The South Atlantic Council's Fishery Ecosystem Plan

APNEP Scientific and Technical Advisory Committee Meeting October 31, 2005

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Introduction

Evolving from Habitat Plan → Fishery Ecosystem Plan

1. SFA & EFH Final Rule
2. Pilot Projects - background
3. SAFMC Approach to pilot & FEP
4. Expand and Refine Partnerships with Habitat / Ecosystem Network in South Atlantic Region to Develop Indicators of Ecosystem Health as Part of FEP Process.

Sustainable Fisheries Act & Essential Fish Habitat Final Rule

PROVIDE THE LEGAL AUTHORITY FOR COUNCILS TO IMPLEMENT FISHERY ECOSYSTEM MANAGEMENT

NO GUIDELINES SO LIMITED BY AVAILABLE DATA AND INDIVIDUAL COUNCIL'S WILLINGNESS TO EXPLORE NEW AREA

Background on Pilots

- **In FY04, Congress allocated ~$2 million for NOAA-Fisheries to conduct ecosystem management pilot projects in four regions:**

- **New England**
- **Mid-Atlantic**
- **South Atlantic**
- **Gulf of Mexico**

- **Report language from the Senate further explains -**
- ***"The pilots purposely cover bodies of water that are contiguous, because the one influences the others. "***

- ***"Ultimately, should the pilots prove successful, the Committee would expect to fold more specific initiatives into the larger ecosystem approach."***

-

Spending Plan for Pilot Projects (FY-2004)

- **Enhance Regional Ecosystem Governance Structures through Fishery Management Councils (FMCs)**

  Determine Management Objectives, Threats, Options, and Alternatives
- **Conduct Technical Workshops**

  Establish dialog between science and management in applying ecosystem principles to fisheries

  * Assess the state-of-the-art, and facilitate dialog
  * Determine technical needs
- **Develop Quantitative Decision Support Tools**

  Develop quantitative methods, frameworks and software to aid decision makers in evaluating management options and their consequences (models and GIS tools)

Goals & Tasks

- Conduct public meetings with stakeholder groups to identify and prioritize ecosystem-related issues
- Participate in coordinated opinions/attitudes survey with wider public input
- Identify technical needs & inventory existing regional information (including that held by NOAA)
- Synthesize public input on Ecosystem Goals and Objectives
- All four Councils have now established Ecosystem Committees

SAFMC Approach - Fishery Ecosystem Plan

1. Map fishermen & document catch/bycatch as they move across fisheries in our ecosystem
2. Expand existing relationships with habitat and ecosystem partners in the South Atlantic including other management agencies
3. Expand & refine South Atlantic Ecopath Model & explore sub-models for Oculina Bank HAPC, FL Keys, Deepwater Snapper Grouper Habitat & Albemarle-Pamlico Sound
4. Build Technical and Information Support System to facilitate FEP development

Map Fishermen & Basic Data

- Basic data on # fishermen, catch, by-catch, discards, size/age composition, CPUE incomplete to missing

  Solution: Continue Implementing ACCSP

- Document fleet dynamics in SA & links to GM, MA & New England

  Solution: NMFS SERO completing revisions to permit database to allow tracking vessels across different fisheries; need to link to NER. Continue to administer economic logbooks; expand use.

Map Fishermen & Basic Data

- Why do we need this information?

1. Stock assessments
2. Impacts of regulations (intended & unintended)
3. Effort shifts/cumulative impacts
4. Fishery/fishing gear impacts on habitat
5. Other applicable law (NEPA, ESA, MMPA, Executive Orders, etc.)

Humans – part of ecosystem

Collect data on fish

Models of ecosystem

Lots of GIS work

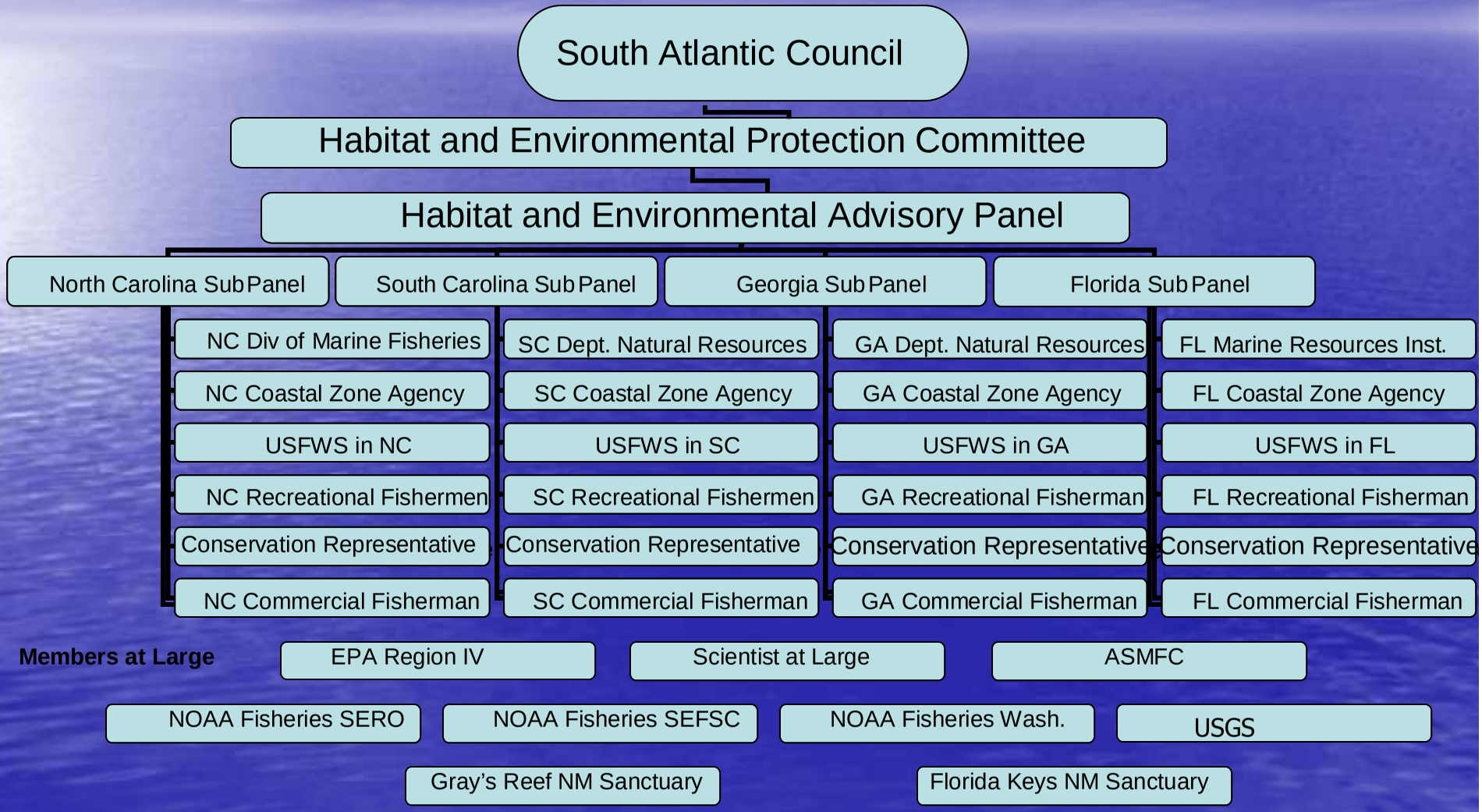
Need to focus more effort on humans

Ecosystem Management and South Atlantic Fishery Ecosystem Plan Development

" *The Fishery Ecosystem Plan will evolve from the Council's Habitat Plan. The transition from single species management to ecosystem management will involve incremental steps to better characterize the system and understand the complex relationships among humans, harvested fish and prey, all marine life and essential habitat and environmental characteristics of the South Atlantic Ecosystem. This effort will provide the Council with a foundation from which to attain a more comprehensive understanding of habitat and biology of species, fishery information, social and economic impacts of management and ecological consequences of conservation and management. The Fishery Ecosystem Plan will specify research and monitoring needed to fully address ecosystem management.*"

SAFMC Action Plan for Ecosystem-Based Management

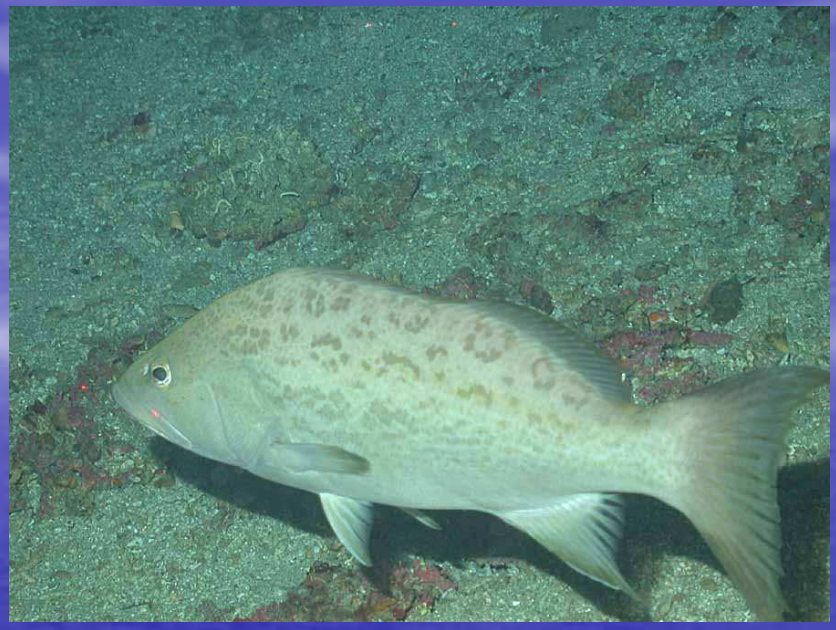
Habitat/Ecosystem Partners and Relationships with other Agencies



Ultimately, the FEP will:

- **Define the geographical boundaries of the ecosystem including characterization of its biological, chemical and physical dynamics;**
- **Assess ecological, human and institutional elements (agencies/organizations) of the ecosystem;**
- **Develop a conceptual model of the food web;**

- Describe the habitat needs of different life history stages for all managed species;
- Calculate/characterize total removals - landings, discards and bycatch;
- Develop indices of ecosystem health;
- Specify long-term research and monitoring needs; and
- Support Comprehensive Ecosystem Amendment specifying management including, catch limits, gear regulations, zoning, etc.



Support Tools for Habitat and Fishery Ecosystem Plan Development

- South Atlantic Habitat and Ecosystem Homepage

- South Atlantic Habitat and Ecosystem Internet Mapping System

South Atlantic Fishery Management Council - Microsoft Internet Explorer

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Address http://map.mapwise.com/safmc/Default.aspx Go SnagIt

South Atlantic Fishery Management Council

Habitat and Ecosystem Homepage

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Quick Links

- Mapping and GIS Data
- Deep Water Corals
- Sargassum
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- Ecosystem Linkages
- Fishery Management Plans
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Upcoming Workshops

November 16-18, 2005: Research and Monitoring Workshop: Ecosystem Management in the South Atlantic Region

This workshop will convene

Moving Towards Ecosystem Management

From deepwater canyons off the Carolinas to the shallow tropical waters surrounding the Florida Keys, marine habitats of the South Atlantic are as diverse as the species that inhabit them. To address this diversity, the South Atlantic Council is adopting an ecosystem approach to fisheries management with the development of a Fishery Ecosystem Plan and Comprehensive Ecosystem Amendment that will amend all the Council's Fishery Management Plans. The South Atlantic Council continues to be at the forefront of habitat conservation and risk-averse management through:

- Adoption of a proactive approach to protect and enhance Essential Fish Habitat for all managed species under its jurisdiction
- Adoption of precautionary and proactive management plans

Ultimately, by broadening the scope of management, the Council will achieve long-term sustainability of fisheries and of the ecosystem as a whole (Photo credit: NURC/UNCW).

The Fishery Ecosystem Plan will evolve from the Council's Habitat Plan. The transition from single species management to ecosystem management will involve incremental steps to better characterize the system and

Cruise News!

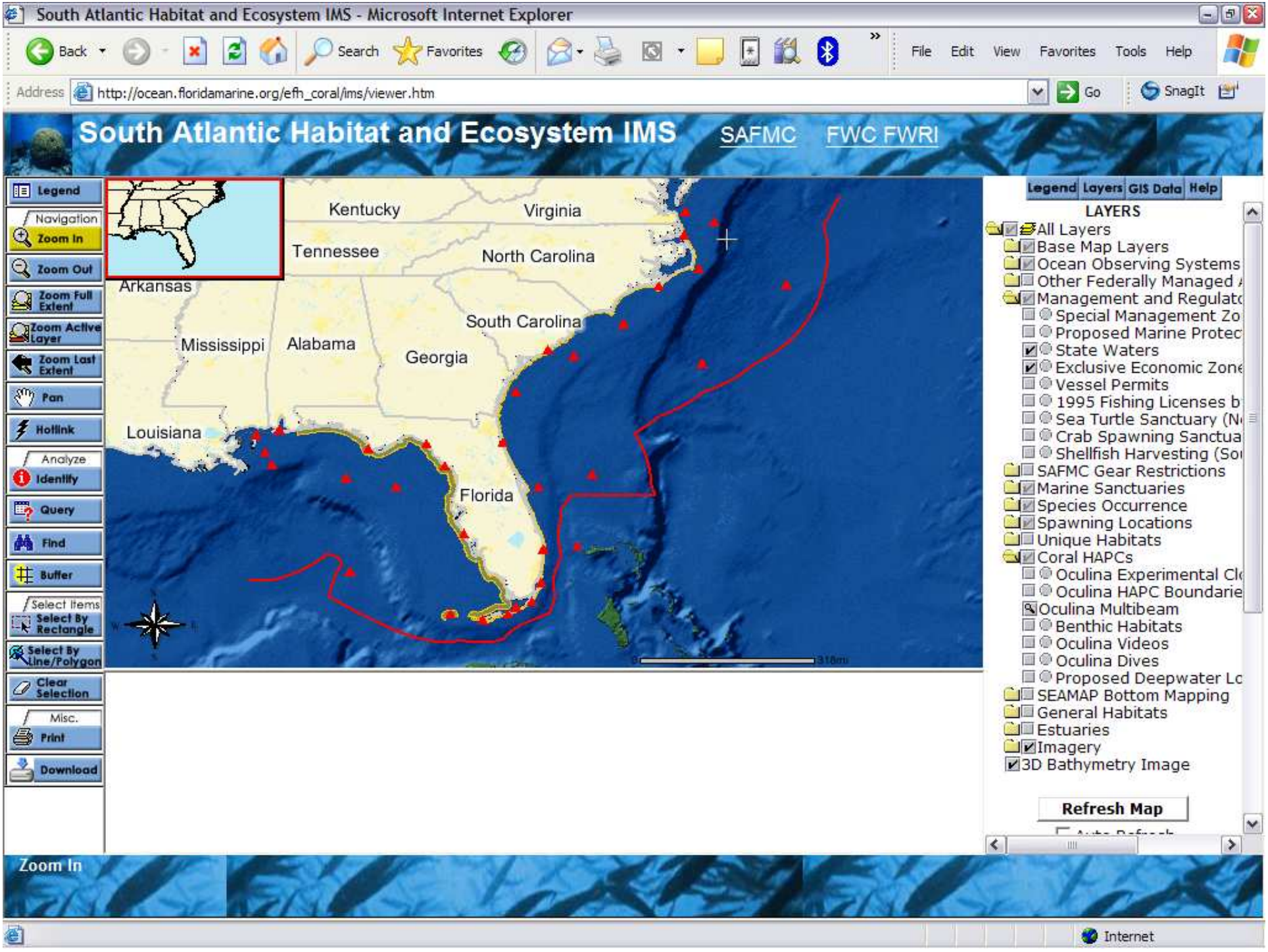
ONGOING RESEARCH CRUISE!

Image courtesy of Ross et al, NOAA, HBOI.

Life on the Edge 2005: Exploring Deep Coral Communities -- October 16 - Nov 4, 2005

Exploration of Deep-water Coral Ecosystems off the Coast of Florida -- Mapping and Habitat Characterization -- November 7-21, 2005 **(COMING SOON!)**

Internet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Select By Line/Polygon
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Exclusive Economic Zone
Vessel Permits
1995 Fishing Licenses b
Sea Turtle Sanctuary (N
Crab Spawning Sanctua
Shellfish Harvesting (So
SAFMC Gear Restrictions
Marine Sanctuaries
Species Occurrence
Spawning Locations
Unique Habitats
Coral HAPCs
Oculina Experimental Cl
Oculina HAPC Boundarie
Oculina Multibeam
Benthic Habitats
Oculina Videos
Oculina Dives
Proposed Deepwater Lo
SEAMAP Bottom Mapping
General Habitats
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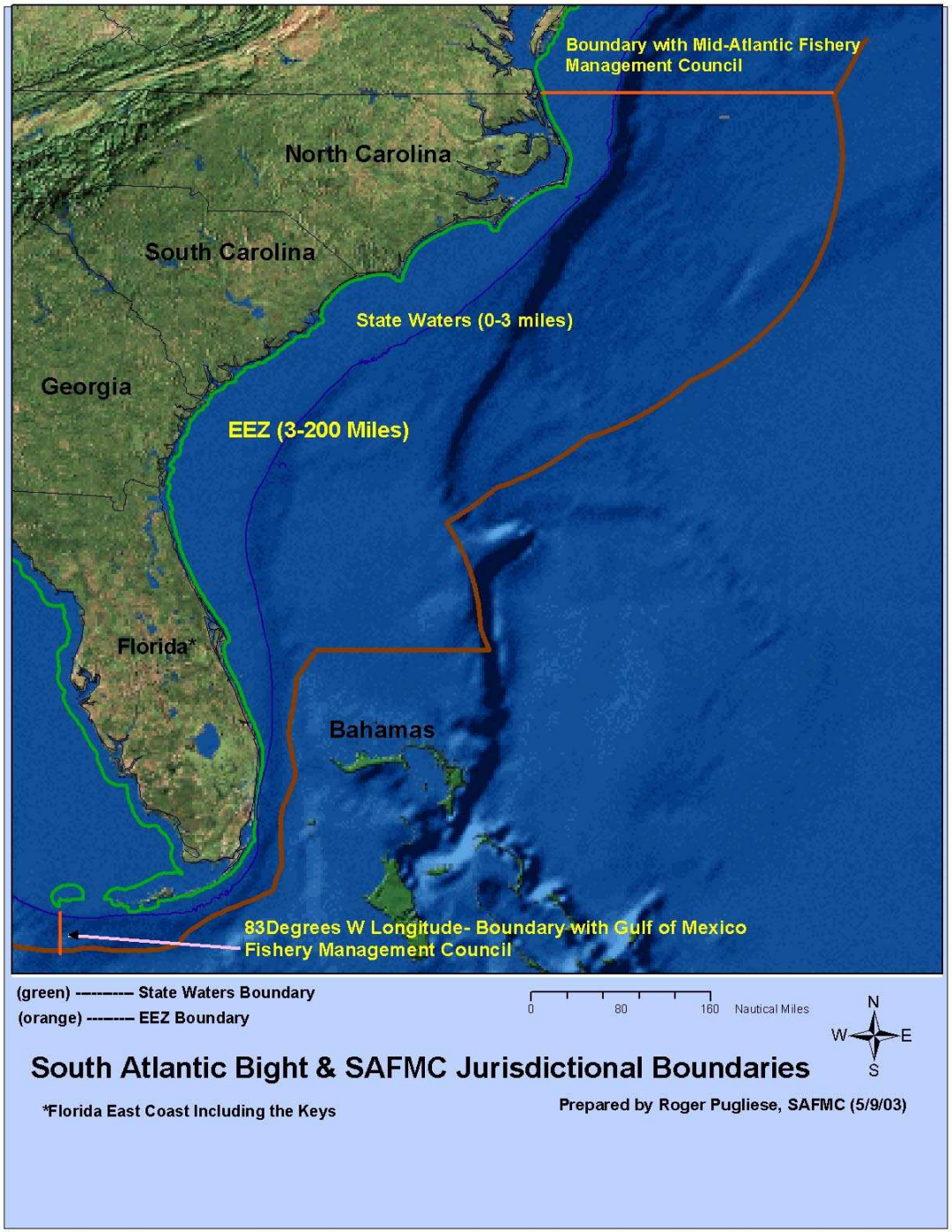
Scope of FEP and Indicators of Ecosystem Health

- This inland boundary for the FEP is the coastal watershed plus the inland extent of diadromous fish. Regional Boundary Beach to 200 miles offshore from the NC/VA border through the Florida Keys (83Degrees W Longitude).

- Indicators of Ecosystem Health will be developed by the Council through collaboration with NOAA and other habitat/ecosystem partners participating in the Fishery Ecosystem Plan development process.


Boundary with Mid-Atlantic Fishery Management Council
North Carolina
South Carolina
State Waters (0-3 miles)
Georgia
EEZ (3-200 Miles)
Florida*
Bahamas
83Degrees W Longitude- Boundary with Gulf of Mexico Fishery Management Council
(green) --------- State Waters Boundary
(orange) -------- EEZ Boundary
0
80
160
Nautical Miles
N
W
E
S
South Atlantic Bight & SAFMC Jurisdictional Boundaries
*Florida East Coast Including the Keys
Prepared by Roger Pugliese, SAFMC (5/9/03)

Potential Management Measures

CALCULATE AND CHARACTERIZE TOTAL REMOVALS (i.e., landings, effort, catch location, gear type/usage, discards, and bycatch including marine mammals and birds)

1. **Identify all users:**
   A. Require a permit to fish for, harvest, or possess any EEZ resource for all:
      (i) Commercial vessels (includes commercial and for-hire)
      (ii) Private recreational anglers

Potential Management Measures

2. Calculate and characterize removals:

A. Continue to implement the Atlantic Coastal Cooperative Statistics Program – catch and effort (trip tickets, logbooks & MRFSS); discards, bycatch and protected resources; socio-economic…..

If a permit is required for private recreational anglers, the methods used to calculate catch and removals from anglers could be modified to sample from a known universe (permit holders).

This alternative assumes completion of work to link the permits and logbook/landings databases in the southeast.

Potential Management Measures

Compliance with the Essential Fish Habitat (EFH) final rule:

A. Refine Essential Fish Habitat (EFH) and Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) designations.

B. Identify new Essential Fish Habitat (EFH) and Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) as necessary.

C. Address measures to reduce impacts of fishing and non-fishing impacts on Essential Fish Habitat (EFH) and Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) as necessary.

(i) Establish "Allowable Trawling Areas"

Potential Management Measures

Coral, Coral Reef and Live/Hardbottom Habitat Fishery Management Plan:

A. Establish additional Coral Habitat Areas of Particular Concern (HAPCs) – gear prohibitions from existing HAPCs would apply within these new HAPCs.

B. Consider prohibiting harvest of soft corals.

Enforcement/Data Collection/Safety at Sea:

A. Require VMS on all commercial, for-hire and private recreational vessels. Private recreational vessels could use a "chip" that is imbedded in existing electronic gear or some type of acoustic monitoring.

B. Require VMS on all commercial and for-hire vessels.

C. Require VMS on all commercial vessels.

Potential Management Measures

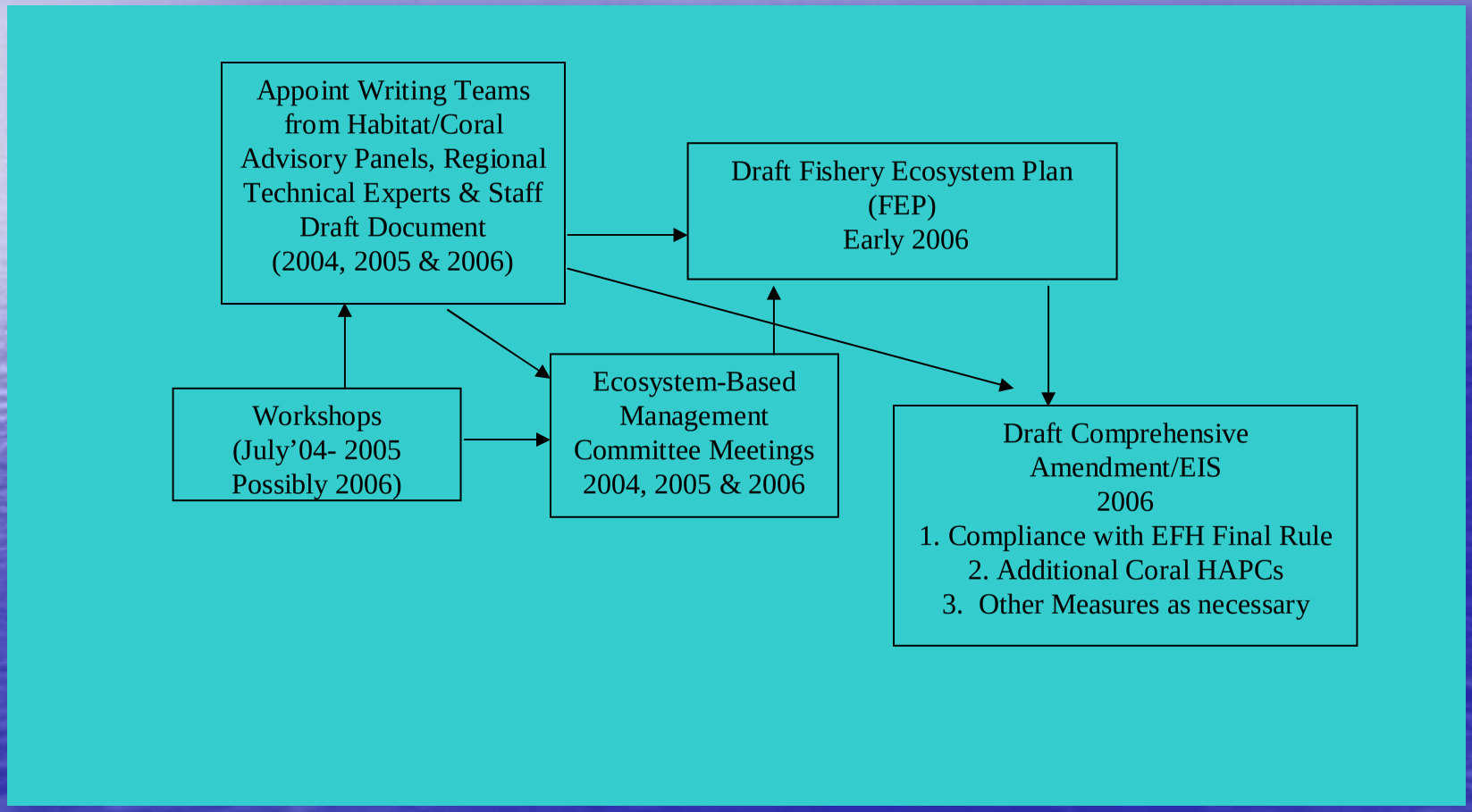
Changes to other Fishery Management Plans

A. Sargassum – consider prohibiting all harvest

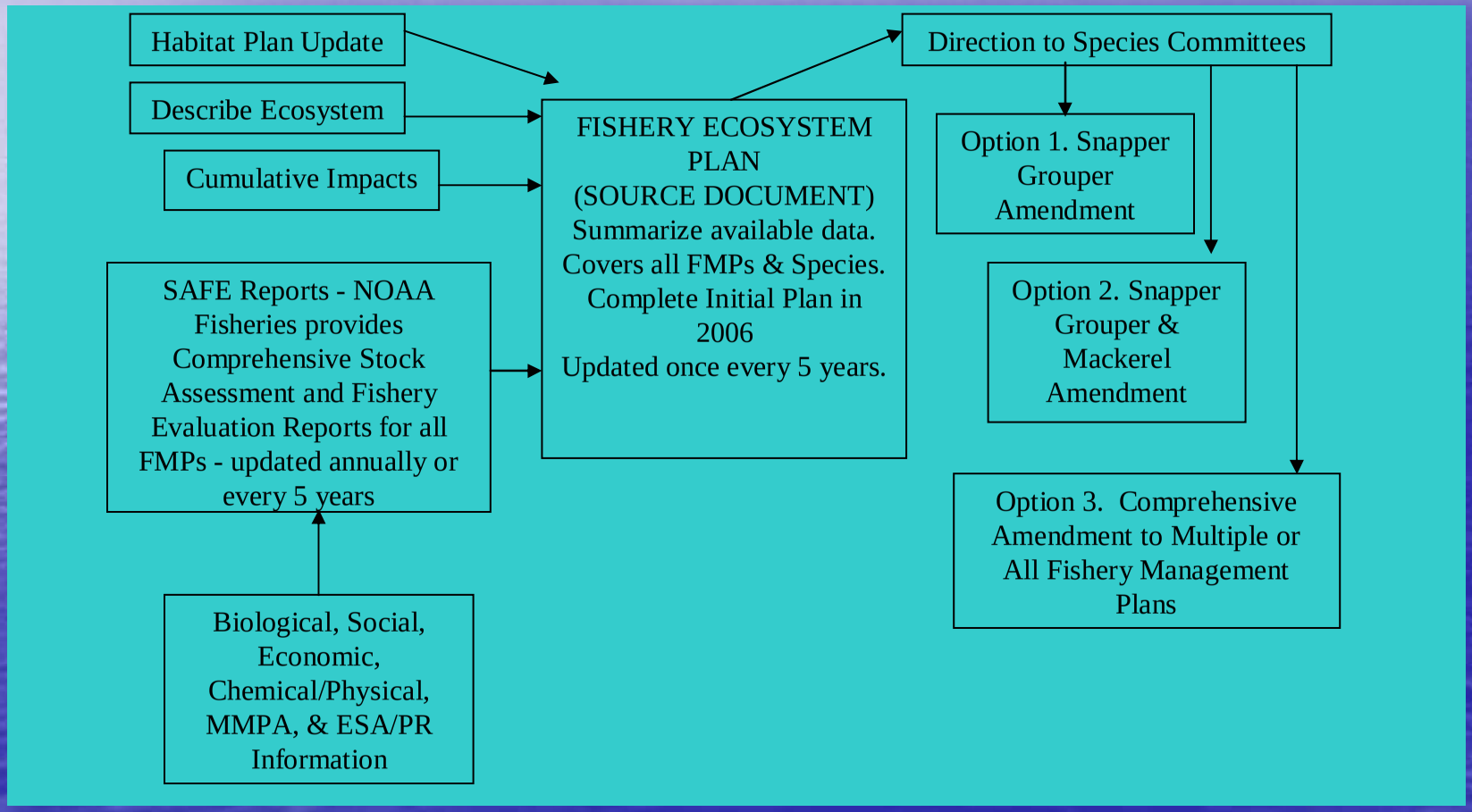
B. Mackerel
   - (i) Atlantic king mackerel - reduce TAC to address expected effort shift from snapper grouper regulations.
   - (ii) Separate Atlantic FMP with management alternatives.

C. Protected Species Interactions:
   - (i) Recommendations to Take Reduction Teams
   - (ii) Recommendations to States
   - (iii) Recommendations to ASMFC

Draft Timeline 2004/2005/2006



5-Year System-Wide Evaluation



Sources of Information/Partnerships Supporting Development of Indicators of Ecosystem Health for the Fishery Ecosystem Plan

- 2005 EPA/NOAA/FWS/EPA National Coastal Condition Report
- South Carolina Estuarine and Coastal Assessment Program
- An Evaluation of Land Use Patterns Versus Estuarine Habitat Quality in South Carolina's Coastal Zone
- Collaboration with UBC/PEW through the Sea Around Us Project
- Collaboration with TNC on 2 South Atlantic Eco-Regional Assessments
- Collaboration with NC Environmental Defense and Dr. Pat Halpin in Development of Ecosystem Indicators for Albemarle-Pamlico Sounds
- Collaboration with NCDMF and CHPPs program
- South Atlantic Ecopath Model Refinement and Sub-model Development in Collaboration with NC Environmental Defense
- Fisheries Stock Assessments and Status from SEDAR Program
- Grays Reef and Fl Keys National Marine Sanctuary Assessments
- NERRS Assessments
- SEACOOS/Caro-Coops - Ocean Observing Systems Role

2005 EPA/NOAA/FWS/EPA National Coastal Condition Report

Table 1. Coastal Condition Rating Scores by Indicator and Region. Rating scores are based on a 5-point system, where 1 is poor and 5 is good. (Adapted from Table ES-1 in NCCR II).

Indicator	Northeast Coast	Southeast Coast	Gulf Coast	West Coast	Great Lakes	Puerto Rico	United States [a]
Water Quality Index	2	4	3 [b]	3	3	3	3.0
Sediment Quality Index	1	4	3	2	1	1	2.1
Benthic Index	1	3	2	3	2	1	2.0
Coastal Habitat Index	4	3	1	1	2	_ [c]	1.7
Fish Tissue Contaminants Index	1	5	3	1	3	_ [c]	2.7
Overall Condition	**1.8**	**3.8**	**2.4**	**2.0**	**2.2**	**1.7**	**2.3**

[a] The U.S. score is based on an aerially weighted mean of regional scores.
[b] This rating score does not include the impact of the hypoxic zone in offshore Gulf Coast waters.
[c] No coastal habitat index or fish tissue contaminants index results were available for Puerto Rico.

2005 EPA National Coastal Condition Report

"The overall condition of Southeast Coast estuaries is fair to good, although there is evidence of human induced stress in some areas."
Source: EPA 2005 Assessment Report

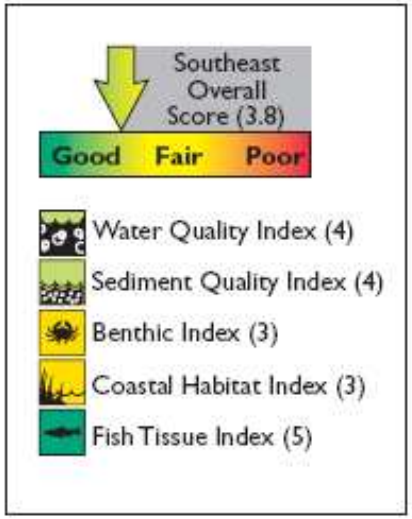


Figure 4-2. The overall condition of Southeast Coast estuaries is fair to good.

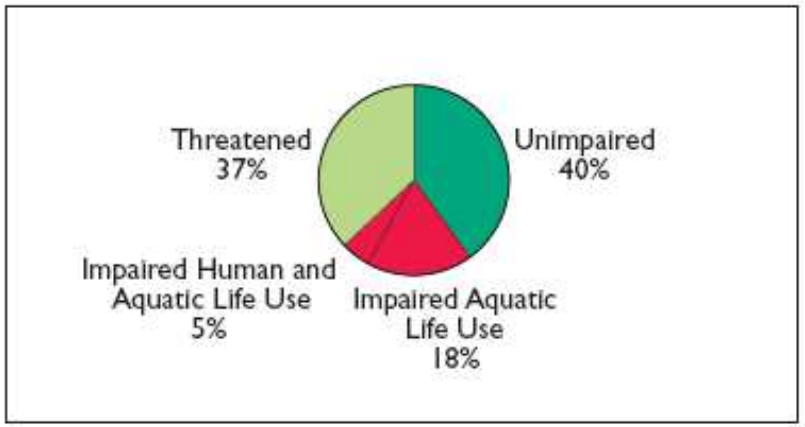


Figure 4-3. Southeast Coast estuarine condition (U.S. EPA/NCA).

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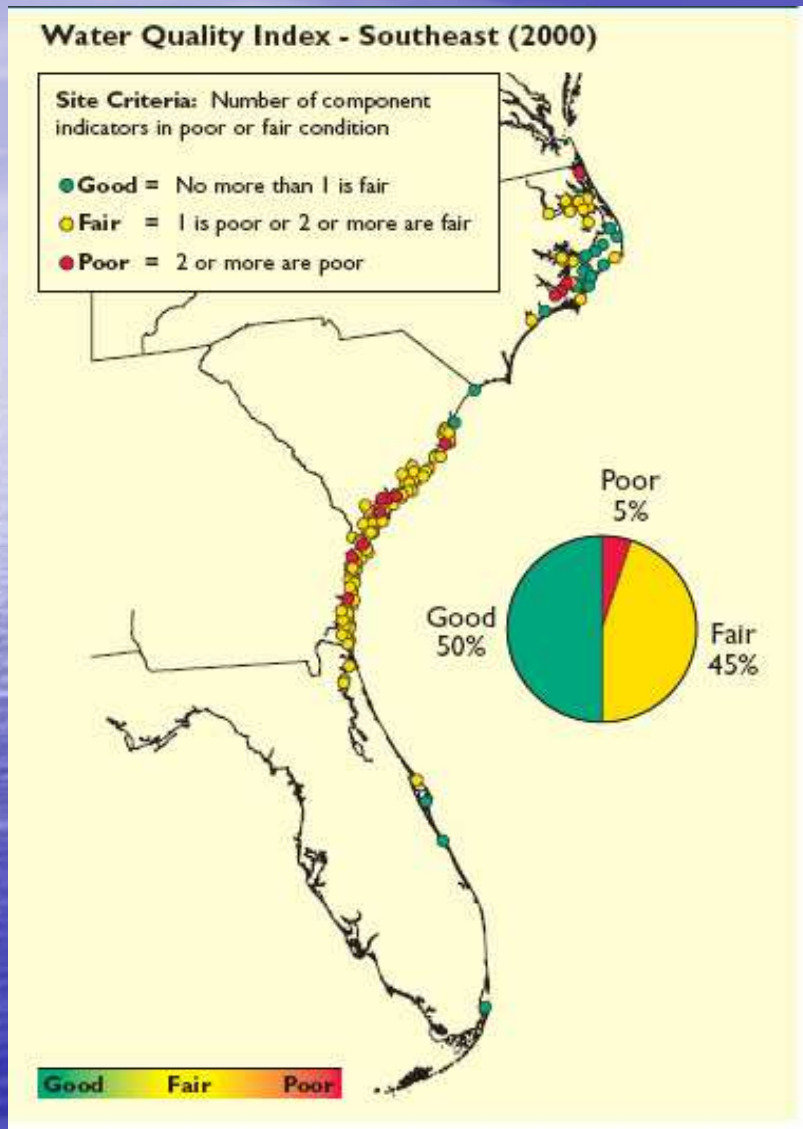

Figure 4-5. Water quality index data for Southeast Coast estuaries (U.S. EPA/NCA).

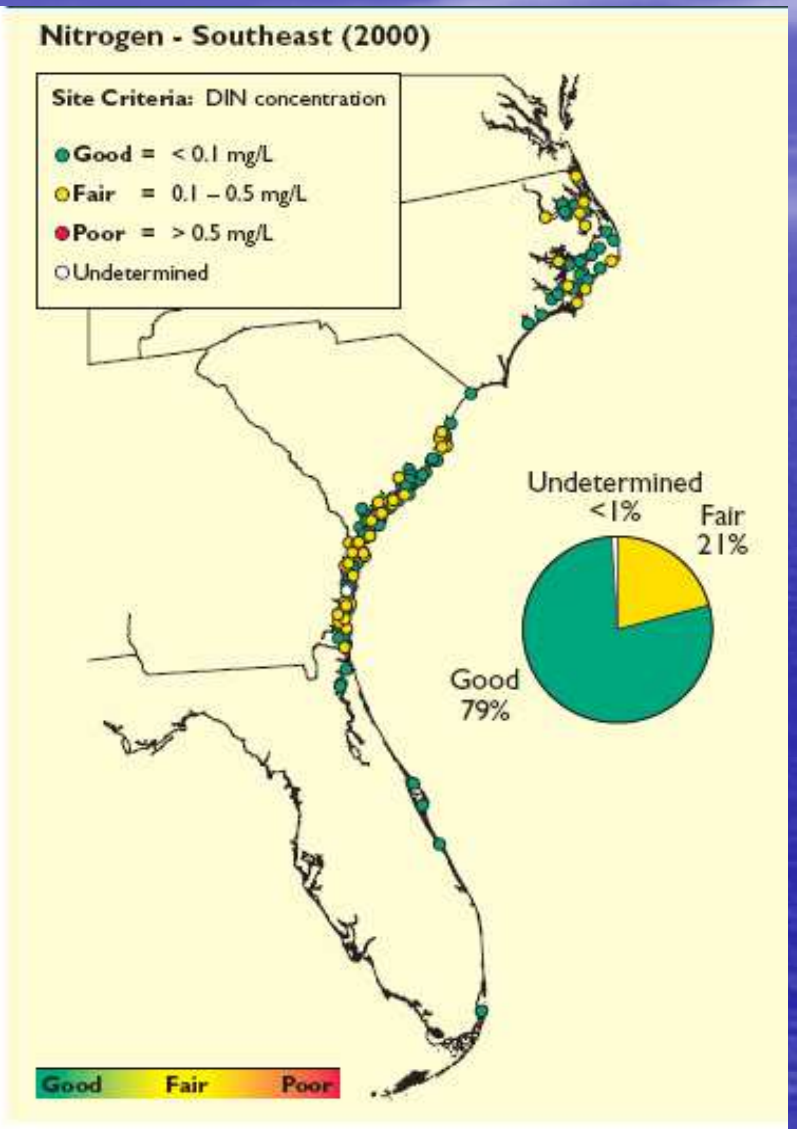

Figure 4-6. DIN concentration data for Southeast Coast estuaries (U.S. EPA/NCA).

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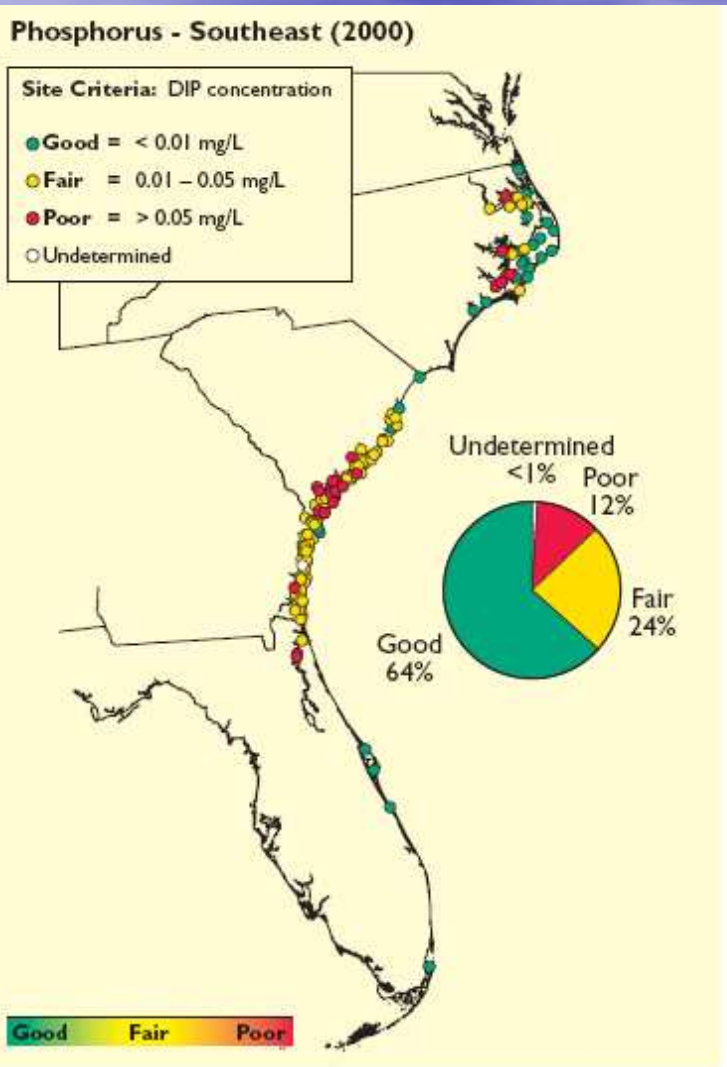

Figure 4-7. DIP concentration data for Southeast Coast estuaries (U.S. EPA/NCA).

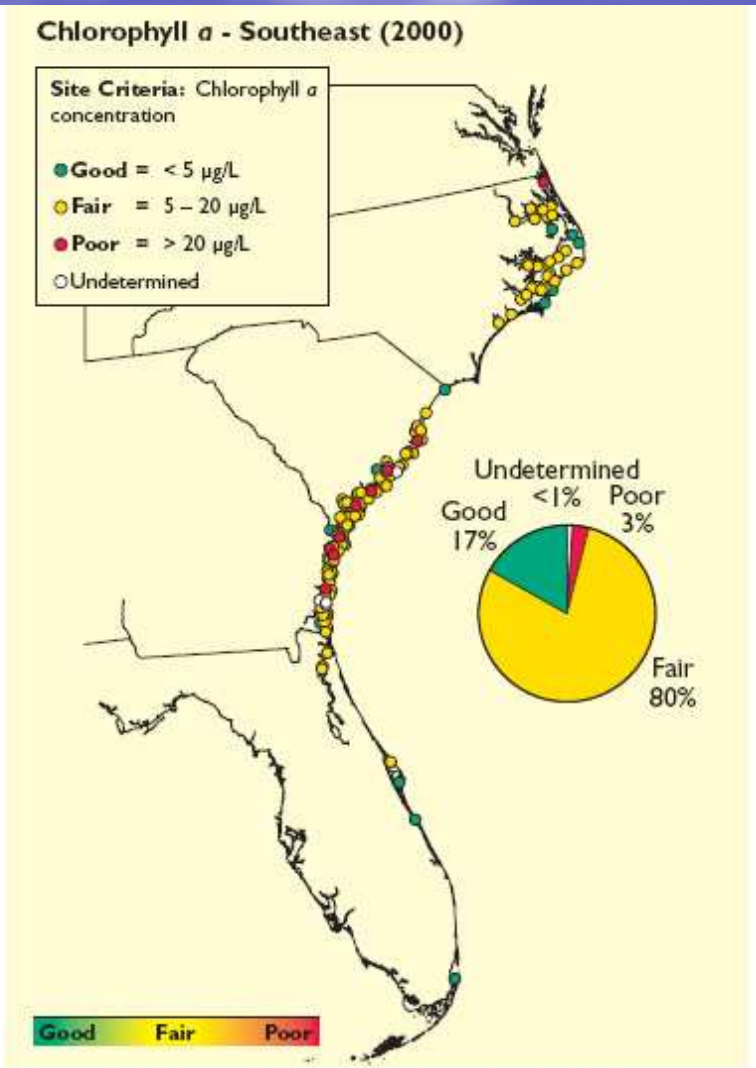

Figure 4-8. Chlorophyll *a* concentration data for Southeast Coast estuaries (U.S. EPA/NCA).

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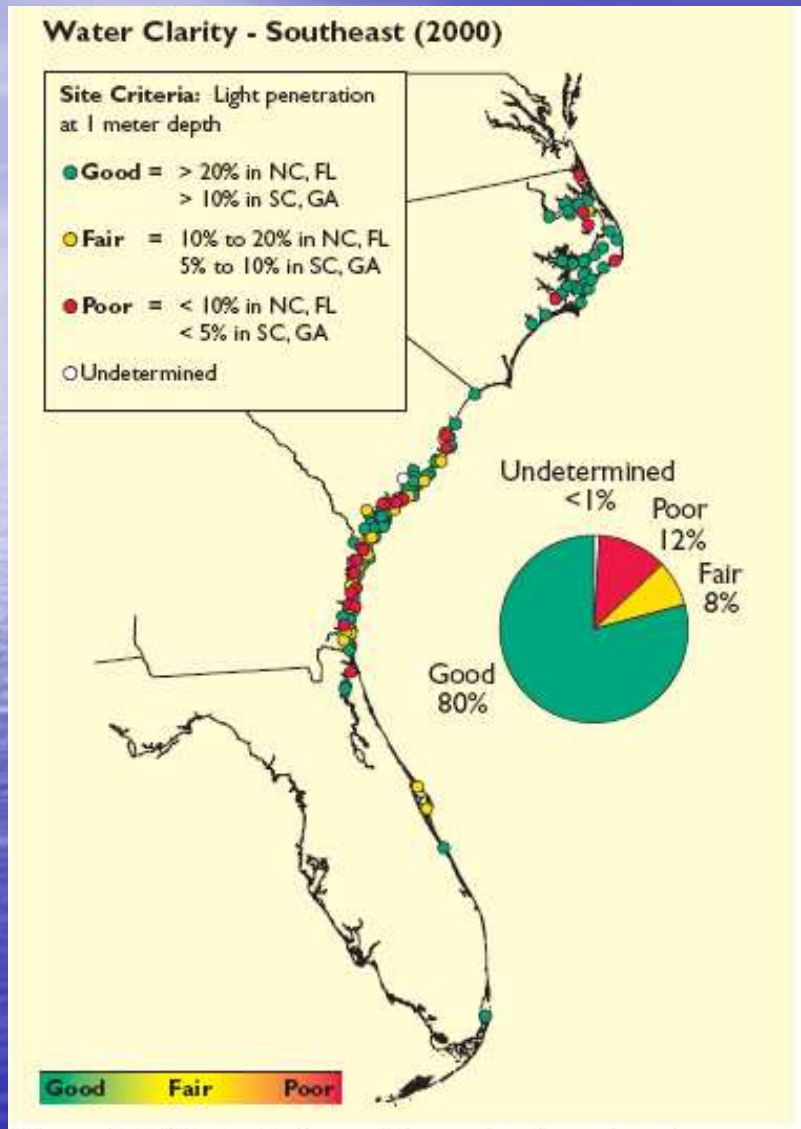

Figure 4-9. Water clarity condition for Southeast Coast estuaries (U.S. EPA/NCA).

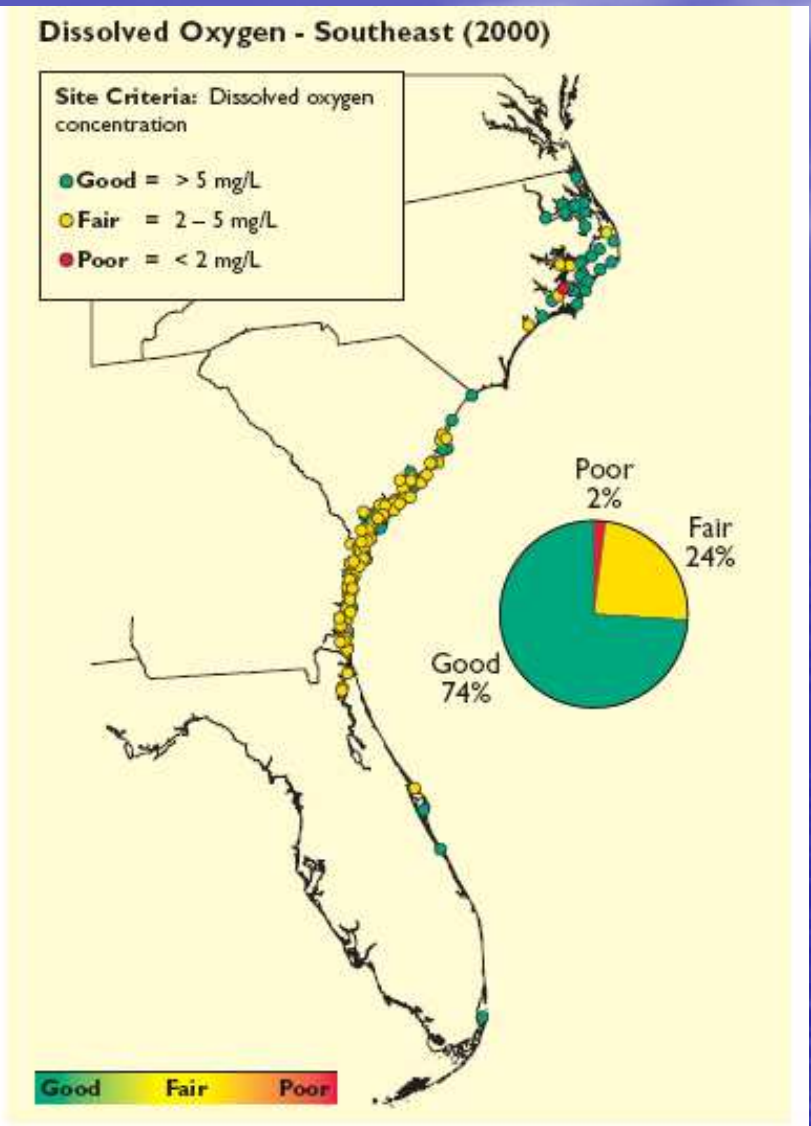

Figure 4-10. Dissolved oxygen concentration data for Southeast Coast estuaries (U.S. EPA/NCA).

2005 EPA National Coastal Condition Report

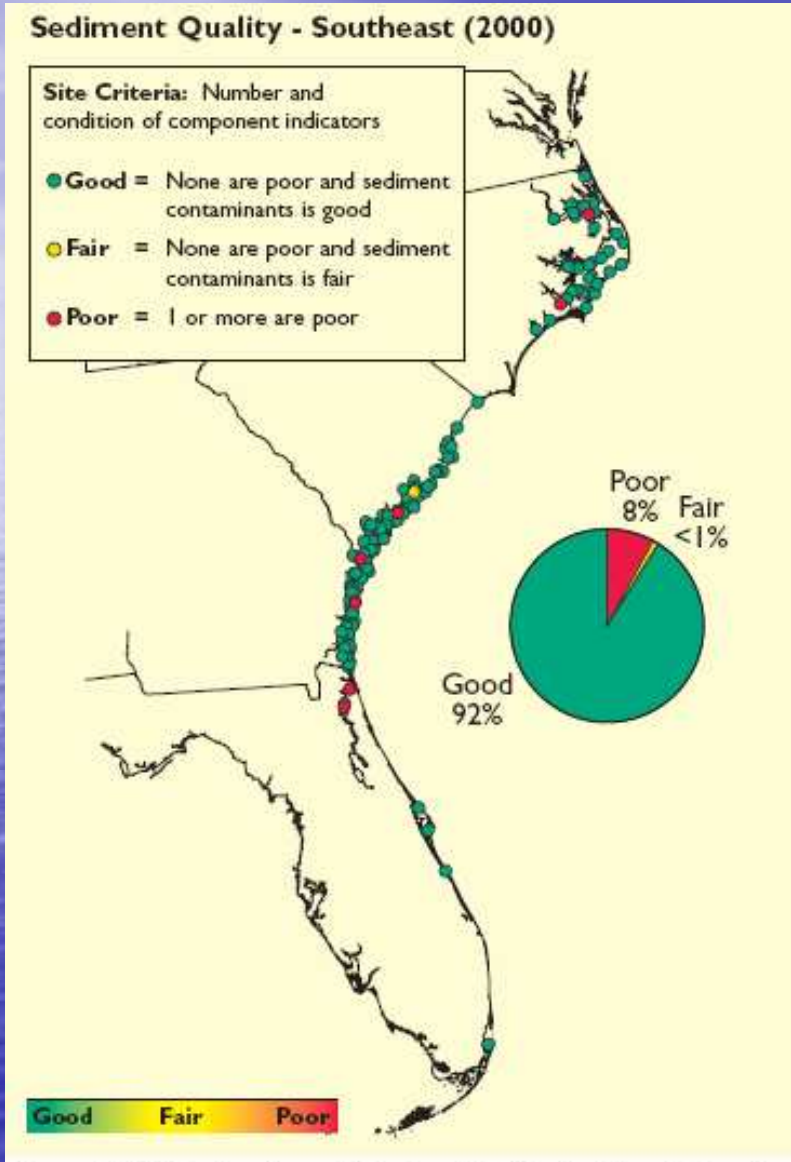

Figure 4-11. Sediment quality index data for Southeast Coast estuaries (U.S. EPA/NCA).

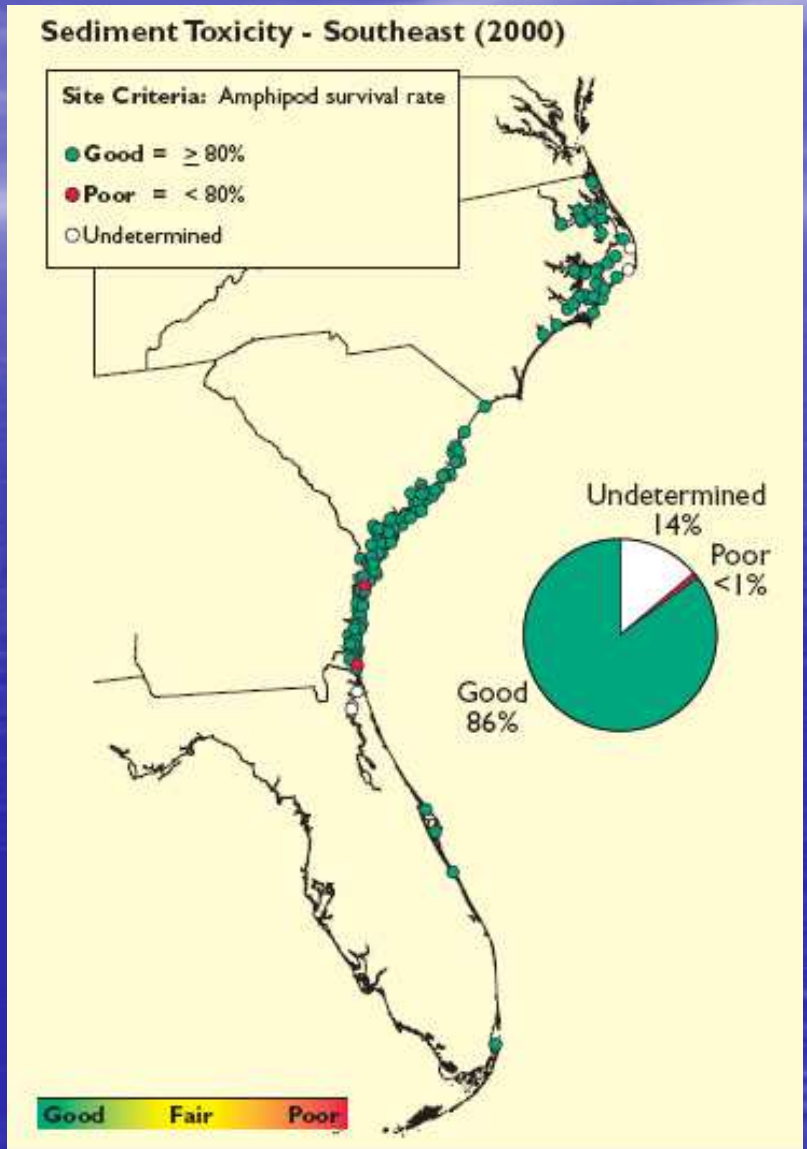

Figure 4-12. Sediment toxicity data for Southeast Coast estuaries (U.S. EPA/NCA).

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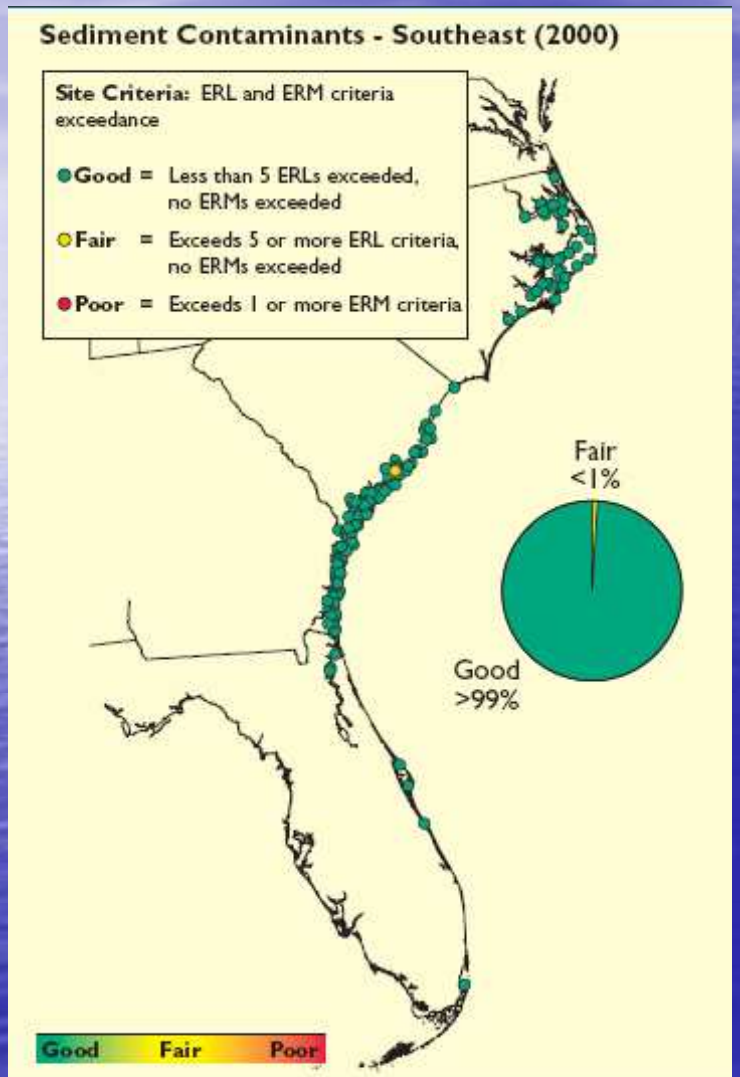

Figure 4-13. Sediment contaminants data for Southeast Coast estuaries (U.S. EPA/NCA).

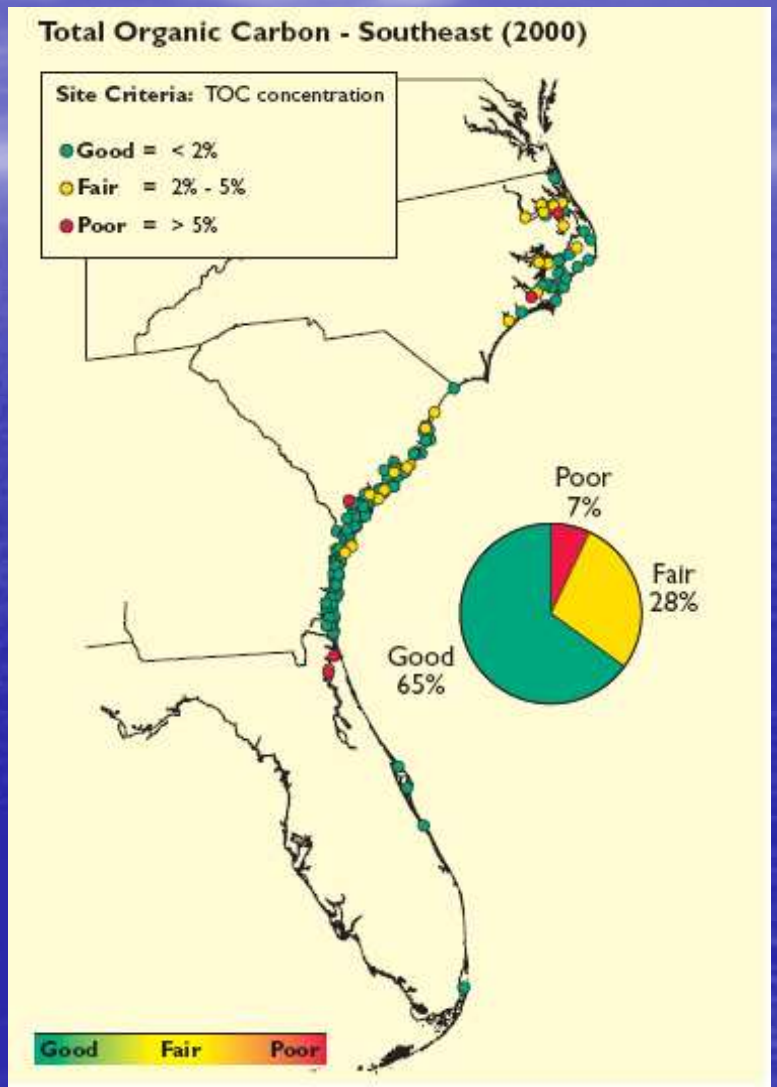

Figure 4-14. Sediment TOC data for Southeast Coast estuaries (U.S. EPA/NCA).

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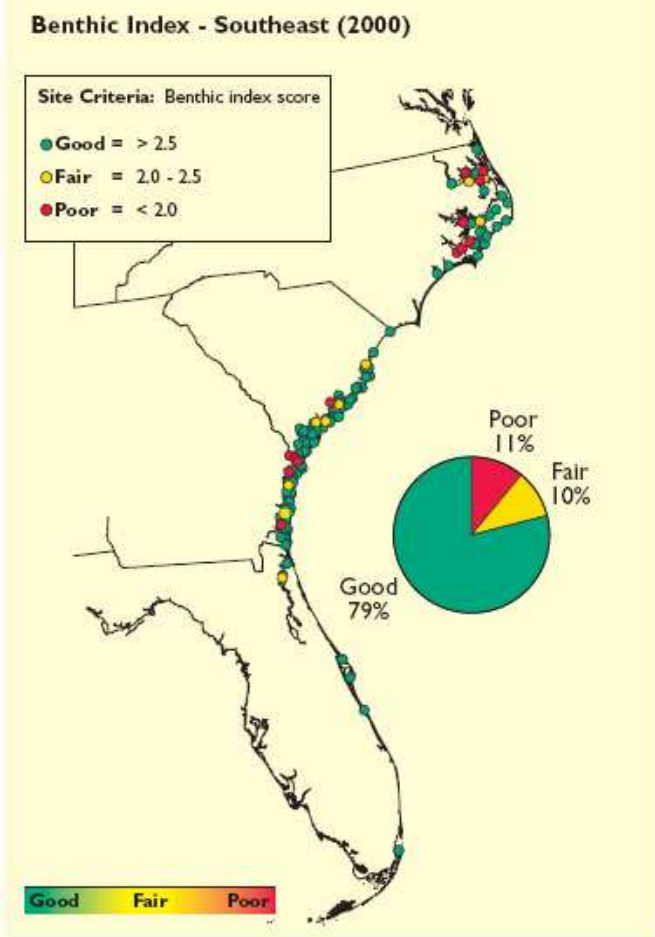

Figure 4-15. Benthic index data for Southeast Coast estuaries (U.S. EPA/NCA).

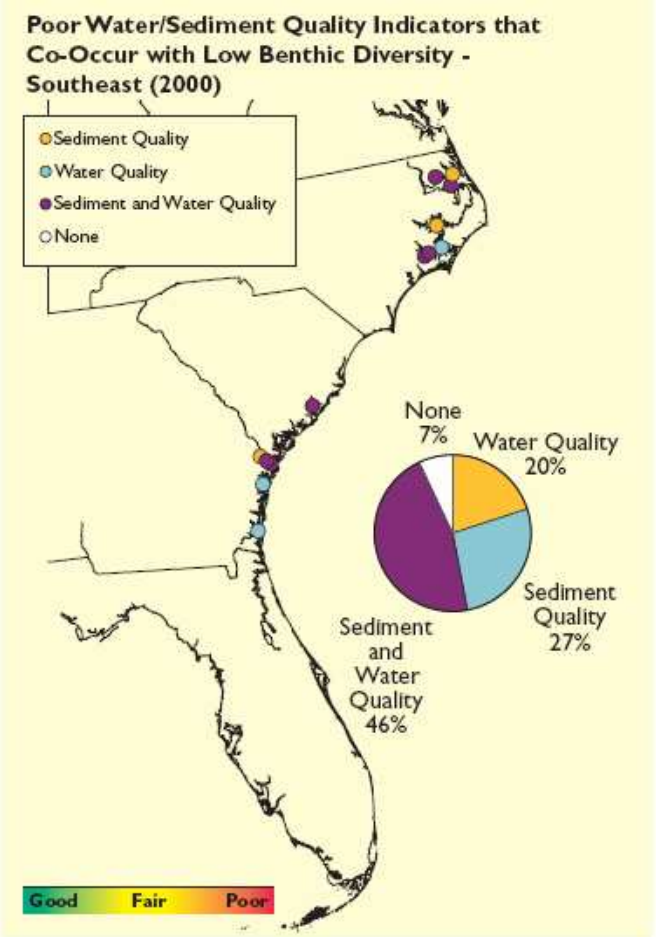

Figure 4-16. Indicators of poor water and sediment quality that co-occur with poor benthic condition in Southeast Coast estuaries (U.S. EPA/NCA).

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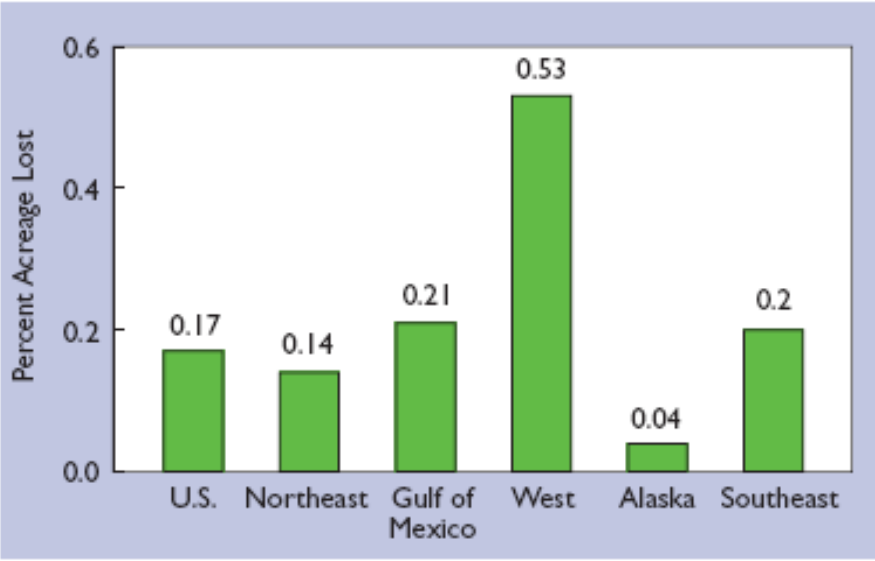

Figure 4-17. Wetland loss data. (Dahl, 2003)

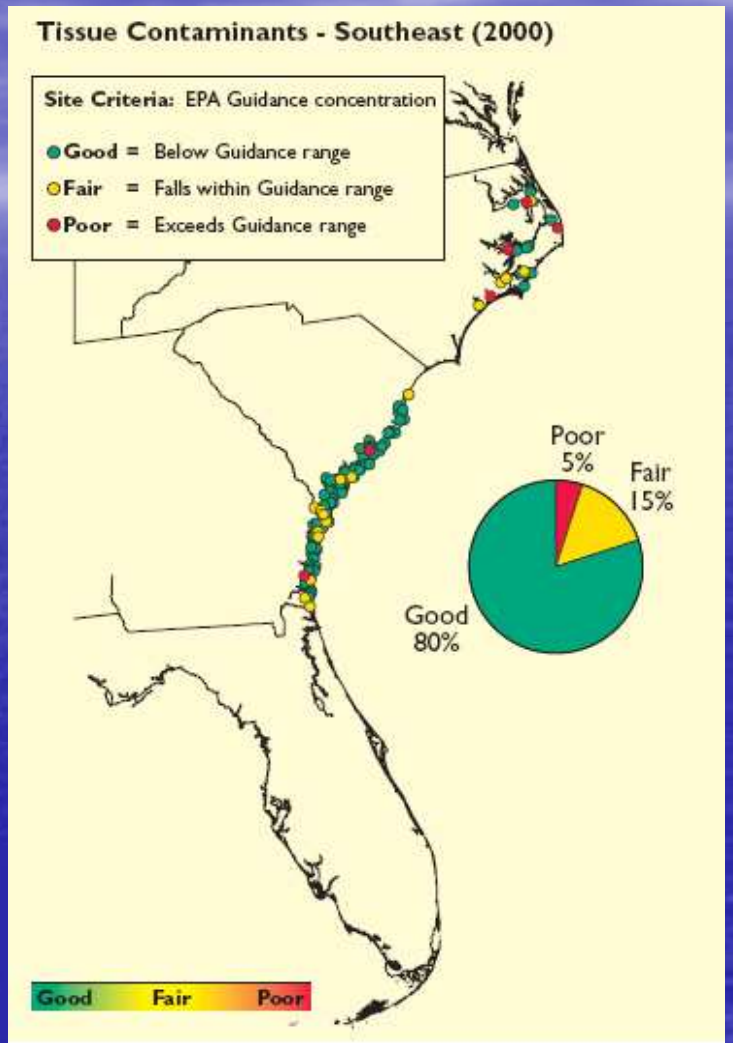

Figure 4-18. Fish tissue contaminants data for Southeast Coast estuaries (U.S. EPA/NCA).

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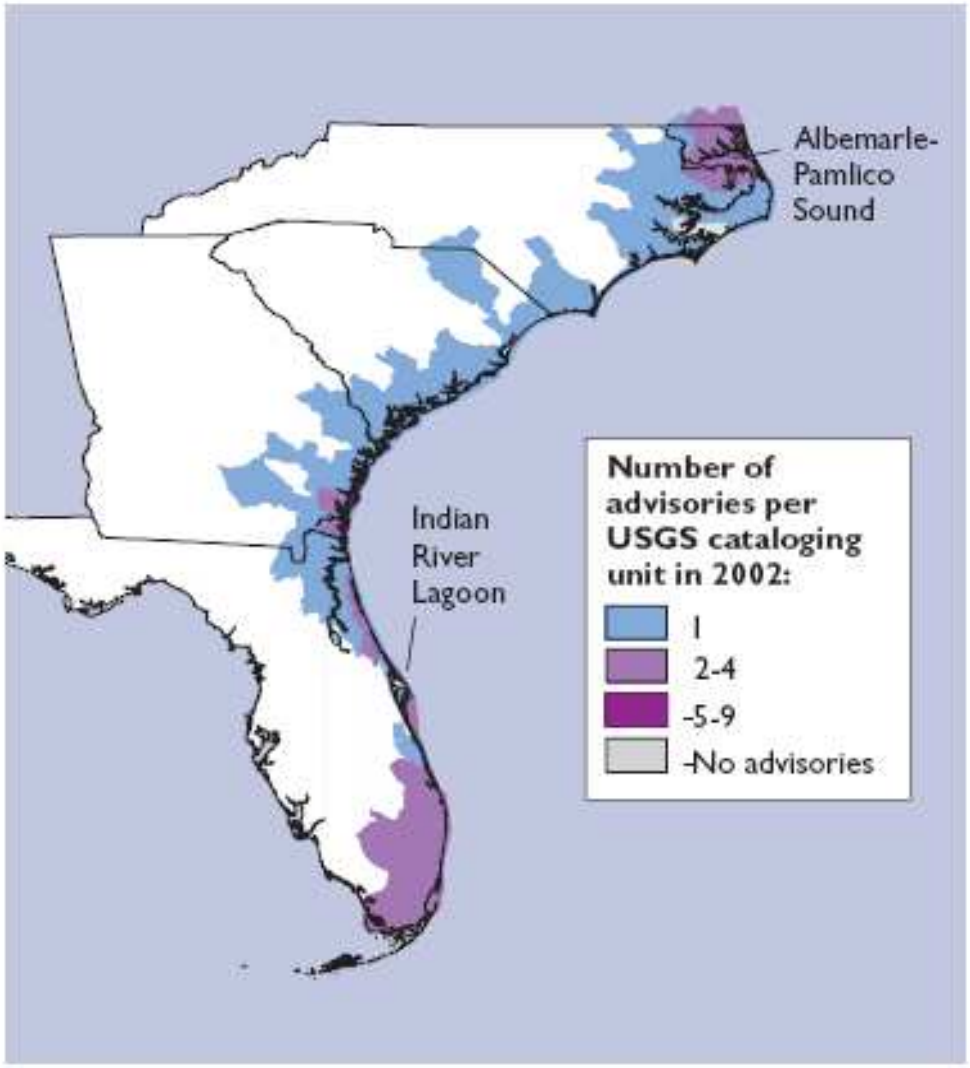

Figure 4-23. The number of fish consumption advisories per USGS cataloging unit in Southeast Coast waters (U.S. EPA, 2003c).

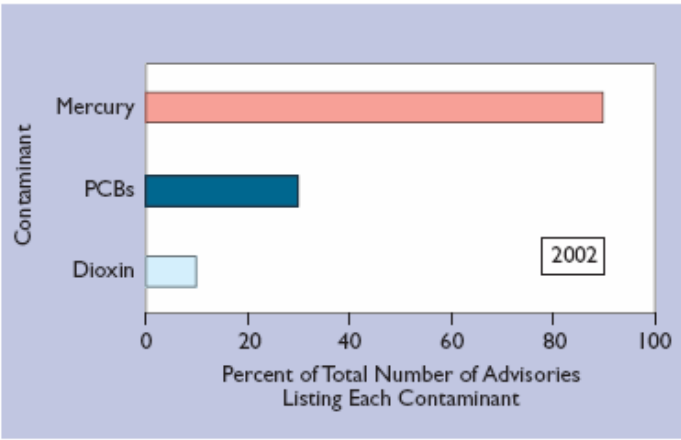

Figure 4-24. Pollutants responsible for fish consumption advisories in Southeast Coast waters. An advisory can be issued for more than one contaminant, so percentages may not add up to 100 (U.S. EPA, 2003c).

These species were under advisory in 2002 for at least some part of the Southeast Coast:

Almaco jack
Atlantic croaker
Black drum
Blackfin tuna
Blue crab
Bluefish
Carp
Catfish
Clams
Cobia
Crevalle jack
Flounder
Greater amberjack
King mackerel
Ladyfish
Little tunny
Mussels
Oysters
Red drum
Shark
Silver perch
Snowy grouper
Spotted seatrout

Source: U.S. EPA, 2003c

2005 EPA National Coastal Condition Report

Table 4-2. Number of Beaches and Advisories/Closures in 2002 for Southeast Coast States (U.S. EPA, 2003a)

State	No. of Beaches	No. of Advisories/ Closures	Percentage of Beaches Affected by Advisories/ Closures
North Carolina	20	0	0.0%
South Carolina	26	12	46.2%
Georgia	4	0	0.0%
Florida (East Coast)	101	13	12.9%
TOTALS	160	25	15.6%

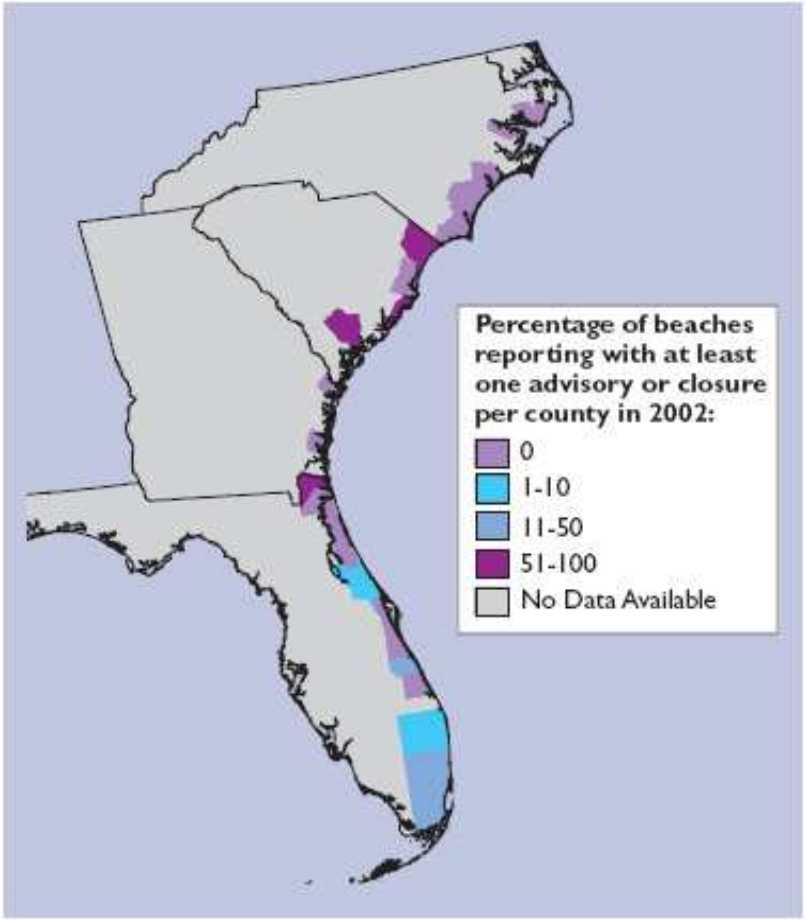

Figure 4-25. Percentage of Southeast Coast beaches with advisories or closures by county in 2002 (U.S. EPA, 2003a).

Challenges and Immediate Needs to Support Ecosystem-Based Management in the South Atlantic Region

- Expand interagency collaboration at the decision-making levels
- Adequately fund basic fishery research
- Establish new and expand existing long-term monitoring programs
- Fund completion of mapping and characterization of all essential habitats
- Apply innovative technologies to characterize fishing patterns relative to habitat
- Resources to adequately define fishing communities

Additional Information

SAFMC Web site – partnership with Florida's Fish & Wildlife Research Institute to create an Essential Fish Habitat/Ecosystem homepage: www.safmc.net

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Cooperation, Collaboration and Partnerships
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Evolution to Ecosystem Management
in the South Atlantic Region