Chesapeake Executive Council

Schedule for Developing Baywide Resource Management Strategies

Chesapeake Bay Program

Agreement Commitment Report

July 1988

Schedule for Developing Baywide Resource Management Strategies

An Agreement Commitment Report from the Chesapeake Executive Council

Annapolis, Maryland
July 1988

ADOPTION STATEMENT

We, the undersigned, adopt the **Schedule for Developing Bay-wide Resource Management Strategies**, in fulfillment of Living Resources Commitment Number 3 of the 1987 Chesapeake Bay Agreement:

> *"...by July 1988, to adopt a schedule for the development of Bay-wide resource management strategies for commercially, recreationally and selected ecologically valuable species."*

The schedule has been drafted to ensure that appropriate short- and long-term efforts for restoration and protection are underway Bay- wide. It includes target dates for developing resource management strategies for submerged aquatic vegetation, tidal and non-tidal wetlands, waterfowl, finfish, shellfish, and other ecologically- valuable species. Regional resource management strategies will be developed in the future to integrate components of all five categories of resource management strategies for specific regions or tributaries of the Bay. We accept the schedule as a guide to the restoration and protection of living resources of the Bay as stated in the agreement.

We recognize the need to commit financial and human resources to the task of developing and implementing the resource management strategies. In addition, we direct the Living Resources Subcommittee to update the schedule as required and to provide an annual report on the progress made in achieving the schedule's goals.

For the Commonwealth of Virginia

For the State of Maryland

For the Commonwealth of Pennsylvania

For the United States of America

For the District of Columbia

For the Chesapeake Bay Commission

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ACKNOWLEDGEMENTS

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CHAPTER 1

INTRODUCTION

The 1987 Chesapeake Bay Agreement contains a set of objectives and commitments for restoring and protecting the living resources Of the Chesapeake Bay. The overall goal of the Living Resources section of the Agreement and its accompanying text frame the Bay-wide, ecosystem approach for bringing back a living Chesapeake:

> "GOAL: PROVIDE FOR THE RESTORATION AND PROTECTION OF THE LIVING RESOURCES, THEIR HABITATS AND ECOLOGICAL RELATIONSHIPS. The productivity, diversity and abundance of living resources are the best ultimate measures of the Chesapeake Bay's condition. These living resources are the main focus of the restoration and protection efforts. Some species of shellfish and finfish are of immense commercial and recreational value to man. Others are valuable because they are part of the vast array of plant and animal life that make up the Chesapeake Bay ecosystem on which all species depend. We recognize that the entire natural system must be healthy and productive. We will determine the essential elements of habitat and environmental quality necessary to support living resources and will see that these conditions are attained and maintained. We will also manage the harvest of and monitor populations of commercially, recreationally, and ecologically valuable species to ensure sustained, viable stocks. We recognize that to be successful, these actions must be carried out in an integrated and coordinated manner across the whole Bay system."

This document responds to the following Living Resources commitment:

> "by July 1988, to adopt a schedule for the development of Bay-wide resource management strategies for commercially, recreationally, and selected ecologically valuable species."

CHAPTER 2

APPROACH FOR DEVELOPING RESOURCE MANAGEMENT STRATEGIES

There are many existing activities throughout the Bay region for managing the Chesapeake's living resources. Fisheries management is probably the most familiar because it affects every recreational fisherman and commercial waterman. Less recognized are the regulatory efforts of local, state, and federal governments for protecting wetlands. Long-term monitoring efforts are often the least visible activities required for resource management. Government programs have been put into place to manage certain segments of the Bay ecosystem, but few if any treat the entire Chesapeake Bay watershed as one manageable unit. The development of Bay-wide resource management strategies offers the opportunity to start an effort to integrate resource management of the estuary.

A resource management strategy can be defined as **a policy or set of goals that is combined with an approach for restoring and protecting living resources.** A resource management strategy can cover a single species which has unique habitat conditions. It can include a group of related species with similar habitat requirements, or it may be focused on other management measures which will protect or restore living resources. In the context of the Chesapeake Bay Agreement, a strategy is more than a policy but less than a management plan. A resource management strategy is interpreted, therefore, as providing an approach for carrying out a policy, and although such a strategy is not required to include a detailed management plan, it certainly may contain one or suggest that a management plan be developed.

The components of a resource management strategy include a statement of the current status of a living resource, how far this status is from some preferred level of abundance and distribution, a policy and/or a set of goals for restoring and protecting the resources, and steps which could be taken to achieve these goals, both Bay-wide and in critical habitats within the Bay ecosystem. The following example is provided to illustrate what a resource management strategy could contain.

RESOURCE MANAGEMENT STRATEGIES: EXAMPLE OF COMPONENTS

I. Problem Statement

An accounting of the disparity between the present status of the resource and some improved condition

A description of how much restoration is needed to reach this condition and what type of long-term protection will be required

II. Strategy for Bay-wide Restoration and Protection

A. Policies and Goals

1. Example Policy for Protection
   - Protection of existing populations

2. Example Goals for Restoration
   - No net loss
   - Restoration throughout historical range
   - Compliance within three years

B. Approach for Implementation

1. Alternative steps for Bay-wide restoration and protection, including the means of achieving specified goals, such as:

   - Development of a Bay-wide management plan
   - Improved enforcement of water quality and habitat conservation regulations
   - Instituting more stringent water quality standards and habitat conservation laws
   - Development of condition indices, like a a juvenile striped bass index, as measures of abundance, and choosing a sustainable level as long-term goal

2. Responsible organizations for implementing strategy

3. Target Dates for implementing alternative steps

The approach laid out in this document for developing Bay-wide resource management strategies is based on:

1) A recognition of the major categories of living resources,

2) An assessment of the resource management needs of each category to ensure that appropriate short and long-term efforts for restoration and protection are underway, and

3) Integration of the management needs of all categories of living resources for unique regions of the Chesapeake.

MAJOR CATEGORIES OF LIVING RESOURCES

The living resources of the Chesapeake Bay can be grouped into five major categories:

1. Submerged Aquatic Vegetation (SAV)
2. Tidal and Non-tidal Wetlands
3. Waterfowl
4. Finfish and Shellfish
5. Other Ecologically Valuable Species

RESOURCE MANAGEMENT NEEDS

For some of these categories, much progress has already been made toward coordinating resource management at the Bay-wide level. Other categories have satisfactory management at the state-wide level, while some have traditionally been managed at the Atlantic coast-wide scale. As a result, the development of resource management strategies will require varying amounts of work. In summary,

- For SAV, a resource management strategy is already in draft form, including detailed monitoring, research, protection, restoration, and education objectives.

- A Bay-wide Wetland Policy is called for by December 1988 by the Chesapeake Bay Agreement; the Wetlands Policy Work Group of the Chesapeake Bay Program Living Resources Subcommittee has begun to put together a policy combined with specific goals.

- Waterfowl have been managed for many years through Atlantic Flyway management plans; plans that address Chesapeake Bay concerns will be initiated as part of the waterfowl resource management strategy.

- Fishery management plans for three species are specified by the Chesapeake Bay Agreement, so the resource management strategies for these three finfish and shellfish species and other major ones requires that management plans be developed; Planning efforts have already begun for major fish species.

- Resource management strategies for ecologically-valuable species are the least well-defined, and planning efforts are just beginning. The approach will focus on habitat management, monitoring, research, restoration, and education.

- Regional resource management strategies will tie together all of the species-specific strategies to produce one comprehensive strategy for each area of the Bay, in terms of salinity and circulation.

Chapter 3 includes a detailed schedule for developing resource management strategies for each of these resource categories, as well as a description of proposed or ongoing strategies for Bay-wide resource management, a rationale for developing Bay-wide strategies, and the species of concern in each category. Table 1 contains a summary schedule for all the species categories.

It is important to note that for all cases in which a policy, strategy, or management plan is planned for release, draft documents will be available for public review and comment several months in advance. These documents will be subject to approval by the Living Resources Subcommittee and the Implementation Committee of the Chesapeake Bay Program.

The schedule shown in Table 1 does not indicate any activity once these documents are prepared only because their content and recommendations are not known at present. This schedule is meant as a catalyst for the development of resource management efforts. The Resource Management Workgroup recommends that the schedule be updated annually to include future plans for resource management as they are developed.

BUDGET AND PERSONNEL NEEDS

The development of resource management strategies will require some additional funds and personnel. The needs listed below should be viewed as funding needs between July 1988 and December 1989. It is impossible to project needs beyond 1989 because the actual strategies have not been developed.

This list includes budget needs for which there is no source of funding identified at present. It is not meant to reflect the total financial and personnel costs for developing resource management strategies. For most tasks existing resources will be sufficient for the development of strategies. Once strategies are developed, the implementation costs can be estimated.

Only in the case of SAV are the implementation costs clearly defined. The annual aerial survey has been funded from a variety of state and federal agencies in the past, but since there is no stable source of long-term funding, the full cost of the annual survey is included. Funds for two key components of the proposed SAV management strategy--enhancement and education--are not included in the list below since funds are presently available for SAV planting projects (York River and Susquehanna Flats) and for reprinting an SAV status report written for the general public.

	BUDGET	PERSONNEL (cost (FTE's))
1. SAV - Annual SAV Aerial Survey	$160,000	
Purchase of SPOT satellite data	10,000	
Pilot watershed SAV enhancement and protection: analysis component		10,000 (0.25)
Research	10,000	
SAV Summary of Knowledge (printing)	5,000	
Subtotal - $195,000		
2. Wetlands - Personnel for each jurisdiction to assemble implementation plan		140,000 (3.5)
Education, training, and publications	175,000	
Subtotal - $315,000		
3. Waterfowl - Personnel for assembling information, analysis, and drafting. Part-time support from several jurisdictions needed.		60,000 (1.5)
Research	40,000	
Subtotal - $100,000		
4. Finfish and Shellfish - no needs identified		
5. Other Ecologically Valuable Species - Personnel for assembling information,		60,000 (1.5)

analysis, and drafting. Part-time personnel support from several jurisdictions, plus computer GIS support.

Subtotal - $60,000

6. Regional Strategies - no needs during the period July 1988 to Dec. 1989.

	$400,000	$270,000

Total - $670,000

Table 1. COMBINED SCHEDULE FOR DEVELOPING RESOURCE MANAGEMENT STRATEGIES

YEAR/Month	Submerged Aquatic Vegetation	Wetlands	Waterfowl	Finfish and Shellfish	Ecologically Valuable Species
1988 April					
May		Wetland Policy Work Group completes 1st draft of Policy.		List Source Documents for oyster, blue crab, and American Shad.	Review and comment on LR Mon. Plan.
June		Second draft Policy circulated.		Statement of mgt. problems for 3 species.	
July		Final Draft Policy due.		Statement of mgt. goals and objectives for 3 spp.	
August	Draft SAV Mgt Strategy available for review.		Begin mgt. planning for wood ducks and tundra swans.		Select key ecol. valuable species.
Sept.		Submit Wetlands Policy to Living Resources Subc.		Bay-wide Priorities and Data Needs for Fishery Management Report due.	Draft Policy and goals due.
Oct.	Locations for site-specific plans identified.	Distribute Policy for public review.			Review and inventory existing habitat guidelines & criteria.
Nov.		Submit Policy to Principals' Staff Comm. for approval.			Assess status of key species.
Dec.	Draft SAV Site plans available for review.	Adoption by Ches. Executive Council.		Mgt strategies for the 3 species due.	Outline of strategies due.
1989 Jan.					
Feb.					Development of strategies begins.
March					
April					
May			Begin mgt planning for dabbling ducks and Canada Geese.	Draft Fishery Mgt Plans for 3 species available for public review.	
June				Submit draft plans to Living Resources Subc.	

(CONTINUED . . .)

(Table 1. CONTINUED)

1989	June			
	July		Submit draft plans to Principals' Staff Comm.	
	August		Adoption of plans by Ches. Exec. Council.	
	December			Completion of mgt plans for key species and Implementation begins.
1990	March	Public review of waterfowl mgt plans for wood ducks, tundra swans, dabbling ducks, and Canada Geese.		
	July	Adoption of four mgt plans.		
	Nov.	Begin mgt planning for diving ducks.		
	Dec.		Fishery Mgt Plans for Striped Bass, Bluefish, and Weakfish/Spotted Seatrout due.	
1991	March	Public review of draft diving duck mgt plan.		
	July	Complete Mgt Plan for Diving Ducks.		
	Dec.		Fishery Mgt Plans for Croaker/Spot, Summer Flounder, and American Eel due.	
1992	Dec.		Fishery Mgt Plans for Red Drum and Black Drum due.	

CHAPTER 3

SCHEDULES FOR DEVELOPING RESOURCE MANAGEMENT STRATEGIES

SUBMERGED AQUATIC VEGETATION RESOURCE MANAGEMENT STRATEGIES

DESCRIPTION: Submerged aquatic vegetation (SAV) is viewed as a type of Chesapeake Bay shallow water habitat made up of one or more of the species listed below. SAV serves several important ecological functions: shelter and nursery for small fishes and crabs; structural surface for various invertebrates and epiphytes; food for certain waterfowl; nutrient and possibly toxicant uptake from water and sediments; settlement facilitator for sediments; absorber of wave energy with consequent reduction in shore erosion; and others not listed. Since the onset of the Chesapeake Bay Program, SAV has been regarded as a key living resource component, justifying funds for research, monitoring, and restoration activities such as replanting.

A resource management strategy for SAV includes:

1) Completion of a management strategy dealing with general management, protection, research, monitoring, and education, and

2) Implementation of site-specific restoration and enhancement efforts.

RATIONALE: The abundance of SAV in the Bay declined sharply in the early 1970's, accelerating an earlier downward trend observed since the early 1960's, when an estimated 40,470 hectares (1 hectare = 2.471 acres) of one species alone, milfoil, were present Bay-wide. Photography and mapping of SAV in 1984 yielded what is believed to be a low point of 15,400 hectares for all species Bay-wide. Some improvement occurred in 1985-1986, when just over 19,000 hectares were estimated to be present Bay-wide.

In view of the beneficial ecological functions provided by SAV and because of its greatly reduced distribution and abundance, a Bay-wide strategy is needed for protecting and enhancing this group of plants, and the estuarine habitat they create, to some level approaching their earlier abundance. A Bay-wide SAV strategy provides the additional benefit of being an indicator of progress toward restoration in shallow waters by virtue of SAV's relationship to water quality. In particular, it is closely linked to nutrient concentrations, chlorophyll a and total suspended solids.

As values for these parameters improve, so too can be expected improvements in SAV. For these reasons, a Bay-wide strategy whose goal will be the protection and enhancement of SAV will be developed by July 1988, by the SAV Workgroup of the Chesapeake Bay Program Monitoring Subcommittee.

SPECIES: The following are the principal Chesapeake Bay species of SAV, listed in order of association with increasing salinities (i.e., freshwater species first): water stargrass, wild celery, southern naiad, coontail, hydrilla, common waterweed, Eurasian watermilfoil, redheadgrass, sago pondweed, horned pondweed, widgeongrass, and eelgrass. Muskgrass, an algae, is often included in the collective term SAV, and lesser, mostly freshwater species may also be included.

SCHEDULE

Target Date	Activity
7/31/88	Draft Submerged Aquatic Vegetation Management Strategy completed by the SAV Workgroup and available for public review and comment.
9/31/88	Locations identified by the SAV Workgroup for site-specific SAV protection and enhancement plans.
12/31/88	Draft site plans for SAV protection and enhancement in three locations completed and available for public review.

TIDAL AND NON-TIDAL WETLANDS RESOURCE MANAGEMENT STRATEGIES

DESCRIPTION: The Tidal and Non-tidal Wetlands Management Strategy establishes a framework for policy development and local implementation of Bay-wide goals for wetlands protection, enhancement and restoration.

RATIONALE: Both tidal and non-tidal wetlands are essential areas for plant, fish, and wildlife habitat. They also perform erosion, sediment and pollution control functions that are vital to maintenance of the quality and productivity of adjacent and downstream waters and provide flood control, cultural, aesthetic and recreational benefits for the entire Chesapeake Bay region. Recent surveys documenting wetland losses have heightened awareness of the need to protect, enhance and restore these vital functions.

SPECIES: The Wetlands management strategy does not address individual species. Rather, it sets forth habitat preservation goals utilizing the following categories:

1. Impacts
2. Education
3. Incentives
4. Protection Standards
5. Mitigation
6. Monitoring
7. Research.
8. Planning and Land Acquisition

SCHEDULE

Target Date	Activity
2/23/88	First meeting - Reviewed existing programs; developed working outline; identified issues, goals.
3/11/88	Members submitted written program descriptions; existing policies; monitoring assessment and management priorities and needs; comments and suggestions for Charge.
4/5/88	Workgroup support staff prepared and distributed first draft of policy.
4/26/88	Second meeting - Reviewed first draft.
5/17/88	Workgroup support staff prepared and distributed second draft to Workgroup.
8/1/88	Final Meeting - Review final draft and finalize policy.
9/20/88	Submit Workgroup's Wetlands Policy to Living Resources Subcommittee for approval.
10/1/88	Distribute for public review and comment.
11/88	Principle Staff Committee approval.
12/88	Executive Council adoption.

WATERFOWL RESOURCE MANAGEMENT STRATEGIES

DESCRIPTION: Goals for waterfowl management in the Chesapeake Bay region will be developed along with strategies to achieve specific objectives needed to move toward these goals. A set of four management plans will be formulated. These plans will cover basic waterfowl groups: dabbling ducks, wood duck, diving ducks, and geese/swan. The strategies will be designed to restore, protect, and enhance waterfowl habitat and populations. The plans will address species requirements, population and habitat monitoring needs, research needs, educational needs, habitat protection and enhancement incentives, water quality improvement, and harvest management. Improvement in general Bay health should result in improvement in all natural elements of the ecosystem. Care must be taken to integrate management techniques to minimize adverse effects on non-target resource categories.

RATIONALE: Historically, the Chesapeake Bay has been renowned for ample and diverse populations of waterfowl. Significant aesthetic and economic values are associated with this important natural resource. With some exceptions, the number of ducks utilizing the Bay area has decreased over the past three decades. It is generally accepted that habitat loss and degradation are the primary factors causing the reduction in waterfowl numbers.

It is desirable to reverse or, at the very least, halt the negative trend in waterfowl numbers.

SPECIES: The term "waterfowl" refers to any member of the biological Family Anatidae. As used in this document, "waterfowl" includes broad categories such as dabbling (puddle) ducks, wood ducks, diving ducks (including river/bay ducks, sea ducks, and fish ducks), geese and swan. Waterfowl species that are common to the Chesapeake Bay include:

Mallard	*Anas platyrhynchos platyrhynchos*
Northern Pintail	*Anas acuta acuta*
Black Duck	*Anas rubripes*
Gadwall	*Anas strepera*
American Wigeon	*Anas americana*
American Green-Winged Teal	*Anas crecca carolinensis*
Blue-Winged Teal	*Anas discors*
Northern Shoveler	*Anas clypeata*

Wood Duck	Aix sponsa
Redhead	Aythya americana
Canvasback	Aythya valisineria
Ring-Necked Duck	Aythya collaris
Lesser Scaup	Aythya affinis
Greater Scaup	Aythya marila mariloides
Bufflehead	Bucephala albeola
Common Goldeneye	Bucephala clangula americana
Ruddy Duck	Oxyura jamaicensis rubida
Oldsquaw	Clangula hyemalis
Black Scoter	Melanitta nigra americana
Surf Scoter	Melanitta perspicillata
White-Winged Scoter	Melanitta fusca deglandi
Hooded Merganser	Mergus cucullatus
Red-Breasted Merganser	Mergus serrator
Common Merganser	Mergus merganser americanus
Canada Goose	Branta canadensis
Greater Snow Goose	Anser caerulescens atlantica
Atlantic Brant	Branta bernicla hrota
Tundra Swan	Cygnus columbianus

SCHEDULE

Target Date	Activity
August 1988	Begin development of Bay-wide management plans for wood ducks and tundra swans.
June 1989	Begin development of Bay-wide management plans for dabbling ducks and Canada geese.
March 1990	Draft Bay-wide Management Plans released for public review and comment for the following waterfowl: 1. Wood Ducks 2. Tundra Swans 3. Dabbling Ducks 4. Canada Geese
July 1990	Final Bay-wide Management Plans due for these four waterfowl groups.
March 1991	Draft Bay-wide Management Plan for Diving Ducks released for public review and comment.
July 1991	Final Bay-wide Diving Duck Management Plan due.

FINFISH AND SHELLFISH RESOURCE MANAGEMENT STRATEGIES

DESCRIPTION: The Chesapeake Bay Agreement contains a commitment that calls for fishery management plans for three species (oysters, blue crabs, and American Shad) by July 1989. The same commitment requires that management plans be initiated by 1990 for other major commercially, recreationally, and selected ecologically-valuable species. The finfish and shellfish category of resource management strategies will address the two requirements of this commitment.

A schedule for developing resource management strategies for finfish and shellfish will include target dates for completing fishery management plans for oysters, blue crabs, and American shad (by July 1989) as well as a schedule for initiating the development of management plans for other major species. The development of management plans for other major species will be initiated ahead of schedule (by July 1988) with the completion of a report that will identify the status of Bay-wide fisheries, management priorities, and data needs for at least ten species (see below). Management plans for these ten species will be completed between 1990 and 1992.

Bay-wide plans will be concise summaries which include problem statements, management goals and objectives, and Bay-wide management strategies, similar in format to the recent Maryland Yellow Perch management plan. There will be jurisdictional components in each plan, specifying how each jurisdiction proposes to meet the management goals and objectives. Regulations associated with a management plan would be subject to public hearings and legislative approval, in some jurisdictions, after the plan is adopted officially by the Chesapeake Executive Council.

RATIONALE: Bay fisheries are managed separately by the States of Pennsylvania, Maryland, and Virginia, the District of Columbia, and the Potomac River Fisheries Commission, although three multi-jurisdictional organizations do coordinate fishery assessment and management to some extent in the Chesapeake region. There is a federal Mid-Atlantic Fishery Management Council (MAFMC) which has jurisdiction for management planning over offshore fisheries (3-200 miles), and there is a coast-wide organization, the Atlantic States Marine Fisheries Commission (ASMFC), which coordinates the preparation of plans for the management of fisheries in state coastal waters from Maine to Florida. The state/federal Chesapeake Bay Stock Assessment Committee (CBSAC) is responsible for developing a Bay-wide Stock Assessment

Plan, which includes Bay-wide collection and analysis of fisheries information, but CBSAC was not set up to develop fishery management plans.

No organization has existed, therefore, for initiating management plans for Chesapeake Bay fish and shellfish stocks before the signing of the Chesapeake Bay Agreement of 1987. A Bay-wide Fisheries Management group, under the Living Resources Subcommittee of the Chesapeake Bay Program, has been formed to address the commitment in the Bay Agreement for management plans. The group has determined that for some species in the Bay, management plans developed by the MAFMC or ASMFC may be satisfactory for addressing Chesapeake Bay fisheries management issues, but for others (identified below), the development of coordinated Bay-wide fishery management plans is needed.

SPECIES: Management plans for three species (oysters, blue crabs, and American shad) are required by July 1989. Management plans for four other major Chesapeake Bay species are scheduled for completion by 1990 (striped bass, bluefish, weakfish, and speckled trout), four more species by 1991 (croaker, spot, summer flounder, and American eel), and two in 1992 (red and black drum). No management plans will be initiated by 1990 for any species in the "ecologically-valuable" category because the immediate management needs are greatest for the ten species above, and resource management strategies will be developed for ecologically-valuable species separately, focusing on habitat conservation and water quality restoration and protection.

SCHEDULE

1. By July 1989, Develop, Adopt, and Begin to Implement Bay-wide Management Plans for Oysters, Blue Crabs, and American Shad.

Target Date	Activity
May 1, 1988	Listing of source documents for use in developing the three management plans due.
May 15, 1988	Statement of Bay-wide and State-wide Problems for each species due.
June 1, 1988	Statement of Management Goals and Objectives for each species due.
Dec. 31, 1988	Description of Bay-wide Management Strategies for each species due.

March 15, 1989	Draft Bay-wide Fishery Management Plan for each species due for public review.
July 31, 1989	Adoption by the Chesapeake Executive Council
Apr. 31, 1990	Proposed regulations become law (date subject to public hearing schedules and legislative process).

2. By 1990, Initiate the Development of Bay-wide Management Plans for Other Major Commercially, Recreationally, and Ecologically Valuable Species.

Target Date	Activity
Aug. 1, 1988	Report on Bay-wide Priorities and Data Needs for Fisheries Management completed.

3. Complete Bay-wide Management Plans for Other Major Species to be implemented by Maryland, the District of Columbia, Virginia, the Potomac River Fisheries Commission, and Pennsylvania within their jurisdiction. (NOTE: 1. There is no deadline in the Chesapeake Bay Agreement for completion of plans for species other than oysters, blue crabs, and American Shad, and 2. Public review of each draft plan is required prior to completion of final plan).

Target Date	Activity
1990	Completion of Bay-wide Management Plan for Striped Bass
1990	Completion of Bay-wide Management Plan for Bluefish
1990	Completion of Bay-wide Management Plan for Weakfish and Spotted Seatrout
1991	Completion of Bay-wide Management Plan for Croaker and Spot
1991	Completion of Bay-wide Management Plan for Summer Flounder
1991	Completion of Bay-wide Management Plan for American Eel
1992	Completion of Bay-wide Management Plan for Red Drum and Black Drum

FISHERY MANAGEMENT PLANS: COMPLETED, IN PROGRESS OR LISTED FOR DEVELOPMENT

SPECIES	ASMFC	MAFMC	MD	VA
Striped Bass	1981 Plan Under Revision		X	X
Bluefish	In Progress	In Progress	X	
Weakfish	Completed (1985)		X	X
Spotted Seatrout	Completed (1984)		X	X
Summer Flounder	Completed (1982)	In Progress	X	X
Atlantic Menhaden	Completed (1981)			
American Shad/ River Herring	Completed (1985)		X	X
Red Drum	Completed (1984)		X	X
Black Drum	Listed for Development		X	X
Croaker	Completed (1987)		X	X
Spot	Completed (1987)		X	X
White Perch			X	
Yellow Perch			X	
Sturgeon	Listed for Development		X	
American Eel	Listed for Development		X	X
Winter Flounder	Listed for Development			
Oyster			X	X
Blue Crab			X	X
Hard Clam (1" min. size resolution)	Completed (1986)			X
Soft Shell Clam			X	
Interstate Shellfish Transport	In Progress			
Spanish Mackerel	In Progress			
Lobster	Completed (1985)		X	
Northern Shrimp	Completed (1985)			
Surf Clam/Ocean Quahog			X	
Squid/Mackerel/Butterfish				

X - State Plans In Progress or Proposed

OTHER ECOLOGICALLY-VALUABLE SPECIES RESOURCE MANAGEMENT STRATEGY

DESCRIPTION: The Chesapeake Bay Agreement specified that resource management strategies for "selected ecologically valuable species" be included in the development of a schedule for resource management strategies along with commercial and recreational species. Since commercial and recreational species are also valuable ecologically, this category of species is referred to as "Other Ecologically-valuable Species."

A resource management strategy needs to be developed for key species within this category of living resources. The strategy could 1) ensure long-term monitoring to determine the status and trends of species representative of major trophic levels, 2) support research to improve understanding of ecosystem processes, such as the interaction between water-column and sediment chemical processes and the spatial/temporal distribution and abundance of living resources, 3) protect the habitat conditions required by key species, described in the Habitat Requirements document, and protect species themselves if threatened or endangered, 4) restore habitat conditions required by key species in order to improve the overall quality of the estuarine ecosystem, and 5) supplement efforts to improve the public's understanding of the Bay system through education, outreach, and other activities.

RATIONALE: The long-term survival and relative abundance of ecologically valuable species is essential in ensuring sustainable commercial and recreational stocks. In even more basic terms, however, and independent of sustainable fishery yields, the survival and abundance of ecologically valuable species is critical for maintaining the complexity of ecological communities that gives the Bay its natural resiliency. The presence or absence of some of these species is linked directly to the water quality conditions of the bay and is responsible for many invisible processes controlling the environmental quality of the Bay.

The commercial and recreational species receive a great deal more attention by resource management agencies, even though the harvested species of the Bay depend on a variety of living resources for food and shelter. "Management" in the sense of restricting the taking of resources from the

estuary for some direct use, such as for food, recreational enjoyment, does not apply to the management of this category of living resources, with the exception of furbearing species.

Management of the habitat upon which ecologically valuable species depend is the focus of the strategy for "managing" these species. The habitat guidelines provided in the Habitat Requirements document provide the framework for managing the Bay's habitats. The primary goal of resource management strategies for this category of species then is to achieve compliance with these habitat guidelines.

Another goal of resource management strategies for ecologically valuable species is to track the abundance and distribution of key species representing the major communities of ecologically valuable species as a way of measuring the status and trends of the Bay and their response to Bay-wide restoration and protection efforts.

SPECIES: Key species will be selected from the following estuarine communities:

1. Plankton
2. Benthos
3. Finfish
4. Furbearing species
5. Shorebirds
6. Raptors

Submerged aquatic vegetation and wetland plant communities are excluded from this list since there are individual schedules for resource management strategies for both of these communities.

SCHEDULE

Target Date	Activity
5/15/88	Review monitoring plan for living resources to insure that long-term data will be available for assessment.
8/15/88	Select key species from each category of species
9/15/88	Decide on a policy and set of goals for each component of a resource management strategy, by species.
10/7/88	Review habitat requirements and other documents to ensure that adequate protective criteria are included for the species selected.
11/15/88	Assess the status of resource problems associated with key species and their respective habitats and decide on the components for detailed restoration and protection management planning.
12/15/88	Outline for resource management strategies due.
1/89 - 12/89	1. Development of Restoration and Protection Plans for selected ecologically valuable species. 2. Begin implementation of plans and strategies. 3. Develop periodic review and reporting system.

REGIONAL RESOURCE MANAGEMENT STRATEGIES

DESCRIPTION: Regional resource management strategies are strategies for restoring and protection the living resources of specific regions of the Bay which share similar habitats, salinity regimes, water depth, or other factors naturally controlling distribution and abundance of Chesapeake Bay living resources. These could be used as the basic management unit upon which coordinated, Bay-wide, restoration and protection efforts are based.

RATIONALE: Bay-wide management of all components of the estuarine ecosystem should be conducted in a way that takes into account the natural variability of living resources distribution, abundance, and requirements for food, light, freshwater, and habitat. Resource management strategies in the five categories above should be integrated so that Bay management needs (including natural resource management, water quality and quantity management, and land use management) can be compiled in one source document to improve their usefulness to local, state, and federal managers. In addition, these strategies could resolve conflicting management objectives among the many species needing restoration or protection.

SPECIES: The species contained in these regional strategies would depend on which species, identified in the five individual resource management strategies, inhabit each region.

SCHEDULE

Target Date	Activity
8/88	Identify Regions of the Bay for which Resource Management Strategies for SAV, wetlands, waterfowl, finfish and shellfish, and other ecologically-valuable species should be integrated. Options include: a) The Chesapeake Bay Program Segmentation Scheme: - Tidal Fresh (fresh-oligohaline) - Riverine-Estuarine Transition (oligo-mesohaline) - Lower Estuarine portions of major tributaries and Mainstem Bay segments below Pooles Island (meso-polyhaline) - Minor Western Shore tributaries, South R., north to the Bush R. (fresh-mesohaline) - Eastern Shore tributaries (fresh-mesohaline)

- Eastern and Western Shore Embayments (Eastern Bay, mouth of the Choptank R., Tangier/Pocomoke Sound, and Mobjack Bay, all meso-polyhaline).

b) More general areas of salinity zones: fresh, oligohaline, and polyhaline.

c) A combination of a) or b) above with zonation by depth, according to that broken down by the Habitat Requirements document (shoreline, intertidal, 0-3 m, and deep water >3 m).

9/88 List the species and their habitat requirements in each region of the Bay (to be completed in association with the Living Resources Subcommittee Habitat Objectives Work Group).

10/88 Outline of Regional Resource Management Strategies due.

* Draft Resource Management Strategies for each region, combining the strategies for SAV, wetlands, waterfowl, finfish and shellfish, and other ecologically valuable species when available.

* Complete final set of Regional Resource Management Strategies for public review.

Update Regional Strategies annually.

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* These future activities are subject to completion of the other categories of resource management strategies.