

SEPTEMBER 2010

Fisheries Ecosystem Workgroup Update

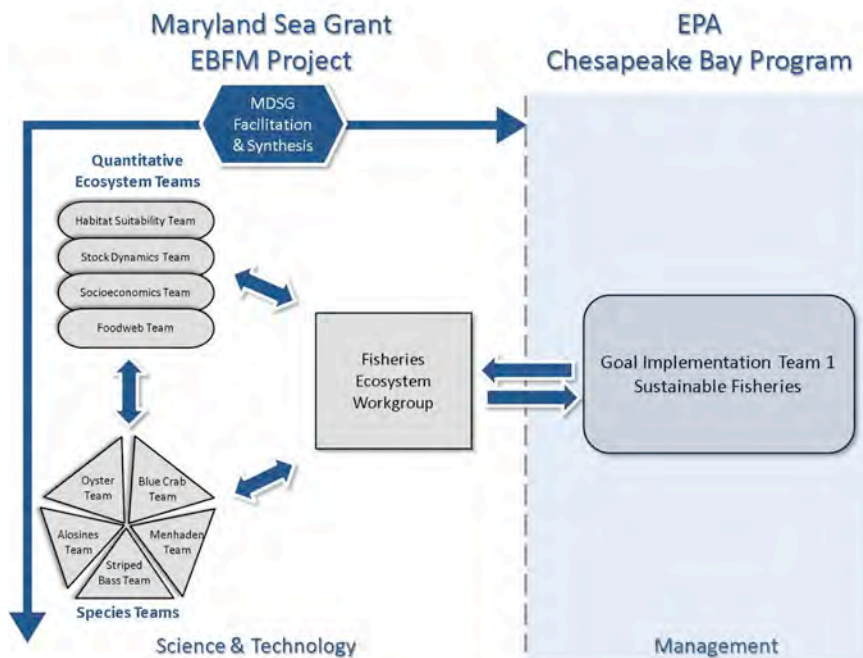
The Fisheries Ecosystem Workgroup (FEW), the Chairs of the Species and Quantitative Ecosystem Teams, convened for the first time in May 2010 to develop their work plan and prioritize EBFM research activities. As the leads of the EBFM teams, the FEW acts as a decision-making and communication body to connect the work of the Species and Quantitative Ecosystem teams and guide the research and work plans for the other EBFM participants. Ultimately the FEW works towards strategic planning for EBFM for the five key species outlined in the "Fisheries Ecosystem Planning for Chesapeake Bay" document.

http://chesapeakebay.noaa.gov/images/stories/pdf/FEP_FINAL.pdf

The work plan of the FEW includes developing EBFMPs for the five key species, designing a management tool that links shared ecosystem drivers across the five key species, and identifying long-term research activities aimed at strategic fishery management planning. Three Management Liaisons from the newly formed Goal Implementation Team (GIT) for Sustainable Fisheries under the Chesapeake Bay Program, meet jointly with the FEW to ensure a link to management plans and priorities and the FEW acts as the interface between the EBFM project and the GIT which identifies EBFM as one of its primary team goals: http://www.chesapeakebay.net/team_fisheries_info.aspx?menuitem=51025.

LIST OF UPDATES

- September 2010
- November 2009
- October 2009
- September 2009
- August 2009
- July 2009
- May/June 2009
- April 2009
- March 2009
- February 2009
- January 2009
- December 2008



The FEW now meets monthly and works to synthesize the work completed by the Species Teams in the Background and Ecosystem Issue briefs and direct the future work of the Quantitative Ecosystem Teams in developing ecosystem based reference points. Maryland Sea Grant is planning a joint meeting of the FEW and GIT in the coming months to share the work of the FEW to date and discuss the development of an ecosystem based fisheries management tool which links cross-cutting ecosystem issues between the five key species and will allow fishery managers to enhance single species management with an ecosystem approach.

Table 1. The Fisheries Ecosystem Workgroup and Liaisons

Name	EBFM Role	Affiliation	State
Jim Uphoff	Chair, Striped Bass Species Team	MD DNR	MD
Ed Houde	Chair, Menhaden Species Team	UMCES	MD
Eric Johnson	Chair, Blue Crab Species Team	SERC	MD
Troy Tuckey	Chair, Alosines Species Team	VIMS	VA
Dave Secor	Co-Chair Habitat Quantitative Ecosystem Team	UMCES	MD
Rom Lipcius	Co-Chair Habitat Quantitative Ecosystem Team	VIMS	VA
Tom Miller	Chair, Stock Dynamics Quantitative Ecosystem Team	UMCES	MD
Howard Townsend	Chair, Foodweb Quantitative Ecosystem Team	NOAA	MD
Michael Paolisso	Co-Chair, Socioeconomic Quantitative Ecosystem Team	UMD	MD
Doug Lipton	Co-Chair, Socioeconomic Quantitative Ecosystem Team	UMD	MD
Rob O'Reilly	GIT Management Liaison	VMRC	VA
Lynn Fegley	GIT Management Liaison	MD DNR	MD
Patrick Campfield	GIT Management Liaison	ASMFC	DC

Developing an Ecosystem Based Fisheries Management Tool: The Index of Ecosystem Based Fisheries Management

Shannon Green, Maryland Sea Grant Fisheries Ecosystem Coordinator, PhD Candidate University of Delaware

Over the course of this project, four Species Teams have developed species specific documents that identify the critical ecosystem issues impacting menhaden, blue crabs, and the Alosines species complex in Chesapeake Bay. These Background and Issue Briefs articulate species specific ecosystem issues, however, a transition from single species to ecosystem based fisheries management requires fishery managers to consider the linkages between species in an ecosystem context. To do this successfully fishery managers must be equipped with an ecosystem based fisheries management tool to accompany the traditional abundance estimates used in single species management.

In January of 2010 the Chesapeake Bay Program requested that Maryland Sea Grant facilitate the development of a new set of indicators, milestones, and goals for the key EBFM species: striped bass, blue crabs, menhaden, oysters, and the Alosines species complex. For the past several years progress towards EBFM has been measured by the Fisheries Effort Management Index, however, there has been concern that this index does not fully capture the work being done to transition to EBFM from single species management and also that this index mixes management progress, the health of the species, and the health of the ecosystem into a single metric. Maryland Sea Grant proposed developing a new system for monitoring these three metrics for the blue crab as a test case. Through facilitated discussions a working group of EBFM project and NOAA scientists, regional fishery managers, and Maryland Sea Grant Communications experts developed a three-part model for monitoring the status of the blue crab in Chesapeake Bay. The model recognizes the abundance and target estimate for blue crabs, developed by the Bi-State Blue Crab Advisory Committee, as the cornerstone of successful single species management to track the health of the blue crab itself. As a second component of the model the working group recommended that the GIT develop a Program Progress Index (PPI) to track management progress towards the development of EBFM tools and plans for the five key species. The third and final component proposed by the working group is an Index of Ecosystem Based Fishery Management (IEBFM) which measures the health of the species within the Chesapeake Bay Ecosystem. The original DRAFT IEBFM was designed solely to measure the health of the blue crab within the ecosystem and included the ecosystem issues identified by the EBFM Blue Crab Species Team and management issues identified by Maryland Department of Natural Resources and Virginia Marine Resources Commission. This DRAFT model was formally adopted by the GIT Executive Committee and presented to the Chesapeake Bay Program and Maryland Sea Grant was charged with developing companion indices for the remaining four key species.

One of the first tasks of the Fisheries Ecosystem Workgroup was to evaluate the DRAFT IEBFM for blue crabs. There was consensus among the FEW that the IEBFM was the right approach in creating a tool by which fishery managers could address ecosystem issues, but shared concern that the blue crab IEBFM was still a single species approach. Synthesizing this feedback MDSG began linking the ecosystem issues identified by the four Species Teams into a single over-arching IEBFM. The most recent work of the Fisheries Ecosystem Workgroup aims to identify the shared ecosystem drivers that cross-cut the five key species and link these drivers with associated indicators and reference points within an EBFM tool. The FEW has derived the DRAFT list of shared drivers in Table 2 from an original list of over 40 unique species specific ecosystem issues. While the FEW agrees that unique species issues should still be addressed by management, the FEW believes that these drivers are the correct starting point for linking the five key species that allow for an ecosystem approach to management for Chesapeake Bay.

Table 2. DRAFT Cross-Cutting Ecosystem Drivers for the Five EBFM Key Species

Habitat Suitability	Foodweb	Stock Dynamics	Socioeconomics
Hypoxia	Trophic Structure	Stock and Recruitment Var	Regional Impacts
Thermal Regime	Forage/Prey	Demographic Structure	Commercial Income
Flow	Competition	Population Connectivity	Recreational Benefits
Structured Habitat	Predation	Disease	Community Health
Habitat Connectivity		Abundance	Cultural Value

The next steps for the FEW are to examine these for gaps and develop Shared Ecosystem Driver Briefs which describe how they impact the five key species within the Chesapeake Bay ecosystem. Key to this effort will be to articulate tradeoffs in management options. The drivers form the basis of an ecosystem based fisheries management tool: The Index of Ecosystem Based Fisheries Management for Chesapeake Bay (IEBFM). This tool will eventually link the cross-cutting ecosystem drivers, associated indicators for each of the shared drivers, and limit based reference points based on the work of the Quantitative Ecosystem Teams. The reference points may then be used by fishery managers to develop ecosystem based fishery management regulations to achieve specific endpoints. However, to develop effective ecosystem based reference points it will be important for the FEW to receive management priorities from the GIT, specifically, goals for each of the five key species fisheries.

The EBFM project has been an organic, bottom-up process to date. Several critical shifts by project participants have steered the project towards the current work plan linking cross-cutting ecosystem drivers for the five key species and Maryland Sea Grant anticipates that this organic development will continue as the IEBFM is refined and the FEW works to develop five ecosystem based fishery management plans (EBFMPs) for each of the five key species.

Please contact Shannon Green, Fisheries Ecosystem Coordinator for Maryland Sea Grant, for further information. Thank you! sgreen@mdsg.umd.edu (301) 405-6372