
Ecosystem-Based Management – To amend or not amend (the Magnuson-Stevens Act) that is the question?

Gregg T. Waugh

Abstract: The new buzz word is out and it's ECOSYSTEM MANAGEMENT. Everywhere one looks, it's ecosystem-this and ecosystem-that. Seems like everyone everywhere is working on something to do with ecosystem management. How do we bring some order to the ecosystem clutter that is engulfing us all? A review of the Magnuson Stevens Act and the Ecosystem Principles Advisory Panel recommendations is provided in this paper. Based on these reviews, I conclude that current guidance is sufficient for the Councils and NOAA/NMFS to pursue ecosystem-based management, but a few actions would make this effort much more productive. I recommend

1. The Magnuson-Stevens Act not be amended to further address ecosystem-based management at this time.
2. We continue to implement the Atlantic Coast Cooperative Statistics Program (ACCSP) and that ACCSP data be used in the Fishery Ecosystem Plan and Comprehensive Amendment.
3. The NMFS SERO complete revisions to the permit database to allow tracking vessels across different fisheries/jurisdictions and that we continue to administer economic logbooks/expand their use.
4. Guidelines not be developed at this stage and that we let each Council approach ecosystem management based on their best judgment and let the legal system develop case law to set limits.
5. A meeting within each large marine ecosystem (however defined) be held each year so that existing agencies can share information and plan on ways to better address ecosystem-based management.
6. NOAA fully implement the ACCSP Bycatch Module for all fisheries along the Atlantic Coast.
7. NOAA fully implement the ACCSP Biological Module for all fisheries along the Atlantic Coast.
8. NOAA supply sufficient support to collect, input, clean-up and analyze data through the economic logbook program in the snapper grouper fishery; further, that this logbook program be expanded to all of the Council's fisheries. In addition, in-depth studies of communities (including detailed in-person interviews) should be conducted within the South Atlantic Council's area.
9. A Council/Agency Steering Committee be formed to guide ecosystem work, guide future ecosystem funding to the areas and projects that get the most done, and ensure outputs the Councils can use.
10. NOAA map all NMFS, NOS and private sector individuals working on ecosystem projects supported by government funding.

Introduction

The new buzz word is out and it's ECOSYSTEM MANAGEMENT. Everywhere one looks, it's ecosystem-this and ecosystem-that. Seems like everyone everywhere is working on something to do with ecosystem management. How do we bring some order to the ecosystem clutter that is engulfing us all?

First we should examine the Magnuson-Stevens Fishery Conservation and Management Act (MSA), which is the governing law for managing fisheries in the United States, to see what direction is provided to the eight regional fishery management councils (bold emphasis added by author):

1. Section 2(a) Findings – (9) “One of the greatest long-term threats to the viability of commercial and recreational fisheries is the continuing loss of marine, estuarine, and other **aquatic habitats**. **Habitat considerations** should receive increased attention for the conservation and management of fishery resources of the United States.”

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Acknowledgements: I thank the South Atlantic Council members for their willingness to tackle such a complex issue and council staff for all their work as we move into ecosystem-based management. Roger Pugliese has been responsible for our Habitat Plan which forms the basis of our fishery ecosystem plan. Thanks to the Florida Fish & Wildlife Research Institute for all their help with our web site and for hosting an Internet Map Server. In addition, thanks to Congress and NMFS for providing funding for the ecosystem pilot projects.

2. Section 3 Definitions – (5) “The term “conservation and management” refers to all of the rules, regulations, conditions, methods, and other measures (A) which are required to rebuild, restore, or maintain, and which are useful in rebuilding, restoring, or maintaining, any fishery resource and the **marine environment**; and (B) which are designed to assure that - -(ii) irreversible or long-term adverse effects on fishery resources and the **marine environment** are avoided;..”
3. Section 3 Definitions – (28) “The term “optimum”, with respect to the yield from a fishery, means the amount of fish which – (A) will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the **protection of marine ecosystems**;”
4. Section 406 Fisheries Systems Research (a) Establishment of Panel – “Not later than 180 days after the date of enactment of the Sustainable Fisheries Act, the Secretary shall establish an advisory panel under this Act to develop recommendations to expand the application of **ecosystem principles** in fishery conservation and management activities.”(d) Report – Within 2 years after the date of enactment of this Act, the Secretary shall submit to the Congress a completed report of the panel established under this section, which shall include- (1) an analysis of the extent to which **ecosystem principles** are being applied in fishery conservation and management activities, including research activities; (2) proposed actions by the Secretary and by the Congress that should be undertaken to expand the application of **ecosystem principles** in fishery conservation and management; and (3) such other information as may be appropriate.”

Evolving from single species management to ecosystem-based management is clearly allowed by the Magnuson-Stevens Act. Just how we get from “here” to “there” is open to much debate. Ecosystem recommendations from the US Commission on Ocean Policy (USCOP 2004), the PEW Oceans Commission (POC 2003), the Ocean Action Plan, HR 4900 Oceans’ Caucus Oceans 21 bill, and S 2647 Hollings National Ocean Policy and Leadership Act are outlined in Table 2 of the “Developing an Ecosystem Approach to Fisheries” background paper and are not repeated here.

In this paper, I review the recommendations from the Ecosystem Principles Advisory Panel and indicate how the South Atlantic Fishery Management Council (SAFMC) is addressing each recommendation. Further, I provide additional details and discussion of the approach to ecosystem-based management in the South Atlantic Council’s area of authority. Additionally, I respond to the major recommendations from various commissions identified above and offer suggestions on whether the MSA needs to be amended for the Councils to implement ecosystem-based management.

Methods

In order to understand just exactly what the Councils are allowed to do concerning ecosystem-based management I went to the source – the Magnuson-Stevens Act. I also examined the detailed recommendations provided by the Ecosystem Principles Advisory Panel in response to the charge outlined in the Magnuson-Stevens Act. Ecosystem-based management recommendations from various bodies were also examined. Finally, I compared the various recommendations with available data and ongoing procedures used by the South Atlantic Council, based on my personal experience, along with the Council’s Action Plan for ecosystem-based management (SAFMC 2004).

Results

In its report to Congress, the Ecosystems Principles Advisory Panel recommended eight actions that regional Councils should undertake in order to move toward ecosystem-based fisheries management (EPAP 1999). The South Atlantic Council is taking action to fulfill these recommendations. Specific activities are identified below. In addition, critical research and monitoring needs under these actions were identified during the January 2003 Southeast Coastal Science Conference held in Charleston, South Carolina. The conference focused on current and planned research, outreach, education, observations, monitoring, assessments and management in the South Atlantic Bight.

Actions to be taken under the Council's Fishery Ecosystem Plan and Comprehensive Amendment:

1. Define the geographical boundaries of the ecosystem, including characterization of its biological, chemical and physical dynamics:

SAFMC Activities

Habitat Mapping- The SAFMC has undertaken cooperative mapping of deepwater coral habitat in the South Atlantic region. In partnership with the National Undersea Research Center at the University of North Carolina at Wilmington (NURC/UNCW), the Council will begin multi-beam sonar mapping of the outer continental shelf and upper continental slope off the coasts of North and South Carolina, covering a depth range of 100-500 m. Field-testing will occur January 2005 and the first offshore surveys will begin in October 2005.

Significant additional funds will be needed to expand from the beta testing to not only map deepwater coral and snapper grouper habitat but also direct efforts onto the shelf to refine the mapping and characterization of all benthic habitats including those designated as EFH, EFH-HAPCs, SMZ, MPA or Coral HAPCs.

Development of South Atlantic ArcIMS Server and Habitat/Ecosystem site- The SAFMC, in partnership with the Florida Fish and Wildlife Research Institute has developed an Essential Fish Habitat/Ecosystem homepage. The homepage hosts an Internet Map Server (IMS) application with links to downloadable bottom type data, associated metadata, substantial program information for the SAMFC, and links to related sites. The video and still imagery archives served from this site will provide researchers a unique opportunity to monitor coral health and abundance. It is strongly recommended that all research funded through programs in the South Atlantic provide results and metadata for inclusion into the regional system.

Additional funds are required to expand information presented through the server and available on the Habitat/Ecosystem homepage. In addition, funds are required to capture readily available existing deepwater species information to support GIS for incorporation into the developing Council ArcIMS system and geodatabase.

Development of a Oculina Experimental Closed Area Evaluation Plan -

Preliminary Draft completed by August 2004

Second Draft Reviewed by Habitat and Coral Advisory Panel October 2004

Revised Plan Approved by SAFMC March 2005

Resources are required to complete mapping and characterization of habitats by December 2006. Resources are required for research and long-term monitoring identified in the plan. All research areas identified must be addressed by 2013 (10 years after implementation of Amendment 13A).

Funds are required for participation of State, University and other technical experts for participation in the FEP development process. Follow-up workshops will be held in 2004/2005 and writing teams will be developing draft Section of the FEP. In addition, these individuals will also participate in review and writing of sections of the FEP in their field of expertise. It is also essential that appropriate personnel in NOAA Fisheries SERO, SEFSC, and NOS, and other appropriate NOAA individuals be provided travel to participate in the FEP development process.

Additional Needs:

- (i) Understand and model relationships of water flows among groundwater, riverine and estuarine systems and the impacts of water withdrawals and diversions on these systems
- (ii) Improve understanding of cross-shelf transport processes and the effects on larval recruitment, adult movement patterns, contaminant distribution and other exchanges
- (iii) Determine a mechanism to link oceanographic processes to ecosystem management
- (iv) Role of remote-sensing in mapping processes and populations
- (v) Develop a systematic approach to deliver high-resolution sea floor maps of shelf resources
- (vi) Determine the extent of hardbottom habitats on the shelf
- (vii) Evaluate locations and suitability of sand resources, the movement and fate of sand from beaches and the ecological impacts of beach renourishment
- (viii) Characterize and map coastal processes (i.e., currents, gyres, etc.)
- (xi) Determine the ecological impacts of channel maintenance including the transport and fate of sediments from disposal sites
- (x) Characterize benthic communities from soft and hard bottom habitats
- (xi) Better outreach of map resources to the public
- (xii) Relate coastal processes and mapping of shelf resources to EFH
- (xiii) Document the effects of trawling on soft and hard bottom shelf habitats

2. Assess ecological, human and institutional elements of the ecosystem:

SAFMC Activities

Social and Economic Studies

Community Studies – A project has been completed to document the location, type and some historical aspects of fishing communities in the south Atlantic region. This effort has been spearheaded by Council staff working in conjunction with independent social science consultants. In this first phase of work, as much secondary data as possible was collected and then “ground-truthed” with rapid assessment fieldwork in the fishing communities. The secondary data included U.S. Census records, landings, permits and state information. Some of the secondary data are still being compiled. There now exists a digital report of the communities in the south Atlantic region and a broad GIS that visually represents communities from 1998 through 2001. There is a great need for funding to update the GIS of communities.

The second proposed phase of the project includes a more in-depth study of a sample community (or communities), including ethnographic (detailed in-person) interviews with different members of each fishing sector in order to compile community histories and describe current fishing practices, conflicts, coastal development, etc. Further work will be done employing GIS techniques to map community natural resource use and fishing patterns, past and present. Some of this work is being carried out in conjunction with anthropologists in both the SERO and the SESC in the summer and fall of 2004.

Cost/Earnings Data Collection – Closing the Information Gap – The South Atlantic Council and NOAA Fisheries partnered to develop and implement a Cost/Earnings Data Collection Program for South Atlantic Fisheries in 2002. This involves a separate logbook in addition to the ongoing logbook data collected from fishermen in the commercial snapper grouper fishery and the king and Spanish mackerel fishery. Trip specific information such as fuel costs, grocery costs, gear and boat expenses, revenue

earned per trip and crew share is collected from fishermen participating in the survey. An end of the year survey to collect complementary fixed costs and annual expenditures will be administered as part of the program.

- 2002 Trip Data - entered and data cleaned-up
- 2002 End of Year Data - entered and data cleaned-up
- 2003 Trip Data - being entered
- 2003 End of Year Data - surveys not distributed yet
- 2004 Trip Data - ongoing
- 2004 End of Year Data - scheduled to be sent April 2005
- 2005 Trip Data - ongoing

Resources are required to expand and refine community research and cost and returns studies for all South Atlantic Fisheries.

Additional Needs:

- (i) Document fleet dynamics in the South Atlantic commercial fisheries (including activity in Gulf and Mid-Atlantic/New England fisheries) using economic profiles. As a first step, existing data collection programs can be compiled in such a manner that it is possible to link vessels across fisheries and across states. Such preliminary models would form the basis for predicting fleet behavior under different management scenarios in a holistic manner (the flow of harvesting effort among different fisheries). These preliminary models can then be followed up with the development of more sophisticated simulation models that incorporate a wide array of biological, economic and social variables. [Note: The NMFS SERO is completing revisions to the permit database that will allow tracking vessels across different fisheries. The new system will be demonstrated at the June 2005 Joint Snapper Grouper Committee and Advisory Panel meeting in Cocoa Beach, Florida.]
- (ii) Broad-scale multidisciplinary assessment of both natural and human resources (especially current land use and demographic profiles) to identify components of the system most sensitive to stress and to define research priorities
- (iii) Improve cross-disciplinary communication that will facilitate the development of society-sensitive instruments responsive to the impacts of land use change on resource sustainability

3. Develop a conceptual model of the food web:

SAFMC Activities

Ecopath Model Development - The SAFMC is currently partnering with Dr. Tom Okey (University of British Columbia) to develop an Ecopath model for the South Atlantic ecosystem from Cape Hatteras, North Carolina to the Florida Keys.

Resources are required to complete/refine and expand the SA Ecopath Model. This includes additional contract funds to conduct workshops to review, revise and re-parameterize the developing model and initiate the development of possible embedded sub-models for the Oculina Bank HAPC, the Florida Keys, Deepwater Snapper Grouper Habitat, and Albemarle-Pamlico Sound. Additional funds are needed to re-program and optimize the model and develop an automated function to import GIS for habitat (EFH & EFH-HAPCs) and possibly environmental parameters. Funds are required for participation of State, University and other technical experts in model development. In addition, some participating individuals will also be involved in the review, writing or development of sections of the FEP in their field of expertise. It is also necessary that appropriate NOAA Fisheries, NOAA Beaufort Lab and NOS personnel participate in the ongoing Ecopath Model development process.

4. Describe the habitat needs of different life history stages for all managed species (including protected resources):

SAFMC Activities

SAFMC has initiated coupling reporting of fishing location from VMS with known habitat characterization in the rock shrimp fishery.

Funds needed to undertake research identified in the *Oculina* HAPC Research Plan and initiate comprehensive *Sargassum* research.

Additional Needs:

- (i) Improve understanding of the life histories and critical habitats of deepwater species
- (ii) Improve understanding of the life histories of seriously overfished and infrequently encountered species
- (iii) Identify factors responsible for successful recruitment and develop indices of year class strength

5. Calculate and characterize total removals (i.e., landings, effort, catch location, discards, and bycatch);

SAFMC Activities

Specifying these needs in FMPs since 1982

Specifying these needs in Annual Council/NMFS Operations Plan since at least 1989

ACCSP - Coordinating Council, Operations Committee, Technical Committees & Outreach

Committee; began 199_ ; system approved by all partners including NMFS ____

Logbooks - specified in FMPs

Cooperative Research on electronic logbooks

- (i) Track vessels across fisheries - ACCSP funded a project to transfer the NMFS Southeast Permits Database to Oracle. Based in part on this work, NMFS is scheduled to complete the transfer and have the capability to easily link the permit and landings databases. This will for the first time allow us to track a vessel's landings across different fisheries. [Note: The new system will be demonstrated at the June 2005 Joint Snapper Grouper Committee and Advisory Panel meeting in Cocoa Beach, Florida.]
- (ii) Coordinate all data management for managed species - this should include Metadata [Note: Check status of ACCSP projects related to metadata.]
- (iii) Implement ACCSP - need to improve catch and effort and quality control
- (iv) Develop methodologies for integrating data management into ecosystem management
- (v) Collect gut content data

6. Develop indices of ecosystem health (e.g., biological indicators):

- (i) Determine causes of HABs
- (ii) Identify useful biological indicators to assess stress on estuarine systems
- (iii) Develop long-term coordinated monitoring programs to document natural and anthropogenic variability in estuarine systems
- (iv) Document the status and trends of estuarine fauna and their contaminant loads
- (v) Better characterize the sources and impacts of nutrient inputs to rivers and estuaries
- (vi) Better characterize the sources and impacts of contaminant inputs to rivers and estuaries

7. Establish long-term monitoring:

- (i) Develop long-term coordinated monitoring programs to document natural and anthropogenic variability in estuarine systems
- (ii) Determine which agency is responsible for conducting this monitoring

8. Develop appropriate management including catch limits, gear regulations, zoning, etc.:

SAFMC Activities:

FMPs and Amendments – the Council regulates fisheries to protect habitat from direct and/or indirect impacts of fishing through the following fishery management plans/activities: Snapper Grouper Plan; Shrimp Plan; Coral, Coral Reef & Live/Hardbottom Plan; Habitat Plan; Sargassum Plan; Dolphin/Wahoo Plan; Golden Crab Plan; *Oculina* Coral HAPC (closed area); Essential Fish Habitat & Habitat Areas of Particular Concern Designations and Protection; and Live Rock Aquaculture Program.

Comprehensive EFH Amendment

Council document prepared for November 2003 Conference

Proceedings from the November 2003 conference

Snapper Grouper Amendment 14 (MPAs) - under development

Comprehensive FEP Amendment - under development

- (i) Develop decision criteria for siting of MPAs in the region
- (ii) Determine baseline conditions and evaluate response of newly established MPAs
- (iii) Expand research in the *Oculina* Bank HAPC

With the Habitat Plan as a cornerstone, the South Atlantic Council is developing an ecosystem-based approach to resource management. Evolution of the Habitat Plan into a Fishery Ecosystem Plan (FEP), and transition from single species management to ecosystem-based management, will require a greater understanding of the South Atlantic Bight ecosystem and the complex relationships among humans, marine life and essential fish habitat. This effort will provide a more comprehensive understanding of the biological, social and economic impacts of management:

1. Technical Workshops (2003)

A series of 15 workshops were held during 2003 to integrate and update habitat information and begin development of the South Atlantic Fishery Ecosystem Plan (FEP). These workshops brought together Habitat and Coral Advisory Panel members and a core group of resource and habitat experts from cooperating federal, state and academic institutions as well as conservation organizations that participated directly in development of the Habitat Plan.

The Habitat Plan will serve as the basis for the FEP. Updated life history and stock status information on managed species and the characteristics of the food web they exist within will be incorporated as well as social and economic research needed to fully address ecosystem-based management. Writing Teams (composed of AP members, experts from state and federal agencies, universities and Council staff) will review, update and expand existing chapters of the Habitat Plan and incorporate this material into new chapters for the FEP (e.g., Ecosystem Modeling and Research Needs to support Ecosystem-Based Management).

Information compiled during and as follow-up to the workshops is helping the Council meet the EFH mandate to update EFH and EFH-HAPC information and designations. Also, this process would follow both the Council of Environmental Quality's and NOAA's recommendations (in 46 FR 18026/51 FR 15618 and NOAA Order 216-6 respectively) to review any EIS or SEIS that is more than five years old to

determine if the preparation of a new EIS or SEIS is warranted. The FEP will be used to develop a Comprehensive Amendment/EIS for all Fishery Management Plans (FMPs) similar to the Habitat Plan and Comprehensive Habitat Amendment completed in 1998.

Workshops were conducted on habitat types including wetlands, oyster/shell habitat, seagrass, pelagic habitat (including *Sargassum* and the water column), coral and live/hard bottom and artificial reefs. In addition, workshops on the use of GIS to support EFH and ecosystem-based management and water issues affecting fishery habitat and production were held.

2. Technical Workshops (2004/2005)

Workshops to expand efforts initiated during the habitat and issue-based workshops will be held during 2004 and 2005 on topics such as artificial reefs, deepwater habitat/coral, marine zoning and impacts of fishing on habitat. In addition, it is anticipated that a regional workshop to identify research and monitoring needs to support ecosystem-based management and further development of the FEP in the South Atlantic region will be held in 2004 and 2005. Internationally recognized experts in ecosystem characterization would be invited to participate and provide guidance to managers and researchers in determining the most significant needs to be addressed in development of ecosystem-based management.

3. Workshop to Refine South Atlantic Bight Ecopath Model (2004)

A preliminary South Atlantic Bight Ecopath model was developed cooperatively between Dr. Tom Okey (University of British Columbia) and Roger Pugliese (SAFMC staff) as part of the Sea Around Us project funded through the PEW Charitable Trust Foundation. This model will be refined with the aid of a broad range of experts and involve: (1) scoping and system definition, (2) parameter estimations and refinement and (3) “mass balancing”. The Ecopath model developed will help the Council and cooperators in identifying available information and data gaps while providing insight into ecosystem function. More importantly, the model will aid in identifying research necessary to better define populations, fisheries and their interrelationships. The two workshops held in 2003 to refine the Ecopath/Ecosim model have resulted in development of a list of functional groups constituting the South Atlantic Bight (SAB) ecosystem and preliminary designation of the areal extent of habitats to be included in the model. Experts in various aspects of the ecology of the SAB have been requested to participate in the process by providing various input parameters for the model.

The model is being developed to cover the area between Cape Hatteras, North Carolina through the Florida Keys and extend from the upper wetlands to the 1000-meter isobath. Catch data from 1995 to 2002 will be included. Currently, the model is being constructed to include 93 biotic groups. The Council is investigating the possibility of expanding and refining the South Atlantic Ecopath Model with development of embedded sub-models for the *Oculina* Bank HAPC, The Florida Keys, Deepwater Snapper Grouper Habitat and Albemarle-Pamlico Sound.

4. Cooperative Research to Support Ecosystem-Based Management

High Resolution Maps of Habitat on the South Atlantic Continental Shelf

The Council has partnered with the National Undersea Research Center at the University of North Carolina at Wilmington (NURC/UNCW) by providing seed money to begin multi-beam sonar mapping of the outer continental shelf and upper continental slope. This region of the Exclusive Economic Zone (EEZ) from just north of Cape Hatteras (North Carolina) to Cape Canaveral (Florida), covering a depth range of 100-500 m, includes important habitat for current and future economically valuable species (e.g., groupers, wreckfish, crabs, tilefish, etc.). Habitats used by these species include soft bottoms of various types and a wide range of hard bottom lithotypes. This area includes important and unique features such as “The Point” canyon system (just north of Cape Hatteras, North Carolina) and the “Charleston Bump” (off of Cape Romain, South Carolina). The features of these two EFH-HAPCs result in significant oceanographic effects in the region (e.g., upwellings) and also represent productive fishery areas. Throughout the region, and toward the deeper end (350-450 m), are scattered but extensive deep reef

systems composed of delicate, slow growing ahermatypic corals (e.g., *Lophelia*). All of these habitats are poorly mapped. In addition, the Council is considering deepwater MPAs that fall in the same depth range. High-resolution (1-2 m) bathymetry maps are required for these areas.

The NURP Autonomous Underwater Vehicle (AUV) will be operated by NURC/UNCW. The unit will be maintained and operated by NURC/UNCW and be used in the initial testing by mapping deepwater coral and associated habitats in the South Atlantic.

Regional Internet Map Server for Coral and Live/Hard Bottom Habitat and South Atlantic Habitat/Ecosystem Web Site

The South Atlantic Council and the Florida Fish and Wildlife Research Institute are partnering to develop an Essential Fish Habitat/Ecosystem web site that will be accessible from the South Atlantic Council's web site. The Florida Fish and Wildlife Research Institute will host an Internet Map Server (IMS) application with links to bottom type data that can be downloaded, associated metadata, substantial program information for the Council and links to related sites. The Web site will be operated and maintained at the Florida Fish and Wildlife Research Institute in partnership with the South Atlantic Council.

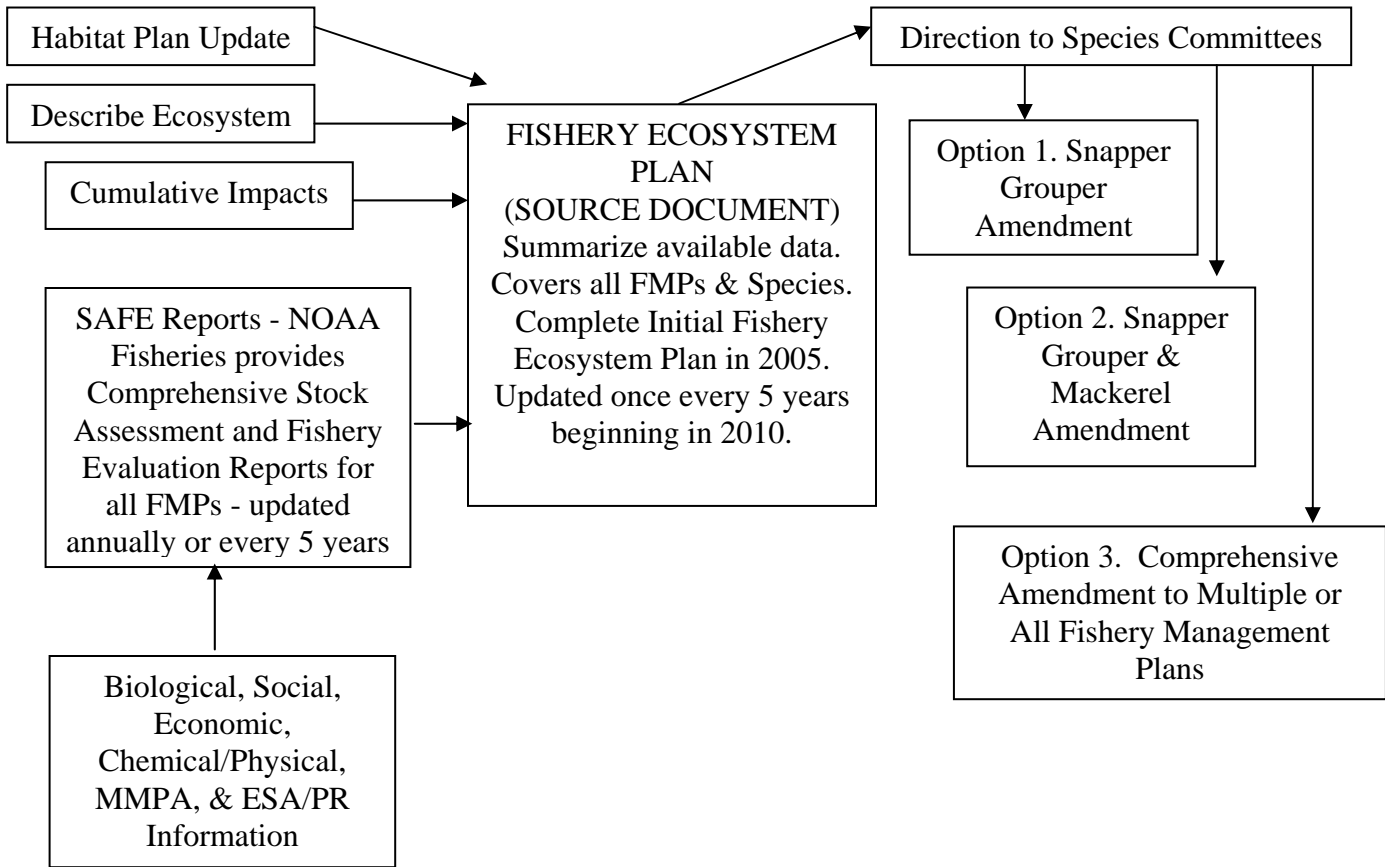
The Internet Map Server (IMS) component of this project will bring the power of Geographic Information Systems (GIS) technology and Image Analysis tools to ordinary Internet browsers. The Coral and Benthic Habitats IMS will be an effective tool for displaying, sharing and querying information related to hard bottom and EFH across the South Atlantic coast. The video and still imagery archives served from this site will provide researchers a unique opportunity to monitor coral health and abundance.

This partnership involves two project phases: (1) configuring of hardware, software and GIS data for serving via the Internet; and (2) inclusion of video and imagery processing, web site development and maintenance of products and services developed in Phase 1. Additional funding is needed to maintain the system and provide a mirror ArcIMS Intranet system which will further integrate baseline information (e.g., habitat, catch, community, fishery operations and economics) to support ecosystem-based management and the FMP/EIS development process.

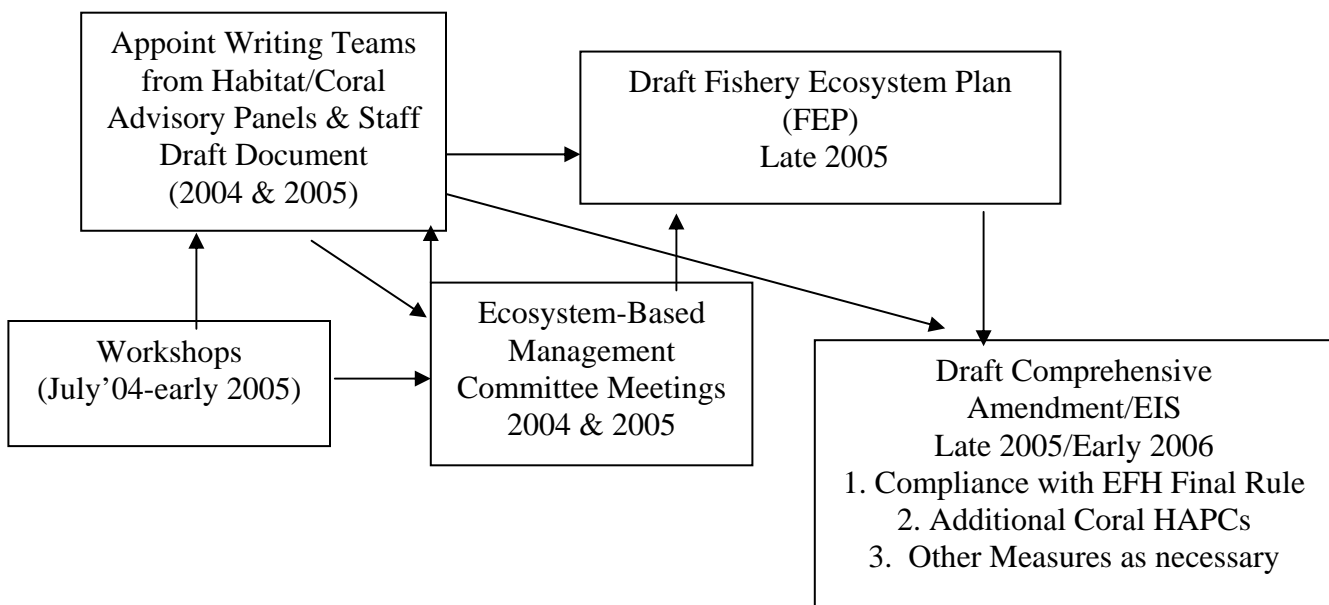
5. Approach

The South Atlantic Council has adopted a 3-pronged approach: (1) Map fishermen and document their catch/bycatch as they move across fisheries in our ecosystem; (2) Expand existing relationships with other management agencies; and (3) Expand and refine the South Atlantic Ecopath Model and explore sub-models for the *Oculina* Bank HAPC, FL Keys, Deepwater Snapper Grouper Habitat and Albermarle-Pamlico Sound areas. The initial plan will be completed in 2005 (see detailed timing below), and it is the South Atlantic Council's intent that the Fishery Ecosystem Plan be updated every five years beginning in 2010 (see figure below).

5-YEAR SAFMC SYSTEM-WIDE EVALUATION



TIMELINE 2004/2005/2006



Discussion

Amending the Magnuson Stevens Act

In reviewing the Magnuson Stevens Act, I have concluded that there is sufficient legal authority for the Fishery Management Councils to implement fishery ecosystem management. We don't need to amend the Act to **ALLOW** the Councils to do ecosystem-based management. However, if you want to **FORCE** the Councils to do ecosystem management, then the Act should be amended. **I recommend the Magnuson-Stevens Act not be amended to further address ecosystem-based management at this time.** The Councils are already doing ecosystem-based management (e.g., the South Atlantic Council's Habitat Plan, the Western Pacific Council's Coral Plan, the North Pacific Council's ecosystem considerations in their SAFE report). Further, four Councils (New England, Mid-Atlantic, South Atlantic and Gulf of Mexico) currently are conducting pilot projects on ecosystem-based management. The South Atlantic Council intends to produce a Fishery Ecosystem Plan. Allowing more time under the existing authority would provide more insight into the need for future amendments. Currently the two biggest threats to ecosystem-based management are lack of data and potential guidelines.

Lack of Data

If we have sufficient information to address ecosystem-based considerations and do not use it, then we are not using the best available science, and a plan or amendment could be rejected. If on the other hand we do not have sufficient information, then we would be in the same boat as we were/are concerning habitat considerations which would provide lots of opportunity for lawsuits. Let the available information/data dictate how each Council does ecosystem management.

In the South Atlantic Council's area, basic data on number of fishermen, catch, by-catch, discards, size/age composition, and CPUE is incomplete to missing. The solution, **I recommend we continue to implement the Atlantic Coast Cooperative Statistics Program (ACCSP) and that ACCSP data be used in the Fishery Ecosystem Plan and Comprehensive Amendment.**

Information on fleet dynamics in the South Atlantic Council's area and links to the Gulf of Mexico, Mid-Atlantic and New England areas is not yet available. The solution, **I recommend the NMFS SERO complete revisions to the permit database to allow tracking vessels across different fisheries/jurisdictions and that we continue to administer economic logbooks/expand their use.**

Guidelines

Whether the Act is amended or not we need to address Guidelines versus Case Law. In most aspects of our lives we do not have detailed guidelines that tell us what to do. In many cases, we rely on case law to set limits. That is, if someone does not agree with something being done, they can sue to determine whether the proposed action is allowed under existing law. If this works for most aspects of our lives, then why do we need guidelines for ecosystem-based management? Currently there are no guidelines so we are only limited by available data and each individual Council's willingness to explore this new area. Guidelines at this stage would not help and may hurt the process by providing lots of opportunities for lawsuits similar to the habitat guidelines. **I recommend guidelines not be developed at this stage and that we let each Council approach ecosystem management based on their best judgment and let the legal system develop case law to set limits.**

Evolution not Revolution

The South Atlantic Council's approach is one of Evolution from the Habitat Plan to a Fishery Ecosystem Plan. Get the basics first -- don't put the satellite dish on the house before you build the foundation. We need basic data on catch, CPUE, size and age data; the ability to track fishermen across fisheries; to know who is eating whom; etc. Then model the data as best as we can. The Council is currently setting the optimum fishing mortality rate (Foy) as 75% of the fishing mortality rate that produces maximum

sustainable yield (Fmsy) with this “step-down” addressing risk and ecosystem functions. To determine the split, one can use the assumption that most people feel “safe” going about 10% above the speed limit. Therefore, let’s attribute 10% to risk. The remaining 15% would then be attributed to ecosystem function/services. This is another example of how the Councils are currently implementing ecosystem-based management.

Regional Ocean/Ecosystem Councils

The current landscape within the coastal zone is crowded enough. The last thing we need is another player in the game. Unless you are willing to change existing legal authority, which all the proposed modifications make clear is not the case, then simply creating another layer of bureaucracy will not be productive. What is needed is a mechanism for the existing players to meet and work together. **I recommend a meeting within each large marine ecosystem (however defined) be held each year so that existing agencies can share information and plan on ways to better address ecosystem-based management.** The South Atlantic Council currently uses a Habitat Advisory Panel comprised of representatives from State/Federal agencies and the private sector. This Advisory Panel recommends action to the Council on individual projects that may impact habitat and develops policy recommendations. The Council is exploring ways to expand this group to include all players involved with managing our ecosystem.

FEPs, Ecosystem-Based FMPs

The US Commission on Ocean Policy recommends consideration of cumulative impacts of fishing and other activities on all components of the ecosystem, setting harvest quotas based on a holistic ecosystem understanding, redesignating EFH in the ecosystem rather than on a single-species basis and developing broad regional bycatch reduction plans targeting all components of the ecosystem. The PEW Oceans Commission has similar recommendations and add regulating use of fishing gear that is destructive to marine habitats and requiring access and allocation planning as a condition of fishing. The South Atlantic Council has a long list of gear restrictions and/or prohibitions addressing fishing gear that damages habitat (e.g., prohibition on bottom trawls, entanglement nets and fish traps in the snapper grouper fishery; prohibition on rock shrimp trawling in the *Oculina* HAPC; prohibition on all harvest or possession of coral). The South Atlantic Council has an ITQ program in the wreckfish fishery and controlled access programs in the snapper grouper, rock shrimp and king mackerel fisheries. Redesignating EFH in an ecosystem sense will be evaluated during preparation of the fishery ecosystem plan. The South Atlantic Council is aggressively pursuing implementation of a regional bycatch monitoring program for all fisheries through implementation of the ACCSP Bycatch Module. **I recommend NOAA fully implement the ACCSP Bycatch Module for all fisheries along the Atlantic Coast.** The idea of setting quotas based on a holistic ecosystem understanding is very much dependent on us understanding our ecosystem. This data is simply unavailable in the southeast. In fact, I know of no current gut content studies being conducted within the South Atlantic Council’s area of jurisdiction. **I recommend NOAA fully implement the ACCSP Biological Module for all fisheries along the Atlantic Coast.** Modeling to evaluate holistic ecosystem considerations will be examined during preparation of the fishery ecosystem plan.

Contents of FMPs

The US Commission on Ocean Policy recommends each FMP consider the effects of fishing on the ecosystem, impacts of environmental phenomena, more data to consider the impacts of fishery management on fishermen and communities and use of MPAs. The PEW Commission recommends each FMP require zoning/closed areas, redefine overfishing in an ecosystem context and require cooperative data collection and planning. The South Atlantic Council has been very active in the zoning area (e.g., special management zones through the snapper grouper plan, *Oculina* HAPC closed area, *Oculina* HAPC). The Council will be evaluating MPAs as a part of the fishery ecosystem plan and comprehensive amendment. The Council has been active in developing social and economic data collection programs to

further our understanding of the human impacts. **I recommend NOAA supply sufficient support to collect, input, clean-up and analyze data through the economic logbook program in the snapper grouper fishery; further, that this logbook program be expanded to all of the Council's fisheries. In addition, in-depth studies of communities (including detailed in-person interviews) should be conducted within the South Atlantic Council's area.** Considering the effects of fishing on the ecosystem is a very difficult and data intensive task. The Council will evaluate this area during preparation of the fishery ecosystem plan.

Other Recommendations

Earlier I mentioned the high level of ecosystem clutter we are all experiencing. There are two major areas where we need help in the short-term. The first has to do with planning. **I recommend formation of a Council/Agency Steering Committee to guide ecosystem work, guide future ecosystem funding to the areas and projects that get the most done, and ensure outputs the Councils can use.** The steering committee should include 1 Council staff from each Council, 1 NMFS staff from each Center, 1 NMFS staff from HQ and 1 NOS staff. The steering committee should be established within 30 days and/or before new funding becomes available (whichever occurs sooner).

The second recommendation addresses the large number of individuals working on a very diverse number of ecosystem-related projects. **I recommend that NOAA map all NMFS, NOS and private sector individuals working on ecosystem projects supported by government funding.** Results should include location, contact information, description of project, level of funding and timeframe of project. This should be completed within 30 days.

Conclusion

The Magnuson-Stevens Act does not need to be amended to allow the Councils to pursue ecosystem-based management. Based on my review, I suggest some additional actions that would make the Council's work more productive and further the collective ecosystem-based management.

Additional Information

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

FEP – Roger.Pugliese@safmc.net

FEP Comprehensive Amendment – Gregg.Waugh@safmc.net

Economic Issues - Vishwanie.Maharaj@safmc.net

Socio-Cultural Issues - Kathi.Kitner@safmc.net

References

EPAP. 1999. Ecosystem-based Fishery Management: A Report to Congress by the Ecosystem Principles Advisory Panel. April 1999. US COC, NOAA, NMFS.
http://www.st.nmfs.gov/st7/documents/epap_report.pdf

[POC] PEW Oceans Commission. 2003. America's Living Oceans: Charting a Course for Sea Change. A report to the Nation. Recommendations for a New Ocean Policy. May 2003.
http://www.pewoceans.org/oceans/oceans_report/

SAFMC 2004. Action Plan. Ecosystem-Based Management: Evolution from the Habitat Plan to a Fishery Ecosystem Plan. South Atlantic Fishery Management Council, 1 Southpark Circle, Suite 306, Charleston, SC 29407-4699.

[USCOP] US Commission on Ocean Policy. 2004. An Ocean Blueprint for the 21st Century. Final Report of the U.S. Commission on Ocean Policy. Washington, DC.
<http://www.oceancommission.gov/documents/report>