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ASMFC Multispecies Assessment Targets Atlantic Menhaden, Bluefish, Striped Bass and Weakfish

Management of fisheries along the Atlantic coast is currently conducted through a single species approach, with little consideration of the other ecosystem components that affect community structure. Single species assessments generally provide specific age and size based analysis, stock recruitment relationships, and biological reference points for management of a particular species. Multispecies approaches can provide information that single species assessments cannot, by: (1) addressing the effects of fishing on non-target species and other species interactions, (2) balancing the harvest needs of fisheries against the forage needs of other marine organisms, and (3) explicitly addressing the effects of discarding unwanted bycatch. Generally, multispecies assessments can complement and augment our knowledge from single species assessments through the inclusion of broader species and environmental interactions.

As part of a continuing effort to evaluate the incorporation of multispecies stock assessments in the management process, the Commission will fund the development of a demonstration model focused on Atlantic menhaden and its core predators: bluefish, striped bass, and weakfish. The project title is "A Dynamic Trophic Model to Assess the Atlantic Menhaden Population: Application of a multispecies yield and spawning stock biomass per recruit analysis." The one-year project will began December 1, 2000, and final results are expected to be presented to the Commission at its 2001 Annual Meeting.

The multispecies yield-per-recruit (YPR) approach provides similar definitions of biological reference points currently used in the assessment and management of the menhaden stock. Therefore, model results will be directly applicable to management questions and comparable to those used in historical assessments. The addition of predator-induced mortality into the model will allow for an expanded scope in management advice, particularly in reference to the ecological role of menhaden.

As directed in the request for proposals, the demonstration model will address four key questions, and provide the flexibility for expanded analyses in the future. Some of the benefits of this model approach are presented with regard to the four key questions.

1. **Evaluate the nature and magnitude of the interactions among menhaden and its key predators.**

The multispecies YPR approach provides biological reference points that are used in the current fishery management plan for Atlantic menhaden. For example, the inclusion of predator-prey interactions allows refinement of past stock assessments by accounting for age, seasonal, and inter-annual variation in natural mortality rates associated with predation. The model uses information on the number, size, diet, and metabolic rates of top carnivores (bluefish, striped bass, weakfish) to estimate the amount of menhaden eaten by other fish in a year.

2. **Evaluate the current utilization of menhaden: (a) as a directed fishery, (b) its role in the ecosystem (forage base), and (c) sustainability of the stock.**

YPR models are explicitly designed to evaluate the effects of fishing activity for future harvest levels, reproductive potential, and long-term sustainability of the stock. The multispecies approach allows the inclusion of the effects of potential changes in predator population size in these prospective analyses. Changes in menhaden abundance and size structure related to fishery removals can also be evaluated relative to potential effects on predator populations. The development of detailed diet information and a consumption model can be used to assess critical time and life history periods where predators rely on menhaden as a major prey item. The

continued on page 6

The Atlantic States Marine Fisheries Commission was formed by the 15 Atlantic coastal states in 1942 for the promotion and protection of coastal fishery resources. The Commission serves as a deliberative body of the Atlantic coastal states, coordinating the conservation and management of nearshore fishery resources, including marine, shell and anadromous species. The fifteen member states of the Commission are: Maine, New Hampshire, Massachusetts, Rhode Island, Pennsylvania, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida.

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Upcoming Meetings

12/12 - 14:
Mid-Atlantic Fishery Management Council, Trump Plaza, Boardwalk & Mississippi Avenue, Atlantic City, New Jersey.

12/12 - 14:
NMFS Gulf of Maine Take Reduction Team, Sheraton Ferncroft, Danvers, Massachusetts. For more information, please contact Winnie Chan at (978)281-9111 or Winnie.Chan@Noaa.gov

2001

1/4 & 5:
ASMFC American Lobster Technical Committee, National Marine Fisheries Service, Northeast Fisheries Science Center, Woods Hole, Massachusetts.

1/ 8 - 10:
ACCSP Recreational Quota Monitoring Workgroup and State Marine Recreational Fishery Statistics Surevy Workgroup, 1444 Eye Street, NW, Sixth Floor, Washington, DC.

1/26 & 27:
2001 Long Island Fishermen's Forum, Suffolk County Community College, Eastern Campus, 121 Speonk-Riverhead Road, Riverhead, New York. For more information, contact either Sonia Tulipano or Christopher Smith at (631)727-3910.

1/29 - 2/1:
ASMFC Meeting Week, Washington DC metro area.

2/6 - 8:
Mid-Atlantic Fishery Management Council, Wyndham Hotel, 700 King Street, Wilmington, Delaware; (302)655-0400.

2/6 - 8:
ACCSP Recreational Technical Committee, Holiday Inn Downtown, 1155 14th Street, NW, Washington, DC 20005; (202)737-1200.

2/13 & 14:
ACCSP Discard Prioritization Panel, Holiday Inn Downtown, 1155 14th Street, NW, Washington, DC 20005; (202)737-1200.

2/15:
ACCSP Biological Review Panel, Holiday Inn Downtown, 1155 14th Street, NW, Washington, DC 20005; (202)737-1200.

3/1 - 3:
Maine Fishermen's Forum, Samoset Resort, Rockport, Maine.

From the Executive Director's Desk

What I would like to suggest at this festive time of the year a present for all of us who are committed to helping define the future direction of fishery policy. Look for in your stockings, or put it into your colleagues' stockings. Almost three years ago a few well-intentioned and high-minded colleagues of ours began to consider the pending reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act, and what would be needed to prepare all of us for the debate. Under the sponsorship of the H. John Heinz III Center, they began a laborious process of searching across all marine fisheries constituencies for the major themes of what is right and what is wrong with American fisheries and how we govern them. A few months ago, Island Press published the report that came out of this effort, *Fishing Grounds: Defining a New Era for American Fisheries Management*.

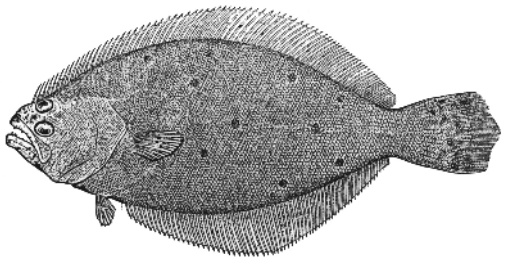
This is a terrific book. Go get it. Read it. The value of this eminently approachable policy backgrounder is not in the way that it summarizes individual issues and their pros and cons. This book is valuable because it forces us to look at the underlying values and issues that really form the basis for fisheries management. Too often in fisheries management we look for a shorthand way out of a difficult problem, without really addressing the basic policy choices that are important about our fisheries. Look at the statements of objectives for almost any of our federal or interstate fishery management plans. They are negotiated legalisms, capable of being read in different ways by different constituencies, crafted more to get them past some sort of committee vote than to make bold statements of what is really important to us about our fisheries. We never get around to the question that I always hear asked by friend and colleague Randy Fisher: "What will success look like here?" Why is it that our striped bass and summer flounder fishery management programs have become *more* controversial once we were solidly on the road to recovery? It is because we never really decided what we were trying to achieve, beyond basic biological turnarounds.

Fishing Grounds puts this same perspective on our basic fisheries policy. Its reviews of U.S. fisheries and their problems, and of the history of federal fisheries management, are excellent. And then the book discusses the major themes that will underlie any serious evaluation of where U.S. marine fisheries policy could and should go. For example, whose interests is fisheries management supposed to achieve? Or put another way, whose fish are they anyway? There are lots of claimants here, and they need all to be recognized. Is anybody in charge of this system? Frankly, no; but the question of how all of the authoritative governmental entities actually interact in the real world must be understood fully in order to make changes. What really works in fisheries management? The issue is not the regulations that are on the books, but rather the factors that change or mold behaviors of people that effect fishery populations. One of my favorite underlying issues is fisheries science: how does it and should it influence our choices for the future of our fisheries? Fisheries science, *per se*, is not a rule book or a set of limits. It is the information that we use to make fisheries policy.

In each of these and other areas *Fishing Grounds* presents a very user-friendly summary, with good analysis. And in a very colorful way, the authors let the words of the fisheries community shine forth. The book will not tell you what all of the issues and options are. But it will give you a solid grounding to able to venture forth into the policy debates that will play out in the 107th Congress. The authors (Susan Hanna, Heather Blough, Dick Allen, Suzanne Iudicello Martley, Gary Matlock and Bonnie McCay) should be proud of their work. *Fishing Grounds* is easy yet informative reading, sure to make you think. With all of the political palaver that has played out in the month following the election, that in itself commends it to our holiday reading.

And on behalf of the Commissioners and staff of the Atlantic States Marine Fisheries Commission, I would like to take this opportunity to thank all of our colleagues who have worked hard, and often patiently, with us during this first year of the new millenium. We have made a lot of progress this year in all of the goals areas under the Commission's strategic plan, and could not have done so without the assistance and urgings on of our state fisheries staffs, our federal agency colleagues and the commercial, recreational and environmental fisheries constituencies. Our wish for you and your families at this blessed time of year is for warmth, happiness, and fellowship, and continued and improved success in the New Year!!

Mid-Atlantic States Set Coastwide Quota for the 2001 Summer Flounder Fishery



On November 29, 2000, the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup and Black Sea Bass Management Board approved a 2001 coastwide quota for summer flounder fisheries. Specifically, the Board established a 20.5 million pound quota, resulting in a 12.3 million pound commercial quota and a 8.2 million pound recreational harvest limit. The total quota represents a 10 percent increase from the last five years.

According to Board Chair, Preston Pate from North Carolina, "Recreational and commercial fishermen have made tremendous sacrifices over the last decade to help rebuild this important resource. In establishing the 20.5 million pound quota for 2001, the Board hopes to provide commercial and recreational fishermen with the opportunity to begin realizing the benefits of an improved resource."

The Management Board based its decision on the findings of the latest stock assessment that was developed by the Northeast Regional Stock Assessment Workshop (SAW) in July 2000. Specifically, the SAW reported that a quota of 20.5 million pound quota will have a 50 percent probability of achieving the fishing mortality target contained in the Commission's Summer Flounder, Scup, and Black Sea Bass Management Fishery Management Plan. The SAW report also indicated that additional increases in the quota may be possible in the future.

The summer flounder commercial quota is administered through a state by state quota system, which allows each state to customize its regulations to maximize the benefits of the available quota. A combination of recreational size limits, possession limits and seasonal closures are established annually to achieve the recreational harvest limit. The 2001 recreational management measures will be established on December 12, 2000, during a joint meeting of the Commission's Summer Flounder, Scup, and Black Sea Bass Management Board and the Mid-Atlantic Fishery Management Council in Atlantic City, New Jersey.

For more information, please contact Robert Beal, Fisheries Management Plan Coordinator, at (202)289-6400, ext. 318.

Habitat Committee Moves Forward on SAV and Gear Impacts Report

The Commission's Habitat Committee met this past October to discuss several issues including project review, marine protected areas, and the Commission's Action Plan. One key agenda item at this meeting was how to implement the report: "Evaluating Fishing Gear Impacts to Submerged Aquatic Vegetation (SAV) and Determining Mitigation Strategies." In June, the Committee discussed ten different implementation options including such things as SAV mapping, SAV state plans, and an education effort.

This summer the Commission sought public comment on these implementation options through a survey sent to various groups and notices in *Fisheries Focus*, *Habitat Hotline*, and on the Commission's website. The Commission received considerable feedback from a variety of sources including recreational and commercial fishermen, fishery and habitat managers, as well as our Commissioners. In general, there was strong support for the recommendations and people felt the Commission should be moving forward with this process.

The Habitat Committee discussed the survey results, focussing much of its attention on the "State Plans" recommendation. State plans would give the states greatest flexibility in addressing issues state-specific habitat issues, while taking into account the state's current regulations, mapping and education efforts. Each state could decide how it could best increase protection of SAV given its fisheries needs. Many of the other ten recommendations could be included in these state plans.

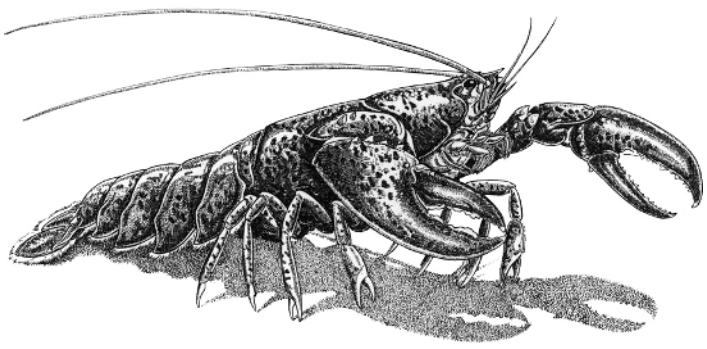
The Habitat Committee will be meeting in the first half of next year to discuss in greater detail what would be included in these state plans, and develop a recommendation for future Commission action. For more information, please contact Carrie Selberg, Habitat Specialist, at (202)289-6400.

ASMFC American Lobster Board Approves Addendum II for Public Review & Comment: *Meetings to be Held in January*

On November 30, 2000, the Atlantic States Marine Fisheries Commission's American Lobster Management Board approved the first draft of Addendum II to Amendment 3 to the American Lobster Fishery Management Plan (FMP) for public review and comment. It is anticipated that many of the States from Maine through New Jersey will be holding meetings on the Addendum to gather public input. These meetings will scheduled for January. Information on these meetings will be released once it becomes available.

Addendum II will address three issues – all related to the egg production targets included in the plan. These issues are: (1) implementing the remaining portions of the 1998 Lobster Conservation Management Teams (LCMT) proposals relating to increasing egg production for Areas 2 (inshore Southern New England), 3 (offshore waters), 4 (inshore Northern Mid-Atlantic), 5 (inshore Southern Mid-Atlantic) and the Outer Cape; (2) revising the plan's egg production rebuilding schedule based on the May 2000 assessment; and (3) establishing a timeframe for additional LCMT recommendations to meet the 10 percent egg production target contained in the plan by 2008.

The Board also discussed progress on the development of Amendment 4 to the Lobster FMP. This amendment is being prepared with direct staff support from the Commonwealth of Massachusetts and the State of Rhode Island. The draft is intended to provide the Board options for the evaluation and implementation of conservation equivalency measures to meet the non-trap gear and v-notch protection requirements of Amendment 3. Specifically, Rhode Island is interested in using conservation equivalency to address the non-trap gear limits required by the plan, while Massachusetts is interested in using conservation equivalency to address the v-notch requirements of the plan. It is anticipated that the first draft of the Public Information Document for Amendment 4 will be available for Board review at its next meeting, which will most likely occur in late January, during the Commission's meeting week.



Copies of Addendum II will be available by mid-December 2000. Once available, copies of the Draft Addendum can be obtained by contacting either Vanessa Jones, Administrative Assistant, at (202) 289-6400, or via the Commission's Webpage under "Public Input" at www.asmfc.org. Public comment should be forwarded to Heather Stirratt, American Lobster Fishery Management Plan Coordinator, at 1444 Eye Street, N.W., Sixth Floor, Washington, DC 20005; (202) 289-6051 (fax). For more information, please contact Heather Stirratt at (202) 289-6400, ext. 301, or hstirratt@asmfc.org.

South Atlantic Board Addresses Red Drum Management

Red drum management was one of the primary topics of discussion at a recent joint meeting of the Commission's South Atlantic State-Federal Fisheries Management Board and the South Atlantic Fishery Management Council. In particular, the two bodies discussed the process of beginning to transfer the authority for management of red drum in the federal waters from the Magnuson-Stevens Fishery Conservation and Management Act to the Atlantic Coastal Fisheries Cooperative Management Act.

Doug Vaughan (NMFS Southeast Fisheries Science Center) and John Carmichael (North Carolina Division of Marine Fisheries) are conducting an analysis of various management options, including minimum size and possession limits. This analysis will be reviewed by the Commission's Red Drum Technical Committee in late February/early March, with possible Board consideration of the Technical Committee's recommendations slated for April.

As the primary oversight body for the South Atlantic component of the Southeast Area Monitoring and Assessment Program (SEAMAP), the Board also discussed its funding recommendations for fiscal year 2001. Specifically, the Board approved a $200,000 increase in expenditures for the SEAMAP South Atlantic component for 2001, with particular emphasis on the shallow water trawl survey.

For more information on the Commission's red drum management activities, please contact Dr. Joseph Desfosse, Fisheries management Plan Coordinator, at (202)289-6400, ext. 329. For more information on SEAMAP-South Atlantic, please contact Geoff White, Fisheries Research Specialist, at (202)289-6400, ext. 309, or gwhite@asmfc.org.

ASMFC Funds Multispecies Assessment Pilot Study (continued from page 1)

proposed model explicitly accounts for the major ecological features that regulate the magnitude of feeding linkages among menhaden and its predators.

3. **Evaluate whether there is an optimal size (or age) composition of Atlantic menhaden to balance its ecological role with the goals of the directed fishery.**

The goal of the directed fishery is to maximize sustainable landings while minimizing the risk of population collapse due to spawning failure. In general, YPR models indicate that moderate increases in the age/size that fish are first captured by the fishery will maximize long-term harvests. In addition, this strategy tends to improve the reproductive potential of the stock by allowing a greater proportion of the population to grow and spawn before removal by the fishery. These goals are largely consistent with reducing competition between the fishery and predators. Predators typically focus on smaller, younger fish. Therefore, increasing the size of fish harvested also reduces the fishery's interaction with predators. The multispecies YPR model allows the evaluation of target points for both of these goals. The detailed diet and age-specific consumption estimates document which menhaden size classes are most important for predators, while the YPR analyses can be used to evaluate the effects of regulating age of entry on harvest and spawning potential of the stock.

4. **Evaluate any adjustments required of the biological reference points from single species management when predation is included in multispecies modeling.**

Multispecies models may result in adjustment of single species biological reference points in two ways. First, the multispecies approach will improve the estimate of natural mortality rates, particularly by accounting for age differences in predation mortality experienced by the menhaden stock. The difference in natural mortality from the multispecies model may result in significant changes in the estimation of yield potential and reproductive health of the stock. Second, the multispecies model may result in changes in biological reference points by expanding the basis for fishery management actions. In single species approaches, management decisions are made solely with reference to the particular stock being evaluated. However, in multispecies approaches, management decisions may also be made in an effort to optimize both the fishery and ecological roles of the species. Multispecies and ecosystem approaches therefore expand the scope of decisions for fisheries management.

Future Expansion

The multispecies YPR model provides the opportunity to include other ecological factors as well. Some models include such diverse features as nutrient cycling, zooplankton dynamics, predator selectivity, and density-dependant growth and recruitment to create a comprehensive ecosystem model. The initial model formulation is designed to assess the magnitude and impacts of predation on menhaden stocks. Several key areas of the ecology of the menhaden stock can be incorporated in future expansions of this approach. They are: (1) incorporate density dependent growth and environmental influences on recruitment, (2) incorporate predator population dynamics, (3) incorporate the dynamics of other forage species and predator selection, and (4) make the model more spatially explicit.

The Commission's focus over the next several years will be to apply several modeling approaches to Atlantic menhaden and its core predators. The first step is to test the model's current application in the menhaden fishery. *Fisheries Focus* will continue to provide updates on the Commission's multispecies modeling efforts. For more information, please contact Geoff White, Fisheries Research Specialist, at (202)289-6400 or gwhite@asmfc.org.

American Eel Sexing & Aging Workshop Conducted

American eel have received little attention where collection and analysis of age and growth data are concerned. This fact is especially true along the Atlantic coast of the United States and received notable attention when the Commission initiated discussions on managing American eel over four years ago. Understanding the data limitations associated with American eel resulted in Technical Committee discussions regarding the apparent need for a workshop presenting sexing and aging techniques.

On November 30 – December 1, 2000, an American Eel Sexing and Aging Workshop was hosted by the Commission.

continued on page 7

ASMFC Striped Bass Board Approves Addendum V: *States Establish Guidelines for 2001 and 2002 Fisheries*

On November 29, 2000, the Atlantic States Marine Fisheries Commission's Striped Bass Management Board approved Addendum V to Amendment 5 to the Interstate Fishery Management Plan (FMP) for Atlantic Striped Bass. Specifically, the Addendum establishes striped bass management measures for 2001 and 2002 fisheries, and allows states to either maintain their current striped bass fishery regulations or implement regulations comparable to those implemented in 1998 and 1999 for the next two years.

Addendum V was initiated in August 2000 in response to the results of the 2000 striped bass stock assessment, which indicated that the 1998 and 1999 estimates of fishing mortality were essentially equal to the targets specified in the FMP. Addendum IV, which established striped bass management measures for 2000 and 2001, was intended to safeguard age 8 and older fish from disproportionate fishing mortality for at least two years. In order to achieve this protection of the age 8 and older fish, Addendum IV required reductions in fishing mortality during 2000 and 2001. However, based on the positive results of the 2000 assessment, the states are currently in a position where no additional reductions in harvest are required during 2001. In fact, through Addendum V, states have the flexibility to implement more liberal management measures such as those that were in place in 1998 and 1999.

Under Addendum V, the states are required to notify the Commission as to whether they will be maintaining their current regulations or implementing regulations similar to those of 1998 and 1999. States also have the option to submit alternate proposals. Any proposals for alternative management measures will be reviewed by the Striped Bass Technical Committee and reviewed for possible approval by the Management Board in late January 2001.

During the two-year span of Addendum V, the Board will be developing Amendment 6 to the FMP to address long-term scientific, management, and policy issues. The Management Board has committed to completing the bulk of the work for Amendment 6 during 2001, which will allow for final approval relatively early in 2002. This timeline will provide states sufficient time to develop and implement management programs in order to be in compliance with the Amendment at the beginning of 2003.

Copies of Addendum V will be available by mid-December 2000, and can be obtained by either contacting Vanessa Jones, Administrative Assistant, at (202) 289-6400, or via the Commission's webpage under "NEWS" at www.asmfc.org. For more information, please contact Robert Beal, Fisheries Management Plan Coordinator, at (202)289-6400, ext. 318.

American Eel Sexing & Aging Workshop Conducted

The purpose of this workshop was to present current knowledge on sexing and aging techniques to the Commission's American Eel Technical Committee. For two days, the Technical Committee reviewed two separate sexing techniques (gonadal squash and histological), and two separate aging techniques (embedding/sectioning and grinding/polishing).

Workshop participants were afforded hands-on experience with various methods of otolith removal, parasitic nematode detection, and sexing and aging techniques in the hope that voluntary collection of age and growth data will occur. In the event that participants were unable to age American eel at the workshop, an archiving and storage protocol has been provided. A similar protocol is anticipated for the purposes of archiving and storing gonadal tissues.

Many thanks to the U.S. Fish and Wildlife Service for allowing this workshop to be held at the Patuxent Research Refuge in Laurel, Maryland. For more information on the findings of this aging workshop, please contact Heather Stirratt, Fisheries Management Plan Coordinator, at (202)289-6400 ext. 301.

Workshop participants learn how to identify the sex and age of American eel (shown clockwise from left): Patrick Geer (VIMS), Joe Crumpton (FL FWCC), Drew Kolek (MA DMF), and Wendy Morrison (Chesapeake Biological Lab).

The staff of the Atlantic States Marine Fisheries Commission joins in wishing you the happiest of holidays and a healthy and prosperous New Year!

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