
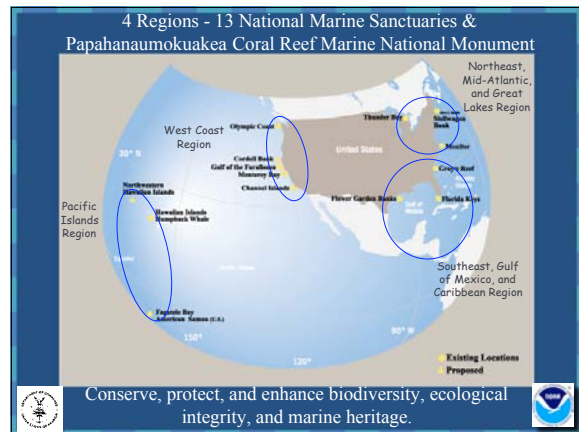


The Success of Marine Zoning in the Florida Keys National Marine Sanctuary

Gulf of the Farallones National Marine Sanctuary Advisory Council Meeting

*San Francisco, California
April 19, 2007*

*Billy D. Causey, Ph.D.
Regional Director
Southeast Atlantic, Gulf of Mexico & Caribbean Region
National Marine Sanctuary Program*

In the *National Marine Sanctuary Act (as amended in 2000)* Congress found that:

- national marine sanctuaries managed as the National Marine Sanctuary System **will** -
 - (A) **improve the conservation, understanding, management, and wise and sustainable use of marine resources;**
 - (B) **enhance public awareness, understanding, and appreciation of the marine environment; and**
 - (C) **maintain for future generations the habitat, and the ecological services, of the natural assemblage of living resources that inhabit these areas.**

***National Marine Sanctuary Act (as amended in 2000)* Congress found that among the “Purposes and Policies” of the Act - Congress directed the NMSS to:**

- (6) **to facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities;**

Definition of a Marine Protected Area:

Defined by the IUCN (The World Conservation Union) as:

“any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.”

Reference: Guidelines for Establishing Marine Protected Areas (Kelleher/Kenchington, 1991)

- National Marine Sanctuaries are MPAs**
- **Multiple-use program**
 - **Recreational and commercial uses**
 - **Primary objective is resource protection**
 - **A challenging opportunity for managers**

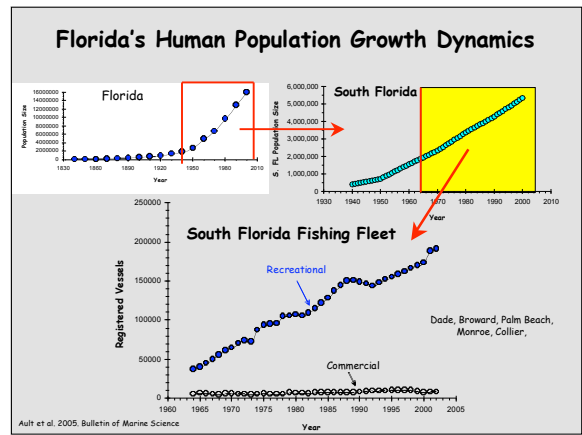
> 80,000 Residents in Monroe County
(130,000 During Season)

124 miles of dredged Canals

>4 Million Visitors Annually
(13.3 Million Visitor Days)

Some Challenges We Face

- No single point of entry
- Large numbers of users



Tourism Based Economy

\$1.2 Billion US Annually

> 60 Dive Shops

> 35 Bait & Tackle Stores

> 65 Boat & PWC Rental Operations

Snorkeling and SCUBA Diving #1 User Activity



Recreational Fishing

Second most popular tourist activity





Commercial Fishing

Second Largest Industry
(\$70 Million US Landed Annually)




First National Marine Sanctuaries in the Keys



Key Largo National Marine Sanctuary
353 square kilometers - Designated in 1975



Looe Key NMS
18km²
1981

Multiple Stressors Affecting Coral Reefs

Global Climate Change	Habitat Destruction	Pollution	Coral Diseases
	Coral Bleaching		Overfishing
	Massive Algal Blooms	Intense Coastal Development	Ocean Dumping
		Introduction of Marine Exotics	

SHIP GROUNDINGS

Keys had 3 major ship groundings in 17 Days Oct-Nov 1989



M/V Alec Owen Maitland



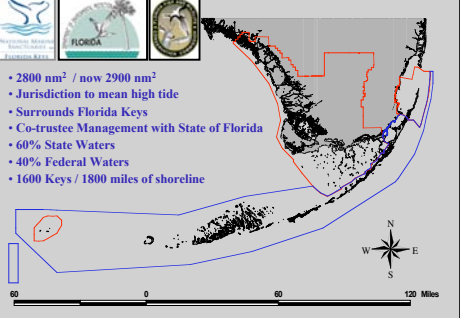
M/V Mavro Vetrican



M/V Elpis

Florida Keys National Marine Sanctuary and Protection Act - 1990

(Passed By United States Congress)



- 2800 nm² / now 2900 nm²
- Jurisdiction to mean high tide
- Surrounds Florida Keys
- Co-trustee Management with State of Florida
- 60% State Waters
- 40% Federal Waters
- 1600 Keys / 1800 miles of shoreline

FKNMS and Protection Act, 1990

Contained a Number of “Firsts” for the National Marine Sanctuary Program

- Congressionally designated Sanctuary
- NMS to totally surround a community
- Have emphasis on Ecosystem management
- ATBA in the Sanctuary Regulations
- Water Quality Protection Program
- To create a Sanctuary Advisory Council
- To give specifics for management plan
- To give direction on interagency process
- Emphasis on marine zoning
- To incorporate existing Sanctuaries

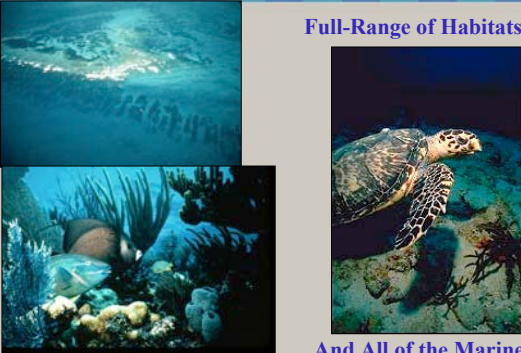
Keys Coral Reef Community



Includes the Full Seascape

Keys Coral Reef Community

Full-Range of Habitats



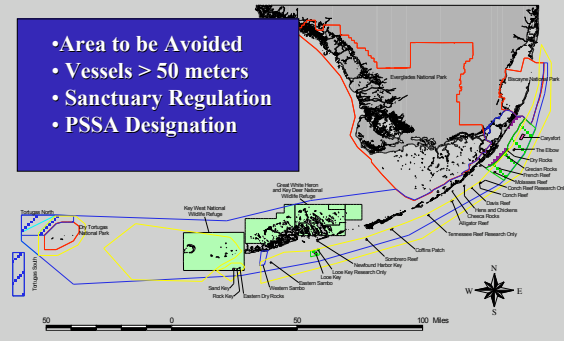
And All of the Marinelife

The FKNMS and Protection Act of 1990 prohibited ships greater than 50 meters (164 feet) from entering an “Area To Be Avoided” within Sanctuary boundaries

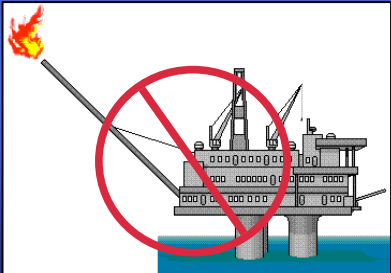


International Maritime Organization Designated ATBA

- Area to be Avoided
- Vessels > 50 meters
- Sanctuary Regulation
- PSSA Designation



The FKNMS and Protection Act of 1990 placed a permanent ban on gas, oil, and hard mineral mining within the Sanctuary.



Florida Keys National Marine Sanctuary and Protection Act - 1990

US EPA - Authorized to Develop a Water Quality Protection Program (EPA, State, County, & NOAA)

- Authorized a high level Water Quality Steering Committee
 - Chaired by Regional Director of EPA
 - Co-Chaired by the State - FDEP
- Identify Problems and Take Corrective Actions
- Establish WQ, Coral and Seagrass Monitoring Programs



The FKNMS Overlaps Numerous Local, State and Federal Jurisdictions

- Adjoins 3 National Parks
- Overlaps 4 Wildlife Refuges
- 6 State Parks/3 Aquatic Preserves
- 1 County
- 5 Cities
- 60% State/40% Federal



Interagency Core Group

Purpose

Set policy and direction for the development of the management plan.

Membership

EPA	NOAA	Florida	U.S. Dept. Of Interior	Monroe County
Sanctuaries and Reserves Division	Strategic Environmental Assessments Division	Dept. of Environmental Protection	National Park Service	
General Counsel	NMFS / Southeast Fisheries Center	Dept. of Community Affairs	US Fish and Wildlife Service	
		South Florida Water Management District		



Sanctuary Advisory Council

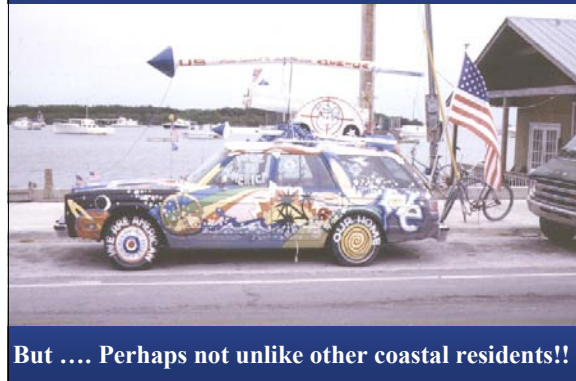
- 1 Monroe County Elected Official
- 1 State Rep. (Governor's Office)
- 1 Federal Rep. (D.O.I.)
- 6 Citizen Reps.
- 2 Recreational Fishing Reps.
- 2 Commercial Fishing Reps.
- 1 Tropical Fishing Collector
- 1 Treasure Hunter
- 4 Dive Industry Reps.
- 1 Science Rep.
- 3 Conservation Organization Reps.
- 1 Education Rep.

24
Individuals
Assisted in
Final Plan



Sanctuary Advisory Council
Our Conduit To the Waterfront Community

Keys Residents are one of a kind!



But Perhaps not unlike other coastal residents!!

In 1980's some Keys Residents Opposed

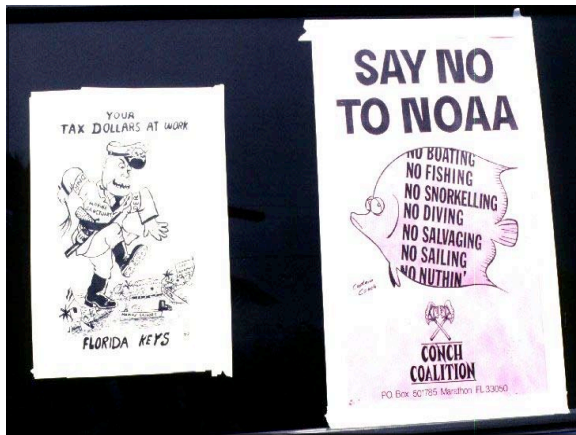


State Oversight as Area of Critical Concern

In the 1990's Some Keys Residents Opposed



A "Federal Takeover" of the Florida Keys!



January 1997

Agreement:

The Governor and Cabinet of the State of Florida (7 Elected Officials) approved the inclusion of State waters in the Sanctuary.

Co-Trustee Management

Interagency Management Partnerships

National Marine Sanctuaries - America's Ocean Treasures

Management Plan

- Channel / Reef Marking
- Education and Outreach
- Enforcement
- Mooring Buoy
- Regulatory
- Research and Monitoring
- Submerged Cultural Resources
- Volunteer
- Water Quality
- Zoning

**10
Management
Action Plans**

National Marine Sanctuaries • America's Ocean Treasures

Management Programs

- Research and Monitoring
- Education and Outreach
- Volunteers
- Enforcement
- Threat Reduction Measures
- Maritime Heritage/Cultural
- Marine Zoning

National Marine Sanctuaries • America's Ocean Treasures

Management Programs

- Research and Monitoring
- Education and Outreach
- Volunteers
- Enforcement
- Threat Reduction Measures
- Maritime Heritage/Cultural
- **Marine Zoning**

National Marine Sanctuaries • America's Ocean Treasures

US Congressional Act

Florida Keys National Marine Sanctuary and Protection Act - 1990

- **NOAA Charged with developing a management plan that should**
“Consider temporal and geographic zoning...”

National Marine Sanctuaries • America's Ocean Treasures

Marine Zoning

What is Marine Zoning?

“Zoning is the setting aside of areas for specific activities to balance commercial and recreational interests with the need for a sustainable ecosystem.”

FKNMS Final Management Plan, 1996

National Marine Sanctuaries • America's Ocean Treasures

Marine Zoning

Marine Zoning was pioneered by the *Great Barrier Reef Marine Park Authority* – in early 1980’s

National Marine Sanctuaries • America's Ocean Treasures

Marine Zoning vs. Marine Reserves



Zoning - A management tool used to protect specific sensitive resources or areas, and/or to control conflicting uses. This tool can be used to protect sensitive resources or separate activities that cause user conflict.

Reserves - Areas where use and extraction is restricted in order to preserve, enhance, or restore ecological resources, biodiversity and natural processes (aka no-take zones, fully protected areas).



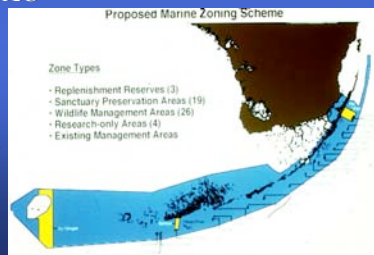
GOALS VARY

- Ecosystem Biodiversity
To protect representative and unique marine habitats, ecological processes, and populations of interest.
- Sustainable Fisheries
To achieve sustainable fisheries by integrating marine reserves into fisheries management.



FKNMS Draft Management Plan 1995

- 6% Fully Protected
- Approved by SAC
- 3 Reserves
- Opposition
- Controversial
- Process flawed



Marine Zoning

- Controversial
- Process Flawed

FKNMS Marine Zoning 1997



FKNMS Marine Zoning Plan

- 18 Sanctuary Preservation Areas
- 4 Research-Only Areas
- 2 Ecological Reserves (1997 and 2001)
- 27 Wildlife Management Areas
- 19 Existing Management Areas



Sanctuary Preservation Areas

- 18 SPAs (No-Take Areas)
- Shallow, heavily used reefs
- Areas of user conflicts
- Concentrated visitor activity leads to resource degradation
- Vary in size, water quality, and biodiversity
- Can sustain and protect habitat
- Enhance reproductive capabilities of renewable resources
- Areas that are critical for sustaining and protecting important marine species
- Reduce user conflicts in high-use areas

National Marine Sanctuaries • America's Ocean Treasures

SPAs

Looe Key Reef
80,000 - 85,000 snorkelers/divers

- Focused protection
- More for Less
- Make-up 60-65% of Spur and Groove coral reef habitat
- SPAs Capture 80-85% of annual snorkeling and SCUBA diving (except first 2 weeks of lobster season)
- Protect many species that do not move far

National Marine Sanctuaries • America's Ocean Treasures

Florida Keys National Marine Sanctuary

Marine Zones

- Sanctuary Preservation Areas
- Special-Use Areas
- Ecological Reserves
- Wildlife Management Areas
- Existing Management Areas

National Marine Sanctuaries • America's Ocean Treasures

Special Use – Research Only Areas

- 4 Research Only Areas
- Variety of coral reef habitats
- Areas used for:
 - scientific research
 - educational purposes
 - restoration
 - monitoring
- High-impact activities prohibited
- Impacts minimized on sensitive habitats and reduce user conflicts
- Only Permitted Entry Allowed

National Marine Sanctuaries • America's Ocean Treasures

Florida Keys National Marine Sanctuary

Marine Zones

- Sanctuary Preservation Areas
- Special-Use Areas
- Ecological Reserves
- Wildlife Management Areas
- Existing Management Areas

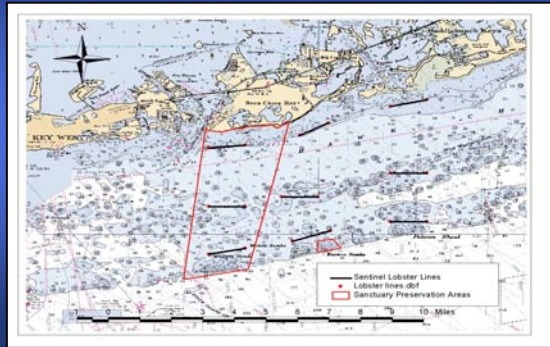
National Marine Sanctuaries • America's Ocean Treasures

Ecological Reserves

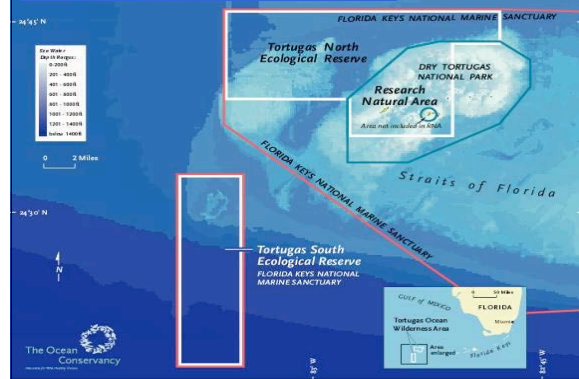
- 2 Areas - 9 sqm and 151 sqm
- Areas of high habitat and species diversity
- Representative Keys marine ecosystem
- Generally good water quality
- Encompass large enough areas to include a range of habitats
- Provide natural spawning, nursery, and permanent residence areas for the replenishment and genetic protection of marine life
- Protect and preserve all habitats and species particularly those not protected by fishery management regulations.

National Marine Sanctuaries • America's Ocean Treasures

Western Sambo Ecological Reserve - 9 nm



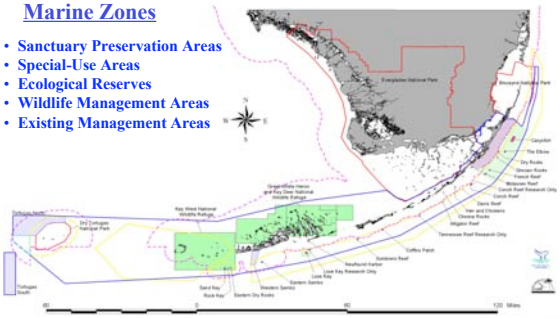
Tortugas Ecological Reserve



Florida Keys National Marine Sanctuary

Marine Zones

- Sanctuary Preservation Areas
- Special-Use Areas
- Ecological Reserves
- Wildlife Management Areas
- Existing Management Areas



Wildlife Management Areas

- 27 WMAs (19 with USFWS)
- Include bird nesting, resting, or feeding areas, turtle nesting beaches, and other sensitive habitats
- Vary in size and location
- Protect endangered or threatened species or their habitats
- Provide opportunities for public use / reduces conflicts
- Mode of Access Managed



Flats Fishermen



Saltwater FLY FISHING

Permit Whip Jet Skis
No motor zones revive Keys fishing

PLUS
Conquer the Wind with Two-Handed Rods
Bahamas Bonefish On Your Own
Mexico's Port of Plenty



Existing Management Areas

- **19 Existing Management Areas**
- Areas of local, state or federal jurisdiction
- **6 Federal Areas**
 - 2 previous NMSs
 - 4 USFWS Refuges
- **13 State/local jurisdictions**
 - 6 State Parks
 - 3 Aquatic Preserves
- Regulations not affected by Sanctuary – Do not usurp
- **Sanctuary Regulations Enhance existing regulations in many instances**

Wildlife Refuges

Looe Key and Key Largo National Marine Sanctuaries

NATIONAL MARINE SANCTUARIES / AMERICA'S OCEAN TREASURE

Tortugas 2000

A collaborative project to create an ecological reserve

Final Management Plan contained a Commitment to establish a reserve in the Tortugas region using a more participatory process - Top/Down & Bottoms-up approach

Florida Keys National Marine Sanctuary
<http://www.floridakeys.noaa.gov>

Tortugas Marine

Designing the Tortugas Ecological Reserve

- “Lessons Learned” fell in 4 broad categories:
 - Participation
 - Process
 - Science
 - Jurisdictions

Preface: Most of the controversy we have experienced in the FKNMS has been focused on designating “No Take” areas.

Participation

- Established an advisory working group
- Included stakeholder leadership
- Diversified stakeholder representation
- Included all fishery & resource managers
- Maintained an integrated working group
- Involved the general public

SAC Forms Working Groups

- Allows more public participation
- Specific issues addressed
 - Tortugas 2000 Working Group
 - PWC Working Group
 - Large Ship Working Group
 - South Florida Ecosystem Working Group
 - Marine Mammal Working Group

Tortugas 2000 Working Group

- 25 member Working Group of Sanctuary Advisory Council
- All stakeholders
- All Resource Managers
- Ecosystem Approach
- Ignored Jurisdictions
- Focus on objectives, not size or % area

NATIONAL MARINE SANCTUARIES AMERICAN OCEANIC PRESERVATION SOCIETY

Process

- Used open, flexible & adaptive process
- Used neutral facilitator
- Established ground rules for the process
- Identified goals & objectives
- Agreed on site selection criteria
- Engaged the public; held public forums
- Listened to & valued stakeholder input
- Strived for highest level of consensus

T2000 PUBLIC HEARINGS, JULY 2000

Science

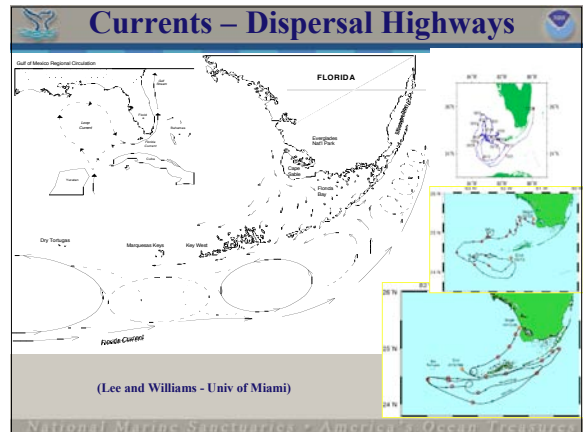
- Used science to drive the process / forums
- Didn't pre-determine: precise location; size; or % area for reserve - delayed drawing lines
- Used natural sciences (ecology, biology, geology & oceanography)
- Used socio-economic sciences (map of uses/GIS)
- Established baseline monitoring

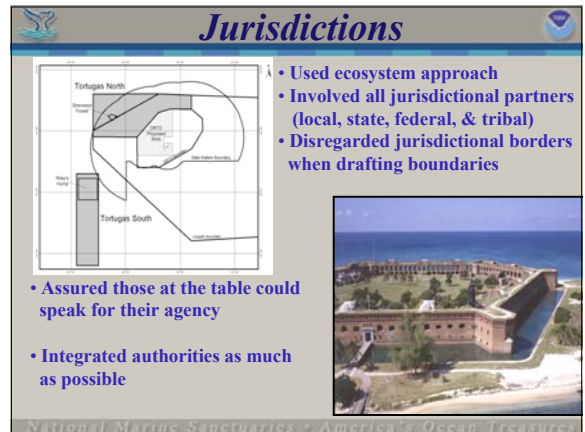
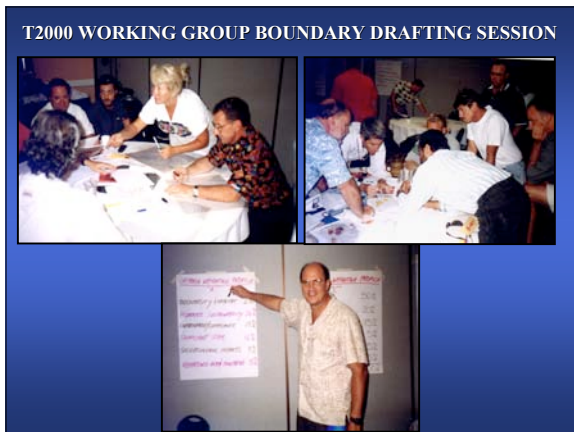
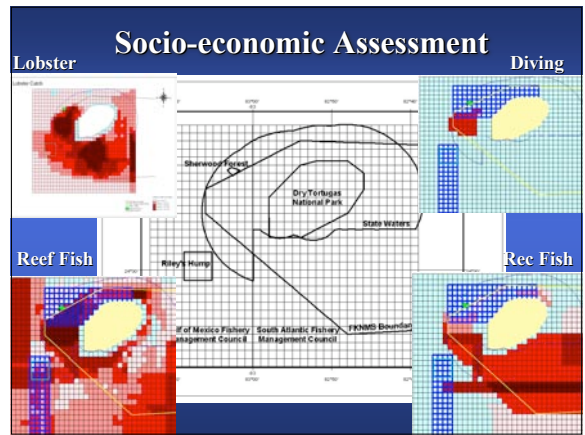
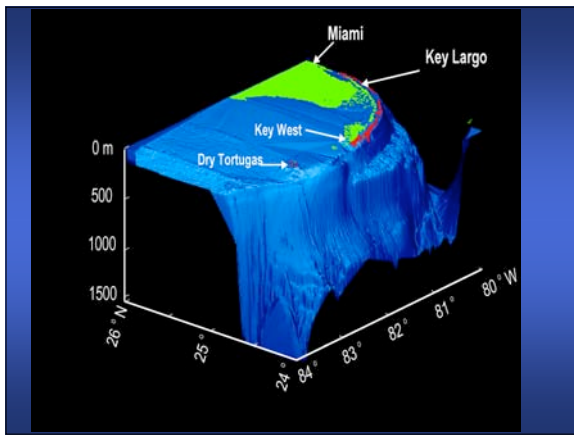
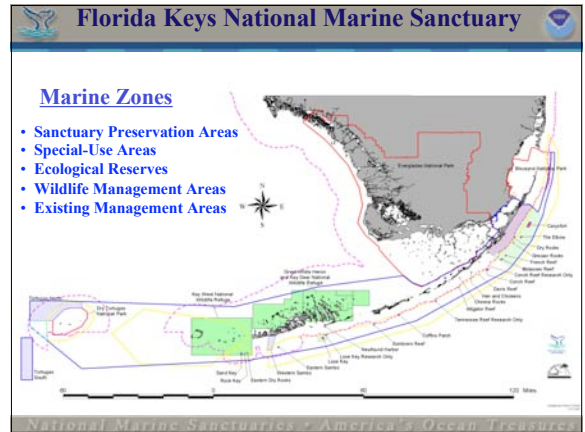
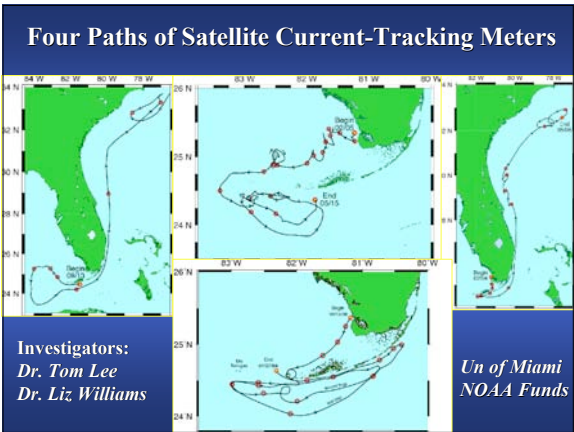
Why consider the Tortugas area for an ecological reserve?

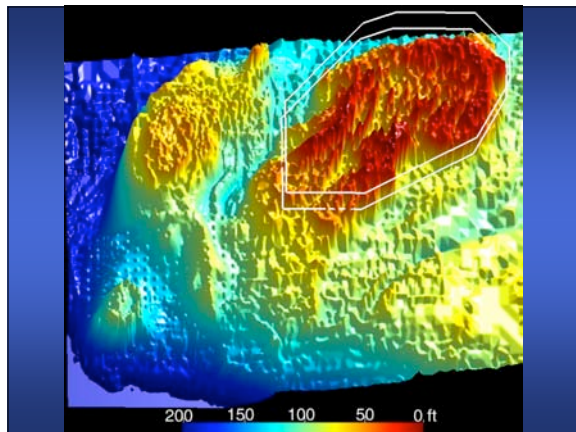
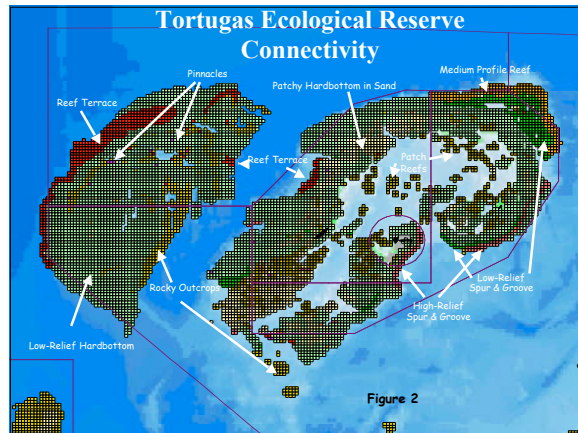
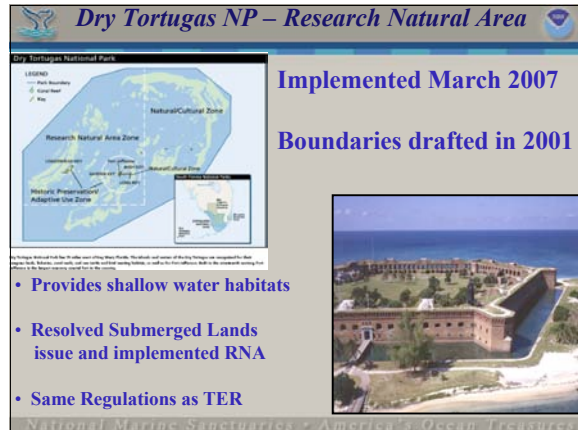
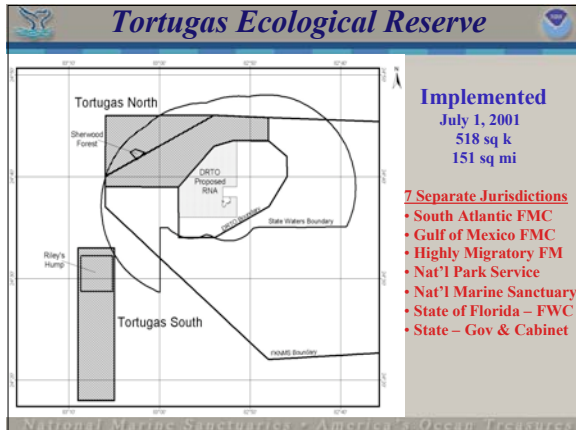
Tortugas 2000 Working Group

Heard Presentations from:

- Oceanographers
- Geologists
- Coral Reef Ecologists
- Fisheries Biologists
- Economists
- Fishermen / Divers







THE CITIZEN

KEY WEST
Wednesday
May 26, 1990
50 CENTS
Price Paid in Advance

OPINION

Congratulations to all Consensus a welcome relief

EDITORIAL

The fuse was lit, but there was no explosion. That was the result Saturday when conservationists, fishermen and federal regulators met to discuss resource-user limits regarding the Tortugas Reserve. There was no expected explosion of venomous accusations back and forth, nor shouting. Instead, they backed out a proposal that all sides felt they could live with.

To anyone who has followed the rancorous "debates" over the years between these factions in regards to the Florida Keys National Marine Sanctuary, Saturday's consensus was a welcome relief. For too long, since April 1984 in fact, the only thing raised was the blood pressure of those participating.

What the group, formally called the Tortugas 2000 Working Group, did was to carve out approximately 186 square nautical miles of the waters of the Dry Tortugas National Park and the Gulf of Mexico as part of a proposed Tortugas Ecological Reserve. The area includes a portion of the northwestern Tortugas and another part southwest of the Tortugas, to include a spot known as Riley's Hump.

The purpose of the proposal is to set aside parts of potential spawning areas in the area 70 miles west of Key West in the hopes that fish, lobster and other marine life can develop safely outside the areas harvested by commercial fishermen.

There will still be many steps to take before the proposal will be finalized. The next step will be to present the agreement to the Sanctuary Advisory Council on June 15.

But for now, we congratulate all factions of the advisory group for their ability to compromise.

THE KEYS

WEDNESDAY, JUNE 16, 2009 www.herald.com **The Herald**

Conservationists and fishermen unanimously OK sanctuary plan

By KEVIN HANDELOW
Key West — The Florida Keys National Marine Sanctuary advisory council unanimously endorsed a plan Tuesday to establish two ecological reserves in the Dry Tortugas totaling 183 square nautical miles.

The plan is a compromise reached by conservation fishermen, conservationists, scientists and sport fishermen after taking public comments, studying the biology of the area and the economics of the fishing industry.

"This agreement signals a new day for the way we manage Florida's Keys," said Debra Hartman, Keys representative of the World Wildlife Fund. "Fishermen coming to the table and sitting down with conservationists is a first for the state of Florida, the National Park Service and the Chief of Marine Fishery Management Council. Scientists have pointed out that

The plan still needs approval from the agencies that actually govern the waters within the proposed boundaries.

... has the grudging approval of many conservationists and fishermen.

"The environmental community's not very happy with it. The commercial fishing community's not very happy with it," said Larry Bell, who represented commercial fishing on the group that came up with the proposed reserves. "They're back willing to work with it and go forward from here."


The fishing is allowed in an ecological reserve. The sanctuary now has one reserve — a non-regulatory area off Boca Chica Key called the Marine Ecological Reserve — and 18 smaller no-take zones along the reef called satellite conservation areas.

The U.S. National Park Service also working on its own reserve of the Tortugas area, conducting a study on the area. The plan is also working on its own reserve of the Tortugas area, conducting a study on the area. The plan is also working on its own reserve of the Tortugas area, conducting a study on the area.


"We will be addressing what you would be called research marine reserves and parks and so on," said Bell. "It will be addressing what you would be called research marine reserves and parks and so on."

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Students prepare to testify before Governor Bush and the Florida Cabinet



Wednesday, April 29, 2009 FLORIDA KEYS 66 PAGES 25 CENTS MIDWEEK

KEYNOTER

Bush OKs Tortugas protection

By KEVIN HANDELOW
Key West — Governor Charlie Crist and his cabinet Tuesday signed off on a plan to create the United States' largest no-fishing zone in the Florida Keys.

The largest fully protected marine preserve in U.S. waters is set to be established in the Florida Keys, the National Park Service and the Chief of Marine Fishery Management Council.

The plan is a compromise reached by conservation fishermen, conservationists, scientists and sport fishermen after taking public comments, studying the biology of the area and the economics of the fishing industry.

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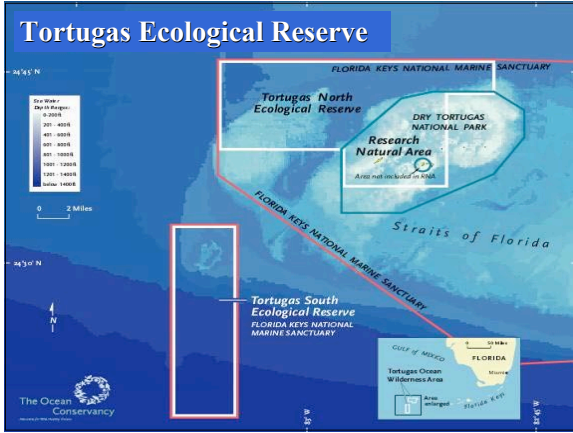
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Marine Zoning Implementation

Success Requires:

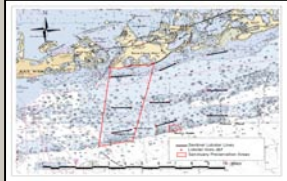

- Boundary Marking - Buoys / Charts
- Education
- Monitoring and Research
- Enforcement

National Marine Sanctuary / American Ocean Treasures

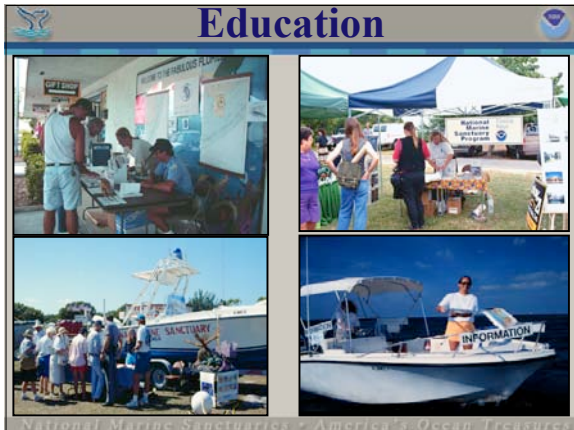
Mark Boundaries



Buoys Charts GPS Units

National Marine Sanctuary / American Ocean Treasures

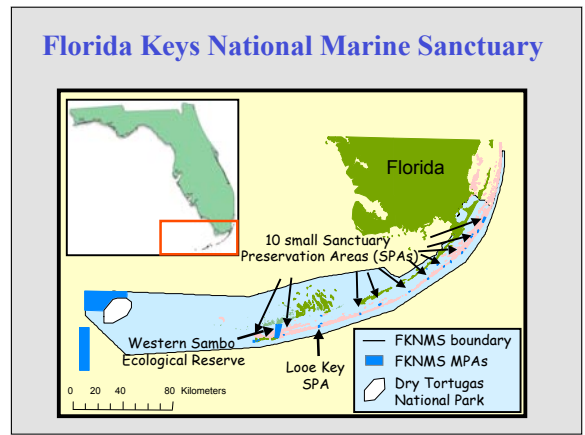


Reserve Monitoring Goals

- Measure benthic and fish community changes inside and outside fully protected marine zones
- Evaluate the effectiveness of “no-take” management for protecting marine biodiversity
- Determine the socioeconomic effect of and user attitudes towards the zones

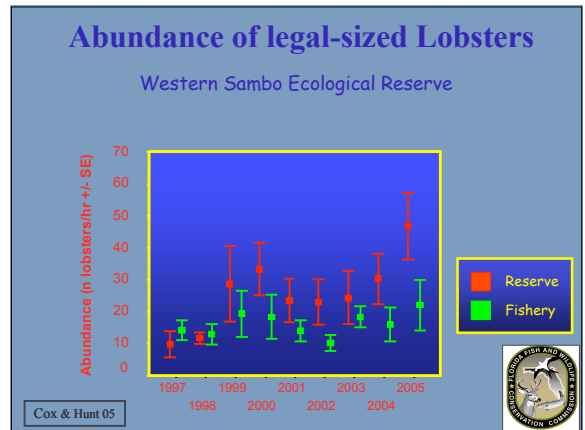
Fishery Reserves for Spiny Lobsters: Are they Effective?

Carrollyn Cox
Florida Fish & Wildlife Conservation Commission
Fish & Wildlife Research Institute



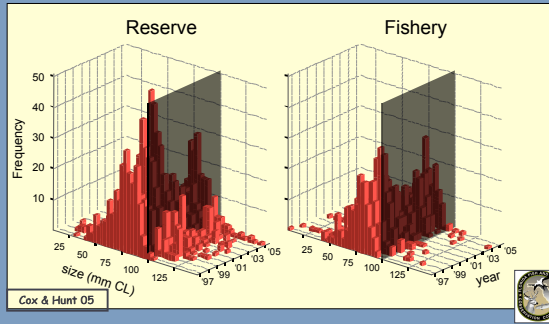
Western Sambo Ecological Reserve

- 3,000 ha reserve comprising habitat for juvenile and adult lobsters
- Fishing prohibited as of July 1, 1997

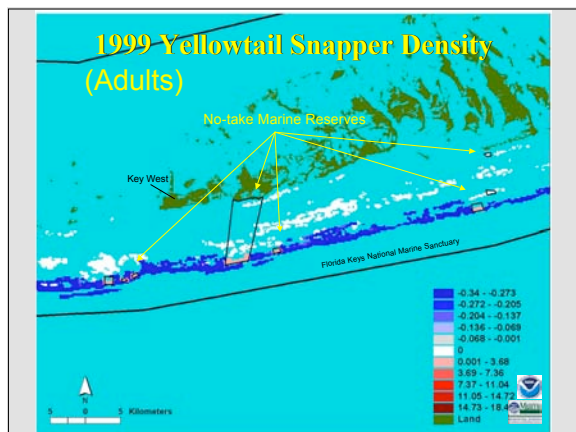
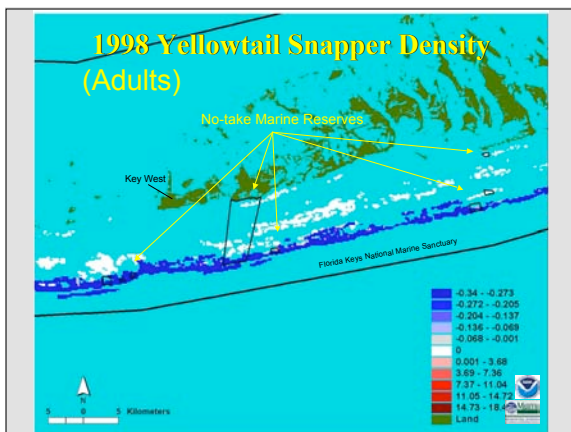
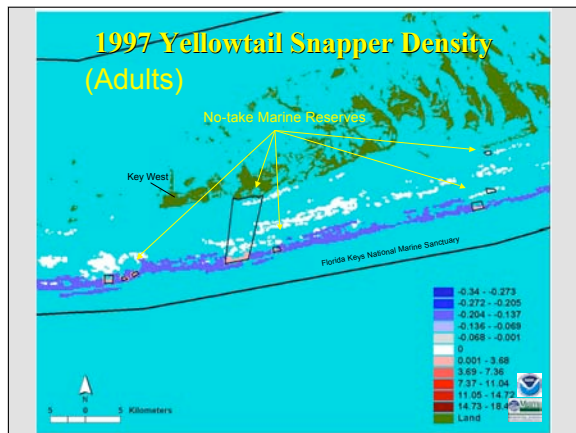
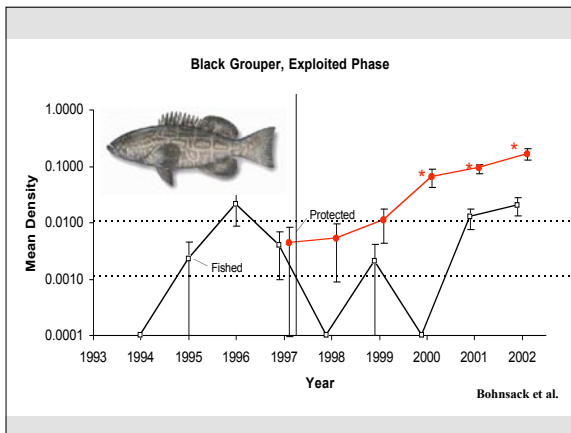
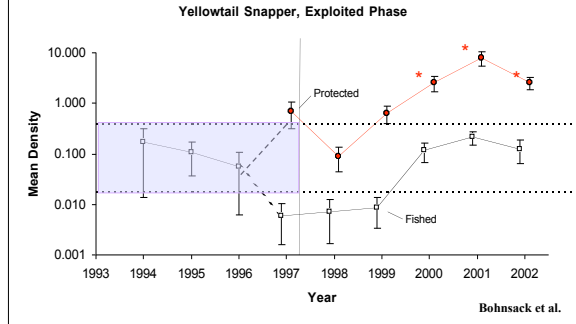


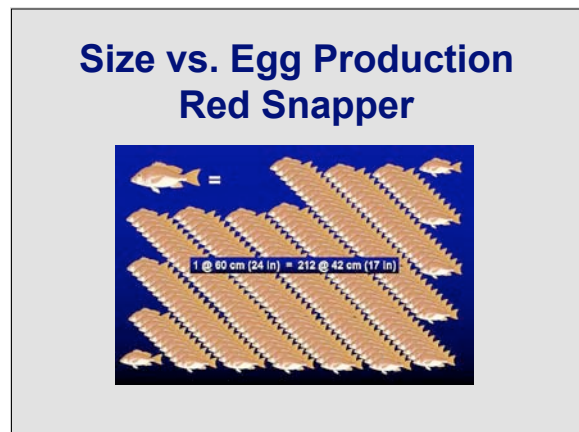
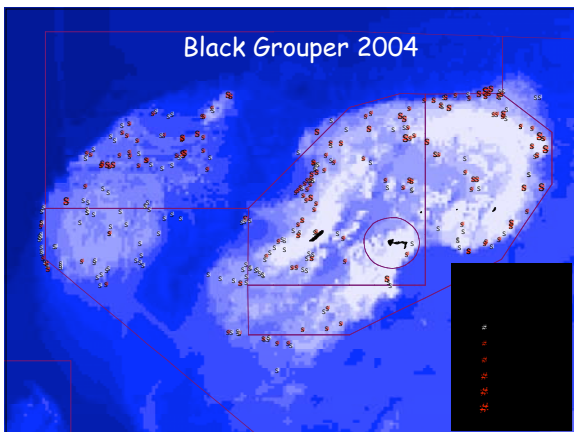
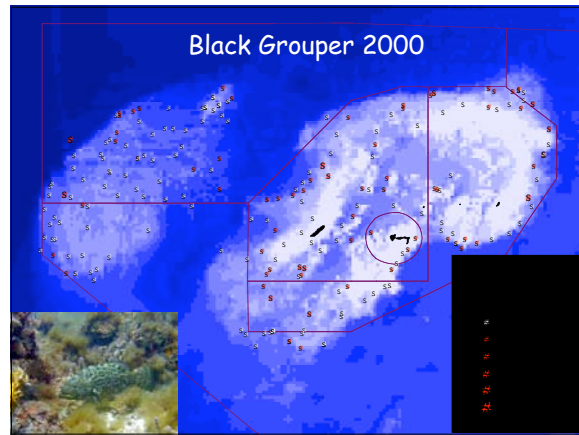
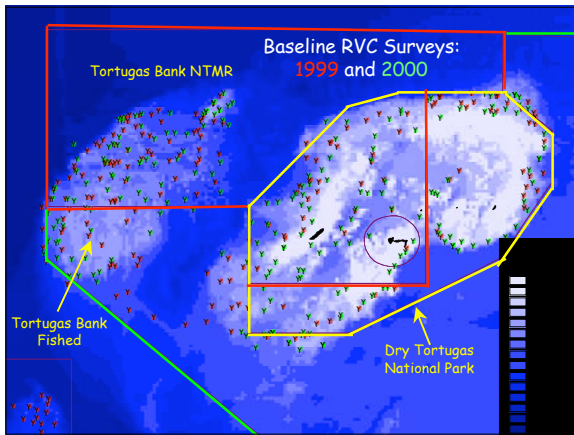
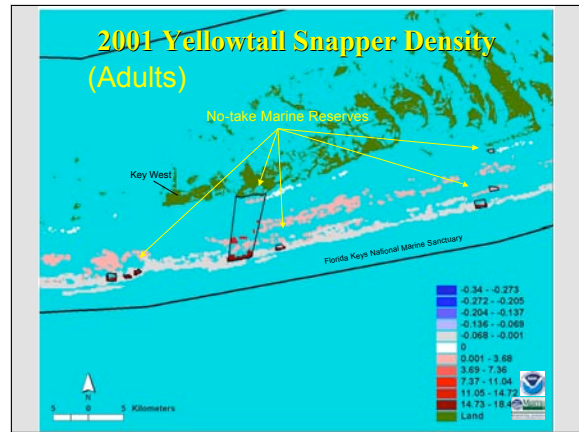
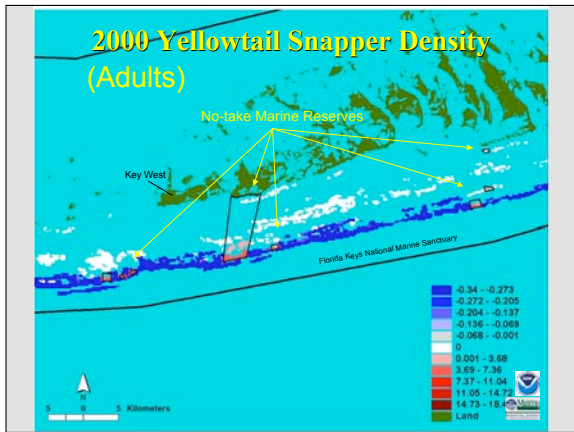
Size-Frequency of Male Spiny Lobsters

Western Sambo Ecological Reserve

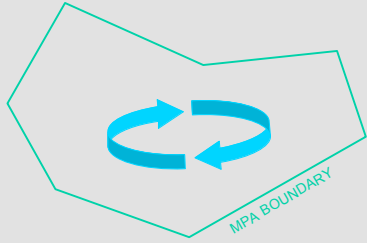


Reef Fishes

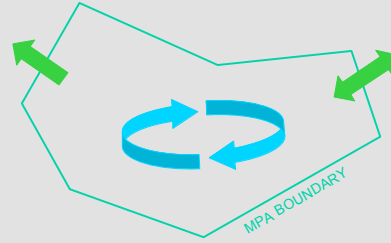




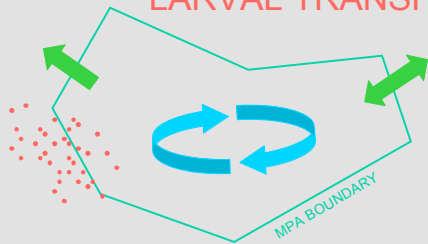
SITE FIDELITY



SITE FIDELITY ADULT SPILLOVER



SITE FIDELITY ADULT SPILLOVER LARVAL TRANSPORT



Use of New Technology

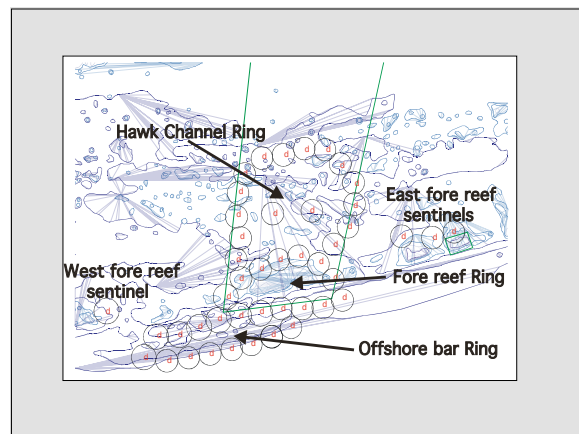
Sonic Tags On Spiny Lobster

National Marine Sanctuaries • America's Ocean Treasures

Use of New Technology

Sonic Receivers

National Marine Sanctuaries • America's Ocean Treasures



Fish Movement Results

- Adult spillover occurs, even in small reserves
- Connectivity is a function of species range of movement
- Contribution of adult reproduction to spillover has yet to be evaluated

Messages from Around the World

- Even small marine reserves exhibit effects in relatively short periods of time
- Short-term responses are not always as predicted, especially in ecosystems with complex food webs
- Restoration of ecological integrity requires more time
- Spillover potential improves in larger reserves and when multiple reserves are established in close proximity

Sanctuary Enforcement

- Use Interpretive Enforcement
- Federally Funded State FWC Officers
- Fund boats & Equipment
- 17 Sanctuary Officers
- Captain & 3 Lieutenants
- Investigator
- NOAA / Enforcement



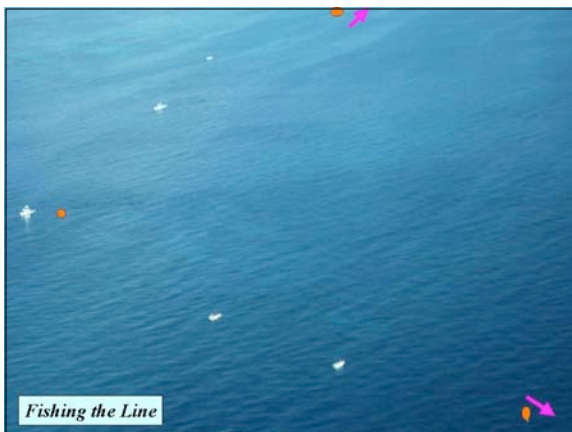
National Marine Sanctuaries • America's Ocean Treasures

Sanctuary Enforcement



Patrol Vessel Peter Gladding
New 57' Catamaran
For Enforcement Patrols To the
Tortugas Ecological Reserve

National Marine Sanctuaries • America's Ocean Treasures



Something to think about:

“ It is important to scientific study and to the health and sanity of man, that there be preserved some unique areas to observe nature's continuing evolution; the grandeur and peace of nature.”

Samuel H. Ordway, Jr.

Questions?

