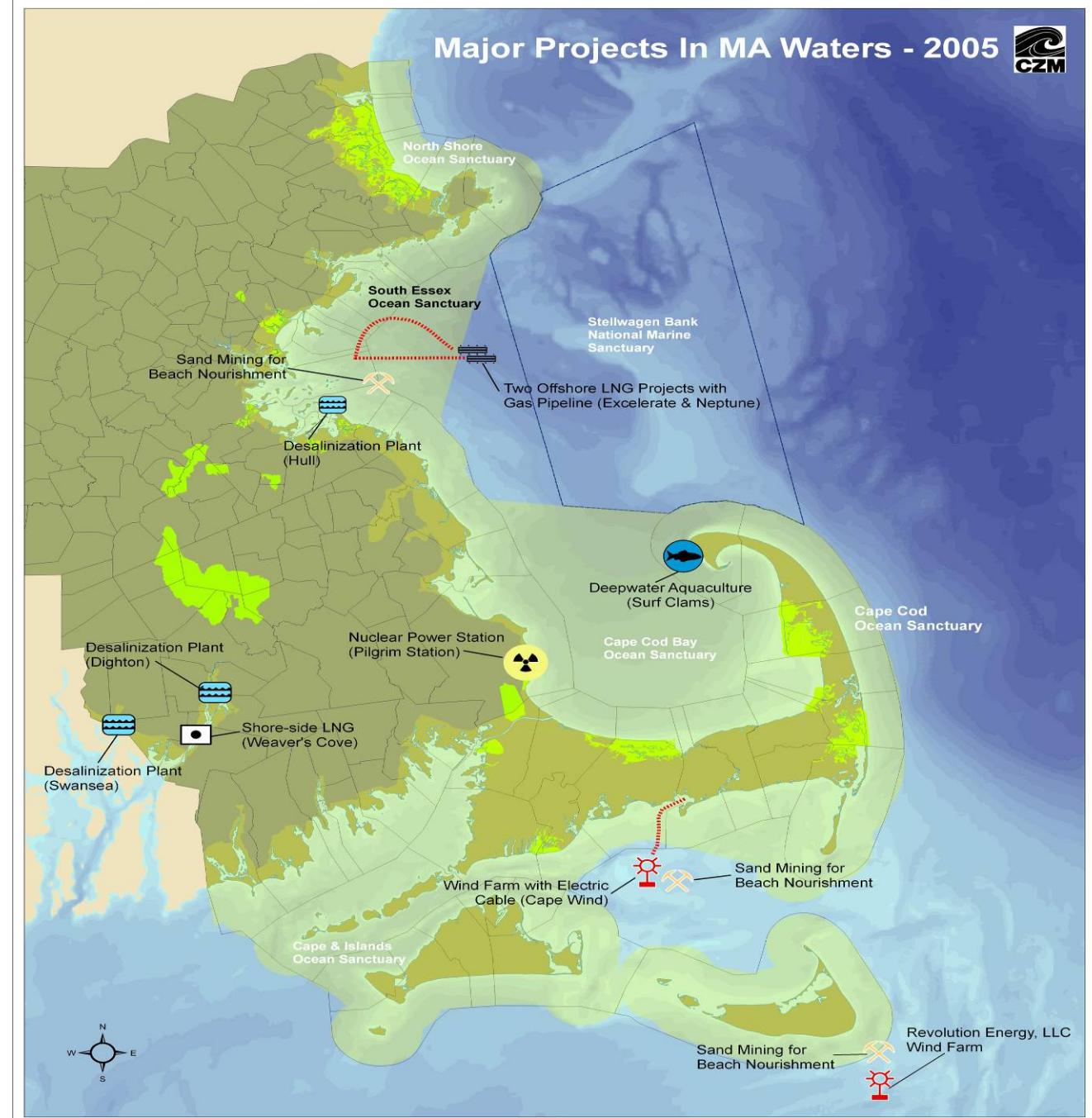


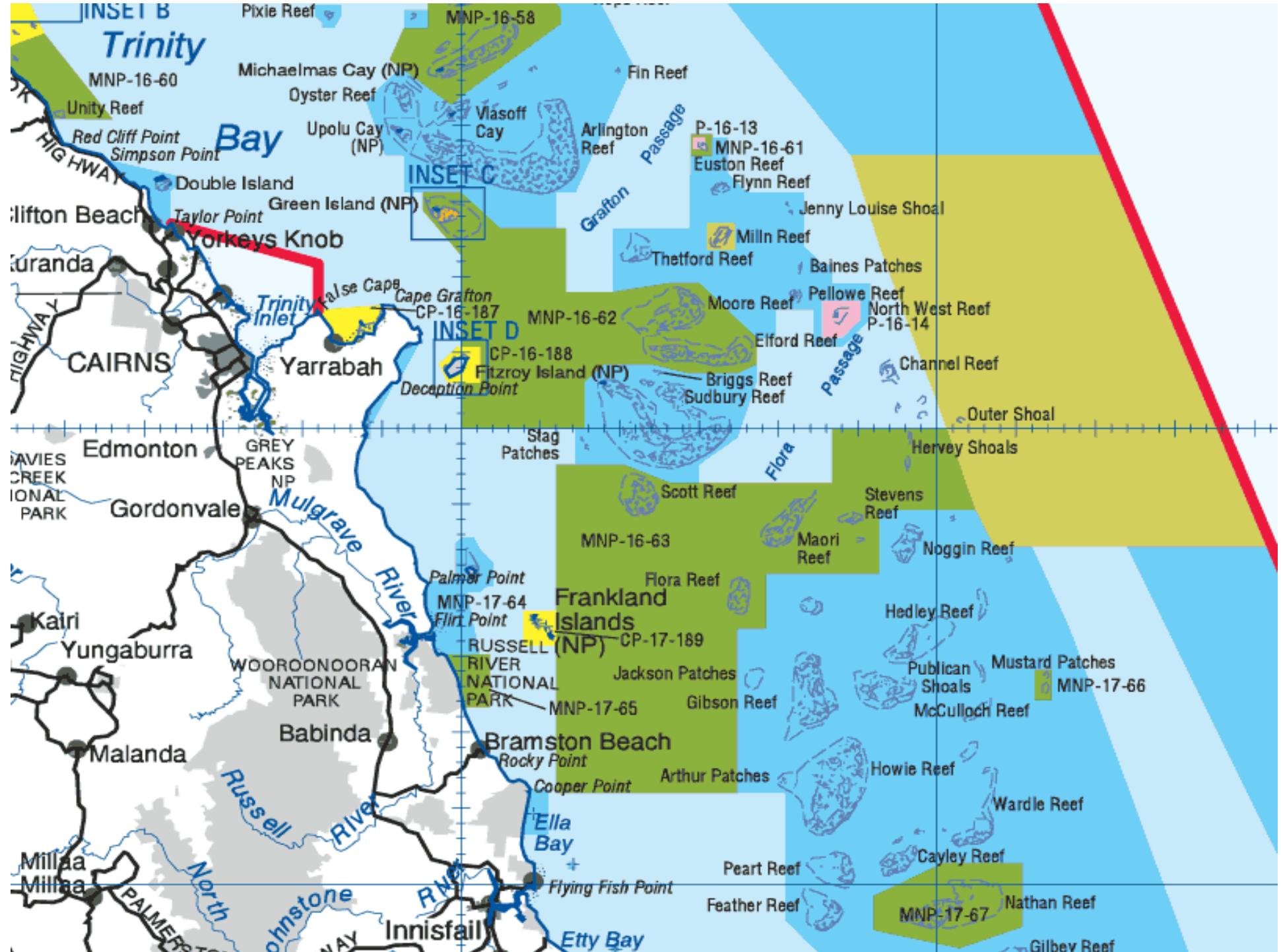
- Commercial and recreational fisheries
- Commerce and transportation
- Sand and gravel mining
- Dredged material management
- Cable/Pipeline/Structure Siting
- Energy Infrastructure
- Tourism and Recreation
- Aquaculture
- Military
- Research and Education



Proposed Projects

- Wind Power
- LNG
- Tide farm
- Aquaculture
- Mining
- Desalination





Zoning spectrum for multiple use

	General Use Zone	Habitat Protection Zone	Conservation Park Zone	Buffer Zone	Scientific Research Zone	Marine National Park Zone	Preservation Zone
Aquaculture	Permit	Permit	Permit ¹	✗	✗	✗	✗
Bait netting	✓	✓	✓	✗	✗	✗	✗
Boating, Diving, photography	✓	✓	✓	✓	✓ ²	✓	✗
Crabbing	✓	✓	✓ ³	✗	✗	✗	✗
Harvest fishing for aquarium fish, coral and beachworm	Permit	Permit	Permit ¹	✗	✗	✗	✗
Harvest fishing for sea cucumber, trochus, tropical rock lobster	Permit	Permit	✗	✗	✗	✗	✗
Limited collecting	✓ ⁴	✓ ⁴	✓ ⁴	✗	✗	✗	✗
Limited impact research	✓	✓	✓	✓ ⁵	✓	✓ ⁵	Permit
Limited spearfishing (snorkeler only)	✓	✓	✓ ¹	✗	✗	✗	✗
Line fishing	✓ ⁶	✓ ⁶	✓ ⁷	✗	✗	✗	✗
Netting (other than bait netting)	✓	✓	✗	✗	✗	✗	✗
Research (other than limited impact)	Permit	Permit	Permit	Permit	Permit	Permit	Permit
Shipping (other than in a designated shipping area)	✓	Permit	Permit	Permit	Permit	Permit	✗
Tourism program	Permit	Permit	Permit	Permit	Permit	Permit	✗
Traditional use of marine resources	✓ ⁸	✓ ⁸	✓ ⁸	✓ ⁸	✓ ⁸	✓ ⁸	✗ ⁸
Trawling	✓	✗	✗	✗	✗	✗	✗
Trolling	✓ ⁹	✓ ⁹	✓ ⁹	✓ ^{9,0}	✗	✗	✗

A Simple Zoning System

- **No-go zones** (e.g., seabird nesting colonies) so sensitive that humans (except permitted researchers) are prohibited (very limited)
- **Marine reserves** that prohibit all extractive and other harmful uses
- **Buffer zones** that surround or adjoin no-go and marine reserve zones and allow extractive uses that do not degrade habitats
- **General use zones** that allow a wide range of activities (probably a plurality of the area)

Examples of Marine Spatial Planning

Great Barrier Reef Marine Park	Australia
Florida Keys National Marine Sanctuary	United States
Eastern Scotian Shelf	Canada
Master Plan for Belgian Part of the North Sea	Belgium
Integrated Management Plan for North Sea	The Netherlands
EEZ and Territorial Sea Planning	Germany
Irish Sea Pilot Project	United Kingdom
Territorial Sea Zoning	China

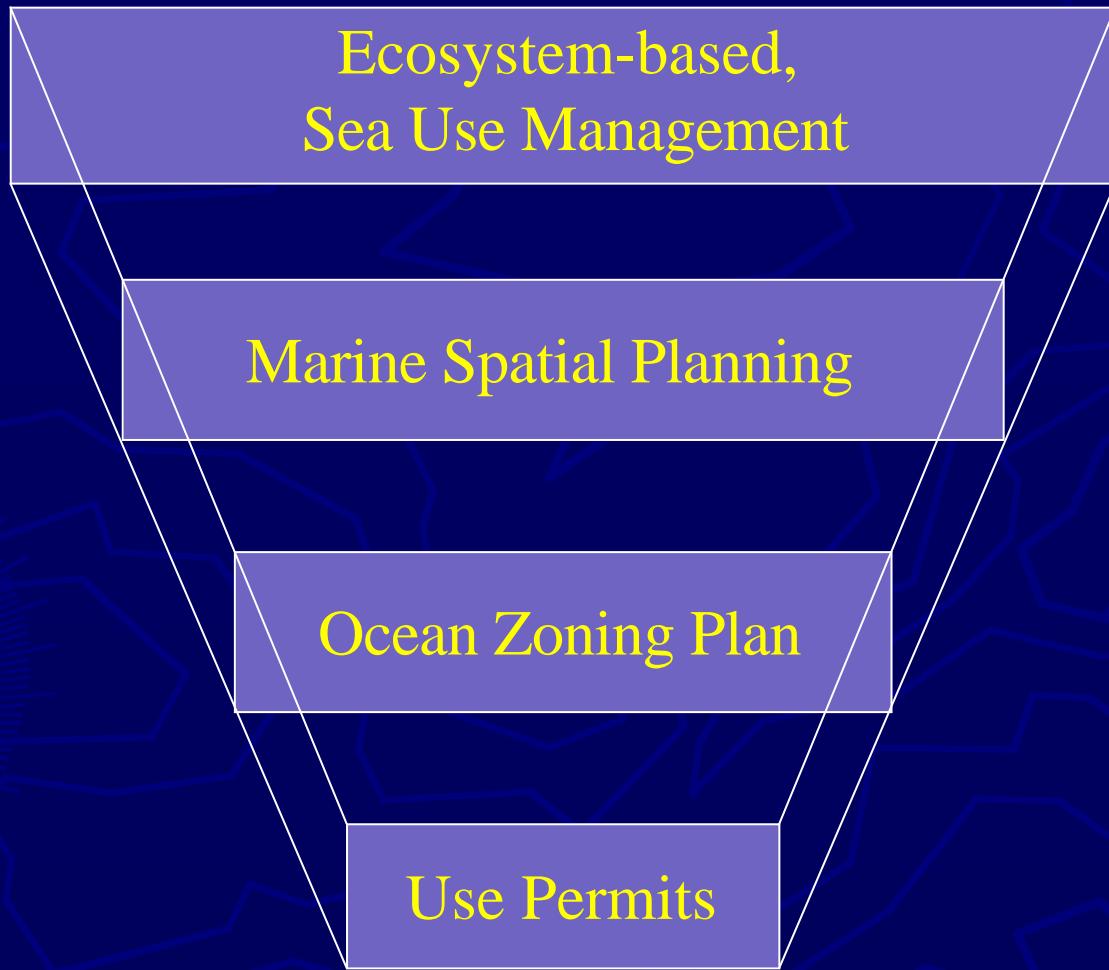
Acronyms

EB-SUM = Ecosystem-Based, Sea Use Management

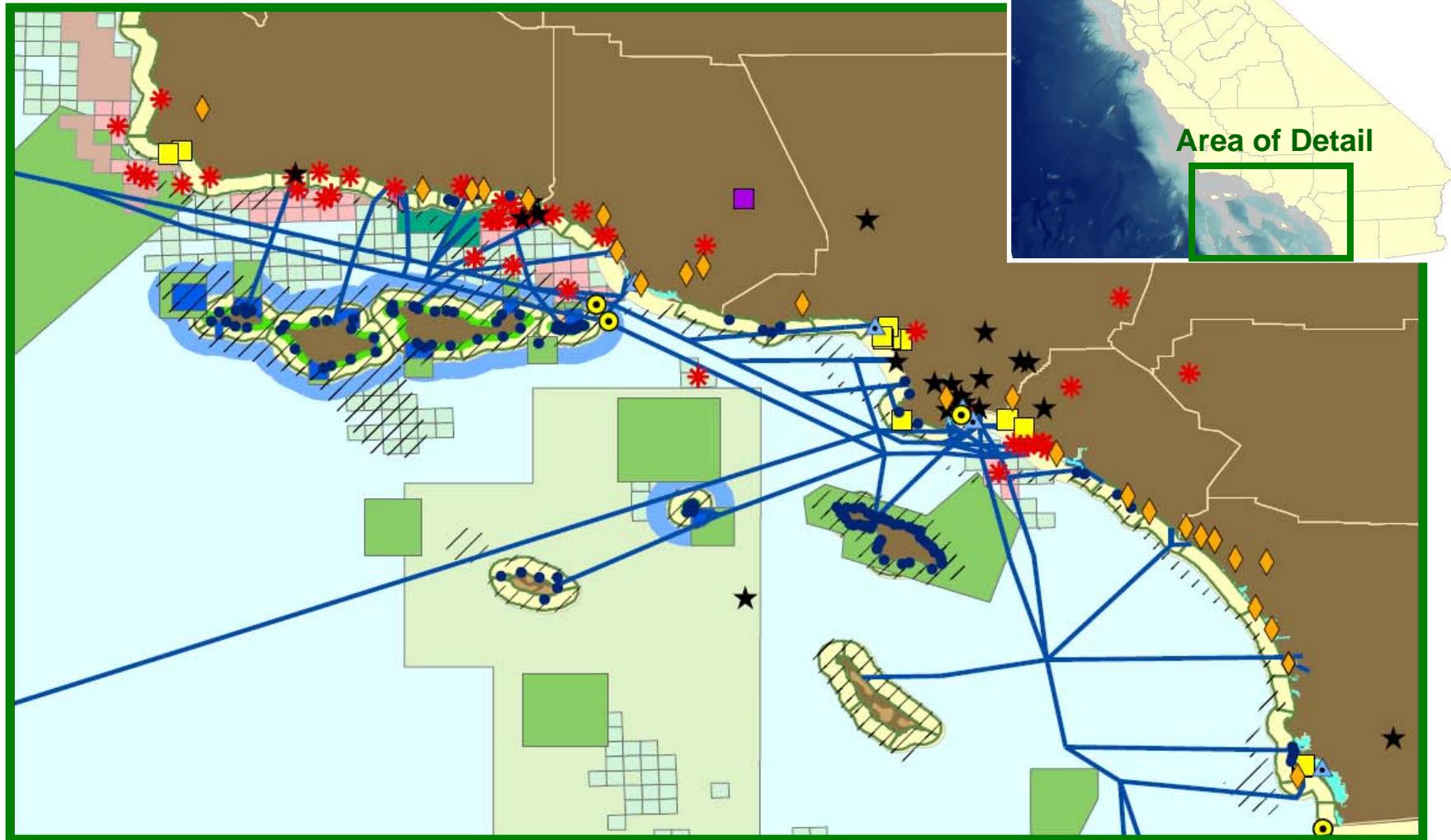
MSP = Marine Spatial Planning

OZ = Ocean Zoning

Hierarchy



Southern California



MSP IMPLEMENTATION

- BELGIUM -



Source: Maes, F. et al.

- January 1999
Law on Protection of
Marine Environment
- Masterplan for the Belgian
North Sea
 - ⇒ Phase 1 (2004)
 - Zones for Sand & Gravel
exploitation
 - Zones for Wind Energy
exploitation
 - ⇒ Phase 2 (2005-2006)
 - Marine Protected Areas



PHASE 1: SAND AND GRAVEL EXTRACTION



- Control Zone 1
⇒ Procreation Zone (fish)
- Control Zone 2
⇒ Rotation system
- Control Zone 3
⇒ Recycling Zone
- Exploration Zone

Source: Maes, F. et al.



Benefits of EBM-SUM

- Greater certainty to private sector when planning new investments
- Reduced conflict among uses and users
- Establishing MPAs as part of EB-SUM reduces the risk of conflict with development
- Ensures 'room' for biodiversity and nature conservation
- Puts biodiversity commitments at the heart of planning and management
- Promotes efficient use of space and resources, reducing impacts on the environment
- Provides context for establishing network of protected areas

Adapted from English Nature, 2005

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Pathway To Marine Spatial Planning

- 1. Map where things are, evaluate their status and identify critical areas**

- 2. Map human uses and interests**

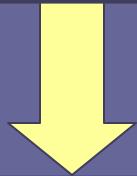
- 3. Create integrated planning capacity to consider interactions between human uses and ecosystems**

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graph TD; A[Managers identify high-priority questions] <--> B[Scientists gather and analyze relevant data]
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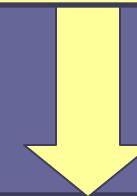
Scientists gather and analyze relevant data

Managers identify high-priority questions

**Integrated biophysical
and socioeconomic data**

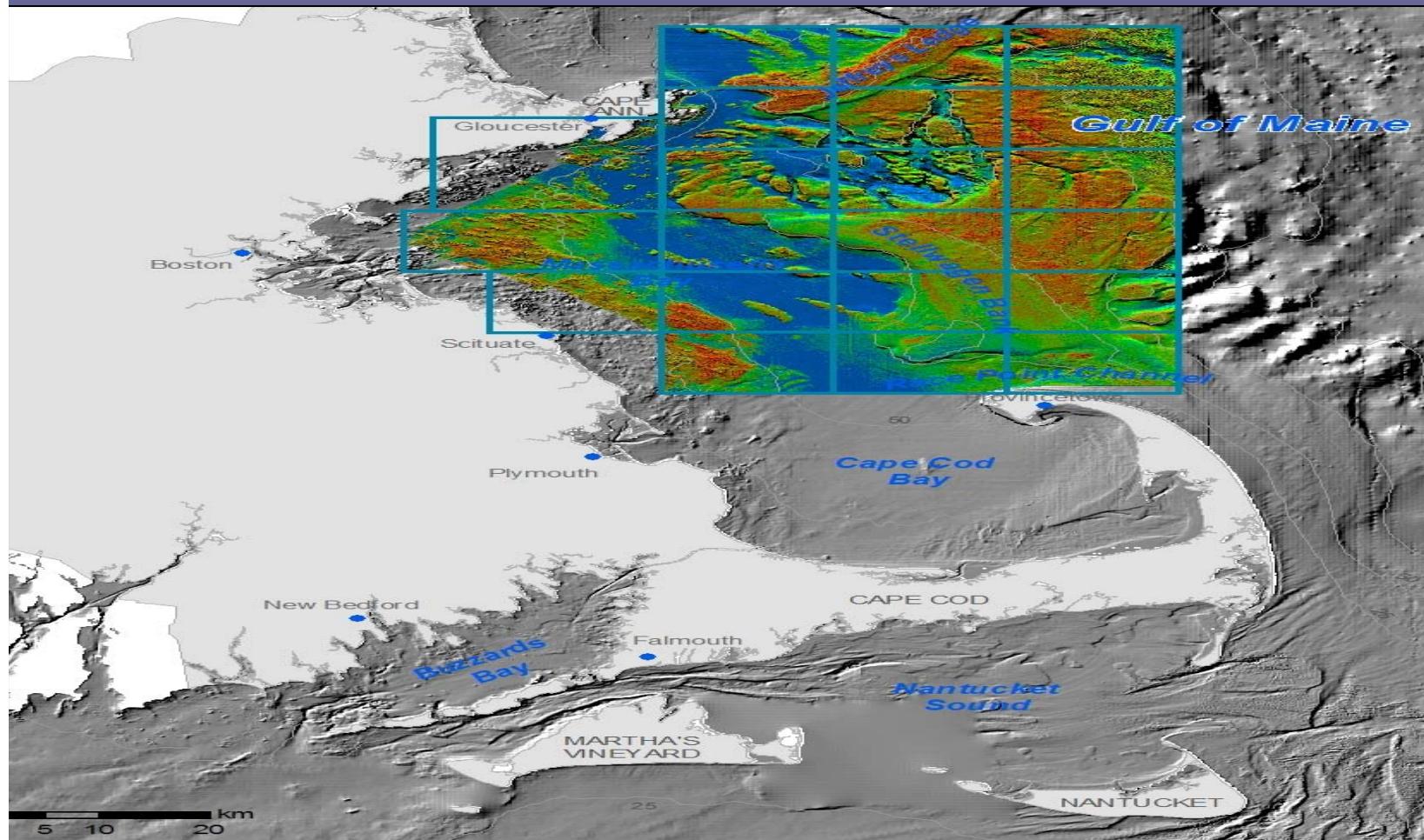


- Determine where problems exist in space and time
- Evaluate cumulative impacts on the ecosystem
- Resolve conflicts among uses

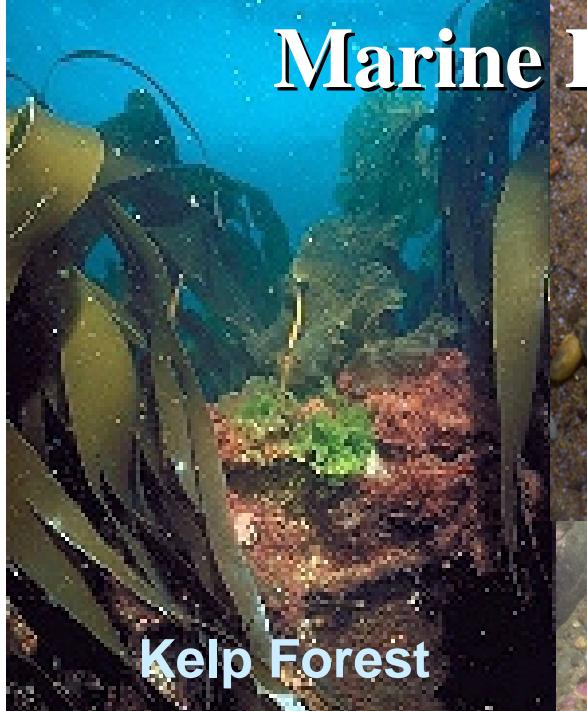


**Information needed for
effective decision making**

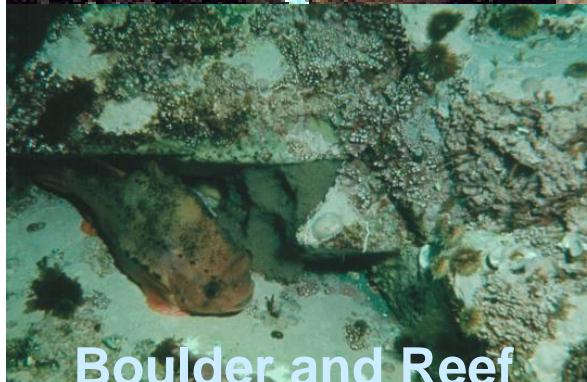
Seafloor Mapping



Marine Habitat Classification Scheme



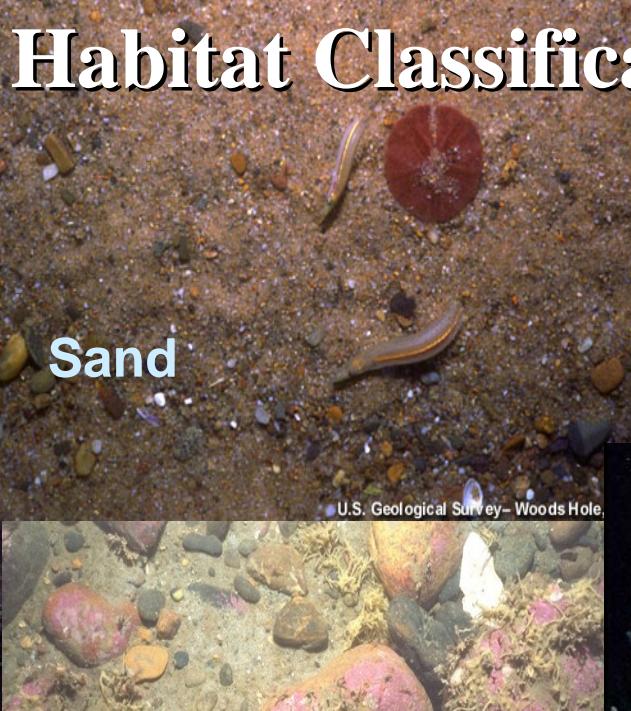
Kelp Forest



Boulder and Reef



Mud



Sand



Cobble and Gravel



Eelgrass Meadows



Sponge Fields



Inventory of Existing, Proposed & Reasonably Foreseeable Offshore Energy Facilities

Reconnaissance-level information on ocean areas that appear most likely to be of future interest to energy industry over next ten years.

Includes:

- wind energy generation
- LNG
- wave & tidal energy



Collection of Human Use Data



- Water taxi stops
- Ferry routes
- Kayak launch areas and activity
- Marinas, mooring fields
- Dredge material disposal
- Seaports
- Whale sightings & whale watching
- Desalination facilities (proposed)
- Recreational diving sites

Government Initiatives Summary

- Ocean Management Legislation Filed
- Seafloor Mapping
- Human Use Characterizations
- MPA Inventory and Working Group
- Ocean and Coastal Economy
- Energy Infrastructure Planning
- Massachusetts Ocean Partnership Fund
- Interagency Planning Meetings

Ocean EBM Needs Stakeholder Participation

- Who should participate in the process (stakeholder analysis)?
- How can stakeholders be involved at all stages of the management process?
- How can participation be sustained over time?



We use a range of spatial management tools in the Great Barrier Reef, but zoning and adaptive management are the fundamental cornerstones of what, and how, we do it.

-Jon Day

Spatial planning maximizes the economic return on space.

-Elliott Norse

You're not alone. Some states and countries are going through the same process.

*We need to involve all sectors.
There's a lot to be learned from
public/private partnerships.*

-Robbin Peach

**The most important key to
success in ecosystem-based
ocean management is leadership.**

-Gail Osherenko

A wide shot of the ocean showing two surfers riding waves. The water is a deep blue-green color with white foam from the breaking waves.

Thank you for listening!

Gail Osherenko
osherenko@msi.ucsb.edu



EB-SUM Needs Capacity Building

- EBSUM Needs New Skills Rarely Found in Public or Private Sectors
- Need to Bring Marine Spatial Planning, Integrated Coastal Management and Land Use Planning Communities Together



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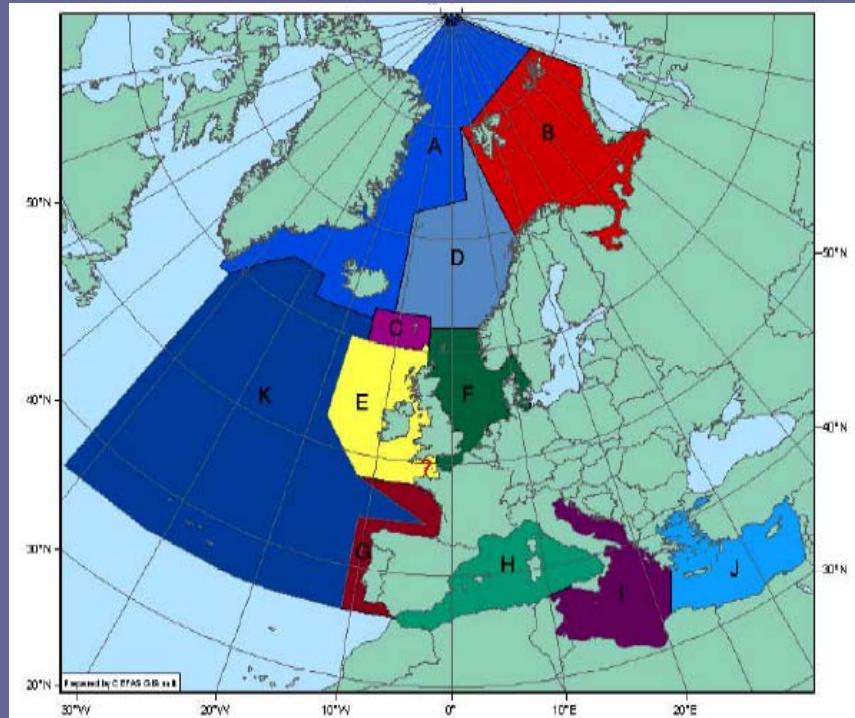
EB-SUM Needs Authorization



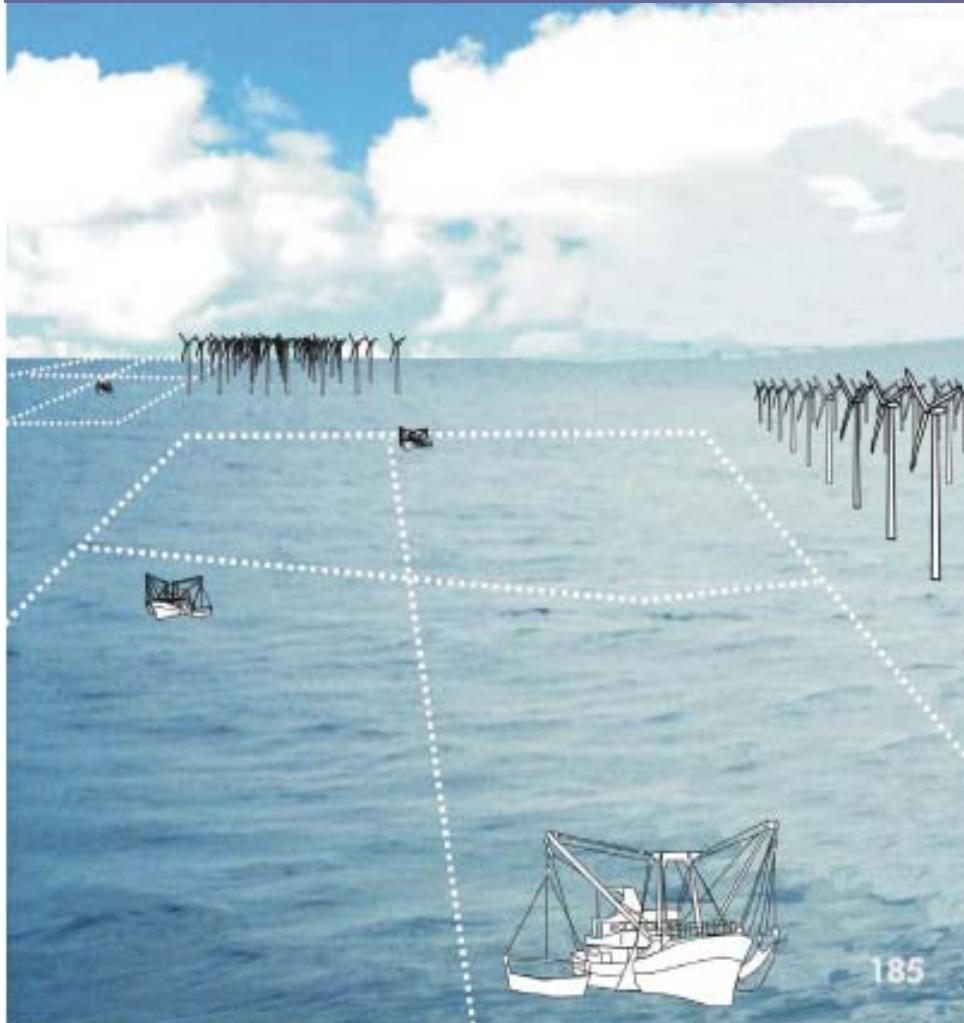
- New legislation
- Mandate from higher level of government

EB-SUM Needs Boundaries

- Recognition of the “ecosystem”, like recognition of the “problem” is an important first step
- Boundaries of analysis (planning) can be different from boundaries of management



Rights and Rules are social constructs that reflect societies' changing concepts



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The Working Group: Chris Gong, Stephen Langdon, John Ogden, Robbin Peach, James Wilson, Karen McLeod, Gail Osherenko, Elliott Norse, Larry Crowder, Satie Airame, Jon Day, and (not pictured) Andrew Rosenberg, Charles Ehler and Fanny Douvere.

North Anacapa Island Marine Reserve, Channel Islands, CA.

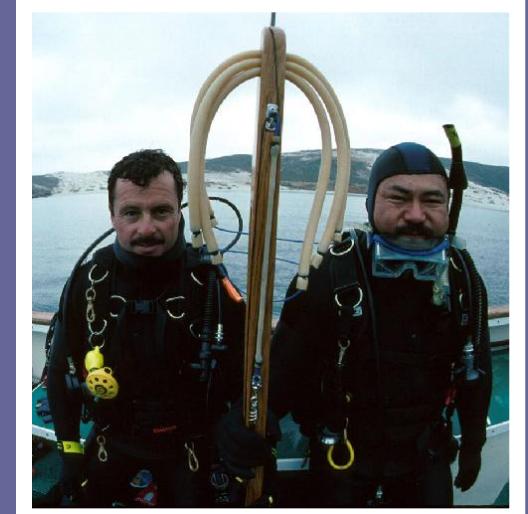


An Instructive Precedent: Great Barrier Reef Marine Park

- 1) huge area backed by strong national legislation, with strong public support
- 2) federal-state cooperation
- 3) conservation has precedence
- 4) zones increasingly based on sound science modified by public input
- 5) adaptive management: zones revised on rotating basis to incorporate new information



California



Federal/State Battle over OCS

- 1953 Submerged Lands Act
- 1953 Outer Continental Shelf Lands Act (OCSLA)
- 1954 *Alabama v. Texas*
- 1975 *US v. Maine*

