# REPORT OF THE

# TASK FORCE ON FISHERY MANAGEMENT

# DECEMBER 1, 2008

Presented to:

Martin O'Malley
*Governor*

Anthony B. Brown
*Lt. Governor*

Thomas V. (Mike) Miller Jr.
*President of the Senate*

Michael E. Busch
*Speaker of the House*

John R. Griffin
*Secretary of the Maryland Department of Natural Resources*

# INTRODUCTION

The Fisheries Management Reform Act (Senate Bill 1012) enacted in April 2007 created a Task Force for Fishery Management. This legislation directs the Task Force to:

- Oversee a full review of current fishery management processes and develop recommendations for methods to improve, modernize, and streamline fishery management.

- Develop a set of recommendations for the 2009 Legislative session of the General Assembly that incorporates the improvements suggested for fishery management.

- Work with the Department of Natural Resources (Department) to develop regulations and policy, and any follow-up legislation for the 2010 Legislative session of the General Assembly that is necessary to implement the recommendations.

- Submit a report of findings and recommendations to the Governor and General Assembly by December 1, 2008.

In September 2007, pursuant to Maryland Annotated Code, Nat. Res. Art. Sec. 4-215.4, the Department's Secretary John R. Griffin, appointed a 17-member Task Force, which included a 3-member peer review panel. The Task Force included a representative for the Secretary of Natural Resources, three experts in state fishery management appointed in consultation with the American Fisheries Society, representatives from commercial and recreational fishing organizations, and representatives from communities that rely on fishing for their local economies. The Fisheries Task Force chairperson and the members of the Task Force and peer review panel are listed below.

**Task Force Members:**

- Chair, Thomas B. Lewis, Esq. Gallagher Evelius & Jones LLP
- William Windley, Maryland Saltwater Sportfishermen's Association
- Frank Dawson, Maryland Department of Natural Resources
- Brian Keehn, Maryland Charterboat Association
- Michael Benjamin, Chesapeake Guides Association
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- Ralph Sherman Baynard, Coastal Conservation Association Maryland
- Russell Dize, Maryland Watermen's Association
- Scott McGuire, Coastal Conservation Association Maryland
- Lawrence Simns, Maryland Watermen's Association
- Roger Trageser, Maryland Bass Federation Nation
- Frederick Tutman, Patuxent Riverkeeper
- Richard Novotny, Maryland Saltwater Sportfishermen's Association

- James Gracie, Mid Atlantic Council, Trout Unlimited

**Peer Review Panel:**

- Raymond P. Morgan II, PhD., University of Maryland Center for Environmental Science, Appalachian Lab
- Edward D. Houde, PhD., University of Maryland Center for Environmental Science, Chesapeake Biological Laboratory
- Lee G. Anderson, PhD., University of Delaware[1]

The Task Force as a whole met monthly over the past year, beginning in November 2007. Each meeting was publicized and open to the public, and stakeholder input was encouraged both at meetings and by other means. A website was established for the Task Force on the Department of Natural Resources' website (http://www.dnr.state.md.us/fisheries/taskforce) and was regularly updated with information including meeting summaries, presentations, and handouts. A list of interested members of the public was established and regular email communications concerning meeting dates and webpage updates were sent out to interested individuals.

The Task Force identified a number of areas on which to focus, and formed seven Work Groups in early 2008 to address those areas in greater depth. Each Work Group included members of the Task Force as well as additional advisors and constituent representatives. The Work Groups conducted in-depth evaluations in the areas of Habitat, Stock Monitoring and Assessment, Data Collection and Management, Fisheries Planning, Alternative Management Issues, Legal Review and Enforcement. Each Work Group developed findings and recommendations, which were presented to the Task Force as a whole for discussion and consensus.

In general, the Task Force focused its efforts on understanding and strengthening the fundamental activities of Maryland's fishery management programs, rather than attempting to weigh in on current management challenges, such as the decline of blue crabs or oysters. The work of the Task Force was a remarkable collaboration, in which diverse fishing constituencies, including commercial fishing interests, recreational fishing organizations, charterboat representatives and others came together in a constructive dialogue with the energetic and capable assistance of staff from the Department of Natural Resources Fisheries Service.

The following findings and recommendations, if implemented, will improve, streamline, and enhance fishery management programs in the State of Maryland. As with any complex subject being discussed by many diverse constituencies, there were topics on which agreement could not be reached. However, there was one overarching theme on which there was unanimous agreement by the Task Force members.

The people of the State of Maryland should not be content to preside over the management of a stressed and declining stock of aquatic resources due to declines in water quality, loss of habitat,

[1] Dr. Anderson resigned his appointment due to illness.

and a deterioration of the overall health of our streams and ponds, the Chesapeake Bay, its tributaries, and our coastal waters.

Our fish, shellfish and other aquatic life are literally downstream from everything that happens in our state and other states which share the Chesapeake Bay watershed. Almost every human activity within the watershed comes at a price to fishery resources. Almost every meeting of this Task Force brought new stories of habitat loss and water quality deterioration. We have to do better.

Much has been done to identify the causes of pollution and degradation to Maryland waters, and the time has come to launch redoubled efforts toward restoration commensurate with the values which are at risk for loss. We are hopeful that the Governor will bring together his cabinet secretaries and demand action, coordination, accountability, and measurable results. We are heartened by the strengthening of the Critical Areas laws and hope to see greater protection for the lands and vegetation surrounding our waterways.

The effort is going to require a new political will in local subdivisions, which have such enormous responsibility for land use management decision in our state. But, if the will does not exist at the local level, the state must take actions to protect its natural resources.

Fundamentally, we believe that the people of Maryland and its representatives place a sufficient value on natural resources, including fishery resources, to bear the costs necessary to achieve a balance between our increasing population and a healthy environment.

The commercial, charter boat, and recreational fishing industries have over 700,000 participants each year, providing well in excess of $1 billion in annual economic impact for the state of Maryland. It is estimated that these three fish driven industries provide more than 15,000 jobs and over $30 million in sales and fuel taxes, as well as millions in State income taxes. They are an invaluable economic engine for the State while adding an immeasurable component to the quality of life Maryland has to offer.

Every discussion of fishery management policies begins and ends with the questions and concerns noted above. We must act in concert with a greater sense of urgency than we have marshaled in the past. Before asking how to better manage the crabs, oysters, rockfish, black bass, brook trout, or other prized fish and seafood resources of our state, we must ask ourselves what we are willing to do to provide the clean water and healthy habitat needed to sustain those populations.

Recognizing that healthy habitat and clean water are an essential framework for healthy fisheries, the Task Force focused its energy on improving the core activities of fisheries management within the Department. Effective fisheries management requires management planning, monitoring and assessment of fish stocks and habitat, appropriate data collection and utilization, and enforcement of regulations conducted within a legal framework that facilitates the Department's work. Fisheries management mostly regulates activities of fishermen, for example their catches, fishing methods, areas and times for fishing. The objective is to achieve

sustainability, even in the face of declining water quality and habitat loss. The Task Force identified issues and made recommendations to insure that the Department not only succeeds in its difficult mandate but can expand its capability to meet future challenges.

The maintenance of our valuable fishery resources have been entrusted to the Department of Natural Resources' Fisheries Service for the benefit of the citizens of Maryland. While many challenges face the Fisheries Service in carrying out its charge, the need to adapt their fishery management to the demands of the 21st century was the forefront with the passage of SB 1012 resulting in the 2008 Fisheries Management Task Force Report. The Report provides recommendations to move Maryland toward a progressive fishery management regime that can successfully meet the challenges of the future in management as well as in enforcement, without which even the best fishery management programs are doomed to fail.

## FINDINGS AND RECOMMENDATIONS BASED ON WORKGROUP REPORTS

The findings and recommendations of the Task Force are summarized in this Report, to which the separate reports of the Work Groups are attached as Appendices.

### Habitat Preservation and Restoration

Habitat is one of the most important concerns facing present and future efforts to improve fisheries conservation in Maryland. Without quality habitat, the best efforts to improve, stock assessments, data management, the fisheries management planning process and law enforcement will have limited value. The quality of habitat for aquatic resources will directly affect the ability to succeed in managing fisheries for future generations. The Task Force identified key issues and recommendations as follows:

**Issue- Development of critical habitat criteria**- The Department has not formally identified or adopted the full range of quantitative parameters that define limits of acceptable habitat quality for important species.

**Recommendation:** A dedicated habitat specialist position should be created at the Department to identify important habitat criteria for target species. This individual should also assume a coordination role among various projects with permitting, planning and commenting responsibilities. The Maryland Biological Stream Survey, the Fisheries Ecosystem Program, Environmental Review Program, and a new aquatic reef program should be tasked to develop important habitat criteria within various ecotypes.

**Issue- Quantification of the links between land use and the health of aquatic resources-** Resource agencies such as the Department's need to become more proactive and effective at protecting and maintaining quality habitat by having and making available better data on the links between land uses in a watershed and health of aquatic habitats.

**Recommendation:** Efforts to define the relationship between land use and aquatic resources need to be accelerated. Specific investigations should explore and quantify the links between land protection and restoration efforts, and the health of aquatic systems and fish populations that depend upon those systems. Multi-disciplinary programs such as the Department's Maryland Biological Stream Survey and Fishery Ecosystem Project should be assigned these tasks and provided dedicated funding for this work. This scientific information should be organized and made available to planning and zoning agencies at the state, county and local level. It should be stated in comments on regulatory decisions affecting land in a way that clearly articulates the full costs of development and permitting decisions, and ensures more effective and efficient protections.

**Issue- Codification of regulatory standards for aquatic water quality-** As criteria for critical elements of habitat and water quality are identified, they must be established as standards for regulatory decision-making. The Department currently lacks values for some key quantitative parameters that define limits of acceptable habitat quality for important species.

**Recommendation:** The Department should work closely with the Maryland Department of the Environment (MDE) to establish these standards and codify them into regulatory processes. The Department's Environmental Review Program should take a lead role in proactively using habitat criteria in planning and regulatory processes at the state and local levels.

**Issue- Strengthen the environmental review process-** The Environmental Review Program is currently critically understaffed.

**Recommendation:** The Department's Environmental Review Program should take a lead role in proactively using habitat criteria in project review activities. The program is currently critically understaffed and must be revived. The new program should be comprised of a total of 6 positions (3 new): one program manager, one lead reviewer for each of the states four regions (4 positions) and one reviewer focusing on major transportation projects.

**Issue- Prioritization of high quality habitats for protection-** Degradation of our aquatic habitats is occurring at an accelerated pace. It is difficult and expensive to restore habitat once watersheds have been negatively impacted.

**Recommendation:** Areas of quality habitat must be identified and given extra protection before they are impacted by development or other human activities. All programs collecting fisheries and aquatic habitat data should contribute to the Blue Infrastructure Program and include all areas of outstanding habitat quality. Data should be used to provide special regulatory protections through designation of habitat as Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPC).

**Issue- There is no coordinated strategic initiative to prioritize and restore habitat-** Particular areas with high fisheries values should be selected for habitat restoration and enhancement efforts. Inland restoration may include: storm water retrofits, wetland creation/restoration, stream restoration, restoration of fish passage, development of agricultural

buffers, restoration of riparian forests. Chesapeake Bay initiatives may include oyster bar rehabilitation, fish reef development, living shoreline restoration, aquatic vegetation restoration, and runoff reduction to improve water quality, dissolved oxygen conditions, and high turbidities.

**Recommendation:** An interagency strategic initiative needs to be developed to include the Department units, MDE, and the Department of Agriculture. A strong monitoring program should also be implemented to track progress of restoration projects to show the cumulative effects of restoration activities, and allow the identification and prioritization of additional restoration opportunities.

**Issue- The identification and protection of coastal, natural hard bottom habitats-** Very little is known about ecologically important natural hard bottom communities along the Mid-Atlantic Bight off Maryland. Their importance to finfish and benthic species is significant.

**Recommendation:** Seafloor mapping studies need to be performed to identify these areas. Baseline habitat parameters should be collected and routine monitoring performed to track their health and identify trends.

**Issue- Interagency and inter-program communication on habitat issues-** In order to succeed in any habitat initiatives, a high degree of coordination and cooperation between a number of entities will be required, including State, Federal, local, and private sector groups along with the general public.

**Recommendation:** A central coordinator position should be established within the Department tasked to coordinate and focus habitat protection and restoration efforts.

## Stock Monitoring and Assessment

All fisheries management activities are based upon information collected through stock monitoring and assessment activities and, in some cases, socio-economic surveys. A stock assessment provides decision makers the information necessary to make reasoned fishery management decisions. The Task Force identified key issues and recommendations as follows:

**Issue- Establish a transparent process for making decisions on which species are monitored and/or assessed-** The Department lacks a prioritized, strategic plan that lays out monitoring and assessment needs for fisheries.

**Recommendation:** The Department should describe its strategic priorities and decision framework for stock monitoring and assessment. These priorities should be transparent and include stakeholder input. The decision framework should: identify goals for each resource; identify standards to which monitoring programs should adhere; develop a process for triggering a monitoring program or assessment; develop a process in which monitoring programs and assessments are reviewed for adequacy; develop a process to link monitoring and assessment with management planning; and evaluate the Department's ability to conduct monitoring

programs and assessments. The Department should expand its capability to analyze and interpret data.

**Issue- Development of a process to integrate stakeholders into decisions concerning which species are monitored and assessed-** The Department lacks a process to involve stakeholders in determining stock monitoring or assessment plans.

**Recommendation:** The Department should develop a process to allow stakeholders the opportunity to discuss decisions and recommendations for monitoring and assessment activities and be informed of the results.

**Issue- Engagement of stakeholders in implementing monitoring programs-** There are opportunities for greater engagement of stakeholders in the Department's monitoring programs.

**Recommendation:** The Department and stakeholders need to collaboratively identify cooperative opportunities, the roles stakeholders can play, and methods for communication. The Department should engage interested stakeholders in species monitoring via cooperative surveys, and collaborate with stakeholders to develop a process for communicating and sharing information. The Department should maintain an active, updated list of interested stakeholders.

**Issue- Additional studies for Inland Waters-** Status of inland fisheries is not updated frequently enough to provide information to support the decision making process.

**Recommendation:** Fishing pressure surveys and catch and release mortality studies should be considered periodically for inland fish species. Population abundance and size or age structure estimates should be updated frequently in sensitive habitats (natural trout waters). Ideally the most important, dynamic or fragile systems should be on a 1-3 year frequency.

**Issue- Increase the level of emphasis on multi-species and ecosystem-based management monitoring and assessment needs-** There is increasing recognition in the scientific and stakeholder communities that traditional single species approaches to management are insufficient and there is a need to develop multi-species and ecosystem-based approaches to management.

**Recommendation:** The Department should develop a strategic plan for monitoring species that are important as forage as well as other species of interest, such as invasive species and threatened/endangered species in support of ecosystem-based fishery management. This strategic plan should: identify components required for multi-species and ecosystem-based monitoring; describe a process to assess efficiency and identify cost-effective multi-species programs; assess infrastructure for any changes necessary to facilitate ecosystem-based management; determine where relevant data is already being collected or how present surveys could be modified to expand their utility; and evaluate the Department's ability to address recommendations given current staffing and budget levels.

## Data Management

Access to reliable and current data is necessary for fisheries management decisions. Data used in fisheries management decisions include fish stock size, fishing mortality levels, and socioeconomic factors. Many current and historical data sets are not easily accessible or available for fisheries management decision-making, or for land use management decisions. The Task Force identified key issues and recommendations as follows:

**Issue- Improvements in data storage, data accessibility and inventory, and missing data-** The Department has data management problems, which include: inconsistency in storage formats, lack of a standard for variable names, difficulty in accessing data sets, incomplete knowledge of relevant data sets, a lack of a single inventory of available data sets, and lack of a process for accumulating socioeconomic information. These problems hinder managers from using the total range of information and having the best available information to make decisions.

**Recommendation:** The Department should make data collection, storage and distribution a higher priority. A searchable comprehensive data list should be created, and made accessible to fisheries managers, habitat managers and planning, zoning and permitting agencies. A team of Department managers, biologists and data managers should meet regularly to address data issues. The Department should develop a Department-wide standard for data collection and recording. Data availability from other agencies, jurisdictions and academia should be determined. The Department should ensure data availability through distributed network nodes. The Department's overall data collection and storage process should be evaluated to determine if there are redundant efforts, and if processes could be merged. A dedicated data management position is needed to coordinate data consistency, storage, and availability of inland and tidewater biological survey projects.

**Issue- Attaining a fully functional geographic inland fisheries survey system (GIFS)-** Because the Department's Inland Fisheries managers develop data to manage populations, which are geographically distinct to their regions, that there has been little incentive to assimilate this information into a consistent statewide data set. The need to view fisheries data on a broader scale and to identify the habitat/land/use/population relationships prompted recent development of a statewide GIFS Database with a Geographic Information System (GIS) component. However, this system has not been fully developed.

**Recommendation:** The Inland Fisheries GIFS should be fully developed to facilitate efficient archiving, retrieval and analysis of statewide data. Training in use of the GIS and in GIS data applications should be required for Departmental personnel in all projects that collect, store and analyze data. Fisheries for habitat data should be available in GIS data layers for analysis. Funding for staff training and contractual services should be provided as needed.

**Issue- Implementation of an Angler License System to meet the requirements of the National Angler Registry Program-** Beginning in January 2009, anglers who fish in federal waters or who catch anadromous species, such as striped bass, will be required to register each year with National Oceanic and Atmospheric Administration (NOAA). The purpose of the

Marine Recreational Information Program (MRIP) registry is to obtain specific catch data from active anglers. Currently, the Maryland license database would not fully meet NOAA standards for a registry database that provides the necessary listing of marine anglers in Maryland.

**Recommendation:** Once the final federal rule is announced, the Department's licensing system should be modified to implement an angler registration consistent with MRIP requirements.

## Fishery Management

Fishery Management Plans (FMP) document biology, life history, and primary management concerns, and recommend appropriate actions to manage aquatic species in the tidal and non-tidal waters of the State. Each FMP must be a carefully designed document that describes the goals and benchmarks for the sustainable management of a healthy ecosystem resource, while providing appropriate stakeholder use. The Task Force identified key issues and recommendations as follows:

**Issue- A fishery management plan process should be formally recognized and adopted-** There is a need for a formal policy that describes the FMP development and amendment processes.

**Recommendation:** The Department should adopt a procedure for the review and adoption of FMPs.

**Issue- There is a need to prioritize resources devoted to plan development and review for each fishery species in regards to staff, time, and funding constraints-** Reviewing, evaluating, and achieving the management objectives for each FMP on an annual basis for the current 19 FMPs, encompassing 25 species is not possible.

**Recommendation:** The Department should develop a process for reviewing the status of species and implementing triggers for management measures. Schedules for reviewing FMPs need to be improved and instituted within the staffing constraints of the Fisheries Service.

**Issue- Need for a process for nominating a species for the development of a FMP-** There is no existing procedure for making nominations of unmanaged species for the development of a FMP.

**Recommendation:** The Department should develop a structured decision-making process for bringing unmanaged species under management. This process should be coordinated with advisory commissions.

**Issue- Stakeholder involvement in the management plan process should be improved.**

**Recommendation:** The Department should update and improve existing methodology for the development of FMPs, and provide a flowchart of the management planning process and identify

when/how stakeholders can provide input. A more formal process is recommended, which involves appointing stakeholder members to each Plan Review Team (PRT).

**Issue- The Department should have the authority to prepare FMPs for additional species-** Existing state law (Sec. 4-215) requires the Department to prepare FMPs for 24 listed species, but does not provide express authority to prepare FMPs (and adopt implementing regulations) for other species for which the Department determines there is a need. In the absence of an inclusive, structured process for addressing the allocation of fisheries resources where competing uses exist, stakeholders are left with an uncertain process. Currently, additional species can only be added to the list by the process of legislative amendments to Sec. 4-215.

**Recommendation:** Sec. 4-215 should be amended to provide that the Department may also prepare FMPs for any other species of fish which are determined by the Department to require a management plan. Species would be added through a process similar to the present regulatory process.

**Issue- Need for a process to allocate fishery resources-** Social, cultural, economic, or biological goals may be facilitated with specific allocation among fishery sectors. Allocation may also facilitate some management systems.

**Recommendation:** The Department should initiate an inclusive process to provide guidance for allocation decisions or adjustment of allocation decisions.

## Alternative Management

To a great extent, Maryland commercial fisheries have been managed as a "commons" in which each fisherman is motivated to optimize income by catching as many fish, crabs or oysters as he can. However, this traditional approach may not be the best choice when stocks of fish, crabs, and oysters can no longer support existing levels of fishing effort. The Task Force identified key issues and recommendations as follows:

**Issue- Other management approaches, such as limited entry programs, individual transferable quotas, or other rights-based privileges may offer an opportunity to stabilize our commercial fisheries, co-manage the resource with harvesters and dealers, and optimize the economics associated with annual allowable harvest**.

**Recommendation:** After numerous meetings and exhaustive discussion of the issues, the Task Force was unable to reach a consensus recommending an alternative management program for any of Maryland's fisheries; however, there was general agreement that such programs should be explored further and the Department should continue to study how catch shares, or other limited entry concepts, might be adapted to local conditions so as to provide benefits to all constituencies, as well as to the Department.

## Legal Issues: Review of Laws and Regulations

The formation of the Task Force on Fishery Management provided the impetus to address a number of Maryland's fishery laws and regulation which needed attention. These laws and regulations have accumulated over many decades, and could ultimately benefit from a complete restatement. However, that undertaking was beyond the scope of the Task Force, and the Legal Review Work Group focused on a number of areas in which Maryland's fisheries laws and regulations could be clarified, modernized and streamlined. The Task Force identified key issues and recommendations as follows:

**Issue- Problematic fisheries laws-** As administrative law has developed, the complex relationship between regulations and law has provided management difficulties for the Department.

**Recommendation:** The Department has implemented conservation and management measures based upon fishery management plans, which have been adopted by regulation, and those measures given precedence "notwithstanding" the existence of inconsistent, antiquated laws on the books. The outdated laws should be repealed by the General Assembly. The Task Force recommends removing language in conflicting laws and several other laws that are no longer applicable or have obsolete references. The affected laws are specified in Appendix F to this report.

**Issue- Fisheries advisory groups-** Maryland law currently provides for twelve advisory groups to the Fisheries Service.

**Recommendation:** The Task Force encourages the Department to build upon the successful collaboration among commissions, and continue the practice of holding joint meetings of those commissions in order to address topics and issues of common interest with greater administrative efficiency.

**Issue- Timeliness of pre-regulatory process-** The Fisheries Service has followed a pre-regulatory process developed by a stakeholder work group in 2006. Although this process has been effective in increasing the Department's transparency and enhancing public participation in the rule making process, there is a need to respond to new developments on a more timely basis.

**Recommendation:** The Task Force has recommended that a third public scoping meeting be added to the annual calendar, for a total of three such meetings each year, and that those meetings be held in conjunction with a joint meeting of the Tidal Fisheries Advisory Commission (TFAC) and the Sport Fisheries Advisory Commission (SFAC).

**Issue- Inconsistent recreational license suspensions-** Currently, the Department has authority to suspend recreational licenses, but the guidelines for suspensions differ for non-tidal and tidal recreational licenses. Additionally, maximum values for fines have not been changed since the penalty law was enacted in 1973 and these amounts should increase to reflect inflation.

**Recommendation:** The Task Force recommends that the Department submit proposed legislation to clarify and streamline the recreational fishing license laws and give the Department uniform authority to revoke any person's recreational fishing entitlement for violating fishing laws in tidal or non-tidal waters and to establish criteria for license suspension by regulation.

**Issue- Lack of authority for restitution/fines-** Currently, there is no authority to require restitution for fisheries law violations in Maryland. A schedule of values for aquatic resources damaged from pollution spills or discharges was adopted in 1975, but has not been updated since that date and has not been extended to fisheries law violations.

**Recommendation:** The Task Force recommends that Maryland law be clarified to authorize the imposition of restitution or other monetary penalties and to authorize the Department to create and update a list of aquatic species monetary values.

## Enforcement of Fisheries Laws

Fishery management policies are implemented through regulations and laws that must be enforced on the water and in the field to be effective. The importance of enforcement arose in nearly every aspect of the work of the Task Force. The Task Force assessed the current enforcement strategies and resources of the Maryland Natural Resources Police (NRP), and the NRP provided representatives who actively participated in numerous meetings of the Task Force. The Task Force identified key issues and recommendations as follows:

**Issue- Insufficient personnel levels-** General fund reductions along with reduced special fund attainment have prevented the agency from hiring adequate numbers of new officers. In 1990, there were a total of 451 authorized Law Enforcement Officer (LEO) positions in the Maryland Parks Service (MPS) and NRP to provide statewide law enforcement coverage. As a result of budget cuts and cost containment measures over the years, the newly merged NRP now has an authorized strength of 280 LEOs. With 55 current vacancies, the NRP has only 225 filled positions statewide. This is a 50% decrease in staff levels since 1990. The current workforce is strained and constituents have reported concern about the reduced number of officers on the water for service to the public and protection of the resources.

**Recommendation:** The Task Force recommends that the Department establish a target number for an authorized force for the NRP that will appropriately meet its enforcement needs. The Task Force recommends an authorized force of 435-law enforcement officers (LEOs), and advises that the number of funded LEO positions should never fall below 400. The Task Force also recommends that the NRP begin rebuilding to a reasonable authorized force by conducting at least one academy class each year with approximately 30 officers in each class. Reinstatement of the Cadet Program is recommended in order to identify and develop individuals who possess a lifelong commitment to becoming natural resources law enforcement officers. Restoring the cadet program is crucial to replacing an experienced, but aging workforce, with proficient new officers.

**Issue- Inadequate equipment-** The NRP is an essential partner in fisheries management, and without reasonable staffing and equipment, the NRP cannot be expected to perform the required services. There has been no predictable or dedicated funding available for NRP equipment needs. Approximately 97% of the large vessel fleet of the NRP is more than 15 years old, and approximately 60% of the small vessel fleet is more than 10 years old. In addition, the NRP's only fixed wing airplane, has been out of service for over three years, and needs to be replaced, along with the two helicopters available to the NRP, which date from 1970 and 1976. The NRP is operating its emergency radio system on technology that will be shut down by the FCC in 2013. It will take at least four years to upgrade to FCC compliance technology. The replacement cost is approximately $1.6 million and it is necessary for continued marine operations.

**Recommendation:** The Task Force recommends that the legislature establish a dedicated funding source to provide consistent resources for the replacement of NRP equipment. The Task Force recommends that boating fees be adjusted to provide the needed funding. A specific proposal for increasing boating fees is detailed in Appendix G.

**Issue- Unsuccessful prosecution-** Natural resources violations are often not considered significant offenses and are often not prosecuted aggressively in county courts.

**Recommendation:** The Task Force recommends that each county designate one day in each month to prosecute natural resources violations, and that one prosecutor in each county be specially trained to handle natural resources issues. The Department and the NRP coordinate with the State Attorney General's Office to develop a system for handling complex conservation cases, that the Department build a stronger partnership with the judiciary to share in the responsibility of protecting the natural resources of the state through more effective enforcement and prosecution.

**Issue- Insufficient training-** The Task Force felt that greater training in fisheries laws and regulations will be needed as they are developed.

**Recommendation:** The Task Force recommends in-service training for officers in this area.

**Issue- Insufficient communication-** Improved opportunities for communication directly between fisheries stakeholders and the NRP should be created.

**Recommendation:** The Task Force recommends close NRP participation in the SFAC and the TFAC meetings, whenever possible. In addition, the NRP should identify opportunities to meet with other fishing constituencies outside those commissions.

## CONCLUSION

We realize that these recommendations for improving the management of Maryland's fisheries are ambitious. The Task Force is please to see that the Fisheries Service is acting on some of

these recommendations already. The Task Force will continue to meet on a quarterly basis during 2009 to oversee implementation of the Legislative Report recommendations and to discuss additional issues that were not discussed fully during the first year of Task Force meetings. These outstanding issues include alternative management programs, access to fishing areas, public relations and marketing for fisheries, and fishery allocation. The Department is currently working on comprehensive public access studies as well as a proposal for an allocation process. The Task Force will review both of these efforts. In addition, the Task Force will follow-up on the progress of the new angler registration process.

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**APPENDIX A**

# TASK FORCE ON FISHERY MANAGEMENT

# HABITAT WORK GROUP REPORT

**Work Group Members:**

Task Force Members:

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- Russell Dize, Maryland Watermen's Association
- Fred Tutman, Patuxent Riverkeeper
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**The Habitat WG Report Follows:**

## Introduction

As the human population and consequent development have increased in Maryland, negative impacts on habitat have reduced the quality and quantity of fishery resources available. The Fisheries Service's authority allows for direct management of fishing activities, but habitat regulation authority is fractured among many federal, state, and local government agencies.

Preservation of fishing and fish habitat will require a well-coordinated and more significant role for the Fisheries Service in protection and restoration of aquatic habitats and in influencing land use and planning practices.

## Objectives

The Habitat Work Group objectives were to assess current state, federal and private programs for the protection and improvement of existing fish habitat (abiotic and biotic, including water quality); identify the strengths and weaknesses of current programs; identify opportunities and approaches for the Fisheries Service to coordinate with other agencies to better protect and enhance fish habitat in inland, Chesapeake Bay, and coastal waters; and determine the relative priority that should be afforded for this work.

## Issues of Concern

**Issue 1):** ***The resources agencies must better develop and use critical habitat criteria to protect and conserve Maryland's aquatic resources.***

The Work Group defined aquatic habitat as encompassing all physical, chemical and biological elements required by the living resources that depend on that habitat. It identified four specific areas in which better habitat data can result in improved protections for fishery and other aquatic resources. The four Maryland aquatic ecotypes include: (i) non-tidal coldwater and warm water streams, rivers and impoundments, (ii) tidal estuaries, (iii) coastal bays and (iv) marine environments.

Some habitat quality criteria are expressed as defined standards in the Maryland Department of Environment (MDE) regulatory process. These are often referenced in the environmental review process and elsewhere in order to maintain water quality. Most of these standards are peer accepted and were derived from years of research.

The Maryland Biological Stream Survey (MBSS) is a model of the type of multi-faceted monitoring that is necessary to identify and quantify important criteria that describe not only habitat quality but also the ecological health of the state's non-tidal streams. The wide array of physical/chemical data collected can be compared directly with the presence and abundance of key fish species and communities of aquatic species providing direct verification of the habitat requirements of those organisms. The Department of Natural Resources (Department) Fisheries Ecosystem Project collects a similar array of information in tidal waters but this project has

focused on specific degraded and productive watersheds to develop its information. The Department Resource Assessment Service monitors non-tidal areas, the Chesapeake Bay and its tidal tributaries and the Atlantic Coastal Bays to evaluate the causes of degradation of tidal aquatic ecosystems. This program also tracks progress towards meeting Maryland's water quality goals through the collection and processing of water quality, benthic conditions, phytoplankton, and harmful algal bloom data.

While a few elements of aquatic habitat can be evaluated with widely accepted, clearly defined values, some elements of aquatic habitat such as streambed quality or embededdness or canopy on inland streams are generally understood to be important to key species, but are still undefined in terms of values which define healthy systems. These must be defined better and/or quantified, not only in terms of their individual influence on key species but on their cumulative impacts as well.

**Recommendation:**

We recommend that the MBSS, the Fisheries Ecosystem Program, Environmental Review, and a new aquatic reef program develop important habitat criteria.

Long-term fishery monitoring data such as that from the Estuarine Fisheries Juvenile Recruitment Project (Striped bass Juvenile Index) and similar Inland Fishery data should be linked to current water quality data to explore the relationships between these criteria and populations of key species. If necessary, robust habitat data should be collected by these programs or through coordination with other programs, such as Resource Assessment Service, in order to facilitate analysis of habitat criteria and key species. Support for water quality/habitat monitoring efforts used to develop new habitat criteria to protect and conserve Maryland's aquatic resources should continue.

A dedicated habitat specialist position should be created to compile and mine current data sets to identify important criteria. This position could also take a coordination role between the various projects to facilitate developing comparable survey methods and data storage.

**Issue 2):** ***Establish the important elements or criteria into the Department and/or MDE standards.***

MDE established water quality habitat regulations for Maryland (Title 26, Subtitle 8 Water Pollution, COMAR 26.08). These regulations include provisions addressing surface water quality protection and criteria, toxic substance quality control and criteria, anti-degradation policy, mixing zones, intermittent streams and designated use areas (I to IV). The Department Environmental Review Program makes extensive reference to these and other codified elements when evaluating impacts from proposed projects.

The Department works with MDE to review and develop these criteria into standards at various levels. The Resource Assessment Service monitors non-tidal areas and assists in the development of tidal water quality thresholds. The MBSS has contributed extensively to identifying Tier II waters, which qualify for extra protections. Additionally, Inland Fishery

reviews designated Water Use Classifications. These are examples of ways in which criteria are codified to provide protection.

In some cases, criteria have been documented in peer-reviewed literature but have not been adopted into the regulatory process. As a consequence, these criteria may be cited in the environmental review process, they do not carry the regulatory weight of codified standards.

**Recommendation:**

As critical elements, criteria, and values are identified, the Department should work closely with MDE to establish these into regulatory standards.

The Environmental Review Program should take a lead role by advocating the inclusion of new habitat criteria into regulation. This program should use these standards more proactively through participation in local planning and zoning processes and by introducing these ideas at that level.

The Department's Environmental Review Program should take a lead role in proactively using habitat criteria in project review activities. The program is currently critically understaffed and must be strengthen. The new program should be comprised of a total of 6 positions (3 new): one program manager, one lead reviewer for each of the state's four regions (4 positions) and one reviewer focusing on major transportation projects.

The importance of healthy aquatic habitat and the costs of cumulative degradation need to be better demonstrated to the public and other agencies. For example, assigning direct dollar cost associated with fishery resource losses due to land use activities could be helpful in convincing the public that regulation is necessary. However, costs need to be considered cumulatively and should include the total cost of a non-functional watershed. In addition, quality of life issues are not always easy to quantify, it is important that their potential loss be demonstrated as well.

**Issue 3): Determine *the quantifiable relationships between land use and these critical habitat criteria.***

The quantitative relationships between human activities, habitat conditions, and their impacts on fisheries are vital information if resource agencies are to become more proactive and effective at protecting and maintaining quality habitat. Programs such as the MBSS and the Fisheries Estuarine Ecosystem Project have started to define these relationships. For example, they have demonstrated how the percentages of impervious surface in a watershed can predict loss of species, such as brook trout in headwater streams or early life stages of yellow perch in our estuaries.

**Recommendation:**

Efforts to define the quantitative links between land use and aquatic resources should be accelerated. Investigations should focus not only impervious surface and other potentially detrimental uses but should investigate benefits from land protection and restoration efforts as

well. Links should be made not only to major species but also to the important habitat criteria on which those species depend.

MBSS and the Fishery Ecosystem Project should be given dedicated funding. These projects, which directly explore the relationships between habitat, fisheries, populations and human watershed activities, should be expanded.

As these relationships become better understood, the costs of development and other detrimental land use in terms of resources, quality of life, and dollars need to be brought to the public. This information should be introduced into the planning and zoning process to demonstrate the trade-offs and to advocate for more effective and efficient protections.

**Issue 4):** ***Identify areas of outstanding habitat for protection.***

Degradation of our aquatic habitats is occurring at an accelerated pace. It is difficult and expensive to restore habitat once watersheds have been negatively impacted. Therefore, it is recommended that areas of quality habitat be identified and given extra protections. Categorizing habitat as Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPC) can identify particular habitats for special protection. The Chesapeake Bay Fisheries Ecosystem Project highlighted issues related to habitat requirements and management[2].

There are existing initiatives aimed at such protection. The Department's Blue Infrastructure (Office of Sustainability) Programs and Stronghold Watersheds (Resource Assessment Service) are being developed to identify and protect aquatic areas of high quality or high importance. Green Infrastructure was initially developed to protect state "Listed" species (Rare Endangered, imperiled, etc.) by targeting areas for land conservation protection through Program Open Space (POS). As it expands, it will include aquatic areas with high quality habitat resources and important fisheries as well. The Department will continue to support water quality/habitat monitoring efforts used to identify outstanding habitat areas to protect. This map-based database is also being used to influence planning and zoning at the local government level.

The MDE's Tier II designation is another program that seeks to give special protections to waters of highest quality. The MBSS program has worked extensively with MDE to identify many of these areas.

**Recommendation:**

All programs collecting fishery and aquatic habitat data should contribute to the Blue Infrastructure program. This program should include all areas of outstanding habitat quality and not just those with threatened species. These data should be used to provide special regulatory protections through designations, such as MDE's Tier II watersheds. Advice included in the Chesapeake Bay Fisheries Ecosystem Plan can provide guidance for establishment of EFH and HAPC.

[2] CBFEP. 2006. Fisheries Ecosystem Planning for Chesapeake Bay. American Fisheries Society. Trends in Fisheries Science and Management 3, 450pp, Bethesda, Maryland.

**Issue 5):** ***Restoration of degraded habitat and water quality should be a priority.***

Loss of suitable habitat and water quality has been a major issue limiting the health and extent of fisheries in Maryland in both inland and tidal waters. Habitat protection is crucial to stem the loss, but without a focused effort on restoration and habitat enhancement there will be no recovery in many fisheries in the state.

There are restoration needs being addressed in some habitats by the Fisheries Service and by other units in the Department. The Fisheries Service is now heavily involved in fisheries reef development through the Maryland Artificial Reef Initiative (MARI). Oyster bar rehabilitation efforts have been the subject of a number of efforts over the years. There is some Department involvement in riparian forest restoration and some grant programs have funded and promoted stormwater retrofits. Living shoreline restoration has been promoted and funded in varying degrees over the years and has recently been mandated through the new "Living Shorelines Bill" (HB73). However, the Fisheries Service has had little involvement or input to stream restoration, stream habitat improvement or in coastal initiatives.

Habitat restoration and enhancement efforts should be prioritized with input from the Fisheries Service so that scarce resources for these efforts can address high priority fishery needs.

The Department should take a lead role with active participation by the Fisheries Service in efforts to enhance existing habitat and create new habitat and structure beneficial to fisheries, including the evaluation of the effectiveness of these efforts. Efforts should include:

- Stormwater retrofits;
- Wetland creation/restoration;
- Stream restoration, including restoration of fish passage;
- Development of agricultural buffers;
- Restoration of riparian forests;
- Bay initiatives including oyster bar rehabilitation and fish reef development;
- Coastal initiatives;
- Living shoreline restoration;
- Seagrass and aquatic vegetation restoration;
- Nutrient runoff reduction to improve water quality and dissolved oxygen conditions; and
- Control of runoff to protect against high turbidities.

**Recommendation:**

The Work Group recommends that a much more integrated and strategic effort on habitat restoration be spearheaded by the Fisheries Service and heavily supported by the entire Department.

Stormwater retrofits; wetland restoration and creation, and stream restoration are being done by a number of entities in Maryland. However, there is no focus on evaluating these activities in

regards to their impact on fish habitat so that these activities could be integrated into watershed-based approaches to fishery management. The Fisheries Service, along with other entities in the Department, needs to be involved in developing such an integrated strategic approach. In this overall strategic plan, coastal initiatives, riparian forest restoration, and living shoreline restoration need to be included.

Such a strategic plan needs to include not only Department units but also MDE, because its regulatory authority can be used to direct mitigation into prioritized areas identified in a strategic plan for restoration. The Department of Agriculture should also be involved since its agricultural buffer program could be used to focus on areas identified as priorities for aquatic life habitat enhancement.

A recommended approach would be to set up an interagency initiative with input from the appropriate agency personnel to develop such a strategic plan and to provide oversight with an annual review process. This group could suggest appropriate priorities for expenditure of funds from existing programs and identify the need for additional funding.

An extremely important element of a comprehensive restoration program is a monitoring program, which can measure the progress of restoration efforts. A number of organizations including the Department, MDE, United States Geological Survey and several Non-Governmental Organizations are planning an interactive session in October 2008 to attempt to develop such a program for stream restoration monitoring. The Fisheries Service should be a strong participant in this effort. Monitoring should also include tracking of restoration projects within watersheds so that cumulative effects of restoration activities can be evaluated and specific areas for additional restoration efforts can be targeted.

Stream restoration and stormwater retrofit technology are new, developing disciplines. As such, there is a heavy premium on keeping up-to-date with training and education. The Department should encourage and fund continuing education needed for Fisheries Service personnel as well as other Departmental personnel.

Finally, the Department should support the MARI program. This coalition of over 60 partners provides a funding mechanism based on donations to a 501(c3) for the restoration/creation of reef habitat. A large portion of the Chesapeake Bay's oyster community, an important hard substrate habitat, is no longer renewing itself and artificial reefs may be valuable in offsetting this loss and maintaining some of this community's important ecological functions.

From Massachusetts to Texas, Maryland alone is without a State reef program. This report recommends the Department create a staffed and funded Aquatic Reef Program to manage and build on permitted reefs in the Chesapeake Bay and Atlantic Coast, and to coordinate with the MARI funding component, based upon the parameters of the Department's Artificial Reef Plan for Maryland. Priorities for this program should include coastal areas, which have a great need for hard bottom habitat restoration, and non-traditional areas such as estuarine near shore habitats.

**Issue 6):** ***There is a need to identify and protect coastal natural hard bottom fish habitats.***

Little is known about natural hard bottom communities along the Mid-Atlantic Bight. The size of these structures individually is small relative to the continental shelf in this area. Yet their importance to finfish, and benthic species in particular, is great.

Of the few studies, which have attempted to describe hard bottom of the mid-Atlantic seafloor, none have had the resolution necessary to successfully identify these areas. Investigators agree, however, that the ecological importance of these areas is much greater than their relative size. Moreover, studies to determine trends in the health of these areas have focused mainly on acute effects of disturbances, such as trawling, and not on the long-term, broad scale effects of chronic disturbances. The potential for colonization by reef communities across larger areas when sufficiently protected is not known.

**Recommendation:**

Fine scale seafloor mapping studies need to be performed to identify these areas. Baseline habitat parameters should be collected and routine monitoring performed to track their health and identify trends. Long-term impacts from stern towed gear or excessive anchor damage should be identified and, when necessary, fragile systems should be protected.

Priorities for interstate management are focused on supplying detailed information for single species assessment. Assessing habitats will require an array of ecological inputs and will require additional funding or diverting resources from current programs.

Responsibility for near shore and offshore seafloor habitats fall under numerous jurisdictions. In order to be successfully assessed and managed there needs to be consistency in programs and methodologies. This will require a high degree of coordination and cooperation between the States, the National Marine Fisheries Service (NMFS), the Mid-Atlantic Fisheries Management Council, the Atlantic States Marine Fisheries Commission (ASMFC), and other research and management partners.

**Issue 7):** ***There is a need for greater inter-program (and Agency) communication and coordination to reduce redundancy and increase efficiency.***

No single program or agency will successfully address these issues on its own. It will take a great deal of communication and cooperation to make real progress. Fortunately there are numerous examples of cooperative work among the resource agencies that could serve as a model for the needed cooperation.

One example of such a cooperative is a project involving the Fisheries Service, Resource Assessment Service, Arlington Echo, and a large group of watershed volunteers. This program monitors summer dissolved oxygen and yellow perch larval presence-absence in the upper Severn River. Data from this study suggest that managing yellow perch through angling regulations alone will not provide a sustainable population. There needs to be significant

improvement in habitat to regain a viable population in the river. This information was presented to the Severn River Commission and Anne Arundel County government. This is only one part of a larger study across the state, which is attempting to link development and impervious surface to low dissolved oxygen conditions in tidal estuaries.

Another cooperative partnership working to assess water quality criteria in relation to priority areas for fish and shellfish includes staff from the Fisheries Service, Resource Assessment Service and the Chesapeake Bay Program's Living Resources Analysis Work Group and Living Resources Subcommittee.

**Recommendation:**

A forum should be identified and efforts made to continue dialog on the habitat issues identified in this report. State, local and federal partners need to participate to assure that all information is on the table and there is no duplication of efforts.

Long-term species or fishery community monitoring programs should link their data with available habitat and water quality datasets in order to facilitate analysis of the relationships between habitat and dependant species. If suitable habitat data are not available for these long-term monitoring programs, collection of this information should be initiated either by the Fisheries Service or in coordination with other programs like Resource Assessment Service.

While we recognize that long-term monitoring programs and the Department Units need consistency to monitor trends, programs doing similar habitat monitoring such as the MBSS, Resource Assessment Service, and the Fisheries Service should work toward compatibility of data in order to increase the power of models to predict important physical and biological relationships.

A central coordinator position should be established within the Department tasked to coordinate and focus habitat protection and restoration efforts. This position should be responsible for evaluating the usefulness and compatibility of datasets from current programs. It could assimilate and help direct the analysis as well. Initial goals should be defined from the issues presented here and should be narrow enough to allow for quick, tangible progress.

## APPENDIX B

## TASK FORCE ON FISHERY MANAGEMENT

## STOCK MONITORING AND ASSESSMENT WORK GROUP REPORT

**Work Group Members:**

Task Force Members:

- Roger Trageser, WG Spokesperson, Maryland Bass Federation Nation
- Bill Windley, Maryland Saltwater Sportfishermen's Association
- Jim Gracie, Mid Atlantic Council, Trout Unlimited
- Scott McGuire, Coastal Conservation Association Maryland
- Ed Houde, PhD (Peer Review Committee), University of Maryland Center for Environmental Science Chesapeake Biological Laboratory

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Assigned Support Staff:

- Karen Knotts, Maryland Department of Natural Resources (Coordinator)
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**The Stock Monitoring and Assessment WG Report Follows:**

## Introduction

All fishery management activities rely upon a foundation of information collected through stock monitoring, user surveys, and assessment activities. Because of the fundamental importance of those activities, a Stock Monitoring and Assessment Work Group was formed by the Fishery Task Force to review and evaluate the Maryland Department of Natural Resources (Department) current stock monitoring and assessment programs and activities.

A primary concern of Maryland fishery stakeholders is transparency in the formulation of management policy by the Department. In November 2006, the Maryland Legislative Sportsmen's Foundation and representatives from diverse stakeholder groups submitted a Joint Chairmen's Report (JCR) to the Maryland Senate Budget and Taxation Committee and the House Committee on Appropriations[3]. The report's intent was "*to ensure that the Department of Natural Resources adopts management strategies for safeguarding fisheries that are not only consistent with its statutory mandate of promoting resource conservation in a fair and equitable manner, but are transparent in nature*." While the JCR recommended ways to increase transparency in the regulatory process, it stopped short of recommending ways in which the Maryland Fisheries Service could integrate stakeholders into the process of determining levels of monitoring or assessment for particular species.

The Department also faces new challenges in determining how to best approach multi-species and ecosystem based management, as well as the monitoring and assessment of emerging and unmanaged species, invasive species, and threatened and endangered species.

## Objectives

Objectives of the Work Group were: 1) to determine the conditions under which stock monitoring or assessment of a given species is desirable, needed or mandated, 2) to evaluate the effectiveness of linking assessments to management plans and regulations, and 3) to determine if new kinds of data and monitoring are needed for present and future management needs.

## Background

The quality and abundance of data directly influences the level of certainty surrounding regulatory proposals and prescribed management actions. As the quantity and quality of data increase, the risk to the resource due to inappropriate or inefficient management actions is reduced.

Risk to the resource may emanate from several sources including, but not limited to, overfishing, shifts in natural mortality due to habitat degradation, fluctuations in predator populations, or the advent of disease. In some cases, the Department mitigates risk by allocating substantial resources to monitoring and assessment of a particular species. Examples of well-studied species are striped bass, yellow perch, blue crab, and largemouth bass. Other species have fewer

[3] Report to the Maryland Senate Budget and Taxation Committee and the House Committee on Appropriations, November 28, 2006.

resources allocated for their study and therefore, fewer data are available on these species to support informed management decisions. Examples of species that have been studied less are: black drum, croaker, spot, channel catfish, terrapin, brook trout (although this is improving), and forage fishes in fresh and estuarine habitats. Disagreement between the Department and stakeholders over fishery management decisions is more likely to occur when the Department has not adequately gauged either the level of concern or the level of risk that stakeholders feel is acceptable for a particular species. In these cases, the reduced certainty in effectiveness of a management policy can potentially lead to a loss of Department credibility in the eyes of stakeholders.

**Existing Monitoring Programs and Activities**

The Department currently participates in a broad array of stock monitoring (data gathering) programs. Many of these programs require specific products, which are mandated by coastal management institutions such as the Atlantic States Marine Fisheries Commission (ASMFC), or are determined by the source of funds used (such as Sportfish Restoration Funds or State Wildlife Grants). Many monitoring programs conducted by the Department have been in existence for decades. These programs are seldom altered or abandoned, either because they are mandated or have value as a long-term record. It is recognized that the most valuable time-series data in fishery management are often those that span many years. The Striped Bass Juvenile Seine Survey, Blue Crab Winter Dredge Survey, and Freshwater Trout Population Survey are examples of monitoring surveys that have proven to be effective input for stock assessments that support management decisions.

Department staff is actively involved in collaborative projects such as the Eastern Brook Trout Joint Venture and Atlantic Coast Fish Habitat Partnership, which are being conducted under the auspices of the National Fish Habitat Action Plan, developed in 2001 to reverse the declines of America's fish habitats. Other programs that have been implemented cooperatively among federal, academic and state partners and which support collection and use of data on a broader scale include:

- Chesapeake Bay-Wide Multiple-Species Monitoring Program (CHESMMAP);
- Chesapeake Bay Fishery-Independent Multi Species Survey (CHESFIM);
- Range-wide assessment of brook trout conducted through the Eastern Brook Trout Joint Venture (EBTJV) (17 states, 5 federal agencies, 4 non-governmental organizations, and 2 universities to formulate and implement a conservation strategy to protect, enhance, and restore brook trout populations throughout its eastern U.S. range);
- Atlantic Coast Fish Habitat Partnership (ACFHP);
- Multi-state Aquatic Resources Information System (MARIS);
- Cooperative Maryland Department/US Fish and Wildlife Service (USFWS) research and monitoring of snakehead in Potomac River;
- 2006 Bay Region Workshop to determine the need for new surveys (Bonzek et al., 2007)[4];

[4] Bonzek, C., E. Houde, S. Giordano, R. Latour, T. Miller, and K.G. Sellner. 2007. **Bay-wide and Coordinated Chesapeake Bay Fish Stock Monitoring**. CRC Publication 07-163, Edgewater, Maryland. 70pp.

- Light Detection and Ranging Remote Sensing (LIDAR);
- Cooperative Offshore Trawl Survey of ASMFC species; and
- Cooperative Winter Survey of blue crabs in Chesapeake Bay.

The process for fishery management plan development provides a key opportunity for stakeholders to participate in the development of decision rules for management, and the level of monitoring and research applied to a species. Advisory Commissions such as the Sportfish Advisory Commission (SFAC), Tidal Fish Advisory Commission (TFAC), and Oyster Advisory Commission (OAC) provide an avenue for stakeholders to convey their priorities to the Department. In addition, Department staff is able to acquire input and ideas from stakeholders through participation in groups and activities including: inter-jurisdictional management committees, such as the Mid Atlantic Fisheries Management Council and ASMFC; partnerships, such as the National Fish Habitat Initiative; workshops, such as the Bass Roundtable; and watershed associations.

Several cooperative data collection programs are underway and several, including the Striped Bass Cooperative Angler Survey, have been central to management decisions. Other stakeholder surveys include:

- Summer Flounder Cooperative Angler Survey;
- Striped Bass Creel Survey;
- Yellow Perch Cooperative Angler Survey;
- Yellow Perch Creel Survey;
- Blue Crab Cooperative Recreational Crabber Survey;
- Blue Crab Cooperative Data Collection Program (commercial);
- Numerous estuarine and marine surveys that employ commercial fishermen to captain boats and deploy gear;
- Tidal Bass Tournament Survey;
- Tidal Bass Creel Survey on Wicomico and Pocomoke Rivers;
- Angler Preference Survey; and
- Deep Creek Lake Yellow Perch Survey.

In addition, there is growing recognition of the importance of the information provided by ongoing socio-economic and participation surveys. This data, which quantifies and qualifies effort in a fishery, has been recognized as an important element in the development of assessments and management plans.

Managing fishery resources requires an ability to develop regulatory options that produce predictable and measurable results for the stock in questions. High-quality data on the current and historical status of a stock or population are required in order to make effective management decisions. These data typically come from fishery-dependent and fishery-independent monitoring programs and the quantity and quality of the data directly impacts the ability to answer questions such as, *how big is the stock; is it growing or declining; are removals from the stock safe; and will the stock continue to grow or decline*? In order to answer these questions, managers turn to stock assessment.

Stock assessments are tools that seek to describe the historical and current status of a stock and can offer insights into how the stock would respond to different management actions. Fishery managers are responsible for interpreting the information provided by stock assessments. This interpreted information is used to develop appropriate management options. The level of complexity of individual stock assessments varies substantially depending on knowledge of species biology, availability and quality of fishery-dependent and fishery-independent data and length of the data time series. Attachment B-1 presents a detailed description of the process of stock assessment and the types of data typically used in assessing stocks.

The Department conducts stock assessments on its own for some resident species. However, the Department usually participates in assessments of inter jurisdictional species through ASMFC or with other Bay-wide and regional management institutions (e.g., Blue Crab Assessment).

In freshwater, monitoring is the critical tool for identifying and developing effective fisheries conservation and management policies. In Maryland, this requires that Fisheries Service staff intensively monitor 115 impoundments, 27 major river basins, 170 freshwater streams and 212,000 acres in the tidal freshwater reaches of 26 rivers and streams. Complementary data are also collected through the Maryland Biological Stream Survey (MBSS) from randomly located sites. The data are used to calculate unbiased estimates of stream conditions with known precision, and assess the impacts of acid deposition and other impacts on aquatic biota at various spatial scales for status and trend analyses. The MBSS also conducts stream sampling, which is focused on an array of special objectives such as evaluating the risks of invasive, non-native species (e.g., rusty crayfish) on game fish populations.

**Issues of Concern**

**Issue 1):** ***The Department does not have a transparent, established process for making decisions on which species it monitors or conducts stock assessments and at what level of detail monitoring and assessment are conducted.***

After assessing Maryland's current monitoring activities, the Work Group made the following observations:

1) The Department lacks a prioritized, strategic plan that lays out monitoring and assessment needs for fisheries. Strategic plans not only prioritize species, but also justify the priorities based upon management needs.

2) Determining the adequacy of any sampling program can be achieved only when specific management and/or assessment goals are articulated. When such goals are lacking it becomes difficult to champion and defend ongoing survey programs or determine how such programs could be modified, combined or discontinued.

3) Although the most valuable fishery data are time series that span many years, funding for long-term, consistent monitoring programs is difficult to secure. Few new long-term monitoring programs have been implemented in the last five years.

4) Field work for "hallmark" surveys (Striped Bass Juvenile Seine Survey, Blue Crab Winter Dredge Survey, Freshwater Trout Population Survey) and the subsequent data entry, analysis and report production for these surveys presently consume significant staff resources, leaving few resources to devote to less monitored species.

5) Fisheries Service-staffing levels have been reduced significantly and the Fisheries Service no longer has the capacity to dedicate resources to expanding monitoring or assessment activities.

**Recommendation:**

The Department should describe its strategic priorities and decision framework for stock monitoring and assessment. These priorities should be transparent and include stakeholder input.

This framework should address the following elements:

- Identify specific and quantifiable fishery goals for each resource;
- Identify standards and protocols to which monitoring programs should adhere (include stakeholder/participant monitoring to ensure that sufficient socio-economic and participant/effort data are collected);
- Develop a process leading to triggering of a monitoring program or assessment;
- Develop a review process in which monitoring programs and assessments are reviewed for adequacy in achieving management needs (include frequency of review and review type (i.e. staff review, peer review, etc));
- Develop a process for linking monitoring with management planning; and
- Evaluate the Department's ability to conduct monitoring programs and assessments (jurisdictional responsibilities, infrastructure, personnel, budget, needs for collaboration, etc.). Currently, time and money are invested in conducting surveys; however, less time and money is invested in analyzing and interpreting data in a management context to know if the surveys are providing the needed information. The Department should expand their capability to analyze and interpret data.

**Issue 2):** ***The Department does not follow a consistent process to integrate stakeholders into decisions concerning which species are monitored and assessed.***

Although the JCR report recognizes "*an informed public and avid stakeholder base deserve and require more collaborative interaction and opportunities to participate in the decision making processes,*" it stopped short of identifying a specified process or framework for effectively communicating with stakeholders about monitoring and assessment activities. There is no existing formal process or avenue (outside of discussion within the TFAC and SFAC) for stakeholders to petition for monitoring or assessment on a particular species.

As recognized in the JCR report, "*a currently declining participant base in fishing activities is* occurring *in absolute terms and even more on a per capita basis. This may diminish funds for scientific based assessments and analysis*." However, funding is not the only issue; the report also acknowledges the demands that this places on Department staff; "o*utreach and*

*collaborative decision-making require considerable expenditures of time and workforce, and effort, to adequately address public issues.*" At its current reduced staffing level, the Fisheries Service has limited ability to expand its stakeholder outreach and collaboration.

**Recommendation:**

The Department should develop a communication process with stakeholders to understand their level of concern about stock status and to incorporate stakeholder concerns into the decision process.

This process should be structured such that it provides a forum for the following activities:

- Discuss decisions and recommendations for monitoring and assessment activities;
- Describe program implementation;
- Report results/status;
- Share data/information; and
- Respond to requests/concerns.

**Issue 3):** ***The Department does not fully engage the cooperative efforts of the broad base of interested and informed stakeholders in implementing monitoring programs.***

There is no existing process for maintaining an active, updated list of interested and informed stakeholders. License data for freshwater and Chesapeake Bay anglers is extremely limited, and an improved licensing system could serve as a database of stakeholders.

The Department and stakeholders need to collaboratively identify the kinds of cooperative opportunities that are available, the roles stakeholders can play and methods for communicating.

**Recommendation:**

The Department should more fully engage the large base of interested stakeholders in species monitoring via cooperative surveys.

The Department needs to collaborate with stakeholders to develop a mutually effective program, forum, or process for communicating and sharing information. This structure should provide the ability to regularly address issues such as the type of cooperative opportunities potentially available, effective ways of communicating, and the appropriate level of involvement of stakeholders, i.e. the roles stakeholders can and should play and useful data or information they can provide.

**Issue 4): Additional studies for Inland Waters**

Status of inland fisheries is not updated frequently enough to provide information to support the decision making process.

**Recommendation:**

Fishing pressure surveys and catch and release mortality studies should be considered periodically for inland fish species. Population abundance and size or age structure estimates should be updated frequently in sensitive habitats (natural trout waters). Ideally the most important, dynamic or fragile systems should be on a 1-3 year frequency.

**Issue 5):** ***The Department is not placing adequate emphasis on multi-species and ecosystem based management monitoring and assessment needs.***

There is increasing recognition at the regional, national, and international levels that the traditional single species approach to management may be insufficient given both the high degree of interaction among different exploited and non-exploited species and the flexibility of many fishermen in switching among targeted species. This recognition has lead to interest in developing multi-species and ecosystem-based approaches to management (EBM). There is considerable activity promoting EBM in the region, both in terms of fundamental research and management planning. Examples of this activity include large multi-species monitoring programs, and inter-jurisdictional reviews of data needs (Bonzek et al., 2007)[5].

However, improvement in monitoring for multi-species and EBM must overcome some impediments:

- The scope and breadth of the Department's responsibility for monitoring forage species, or predator/prey relationships for monitored species is not defined;

- Expanding monitoring to include important prey species will require an unknown, but substantial increase in the level of monitoring activities conducted. It is also unknown whether simple monitoring to detect trends in abundance will be sufficient or whether more advanced monitoring will be required;

- The Department currently does not have the resources to expand its (mostly single-species) monitoring programs. However, it is not necessarily the case that all existing surveys must be maintained and new surveys added to achieve EBM. Knowing what information surveys are capable of providing is dependent on whether the survey goals have been well defined;

- Given that clear management goals are lacking for some species, it is difficult to know whether fishery-independent surveys, which are currently focused on single species, could be modified/combined without loss of information;

- Insufficient effort is being placed on monitoring or assessing invasive species, "nuisance" species, and "threatened/endangered species; and

[5] Bonzek, C., E. Houde, S. Giordano, R. Latour, T. Miller, and K.G. Sellner. 2007. **Bay-wide and Coordinated Chesapeake Bay Fish Stock Monitoring**. CRC Publication 07-163, Edgewater, Maryland. 70pp.

- The Department does not have adequate funding or staffing to build the required databases that would support ecosystem-modeling approaches.

**Recommendation:**

The Department should develop a strategic plan for monitoring species important as forage as well as other species of interest (e.g. invasive species, "nuisance species" and threatened/endangered species in support of ecosystem-based fishery management.

This strategic plan should:

- Identify components required for multi-species and ecosystem-based monitoring and assessment (e.g., forage species, invertebrate prey where/when important, invasive species, "nuisance" species, threatened/endangered species);
- Describe a process to assess efficiency and identify cost-effective multi-species programs; and
- Assess institutional structure for any changes necessary to facilitate multi-species and EBM. Determine where relevant data is already being collected, or could be collected with relatively minor modifications to present surveys. While not explicitly monitored, many of the forage or other species important in EBM may already be collected, enumerated, and measured in the various trawl, gillnet, seine, and pound net surveys that the Department conducts in tidal and fresh waters. Trends in some species are followed, if not by the Department then by other scientists. Freshwater stream surveys and surveys for gamefishes often collect relative abundance data for fishes not targeted by the Fisheries Service. It is certain that additional human resources within the Department are needed, but the Department should evaluate where pertinent data are already being collected or how present surveys could be modified to expand their utility to support ecosystem based fishery management.

In addition, the Department's ability to address Recommendations 1 – 4 given current staffing and budget levels should be evaluated.

- If the Department lacks capacity to address the recommendations, which include expanded stakeholder outreach and collaboration, and expanded monitoring and assessment activities, it should develop a plan to increase its capacity to the required level. This plan should describe mechanisms (i.e. additional positions, reallocation of existing personnel, use of partners or outside contractors, etc.); anticipated cost; timetable to achieve; and expected benefits or negative impacts (i.e., to other programs or activities).

## ATTACHMENT B-1

## STOCK ASSESMENT PROCESS

### What is a Stock Assessment?

A stock assessment is a process of evaluation of the status of an exploited fish population or stock. A "population" is a term used to define a biologically unique group of fish of certain species, while the term "stock" is used to define a group of fish residing in an area managed by a certain management authority. Therefore, a stock can include several populations, (for example, the striped bass stock on the Atlantic coast includes Chesapeake Bay, Delaware Bay Hudson River and other populations) or a fraction of one population, such as a stock of arctic cod in Northwest Atlantic Fisheries Organizations (NAFO) management area 3N.

### Why are Stock Assessments Necessary?

A fishery stock assessment describes the past and the current status of the stock. Stock assessment answers questions such as: how big is the stock; is it growing or declining; are removals from the stock safe; will the stock continue to grow or decline? A stock assessment provides managers with information necessary to make good choices in managing the fishery. The level of stock assessment complexity varies substantially depending on knowledge of species biology, availability and quality of fishery-dependent and fishery-independent data and length of the data time series.

The need for sound information on which to base a good management choice is not exclusive to marine or estuarine species; it also applies to species that live in freshwater. In the case of freshwater fisheries, stocks are generally discrete populations and fisheries are managed according to geographic areas or specific water bodies for recreational value. Management strategies are based upon population status of important gamefish species and include determining population age and size structure, reproductive success and habitat and environmental conditions. In large reservoirs and lakes such as the Great Lakes (or Maryland's Deep Creek Lake), a rather typical stock assessment can be conducted, if it is deemed important. But typically, freshwater management is based on setting benchmarks and determining how well these benchmarks are met. Fishery managers look at parameters such as fish length, weight, condition (the relationship between length and weight for a given species), population age and size structure, proportional stock density, relative stock density, population density (fish per hectare or fish per acre), angler catch and fishing effort, fishery productivity, and prey-predator relations. Although managers utilize these parameters to establish fishing regulations which improve the size structure or density of the population, the health of freshwater populations rely as much on good habitat and water quality as they do on fishery management.

### What Types of Data are Used?

Stock assessment generally requires data on catch (in numbers and weight, size and age structure), indices of abundance and the life history parameters (longevity, natural mortality rate, growth, fecundity, maturity). Data used in stock assessment is usually separated into two

categories: fishery-dependent and the fishery-independent. Fishery-dependent data include information derived from the fishery itself, such as catch in weight or numbers of fish, fishing effort (vessels or angler days or hours of fishing), and size and age structure of the catch. The catch data include landings and discards. Fishery-independent data include research or monitoring surveys that generally attempt to obtain indices of relative abundance (number of fish caught per unit of fishing gear and unit of time, for example number of fish per trawl per hour). If we rank the data based on their availability and complexity, the list will look approximately like this:

1. Landings data (numbers of fish or pounds).
2. Monitoring or research survey index (catch per trap, per trawl, per net, per day, etc.).
3. Fishing effort (net days, boat days, etc).
4. Size structure of the catch.
5. Age structure of the catch.
6. Discards and bycatch by size and age.

## Assessment Models

Marine & Estuarine Assessments

Most of the stock assessment models were developed in response to the needs of large marine fisheries and therefore, are centered on the catch information. It was shown mathematically first, and proved in the field later, that fishing changes the characteristics of the stock such as size and age structure, growth, and abundance. Therefore, inferences can be made about the population size and fishing mortality by looking at inter-annual changes in catch dynamics and structure. The assessment models vary in levels of complexity from very simple to rather elaborate. Simple models require relatively few data. For example, surplus production models look at only one characteristic of the population - total biomass and its changes in time. These models ignore whether the fish are big or small, old or young, immature or mature. Other models describe more population characteristics – age structure, length and weight at age, indices of relative abundance for each year of the analysis. The choice of the model for the assessment purposes is mostly dictated by the data available. The fewer data are available, the fewer are the options, and the simpler is the assessment model. Based on the input data requirements and the principal idea of the model, they can be listed in order from simple to more complex.

Trend Analysis

This is not an assessment model in itself. This is simply a numerical description of population size changes in time – increasing, declining or no change. This simple analysis is useful when nothing but landings or relative indices of abundance is available. Data required include an index of abundance or catch in weight or numbers.

Surplus Production and Biomass dynamics

These models consider a population simply in terms of biomass and track its changes as a function of harvest and fishing effort. Data required for model input include: catch in weight, fishing effort and indices of relative abundance.

Catch Survey Model

Data required for Catch Survey Model inputs include: catch in weight and two indices of abundance – one for recruits and one for adults.

Size Structured Models

Size Structure Models are length based Virtual Population Analysis (VPA) and Stock Synthesis Models. They track the length of size classes of fish in exploited populations. Data required for model input includes: catch in weight and numbers, size structure of the catch for each modeled year, and growth data.

Dynamic Pool Models

Dynamic Pool Models are yield per recruit, spawning stock biomass per recruit models. These models provide estimates of optimal yield and fishing mortality under the assumption of equilibrium conditions. Data required for model input includes: life history parameters such as longevity, natural mortality, and growth.

Age-Structured Models

Age-Structured Models are VPA, ADAPT, and Statistical Catch at Age Models Data requirements for model input include: landings, age structure of the catch, age specific indices of abundance, fishing effort, and weight at age by year.

Multi-species Models

Multi-species Models are a variety of single species models linked together through the predator – prey interaction term. Data requirements for model input includes: landings, age structure of the catch, age specific indices of abundance, fishing effort, weight at age and by year by species, predator's diet information, and digestion rates.

Ecosystem Models

Ecosystem Models are very complex, and require inputs for all of the above-mentioned data plus much more. These models usually cannot be used directly for assessment purposes, but may provide some useful information.

Depletion Models (DeLury and Leslie Models)

These models are frequently used in freshwater and sometimes in marine waters to obtain abundance estimates and establish relationships between catch and effort.

Freshwater Assessments

The fact that freshwater fisheries are comprised of many generally geographically discrete populations and are managed accordingly to recreational value means that assessments for freshwater often adopt a somewhat different approach than that for marine and estuarine species. Freshwater fisheries are often not as heavily exploited as marine species that support recreational and commercial components. Valuable recreational fisheries often prize quality or trophy size individuals over sheer numbers or biomass. Although age-structured models and assessments, and trends based on such models and inference, have a place in freshwater fishery stock assessment; and knowing the maximum sustained yield (MSY), biomass that maintains maximum sustainable yield (B*msy),* or maximum yield per recruit are useful reference points by which to judge where a fishery stands, even in a catch-and-release recreational fishery; such assessments are not the primary mode of assessment used in these fisheries due to the significant resources required. Because angler satisfaction is often related to size of fish caught, size-based analyses are often employed. This type of analysis has the advantage of being much less labor intensive than age-based models, an important feature considering the large number of discrete populations requiring individual assessments in freshwater. Managers often rely on trend data and attaining specific benchmarks to determine success in management strategy. Traditional freshwater management relies heavily on proportional stock density; condition indices and relative abundance catch per unit effort (CPUE) of adult and juvenile life stages. A range of values that represent healthy populations for these parameters have been proposed and peer reviewed. In some species these have been further modified to account for size and fertility of the water body, species composition and climate variation due to latitudinal differences. It is important to note that in addition to collecting fishery data, managers spend a significant amount of time gathering data on habitat and water quality parameters.

## Reference Points

To make a conclusion about the status of the stock, estimates of population size and fishing mortality rate are compared to the desirable or optimum levels of population size and fishing mortality. It is assumed that for every population there is a certain level of population size and fishing mortality that will produce a long-term maximum sustainable yield. These values are most often used as reference values or “reference points” that managers compare to current population estimates.

Marine & Estuarine Assessments

The values of fishing mortality and population size that are deemed to be optimal are often called target reference points. For example, population biomass that maintains *Bmsy* is often selected as a biomass target, while fishing mortality that produces long-term maximum yield *Fmsy* is

selected as a target fishing mortality rate. Target reference points are estimated based on life history parameters and yield per recruit, stock – recruitment or biomass dynamics models. Another important set of reference points that is used to define the status of the stock is called "threshold" reference points. These are the critical values of fishing mortality and population size indicating the "red zone". A minimum level of population biomass that does not lead to the failure in population reproduction is called "biomass threshold", while a maximum safe level of fishing mortality is called "overfishing threshold for fishing mortality." When the population biomass falls below biomass threshold, this indicates that the population is overfished and when the fishing mortality exceeds overfishing threshold, this indicates overfishing is occurring. These are examples of typical reference points that are used for stocks with long time series of data. For some populations the existing data may be insufficient to derive such reference points (data poor stocks) and alternative ad hoc reference points will have to be produced.

Freshwater Assessments

Data and modeling to determine gamefish population age and size structure, reproductive success and habitat and environmental conditions are the backbone for developing strategies for managing populations. Freshwater management is based on establishing benchmarks and then evaluating how well these benchmarks are met. Fishery managers look at parameters such as fish length, weight and condition, population age and size structure, proportional stock density, relative stock density, population density (fish per hectare or fish per acre), angler catch and fishing effort, fishery productivity, and prey-predator relations; by comparing estimates to optimum levels, managers are able to make conclusions about population status.

## Assessment Process Structure

There are several steps in the stock assessment procedure; these include data review, assessment model selection, model runs and reporting results, management advice and research recommendations.

### 1. Data Review

The assessment process begins with a review of available data, evaluation of its reliability and suitability, and determination of what additional information may be required.

Marine & Estuarine Assessments

Based on availability, the following data are compiled:

1. Life history parameters – longevity, natural mortality, maturity, fecundity, and growth rates.

2. Time series of catch statistics – recreational and commercial landings in numbers and weight of fish.

3. Size and age composition of annual catch. Sufficient number of fish should be measured and samples of age registering structures should be taken from fish harvested by all components of the fishery throughout the fishing season on an annual basis.

4. Annual age-length keys should be constructed describing size distribution within each age group of fish.

5. Annual indices of relative abundance of young and adults should be constructed using fishery-dependent and fishery-independent data.

6. Any additional sources of data that are not standard inputs but can provide some insights on current stock dynamics.

Freshwater Assessments

Inland fishery biologists routinely undertake a number of data collection activities. Other activities are more limited due to the high cost and effort needed to collect data (Table B-1). For example, age determination is often done only on a selected fishery because of the relatively high cost and staff time for lab preparation and analysis. More aging of fishes is always desirable and, when affordable, a good investment in stock assessment science. Still other activities that provide extremely valuable information are rarely done because of the high cost and effort required; examples include creel surveys, radio tagging work, and population estimates (depletion surveys) of warm water streams.

Based upon availability, the following data list is compiled:

1. Relative abundance–number of species present and relative abundance of each species.

2. Size and age composition. Sufficient number of fish should be measured and samples of age registering structures should be taken from fish on an annual basis.

3. Annual indices of relative abundance of young of the year (YOY) and adults should be constructed using fishery-independent data.

4. Life history parameters – longevity, natural mortality, maturity, fecundity, growth rates.

5. Annual age- length keys should be constructed describing size distribution within each age group of fish.

6. Creel survey data – recreational catch in numbers and weight of fish; angler hour effort in angling hours and catch per unit effort.

7. Water quality and habitat data or any additional sources of data that are not standard but can provide some insights on current stock dynamics.

## 2. Assessment Model Selection

The choice of the assessment model is dictated by the data available. For a data poor stock, only a trend analysis may be possible, while an age-structured model is likely to be considered for a stock with long time series of accurate landings data and age structure of the catch available for the entire time series. If data are rich enough to allow a variety of models to be examined, from simple to complex, the tendency is to choose a more complex model. However, the final model selection may require a parallel run of several models and selection of the one that has the best fit to the data.

## 3. Model Runs and Reporting Results

Once the model is chosen, the input data are reviewed and checked, the model is run and the outputs are reviewed. Model diagnostics are carefully analyzed to make sure that the model fits the data well and the trends in estimated population numbers and mortality are consistent with other data or perception of the stock status. The uncertainty of estimated values is described.

## 4. Management Advice

For marine/estuarine populations, estimated values of population size and fishing mortality are compared to the target and threshold reference points. The stock status is characterized in relation to the reference points. (i.e., if overfishing is occurring and the stock is overfished). In many cases a forward projection of population trend is made under different scenarios to explore possible future status of the stock, the "what if" approach. A recommendation is then made to the management authority.

For freshwater assessments, information on fish length, weight and condition, population age and size structure, proportional stock density, relative stock density, and population density (fish per hectare or fish per acre), are compared to established benchmarks. Population status is characterized in relation to these benchmarks. Any available information on angler catch and fishing effort is studied and if a population is not achieving target levels, changes in fishing regulations or habitat or water quality improvements which improve the size structure or density of the population are recommended to the management authority.

## 5. Research Recommendations

In a completed stock assessment, data deficiencies and missing elements of knowledge about population biology are reported and a list of recommendations is prepared for future research or additional monitoring activities that improve the assessment during the next assessment round.

**Table B-1. Inland Fishery Management Cost-Benefit Hierarchy for Fish Population and Community Information (modified from Nielsen and Johnson, 1983[6]).**

| Activity | Information | Relative Cost (Compared to first activity) | Comments |
|---|---|---|---|
| [a.] Species enumeration | Number of species present | 1 | Useful in sampling |
| [a.] Number of fish caught of each species | Relative abundance of the species present | x2 | Minimal level of information needed. |
| [a.] Length of fish | Relative year class strength, growth & mortality, proportional stock density, etc. | x4 | Great deal of helpful information added. |
| [a.] Weight of fish | Weight-length curves, condition factors, relative weight, etc. | x12 | Great deal of helpful information added. |
| [b.] Age determination | Calculation of year class strengths, age distribution, growth history, and mortality | x120 | Extra lab time to age structures, and analyze data. |
| [c.] Creel surveys | Angler effort, catch, harvest, etc. | x600 | Information on angler effort and use patterns, relatable to biological information, vital to social management issues. |
| [c.] Radio/sonic Tagging | Exact information about fish | x1200 | Information about location and movement of relatively few fish; equipment cost and maintenance high, time consuming. |

*a.* These are activities routinely undertaken by Inland Fishery Management biologists.
*b.* Age determination is done on selected fishery, limited by relative effort and cost and staff time for lab preparation and analysis. More staff would allow for more effort in this activity.
*c.* These activities are rarely done due to high cost/effort needed. Would provide extremely valuable information if performed, more staff vital to increasing effort in this activity.

[6] Nielsen L.A., and D.L. Johnson.1983. Sampling Considerations. Pages 1-21 in L.A. Nielsen and D.L. Johnson, editors. Fisheries Techniques, 1st edition. American Fisheries Society, Bethesda, Maryland.

## APPENDIX C

## TASK FORCE ON FISHERY MANAGEMENT

## DATA WORK GROUP REPORT

**Work Group Members:**

Task Force Members:

- Scott McGuire, WG Spokesperson, Coastal Conservation Association Maryland
- Bill Windley, Maryland Saltwater Sportfishermen's Association
- Ed O'Brien, Maryland Charter Boat Association
- Rich Novotny, Maryland Saltwater Sportfishermen's Association
- Brian Keehn, Maryland Charter Boat Association
- Jim Gracie, Mid Atlantic Council, Trout Unlimited
- Ray Morgan, PhD (Peer Review Committee), University of Maryland Center for Environmental Science Appalachian Lab

Advisors:

- Andrew Loftus, Andrew Loftus Consulting
- Julie Defilippi, Atlantic Coastal Cooperative Statistics Program
- Rob Andrews, National Oceanic and Atmospheric Administration
- Brad Gentner, Gentner Consulting Group
- Howard Townsend, PhD, National Oceanic and Atmospheric Administration

Assigned Support Staff:

- Harley Speir, Maryland Department of Natural Resources (Coordinator)
- Don Cosden, Maryland Department of Natural Resources
- Karen Knotts, Maryland Department of Natural Resources
- Tony Allred, Maryland Department of Natural Resources
- Stephanie Peters, Maryland Environmental Service

**The Data WG Report Follows:**

## Introduction

Access to reliable and current data is necessary for fishery management decisions. Data used in fishery management decisions include fish stock size, fishing mortality levels, and socioeconomic factors. Permitting decisions on habitat alteration and land use decisions affecting water quality should also consider fishery values as well as other values associated with impacted natural resources. To facilitate land use planning decisions, fishery data must be available to land use planners in a format that can be integrated with other data sets such as land use databases.

The Task Force on Fisheries Management identified an ongoing concern that many current and historical data sets are not easily accessible for fishery management decision-making or for land use management decisions or that such data may not exist.

## Objectives

The Task Force created a Data Work Group to evaluate the present collection, availability, and management of fisheries, biological, ecological, and socioeconomic data to support management of Maryland fisheries. The Work Group was asked to identify potential underutilized or new technologies, including Geographic Information Systems (GIS); to improve data storage, retrieval, and accessibility; and review how other states have addressed these issues. In addition, the Work Group was asked to identify data collection opportunities provided by the angler registry protocols for Maryland and identify data collection gaps and quality assurance issues.

## Background

The Maryland Fisheries Service manages many and diverse data sets. Data sets often are large and can contain hundreds of thousands of records. These data sets have been managed by the Fisheries Service to serve a variety of functions. Some data sets are available to Department of Natural Resources (Department) staff, scientific institutions, and the public through various websites. Other data sets are available when requested from the Maryland Fisheries Service. Examples of available data sets include the Estuarine Juvenile Finfish and Winter Crab Dredge Surveys, the Freshwater Fishery database, commercial catch reports, and commercial sale reports.

The Fisheries Service has initiated a process of standardizing marine and inland databases and creating central repositories for biological survey data. In addition, the Fisheries Service is currently conducting an online survey to identify databases that may be of use to fishery and habitat managers and the public. The survey has been sent to university researchers, state agency scientists, and ecological and biological consultants. This information will be used for the development of a searchable data inventory.

Although the Fisheries Service has successfully managed many data sets and has made improvements in the standardization and availability of data, a number of problem areas remain and are barriers to further improvement. These problem areas are related to the wide range of

data sets that are available, the multitude of agencies and individual groups collecting and storing data and the pressing need to have fish habitat and fishery values data available for land and water use decisions that affect fish habitat.

**Issues of Concern**

**Issue 1):** ***Data Storage, Data Accessibility and Inventory, and Missing Data.***

Data management problems identified by the Work Group included: inconsistency in storage formats, lack of a standard for variable names, difficulty in accessing data sets, incomplete knowledge of relevant data sets, a lack of a single inventory of available data sets and a lack of a process for accumulating socioeconomic information. These problems hinder managers from using the total range of information and having the best available information to make decisions.

A number of data sets, which are managed by some programs within the Fisheries Service and by some other state agencies, are not well inventoried nor are they fully compatible or interoperable. Fishery managers may not be aware of, or do not have access to, aquatic habitat and land use data. Similarly, government agencies with land use or water quality information and habitat alteration permitting responsibilities are not aware of databases with information on resource values.

Socioeconomic data, which includes information on social, cultural and economic aspects of the Maryland fishery, are not collected in a systematic fashion. There is some commercial economic data that can be mined from the commercial catch record system. Much of the basic recreational socioeconomic information is obtained from the U.S. Fish and Wildlife National Surveys. Basic information (participation, catch, effort, harvest) needed for considering management options is currently under-collected by the Fisheries Service and can be considered a “data gap”.

Responsibility for oversight of biological data set management is diffuse and a strong fiscal and leadership commitment is needed to improve the Fisheries Service process and statewide coordination. All Department units compete for development time from the Information Technology (IT) Unit, which is responsible for all Department IT issues. The Fisheries Service biologists may have problems communicating their needs to IT personnel.

Emerging data requirements need attention. Situations that require swift responses, like natural disasters and invasive species, or responding to policy change all require new data. The developing techniques of integrated assessments and the new management emphasis on ecosystem and multi-species management may require new types of data gathering.

Spatially referenced data are those with location identifiers that can be used to locate the sample site. There are many new and very effective techniques for displaying and mapping information that requires locators. Some of the historical Fisheries Service data sets do not contain this information. The Fisheries Service projects need to make more use of GIS.

**Issue 2):** ***Inland Fishery - Attaining a Fully Functional Geographic Inland Fishery Survey System (GIFS).***

Inland Fishery is divided into five regional offices that manage very different fisheries and habitats. There has been a great deal of autonomy within each region on how data are collected. Because of this, assimilating statewide data sets and assuring consistency in data handling methods have been problematic. In 1999, Inland Fishery began developing a comprehensive database system but the lack of a dedicated position with primary statewide data responsibilities hampered efforts to maintain and continue development of a database for all inland information.

In 2004, Inland Fishery partnered with the Department IT program to develop a data system centrally located at the Tawes State Office Building that can be accessed from all field offices. This Geographic Inland Fisheries Survey System (GIFS) is designed to interface with GIS mapping software and has a routine query and analysis module, which provides efficient and consistent summarization and reporting capabilities. This system is designed to incorporate finfish, invertebrate, water quality and physical habitat data from standardized aquatic surveys, which cover cold and warm water streams, inland and tidal rivers, and freshwater impoundments across the State.

The inland database is now in use in all regional offices, but there are still hurdles to overcome to achieve an efficient, fully functional system. For example, the variety of survey types has created problems such as multiple and conflicting definitions of sample sites.

**Issue 3):** ***Tidal Fishery- Implementation of an Angler License System to meet the Requirements of the National Angler Registry Program.***

In April 2005, the National Research Council reviewed National Oceanic Atmospheric Administration's (NOAA) Saltwater Recreational Data Collection program and provided more than 200 recommendations. As a result, the NOAA Fisheries current recreational fishing data program, the Marine Recreation Fishery Statistics Survey (MRFSS), will be phased out and replaced with the Marine Recreational Information Program (MRIP). This is a nationwide effort to improve the collection, analysis, and use of recreational saltwater fishing information.

Beginning in January 2009, anglers who fish in federal waters or who catch anadromous species will be required to register each year with NOAA. This registry will provide a list of anglers that can be surveyed to estimate total participation, catch by species and total catch. Anglers may be exempt from federal registration if they fish in a state that has a program to account for all saltwater anglers, either through a comprehensive saltwater fishing license database or a regional angler survey program approved by NOAA. Currently, the Maryland license database would not fully meet NOAA standards for a registry database that provides a complete listing of marine anglers in Maryland.

**Recommendation:**

*1)* ***Leadership in Data Integration:*** The Department should make data collection, storage and distribution a priority and provide sufficient resources (which might include funds, staff,

improved storage capacity or processing and distribution technology) to achieve recommendations in this report. Since data integration will cross programs within the Fisheries Service, Units within the Department and other Maryland Departments, leadership at high administrative levels will be a key to a successful data management program.

*2)* ***Searchable Comprehensive Data List:*** A searchable comprehensive data list should be created. This data set list, created from a baseline assessment, should include all data collections relevant to fishery and habitat management and should be cataloged by content, primary use, and other important features found within the collection's metadata. This data set should be accessible to fishery managers, habitat managers and planning, zoning and permitting agencies. The current (as of summer 2008) online survey will form the nucleus of this data set list.

*3)* ***Process for Coordination, Identifying Data Needs, Identifying New Requirements and Planning:*** A team of Department managers, biologists and data managers (matrix team approach) should meet regularly to address issues identified in this report, discuss emerging data requirements, data sharing arrangements, new technologies, funding, and make recommendations to the Department senior staff for action.

*4)* ***Standardized Data Collection:*** The Department should develop a Department-wide standard for data collection and recording. This standard should remain flexible as data may come from different sources and may have been collected using different protocols and/or quality control procedures. If any linking and merging of the data is to be possible, there will be a need for specific instructions on field names, content and data formats for improved data interoperability. Standards should be discussed and agreed upon by a Work Group of data stewards (staff) that is familiar with the entire data collection process to avoid duplicative or redundant effort.

*5)* ***Incorporating Data from other Agencies, Jurisdictions, and Academia:*** Data availability from other agencies, jurisdictions and academia must be better understood so that interoperability and data sharing improves. The Maryland Departments of Environment (MDE) and Agriculture and the University of Maryland should coordinate on database content. Relevant data sets from technical committees and stock assessment committees of the Atlantic States Marine Fisheries Commission and the Mid Atlantic Fisheries Management Council should be referenced on data lists available from some central repository (not necessarily a Department repository). The Fisheries Service should continue to participate fully in the Eastern Brook Trout Initiative with its habitat data-sharing component.

*6)* ***Data Repository:*** As the scope and breadth of data sets becomes better understood, and as yearly inventories and data standards are developed, the Department should move to ensure data availability through distributed network nodes. Data would be maintained by the data owner at the location of the data owner. Access to the data for users at other locations and for backup would be achieved through network communications. Each of these access locations would be a network node.

*7)* ***Consolidating Data Collection Efforts and Merging Data:*** As more knowledge is gained about the Department's overall data collection and storage process, the process should be evaluated to determine if there are redundant efforts and if processes could be merged. A

Department matrix team approach with IT and data management personnel from all units could develop a Department-wide set of operating principles.

*8)* ***Socioeconomic Data:*** More effort needs to be expended on the collection and storage of important data useful in a number of management areas and a list of socioeconomic data needs should be developed. The Fisheries Service should secure funding a staff economist or retain the services of a resource economist.

*9)* ***Spatially Referenced Data:*** Training in use of a GIS should be required for key personnel in all projects that collect, store and analyze data. Fish, fishery and habitat data should be available in data layers for analysis. Funding and staff time should be provided as requested for training.

*10)* ***Improvements to the Inland Fishery System:*** The automated analysis function needs to be further developed. Biologists should be able to efficiently generate routine technical reports for management and non-technical reports for the public which could be linked, along with other useful information, to access maps on the Fisheries Service's webpage. The quality control features in the system also need to be expanded and automated where possible. Inland and estuarine data sets need to be linked. The process used to translate and merge estuarine fishery-dependent data sets could be expanded to include inland data. Slow system response time in entering and retrieving data and poor GIS functionality also needs to be addressed.

*11)* ***MRIP Angler Registry:*** The Fisheries Service plans to utilize the federal angler registry system in 2009. Those Maryland tidewater anglers that do not have a license and are fishing for anadromous species in areas that do not require a license (free fishing areas, Atlantic and coastal bays, etc.) will be required to sign in with the federal registry. Once the final federal rule is announced, the licensing system should be modified to facilitate the angler registration. Compliance will require a license for all anglers. Anglers on charter boats are exempt from this requirement. Licensing all anglers will provide a more accurate account of fishing effort in Maryland and a more robust funding stream for the Fisheries Service.

**Barriers to Implementation:**

- At this time, inter and intra agency coordination pathways are not well developed. Coordination of data sets must not only be improved within the Fisheries Service, but with the coastal management agencies, agencies responsible for water quality monitoring and habitat, permitting agencies and municipality planning and zoning agencies. Coordination requires commitments of funds, personnel time and a willingness to share information;

- All Department Units compete for development time from the IT Unit. The Fisheries Service has had difficulties communicating the needs of its biologists to IT personnel. IT personnel may not be totally aware of the characteristics and uses of biological data. Creating several, dedicated, data positions within the Fisheries Service to be filled by personnel with technical data management skills will help to remove these barriers. Some aspects of developing and effective data management system may require contractual services from the private sector as well;

- Not enough resources have been devoted to creating data sharing opportunities. Agencies are not aware of what informational tools are available for use in decision making;

- The costs of instituting the recommendations of the Data Work Group are estimated at $300,000 to $500,000 annually;

- Legislation will be necessary to change the Maryland angler licensing system to meet the needs of the federal registry; and

- A historical problem is that some data holders may adopt proprietary attitudes about data and withhold data for their own analysis and preparation of reports and scientific papers.

**APPENDIX D**

**TASK FORCE ON FISHERY MANAGEMENT**

**FISHERY PLANNING WORK GROUP REPORT**

**Work Group Members:**

Task Force Members:

- Bill Windley, WG Spokesperson, Maryland Saltwater Sportfishermen's Association
- Scott McGuire, Coastal Conservation Association Maryland
- Larry Simns, Maryland Watermen's Association
- Frank Dawson, Maryland Department of Natural Resources
- Ed Houde, PhD (Peer Review Committee) University of Maryland Center for Environmental Science Chesapeake Biological Laboratory
- Jim Kirkley, PhD (Peer Review Committee), Virginia Institute of Marine Science

Advisors:

- Bob Hilderbrand, University of Maryland, Center for Environmental Science, Appalachian Lab

Assigned Support Staff:

- Nancy Butowski, Maryland Department of Natural Resources (Coordinator)
- Steve Early, Maryland Department of Natural Resources
- Karen Knotts, Maryland Department of Natural Resources
- Tom O'Connell, Maryland Department of Natural Resources
- Alan Heft, Maryland Department of Natural Resources
- Howard King, Retired Maryland Department of Natural Resources
- Holly Miller, Maryland Environmental Service

**The Fishery Planning WG Report Follows:**

## Introduction

Fishery Management Plans (FMPs) document biology, life history, and primary management concerns, and recommend appropriate actions to manage aquatic species in the tidal and non-tidal waters of the State. Each FMP must be a carefully designed document that describes the goals and benchmarks for the sustainable management of a healthy ecosystem resource, while providing appropriate stakeholder use.

## Objectives

The objectives of the Fishery Planning (FP) Task Force Work Group were to evaluate current planning authority and the process for developing FMPs; and, to identify and prioritize opportunities for public involvement, conservation and allocation procedures, multi-species and ecosystem-based approaches, and coordination among state, regional and coastal planning authorities.

The FP Work Group addressed two main questions: 1) Is the current process for developing FMPs effective in meeting the needs for protecting and conserving fishery resources, while allowing optimum use over time? 2) Do stakeholders have sufficient opportunity to participate in the process?

## Background

Existing Maryland law (Nat. Res. Art. Sec. 4-215) contains the current statutory mandate for the development of FMPs, and requires the Department of Natural Resources (Department) to prepare FMPs for 24 listed species. The law specifies several areas to be covered in each FMP, including: (1) the best available estimates of sustainable harvest rates, (2) indicators that would trigger tightening or loosening of harvest restrictions, and (3) a description of the fishery including a history of the fishery, its current condition, numbers of potential commercial and recreational fisherman and the type and quantity of fishing gear used commercially, the costs likely to be incurred in the management of the fishery and the actual and potential revenues from the recreational and commercial sectors. In addition, the FMPs may include other pertinent data or information that will assist the Department's Secretary in determining conservation and management measures reasonably necessary to ensure that the fishery resources will be sustained.

Since the process for developing and implementing FMPs includes all aspects of fishery management, the FP Work Group deemed it appropriate to support a set of procedures and principles that are required for successful fishery management planning, in addition to adherence to the minimum statutory requirements.

**Standards and Procedures for Fishery Management Plans**

1) Fishery Management means the system used to conserve and fairly and equitably allocate the fish resource, including research and data collection, determination of objectives and management measures, and establishment, enforcement, and periodic evaluation of regulations.-

2) A FMP is a document that contains a systematic description of a given fishery, the objectives for management and conservation, and recommended regulatory actions for the fishery. In a broad sense, fishery management includes the process and mechanisms to conserve and allocate a fishery resource, including research and data collection, determination of objectives and management measures.

3) A FMP represents the framework for conservation and management programs used by managers to protect, maintain, restore, and ensure optimum benefits from fish resources in the tidal and non-tidal waters of the state. An effective FMP must be carefully designed to ensure that adequate numbers of a particular species are available to fulfill their function within the ecosystem while remaining responsive to values that are important to stakeholder and interest groups involved in the fishery. To the extent possible, economic impacts and benefits must be taken into account. Management measures should focus first on conservation and protection of a species and its ecological functions and habitat to ensure the long-term biological health and productivity of fisheries resources. Allocations for harvest should be made after ecological needs are fulfilled. To be effective, FMPs should identify and recommend actions. Regulations created under FMPs should be enforceable and legally defensible.

4) The goal for FMP's of exploited species should state that the species will be managed for a healthy, sustainable and abundant stock; and to provide the greatest benefit to the citizens of Maryland. Conservation programs and management measures adopted pursuant to FMPs should be designed to prevent over-fishing and maintain, to the extent possible, abundant self-sustaining fisheries resources over time. In cases where stocks have become depleted as a result of overfishing or have declined in abundance from other causes, programs should be designed to rebuild, restore, and maintain such stocks to assure their sustained availability on a long-term basis. The biological goals and objectives of an FMP should clearly specify the management unit and include a plan-specific definition of overfishing. If a stock is experiencing overfishing or is at low abundance from other causes, a specific rebuilding program should be included.

5) If available data and science are not adequate to evaluate stock status at an acceptable level, then steps must be taken to ensure that the missing or additional data are collected in a timely manner. Funding constraints may make it necessary to prioritize data-gathering activities. When data are not sufficient to conduct a full stock assessment, precautionary management approaches should account for uncertainty in the data.

6) Management measures should be designed to minimize waste of fisheries resources. Use of inefficient or damaging gear types and bycatch (the harvest of a species other than the species that was intended) should be minimized in both recreational and commercial fisheries (Guidelines for Developing and Revising Chesapeake Bay Program FMPs, 1997).

7) An ecosystem-based approach to fishery management is becoming more prominent and will play an increasingly important role in the future. Conservation programs and management measures should be designed to protect existing habitat and associated types of habitat of species in FMPs, and provide for the creation of new habitat when conditions warrant. Ecological and economic costs should be considered. Interactions of the managed species with other species and the broader biological community should be identified where possible. Management decisions should recognize and, to the extent possible, protect important multi-species interactions and ensure the integrity of the ecosystem (Chesapeake Bay Program Ecosystem-based Management Directive, 2005).

8) The development and implementation of FMPs must provide for public participation and comment, including public meetings. The Department is required to conduct public hearings for the adoption of regulations and have the regulations printed in the Maryland Register, and in addition should publicize reasonable notice of actions to the affected communities of fishermen and the public.

9) The Secretary of the Department of Natural Resources should have the authority to implement immediate management measures to address a public health emergency or the endangerment of a species. Such measures shall remain in effect until the health concerns cease to exist. These provisions shall only apply in those circumstances under which public health, or the conservation of fisheries resources, or attainment of fishery management objectives have been placed substantially at risk by unanticipated changes in the ecosystem, the stock, or the fishery. Some of this authority exists currently, but the Work Group recommends evaluation of the existing authority and strengthening it as necessary.

10) The Fisheries Service must be committed to close cooperation with other states and regional management entities involved in the subject fishery, thus providing for coordinated and compatible fishery management. To this end, FMP Work Group and planners shall work closely with other states and appropriate management bodies.

11) FMPs should provide for periodic review and revision. For any substantive changes, a formal amendment process should be adopted that is understood by stakeholders. Opportunity for stakeholder involvement in amendment proceedings should be provided.

FMPs should provide for adaptive management, i.e., evaluate current management measures and levels of success, incorporate new information from research and monitoring, and adjust management actions to reflect the current status of a stock and efficacy of management.

12) FMPs should be developed to address uncertainty associated with natural population variation and mortality, and include a "safety margin" to accommodate uncertainty. The precautionary approach and risk adverse management actions should be hallmarks of every well-prepared management plan.

13) FMPs should include as many components as feasible from those listed in the fishery management plan outline (Attachment D-1).

**Issues of Concern**

**Issue 1):** ***A fishery management plan process should be formally recognized and adopted.***

The Work Group reviewed numerous documents, including: adopted FMPs; Guidelines for Developing and Revising Chesapeake Bay Program FMPs; Criteria for Major and Minor Amendments to FMPs; What Makes Chesapeake Bay Program FMPs Unique from other Coastal FMPs, and the FMP Work Group Process. This review led the Work Group to conclude that there was a need for a formal policy that describes the FMP development and amendment processes.

**Recommendation:**

The Department should adopt a procedure for the review and adoption of FMPs, which include the following principals:

A Review and Development Process for Fishery Management Plans:

A Plan Review Team (PRT), designated by the Director of the Fisheries Service, and the Department, should review and evaluate the performance of existing FMPs according to a defined schedule. The review process should be coordinated with the Chesapeake Bay Program FMP review schedule and the ASMFC review schedule. Upon completing its review, the PRT will submit a written report of its findings to the Director. The PRT should include one member from both the Sport Fisheries Advisory Commission (SFAC) and the Tidal Fisheries Advisory Commission (TFAC) to be appointed by the Chairperson of the respective Commissions. The PRT should also include members of the scientific community. When appropriate, it may be helpful for the PRT to seek specific input from other committees and commissions whose areas of responsibility might affect a managed species, its habitat, water quality, and other critical factors. The PRT report will address, at a minimum: adequacy and achievement of the FMP goals and objectives (including targets and schedules), status of the stocks, status of the fishery, status of state implementation and enforcement, status of the habitat, research activities, adequacy of existing research and data, and any other information relevant to the FMP.

Based upon the PRT review, the Director will determine whether the FMP is meeting its objectives or if significant changes in circumstances warrant an amendment or revision. Actions that should be considered include: updating data and added results from new research or a stock

assessment, recommending changes in regulations and/or enforcement, and recommending strategies to address new concerns. If only minor changes and adjustments are indicated, the Director may make minor adjustments with advice from the SFAC and TFAC.

When a new FMP or amendment is developed or a major revision is indicated, the Director will designate a species-specific Plan Development Team (PDT). For migratory species in tidal water, and species that need to be managed Bay-wide or coast wide, the PDT may be part of the Chesapeake Bay Program and include representatives from Maryland, Virginia, Pennsylvania, Potomac River Fisheries Commission (PRFC), the District of Columbia, Citizen's Advisory Committee, and non-governmental conservation groups. If a new management plan is for a Maryland-only species, the composition of the PDT is adjusted accordingly.

For inland gamefish species, it may be necessary for the PDTs to reflect for multi-state management. Major advantages of multi-state management groups include better biological information, improved exchange of information, greater understanding of the issues impacting species and improved potential for success in addressing large-scale issues, larger grant funding opportunities, broad involvement by geographically diverse stakeholder groups, and opportunities to increase understanding and commitment to address watershed/regional habitat and water quality issues.

The PDT will develop a Public Information Document (PID), previously known as the draft FMP, containing a review of current biological information, fishery issues, and potential management options. For migratory and Bay-wide species, a designated Chesapeake Bay Program FMP Work Group will evaluate all existing data, evaluate their adequacy, and advise the Director if new data and analysis are needed. After a final review before the Advisory commissions, the Director will review the PID and publish a schedule of meetings to be held Statewide. The PID will be available to the public, including fishermen, consumers, government agencies and officials, environmental groups, and other interested parties for review and comment at least 30 days prior to the first public meeting. Notification of meeting dates will be issued via press release by the Director. Written comments, within a specified timeframe, will be accepted after the last public meeting. Comments submitted at public meetings and during the open comment period will be made available to the public.

The PID will be developed into a Draft FMP or amendment by the PDT based on the most recent stock assessment, input from the scientific community, comments from the advisory groups and the general public, and other appropriate sources. The draft FMP will be reviewed in a joint meeting of the Advisory Commissions. If the draft FMP addresses a migratory or Bay-wide species then it will be vetted through the Chesapeake Bay Program's review process. If the draft FMP addresses an inland species, it will be vetted though the appropriate multi-state management Work Groups. The draft FMP or amended FMP shall be subjected to an open public comment period. The draft documentation will be made available to interested persons at least 30 days prior to the first public meeting. Records of public meetings and summaries of written comments will be prepared.

After considering the best available data, science, and background and incorporating comments from the scientific community, the general public, fishery advisory groups, and other appropriate Commissions, the Fisheries Service will complete the final FMP document. Should the final FMP differ substantially from the draft, the Director may resubmit the final document to the public meeting process. If there are no substantial changes, the plan can be approved by the Director. Once the Director approves the FMP, it will be sent through the regulatory adoption process.

When completed, a FMP should be concise, understandable, and readily available to all. It should be designed to 1) inform managers and the public of the need and justification for designated management measures, 2) provide for conservation of the fishery, and 3) allow effective public participation in the management planning process.

**Issue 2):** ***There is a need to prioritize resources devoted to plan development and review for each fishery species in regards to staff, time, and funding constraints.***

Currently, 19 FMPs have been adopted encompassing 25 species. Reviewing and evaluating progress towards achieving the management objectives for each FMP on an annual basis is logistically impossible to accomplish. The Department needs to evaluate the current schedule of FMP review and provide for flexibility in the schedule, while still assuring an effective procedure. Managed species that have been historically stable and healthy can be reviewed in longer time frames.

**Recommendation:**

**Develop a process for reviewing the status of species and implementing triggers for management measures:** The schedule for reviewing FMPs needs to be improved. Schedules must have reasonable probability of being instituted within the manpower constraints of the Fisheries Service without compromising effective management of stocks. In addition, triggers (e.g., low stock abundance, high fishing mortality, failed recruitments) should be identified that would require immediate review of a FMP. Stocks for which management objectives are being met and which are stable over time can be reviewed on a longer timeframe than more variable stocks or those judged to be over fished or threatened by environmental-habitat degradation.

**The FMP species should be prioritized:** The Fisheries Service should develop a broadly inclusive method for setting priorities for FMP efforts with input from staff, fishery consistencies and scientific community.

**Additional Personnel:** Relief from hiring constraints in the Fisheries Service should be sought to allow the state special funds generated by the recent increase in license fees to create and fund positions in the areas of data collecting, research and management planning. Federally funded positions should be exempt from hiring constraints.

**Issue 3):** ***There is no formal process for nominating a species for the development of a FMP.***

There is no formal protocol, or methodology to guide nomination or designations of unmanaged species for the development of a FMP. Currently, species for consideration can be brought to the attention of the Department through a number of different avenues.

**Recommendation:**

The Fisheries Service will develop a protocol, i.e., structured decision-making process for bringing unmanaged species under management and develop the process in coordination with the advisory boards. This should be done as part of the prioritization process described above.

**Issue 4):** ***Stakeholder involvement in the management process can be improved.***

**Recommendation:**

**Update and improve existing methodology for the development of FMPs:** By adopting a process such as that described above ("A Review and Development Process for Fishery Management Plans"), the FP Work Group believes that stakeholder involvement and stakeholder acceptance of FMPs will be much improved.

**Provide a flowchart of the management planning process and identify when/how stakeholders can provide input:** In reviewing the current FMP process (Attachment C-2), it was noted that there were many opportunities for stakeholders and the general public to provide comments. Despite designated, formal public comment periods, substantial public participation was often lacking. Traditional methods of informing the public such as press releases, Internet postings, and committee reviews have not resulted in significant and timely input. The FP Work Group recommends a more formal process that involves appointing stakeholder members to each PRT.

**Issue 5):** ***The Department should have the authority to prepare FMPs for additional species.***

Existing state law (Sec. 4-215) require the Department to prepare FMPs for 24 listed species, but does not provide express authority to prepare FMPs (and adopt implementing regulations) for other species for which the Department determines there is a need.

**Recommendation:**

Sec. 4-215 should be amended to provide that the Department may also prepare FMPs for any other species of fish which are determined by the Department to require a management plan based on stock status, distribution, habitat needs, limiting factors, requirements of interstate agreements, federal management agency requirements, or other biological, ecological, or socio-economic factors.

**Issue 6):** ***Need for a Process to Allocate Fishery Resources.***

Existing State law (Sec. 4-215) defines "fishery management" as including a "system to conserve and allocate the fishery resources…" It further states that when the Department finds it necessary to allocate or assign fishing privileges among various groups under a FMP, its allocation shall be "fair and equitable", "promote conservation", and assure that "no particular individual, corporation or other entity acquires an excessive share."

Allocations may not be needed for all species, but when it is determined that biological targets are required to protect a given species or that social, cultural, or economic values are advanced by having an allocation among participating sectors of a fishery, it may be appropriate to facilitate management of the species. This may be accomplished directly, by first deciding the approximate harvest shares to be allocated to each constituency, or indirectly, by imposing restrictions on harvest, time, area, gear, or season, which - taken as a whole - will allow each constituency to take its share of the target (a *de facto* allocation). The latter 'indirect' approach may result in a *de facto* allocation but it technically is not an allocation. It is a 'restriction' that usually is justified from a conservation standpoint.

In practice, allocations in Maryland have come about in a variety of ways (See Table D-1**)**. Many are initially based on historical practice. In one allocation example, coincident with the striped bass moratorium, the Maryland General Assembly directed by law (Nat. Res. Art. Sec. 4-2A-05.1) that upon reopening, both sport and commercial fisheries would be accommodated, but without specifying relative shares. When the striped bass fishery was reopened in 1990, the Department implemented by regulation an allocation plan developed by the Striped Bass White Paper Committee. In another example, Department discussions with constituents resulted in a 100% allocation of black drum to sport harvest in the Chesapeake Bay, by direct regulatory prohibition of commercial harvest. Regulatory restrictions of commercial gear and seasons implemented in 2007 resulted in a *de facto* transfer of harvest opportunity of yellow perch to sport anglers. Implied commercial allocations are contained in FMPs for eels and alosids.

Allocations for some species are determined by interstate management committees (See Table D-1). Court ordered allocation has not occurred in Maryland but has been mandated for some U.S. fisheries. Most often, allocation decisions in Maryland are not directly articulated but rather are implicit, *de facto* allocations resulting after harvest restrictions on a species are proposed, negotiated, and finalized.

In 1996, the Department convened a diverse group of constituents to consider adopting an explicit allocation process. That group recommended the development of an inclusive, open process in which the following values or guidelines would be considered in setting an allocation for the species in question:

- Management goals for the species;
- Social and cultural importance of maintaining fishery and dependent industries;
- Environmental impact;
- Economic value of independent fisheries;

- Economic viability of activities supported by the fishery;
- Management resources;
- Historical trends and values; and
- Potential for new fisheries to develop.

The resultant 1997 consensus proposal produced by that group, however, did not include a process for how or when (or by whom) these guidelines would be applied in making allocation decisions. This draft allocation proposal has not been adopted as a policy or procedure by the Department to date.

In the absence of an inclusive, structured process for addressing the inevitable allocation, decision, which must be developed (whether explicit or *de facto*) where competing uses exist, stakeholders are left with an uncertain process. Without a firm policy, allocation could proceed via the FMP development process, as a product of discussions in the Sport and Tidal Fish Advisory Commissions, legislatively as a result of lobbying carried out by one or another stakeholder group, or by Departmental initiative through a regulatory action.

There are obvious advantages to having a fair and open process guided by appropriate and predefined values to assure that all stakeholders are involved in allocation decisions. The guidelines would provide an orderly way to arrive at a decision and allow stakeholder participation in those decisions. If such a procedure is absent, allocation negotiations could follow various pathways, and may in fact be imposed by outside bodies such as the ASMFC.

**Recommendation:**

***Develop an Allocation Process*:** The Department should initiate an inclusive process to provide guidance for allocation decisions or adjustment of allocation decisions. The process should be used as needed for fisheries that do not currently have a fully negotiated, established allocation. Where an allocation is appropriate for conservation, economic, cultural or other reasons, the allocation should be established in accordance with values described above, and a process should be developed and included in the relevant FMP.

## Table D-1. Some allocation examples in Maryland waters

| Species/date | Split Allocation | Method | Agency | Justification |
|---|---|---|---|---|
| Striped Bass 1985/89 | 43% Commercial 57% Recreational &Charter | Plan-Regulation | DNR | Historic |
| Yellow Perch 2007 | +90% Recreational | Regulation | DNR | Social |
| Black Drum 1998 | 100% Recreational | Regulation | DNR | Social |
| Alosids 1990 | 100% Commercial | Plan | DNR | Historic - implied |
| Horseshoe Crabs 1994 | Red plover & Commercial | Plan-Regulation | ASMFC DNR | Ecosystem -medical |
| Bluefish 1990 | 20% Commercial 80% Recreational | Plan | ASMFC MAFMC | Historic |
| Spanish mackerel 1989 | 50% Commercial 50% Recreational | Plan | SAFMC | Stated recreational |
| Summer flounder 1991 | 60% Commercial 40% Recreational | Plan | ASMFC | Historic - potential |
| American eel 1991 | 100% Commercial | | DNR | Historic - implied |
| Weakfish 1990 | 50% Commercial 50% Recreational | Plan-Regulation | ASMFC | Historic |

## ATTACHMENT D-I

## FISHERY MANAGEMENT PLAN OUTLINE

**Priority Category**
**Ability to Manage**
**Life History**
- Geographic Distribution
- Migration & Seasonal Distribution
- Natural Mortality
- Longevity

**Fishery Characteristics**
- History of Management
- Regulatory History and Status
- Stocking/Hatchery Efforts
- Commercial Fishery
  - Number of Fishermen (historic & current)
  - Major Gear Types
  - Major Fishing Areas
  - Harvest Statistics
  - Harvest Quotas
  - Dockside Value
  - Socioeconomic Considerations (Actual and Potential Revenues)
  - By-Catch

**Recreational Fishery**
- Number of Fishermen (Historic & Current)
- Fishing Gear
- Harvest Statistics
- Economic Value (Actual and Potential)
- Creel/Size Limits
- By-Catch

**Reproductive Strategy**
- Age at Maturity
- Fecundity
- Spawning Characteristics
- Spawning Areas
- Recruitment
- Appropriate Levels of Spawning Stock Biomass

**Habitat Characteristics by life stage**
- Temperature
- Salinity
- Physical Parameters (light, currents, substrate, shelter)

- By Stage
  - Eggs
  - Larvae
  - Juveniles
  - Adults

**Food Habits**

- Food Preferences
- Feeding Habits
- Growth; Size at Age
- Nutrition Requirements
  - Bioenergetics

**Threats to Habitat**

- Water Quality
  - Excess Nutrients
  - Toxics
  - Sedimentation
  - Negative Influence From Other Species
- Anthropogenic Impacts
  - Urbanization
  - Impervious Surface
  - Acidification
  - Agriculture
  - Barriers
  - Exotic Species
  - Global Warming
  - Loss of Biodiversity

**Predator/Prey Interactions**

**Genetic Considerations**

- Loss of Genetic Diversity
- Effective Population Sizes
- Genetic Strains

**Diseases**

**Stock Status**

- Data Adequacy Assessment
- Monitoring Surveys and Results
- Most Recent Stock Assessment
- Age Structure
- Ratio of Males: Females
- Fishing Mortality
- Define Biological Reference Points (Targets & Thresholds)

**Chesapeake Bay Program Habitat Initiatives**

**Aquaculture Considerations**

**Identification of all Relevant Jurisdictions and User Groups**

**Precautionary Management**

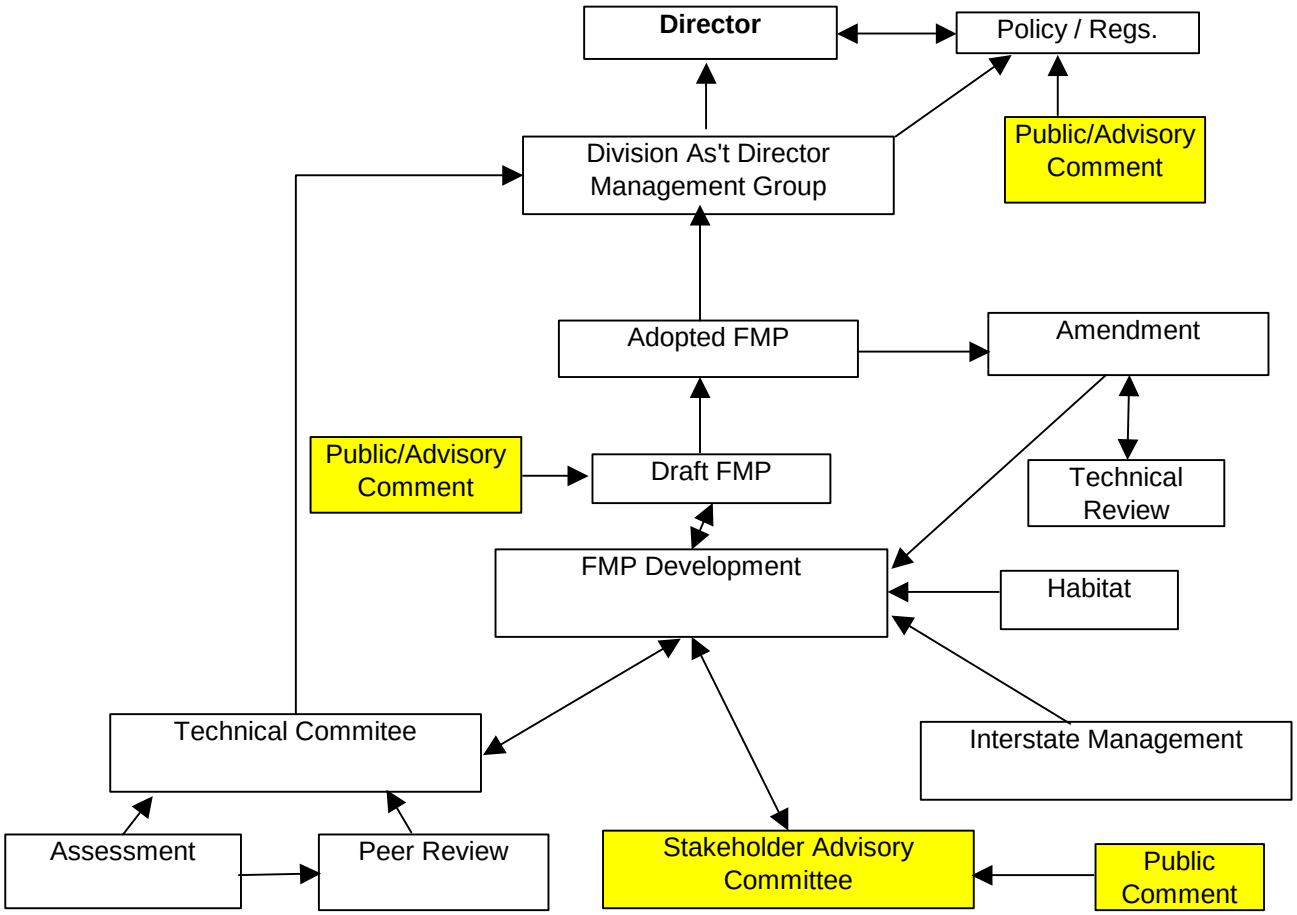
**FMP Status and Management Unit**

**Regional and Coastal Management Coordination**
**Management Section**
- Management Plan Background
- Vision
- Goal
- Objectives
- Management Issues (Define Problems)
  - Topics Include but not Limited to:
  - Stock Status –Biological Reference Points (Targets & Thresholds; Decision Rules)
  - Control Fishing Mortality
  - Stock Monitoring
  - Restoration and Enhancement
  - User Conflicts – Allocation
  - Enforcement
  - Outreach
- Strategies
- Actions
- Implementation
- Tracking Progress
- Adaptive Management Procedures
  - Review
  - Recommend Changes
  - Implement Changes

**Research and Data Needs**
**Implementation Table**
**Appendices**
**References**

## ATTACHMENT D-II

## FISHERY MANAGEMENT FLOW CHART



## ATTACHMENT D-III

## CHESAPEAKE BAY PROGRAM FISHERY MANAGEMENT PLANS

## SUPPORT MATERIALS

(See attached)

Approved by the Implementation Committee on December 18, 1997


## What makes Chesapeake Bay Program Fishery Management Plans (FMP's) unique from other coastal FMP's?

## Bay Program FMP's:

1. Identify specific Chesapeake Bay habitat which is critical for all life stages and individual stocks of a species.

2. Prescribe specific protection and restoration objectives for important Bay habitats and allow for the integrated involvement of non-fishery management agencies for the management of fish habitat.

3. Provide leadership in the area of habitat protection for other fishery management agencies, including the Atlantic State's Marine Fisheries Commission (ASMFC) and the Mid-Atlantic Fishery Management Council (MAFMC), who are starting to look closer at this issue.

4. Provide a forum for developing Bay management plans for resident and migratory species which merge the needs of individual states into cooperative workable actions.

5. Examine the status of Bay-wide stocks.

6. Apply ASMFC and MAFMC guidelines at a finer detail including refined target setting for a species.

7. Provide support for Maryland's regulatory process.

8. May be more restrictive and conservative than coastal plans for Bay-specific fisheries if necessary.

9. Can advocate a more conservative approach as a Bay unit for coastal migratory species (i.e., all program partners uniting together on an issue).

10. Are signed by the Chesapeake Bay Executive Council members which include the Governors of Maryland, Virginia, and Pennsylvania, the Mayor of the District of Columbia, the Administrator of the Environmental Protection Agency, and the Chairman of the Chesapeake Bay Commission, all of whom can draw upon their full breadth of authority to carry out the components of the FMP.

Chesapeake Bay Program

CHESAPEAKE EXECUTIVE COUNCIL

# ADOPTION STATEMENT

## GUIDELINES FOR DEVELOPING AND REVISING FISHERY MANAGEMENT PLANS

The ultimate, long-term goal of the Chesapeake Bay Program is the protection, restoration and maintenance of the health of the living resources of the Bay. In the 1987 Chesapeake Bay Agreement, the Chesapeake Executive Council agreed to "provide for the restoration and protection of living resources, their habitat, and ecological relationships." Many ecologically and commercially valuable species once inhabited the Bay in great numbers and, although it may not be practical in all cases to reach these historic levels of abundance, the success of the program must ultimately be measured by the health and abundance of the Bay's living resources.

The Bay Program has developed a number of species specific fisheries management plans (FMPs) over the past 10 years. The plans evaluate the biological, economic and social aspects of a particular resource, define problems and/or potential problems, and recommend strategies to address the problems. It is the policy of the Chesapeake Bay Program to advocate the protection of Bay habitat, maintenance of ecological relationships and elimination of overharvest of all finfish and shellfish which spend any or all of their life cycle in the Bay in order to assure the long-term sustainability of both the commercial and recreational fisheries for future generations.

THE PURPOSE OF THIS ADOPTION STATEMENT is to set forth the following additional guidelines for the Chesapeake Bay Program to follow when developing any new or revised Chesapeake Bay Program FMPs. These guidelines reinforce the Chesapeake Bay Program's commitment to ending species overharvest and protecting essential habitat, both in the Bay proper and in the Atlantic Ocean, where many of the Bay species spend at least a portion of their life cycle.

**Chesapeake Bay Program FMP's should:**

1. Be risk averse (i.e., preventative of a crisis instead of reactive to one).
2. Utilize the best scientific information.
3. Establish sustainable targets for a species and:
   a. define and adopt a level of harvest that will quickly attain the established target and maintain that target.
   b. define, protect and restore the habitat needed to support that target.
4. Assure renewability of the stock (i.e., long term health and maintaining spawning stock biomass).
5. Identify, protect and restore critical fish and shellfish habitat for all life stages of the species and individual stocks of the species.
6. Identify, coordinate and advocate necessary management actions needed between the jurisdictions, including regulations and legislative actions.
7. Strive to manage a fishery and/or species by maintaining essential food web relationships, through multispecies management.
8. Consider the long term socio-economic health of a fishery.
9. Take a more conservative approach than Atlantic States Marine Fisheries Commission (ASMFC) and Mid-Atlantic Fishery Management Council (MAFMC) when all signatories of the Chesapeake Bay Program agree such action is necessary.
10. Minimize bycatch (that portion of a catch taken in addition to the targeted species because of non-selectivity of gear to either species or size differences).
11. Provide the background and justification for joint positions of Chesapeake Bay Program partners on Chesapeake Bay issues under consideration by the ASMFC and MAFMC.

BY THIS ADOPTION STATEMENT, WE AGREE that these guidelines will be used in the development and review of all new or revised Chesapeake Bay Program FMP's. We further agree to monitor the application of these guidelines so that obstacles to their implementation, when identified, are addressed.

Date December 8, 1998

CHESAPEAKE EXECUTIVE COUNCIL

FOR THE STATE OF MARYLAND

FOR COMMONWEALTH OF PENNSYLVANIA

FOR THE COMMONWEALTH OF VIRGINIA

FOR THE DISTRICT OF COLUMBIA

FOR THE CHESAPEAKE BAY COMMISSION

FOR THE UNITED STATES OF AMERICA

**Chesapeake Bay Program**

*A Watershed Partnership*

## Criteria for Major and Minor Amendments to the Fishery Management Plans

January 1999

Because fishery management is a dynamic process, there is a need to incorporate new information into the fishery management plans (FMPs) and adjust management actions to reflect the current status of a particular fish stock. Some changes to the plans can be made by developing amendments. The process of adopting amendments into the FMPs , "Revision Process for Minor Amendments to Chesapeake Bay Fishery Management Plans," was signed by the Chesapeake Bay Program's Executive Council (EC) in June, 1997. As a result of the signed adoption statement, minor changes (i.e., amendments) can be approved by the Principals' Staff Committee. The EC also directed the FMP Workgroup to develop criteria outlining what constitutes a major or minor amendment. The following narrative is the criteria developed and endorsed by the FMP Workgroup.

1. An amendment would be considered **MAJOR** if it affects any change in policy. This includes, but is not limited to:
   a. A change in the status of exploitation of a species (eg. moderately exploited; fully exploited; or over exploited)
   b. A modification to the goal or objectives of the original plan
   c. The establishment of new target levels for a species
   d. The addition of totally new management measure not originally discussed in the plan.

2. An amendment would be considered **MINOR** if it:
   a. Affects the guidance for implementing a policy(ies) included in an approved FMP. This includes, but is not limited to modifications to:
      1) size limits
      2) seasonal restrictions
      3) methods of capture
      4) habitat requirements
   b. *Updates the statistics on a species (e.g., stock status, fishing mortality rate)
   c. *Is editorial in nature

* These two items alone would not require the development of a minor amendment.

Chesapeake Bay Program

CHESAPEAKE EXECUTIVE COUNCIL

# ADOPTION STATEMENT

## REVISION PROCESS FOR MINOR AMENDMENTS TO CHESAPEAKE BAY FISHERY MANAGEMENT PLANS

The development of fishery management plans for selected finfish and shellfish species began in 1987 with the *Chesapeake Bay Agreement*. At that time, a schedule was developed for preparing fishery management plans. Fourteen plans, encompassing twenty species, have been completed and adopted by the Chesapeake Executive Council.

Because fishery management is a dynamic, on-going process, there is a need to incorporate new information as it becomes available. With new data there may be a need to change strategies and recommended actions. These changes may or may not be extensive.

For minor changes, we agree that an expedited method for handling such changes in fishery management plans is warranted. Accordingly, as recommended by the Fishery Management Plan Reassessment Task Force and the Fishery Management Plan Workgroup of the Living Resources Subcommittee, we delegate to the Principals' Staff Committee the authority to approve minor amendments to Chesapeake Bay Fishery Management Plans. By December 31, 1997, the Fishery Management Plan Workgroup of the Living Resources Subcommittee shall develop criteria outlining what constitutes a minor amendment to a Chesapeake Bay Fishery Management Plan. These criteria are subject to the review and approval of the Living Resources Subcommittee, Implementation Committee and the Principals' Staff Committee.

New fishery management plans and major revisions will go through the standard adoption procedure.

Date June 4, 1997

CHESAPEAKE EXECUTIVE COUNCIL

FOR THE UNITED STATES OF AMERICA

FOR THE STATE OF MARYLAND

FOR THE COMMONWEALTH OF PENNSYLVANIA

FOR THE COMMONWEALTH OF VIRGINIA

FOR THE DISTRICT OF COLUMBIA

FOR THE CHESAPEAKE BAY COMMISSION

Chesapeake Bay Program
*A Watershed Partnership*

CHESAPEAKE EXECUTIVE COUNCIL

# ADOPTION STATEMENT

## Fisheries Ecosystem Management

In recognition of the complex interactions among aquatic species, water quality, and habitats in the Chesapeake Bay ecosystem, and the importance of fish from both an economic and ecological perspective, the Chesapeake Bay Program has set a path toward implementing ecosystem-based management. Concurrently, there has been a nationwide endeavor to incorporate ecosystem principles into fisheries management. The National Oceanic and Atmospheric Administration's Chesapeake Bay Office has successfully led a collaborative effort to develop a document, entitled *Fisheries Ecosystem Planning for Chesapeake Bay (FEP),* which provides valuable guidance for ecosystem-based fisheries management in the Bay and coastal region. The FEP is an umbrella document that contains information on the structure and function of the ecosystem in which fishing activities occur. It is designed to increase awareness of how management decisions can affect the ecosystem, and to facilitate the incorporation of ecosystem principles into Chesapeake Bay fisheries management. The FEP defines a fisheries ecosystem as "the complex interactive community of organisms (including humans) and their shared environment (including habitats and ecological processes) that contributes to, influences, or determines the fishing industry." Although not a tactical plan, the FEP provides strategic advice on critical features and processes of the Chesapeake Bay ecosystems vital to effective management of its fishery resources. In setting forth these concepts, the FEP provides a framework for expanding single-species management and makes recommendations on incremental steps toward ecosystem-based fisheries management. Inter-jurisdictional collaboration through the Atlantic States Marine Fisheries Commission is essential to implementation of the FEP recommendations. Effective ecosystem-based fisheries management requires responsible actions that complement jurisdictional tributary strategies, to ensure sustainable human benefits without risking adverse changes in the Chesapeake Bay ecosystem.

The following ecosystem-based principles, goals, and policies, as included within the FEP, should be incorporated into Chesapeake Bay Program fishery management plans and practices:

- Manage fisheries so they minimize or eliminate adverse impacts on the ecosystem;
- Maintain the ecological relationships among harvested species and both the species upon which they depend and those that depend upon them;
- Develop compatible management actions across estuarine regions and jurisdictions to achieve shared objectives;
- Apply the precautionary approach when ecosystem knowledge is incomplete or uncertain. Precautionary management requires prudent foresight, adoption of measures that avoid undesirable or unacceptable outcomes, and incorporation of uncertainty into assessments and management; and
- Ensure that human needs and concerns are considered within the context of ecosystem dynamics.

## Fishery Management Plans (FMP) Workgroup Process

I. FMP Workgroup
- 1) Receives species request
- 2) Status of species examined & justification (or not) developed
- 3) Work plan developed
  - a) Tentative time frame
  - b) Appropriate experts/stakeholders identified
  - c) Staff selected
  - d) Issues defined

II. FMP Staff
- 1) Conduct literature search
- 2) Compile fishery statistics
- 3) Drafts Biological Background Section including current stock status
- 4) Selected "experts" review draft and provide comments
- 5) Develop first draft of management problems

III. FMP Workgroup reviews first draft and provides comments and recommendations on management issues

IV. FMP Staff drafts management section

V. FMP Staff sends draft FMP for review & comments
- 1) FMP Workgroup review
- 2) Stakeholder review (MD & VA advisory groups)
- 3) Additional comments/rewrite or next step
- 4) Presented to Chesapeake Bay Program, Living Resource Subcommittee (LRSC) for comments and review

VI. LRSC supports draft recommendations
- 1) Open public comment period
- 2) Public Informational meetings

VII. FMP staff incorporates comments
- 1) Track public comments and FMP response
- 2) Make changes
- 3) New draft FMP completed

VIII. New draft reviewed
- 1) Additional comments incorporated/reviewed
- 2) FMP sent through adoption process

## APPENDIX E

## TASK FORCE ON FISHERY MANAGEMENT

## ALTERNATIVE MANAGEMENT WORK GROUP REPORT

**Work Group Members:**

Task Force Members:

- Sherman Baynard, WG Spokesperson, Coastal Conservation Association Maryland
- Larry Simns, Maryland Watermen's Association
- Rich Novotny, Maryland Saltwater Sportfishermen's Association
- Mike Benjamin, Chesapeake Guides Association
- Ed O'Brien, Maryland Charter Boat Association
- Brian Keehn, Maryland Charter Boat Association
- Jim Kirkley, PhD (Peer Review), Virginia Institute of Marine Science

Advisors:

- Doug Lipton, PhD, University of Maryland, College Park
- Stephanie Reynolds, Chesapeake Bay Foundation
- Bob Evans, Maryland Watermen's Association
- Chuckie Clark, Maryland Watermen's Association

Assigned Support Staff:

- Howard King, Retired Maryland Department of Natural Resources (Coordinator)
- Carrie Kennedy, Maryland Department of Natural Resources
- Sgt. Randy Bowman, Natural Resources Police, Maryland Department of Natural Resources
- Lt. Joe Offer, Natural Resources Police, Maryland Department of Natural Resources
- Anna Compton, Maryland Environmental Service

**(See text in Legislative Report)**

# APPENDIX F

# TASK FORCE ON FISHERY MANAGEMENT

# LEGAL WORK GROUP REPORT

**Work Group Members:**

Task Force Members:

- Fred Tutman, WG Spokesperson, Patuxent Riverkeeper
- Tom Lewis, Esq. Gallagher, Evelius, & Jones, LLP
- Sherman Baynard, Coastal Conservation Association
- Jim Gracie, Mid Atlantic Council, Trout Unlimited

Advisors:

- Bruce Eberle, Mid Atlantic Council, Trout Unlimited

Assigned Support Staff:

- Sarah Widman, Maryland Department of Natural Resources (Coordinator)
- Limor Weizmann, Esq, University of Maryland, School of Law
- Megan Mueller, Esq, University of Maryland, School of Law
- Lisetta Silvestri, Esq, University of Maryland, School of Law
- Paul Peditto, Maryland Department of Natural Resources
- Shara Alpert, Esq, Maryland Department of Natural Resources
- Megan Simon, Maryland Environmental Service

**The Legal WG Report Follows:**

## Introduction

The formation of the Task Force on Fishery Management created an opportunity for a general review of the laws and regulations that govern Maryland's fisheries. This general review by the Legal Review Work Group identified a number of areas in which Maryland's fisheries laws and regulations could be clarified, modernized and streamlined. Although the Work Group acknowledged that there were numerous legal issues that could be addressed, the Work Group decided to focus on a smaller number of major problem areas.

## Objectives

The Work Group objective was to complete a review of the conflicts, discrepancies, and ambiguity in laws that guide the Maryland Fisheries Service and must be enforced by the Department. The Work Group was asked to make recommendations to clarify and streamline these statutes. The Work Group was also asked to provide legal resources for the other Task Force Work Groups, and work to reconcile conflicts between the recommendations made by the Work Groups and existing regulations.

## Background

The Fisheries Service reviews regulations every eight years as required by the regulatory review process through the Division of State Documents. Fisheries Service staff work throughout each year to review regulations and then submit proposed bill ideas to the Governor's office each year.

## Issues of Concern

**Issue 1):** ***Problematic Fisheries Laws.***

As administrative law has developed, the complex relationship between regulations and law has provided management difficulties for the Department of Natural Resources (Department). Currently, there are many individual statutes and subtitles, which are considered problematic by Fisheries Service staff. Some of these problematic statutes can be grouped together into two general categories: (1) antiquated laws, and (2) laws in need of better public process explanations.

**Recommendation:**

The Work Group has created a list of laws that fall into these two categories, that it recommends correcting. To address antiquated laws the Department has adopted conservation and management measures based upon fishery management plans which have been adopted by regulation, and those measures are given precedence "notwithstanding" the existence of inconsistent, antiquated laws on the books. The authority for this is found in Maryland Annotated Code, Nat. Res. Art. Sec. 4-215(h). "Notwithstanding" means (in its most simple explanation) 'ignore any inconsistent state law'. The Work Group recommends removing or correcting the laws that have been "notwithstood" in regulations adopted pursuant to FMPs (See

Appendix III). Additionally, the Work Group recommends removing language in several other laws that are no longer applicable or have obsolete references. To address laws in need of better public process explanations, the Work Group recommends that several laws that lay out public processes be clarified (See Appendix IV Section B. The Work Group recommends that a bill or bills be submitted by the Department to initiate actions to make these corrections.

**Issue 2):** ***Fisheries Advisory Groups.***

There are 12 existing advisory groups to the Fisheries Service. Only five of these groups are currently active, permanent and meeting on a regular basis with the Department. These five active advisory Work Groups are the Oyster Advisory Commission (OAC), Sport Fisheries Advisory Commission (SFAC), Tidal Fisheries Advisory Commission (TFAC), Coastal Bays Advisory Commission, and the Aquaculture Coordinating Council. In an effort to look at streamlining this current advisory system, the Legal Work Group reviewed other advisory approaches from other states and ideas from Department staff. The Legal Work Group presented alternative advisory commission ideas to the full Task Force, which then discussed whether a consolidation of two or more of the commissions would be helpful to avoid duplication of effort in areas of common interest and to reduce staff burdens upon the Fisheries Service. Some members of the Task Force who serve on the commissions did not support the idea of consolidating or reorganizing those commissions, and stated that those commissions meet jointly to consider topics of joint interest, and form joint subcommittees where issues of particular concern need in-depth work not suited to a general session.

**Recommendation:**

At this time, the Work Group does not recommend a consolidation or reorganization of the four advisory commissions dealing with coastal and tidal fishery issues (SFAC, TFAC, OAC, and Coastal Fisheries Advisory Commission). Instead, the Work Group encourages the Department to build upon the successful collaboration among those commissions in the past, and to continue the practice of holding joint meetings of those commissions in order to address topics and issues of common interest. Separate meetings of the respective commissions will still be useful to address those issues, which do not have crossover interest, such as inland fishery topics, which might be addressed solely within the SFAC.

The Task Force recommends the following:

- Discontinue the two defunct groups: the Soft Clam Advisory Committee and St. Mary's and Calvert County Tonger Advisory Group.
- Continue and retain the five active advisory commissions (SFAC, TFAC, OAC, Coastal Fisherman Advisory Commission, and the Aquaculture Coordinating Council).
- There may be an opportunity for better coordination between the five active commissions which meet regularly with two active groups which meet only on an as needed basis (the Maryland Artificial Reef Initiative (MARI) and local committees of oystermen). For instance, these two groups may be able to work through the Department staff or through a group representative who would be present at the TFAC or SFAC meeting.

For the remaining three groups: the Working Waterfront Commission and Task Force on Fishery Management have sunset provisions in the law which created them, and will be discontinued when their work is complete; and the Oyster Advisory Panel (OAP) meets on an as needed basis for a specific project and is comprised of scientific experts, not stakeholders. The Work Group will not be providing recommendations concerning these groups.

**Issue 3):** ***Pre-Regulatory Process.***

The Fisheries Service has followed a pre-regulatory process as prescribed by a stakeholder Work Group in 2006 (*Report to the Maryland Senate Budget and Taxation Committee and the House Committee on Appropriations*, Nov. 28, 2006, and Fishery Management Strategy meeting held July 20, 2006). The current process includes two bi-annual public scoping meetings on regulatory ideas and placement of regulatory ideas or drafts on a webpage for public feedback prior to regulatory submission to the legislature. This process has increased the Department's transparency and increases public interaction in the regulation-making process. However, as the Department has now gone through this pre-regulation process for two years, some problems with the process have emerged. The bi-annual public scoping meetings are not held at the most opportune time of year and posting revised regulatory draft versions on the Internet has caused some confusion.

**Recommendation:**

The Work Group recommends that a third public scoping meeting be added each year and that a specific day of the month be set for each meeting. The Work Group recommends that these three scoping meetings be held in conjunction with a joint meeting of the TFAC and SFAC, and that any specific regulatory issues be addressed to smaller advisory Work Groups as necessary. The Work Group also recommends that "last modified" dates be added to the Internet draft regulation webpage summaries and any linked documents. Additionally, the Work Group proposes that the Department add links to copies of the regulation text submitted to the legislature on the proposed regulation webpage when the regulations are submitted. The Department has started to implement these measures through policy changes in 2008.

**Issue 4):** ***Recreational Licenses Suspensions.***

Currently, the Department has authority to suspend recreational licenses under specific guidelines stated in law. These guidelines differ for non-tidal and tidal recreational licenses. Because these laws are not uniform, the Department would have to abide by two separate processes for suspending licenses depending on whether the license holder was fishing in non-tidal or tidal waters. Without broader authority, the Department is unable to streamline and clarify a process for suspending recreational fishing licenses. As a result, the Department has very rarely suspended recreational licenses, a task that the legislature intended the Department to fulfill. It is vital that the Department has broad authority to suspend recreational licenses so that it can create clear standards for suspension. A clearer process will promote compliance with fishing regulations, give the Department greater enforcement tools, and send a clear message to the public about the process of fishing entitlement suspension. The language for the suspension of a person's fishing entitlement mirrors a similar provision in Wildlife law, Sec. 10-911.

**Recommendation:**

The Work Group recommends that the Department submit a bill, which removes ineffective language in Maryland Annotated Code, Nat. Res. Art. Sec. 4-626 and 4-602(b) that allows the Department to suspend a nontidal recreational fishing license if the individual has two convictions within 12 months. The Work Group also recommends that the Department remove Sec. 4-745(e) that provides suspension provisions for tidal recreational fishing licenses. The Work Group recommends that parts of Sec. 4-745(e) be incorporated into a new recreational fishing license law, which would give the Department identical authority to revoke any person's recreational fishing entitlement for violating fishing law in tidal or nontidal waters. The new law would also give the Department authority to list the criteria for recreational fishing entitlement suspension in regulation.

**Issue 5):** ***Restitution/Fines.***

Currently, neither a judge nor the Department has the ability to impose restitution for Natural Resources fishery violations. Additionally, the current restitution values under COMAR 08.02.09.01 for fish killed as a result of spills or discharges of pollutants into the waters of the State have not been updated since June 25, 1975. These values were originally created for restitution on environmental violations and do not apply to violations of fishery laws. The present values are low and do not reflect the actual ecosystem loss. The Environmental Article section used as an authority to create the current list does not provide clear authority for the Department to update this list.

**Recommendation:**

The Work Group recommends that fishery penalty statutes be corrected to: (1) amend the current maximum first and second offense fines stated in Sec. 4-1201; (2) add a subsection which will allow the Department through an administrative hearing to impose restitution or other monetary penalties beyond the specified amount of the fine; and (3) add regulatory authority for the Department to create a list of aquatic animal monetary values.

**Final Recommendations:**

The Legal Work Group recommends changes to both statutory law and Departmental policy. Amending or removal of existing statutes can correct the issues of restitution, recreational suspension, and antiquated and unclear public process law. The Department is currently working on making these legislative changes. The Legal Work Group also recommends Departmental policy changes for the advisory system and pre-regulatory process. The Department has initiated action to change the pre-regulatory process based on these recommendations and will implement the full recommendation on this topic by 2009. The Department will continue to work with the five main advisory groups and will look to remove defunct advisory groups in the 2010 legislative session.

## ATTACHMENTS

# ATTACHMENT F-I

## CONSOLIDATION OF ADVISORY GROUPS

The Task Force discussed whether a consolidation of the SFAC and the TFAC and even the OAC and the Coastal Fisheries Advisory Commission would be helpful, to avoid duplication of effort in areas of common interest and to reduce staff burdens upon the Fisheries Service. Members of the Task Force who serve on those commissions did not support the idea of consolidating or reorganizing those commissions, and stated that those commissions meet jointly to consider topics of joint interest and form joint subcommittees where issues of particular concern need in-depth work not suited to a general session. At this time, the Task Force does not recommend a consolidation or reorganization of the four advisory commissions dealing with coastal and tidal fishery issues (SFAC, TFAC, OAC, and Coastal Fisheries Advisory Commission). Instead, the Task Force encourages the Department to build upon the successful collaboration among those commissions in the past, and to continue the practice of holding joint meetings of those commissions in order to address topics and issues of common interest. Separate meetings of the respective commissions will still be useful to address those issues, which do not have crossover interest, such as inland fishery topics, which might be addressed solely within the SFAC.

The Task Force determined to continue and retain the five active advisory commissions. Two remaining defunct groups, soft clam advisory committee and St. Mary's and Calvert County Tonger Advisory Groups, were recommended for discontinuation. Two groups have sunset provisions in the law, which created them, Working Waterfront Commission, Task Force on Fishery Management. One group, OAP meets on an as needed basis, but is comprised of scientific experts, not stakeholders. Two groups meet on an "as needed" basis, the MARI and local committees of oystermen. These last two groups may be able to be better coordinated with the five other active commissions.

*Advisory Group List, Presented to Legal Work Group April 2008:*

| | | Maryland Fisheries Service Advisory Groups 2008 | |
|---|---|---|---|
| | **Law** | **Title and Task** | **Status** |
| | | | |
| **1** | Sec. 4-204. | **Tidal Fisheries Advisory Commission.** | ACTIVE - Permanent |
| | | The Commission is composed of up to 12 members appointed and serving in accordance with the procedures<br>adopted under Sec. 1-102(c) of this article.<br><br>[There is no duty laid out for this commission] | |
| **2** | Sec. 4-204. | **Sport Fisheries Advisory Commission established; duties; composition; terms.** | ACTIVE - Permanent |
| | | (2) The Commission shall provide the Department advice on recreational fishery matters. | |
| **3** | Sec. 4-204. | **Oyster Advisory Commission (OAC).** | ACTIVE - Permanent |
| | | (3) The Commission shall:<br>(i) Provide the Department with advice on matters related to oysters in the Chesapeake Bay;<br>(ii) Review the best possible science and recommend changes to the framework and strategies for rebuilding and managing the oyster population in the Chesapeake Bay under the Chesapeake Bay Oyster Management Plan;<br>(iii) Review the latest findings relevant to the Environmental Impact Statement evaluating oyster restoration alternatives for the Chesapeake Bay;<br>(iv) Review any other scientific, economic, or cultural information relevant to oysters in the Chesapeake Bay; and<br>(v) By December 31, 2007 and to the extent reasonably appropriate, report to the Governor and, in accordance with Sec. 2-1246 of the State Government Article, the General Assembly on:<br>1. Strategies to minimize the impact of oyster disease, including the State repletion program and bar cleaning;<br>2. The framework and effectiveness of the oyster sanctuary, harvest reserve, and repletion programs, and the overall management of natural oyster bars, after performing a cost-benefit analysis that considers biological, ecological, economic, and cultural issues;<br>3. Strategies to maximize the ecological benefits of natural oyster bars; and<br>4. Strategies to improve enforcement of closed oyster areas. | |

| | | | |
|---|---|---|---|
| **4** | Sec. 4-215.4. | **Task Force on Fishery Management. [Section subject to abrogation].** | ACTIVE - Sunsets on June 30, 2010 |
| | | (g) Duties; report. -- The Task Force shall:<br>(1) Oversee a full review of current fishery management processes and develop recommendations for methods to improve, modernize, and streamline fishery management, including:<br>(i) Developing a set of recommendations for the 2009 legislative session of the General Assembly that incorporates the improvements suggested for fishery management; and<br>(ii) Working with the Department to develop regulations and policy, and any follow-up legislation for the 2010 legislative session of the General Assembly that is necessary to implement the recommendations; and<br>(2) On or before December 1, 2008, submit a report of its findings and recommendations to the Governor and, in accordance with Sec. 2-1246 of the State Government Article, the General Assembly. | |
| **5** | Sec. 4-1032. | **County advisory committees (Soft Shell Clams)** | NO LONGER ACTIVE |
| | | • Advisory committees shall be formed in each county where soft-shell clams may be caught by hydraulic clam dredge.<br>• The Department shall confer with the elected committees on any matter affecting the management of the soft-shell clam fishery. | |
| **6** | Sec. 4-1106. | **Committee of oystermen** | ACTIVE - meets "as needed" |
| | | (1) The Department shall have licensed oystermen in each tidewater county of this State select a county committee of five representative licensed tongers, who earn their livelihood by catching oysters, to confer with the Department concerning oyster propagation conducted by the Department in that county. Each county committee shall elect a chairman to serve on a statewide committee of oystermen to advise the Department on statewide issues concerning oyster propagation.<br>(2) A similar advisory committee that includes licensed dredgers shall be selected to confer with the Department concerning the propagation of oysters in the dredging areas. The committee shall elect a chairman to serve on a statewide committee of oystermen to advise the Department on statewide issues concerning oyster propagation.<br>(d) Department may close natural oyster bars. -- The Department may close without holding a public hearing any natural oyster bar in the waters of the State with the approval of the appropriate committee of oystermen. | |

| | | | |
|---|---|---|---|
| **7** | Sec. 4-1008. | **Oyster Advisory Panel (OAP)** | ACTIVE- meets "as needed" |
| | | (iv) An independent OAP of scientific experts appointed by the Secretary has:<br>1. Reviewed and approved the sufficiency of the data and assessments used to identify the ecological and economic risks and benefits of introducing a nonnative oyster into State waters and the degree of risk associated with implementing each oyster restoration alternative identified in the draft environmental impact statement prepared in accordance with item (iii) of this paragraph; and<br>2. Identified any additional research that the panel recommends to reduce the level of risk and uncertainty. | |
| **8** | Sec. 4-1008.1 | **Calvert County or the St. Mary's County Tongers' committee,** | NO LONGER ACTIVE |
| | | (e) Handscraping in Calvert and St. Mary's counties. --<br>(1) On the recommendation of the Calvert County or the St. Mary's County Tongers' committee, the Department may authorize hand scraping of oysters in the waters of Calvert and St. Mary's counties for 2 weeks, if inclement weather has prevailed during the Tonging season.<br>(2) The Department shall determine the areas where handscraping of oysters is permitted.<br>(3) The Department shall establish regulations for the handscraping of oysters under this subsection. There shall be a catch limit of 10 bushels per person and no more than 30 bushels per boat. A person may not handscrape for oysters after 12:00 noon. | |
| **9** | Sec. 4-11A-02. | **Aquaculture Advisory Committee (Maryland Department of Agriculture (MDA)** | ACTIVE - Permanent |
| | | EDITOR'S NOTE. --Section 2, ch. 54, Acts 2001, as amended by section 2, ch. 560, Acts 2006, provides that "this Act shall take effect October 1, 2001. It shall remain effective for a period of 10 years and 3 months and, at the end of December 31, 2011, with no further action required by the General Assembly, this Act shall be abrogated and of no further force and effect." Section 12, ch. 25, Acts 2005, provides that "any reference in the Annotated Code of Maryland rendered obsolete by an Act of the 2004 Special Session of the General Assembly or by an Act of the General Assembly of 2005 shall be corrected by the publisher of the Annotated Code, in consultation with and subject to the approval of the Department of Legislative Services, with no further action required by the General Assembly. The publisher shall adequately describe any such correction in an editor's note following the section affected." Pursuant to Sec. 12 of ch. 25, "Aquaculture Coordinating Council" was substituted for "Aquaculture Advisory Committee" and " Sec. 10-1303" was substituted for " Sec. 10-1302" in (a)(1), following the amendment by ch. 405, Acts 2005. | |

| | | | |
|---|---|---|---|
| **10** | Ch. 30; 2007 leg | **Working Waterfront Commission** | ACTIVE - Sunsets on Dec. 31, 2008 |
| | | Requiring the Commission to study and make recommendations regarding protecting and preserving Maryland's commercial seafood industry's access to public trust waters; requiring the Commission to submit a certain report to the Governor and General Assembly on or before a certain date; providing for the staffing of the Commission; providing for the termination of this Act; and generally relating to the establishment of the Working Waterfront Commission. | |
| **11** | Memorandum of Understanding (MOU) | **Marine Artificial Reef Commission (ARC) (External from Dept.-created by contract)** | ACTIVE - meets as needed |
| | b/t CCA and the Department | Using MARI guidelines, the ARC will select and submit recommended Reef Development Projects to the Departments SFAC and TFAC for review and comment. The Commissions shall review the recommendations and provide my comments to the Departments Secretary, who, after consultation with Coastal Conservation Association (CCA), shall make the final decision regarding Reef Development Project selection, funding and implementation. | |
| **12** | Department | **Coastal Fisheries Advisory Commission (created under agreement)** | ACTIVE |
| | Coastal bay mg. plan | The Fish and Wildlife section of the Comprehensive Conservation Management Plan (CCMP) includes 5 goals:<br>1. Increase fish and shellfish species.<br>2. Enhance forest habitats to protect songbirds, other wildlife populations, and aquatic resources.<br>3. Protect and enhance wetlands to benefit water quality, waterfowl, and other wildlife.<br>4. Protect threatened and endangered species.<br>5. Limit impacts to native plants and animals from non-native and nuisance species.<br>In order to accomplish the tasks in the CCMP, the Department established a Coastal Bays Fishery Advisory Committee specifically for providing advice to the Department on recreation and commercial fishery in the coastal bays. This committee has already completed fishery management plans for hard clams and blue crabs, and has also obtained a $25,000 National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center Grant in developing the concept of water zoning and sanctuaries to manage resources. | |

# ATTACHMENT F-II

***Memo Presented to Legal Work Group May 2008:***

**RESTITUTION**

Questions Presented:

1. Should we update Maryland's recovery prices for fish taken in violation of fisheries laws or in cases of natural disaster or negligence? (If so, how should we go about updating these prices?)

2. Do Maryland Judges have the authority to penalize violators beyond the fines that are stipulated in the Natural Resource Article? (If not, how may we draft this authority?)

Discussion:

1a. Current Recovery Values:

The following fish recovery values have not been updated since June 25, 1975.
Regulation 08.02.09.01 Monetary Value of Tidal Water and Non-tidal Water Aquatic Animals.

A. To assess a reasonable monetary value for aquatic resources in the event of man-caused mortality, the following tables of prices for various species and sizes are established.

B. Fresh and Brackish Water Food and Sport Fishes.

| TABLE 1 | | | | | | |
|---|---|---|---|---|---|---|
| Individual Fish Prices by Size Category (Total Length in Inches) | | | | | | Price per Pound |
| Species | Under 4" | 4"-6" | 6"-8" | 8"-10" | 10"-12" | Over 12" |
| (1) Bass, Largemouth | $.50 | $.70 | $1.10 | $1.60 | $2.00 | $2.50 |
| (2) Bass, Smallmouth | 1.00 | 1.25 | 1.75 | 2.25 | 2.75 | 3.50 |
| (3) Bass, Rock | .50 | 1.00 | 1.75 | 2.75 | 3.50 | |
| (4) Bass, Striped | .75 | 1.25 | 1.75 | 2.25 | 3.00 | 5.00 |
| (5) Bluefish | .50 | .85 | 1.15 | 1.50 | 2.00 | 3.35 |
| (6) Bullheads, all species | .10 | .20 | .30 | .40 | .50 | .50 |
| (7) Butterfish, all species | .15 | .30 | .45 | .60 | .75 | .75 |
| (8) Carp | .05 | .05 | .10 | .10 | .15 | .20 |
| (9) Catfish-Channel, White, Blue | .15 | .25 | .35 | .45 | .55 | 1.00 |
| (10) Cobia | .50 | .85 | 1.15 | 1.50 | 2.00 | 3.35 |
| (11) Crabbie-Black, White | .20 | .40 | .60 | 1.00 | 1.50 | 2.50 |
| (12) Croaker-"Hardhead" | .15 | .30 | .45 | .60 | .75 | .75 |
| (13) Drum-Black, Red | .50 | .85 | 1.15 | 1.50 | 2.00 | 3.35 |
| (14) Eel, American | .05 | .10 | .30 | .30 | .30 | .50 |
| (15) Flounder, Summer "Fluke" | .30 | .65 | 1.05 | 1.45 | 1.80 | 2.25 |
| (16) Flounder, Winter "Blackback" | .15 | .30 | .45 | .60 | .75 | .75 |
| (17) Herring-"Alewife," "Blueback" | .10 | .20 | .30 | .50 | .75 | .50 |
| (18) Hogchoker | .01 | .05 | .09 | .12 | .15 | |
| (19) Madtoms | .10 each | | | | | |
| (20) Menhaden | .10 | .20 | .30 | .50 | .75 | .50 |
| (21) Muskellunge-"Muskie" | 1.25 | 1.75 | 2.50 | 4.00 | 6.00 | 10.00 |
| (22) Perch, Silver | .10 | .20 | .30 | .40 | .50 | .50 |
| (23) Perch, White | .15 | .25 | .35 | .45 | .55 | .60 |
| (24) Perch, Yellow | .15 | .25 | .35 | .45 | .55 | .60 |

| TABLE 1 Continued | | | | | | |
|---|---|---|---|---|---|---|
| Individual Fish Prices by Size Category (Total Length in Inches) | | | | | | |
| (25) Perch, Pirate | .10 each | | | | | |
| (26) Pickerel, Chain and Redfin | .20 | .35 | .50 | .65 | .80 | 1.50 |
| (27) Pike, Northern | .75 | 1.25 | 1.75 | 2.25 | 2.75 | 3.50 |
| (28) Puffer, "Swellfish" | .10 | .20 | .30 | .40 | .50 | .50 |
| (29) Seatrout, all species | .25 | .45 | .65 | .90 | 1.10 | 1.50 |
| (30) Shad, American White | .10 | .20 | .30 | .50 | .60 | .85 |
| (31) Shad, Gizzard "Mud Shad" | .02 | .04 | .06 | .08 | .10 | .15 |
| (32) Shad, Hickory | .10 | .20 | .30 | .50 | .60 | .85 |
| (33) Spot | .15 | .30 | .45 | .60 | .75 | .75 |
| (34) Sturgeon, all species (all Sizes) | | | | | | 50.00 |
| (35) Suckers and Redhorse (all species) | .05 | .10 | .15 | .20 | .25 | .30 |
| (36) Sunfish, all species | .20 | .35 | 1.00 | 1.75 | 3.00 | 3.00 |
| (37) Trout, Brook, Brown, Rainbow | .25 | .50 | .75 | 1.00 | 1.50 | 2.50 |
| (38) Walleye | .50 | .75 | 1.25 | 1.75 | 2.25 | 4.00 |

I. C. Saltwater (Ocean) Food and Sport Fishes.

| Individual Fish Prices by Size Category (Total Length in Inches) | | | | | | Price per Pound |
|---|---|---|---|---|---|---|
| Species | Under 4" | 4"-6" | 6"-8" | 8"-10" | 10"-12" | Over 12" |
| (1) Bonito *Sarda Sp.* | .10 | .20 | .30 | .40 | .50 | .50 |
| (2) Cod *Gadus Sp.* | .10 | .20 | .30 | .40 | .50 | .50 |
| (3) Hake, "Red" *Urophycis Sp.* | .05 | .10 | .15 | .20 | .25 | .25 |
| (4) Hake, "Silver" *Merluccius Sp.* | .05 | .10 | .15 | .20 | .25 | .25 |
| (5) Herring, Sea *Clupea Sp.* | .01 | .05 | .09 | .12 | .15 | .20 |
| (6) Kingfish | .10 | .20 | .30 | .40 | .50 | .50 |
| (7) Mackerel, *Scomber Sp.* | .05 | .10 | .15 | .20 | .25 | .25 |
| (8) Mackerel, Spanish | .10 | .20 | .30 | .40 | .50 | .65 |
| (9) Mullet, Striped | .05 | .10 | .15 | .20 | .25 | .40 |
| (10) Scup (Porgy) | .10 | .20 | .30 | .40 | .50 | .60 |
| (11) Seabass, Black | .15 | .30 | .45 | .60 | .75 | 1.00 |
| (12) Sharks, all species | .02 | .04 | .06 | .08 | .10 | .10 |
| (13) Tautog,"Blackfish" | .10 | .20 | .30 | .40 | .50 | .50 |

II. D. Bait and Forage Fishes.

| *Species* | *Price* |
|---|---|
| (1) Killifish - *Fundulus Sp.* | 7.50 per gallon |
| (2) Forage fish - all fishes that are not listed elsewhere in this table and that are used as food by predatory fishes. This category includes: minnows, shiners, daces, chubs, silversides, anchovies, blennies, sculpins, gobies. | |
| Under 4 inches | $1 per thousand |
| Over 4 inches | $2 per thousand |

III. E. Invertebrate Animals - Shellfish and Crustaceans.

| *Species* | *Price* |
|---|---|
| (1) Blue Crab, Hard | |
| Under 5 inches | 25 cents each |
| Over 5 inches | 50 cents each |
| (2) Blue Crab, Soft and Peeler | |
| Under 3-1/2 inches | 25 cents each |
| Over 3-1/2 inches | 50 cents each |
| (3 ) Soft-Shell Clams | $20 per bushel |
| (4) Hard-Shell Clams | 20 cents each |
| (5) Oysters | $15 per bushel |
| (6) Grass Shrimp | $ 4 per gallon |

IV. F. Non-Fish Vertebrates.

| *Species* | *Price* |
|---|---|
| (1) Diamondback Terrapin | $ 1 per pound |
| (2) Snapping Turtle | 50 cents per pound |
| (3) Sliders | 50 ents per Pound |

1b. Possible Ways to Update Outdated Prices:

One way to update the 1975 restitution prices is to simply adjust them for inflation. However, this brings with it a potential problem. The state of the Bay is remarkably different than it was in 1975. The computations done during that era are probably inappropriate for our needs today, even if they are adjusted for inflation. American Fisheries Society (AFS) has created an updated publication listing monetary fish values, which could be used by the Department in listing values for non-commercial fish species. (Robert I. Southwick and Andrew J. Loftus, *Investigation and Monetary Values of Fish and Freshwater Mussel Kills*, AFS Special Publication 30, 2003)

A second way of updating these prices is to use an assessment tool, such as that used by Texas as a model. Texas updates their restitution prices yearly, using an assessment matrix that corresponds to a set of figures. This allows for flexibility within the assessment of recovery values. The considerations they use to assess the species are as follows: 1) Recreation (the extent to which the species is sought), 2) Aesthetic (the social value of the species), 3) Educational (the educational value of the species), 4) Scarcity (the species' population), 5) Environmental Tolerance (the species' ability to tolerate environmental changes), 6) Economics (economic benefits attributable to the species), 7) Recruitment (how easy it is for the species to recover from population loss), and 8) Ecological Role (how the species relates to other species). Within each of these considerations, the animal will be scored 1-3 (1 not very scarce, 3 very scarce). The points are placed in a matrix and scored; an animal scoring between 1 and 5.9 would be worth $5 and an animal scoring between 24 and 36.9 would be worth $11,907.50. When inflation rises the state of Texas need only raise the values of that matrix as the list of categories (recreational benefit, etc.) will not change. This also means that while a certain species may have done very well over three years, if it suddenly experiences significant population reduction, then the recovery values computed three years ago would no longer be appropriate. If a person is found guilty of a wildlife violation for a specific species, the damages will be assessed for the recovery prices at the time of the violation, not at the time of conviction. Texas' model is flexible and mirrors the success and importance of a specific species; it also helps Texas update its yearly restitution values easily and quickly.

One of major issues with the fisheries monetary value regulation is that the authority comes from a MDE law, which does not provide clear authority to create such a regulation. The Departments Wildlife Service has authority to update their animal monetary values through Sec. 10-1107, which states:

> (a) *In general.* - If a person is convicted of violating any provision of this title and the violation causes or results in the injury, death, or destruction of any wildlife, including a protected species of animal, in addition to any other penalty provided in this title, the court may order the person to pay restitution to the State for the resource value of the wildlife, as determined by the court, taking into account regulations adopted by the Department under subsection (b) of this section.
> (b) *Schedule of resource values.*- The Department, by regulation, shall establish a schedule of resource values for individual species or describe a system that a court may use in determining the resource value for the species. The Department may use, but not be limited to, known values to actually replace lost species or the Department may ascribe to a species a value which the individual wildlife or plant provides to the greater public good for the citizens of Maryland.
> (c) *Joint liability; payment.*
> (1) If two or more defendants are convicted for the same violation causing or resulting in the injury, death, or destruction of protected species of animals, the court may impose restitution against them jointly and equally.
> (2) Restitution under this section shall be paid within the time prescribed by the court.
> (3) In each instance, the court shall order the person to pay the restitution to the State. Moneys paid under this section shall be credited to the Department to be used only

for the replacement, habitat management, or enforcement programs for injured, killed, or destroyed wildlife or protected species of animals.

If Fisheries Service had an authority such as this one, then we could update our monetary values and a solution to the issues #2 below could also be resolved.

2. Authority that Exists to Impose Restitution Damages:

Maryland law seemingly prevents judges from penalizing violators beyond the amount stipulated in Sec. 4-1201. (Ex: First violation for a rockfish not to exceed $1,500 per fish; Unlawful taking of oysters is subject to a fine not to exceed $3,000). These capped penalties may be considered "the cost of doing business", i.e. to simply factor the cost of the penalty into the activity a violator wishes to do. A violator may decide that the potential penalty is within his or her means. The possibility of restitution makes the potential penalty uncertain. Also, it may be useful to give judges the freedom to penalize violators beyond this limit with the idea that while a penalty is aimed at deterring future wrongdoers, restitution is aimed at fixing the damage, by giving restitution payments to funds that contribute to fishery restoration. Wyoming Law gives courts the authority to impose damages beyond the penalties in their code. The law is as follows:

> **"23-6-204. Penalty for violations generally.**
> (e) In addition to the penalties imposed under this section, any person violating this section may be required to make restitution to the state for the value of the wildlife taken in violation of this act, in an amount determined by the court based upon the recommendation of the commission. Amounts collected under this subsection shall be paid to the state general account within the game and fish fund under W.S. 23-1-501(e)."

Minnesota Law requires courts to impose restitution damages on top of criminal penalties whenever the illegal destruction or capture of a wild animal or fish has occurred. (97A.341, Subd. 4) Minnesota Law also gives the court the ability to require community service in conservation work, furthering the idea that restitution is aimed at fixing the damage caused by the violation. Adopting such a measure to require or allow courts to impose restitution damages would give Maryland the ability to penalize beyond the amounts in Maryland code and to use those additional funds to restore and improve fisheries.

Additionally, Wildlife law has a restitution section, Sec. 10-1107, which could be used as a template for Fisheries Service.

If such authority is created, it will be important to then educate Maryland's prosecutors and judges about how to use this tool in order to protect Maryland's resources and to ensure this authority contributes to retribution and deterrence.

<u>Proposed Solutions:</u>

1. Update wildlife restitution values and creates a system for updating these values on a regular basis.
2. Create the authority for courts to impose restitution damages in addition to existing

penalties for a violation.

3. Enhance prosecutors' and judges' knowledge of Natural Resource law and the types of penalties that should be imposed in order to adequately protect our State's Resources.

# ATTACHMENT F-III

***Summary of Memo presented to Legal Work Group May 2008***

## PROBLEMATIC FISHERIES LAWS

Current problem issues in fisheries statutory law that the Legal Work Group has examined have been grouped into two categories and the difficulties are discussed.

A) Antiquated Laws. As the legislature has given the Department rulemaking authority, it has not always cleaned up subtitles to reflect a change of rule from statute to regulation. Many times the Department must "notwithstand" statute in order to create a regulation required under ASMFC or under a state fishery management plan enacted under Sec. 4-215. "Notwithstanding" in its most simple explanation means 'ignore this referenced law'. We have identified instances of regulations and the laws, which the regulation must "notwithstand." In order to clarify rules, the Work Group recommends removing the statutory text that is no longer applicable. Additionally, language needs to be removed in several laws, which are no longer applicable. Several sections of law, although they have not been notwithstood, have language that is no longer applicable and needs to be removed.

Antiquated Laws:

1. Sec. 4-615 prohibits night fishing in streams stocked with trout. This law is no longer valid. Questions are continually raised about fishing hours on stocked trout areas. In law you can't fish from 8:00pm to 5:30am unless altered by regulation. It is staff understanding that these hours were set in response to a request from federal government when the Department was receiving trout from federal hatcheries. The Department has altered this in regulation to no fishing for trout from 10:00pm until 5:30am on Put-and-Take areas. Special trout areas that are stocked are covered by the hours set in law. There has been contention over the hours, since some anglers want to fish late insect hatches in the summer on special trout areas, but are supposed to stop at 8:00pm. There are other points of contention with the 5:30am opening time, since recent changes in Daylight Savings Time can leave some opening days in the dark for an extended period. This may be better handled in regulation. However, since the original hours were set in law at the request of the federal government in exchange for federal fish, which the Department no longer receives, this section is no longer necessary.

2. Sec. 4-620 has county specific rules that do not seem applicable any longer. Staff believes that subsection (b), (e) and (f) are no longer applicable to the management of freshwater fisheries. Commercial type fish traps and pots should not be allowed in non-tidal waters.

3. In Sec. 4-625, references to Eastern Land Corporation and Pennsylvania Electric are no longer valid and should be removed.

4. In Sec. 4-710, there is a statewide prohibition against setting anchored gill nets within 1200 feet of a pound net. Anchored gill nets are prohibited in the Chesapeake Bay and its tidal tributaries under COMAR 08.02.05.02B (1) and the scenario is not applicable to the ocean or coastal bays. This clause should be removed from the law.

5. Yellow perch, weakfish, croaker, red drum, striped bass, spotted sea trout, sturgeon, bluefish, summer flounder, and catfish are all managed by either a fishery management plan under Sec. 4-215 or managed in coordination with the Atlantic States Marine Fisheries Commission. The references to these fish should be removed from Sec. 4-734.

6. Regulation 08.02.05.05A restricts the catch, sale, purchase, or possession of any American shad or any parts of American shad, including roe, caught in Maryland waters. Nat. Res. Art. Sec. 4-737, allows catching of shad during certain months. Additionally, Sec. 4-737 refers to herring but there is no scientific reason for the seasons on herring listed in this law and herring is managed under a plan from ASMFC. Regulation 08.02.05.06 restricts the catch, sale, purchase, or possession of any hickory shad or any parts of hickory shad, including roe, caught in Maryland waters. Sec. 4-737, allows catching of shad during certain months. Additionally, Sec. 4-737 refers to herring but there is no scientific reason for the seasons on herring listed in this law and herring is managed under a plan from ASMFC. The law should be removed.

7. Under Regulation 08.02.03.12C(1), a person licensed to catch crabs for sale may not catch crabs in the coastal bays of the Atlantic Ocean and their tidal tributaries between October 31 and April 1. This is notwithstanding. Sec. 4-808, which prohibits the taking of hard crabs in all State waters between January 1 and April 1. The law should be removed.

8. Regulation 08.02.03.14E restricts the number of undersized crabs to 5 per bushel or 13 per barrel, notwithstanding Sec. 4-809, which restricts the possession of crabs under 5” to 10 per bushel or 25 per barrel. The reference to this tolerance in law should be removed.

9. Under Regulation 08.02.03.07D(1), a person who owns or leases private property along the shore may set not more than two crab pots to catch crabs for recreational purposes. However, not more than two crab pots may be set attached to a pier or a parcel of property, regardless of the number of owners or lessees of that pier or parcel of property. This regulation is notwithstanding, Sec. 4-811, which limits the setting of pots to four and only applies to owners of property in the counties of Anne Arundel, Baltimore, Worcester, Calvert, Charles, St. Mary's, Somerset, and Wicomico. Regulation 08.02.03.07D(2) requires that the crab pots shall be set in front of the person's property, within 100 yards of the shore, notwithstanding Sec. 4-811, which limits the setting of pots to 200 feet from shore, and requires that pots be tied to a pole that is conspicuously marked with colored tape. The law should be removed.

10. Regulation 08.02.03.11A limits the time periods during which an individual licensed to catch crabs for sale may remove crabs from commercial gear in the Chesapeake Bay and its tidal tributaries to ½ hour before sunrise to 7 ½ hours after sunset. This is notwithstanding the restrictions on crab harvest in Somerset county under Sec. 4-813, which imposes a restriction on crabbing between sunset and one hour prior to sunrise the following day. The law should be removed.

11. Under Regulation 08.02.04.02B, the season for catching oysters for noncommercial purposes is from October 1 through March 31, inclusive from Monday to Friday sunrise-3pm and Saturday from sunrise-12pm. Sec. 4-1008.1, restricts harvest to one hour prior to sunrise to 2

hours after sunset. Regulation 08.02.04.03A limits the commercial oystering season from October 1 through March 31, with the dredging season limited to November 1 through March 31. The provisions Sec. 4-1008.1, defines the dredging seasons as November 1 to March 15 with the possibility of extension limited to two weeks and authorizes the Department to extend the tonging season in St. Mary's county for two weeks in the case of inclement weather. The statute further lists the tonging and diving season as September 15 through March 1, with the exception of a yearlong season in Worchester Country from January 1 to December 31. The sections of law that are notwithstood should be removed.

12. Under 08.02.07.02E, a person may not possess hard shell clams with a transverse dimension of less than one inch except that a person may possess not more than 10 percent of the catch per bag which measure less than the minimum size, notwithstanding, Sec. 4-1031 which limits the minimum size to 7/8 of an inch, with a maximum of 10 out of every 105 clams having a dimension of less than 7/8 of an inch. The outdated language should be removed and clarified.

B) Lack of Clear Public Processes. This is predominately a problem in oyster law, but occurs also in crab law. The oyster subtitle lays out several processes, which the Department must follow in order to accomplish various tasks such as creating an oyster sanctuary. These processes are ambiguous and have required Attorney General advice in order to follow. These processes seem to apply for some instances but not for other similar instances.

Problematic Lack of Clear Public Processes Laws:

1. Sec. 4-803 requires that the Department hold a public hearing before crab regulations can be effective. The time, place and purpose of the hearing must be advertised in a newspaper of general daily circulation in the State and at least in one newspaper circulated in the affected region of each affected county for 2 successive weeks in advance of the hearings. The public process is unclear because the law does not specify if the notice should be published daily for two successive weeks or just once a week for two successive weeks. If the intent is the latter, then it is not always possible since many local county papers are published weekly. Furthermore, publishing daily in all local papers and the statewide paper daily for two weeks costs thousands of dollars. Many citizens no longer check newspapers for notices but instead turn to the internet as a resource. The Department also communicates relevant hearings through directed mailings and Advisory Commissions. The regulatory public notice and hearing process in Sec. 4-803 should require a public hearing advertised by public notice for permanent regulations. Additionally, the public notice should be required to be in the newspaper once a week for two consecutive weeks.

2. In Sec. 4-1102, a process is laid out for reclassifying natural oyster bottom as clam bottom. It is not clear which parts of this process must be followed in order to reclassify clam bottom to natural oyster bottom. The law should spell out that this same process should be followed if the Department is reclassifying clam bottom into natural oyster bottom.

3. Sec. 4-1103 is used to create oyster sanctuaries and lays out a process of public notices that enables the Department to close a natural oyster bar. This process requires the Department to

create a regulation listing the sanctuaries. Then create a public notice to close the sanctuaries within the time frame as described in the law. This process does not match the process identified for harvest reserve areas under Sec. 4-1009.1. Many times regulatory packages are created to both create harvest reserve areas and sanctuaries. Because the public processes for the creation of these two types of areas do not match, the Department must hold additional public hearings and run additional public notices. The Department should have clear authority to close natural oyster bars by regulation or public notice, after consulting the oystermen.

4. Sec. 4-1106 is unclear as to what committee of oystermen should be contacted when closing a NOB without a public hearing. In Sec. 4-1106(d), the Department can close any natural oyster bars without holding a public hearing as long as it has the approval of the appropriate committee of oystermen. This subsection is confusing because it contradicts Sec. 4-1103, which states that the Department must hold a public hearing when closing natural oyster bars. This provision should be removed and the section should be added to Sec. 4-1103 referencing the description of oystermen in Sec. 4-1106(b).

# ATTACHMENT F-IV

***Memo Presented to Legal Work Group April 2008:***

**RECREATIONAL FISHING LICENSE SUSPENSION**

Questions Presented:

1. Under what authority, may the Department administratively suspend or revoke a recreational fishing license?
2. What is the process the Department would follow to suspend or revoke a recreational fishing license?

Short Answers:

1. Sec. 4-745 arguably gives the Department the authority to revoke and suspend tidal recreational fishing licenses, but not non-tidal recreational fishing licenses.
2. To revoke or suspend tidal recreational fishing licenses, Sec. 4-745 suggests that the same process the Department uses to revoke and suspend commercial tidal fishing licenses is to be used to revoke and suspend recreational tidal fishing licenses.

Authority to Suspend or Revoke:

Tidal Recreational Fishing Licenses – In 2004, SB 50 was passed, amending Sec. 4-701 and Sec. 4-745, establishing the authority to revoke and suspend all Tidal Fishing Licenses. The Fiscal Policy note of SB 50 states:

"With respect to recreational fishing licenses, the bill provides that, in addition to any other penalty provided, the Department may suspend a person's entitlement to engage in a particular activity or activities licensed or permitted under the provisions of law governing Chesapeake Bay sport fishing licenses." (Pg. 5 of attached document) I interpret this to mean that recreational fishing license revocation and suspension should follow along the same provisions and processes as those established for any other Tidal Fishing license revocation or suspension.

The following regulation exists, regarding license revocation:

.05 Recreational License Revocations.

A. In addition to any penalty set forth in Maryland Annotated Code, Nat. Res. Art. Title 4, conviction of any of the following violations shall result in revocation of a sport-fishing license for 365 days from the date of conviction:

(1) Fishing during a closed season or in a closed area; and

(2) Three convictions of offenses occurring on separate days within a calendar year.

B. General.

During the period of revocation a person whose license is revoked:

(1) May not engage in a recreational fishery; and

(2) May not apply for a new license.

This regulation seems to be inconsistent with the following:

Sec. 4-745: (e) Additional penalties. -

(1) In addition to any other penalty provided under this title, the Department may suspend a person's entitlement to engage in a particular activity or activities licensed or permitted under this section.

(2) During a period of suspension imposed by the Department, the person whose license has been suspended may not engage in an activity for which the license suspension is imposed.

(3) The following are grounds for suspension of a license issued under this section:

(i) Making a false statement in an application;

(ii) Three convictions for violations occurring on separate days within any 3-year period of provisions under this title;

(iii) Failure to submit a report required under this title or by regulation; or

(iv) Failure of a nonresident of the State to appear in court pursuant to a citation issued by a Natural Resources police officer, or to any other process issued by any court of Maryland, for violation of this title.

(4) A penalty imposed in accordance with this section is in addition to any other penalty authorized under Sec. 4-1201 of this title regarding striped bass.

(5) The Department shall adopt regulations that provide:

(i) A schedule of points assigned to various offenses under this title;

(ii) A schedule of the maximum number of days that a license may be suspended according to the number of points accumulated; and

(iii) For suspension of a license for conviction of an offense under this title.

(6) The Department shall initiate any proceeding to suspend a license under this

section not later than 6 months after the time for filing an appeal of the third conviction under paragraph (3)(ii) of this subsection has passed.
(7) Before the suspension of a license under this section, the Department shall hold a hearing on not less than 10 days' notice to the licensee, except that on the failure of a nonresident of the State to appear in a court of this State as required by any charging document accusing the person of committing any offense under this subtitle, in addition to any other appropriate action taken by the court or the Department, the Department may suspend immediately and without hearing any license issued to the person under this title.

Non-tidal Recreational Fishing Licenses:
The following statutes apply to non-tidal recreational licenses:

**Sec. 4-626. Suspension of licenses.**

In addition to any other penalty provided in this title, any person who is convicted of a second violation of any rule or regulation adopted by the Department pursuant to the provision of this subtitle shall have his license suspended if the violation occurs within 12 months of any prior violation of the same rule or regulation.

**Sec. 4-602. Rules and regulations affecting fish in nontidal waters.**
(a) *Authority of Secretary to adopt rules and regulations.*- With due regard for distribution, abundance, economic value, and breeding habits of fish in nontidal waters, the Secretary may adopt rules and regulations to extend, restrict, or prohibit catching, possessing, purchasing, transporting, or exporting fish from nontidal waters.
(b) *Penalty.*- In addition to any other penalty provided in this title, any person convicted of violating any rule or regulation the Department adopts, shall be fined $5 for each fish illegally caught. If a person is convicted a second or subsequent time within the same 12-month period for a violation of the rules and regulations the Department adopts, he shall have his angler's license suspended for a period of 12 months from the date of the second or subsequent conviction.

Recommendations:

A. Grant Broader Authority – Give the Department authority such as the broad authority that exists for the Wildlife and Heritage Service will make explicit the authorities that may or may not exist for Fisheries Service:

The Annotated Code of Maryland, Nat. Res. Art. Sec. Title 10, Wildlife is provided in Section 10-911(a) which states:

"In addition to any other penalty provided by the provisions of this title, the Secretary may revoke or suspend any license, permit, or certificate issued to any

person pursuant to this subtitle if the Secretary finds the person or a guest of the person has violated:(1) The terms and conditions of the license, permit, or certificate; (2) Any regulation adopted to implement this subtitle; or (3) Any State or federal wildlife law or regulation."

Section 10-309(e) specifically states that:

"The Department may suspend or revoke a waterfowl outfitter license of an individual based on a conviction for a violation by a waterfowl hunting guide committed while the waterfowl hunting guide was employed by the waterfowl outfitter."

B. Stricter ID Requirements to Acquire a License – As there is a concern for the enforceability of fishing licenses and the difficulty to tag someone's fishing license, because there is no requirement to show a photo ID to attain a fishing license, we could make the requirements more strict to attain a fishing license.

Pennsylvania requires that one of the following documents be presented in order to attain a resident fishing license:

1. Valid PA driver's license;
2. A valid non-driver photo identification card;
3. A current PA firearms permit;
4. A previous year's PA state income tax return showing proof of payment of personal income tax as a resident of PA;
5. A previous year's local earned income tax return showing tax paid to a PA municipality; and
6. A current PA voter registration card.

C. Grant Authority to the Department for Non-Tidal Licenses: Assuming that Sec. 4-745 grants authority to the Department to revoke tidal licenses, enact a statute that grants authority to the Department to revoke non-tidal licenses.

## APPENDIX G

## TASK FORCE ON FISHERY MANAGEMENT

## ENFORCEMENT WORK GROUP REPORT

**Work Group Members:**

Task Force Members:

- Brian Keehn, WG Spokesperson, Maryland Charter Boat Association
- Russell Dize, Maryland Watermen's Association
- Roger Trageser, Maryland Bass Federation Nation
- Mike Benjamin, Chesapeake Guides Association

Advisors:

- Diane Baynard, Tidal Fish Advisory Commission (TFAC) and (SFAC) Sportfish Advisory Commission

Assigned Support Staff:

- Gina Hunt, Maryland Department of Natural Resources (Coordinator)
- Lt. Joe Offer, Natural Resources Police, Maryland Department of Natural Resources
- Sgt. Randy Bowman, Natural Resources Police, Maryland Department of Natural Resources
- Maura Morris, Maryland Environmental Service

**The Enforcement WG Report Follows:**

## Introduction

Fishery management policies are implemented through regulation and law, which must be enforced on the water and in the field. The importance of enforcement arose in nearly every aspect of the work of the Task Force on Fishery Management.

## Objectives

The objective of the Enforcement Work Group was to assess the current enforcement strategies and resources of the Maryland Natural Resources Police (NRP), to identify needs and opportunities for enhancement of current Maryland Department of Natural Resources (Department) resources with the objective of obtaining a sufficient number of officers to meet current enforcement needs, and improve the overall effectiveness of the NRP in the enforcement of Maryland's fisheries rules.

## Background

The origins of the NRP date back to 1868 when the General Assembly created the State Oyster Police to enforce the oyster laws on the Chesapeake Bay. As the need for broader fishery conservation developed, the Oyster Police evolved to become the State Fishery Force in 1874. The Fishery Force and Office of State Game Warden merged in 1916 to form the Conservation Commission.

The name of marine enforcement continued to change, but more significantly, responsibilities, and funding changed. In 1960, the State Boat Act significantly increased the responsibilities of NRP, and in 1968 officers gained the law enforcement authority equal to that of the Maryland State Police (MSP). Funding for marine enforcement has also changed from primary funding with fines raised from the violations of the game and fish laws to primary funding by state tax dollars. Funding sources for marine enforcement have also expanded to include funding from fees for licenses, permits, excise taxes on vessel purchases, vessel titling and numbering fees (special funds), and funding from grants or other agreements with federal partners (federal funds).

In addition to state conservation law enforcement, marine enforcement has historically served secondary functions. During World War I (WWI) the State Fishery Force was used to aid the Navy and in 1920, with the passage of the 18$^{th}$ Amendment regarding Prohibition, it was used to patrol the waterways for smugglers with contraband liquor. Today, conservation and boating law enforcement are the primary focus of NRP. However, the NRP also provides the primary law enforcement services for Maryland's state parks, state forests, and other public lands owned and managed by the Department. Other services include search and rescue, education, and information and communication services on an around the clock basis. As a result of NRP's statewide responsibility for maritime law enforcement and authority, the Governor designated the NRP as the State's lead agency for homeland security on Maryland waters in 2005. Additionally, through an agreement with the U.S. Coast Guard, NRP officers have direct authority to make arrests for federally established safety or security zone violations.

**Issues of Concern**

**Issue 1):** ***Personnel levels.***

NRP salaries are paid from a combination of general (80%), special (12%) and federal (8%) funds in the approximate percentages listed. General fund reductions along with reduced special fund attainment have prevented the agency from hiring adequate numbers of new officers. In 1990, there were a total of 451 authorized law enforcement officer (LEO) positions in the Maryland Parks Service (MPS) and NRP to provide statewide law enforcement coverage. As a result of budget cuts and cost containment measures over the years, the newly merged NRP now has an authorized strength of 280 LEOs. This number represents about a 38% decrease in staffing levels since 1990 and these officers have an increased level of statewide responsibility. The "authorized strength" number represents the total number of LEO positions approved by the Department of Budget and Management (DBM); it does not represent filled positions or the number of officers actually working. With 55 current vacancies, the NRP has only 225 filled positions statewide. This is a 50% decrease in staff levels since 1990. As a result, the current workforce is strained and constituents have reported concern about the reduced number of officers on the water for service to the public and protection of the resources.

While current staff numbers are low, future staffing does not look promising. As stated, as of July 2008, the NRP has 55 LEO vacancies. The agency is in the process of filling 30 vacancies; however, filling these 30 positions will not stem the tide of NRP vacancies. An average of 12 officers per year are lost due to attrition and another 67 officers are presently eligible for retirement. The potential loss of these officers places an additional burden on the already stressed workforce. In addition, any future new hires will be deprived of valuable experience and mentoring from these seasoned officers. Although conservation law enforcement is taught in the academy, development as a proficient conservation LEO occurs in the field with the guidance of other experienced officers.

**Recommendation:**

**Authorized Force**: It is recommended that the Department establish a target number for an authorized force that will appropriately meet current enforcement needs. As noted above, there were a total of 451 authorized LEO positions in 1990. However, the loss of positions due to cost containment, together with turnover rates established by DBM significantly affect the number of positions that the NRP can actually fill. Turnover represents the anticipated annual salary savings from agency vacancies. DBM determines the final amount applied and it is subtracted from the agency's budget up front. Recent turnover rates applied by DBM have varied from 4.9% to 7.7%. The FY09 turnover rate requires the agency to maintain an average of 27 vacancies, which are not funded. Therefore, funding is only available for a maximum of about 253 of the 280 (280-27=253) authorized positions. In order to meet the current and growing responsibilities of the NRP, the recommendation is to rebuild the NRP to a minimum fully funded staff of 400 officers (number filled after projected turnover rate is applied). The authorized force number is suggested at 435. Acknowledging that the variable turnover rate will reduce the number of actual funded LEO positions, the number of funded LEO positions should never fall below 400.

**Annual NRP Academy Class:** NRP academies have been conducted infrequently due to budget constraints. In order to prevent this trend from continuing into the foreseeable future, an academy for new hires must be held each year. The class sizes would have to exceed the average number of officers that leave annually. To meet the minimum staff requirement of 400 officers, it is recommended that one academy class be held each year with 30 officers in each class. With the current number of LEO's at 225, the NRP will need to fill 175 vacancies. With 30 new hires each year and an approximate turnover rate of 12 officers per year, it will take 10 years to reach the minimum staffing. While this delay may seem protracted, the Work Group believes that in the face of consistent budget limitations, this is a prudent strategy to address staffing needs into the future while preventing further deterioration of staff resources.

**Cadet Class**: Reinstatement of the Cadet Program is recommended in order to identify and develop individuals who possess a lifelong commitment to becoming natural resources law enforcement officers. The Department had a cadet program until 1990 when budget problems forced elimination of the program. Cadets may be hired at age 18, as opposed to the age 21 requirements for a NRP officer. During their time in the program, cadets learn all aspects of conservation, boating, and criminal law enforcement prior to entering an academy class for police certification. Additionally, the cadets are deployed to other units (Fisheries, Parks, and Wildlife) on a rotational basis in order to provide them with the best opportunity to learn and understand these units and their respective missions. Cadets cannot use a weapon or issue citations, but they can assist officers and other Department employees. This experience also provides the cadet with a perspective of the career that otherwise cannot be obtained until after the academy. The cost of a cadet is two thirds that of an entry-level officer. The cadet experience will reduce the dropout rate in the academy and the subsequent loss of investment that the State has made in an individual that later decides not to become an NRP officer. Cadets have longer hands-on training than currently offered through only an academy class. Their proficiency as an officer after the academy will be significantly greater than an officer with only academy training. Creating a cadet program is crucial to replacing an experienced but aging workforce with proficient new officers. It is suggested that some portion of the 30 total annual new hires each year begin as cadets.

Most of NRP salaries are derived from general funds. The supplies and training for one academy class cost about $35,000. Each new officer will cost an additional $78,000 in salary and benefits, and $30,000 in training, vehicle and equipment. Some of these expenses may be mitigated by the turnover of more experienced and higher paid officers. However, adding 18 officers each year to the force (balance after turnover) will cost $2 million more a year until minimum staffing is reached (10 years). The Department will need 18 new positions assigned by DBM each year. The total annual cost of a cadet, with training, salary, and equipment, is about $48,000.

**Issue 2):** ***Equipment.***

NRP vessels are used for law enforcement patrols related to resource conservation, boating and hunting safety, emergency operations, search and rescue, and maritime homeland security. Although their role is critical, there is no dedicated funding source available for NRP equipment. As of 2007, there were 146 vessels in the NRP fleet. As the condition of the fleet deteriorates, response time is negatively impacted. Approximately 97% (25 of 26) of the large vessel fleet are more than 15 years old, the maximum recommended length of service for these vessels. The

small vessel fleet is critical for their speed and ability to maneuver in shallow water. Approximately 60% of the small vessel fleet are more than 10 years old, the maximum recommended length of service for these vessels. These older vessels have high maintenance costs and are unavailable during the repairs. Catastrophic failures impact the budget with costs of more than $15,000 to purchase nearly obsolete parts, plus labor per occurrence. The fleet is unreliable and there are increased safety concerns regarding the operation of the older vessels.

Using a small Taylor Craft tandem seat airplane in 1947, NRP started aerial conservation patrols. The agency's aircraft quickly became an essential tool for enforcement. Aircraft allow for patrol and response capabilities (including directing the mobilization of ground resources) on State lands and waterways at a level of speed and efficiency many times greater than that of officers on the ground or even in vessels.

NRP requires funding to replace two of its helicopters, a Bell 206B-2 (1976) and a Bell OH-58A (1970). The Agency's only airplane, a 1961 Rockwell Twin Commander, has been down for three years due to major structural repairs. This airplane is 46 years old and replacement parts are obsolete. There has never been a replacement schedule for NRP aircraft, and unfortunately, all three units are in need of replacement. Although these aircraft are used for boating enforcement, search and rescue, homeland security surveillance and incident response, Maryland Law Enforcement Information Network (MLEIN) support, maritime drug interdiction, mission related evidence search, crime scene photos/ reconstruction/event planning, transport of specialty units (K-9, Tactical Response Team), natural resources conservation enforcement, and natural disaster aerial surveys, the state receives no additional funding to support use of aircraft for these activities. These aircraft also provide local, State, and federal law enforcement support and internal Department support for Wildlife, Fisheries, and Forestry personnel for agency specific surveys and scientific research.

In March of 2007, a study was conducted to provide a cost benefit analysis of Maryland's helicopter fleet. This study provided Maryland with an independent recommendation on future helicopter needs within the State. Among the conclusions was the following:

> "Historically, the State of Maryland has been provided with aviation services through twelve helicopters operated by MSP and two operated by NRP. Maryland State Police (MSP) and NRP have provided a high level of service that is important to the people of Maryland. Unless there is a major change to the State's needs, it is assumed that there should be 14 helicopters purchased through the new helicopter replacement program." (SMART Report, Cost Benefit Analysis, Final Draft, May 29, 2007, pg. 13).

Currently, NRP is operating its emergency radio system on technology that will be shut down by the Federal Communications Commission (FCC) in 2013. It will take at least four years to upgrade to FCC compliant technology. The replacement will cost $1.6 million, and is necessary for continued marine operations. A response to this need is urgently required to meet federal mandates for Department radio systems.

Failure to maintain a replacement schedule for basic equipment affects the ability of the NRP to reach violators and respond to emergencies. The result is a reduction in reliable or dependable service to the public and protection of the resources.

**Recommendation:**

The most recent bill, introduced in the 2007 session, was designed to fund the following: a new information technology system for license and title transactions, vessel replacements, radio replacements and relief from the special fund deficit established due to expenditures outpacing stagnant or decreasing special fund revenues. The anticipated additional revenue was $7 million annually. Though the other funding needs do still exist, the Work Group recommends taking a staggered approach to funding. The current fiscal need for NRP equipment replacement is over $5 million. But again, the Work Group suggests a staggered approach to full funding.

The Work Group recommends:

- A baseline boat registration fee increase in 2009 to provide $2 million to NRP equipment replacement;

- Subsequent baseline boat registration fee increase to provide another $2 million to NRP equipment replacement (total $4 million) in 2011;

- Increase boat registration fees beginning July 1, 2013, and continue to raise fees no less frequently than every four years thereafter, based on a percentage equal to the increase in the Consumer Price Index calculated from the time the fee was last set or adjusted or at $5, whichever is greater. This provision will prevent the fee from becoming stagnant again and allow fees to increase in proportion to the rate of inflation; and

- Currently, all boaters pay the same registration fee regardless of the size of the vessel. The Work Group recommends that this continue. A modest increase to everyone is more palatable than slight increase to small boat owners and a large increase to large vessel owners. There are more small boat owners and the economic benefits from this group can be capitalized with a reasonable increase. Neighboring states have tiered boat registrations fees based on the size of the vessel. If a tiered system is necessary, it is recommended that the fees resemble the fees applied in Virginia or Pennsylvania, whichever is greater. Again, a provision will be needed to raise fees in the future proportional to the rate of inflation.

We acknowledge that legislation to increase certain types of boat fees failed in and 1996, 1999, 2002, 2004, and 2007. There is clear and formidable opposition. Ironically, the longer the expenses out pace the revenues, the more significant the increase will need to be. As the need for the revenue increases, so does the difficulty in passing a fee increase bill.

**Issue 3):** ***Prosecution.***

Natural resource violations are not considered significant or prosecuted aggressively in most county courts. This sends a clear message to offenders that the small chance there will be a

consequence is worth the risk. Natural resources are held in public trust for everyone. There is a failure of the public to realize that if they lose in court they are losing their property (their resource). No doubt if they were to lose in court for personal property theft (i.e., their car) the outrage would be heard all the way to the chief judge. This has not occurred for natural resources violations. The importance of resource related cases in regard to fishery management; ecosystem balance and sustainability of all natural resources for future generations must be emphasized to Maryland judges and prosecutors.

This is not to say that every county in Maryland has failed in effectively prosecuting natural resource violations. Some counties have a much higher prosecution rate than others. The recommendations of the Work Group are based on what they have seen work in some counties and not work in others.

**Recommendation:**

Each county should set up one day each month to prosecute natural resources violations. This will keep the prosecutor and judge focused on the same type of violations and law and cases may seem more important if they are not lumped in the same day with assault or high priority cases.

One prosecutor in each county should be trained to handle natural resource issues. The prosecutor could attend training offered to NRP officers or the Department would develop specialized training for prosecutors. This should be provided as in-service or additional education credits for the prosecutors. If a natural resource trained prosecutor is not available in the county, then it is advised that the judge allow the NRP officer to present the case. This happens in certain counties now and is effective because the officer knows the law and case well.

The Department and NRP should coordinate with the State Attorney General's office to develop a system for complex conservation cases, to include case development consultation, as well as special prosecution when necessary. Having a State's Attorney that specializes in the environmental/natural resource field to help with complex or egregious cases would greatly help with effective prosecution and consistency in the counties.

Data sharing between the District Court and NRP must be improved. Currently, any case information entered into the district court system has to be manually re-entered into the NRP database for tracking. This causes a backlog of information that is not available for officers to determine repeat offenders and to process administrative actions for the purposes of suspensions of licenses and fishing privileges.

As stated in the Legal Review Report (Legal Work Group Report, Issue 5), the Enforcement Work Group recommends that the courts be given discretion to assess restitution on the defendant for egregious crimes.

The Department needs the judicial branch to partner in the responsibility to protect the natural resources of Maryland through tougher enforcement and prosecution. Each county is handled individually so statewide changes will be difficult. However, the Colonel of NRP can continue

to work with the chief judge to develop a statewide policy regarding the handling of natural resource violations and encourage training of the prosecutors.

**Issue 4):** ***Training.***

Officers are the first line of contact with the public and must be comfortable and proficient in the conservation/marine field. It is critical that they have updated information on the rules and why they are developed. At present, continuous education is provided, but generally not on natural resource rules or management.

**Recommendation:**

Have a portion of the in-service training required for officers include presentations from Service staff.

Provide information and open discussion with officers at regional NRP meetings.

We are pleased that the Service began implementing many of these recommendations in April of this year. The challenge will be to maintain the training on a regularly scheduled basis due to staff shortages in Service and NRP.

**Issue 5):** ***Communication.***

The current Fisheries Commission structure and venue does not allow sufficient communication about issues between the stakeholders and the NRP. In addition, the majority of the public is unaware of these discussions and how to communicate with NRP. There is a toll free poaching line available to report violations but there is no vehicle for communication on an on-going basis. It is important for there to be more communication on a regular basis with the general public and user groups.

**Recommendation:**

Improved opportunities for communication directly between stakeholders and the NRP should be created. The Department has both the Sport Fisheries and the Tidal Fisheries Advisory Commissions that represent the public and provide recommendations to the Service. The Legal Review Work Group presents a recommendation to the advisory commission structure in this report (Legal Work Group Report, Issue 2). However, no matter how the Commissions are structured, they still under-represent the public.

It is recommended that officers reach out and build community ties; this could be done by attending community or local fishing club meetings. Past experience demonstrates that once these ties are made, community feedback increases. Because NRP Staff numbers are low and overtime is already at a maximum, sparing the time to attend additional meetings will be difficult; however, NRP should commit to this initiative such that as staff numbers increase, office participation in community meetings will simultaneously increase.