Conservation Perspective

Marine Protected Areas
&
Monterey Bay National Marine Sanctuary

Sustainable Use - Conservation

National Forest

National Park

Fisheries Management - MPAS

Goals of Fisheries Management

- Prevent overfishing and rebuild overfished stocks by managing for appropriate harvest levels …
- Maximize the value of the groundfish resource as a whole.
- Within the constraints of overfished species rebuilding achieve the maximum biological yield of the overall groundfish fishery …

Goals of National Marine Sanctuaries

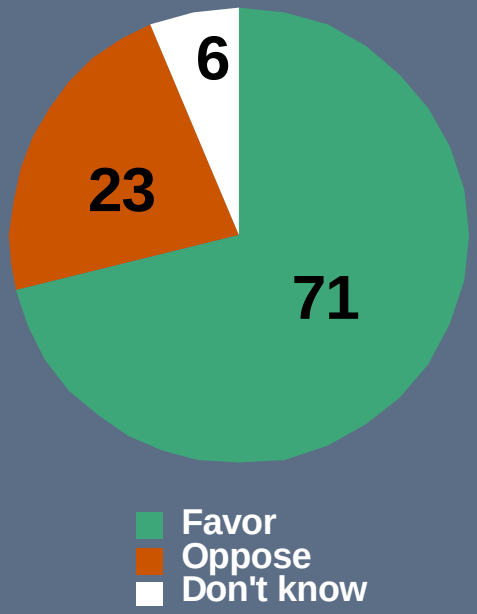
16 US Code 1431:

- “Maintain for future generations the habitat, and ecological services, of the natural assemblages of living resources that inhabit these oceans.”
- “Maintain the natural biological communities in the national marine sanctuaries, and to protect, and, where appropriate, restore and enhance natural habitats, populations, and ecological processes.”

2006 CA Poll: >70% favor MPAs

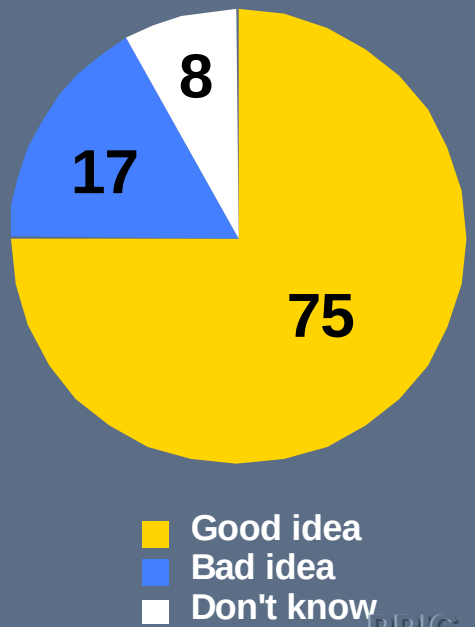
Marine Protected Areas

How about creating more marine reserves off the California coast, even if this means that some ocean areas will be off -limits to commercial and recreational fishing? Do you favor or oppose such an action?



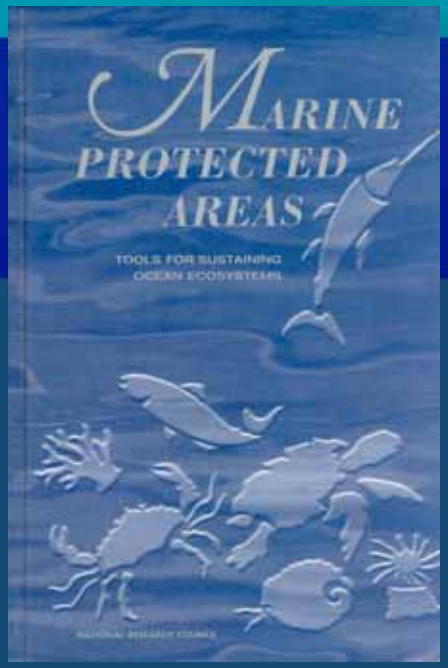
All Adults

Do you think it is a good idea or a bad idea to create new Marine Protected Areas in about 10-20% of the ocean waters along California 's coast?

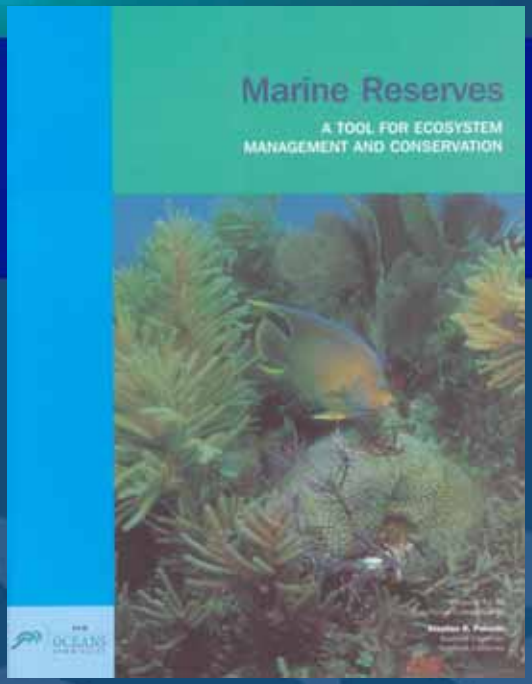


Public Support for MPAs in MBNMS

- #1 Issue Raised in JMPR Scoping Public Comments.
- Over 7000 comments in support of Sanctuary Adopting MPAs.
- Voted Among Top SAC Priorities on Multiple Occasions.

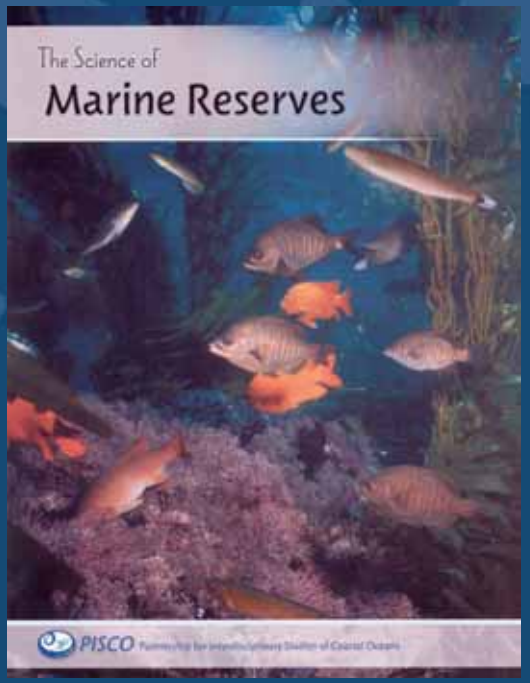


Marine Protected Areas
Tools for Sustaining Ocean Ecosystems
National Research Council
www.nap.edu/books/0309072867.html



Marine Reserves
A Tool for Ecosystem
Management and Conservation
Palumbi (Pew Oceans Commission)
www.pewoceans.org/reports/pew_marine_reserves.pdf

The Role of Marine Reserves as Fisheries Management Tools
A Review of Concepts, Evidence and International Experience
Ward, Heinemann & Evans
www.brs.gov.au/fish/



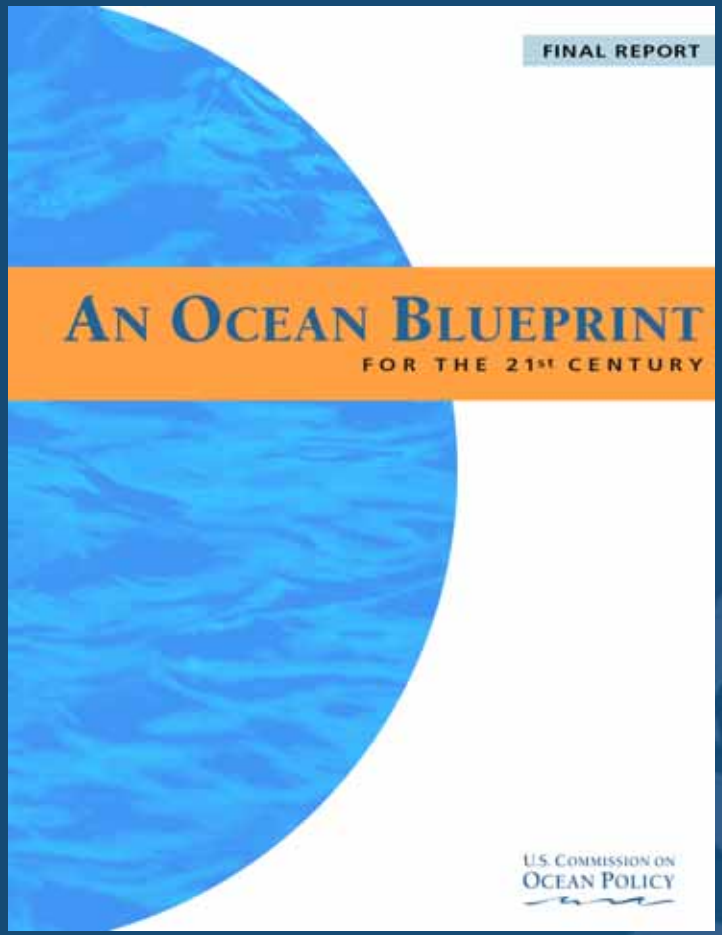
The Science of Marine Reserves
PISCO (Partnership for Interdisciplinary Studies of Coastal Oceans)
piscoweb.org/outreach/pubs/reserves/booklet_final.pdf

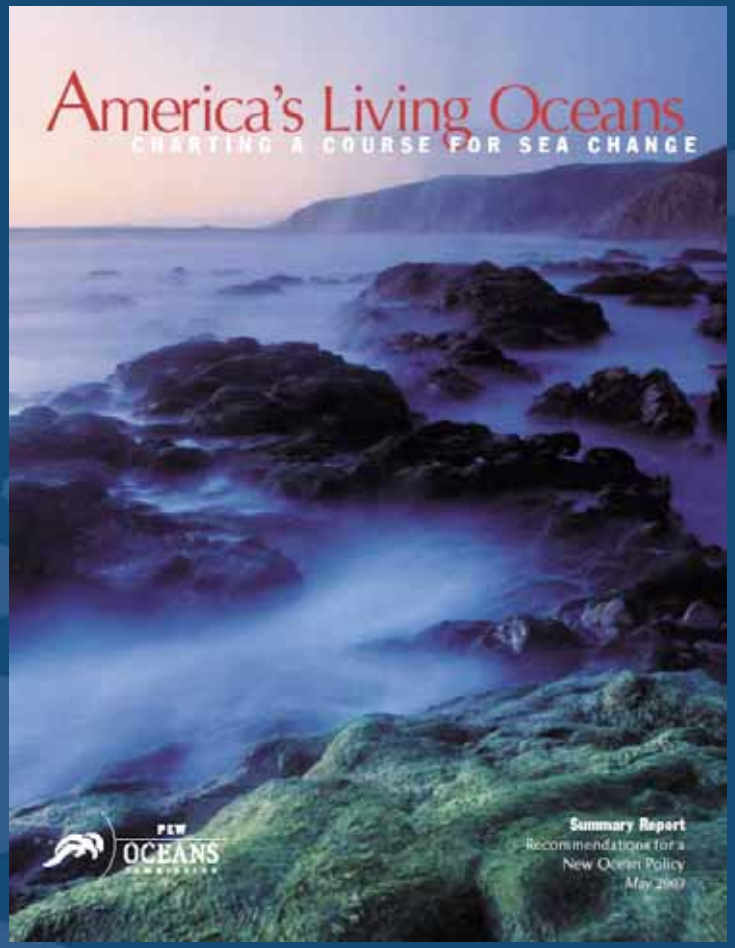
Scientific Support for MPAs

Consensus Statement Signed by 161 Leading Marine Scientists (2001):

- Reserves are the best way to protect resident species and provide heritage protection to important habitats.
- Networks of reserves will be necessary for long-term fishery and conservation benefits.
- Existing scientific information justifies the immediate application of fully protected marine reserves as a central management tool.

U.S. Commission on Ocean Policy & Pew Oceans Commission





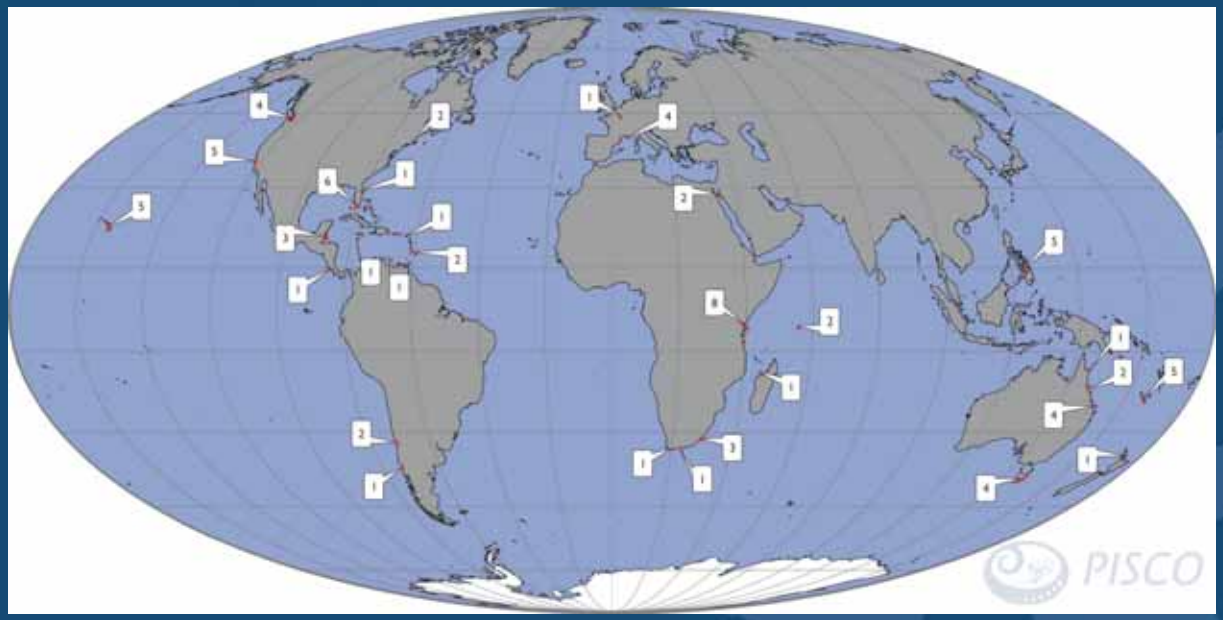
Pew Commission MPA Recommendation:

<u>Establish a National System of Marine Reserves.</u>

"Continue efforts to establish marine reserves under existing authority … (i.e., The National Marine Sanctuaries Program.)"

"Congress should provide a mandate and authority for designating a national system of marine reserves."

Use of MPAs Around World

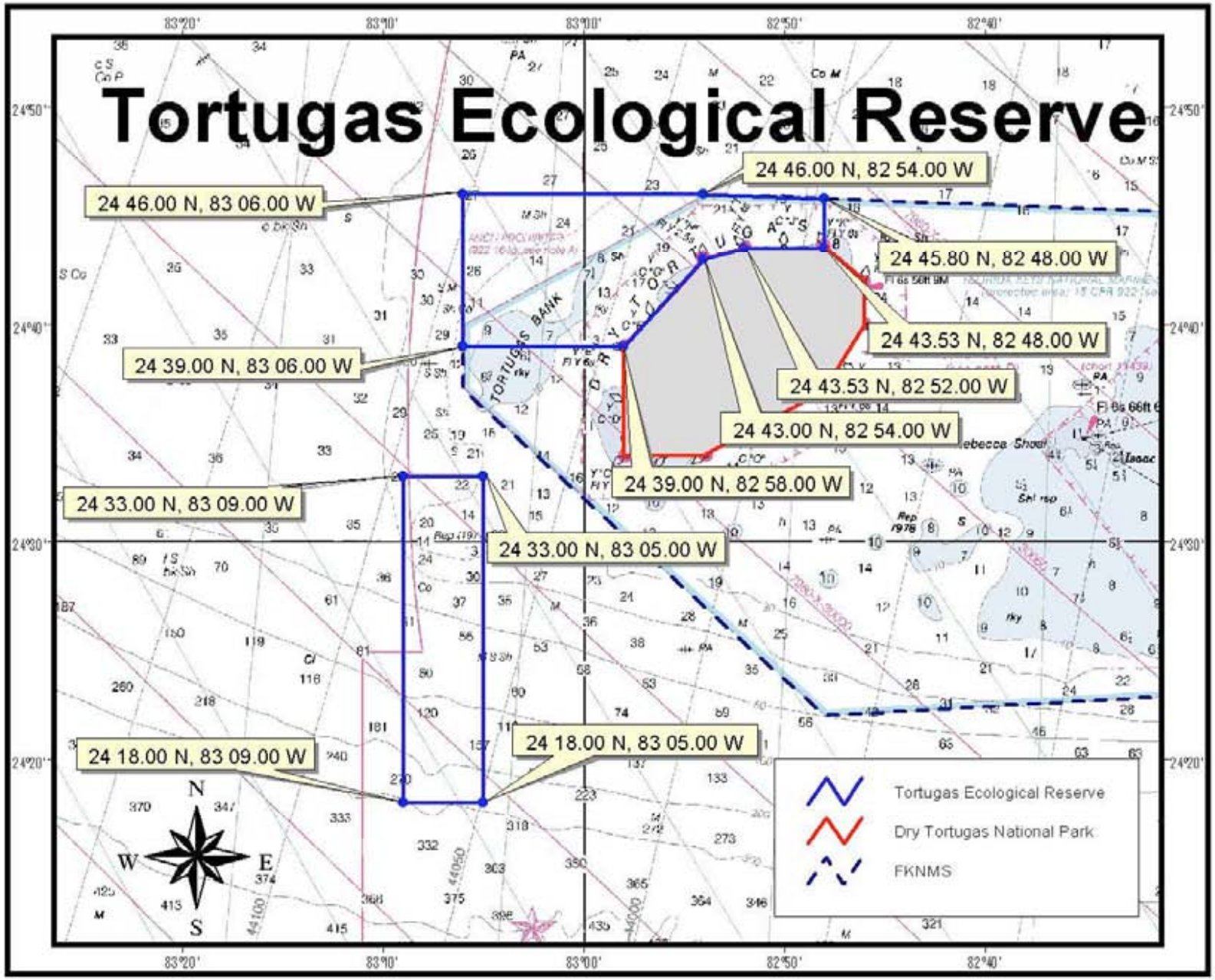


Argentina Australia Bahamas Barbados Belize Brazil Canada Canary Islands Chile Costa Rica Cuba Egypt France Italy Jamaica Kenya New Caledonia New Zealand Philippines Santa Lucia Seychelles Solomon Islands South Africa Spain Tanzania Venezuela

Documented Benefits of MPAs

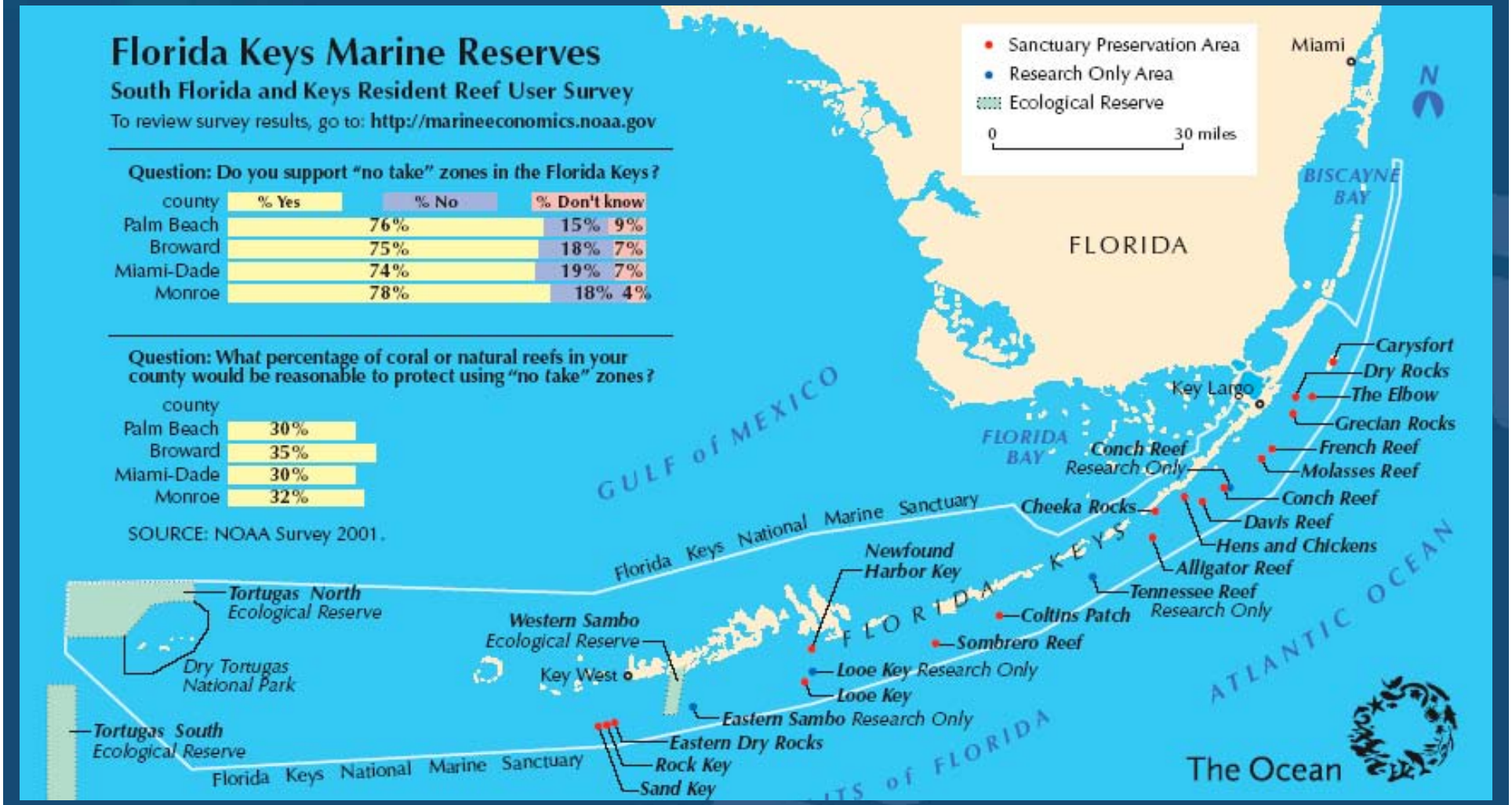
- Conservation of Biodiversity
- Protect Key or Representative Habitats
- Maintain Ecosystem Function
- Insurance Against Uncertainty/Buffer Against Mistakes

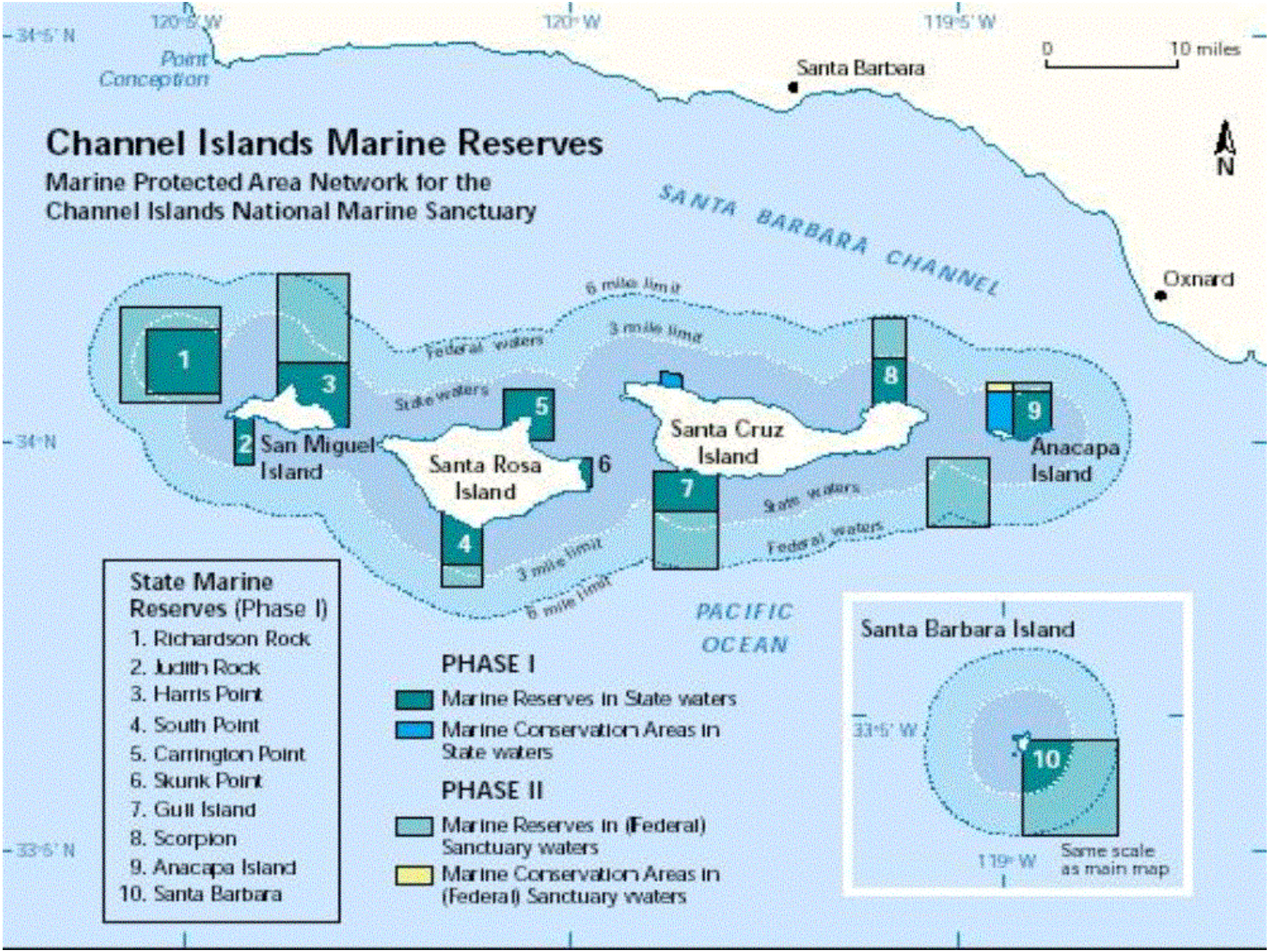
MPAs are Controversial *Everywhere*



This chart and these coordinates are for informational purposes only and are not intended for navigational use.

2001 Florida Poll (NOAA): >75% of Local Reef Users Support MPAs




Channel Islands Marine Reserves
Marine Protected Area Network for the
Channel Islands National Marine Sanctuary
120°5' W
120° W
119°5' W
34°5' N
34° N
33°5' N
Point Conception
Santa Barbara
Oxnard
0
10 miles
N
SANTA BARBARA CHANNEL
6 mile limit
3 mile limit
Federal waters
State waters
San Miguel Island
Santa Rosa Island
Santa Cruz Island
Anacapa Island
PACIFIC OCEAN
State Marine Reserves (Phase I)
1. Richardson Rock
2. Judith Rock
3. Harris Point
4. South Point
5. Carrington Point
6. Skunk Point
7. Gull Island
8. Scorpion
9. Anacapa Island
10. Santa Barbara
PHASE I
Marine Reserves in State waters
Marine Conservation Areas in State waters
PHASE II
Marine Reserves in (Federal) Sanctuary waters
Marine Conservation Areas in (Federal) Sanctuary waters
Santa Barbara Island
33°5' W
119° W
Same scale as main map

WESTERN OUTDOOR NEWS

October 5, 2007

Most sources report no impact from MPAs

BY BUD NEVILLE
WON Staff Writer

MOSS LANDING — The South Central Groundfish Management Zone Marine Protection Areas are now in effect, and so far, sources report no impact on their scores or fishing action. In one case, a party boat skipper said the new MPA at Ano Nuevo is working to his advantage.

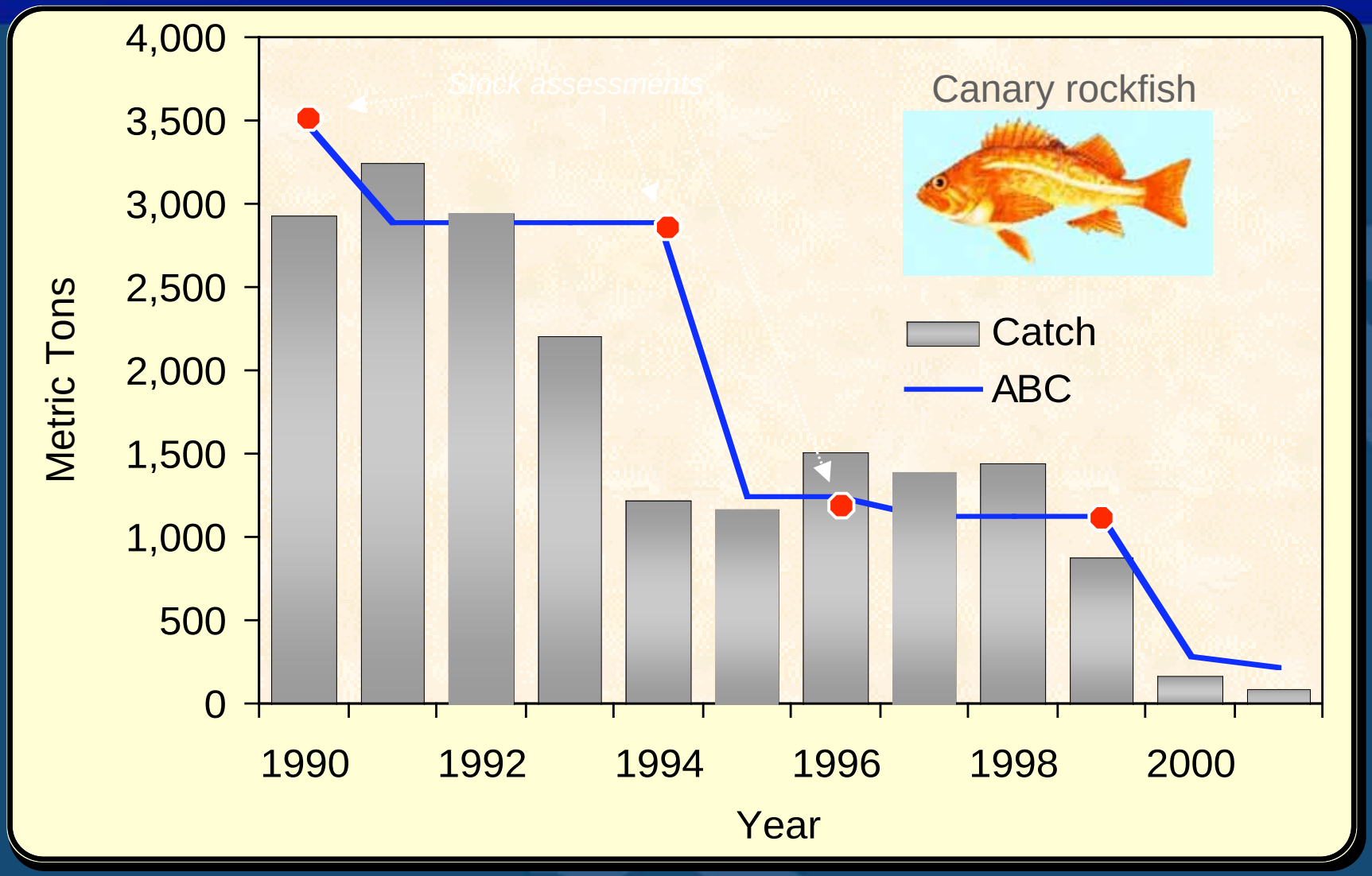
"The areas that closed nearest us are actually outside the depth we're allowed to fish anyway," said Carol Jones at Tom's Sportfishing. They continued to score limits on rockfish on bottomfishing efforts.

As far as business dropping off, Chris Arcoleo at Chris' Sportfishing in Monterey couldn't say. "I guess there could be some people who said to themselves, 'I'm not going fishing because there are reserves now,' but I don't know. In fact, I think our business might now improve since bottomfishing is closing up north."

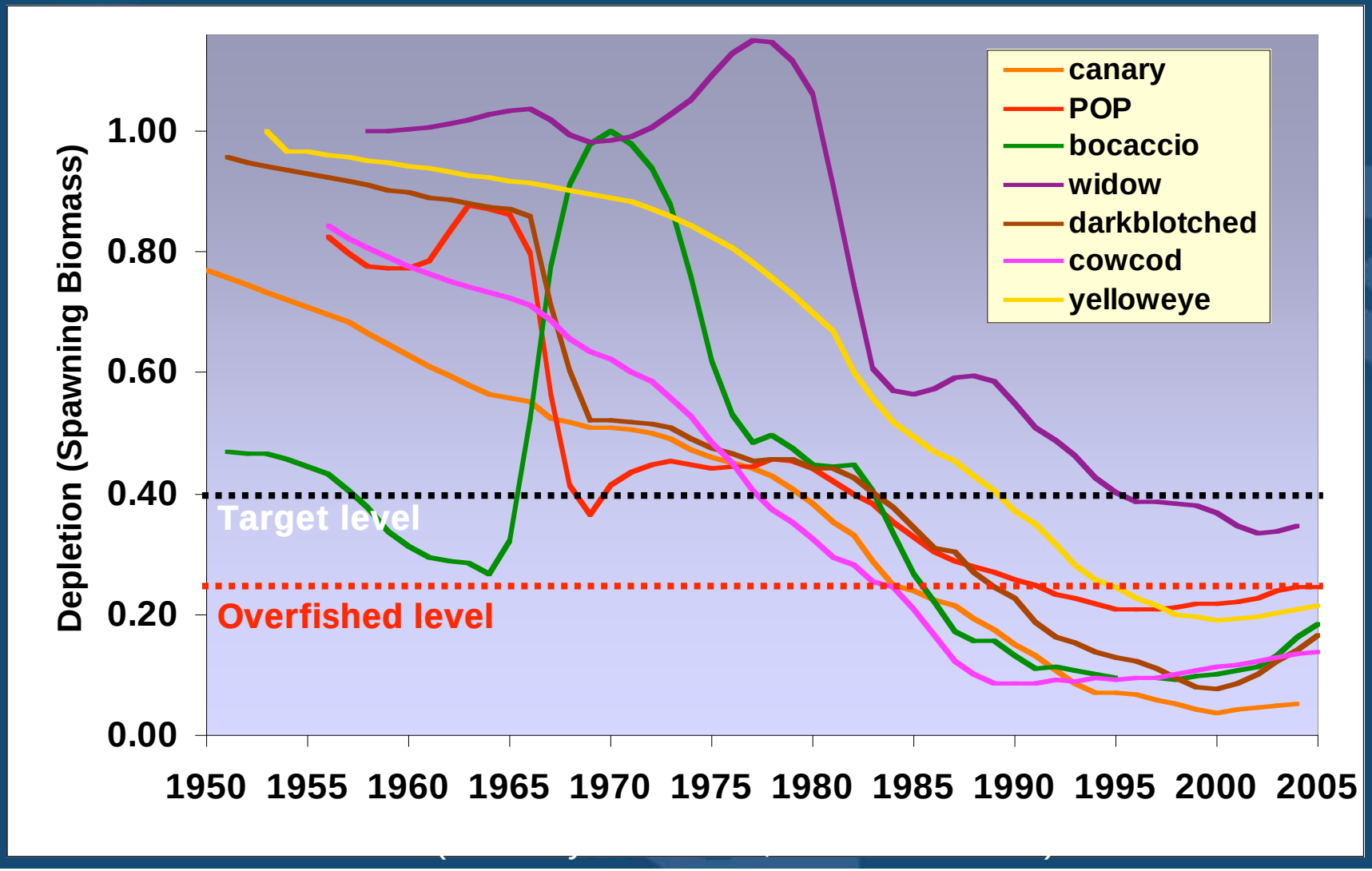
"I fished Ano Nuevo both weekend days last week," said Captain Ken Stagnaro on the *Velocity*. "You know what? I was the only boat there! There is still plenty of room to fish on the deep side of the island outside the closure, and to the south as well."

He said that he ran up on Saturday, and the Department of Fish and Game boat *Marlin* was on scene, right on the boundary. "I hailed him on the radio, and questioned him to ensure that I was clear on the boundaries and restrictions, and he concurred," said Stagnaro. "Then we started fishing, and he took off north. I didn't see him again the rest of the day." Anglers on the *Velocity* caught limits of rockfish and a few bonus lingcod and cabezon as well.

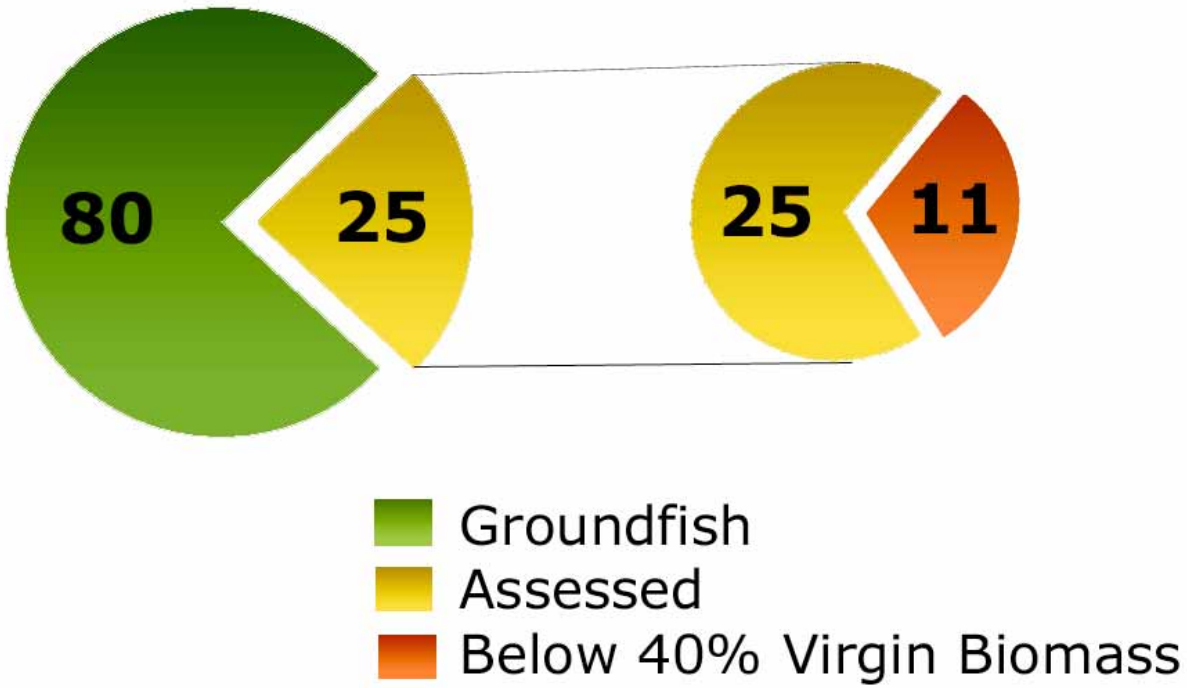
Decline in Canary Rockfish



Overfishing



Management Uncertainty



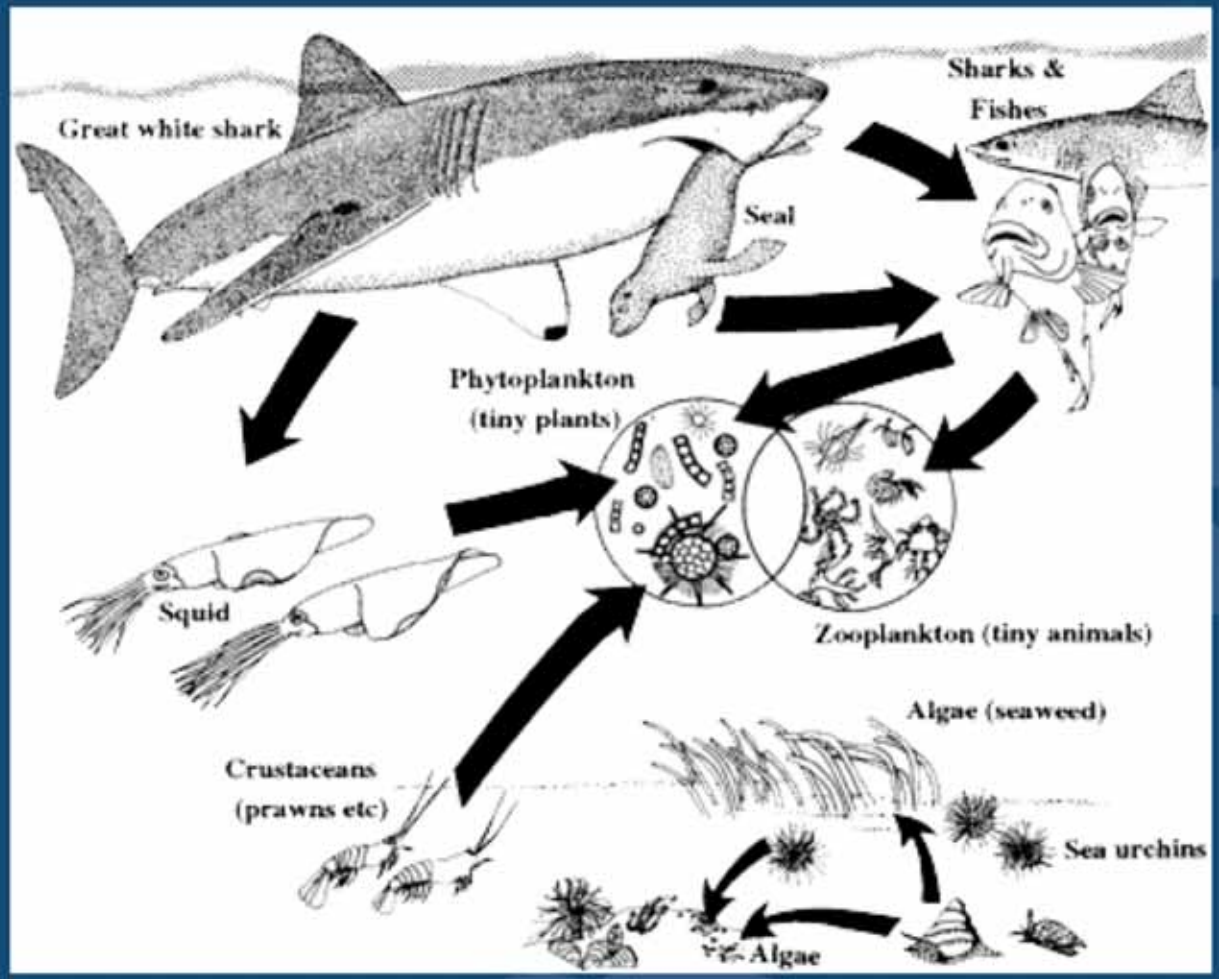
Trawl Bycatch

SPECIES_NA	COMMON_NAM
0	dorid nudibranch unident.
0	pink hormathiid anemone
0	tube worm unident.
Actiniaria (order)	sea anemone unident.
Actinostolidae	0
Alepocephalus tenebrosus	California slickhead
Allocentrotus fragilis	orange-pink sea urchin
Allocentrotus sp.	0
Alosa sapidissima	American shad
Ampheraster marianus	0
Ampheraster sp.	0
Anoplogaster cornuta	fangtooth
Anoplopoma fimbria	sablefish
Anthomastus sp.	0
Antimora microlepis	Pacific flatnose
Aphrocallistes vastus	clay pipe sponge
Apristurus brunneus	brown cat shark
Apristurus brunneus egg case	cat shark egg case
Argentina sialis	Pacific argentine
Argyropelecus sp.	0
Ascidian unident.	tunicate unident.
Asterina miniata	bat star
Asteroidea unident.	starfish unident.
Asteronyx longifissa	0
Asteronyx loveni	serpent sea star
Asteronyx sp.	0
Atheresthes stomias	arrowtooth flounder
Bathyagonus pentacanthus	bigeye poacher
Bathyagonus sp.	starsnout poacher unident.
Bathybembix bairdii	0
Bathylagidae unident.	deepsea smelt unident.
Bathylagus sp.	blacksmelt unident.
Bathyraja interrupta	Bering skate
Berryteuthis magister	magistrate armhook squid (p
Bothrocara brunneum	twoline eelpout
brachiopod unident.	lampshells unident.
Brisaster sp.	0
Cancer productus	red rock crab
Careproctus melanurus	blacktail snailfish
Careproctus melanurus	blacktail snailfish
Chauliodus macouni	Pacific viperfish
Chilara taylori	spotted cusk-eel
Chionoecetes tanneri	grooved Tanner crab
Chorilia longipes	Longhorned decorator crab
Chrysaora melanaster	0
Citharichthys sordidus	Pacific sanddab
Coryphaenoides acrolepis	Pacific grenadier
Cranchia scabra	sandpaper squid
Crossaster borealis	grooved sea star
Cryptopeltaster lepidonotus	0
Ctenophora (phylum)	comb jelly unident.
Dicrolene filamentosa	threadfin cusk-eel
Dipsacaster anoplus	0
Dipsacaster eximus	0
Dipsacaster sp.	0
Echinacea unident.	sea urchin unident.
Elassodiscus caudatus	humpback snailfish
Embassichthys bathybius	deepsea sole
Eopsetta jordani	petrale sole
Eptatretus deani	black hagfish

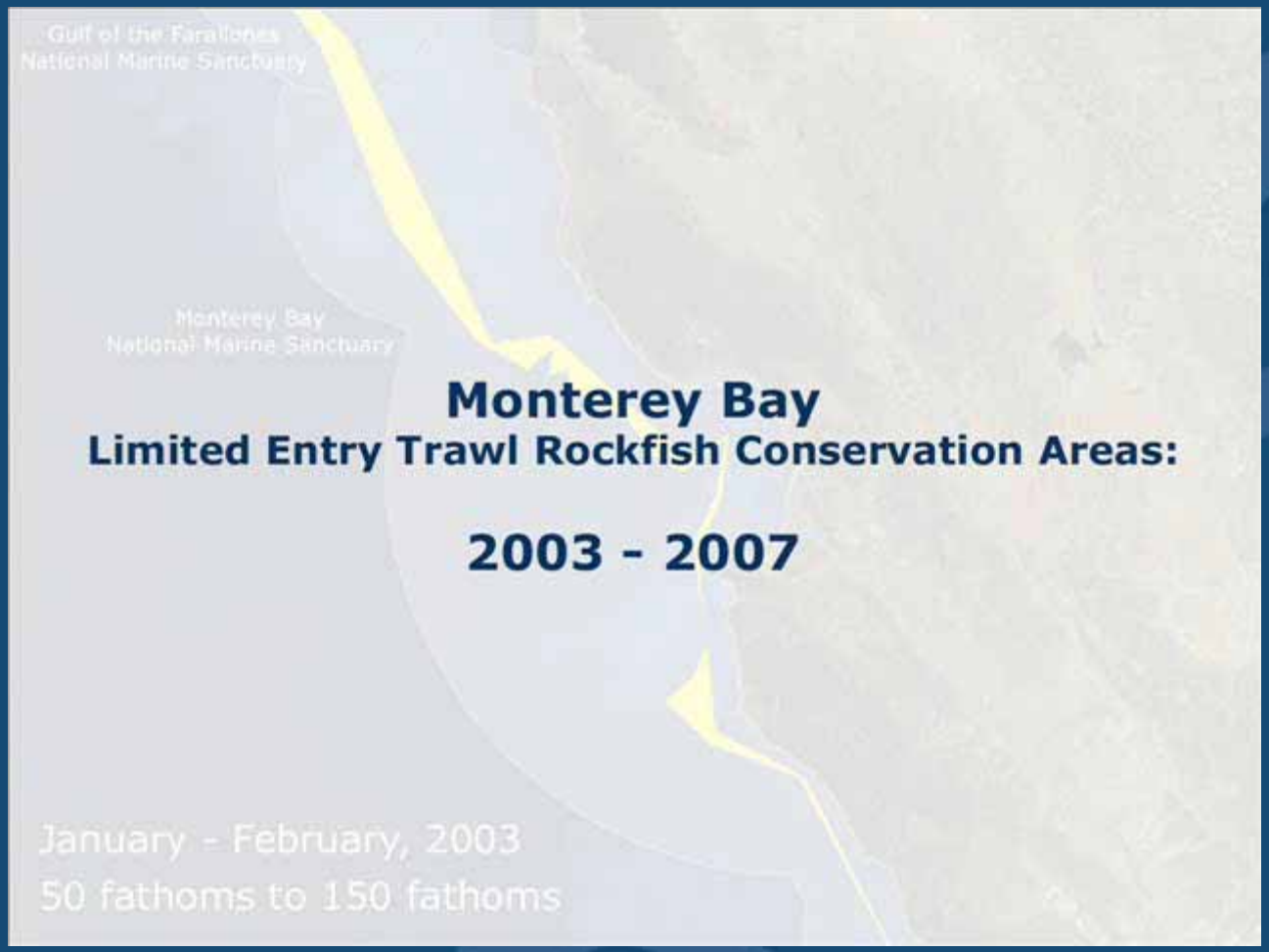
Glyptocepha	rex sole
Gorgonocep	basketstar
Heteropoda	0
Heterozonias	0
Hexactinellid	glass sponge unident.
Hippasteria (	0
Hippasteria s	spiny red sea star
Histioteuthis	heteropsis
Histioteuthis	0
Histioteuthis	0
Histioteuthis	hoylei (=H. dofleini)
Histioteuthis	jewel squids
Holothuroide	sea cucumber unident.
Hormathiida	0
Hyas lyratus	Pacific lyre crab
Hydrolagus (	spotted ratfish
Icelinus filam	threadfin sculpin
Icichthys loc	medusafish
Idiacanthus a	Pacific blackdragon
Lampanyctu	0
Leuroglossus	northern smoothtongue
Liparidinae	snailfish unident.
Liponema br	tentacle-shedding anemone
Loligo opales	California market squid (prev. market squid)
Lophaster fu	crested sea star
Luidia foliolat	0
Lycodes cor	bigfin eelpout
Lycodes dia	black eelpout
Lyopsetta ex	slender sole
Malacocepha	softhead grenadier
Malacocottu	blackfin sculpin
Mediaster a	vermilion sea star
Mediaster sp.	
Mediaster te	0
Merluccius p	Pacific hake
Metridium fa	gigantic anemone
Metridium sp.	
Microstomus	Dover sole
Moroteuthis	robust clubhook squid
Myctophidae	lanternfish unident.
Myxinidae	hagfish unident.
Myxoderma	0
Myxoderma	0
Neomenia sp	0
Neptunea ith	0
Neptunea sp	0
Nezumia ste	California grenadier
Nudibranchia	nudibranch unident.
Octopodidae	octopus unident.
Octopoteuth	0
Onychoteuth	boreal clubhook squid
Ophiodon el	lingcod
Ophiopholis	ubiquitous brittle star
Ophiuroid ur	brittlestarfish unident.
Opisthoteuth	flapjack devilfish
Paguridae	hermit crab unident.
Pagurus cor	knobbyhand hermit
Pandalus pla	spot shrimp
Pandalus sp	0

Paractinosto	rough purple sea anemone
Paralomis m	0
Parastichopu	0
Parmaturus	filetail cat shark
Parophrys v	english sole
Pasiphaea p	Pacific glass shrimp
Pasiphaea ta	crimson pasiphaeid
Pennatulace	sea pen or sea whip uniden
Periphylla pe	0
pineapple cu	pineapple sea cucumber
Pleurobranch	California sea slug
Pleuronichth	curlfin sole
Porichthys r	plainfin midshipman
Porifera	sponge unident.
Pseudarchas	0
Pseudarchaster	sp.
Psolus sp.	0
Psolus squa	whitescaled sea cucumber
Pteraster co	deepwater pteraster
Pteraster te	0
Ptilosarcus (	orange sea pen
Pyrosoma a	0
Raja inornata	California skate
Raja rhina	longnose skate
Rathbunaster	californicus
Rhabdocalyp	cloud sponge
Scyliorhinida	cat shark unident.
Scyphozoa (	jellyfish unident.
Sebastes au	aurora rockfish
Sebastes ba	redbanded rockfish
Sebastes ca	copper rockfish
Sebastes cr	darkblotched rockfish
Sebastes di	splitnose rockfish
Sebastes ek	greenstriped rockfish
Sebastes fla	yellowtail rockfish
Sebastes go	chilipepper
Sebastes he	rosethorn rockfish
Sebastes jo	shortbelly rockfish
Sebastes le	cowcod
Sebastes m	blackgill rockfish
Sebastes m	vermilion rockfish
Sebastes pa	bocaccio
Sebastes pi	canary rockfish
Sebastes pr	redstripe rockfish
Sebastes ru	bank rockfish
Sebastes sa	stripetail rockfish
Sebastes se	halfbanded rockfish
Sebastes sp	rockfish unident.
Sebastolobu	shortspine thornyhead
Sebastolobu	longspine thornyhead
Squalus aca	spiny dogfish
Stenobrachi	0
Sternoptyx s	0
Stomphia co	swimming anemone
Strongyloce	red sea urchin
Stylasterias	0
Stylasterias	0
Stylatula sp.	slender seawhips
Symbolopho	California lanternfish
Tactostoma	longfin dragonfish
Talismania b	threadfin slickhead

Biological Communities and Interactions

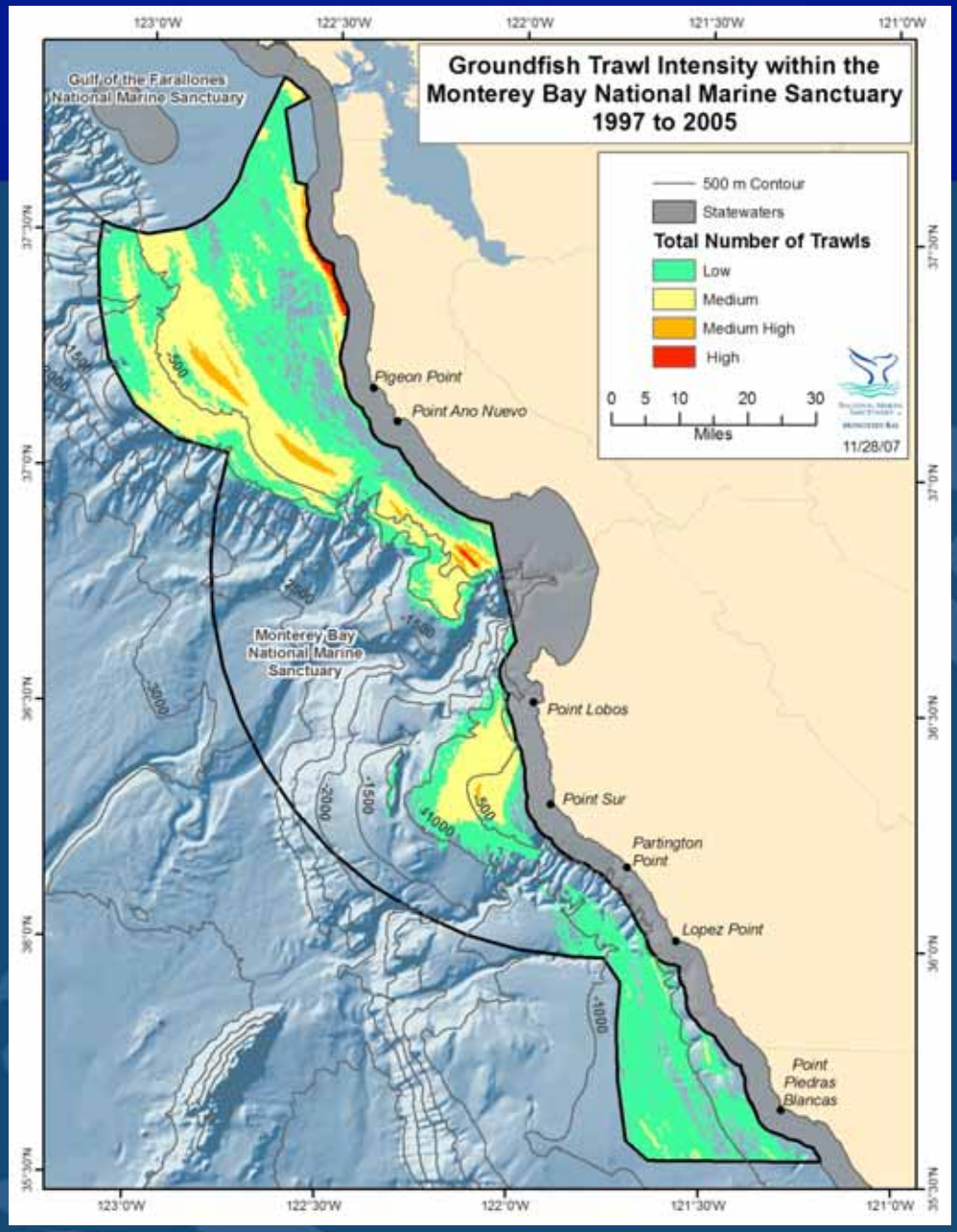


Annual Variability in RCA 2003-2007

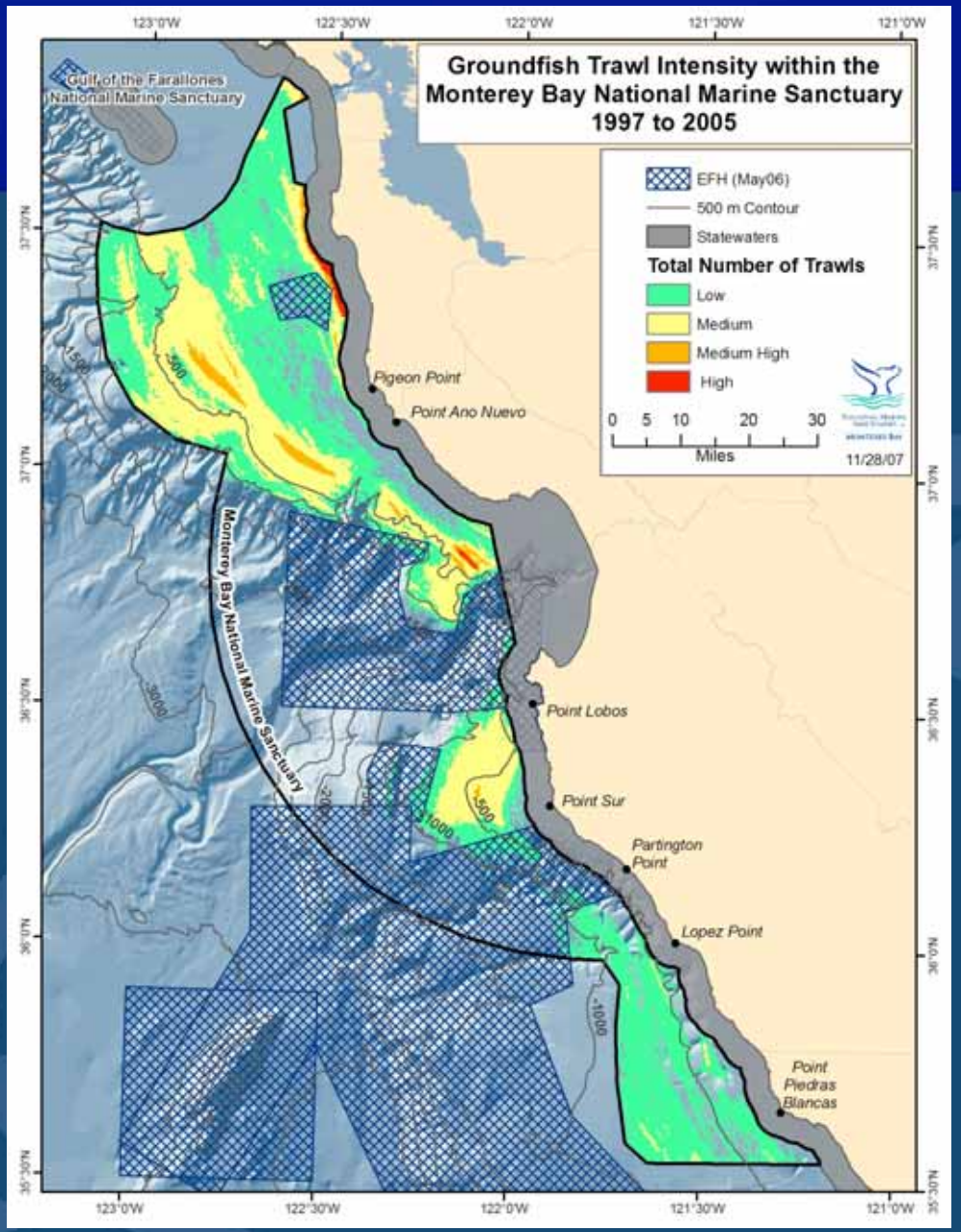


Extent of Year Round RCA Closure

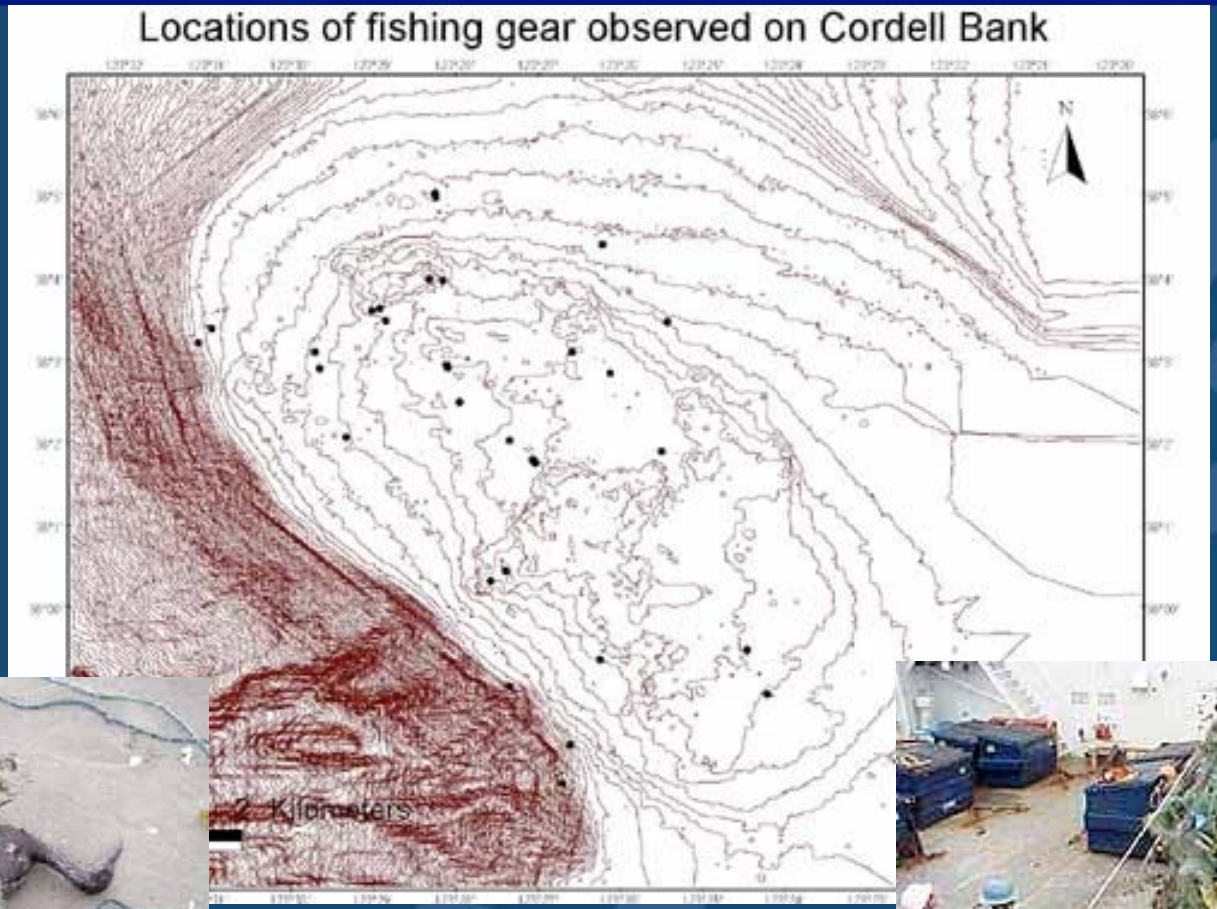
Extent of Bottom Trawling
In Monterey Bay National Marine Sanctuary
1997-2005



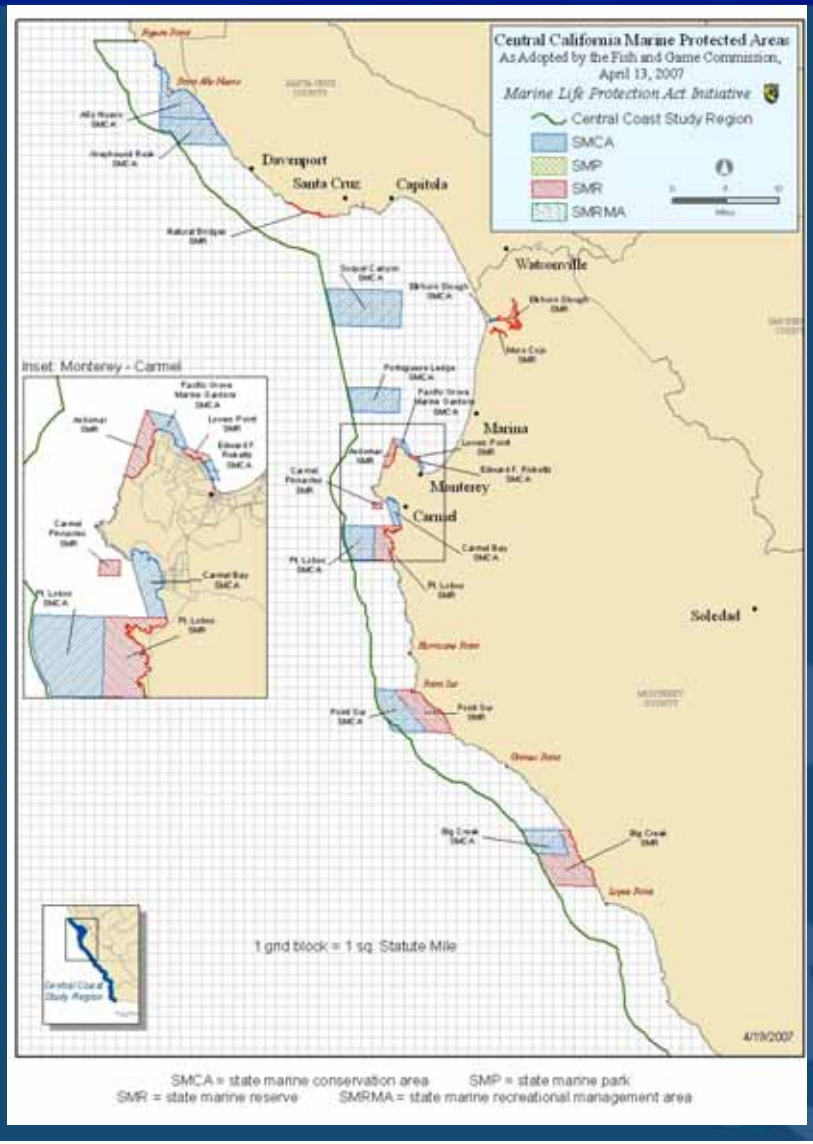
Bottom Trawling with Overlay of Essential Fish Habitat Regulations

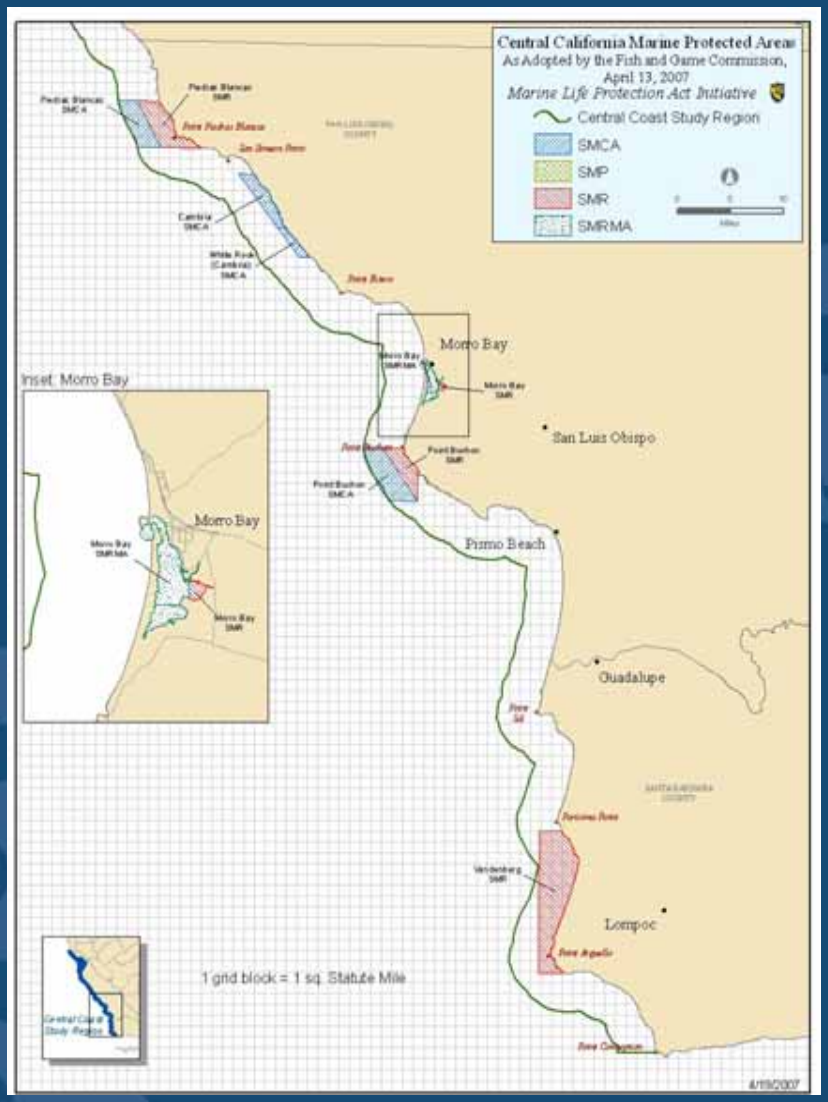


Impacts of Derelict Fishing Gear



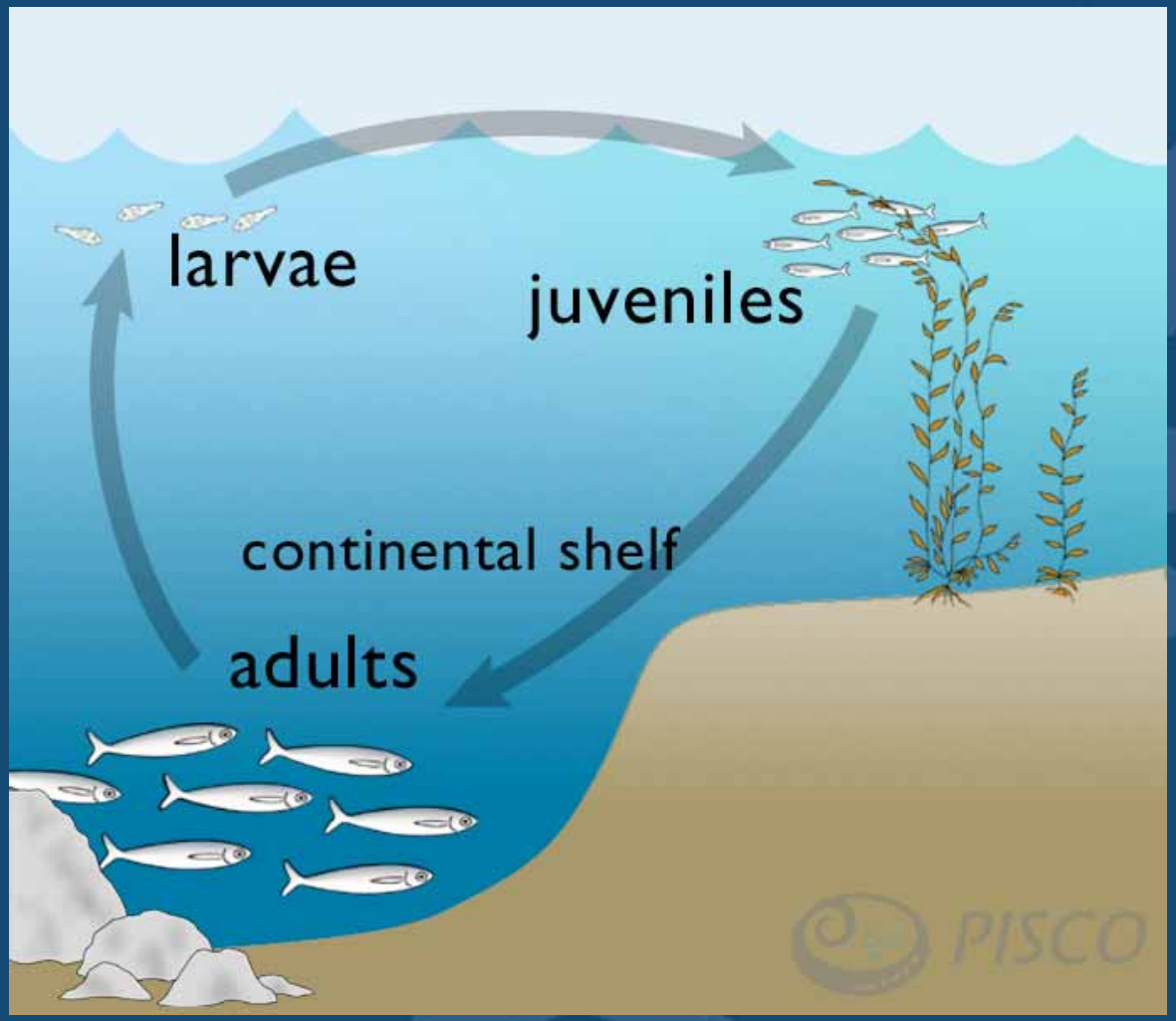
MPAs in State Waters



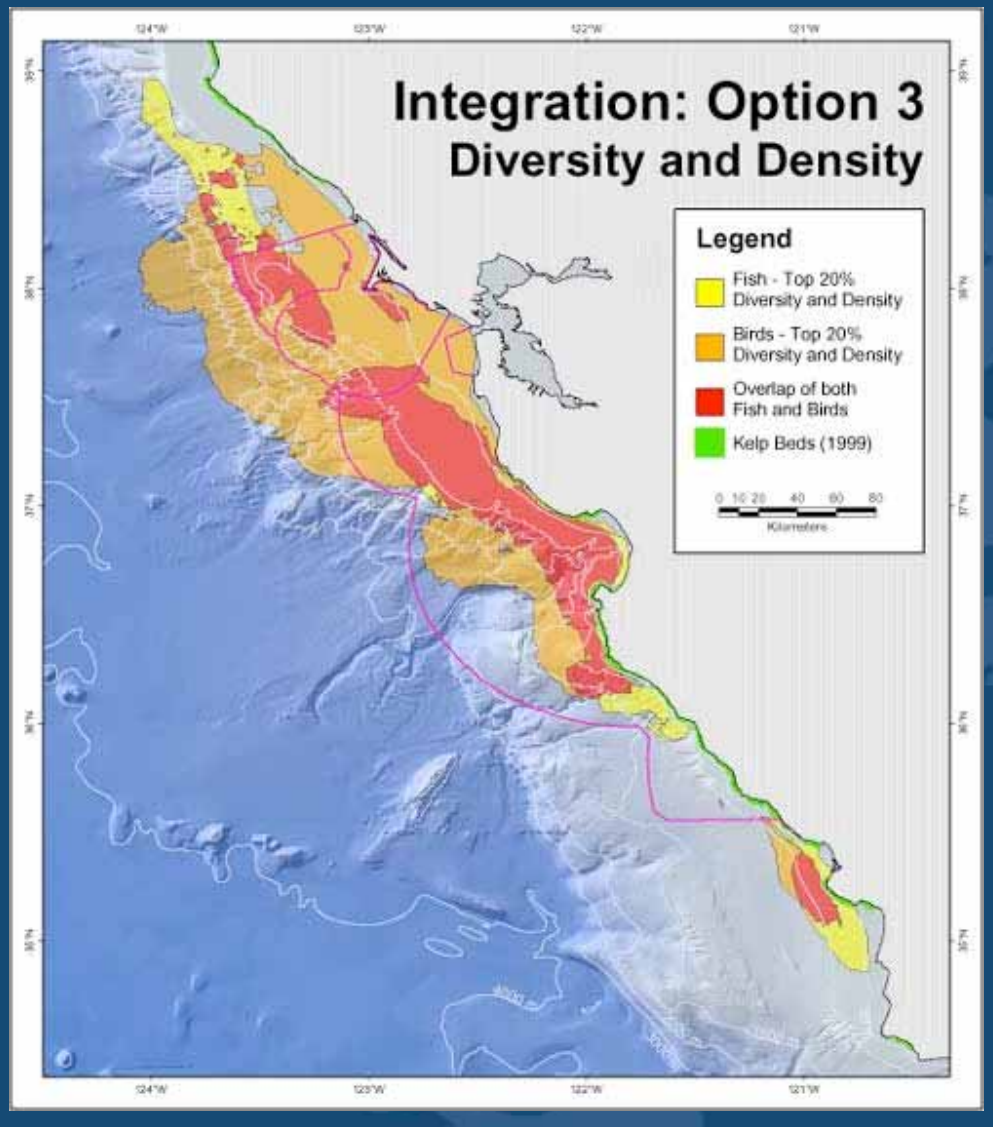


Sanctuary Scale

Some Species Use Nearshore & Offshore Habitats



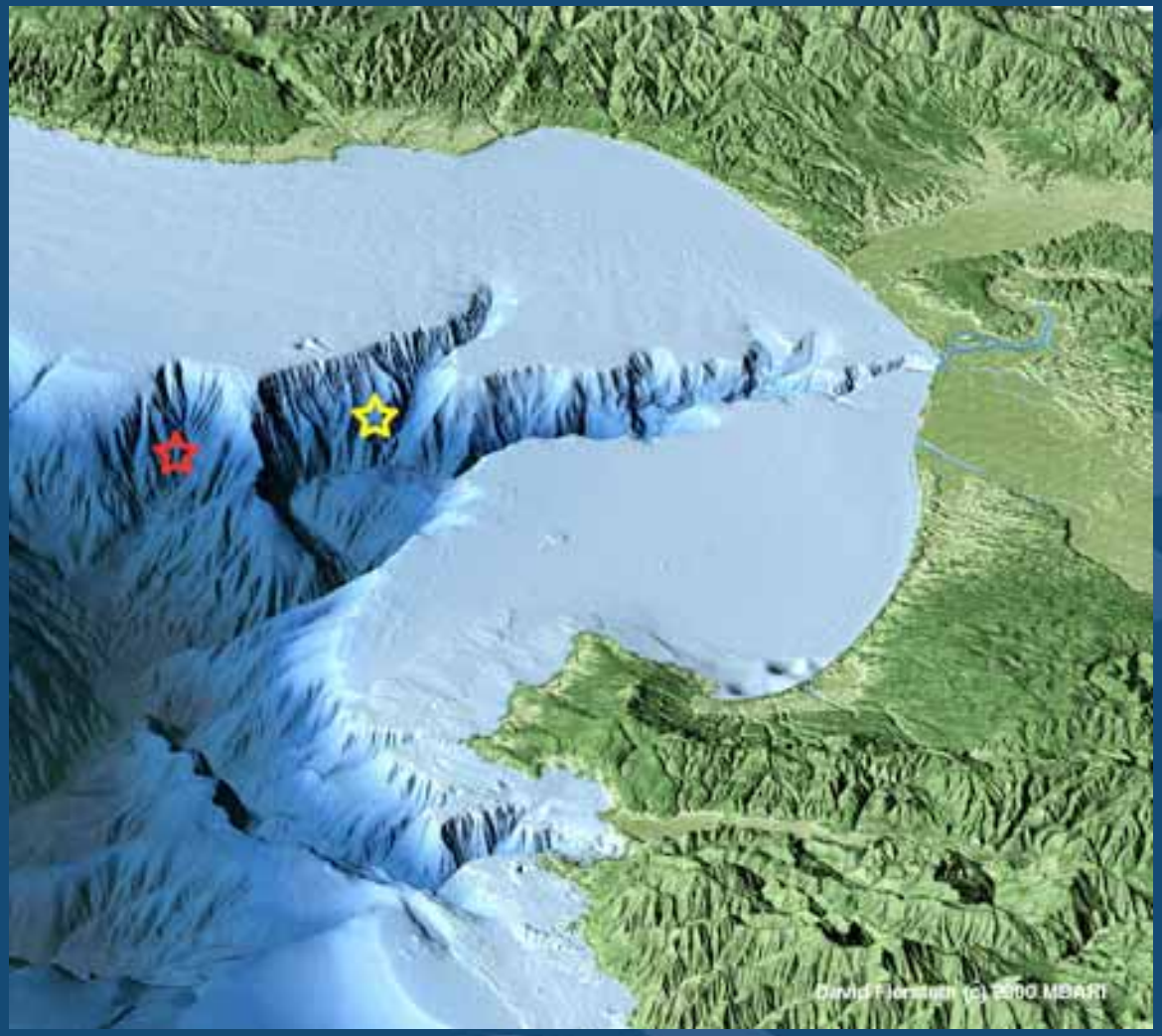
Biodiversity Hotspots in MBNMS




(c) 2004 MBARI

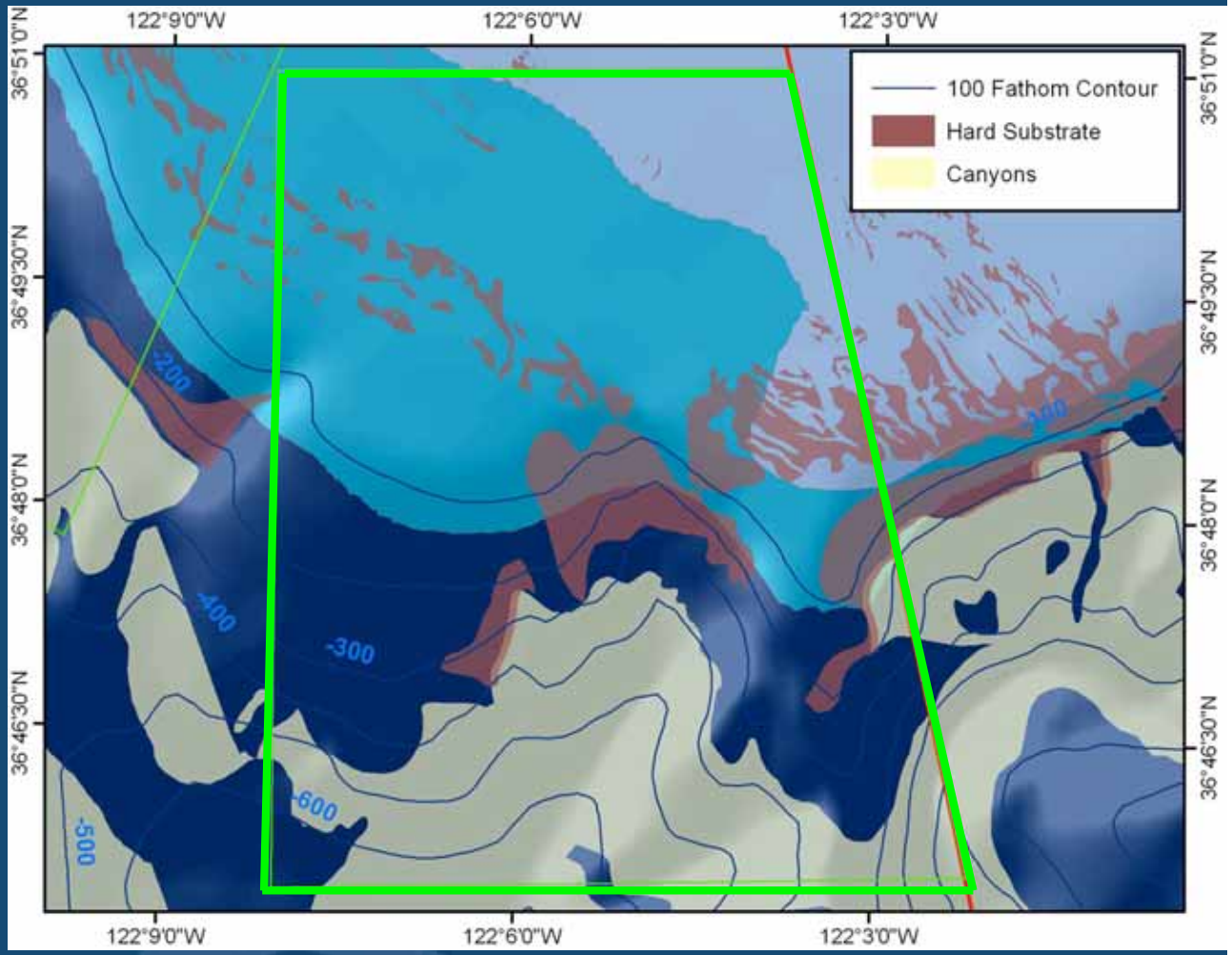

© Jeremy Stafford-Deitsch

Soquel Canyon



Soquel Canyon Habitats

- **Habitat mosaic**
  - **Soft-bottom interspersed with hard-bottom; multiple depth categories; canyon**
- **Steep habitat**
  - **Steep canyon walls and slope**
- **Shelf break**
  - **Hard and soft bottom**
- **Canyon Edge**
  - **Hard and soft bottom**



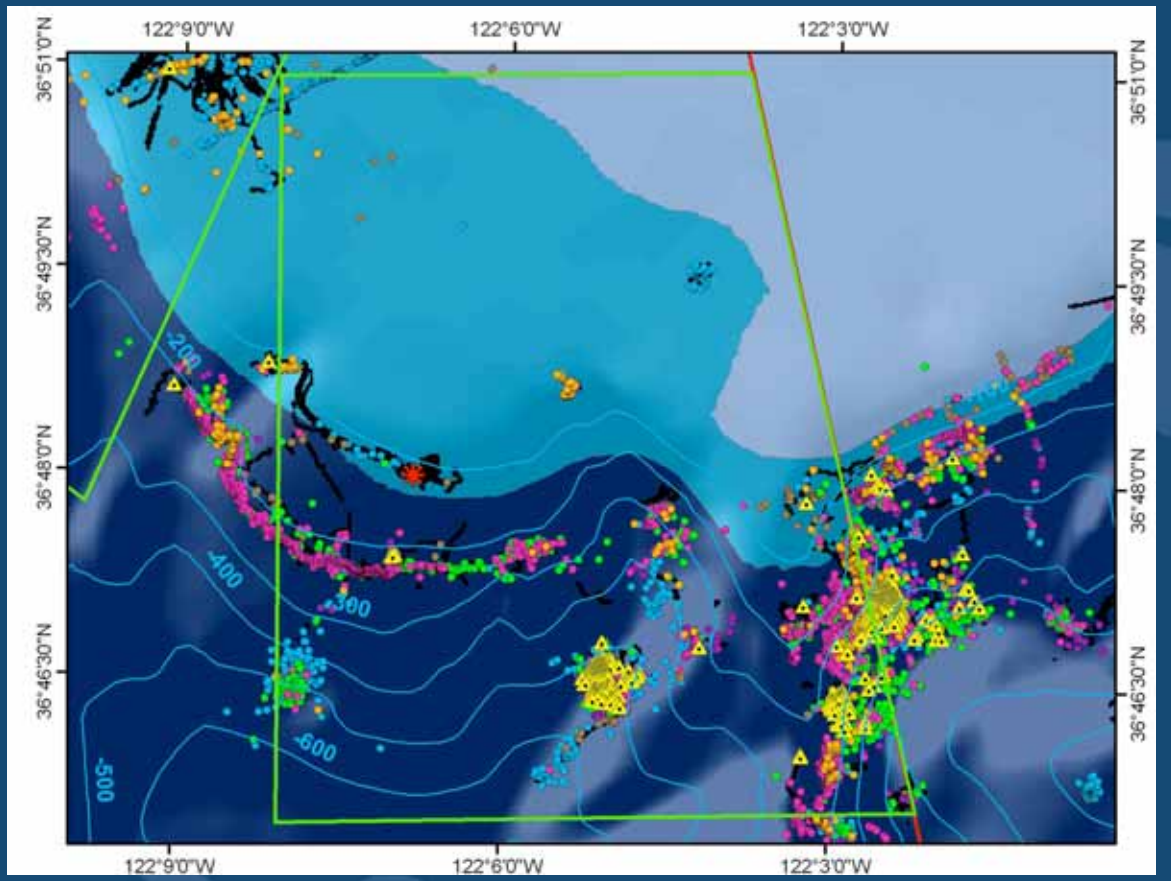
Soquel Canyon - Biogenic Habitats

Structure-Forming Invertebrates:

- **sponges, crinoid, brachiopods,**
- **gorgonians,**
- **soft corals,**
- **sessile cucumbers**
- **anemone**

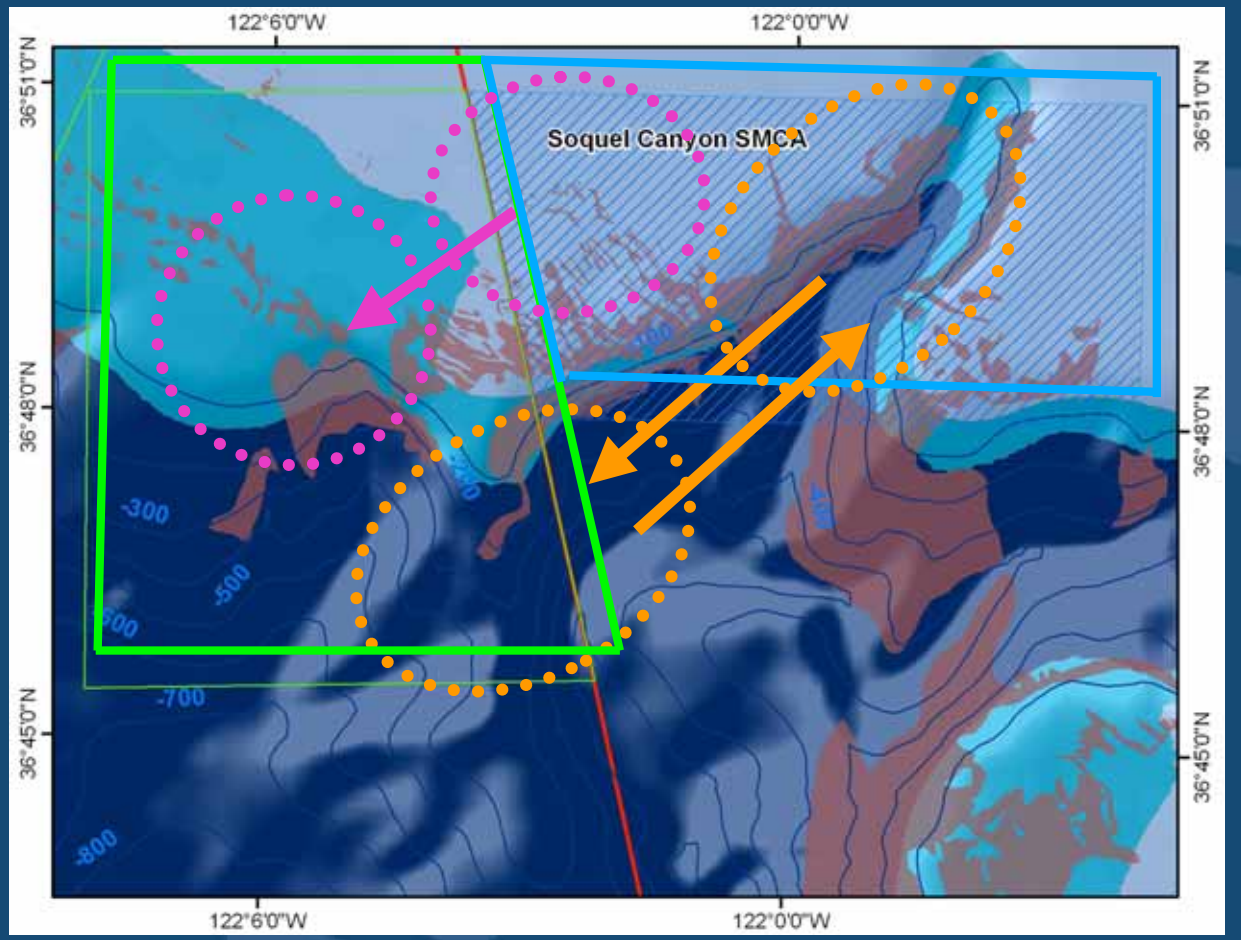
- **Chemosynthetic**
- **Biological Communities**

  - **Present at multiple locations**



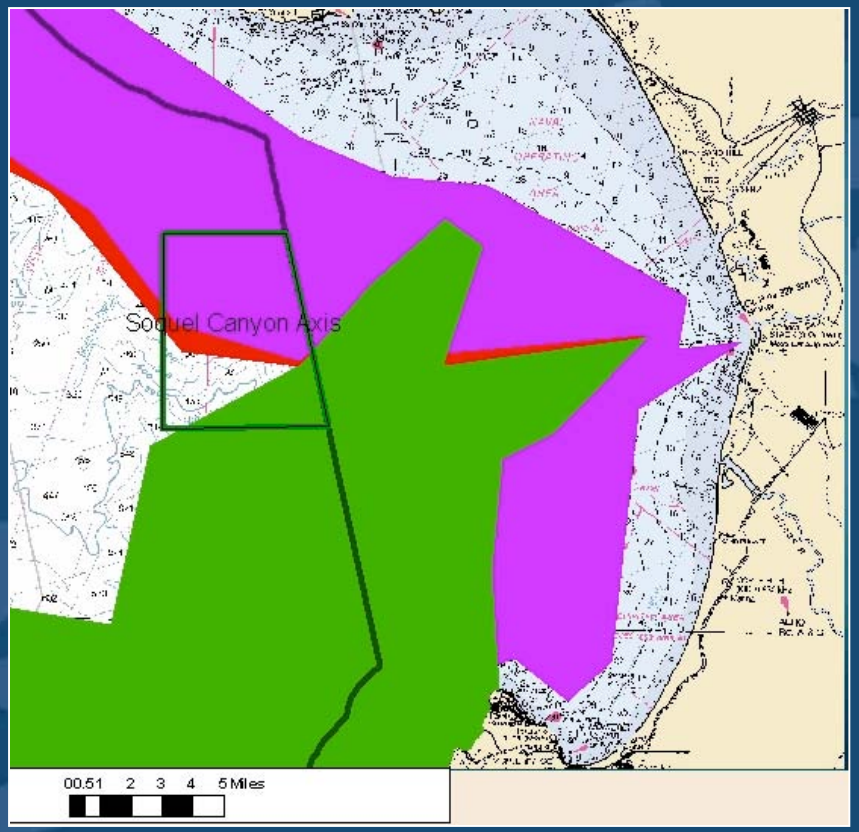
Soquel Canyon – Connectivity with State MPA

- State MPAs
  - West of Soquel Canyon SMCA (contiguous)
- Seasonal Movement
  - Some fish (e.g. prickly sharks, catsharks) may use canyons for onshore-offshore movements
- Ontogenic Movement
  - Shelf I to Shelf II & upper Slope:
    - Rockfish: bocaccio, chilipepper, canary
    - Flatfish: rock, petrale, halibut, sanddab
  - Down Canyon (head to axis):
    - Lingcod
    - Sablefish
    - Dover sole
    - Thornyheads



Soquel Canyon - Existing Management

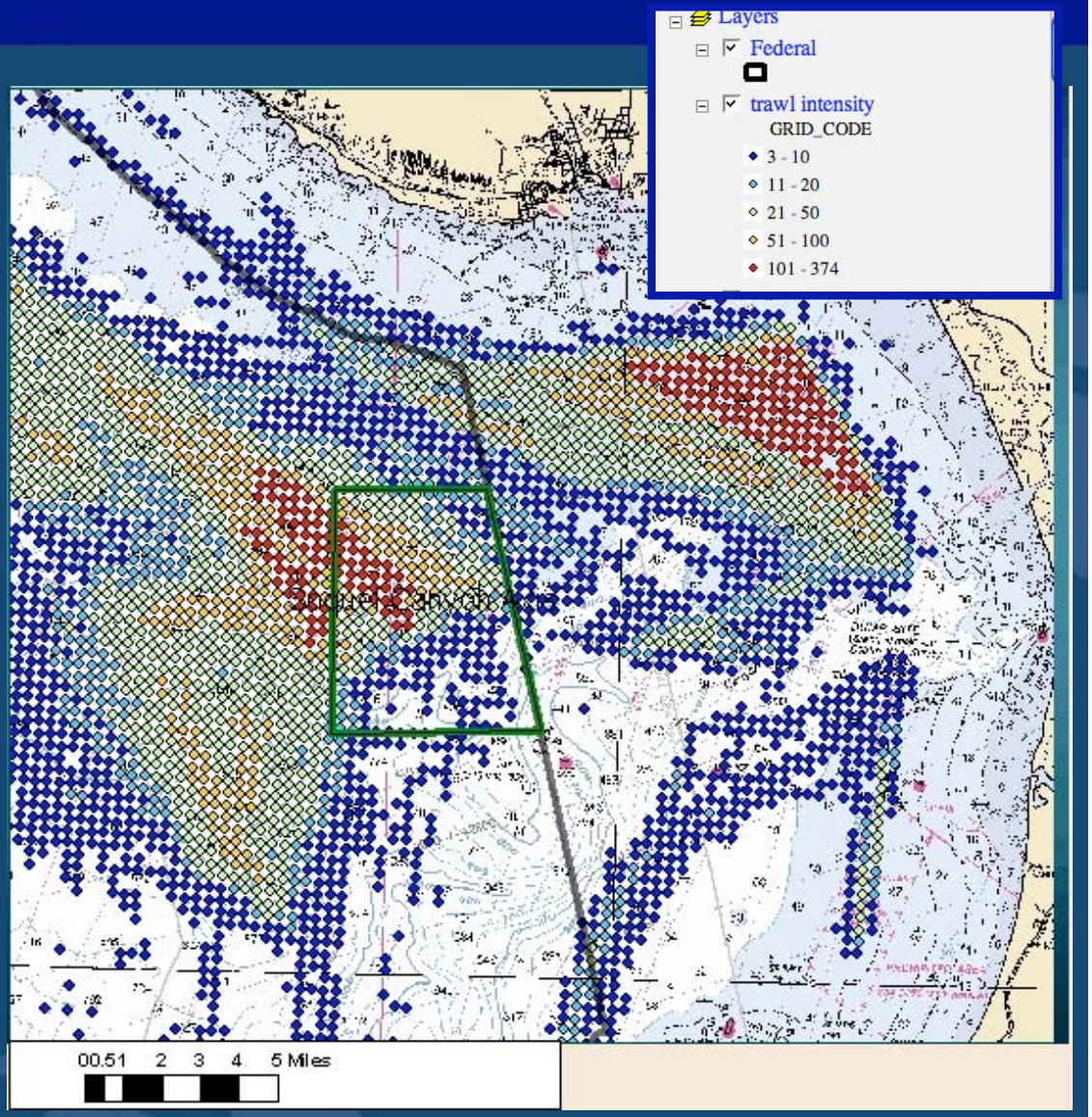
EFH and RCA



Soquel Canyon - Trawling

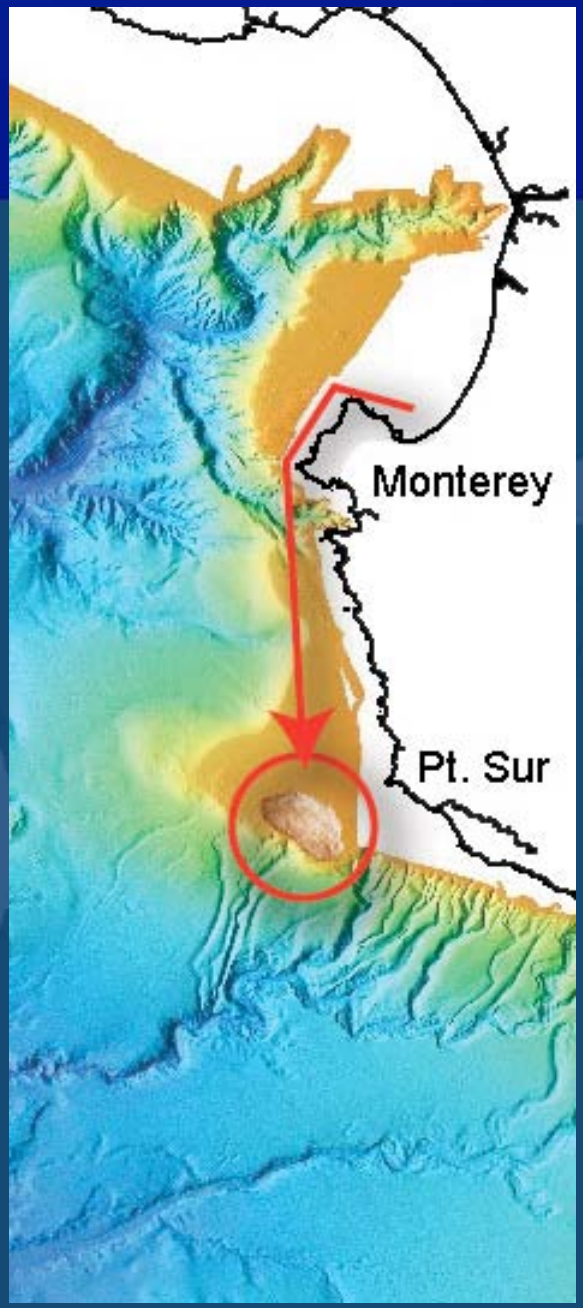
Trawl Logs

Rock sole
English sole
Petrale sole
Sanddab
Halibut
Unsp. skate
Soupfin shark
Sablefish
Lingcod
Bocaccio
Chilipepper
Canary
Unsp. slope rockfish



Sur Platform

- Located 3 nm WSW of Point Sur, minimum depth of 40 m.
- Plateau with sharp isolated pinnacles.
- Includes some of largest colonies of hydrocoral ever seen.

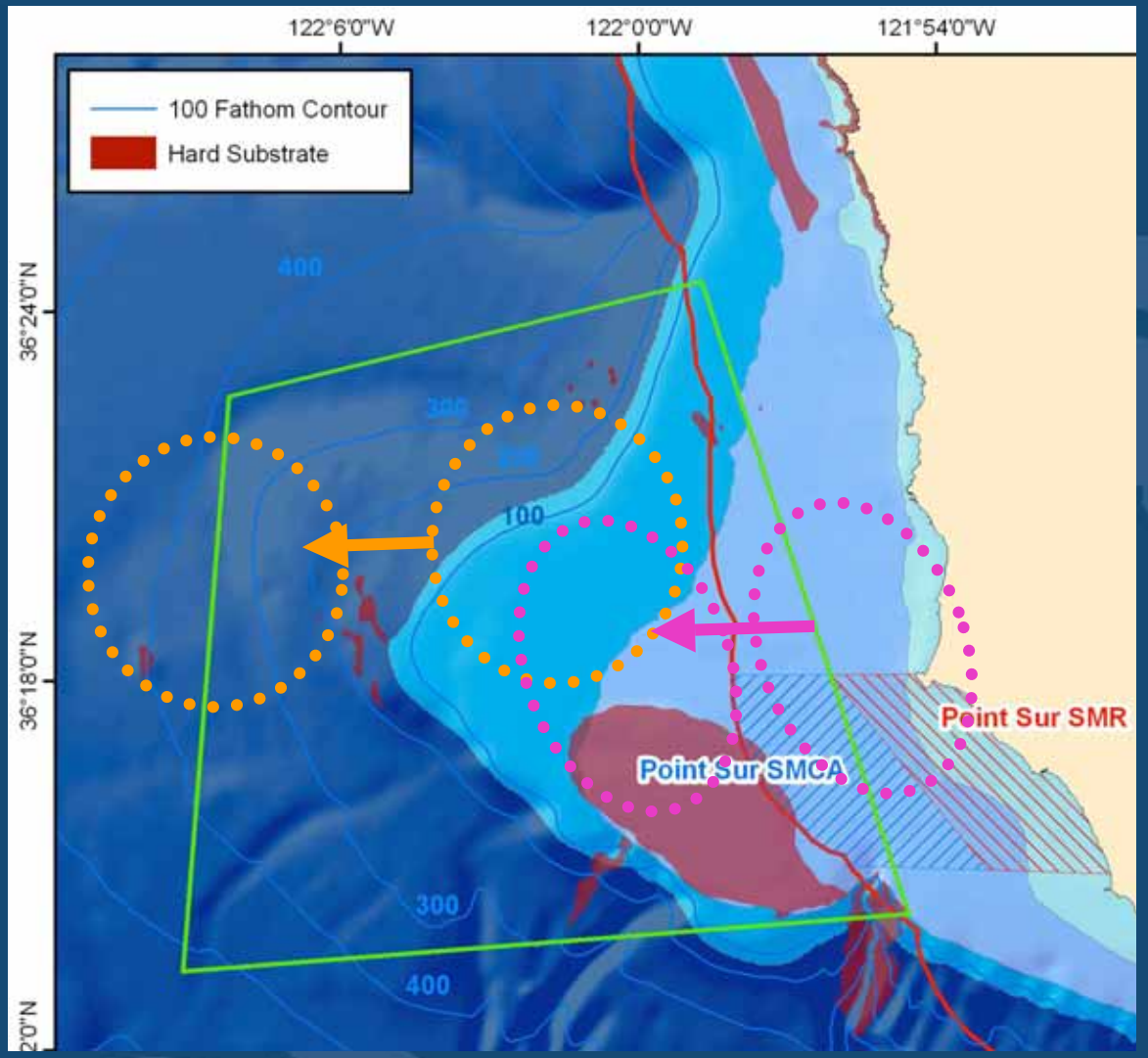


Sur Platform – Connectivity with State MPAs

- **State MPAs**
  - **Offshore of Point Sur SMR and Point Sur SMCA (contiguous)**
- **Ontogenic Movement**

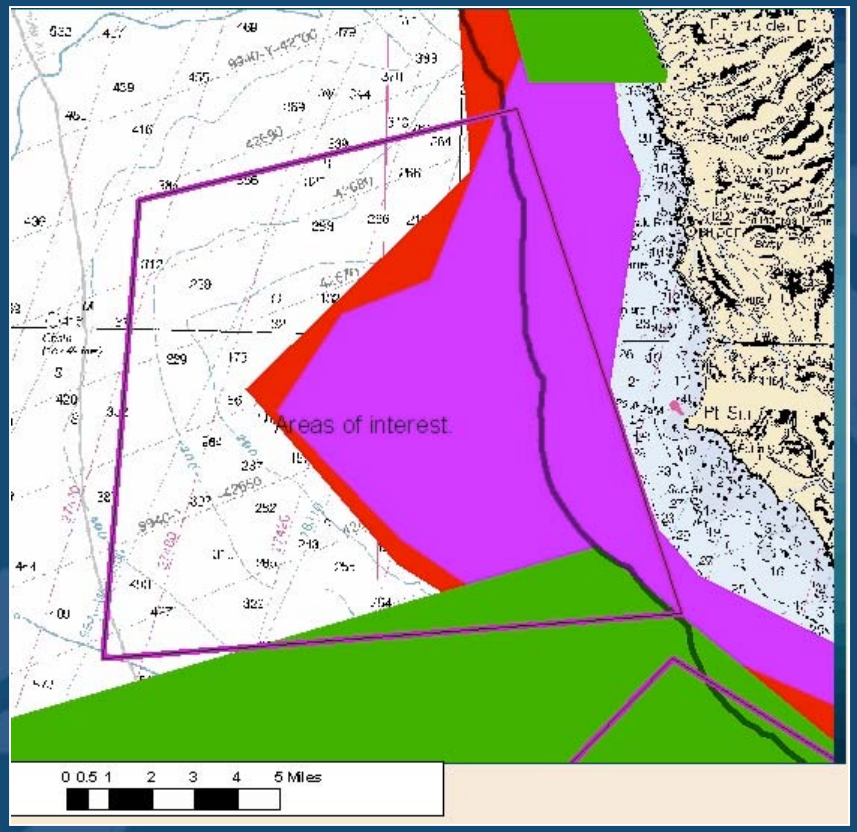
  Inner shelf to outer shelf:
  - **Rockfish: black, blue, bocaccio, canary, chilipepper, china, gopher, yellowtail**
  - **Reef fish: lingcod, kelp greenling, cabezon**
  - **Flatfish: English sole, halibut, sand sole**

  Outer shelf to slope:
  - **Rockfish: bank, blackgill, greenspotted**
  - **Flatfish: Dover sole, petrale sole, rex sole**
  - **Skates**



Sur Platform - Existing Management

EFH and RCA



Video of Sur Platform

Weird, Wonderful, Unprotected

Thank you!