

An underwater photograph of a coral reef. A large, branching, greenish-brown coral structure dominates the center. Below it, a school of small, silvery fish with yellow stripes swims. The background is a deep blue ocean with more coral and fish visible in the distance.

Florida Keys National  
Marine Sanctuary

*Sounding Line Information Series*

*(Background Material)*

**Biscayne  
National Park**

**Everglades  
National Park**

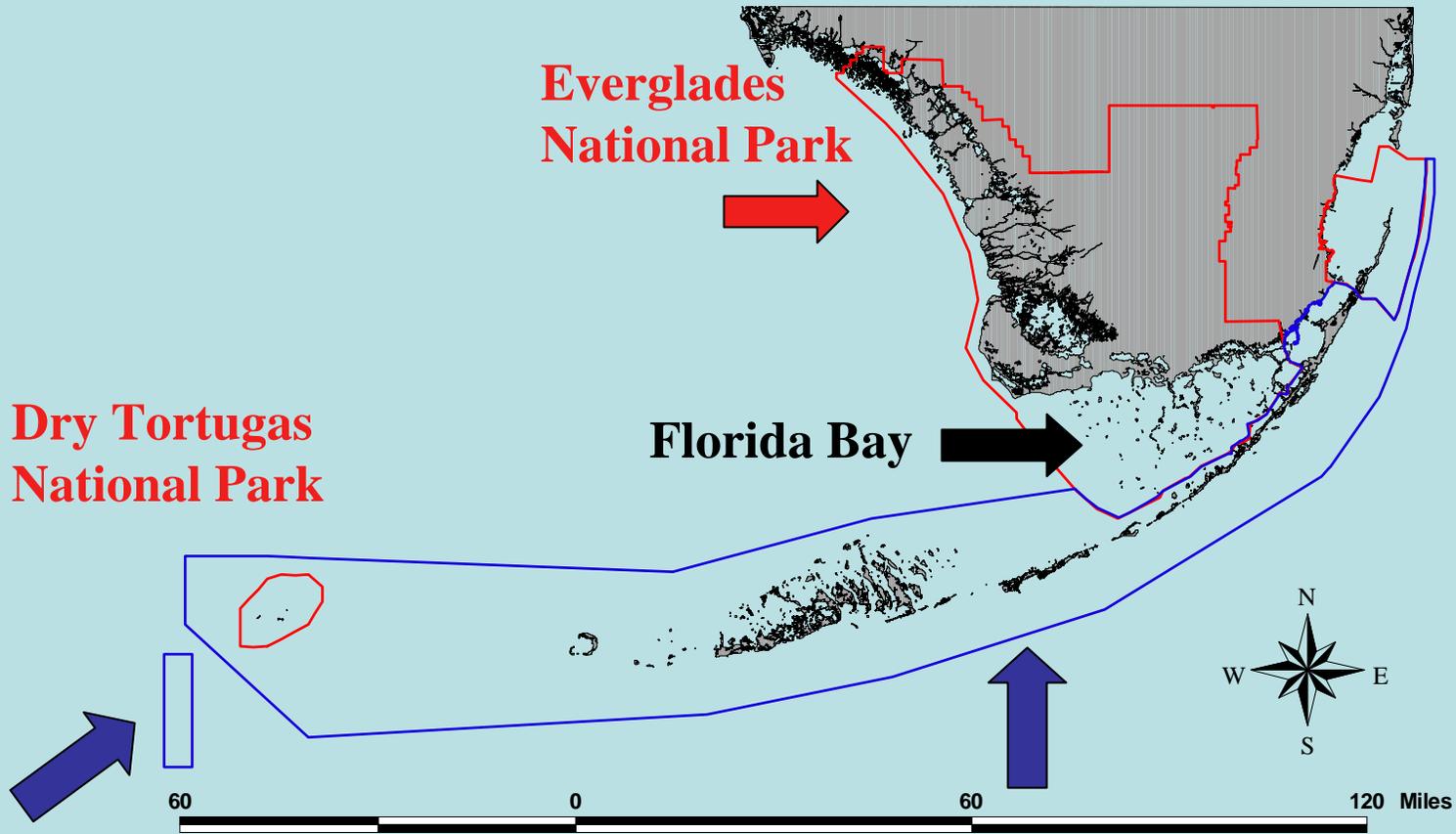
**Dry Tortugas  
National Park**

**Florida Bay**

**Tortugas Ecological  
Reserve**

**Florida Keys National Marine Sanctuary**

9950 km<sup>2</sup> in size



# **Facts and Figures about the Florida Keys National Marine Sanctuary**

- **Designated in 1990 by Congress**
- **Immediate protections offered**
  - **ATBAs (areas to be avoided) for ships >50 meters in length**
  - **Oil and mineral exploration prohibited**
  - **Water Quality Protection Program includes:**
    - **Coral Reef Monitoring Program (began 1994)**
    - **Water Quality Monitoring Program (began 1994)**
    - **Seagrass Monitoring Program (began 1996)**
- **Management Plan implemented 1997**
- **Established Sanctuary Advisory Council (SAC)**

# Threats to the Natural Resources

\*Marine Debris

\*Anchor Damage



# Threats to the Natural Resources



## **Serial Over-fishing**

**\*Results in altered fish populations**

**\*Causes an imbalance in critical ecological interactions**

# Threats to the Natural Resources

- \*Boat Groundings
- \*Prop scarring and propeller damage



# Threats to the Natural Resources

- \*Altered freshwater regimes on the mainland (due to drainage/canals)
- \*Degraded nearshore water conditions (runoff/sewage)



# Threats to the Natural Resources



\*Coral bleaching

\*Coral disease



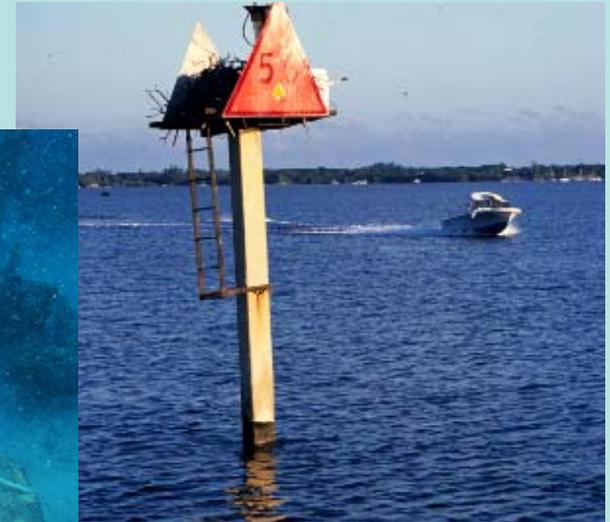
# How are the natural and cultural resources of the Sanctuary managed?



**Research**



**Restoration of damaged Habitats**



**Channel Marking**

# How are the natural and cultural resources of the Sanctuary managed?



**Education/Outreach**



**Law Enforcement**

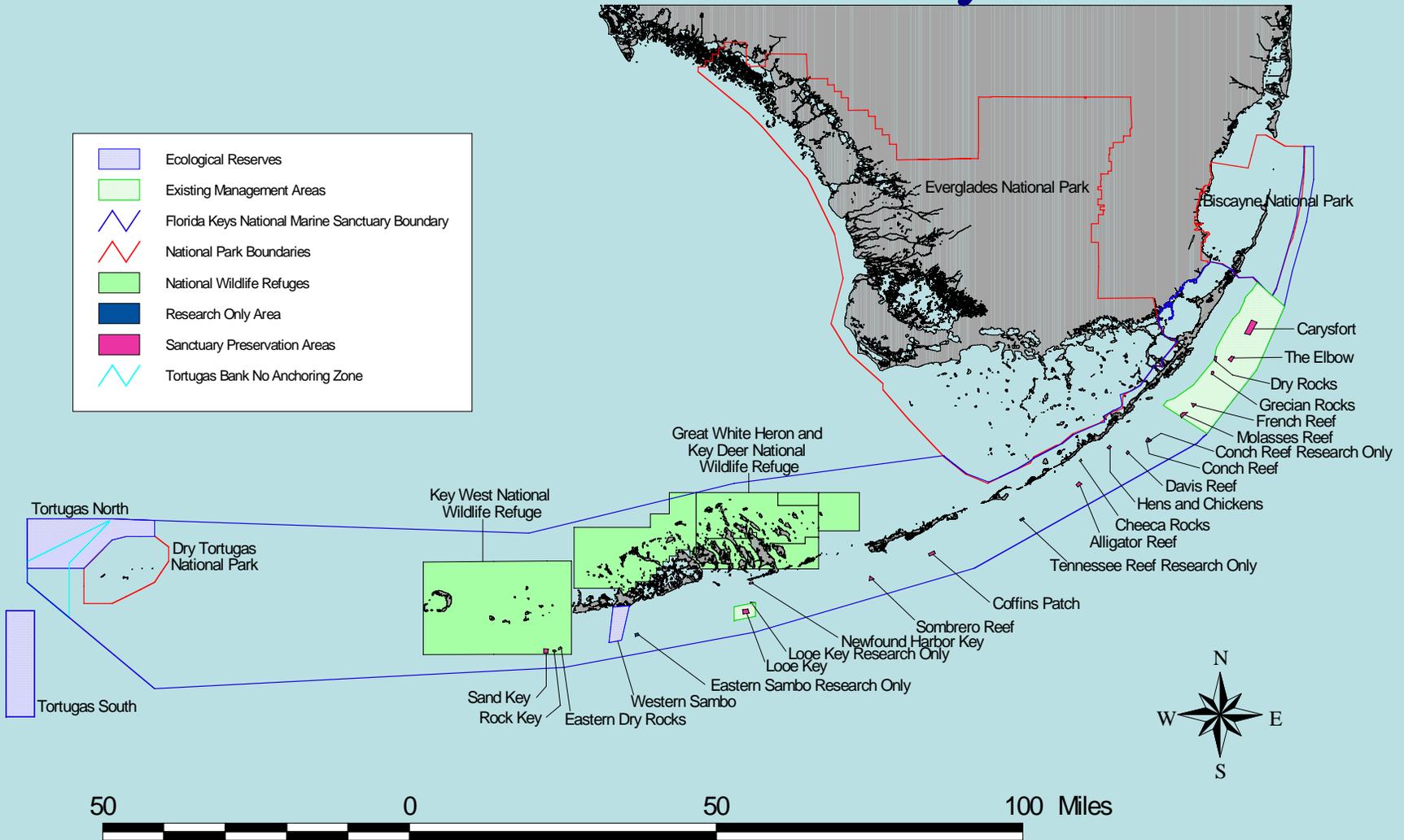


**Mooring Buoys**

# **Zone Types in the Florida Keys NMS**

- \*Sanctuary Preservation Areas (SPAs)**  
(fully-protected zones along the reef tract)
- \*Ecological Reserves (ERs)**  
(Western Sambo ER and Tortugas ERs)
- \*Special-Use Areas**  
(Research-only Areas=no entry, ex. Conch Reef, Aquarius Habitat)
- \*Wildlife Management Areas (WMAs)**  
(nearshore, managed with Fish and Wildlife Service)
- \*Existing Management Areas (EMAs)**  
(state parks, Wildlife Refuges, etc.)

# Florida Keys National Marine Sanctuary



# Science Program

*Science Coordinator: Brian Keller*

**Objective: To establish a reference condition for biological communities & water quality conditions**

**\*Water Quality Monitoring Program**

**\*Zone Monitoring Program**



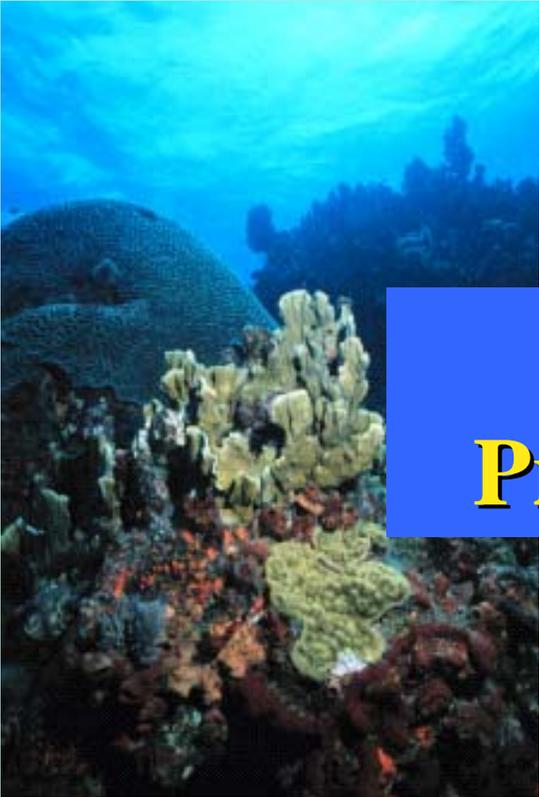


# Zone Monitoring Program

**Are the Zones effective?**

**Measures of effectiveness in Scientific Studies include:**

- **Abundance and size of harvested fish and lobsters**
- **Compliance with economic and aesthetic values**
- **Changes in ecosystem structure (studies measure the types and numbers of organisms in an ecosystem)**
- **Changes in ecosystem function  
(studies measure coral recruitment, herbivory, predation)**



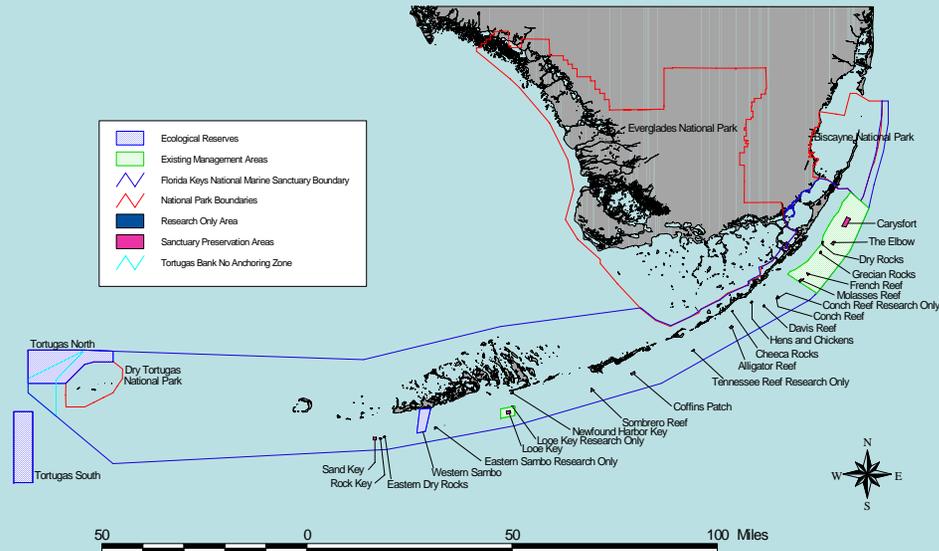
# Water Quality Protection Program

- **monitors water quality, seagrasses, and coral reefs/hardbottom communities**
- **detects large scale ecosystem changes associated with Everglades restoration and other regional-scale phenomena**

# Sanctuary Science Report 2001

## An ecosystem Report Card

### Water Quality Protection Program & Zone Monitoring Program



# Research Volunteers in the Sanctuary



- The Nature Conservancy
- REEF (Reef Environmental Education Foundation)
- Mote Marine Laboratory -MEERA program  
(197 incidents reported in 2001)

# Primary Habitats of the Florida Keys National Marine Sanctuary



- 1. Coral reefs & hardbottom habitats**
- 2. Seagrass Meadows**
- 3. Mangrove Forests**





**Hogfish with red sponges and corals**



**Rock beauty fish with grunt, blue chromis, and other marine life**



**Close-up of coral polyps with tentacles and mouths**



**Mixed grassbed with conch**



**Turtle grass--close-up**



**Mangrove Shoreline**



**Mangrove Island**



**Mangrove roots under water**

To the Educator:

The following slides may be used to explain the Sounding Line Information Series (SLIS) to students.



## *Sanctuary Sounding Line Information Series*

Featuring articles from the scientists and managers of the Florida Keys National Marine Sanctuary



### **Introduction:**

**View Slide Presentation (SLIS.ppt) and read about the sanctuary on the web: <http://floridakeys.noaa.gov/>**

**There are five main subject categories:**

**Marine Protections & Management**

**Science & Research**

**Restoration Research & Programs**

**Field Experiences & Wildlife Viewing**

**Maritime Heritage Resources**

## **Marine Protection & Management**

**Cluster 1 Management History of the FKNMS**

**Cluster 2 Reef Management Issues and MPAs**

**Cluster 3 Water Quality Management Issues and Education**

**Cluster 4 Miscellaneous Management Issues**

## **Science & Research**

**Cluster 1 Physical Science**

**Cluster 2 Zone and Water Quality Monitoring and Research**

**Cluster 3 Research Projects in the Sanctuary**

**Cluster 4 Coral Reef Research**

**Cluster 5 Science Research Methods**

# **Restoration Research & Programs**

**Cluster 1 Coral Reef Restoration**

**Cluster 2 Seagrass Restoration**

## **Field Experiences & Wildlife Viewing**

**Cluster 1 Field Experiences**

**Cluster 2 Wildlife Viewing**

## **Maritime Heritage Resources**

**(No subject clusters)**

**Note:** Each of the five Subject Categories has a single Adobe PDF document that contains:

- Subject Cluster Titles with articles contained in that subject cluster
- Questions pertaining to each article in that subject cluster
- Discussion Questions and Extension Ideas for that subject cluster
- All materials are contained on the SLIS web CD.