

COASTAL HABITAT PROTECTION PLAN PROGRAM

2004 - 2005

ANNUAL REPORT

TO THE

JOINT LEGISLATIVE COMMISSION ON SEAFOOD AND AQUACULTURE

AND

ENVIRONMENTAL REVIEW COMMISSION

OF THE

NORTH CAROLINA GENERAL ASSEMBLY

FROM

NORTH CAROLINA MARINE FISHERIES COMMISSION,
NORTH CAROLINA COASTAL RESOURCES COMMISSION, AND
NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

September 2005

Summary

September 2004 – August 2005 Accomplishments

- The North Carolina Environmental Management, Coastal Resources, and Marine Fisheries Commissions adopted the North Carolina Coastal Habitat Protection Plan (CHPP) in December 2004 by unanimous vote of each Commission
- The Chairmen of the Environmental Management, Coastal Resources, and Marine Fisheries Commissions and the Secretary of the Department of Environment and Natural Resources (DENR) formally signed the North Carolina Coastal Habitat Protection Plan in a ceremony in Morehead City on February 11, 2005.
- The three Commissions adopted their implementation plans in June and July, 2005
- Public outreach efforts continued with talks on the CHPP at various local government, State and federal government agency, and interest group meetings, as well as an enhanced web site at (<http://www.ncdmf.net/habitat/index.html>) that includes the following:
 - Complete North Carolina Coastal Habitat Protection Plan
 - CHPP Implementation Plan for all three regulatory Commissions, their administrative agencies (Divisions of Water Quality, Coastal Management, and Marine Fisheries), and DENR
 - Report on research needs identified in the CHPP
- All three Commissions, their divisions, and DENR have begun implementing the CHPP
- Elizabeth City State University continued its federally funded work to support the CHPP Program. Mapping of sea grass in the Albemarle-Pamlico system is underway.

September 2005 – August 2006 Planned Actions

- The Marine Fisheries Commission and Division of Marine Fisheries will
 - Enhance several existing oyster reef sanctuaries in Pamlico Sound, as well as establish several new sanctuaries
 - Develop guidelines for identification and management of Strategic Habitat Areas
 - Further protect fish habitat by closing additional areas to trawling through implementation of the Shrimp Fishery Management Plan.
- The Coastal Resources Commission and Division of Coastal Management will
 - Enhance habitat education through the “Estuary Live” web-based learning program and new displays at public meetings
 - Consider new rules to define beach nourishment sediment compatibility as developed by the Commission’s Science Panel on Coastal Hazards
 - Obtain a new set of coastal aerial photographs to aid in permit management and mapping of coastal fish habitats
 - The DCM coastal engineer will work with other agencies in development of improved management of effects of marinas and docks on fish habitats
- The Environmental Management Commission and Division of Water Quality will
 - Conduct on-site inspections for all stormwater permit renewals managed by its Wilmington Regional Office staff
 - Revise stormwater management procedures based on comments received through circulation of its draft Universal Stormwater Management proposal in 2005
 - Use CHPP recommendations as criteria for its Section 319 grants

Introduction

Fisheries Reform Act

The North Carolina General Assembly established the Coastal Habitat Protection Plan program within the North Carolina Department of Environment and Natural Resources (DENR) with passage of the Fisheries Reform Act of 1997. The Act (General Statute or G.S. 143B-279.8) requires preparation of Coastal Habitat Protection Plans (CHPPs) for critical fisheries habitats in the coastal area. The Act states “[t]he goal of the Plans shall be the long-term enhancement of coastal fisheries associated with each coastal habitat.” The Divisions of the Marine Fisheries, Water Quality, and Coastal Management are designated as the lead agencies for the CHPP program. The plans will:

1. Describe fisheries habitats and their biological systems;
2. Evaluate the functions, fisheries’ values, status, and trends in the habitats;
3. Identify existing and potential threats, to the habitats and impacts on coastal fishing; and
4. Recommend actions to protect and restore the habitats.

Role of the Commissions

The Coastal Resources, Environmental Management, and Marine Fisheries commissions must each adopt the plans for them to become effective. Once the plans are adopted, rule making and policy actions taken by all three commissions are to comply “to the maximum extent practicable” with the plans.

The three commissions are to report by 1 September each year to the Joint Legislative Commission on Seafood and Aquaculture and the Environmental Review Commission on progress in developing and implementing the plans. This document reports on progress made on Coastal Habitat Protection Plans during September 2004 – August 2005

Recent Progress

North Carolina Coastal Habitat Protection Plan (CHPP)

The CHPP is complete, and the Coastal Resources, Environmental Management, and Marine Fisheries Commissions adopted it by unanimous votes at meetings in December 2004.

The CHPP focuses on six basic fish habitat: water column, shell bottom, submerged aquatic vegetation (SAV), wetlands, soft bottoms, and ocean hard bottom. A chapter is devoted to each type. Each of the habitat chapters is organized to provide the information specified in the Act:

- Description and distribution of the habitat,
- Ecological role and function,
- Status and trends,
- Threats, and
- Recommended management actions to deal with the threats.

The CHPP describes the functions of habitats necessary for production of economically important fish stocks and the links between those habitats and various life history stages of the fish. The CHPP also discusses the various types of threats to the habitats upon which productive coastal fisheries depend. Moreover, the plan summarizes the institutional structures for management of fisheries habitat, water quality, and fisheries in eastern North Carolina. Finally, the plan includes 19 management recommendations for the Coastal Resources, Environmental Management, and Marine Fisheries Commissions, DENR (primarily the divisions of Water Quality, Coastal Management, and Marine Fisheries), and others to implement in order to address the identified threats.

The Intercommission Review Committee (IRC), two members each from the Environmental Management, Coastal Resources, and Marine Fisheries commissions, took a very active role in the CHPP development process. Members of the IRC met frequently with senior DENR officials and technical staff from DENR divisions and the Wildlife Resources Commission (CHPP Development Team) to review each chapter in detail and develop the final management recommendations.

Attachment 1 lists the members of the IRC during 2004 – 05.

Meetings, Products, and Public Outreach

The most important meeting took place in September 2004, when the draft CHPP was formally conveyed by the Department to the Coastal Resources, Environmental Management, and Marine Fisheries Commissions for their consideration. The Department and Commissions received public comments and discussed the draft until December, made several changes in the recommendations, and adopted the CHPP by unanimous votes in December 2004. The DENR report “Caring For Our Fisheries” included with this annual report, contains the 19 CHPP recommendations as adopted.

The CHPP Development Team, including staff from the divisions of Marine Fisheries (DMF), Coastal Management, Water Quality, Environmental Health (Shellfish Sanitation and Recreational Water Quality Section), and the Wildlife Resources Commission, assisted DMF staff with writing and editing the CHPP. The Team reviewed all plan chapters to ensure technical accuracy. Progress reports were provided throughout the process to all three Commissions, the Intercommission Review Committee, and senior DENR staff. The September 2004 draft CHPP and final approved CHPP were placed on the CHPP web site to facilitate public access.

Once the Commissions adopted the CHPP, they and their administrative divisions began preparation of Implementation Plans detailing the specific steps they would take during the 2005/06 – 2006/07 fiscal years to implement the CHPP recommendations. The Department and Commissions received public comments and approved Implementation Plans during June and July 2005. The draft and approved Implementation Plans were placed on the CHPP web site to facilitate public review. (See <http://www.ncdmf.net/habitat/index.html>). Attachment 2 is the combined CHPP Implementation Plan for the three Commissions, their administrative divisions, and DENR.

The CHPP also identified more than 90 research needs. The CHPP Team summarized those needs in a report placed on the CHPP web site and distributed to the academic, and state and federal agency research community.

Team members gave numerous CHPP presentations at various meetings concerning coastal issues: DENR, the Commissions, Coastal Resources Advisory Council, North Carolina Sea Grant Program, Albemarle-Pamlico National Estuary Program, Outer Banks Association of Realtors, local governments, and several local civic clubs.

Implementation during July – August 2005

- The Marine Fisheries Commission established a Strategic Habitat Area Advisory Committee to assist in developing guidelines for identification and management of Strategic Habitat Areas, and the committee held its initial meeting.
- The Department initiated quarterly meetings among the state and federal permitting and review agencies that manage development in the coastal area.
- The Division of Marine Fisheries enhanced several oyster reef sanctuaries and collected oyster shells from the public to serve as cultch material for additional oyster reefs.
- The Division of Water Quality used CHPP recommendations as criteria in awarding Clean Water Act Section 319 grants.
- The Sea Grant College Program, under a grant from the Division of Coastal Management, initiated a multi-agency project to address management issues associated with siting and operation of marinas and docks in coastal waters.
- A CHPP presentation was given to the Sedimentation Control Commission.
- The divisions of Coastal Management and Marine Fisheries established an agreement under which Marine Fisheries aircraft regularly take Coastal Management personnel aloft to survey the status of coastal development projects.

Future Actions

CHPP Implementation

Work during 2005 – 06 will focus on implementing the CHPP recommendations, as provided in the Implementation Plan (Attachment 3).

Other Accomplishments

With assistance from the divisions of Coastal Management and Marine Fisheries, Elizabeth City State University (ECSU) continued to operate a remote sensing program and laboratory. Much of the justification for the grant was based on the need to obtain and analyze remotely sensed data (including satellite imagery and aerial photography) to aid in preparation of the CHPP. Under this program, ECSU staff is mapping seagrass beds in eastern North Carolina.

ATTACHMENT 1.

INTERCOMMISSION REVIEW COMMITTEE MEMBERS, 2004 – 2005

MARINE FISHERIES COMMISSION

Dr. Barbara Garrity-Blake	Gloucester	252-729-8021
Dr. B. J. Copeland	Pittsboro	919-837-5024

ENVIRONMENTAL MANAGEMENT COMMISSION

Will Fowler	Newport	252-393-2699
Dr. Charles H. Peterson	Morehead City	252-726-6841

COASTAL RESOURCES COMMISSION

Lee Wynns	Colerain	252-356-4684
Pricey Taylor Harrison	Beaufort	252-728-1287

In addition to the Commissioners specifically listed above, Bob Emory (CRC) and Tom Ellis (EMC) made important contributions to development of the final CHPP recommendations.

ATTACHMENT 2.

NORTH CAROLINA COASTAL HABITAT PROTECTION PLAN IMPLEMENTATION PLAN

North Carolina has a number of programs in place to manage coastal fisheries and the natural resources that support them. The Coastal Habitat Protection Plan (CHPP) has identified gaps in the protection provided for important fish habitats under these programs, and also notes that these habitats would benefit from stronger enforcement of existing rules and better coordination among agencies. The focus of the CHPP, per the Fisheries Reform Act of 1997, is on activities regulated by the Marine Fisheries, Coastal Resources and Environmental Management Commissions. In 2005, each commission and the Department of Environment and Natural Resources (DENR) adopted plans to implement the recommendations found in the CHPP, with a focus on actions that could be taken based on existing resources and within the 2005-2007 budget cycle. Some actions are already underway, and most will be completed before the update of this plan in 2010. This document merges the four Implementation Plans together in a single, comprehensive statement. There is also an understanding among agencies that all recommendations and their associated actions will be supported regardless of lead agency.

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

DENR is the lead stewardship agency for the preservation and protection of North Carolina's outstanding natural resources. The organization, which has offices from the mountains to the coast, administers regulatory programs designed to protect air quality, water quality, and the public's health. Through its natural resource divisions, DENR works to protect fish, wildlife and wilderness areas. The DENR implementation plan focuses on coordination among the Commissions and the Department, as well as ensuring that all DENR Divisions are taking actions consistent with the goals and recommendations of the CHPP.

MARINE FISHERIES COMMISSION and DIVISION OF MARINE FISHERIES

The Marine Fisheries Commission (MFC) and Division of Marine Fisheries (DMF) manage the commercial and recreational fisheries in North Carolina's estuarine and ocean waters. These waters, including their specific physical habitats (water column, wetlands, sea grasses, soft and hard bottoms, and shell bottoms), produce the finfish, shrimp, crabs, oysters, and other economically important species sought by fishermen, as well as the forage base that supports them. The Division implements the Commission's rules and Department initiatives. The

Division's mission is to ensure sustainable marine and estuarine fisheries for the benefit of the people of North Carolina. Division staff drafted the CHPP, and they will staff many of the groups working on implementation actions. Staff in DMF district offices will also utilize CHPP information to review potential impacts of coastal development projects.

**ENVIRONMENTAL MANAGEMENT COMMISSION and DIVISION OF WATER
QUALITY**

The Environmental Management Commission (EMC) is responsible for adopting rules for the protection, preservation and enhancement of the State's air and water resources. The Commission oversees and adopts rules for several divisions of DENR, including the Divisions of Air Quality, Water Resources, and Water Quality. The goal of the Division of Water Quality (DWQ) is to maintain or restore and improve the aquatic environment and to ensure compliance with state and federal water quality standards. In coordination with the CRC and MFC, and their respective staffs, the EMC and DWQ have developed the actions shown below in blue to begin implementation of the CHPP recommendations.

**COASTAL RESOURCES COMMISSION and DIVISION OF COASTAL
MANAGEMENT**

The Coastal Resources Commission (CRC) establishes policies for North Carolina's Coastal Management Program and adopts implementing rules for both the N.C. Coastal Area Management Act (CAMA) and the N.C. Dredge and Fill Law. The commission designates areas of environmental concern, adopts rules and policies for coastal development within those areas, and certifies local land-use plans. The Division of Coastal Management (DCM) serves as staff to the CRC and works to protect, conserve, and manage North Carolina's coastal resources through an integrated program of planning, permitting, education and research. With jurisdictional authority at the interface of many of the habitats identified in the CHPP, the CRC and DCM take actions to compliment those of the MFC/DMF and EMC/DWQ.

Commission actions are shown below in *italics*. Commissions and agencies responsible for the actions below are indicated in parentheses following the action.

GOAL 1

IMPROVE EFFECTIVENESS OF EXISTING RULES AND PROGRAMS PROTECTING COASTAL FISH HABITATS

Recommendation 1.1 Enhance enforcement of, and compliance with, Coastal Resources Commission (CRC), Environmental Management Commission (EMC), and Marine Fisheries Commission (MFC) rules and permit conditions.

- Strengthen enforcement programs by seeking legislation that will raise maximum Coastal Area Management Act penalties to \$1,000 for a minor development violation and \$10,000 for a major development violation. Time frame: Legislation introduced in 2005 General Assembly session. (DENR)
- The Department will evaluate the need to seek funding for additional compliance positions in appropriate programs. Time frame: Ongoing (DENR)
- Cross train Marine Patrol officers to take note of and report violations of CRC and EMC rules in Coastal Waters to appropriate agencies and educate the public on what this involves and why it is needed. Time frame: Plan in FY 2005-06; train in 2006-07; implement following training. (MFC/DMF)
- Enhance DMF habitat alteration permit review capability by establishing dedicated staff positions. Time frame: Seek grant funding in 2005-06; continue long-term.
- Design an effective Inspection Program to focus more resources on areas that are critical to coastal habitat protection. Time frame: July 2005 – December 2007 (EMC/DWQ)
 - Organize a DENR interagency inspection task force to examine the issue and develop a system to accomplish the objective;
 - Produce a report with proposed new inspection regime and list of additional resources necessary to execute the plan;
 - Begin implementing the plan
- Conduct on-site evaluation of Wilmington Regional Office Coastal Stormwater Permits prior to renewal. Time frame: 2005 (EMC/DWQ)
- Provide funds to local governments for educating citizen in their jurisdictions about DWQ's Neuse and Tar-Pamlico riparian buffer rules. Time frame: January 2005-December 2006 (EMC/DWQ)
- Coordinate with DENR's SEPA/CSI guidance project to prevent piece meal development. Time frame: Ongoing (CRC/DCM)

Recommendation 1.2 Coordinate and enhance water quality, physical habitat and fisheries resource monitoring (including data management) from headwaters to the nearshore ocean.

- Enhance dependable water quality monitoring by investing in Neuse Estuary MODMON and FerryMon. Time frame: Budget request made in 2005 General Assembly session. (DENR)
- The Department, through the Division of Environmental Health, will develop a data system for monitoring data and mapping of the closure of shellfishing waters to enhance the sharing of information among Departmental Divisions. Time frame: End of 2005 (DENR)
- The Department, through the Division of Environmental Health, will continue to refine and expand the data gathered in shoreline surveys to more effectively assess pollution impacts to shellfish growing areas. The new surveys will be tested and implemented in four pilot growing areas and will be evaluated for expansion. Time frame: complete pilot area surveys by end of 2006. (DENR)
- The Department, through the Albemarle-Pamlico National Estuary Program (APNEP), will develop a comprehensive monitoring plan for the estuarine system. Time frame: End of 2007 (DENR)
- Develop a suite of indicators of estuarine and nearshore coastal health. Begin monitoring coastwide for these indicators. Time frame: Start in 2006-07; complete development by Dec 2008. (MFC/DMF)
- Host Forum for Coordinating Water Related Monitoring among Government Agencies, Universities, and Local Governments. Time frame: 2007 (EMC/DWQ)
- Integrate as appropriate, N.C. National Estuarine Research Reserve System-wide Monitoring Program (SWMP) with DWQ, APNEP and DMF monitoring efforts. Time frame: Complete July 2007 (CRC/DCM)

Recommendation 1.3 Enhance and expand educational outreach on the value of fish habitat, threats from human activities, effects of non-native species, and reasons for management measures.

- The Department, through the Office of Environmental Education, will conduct an inventory of Departmental education programs that address fish habitat and the ocean ecosystem. Time frame: Complete by end of 2005. (DENR)
- The Department, through the Public Information Office, will coordinate the publication and release of Commissions' activities related to the CHPP through newsletters, news releases, the Web site and other publications where appropriate. Time frame: Ongoing (DENR)
- The Department, through the Public Information Office and the Office of Environmental Education, will coordinate with the Zoo, Aquariums, Museum of Natural Sciences, State Parks, Educational State Forests and Environmental Education Centers to integrate the

- relevant components of the CHPP into exhibits and programs. Time frame: Ongoing (DENR)
- The Department, through the Museum of Natural Sciences, will work in partnerships with local universities to obtain grant funding for the purpose of studying how students most effectively learn science. Time frame: Ongoing (DENR)
 - Complete expanded DMF Habitat Information web pages. Time frame: Ongoing; complete by Dec 2005. (DMF)
 - Incorporate CHPP materials into current DMF outreach activities. Time frame: Start July 2005. (DMF)
 - Develop education specialist position to carry out CHPP educational activities. Use existing educational staff until that position is established. Time frame: Ongoing. (MFC/DMF)
 - N. C. NERR will include a segment of E-Live to focus on fish habitat. Time frame: Complete September 2005 (CRC/DCM)
 - North Carolina's Clean Marina Program and Clean Vessel Act activities will emphasize the threats to fish habitat and benefits of BMPs. Time frame: Complete September 2005 (CRC/DCM)
 - The DCM display will be enhanced to specifically address CHPP. Time frame: Complete December 2005 (DCM)
 - DCM will approach N.C. Sea Grant about incorporating CHPP into their research and education efforts. Time frame: Complete July 2006 (DCM)

Recommendation 1.4 Coordinate rulemaking and enforcement among regulatory commissions and agencies.

- The Department will hold quarterly meetings on proposed projects and enforcement cases that are or may be subject to the permitting or enforcement jurisdiction of the programs of more than one division and invite other state and federal agencies to participate as appropriate. Divisions and agencies that will participate in meetings include Division of Coastal Management, Division of Water Quality, Division of Marine Fisheries, Division of Land Resources, Division of Environmental Health, Wildlife Resources Commission and U.S. Army Corps of Engineers. Time frame: Initial meetings held in March 2005; ongoing. (DENR)
- The Department will establish an Intercommission Advisory Committee to meet on a regular basis to strengthen coordination among the Commissions and review progress of the implementation plans. Time frame: Summer of 2005 (DENR)

- Provide updates to the EMC on the activities of other commissions, including presentations and reports. Time frame: Beginning April 2005 (DWQ)
- CRC meetings will include updates on the activities of other commissions, presentations, Executive Secretary Report, standing agenda item. Time frame: Begin by April 2005 (DCM)
- *CRC will continue to participate in intercommission coordination.* Time frame: Ongoing (CRC)
- Participate in DENR meetings regarding proposed projects and enforcement cases that are or may be subject to the permitting or enforcement jurisdiction of more than one agency. Include SEPA/NEPA coordination. Time frame: Ongoing (CRC/DCM)

GOAL 2

IDENTIFY, DESIGNATE AND PROTECT STRATEGIC HABITAT AREAS

Recommendation 2.1 Evaluate potential Strategic Habitat Areas by a) coordinating, completing, and maintaining baseline habitat mapping (including seagrass, shellbottom, and other bottom types) using the most appropriate technology; b) selective monitoring of the status of those habitats; and c) assessing effects of land use and human activities on those habitats.

- Continue mapping of Submerged Aquatic Vegetation (SAV) in coastal North Carolina. The mapping will be coordinated through the Albemarle-Pamlico National Estuary Program (APNEP), in partnership with the Division of Marine Fisheries, Division of Coastal Management, Division of Water Quality, Elizabeth City State University, U.S. Fish and Wildlife Service and National Oceanographic and Atmospheric Administration. Time frame: Ongoing (DENR)
- Seek funding from the General Assembly to expedite the completion of SAV mapping for the entire coast. Time frame: Budget request made in 2005 General Assembly session. (DENR)
- Seek funding from the General Assembly for shellfish bottom mapping in Brunswick County. Time frame: Budget request made in 2005 General Assembly session. (DENR)
- The Department will coordinate the implementation of the Recreational Saltwater Fishing License program with the identification and protection of Strategic Habitat Areas. Time frame: Begin in fall of 2005. (DENR)

- *The MFC will establish a scientific advisory committee to assist DMF staff in: 1) developing a standard process and criteria to identify and designate SHAs, and 2) developing research priorities to identify SHAs, including chronological order of needed tasks. This action should start the SHA process. Time frame: Start summer 2005; 1 yr to complete (MFC)*
- Continue mapping of all shallow shell bottom and begin mapping deep shell bottom. Acceleration of mapping will require assessing and modifying, as necessary: methodology for shallow, deep and turbid areas, staff, materials, and equipment needs, and associated funding. Time frame: Ongoing; complete in approx. 10 yr with current resources or 5 yr with additional funding for staff and equipment. (MFC/DMF)
- Continue mapping of all SAV in coastal North Carolina by supporting and participating with DENR, universities, and the Cooperative SAV Program to map SAV in rotational phases using remote sensing, field ground truthing, and digitization of imagery. Priority in mapping should be given to low salinity SAV beds and areas previously unmapped. Time frame: Ongoing; complete in approximately 5-7 yr, but dedicated state appropriated funds needed to match federal funds. (MFC/DMF)
- Conduct research on the effects of current dock siting practices on SAV and determine design modifications that would minimize impacts (possible federal aid research project). Time frame: Start in 2006; complete by 2008. (MFC/DMF)
- DCM will provide staff support to the APNEP SAV Mapping Work Group. Time frame: Ongoing. (DCM)
- N.C. NERR will map SAV within reserve boundaries. Time frame: Complete December 2006. (CRC/EMC)
- Data acquisition will be coordinated with DMF. Time frame: Complete 2006 (CRC/EMC)
- DCM aerial photography will be made available to DMF. Time frame: Complete December 2005 (DCM)
- DCM and N.C.NERR will work with Sea Grant water quality specialist and DWQ to further develop a conference intended to provide better water quality data to planners and consultants and begin to make some linkages between land use and water quality in CAMA land use plans. Time frame: Scheduled by June 2007 (DCM)

Recommendation 2.2. Identify and designate Strategic Habitat Areas using ecologically based criteria, analyze existing rules and enact measures needed to protect Strategic Habitat Areas, and improve programs for conservation (including voluntary actions) and acquisition of areas supporting Strategic Habitat Areas.

- Using criteria developed by SHA workgroup, develop list of candidate sites for designation using existing data and information (habitat committee of BRT, other interested DMF biologists, CHPP staff, WRC, Natural Heritage, NOAA, and possibly

NGOs). Time frame: Start by July 2006; continue through SHA designations. (MFC/DMF)

- MFC should begin designation of SHAs where criteria are adequate. Time frame: Start by fall 2005. (DMF)
- Integrate resulting criteria and information from SHA committee into DENR Divisions' guidelines, policies, and rulemaking. Time Frame: Start by July 2006; continue through SHA designations. (MFC/DMF)
- Study the feasibility and benefits of developing an SAV Mitigation Program. Time frame: July 2005 – December 2006 (DWQ)

GOAL 3

ENHANCE HABITAT AND PROTECT IT FROM PHYSICAL IMPACTS

Recommendation 3.1 Greatly expand habitat restoration, including:

a) creation of subtidal oyster reef no-take sanctuaries,

- Implement an ongoing subtidal oyster sanctuary program with dedicated funding, including construction of oyster sanctuaries as well as research and monitoring to determine habitat and water quality enhancement. Time frame: Starting 2005; long-term (MFC/DMF)
- Expand Oyster Shell Recycling Program with dedicated funding to increase oyster cultch supply, support subtidal oyster sanctuary program, and increase public awareness of habitat value. Time frame: Starting 2005; long-term (MFC/DMF)
- Monitor all oyster sanctuaries for 1) survival, growth, and oyster recruitment, 2) fish/invertebrate use, and 3) effect on water quality. University research is necessary. Time frame: Starting 2005; long-term DMF monitoring for oyster survival, growth, and recruitment; additional funding or university assistance needed to monitor fish use and water quality (DMF)
- Ensure that CRC rules are consistent with the MFC effort to establish oyster reefs. Time frame: Complete April 2006 (DCM)
- Continue staff support for the Oyster Restoration Task Force. Time frame: Ongoing (CRC/DCM)

b) and reestablishment of riparian wetlands and stream hydrology.

- Work with the Corps of Engineers and the Department of Transportation on innovative mitigation projects and an appropriate crediting system for them under the Ecosystem Enhancement Program (EEP). Such projects may include the protection and restoration of SAV and the removal of certain dams. EEP has established a process through the Program Assessment and Consistency Group to work with coastal partners on the delivery of compensatory mitigation in the coastal environment. Time frame: Ongoing (DENR)
- DENR review of state agency requests to the Natural Heritage Trust Fund will place a priority on those proposals that would further the protection and restoration of critical fisheries habitats. Time frame: Ongoing (DENR)
- Make protection and restoration of critical fisheries habitats a priority part of the One North Carolina Naturally initiative, such as the development of conservation plans for the twenty coastal counties that will identify potential conservation focus areas. Time frame: Seek funding for the potential acquisition of these areas in 2006. (DENR)
- The Department, through the Division of Water Resources, will participate in a study of the Neuse Basin with federal partners to identify opportunities for environmental restoration. Time frame: complete study by 2007 (DENR)
- The Department will assist coastal local governments in identifying navigation and stream restoration projects of particular importance to the fishing industry for grants from the State-Local projects program of the Division of Water Resources. Time frame: Ongoing (DENR)
- Evaluate wetland and stream mitigation requirements to determine if restoration includes fisheries benefits. Time frame: March 2006 (EMC/DWQ)
- Continue to make DCM wetland data/expertise available to EEP. Time frame: Ongoing (CRC/DCM)

Recommendation 3.2 Prepare and implement a comprehensive beach and inlet management plan that addresses ecologically based guidelines, socio-economic concerns and fish habitat.

- Seek funding from the General Assembly for a beach nourishment database, which will allow State and local governments to better plan beach nourishment projects. Time frame: Budget request was made in the 2005 session. (DENR)
- Completion of Sediment Criteria. Time frame: Complete July 2006 (CRC/DCM)
- Develop minimum criteria for monitoring beach nourishment projects. Time frame: Complete July 2007 (CRC/DCM)
- Convene stakeholder group to identify data gaps, funding needs, and framework, and develop a timeline. Time frame: Complete January 2006 (CRC/DCM)

- CRC will be provided with the results of beach nourishment monitoring project (Presentations). Time frame: Complete July 2006 (DCM)
- DCM will serve as a clearinghouse for beach nourishment monitoring data. This will be addressed in the new CZMA Sec 309 Enhancement Grant. Time frame: Complete June 2007 (DCM)
- DCM will hire a coastal engineer. Time frame: Complete July 2005 (DCM)

Recommendation 3.3: Protect Submerged Aquatic Vegetation (SAV), shell bottom, and hard bottom areas from fishing gear effects through improved enforcement, establishment of protective buffers around habitats, and further restriction of mechanical shellfish harvesting.

- Identify areas on maps where allowed use of bottom disturbing fishing gear does or could overlap areas with sensitive benthic habitats. Determine current size of buffers between bottom disturbing fishing gear and benthic habitats, based on proclamation lines and habitat occurrence. Time frame: Ongoing; complete by Fall 2005. (MFC/DMF)
- Modify clam kicking and hydraulic dredging areas by proclamation to clearly avoid all SAV and oyster beds and allow a buffer of 50-100 ft between mechanical shellfish gear and SAV and shell bottom. The size of the buffer may be modified if supported by scientific studies. Time frame: Begin implementation in Dec 2005. (MFC/DMF)
- *The MFC will consider modifying shrimp trawling areas through the current Shrimp FMP process to restrict trawling over or immediately adjacent to shell bottom, SAV, or nursery areas and maintain an adequate buffer. Time frame: Start once shrimp FMP approved, expected by Dec 2005; complete by Dec 2006. (MFC/DMF)*

Recommendation 3.4: Protect fish habitat by revising estuarine and public trust shoreline stabilization rules using best available information, considering estuarine erosion rates, and the development and promotion of incentives for use of alternatives to vertical shoreline stabilization measures.

- Continue providing staff support for the Oyster Restoration and Protection Plan Steering Committee. Time frame: Ongoing (EMC/DWQ)
- Refine rule 15A NCAC 07H .2700 GP for Marsh Sills. Time frame: Complete July 2007 (CRC/DCM)
- Establish a CRC/CRAC Estuarine Shoreline Stabilization Subcommittee. Time frame: Complete January 2006 (CRC/DCM)
- Encourage alternatives to vertical shoreline stabilization methods through permit requirements and fees. Time frame: Complete July 2007 (CRC/DCM)
- Continue participation as a Technical Advisory Committee member in NOAA's new research-sponsored program "Ecological Effects of Sea Level Rise" to develop information/tools to better forecast and manage landscape responses of critical natural resources relative to sea level rise. Time frame: Ongoing (CRC/DCM)

- Support/promote efforts to develop shoreline stabilization demonstration projects along non-ocean shorelines. Time frame: Complete July 2006 (CRC/DCM)
- Pursue and provide financial support for shoreline stabilization demonstration projects and studies. Time frame: Complete June 2007 (CRC/DCM)

Recommendation 3.5 Protect and enhance habitat for anadromous fishes by: a) incorporating the water quality and quantity needs of fish in surface water use planning and rule making and b) eliminating obstructions to fish movements, such as dams, locks and road fills.

- The Department, through the Division of Water Resources, will participate in a 216 study of Kerr Lake with federal partners. The study will include the evaluation of modifying releases from the dam to benefit anadromous fish in the Roanoke River. Time frame: Complete study by 2007 (DENR)
- The Department, through the Division of Water Resources and the Ecosystem Enhancement Program, will pursue dam removal projects where appropriate. Time frame: Ongoing (DENR)
- Continue working closely with the Army Corps (ACE) and other entities to ensure protection of anadromous and catadromous fisheries resources in dam operations. Time frame: Ongoing (EMC/DWQ)
- Modify Dam Removal Policy with ACE. Time frame: March 2005 – October 2005 (EMC/DWQ)

GOAL 4

ENHANCE AND PROTECT WATER QUALITY

Recommendation 4.1 Reduce point source pollution from wastewater by:

- a) increasing inspections of wastewater treatment facilities, collection infrastructure, and land disposal sites, and
- b) providing incentives for upgrading all types of wastewater treatment systems.

- Pursue legislative authority for the wastewater loan program to allow a reduced interest rate for applicants. Time frame: Legislation introduced in 2005 session. (DENR)
- Evaluate 15A NCAC 2H .0400 and 2B .0500 regulations for opportunities to provide incentives for upgrading all types of wastewater treatment systems and make recommendation to EMC. Time frame: Start 2007 (EMC/DWQ)

Recommendation 4.2. Adopt or modify rules or statutes to prohibit ocean wastewater discharges.

- Evaluate 15A NCAC 2H .0400 rules as they apply to ocean wastewater treatment systems and make recommendation to the EMC regarding modifications. Time frame: Start 2007 (EMC/DWQ)

Recommendation 4.3 Prohibit new or expanded stormwater outfalls to coastal beaches and to coastal shellfishing waters (EMC surface water classifications SA and SB) except during times of emergency when public safety and health are threatened, and continue to phase-out existing outfalls by implementing alternative stormwater management strategies.

- Work with DOT to prioritize stormwater outfall mapping efforts on areas near critical fisheries habitats through the implementation of DOT's Stormwater Pilot Project on new and innovative technologies to clean up discharges from NC DOT outfalls and associated outlets. Time frame: Ongoing (DENR)
- Develop a plan to phase out municipal stormwater outfalls to sounds. (EMC/DWQ)
 - Locate existing municipal stormwater discharges to sounds;
 - Review available technologies to treat or remove the discharges;
 - Prioritize existing outfalls for removal/treatment and develop long term implementation plan
- Support planning efforts in Manteo to remove stormwater discharges to Shallowbag Bay. Time frame: Complete by July 2005. (EMC/DWQ)
- Actively seek research of innovative technology to treat stormwater outfalls with 319 grant funding. Time frame: 2005-2006 (EMC/DWQ)

Recommendation 4.4 Enhance coordination with, and financial/technical support for, local government actions to better manage stormwater and wastewater.

- Pursue legislative authority to allow local governments to use revolving loan fund at a reduced rate of interest for stormwater pollution control projects. Time frame: Legislation introduced in 2005 session. (DENR)
- Provide stormwater educational & technical assistance to local governments through the DENR Runoff Pollution Campaign and through partnerships with the Division of

Community Assistance and Institute of Government. Time frame: Ongoing (EMC/DWQ)

- Fund position at NC Sea Grant to provide stormwater educational & technical assistance to local governments focused on land use planning and policies. Time frame: Ongoing through December 2006. (EMC/DWQ)
- Develop an optional plan that local governments could undertake to meet multiple stormwater regulatory requirements. Time frame: July 2005 through July 2007 (EMC/DWQ)
- Consider & develop as appropriate a blanket contract for research needs to improve assessment and development of the most efficient and effective alternatives for NPS management. Time frame: 2006 (EMC/DWQ)

Recommendation 4.5 Improve land-based strategies throughout the river basins to reduce non-point pollution and minimize cumulative losses to wetlands and streams through voluntary actions, assistance, and incentives, including:

- a) improved methods to reduce sediment pollution from construction sites, agriculture, and forestry;
 - The Department, through the Division of Forest Resources, will purchase steel bridge mats for use across the coastal plain by loggers to make temporary stream crossings during harvesting activities. Bridge mats for stream or ditch crossings have been shown to provide better protection of water quality than traditional culvert crossings. These steel mats will be available in the Chowan, Roanoke, lower Neuse, Lumber, and Cape Fear river basins. Time frame: End of 2005 (DENR)
 - Seek legislation that will reduce non-point source pollution by requiring that ground cover be established within a shorter time period, creating incentives for local governments to establish sedimentation programs and raising the maximum civil penalties for first day violations of the Sedimentation and Pollution Control Act. Time frame: Legislation introduced in 2005 session. (DENR)
 - Update DWQ Stormwater BMP Manual, Division of Land Resources' Sedimentation and Erosion Control Design Manual, and the N.C. DOT's BMPs for Construction and Maintenance Activities Manual. Time frame: 2005-2006 (EMC/DWQ)
 - Enhance DCM education efforts such as the N.C. NERR Septic Systems Workshops. Time frame: Complete April 2005 through June 2007. (CRC/DCM)
- b) increased on-site filtration of stormwater;
 - Seek legislation that will allow increased flexibility for the use of the buffer restoration fund. Time frame: Legislation introduced in 2005 session. (DENR)

- c) documentation and monitoring of small but cumulative impacts to wetlands and streams from approved, un-mitigated activities;
 - Coordinate with Wetland Functional Assessment Team to determine wetland status and trends. Time frame: January 2007. (EMC/DWQ)
 - DCM will incorporate small but cumulative impacts to wetlands into Coastal Development Activity and Impact Tracking System (CDAITS). Time frame: Complete July 2006. (DCM)
- d) incentives for low-impact development;
 - Implement five on-the-ground projects to increase understanding of the effectiveness of low impact development in coastal and piedmont North Carolina in meeting water quality goals, develop guidance for design considerations, and provide educational opportunities. Time frame: Ongoing through December 2010. (EMC/DWQ)
- e) increased inspections of onsite wastewater treatment facilities; and
- f) increased water re-use and recycling.
- g) Other
 - Establish three new water quality forester positions in the Division of Forest Resources. The positions will be responsible for preventing and controlling water quality degradation by forestry operations through the implementation of forestry best management practices. Time frame: Budget request made in 2005 session. (DENR)
 - To enhance field training and education opportunities, the Division of Forest Resources will produce two training and educational videos for loggers and foresters on proper stream crossings for forestry activities. Time frame: Fall 2005 (DENR)
 - Through the Division of Land Resources (DLR), work with the Sedimentation Control Commission (SCC) to include CHPP presentations on the Commission agenda and to include information on CHPP actions in SCC and DLR publications. Time frame: Begin in 2005 (DENR)

Recommendation 4.6. Improve land-based strategies throughout the river basins to reduce non-point pollution and minimize cumulative losses to wetlands and streams through rule making, including

- a) increased use of effective vegetated buffers,

- Implement rule NCAC 7H .2600 General Permit for Construction of Wetland, Stream and/or Buffer Mitigation Sites by the North Carolina Ecosystem Enhancement Program. Time frame: Ongoing (CRC/DCM)
- b) reduction of impervious surfaces where feasible and reduction of the level of impervious surface allowable in the absence of engineered stormwater controls,
- *CRC will request the General Assembly to establish a coastal stormwater utility to facilitate the inspection and monitoring of engineered stormwater treatment systems.* Time frame: Complete June 2007 (CRC)
- c) expansion of CAMA Areas of Environmental Concern (AECs) upstream and landward, and
- Time frame: Proposed for 2007-2009 (CRC/DCM)
- d) consideration of erosion rates as an additional factor in the siting of structures along estuarine and public trust shorelines.
- Time frame: Proposed for 2007-2009 (CRC/DCM)
- e) Other
- Evaluate stormwater pollution control mechanisms and cumulative wetland and stream losses in the Cape Fear and White Oak River basins to determine if additional regulatory controls are needed and present findings to the EMC. Time frame: Begin May 2007 (EMC/DWQ)
 - Develop a mitigation policy for intermittent streams. Time frame: April 2005-June 2006 (EMC/DWQ)

Recommendation 4.7 Develop and implement a comprehensive coastal marina and dock management plan and policy for the protection of shellfish harvest waters and fish habitat.

- Seek funding for completion of a pier and dock inventory, which will be used to create a baseline of information on pier and dock construction. Time frame: Budget request made in 2005 legislative session. (DENR)
- Incorporate EMC's prohibition of marinas in ORWs into CRC rules. Time frame: Complete January 2007. (CRC/DCM)

- Evaluate marina development standards (rule NCAC 7H .0208(b)(5)). Time frame: Complete January 2007. (CRC/DCM)
- Inventory docks and piers in the 20 coastal counties. Time frame: Complete January 2007 (CRC/DCM)
- Participate in Sea Grant Marina Siting Workgroup. Time frame: Ongoing (CRC/DCM)

Recommendation 4.8 Reduce non-point source pollution from large-scale animal operations by the following actions: a) support early implementation of environmentally superior alternatives to the current lagoon and sprayfield systems as identified under the Smithfield Agreement and continue the moratorium on new/expanded swine operations until alternative waste treatment technology is implemented; b) seek additional funding to phase-out large-scale animal operations in sensitive areas and relocate operations from sensitive areas; and c) use improved siting criteria to protect fish habitat.

- The Department, through the Division of Pollution Prevention and Environmental Assistance, will provide contract and independent swine farms with the technical assistance and training needed to implement effective Environmental Management Systems. Time frame: Ongoing (DENR)
- Provide staff support and participate in the Smithfield Technology Advisory Panel to identify environmentally superior technologies for swine operations. Time frame: Ongoing (DENR)
- Provide support needed for the continuation of the voluntary Swine Buy-Out to remove high-risk swine operations from the 100-year floodplain. The program is conducted through the Division of Soil and Water Conservation with funding from the Clean Water Management Trust Fund. DSWC and CWMTF have agreed to a third phase with approximate funding of \$3 million. Time frame: Fall 2005 (DENR)