

NORTH CAROLINA'S COASTAL HABITAT PROTECTION PLAN

2006 - 2007

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
AND

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

September 2007

Highlights

September 2006 – August 2007 Accomplishments

- Significant progress regarding stormwater runoff and rule development as the new Phase II rules went into effect and the proposed Coastal Stormwater rules went to public hearings
- Coordinated enforcement of rules between the Division of Marine Fisheries (DMF) and the Division of Coastal Management (DCM) and the continued cross training of Marine Patrol
- Funding of compliance (DCM) and mapping positions (DMF, DEH) by the General Assembly
- Interagency and intercommission coordination of rules and permits and the continued involvement of the CHPP coordinator based in the Washington Regional Office
- Developed comprehensive approach to problems identified in Wilmington/New Hanover County regarding infrastructure, maintenance, and capacity of wastewater management system. DENR worked with the city/county to establish benchmark, and the City/County system was placed under a Special Order of Consent (SOC) to correct the problems
- Oyster reef sanctuary program enhancement through increased funding and visibility
- Enhanced cooperative interagency work to map Shellfish and Submerged Aquatic Vegetation habitats
- Increased level of public involvement and outreach
- Completion and adoption of the Strategic Habitat Area (SHA process)
- Funding of the Beach and Inlet Management Plan (BIMP) and the beginning of a long term effort to put a plan in place
- Adoption by the Coastal Resources Commission (CRC) of Beach Sediment Criteria rules
- Enhanced ability to enforce coastal rules and increased CAMA civil penalties by the General Assembly
- CRC's Shoreline Stabilization Subcommittee completed its report and its list of recommendations regarding the placement and suitability of hardened shoreline structures along estuarine shores.

September 2007 – August 2008 Planned Action and Needs

- Continue work towards adoption and implementation of the Environmental Management Commission's (EMC) amended Coastal Stormwater Rules
- Ensure the progress of the BIMP (CRC/DCM)
- Delineate SHAs in the Albemarle Sound priority area (MDMF/MFC)
- Review "Inner Banks" development issues and address environmental issues (CRC/DCM, DWQ/EMC)
- APNEP to finalize estuarine environmental indicators
- DCM to complete marina and dock siting policies and initiate CRC rule development
- Continue to analyze dam removal and encourage removal where practical and necessary
- Begin to seriously address the challenges associated with Sea Level Rise
- Continue to increase public awareness on the value of and threats to coastal fish habitats and the role of the CHPP process to protect and enhance these resources.
- Facilitate state agencies' review and coordination of rules regarding Sea Level Rise and flooding which may result from major storms as they pertain to the siting of landfills and confined animal operation waste treatment lagoons
- Pursue non-traditional ways to mitigate and offset nutrient impacts
- Support use of dye tablets for vessels at marinas to encourage use of pumpout stations (for fear of enforcement tracing)

- Seek dedicated funding to staff DCM’s Clean Marina Program and effectively implement Best Management Practices as a non-regulatory way to improve water quality in and around marinas and docks
- Continue development and refinement of shoreline stabilization rules that preserve ecosystem function and consider rising sea levels and a changing land/water interface
- Take steps to encourage more restoration of degraded waters
- Continue to identify problems regarding infrastructure for WWTPs and system maintenance. Work with the local governments to develop and implement plans to correct deficiencies

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.” Within DENR, the Divisions of Marine Fisheries, Water Quality, and Coastal Management are designated as the lead agencies for implementing the CHPP program. Many other DENR agencies also participate in CHPP work. By law the CHPP includes:

1. A description of fisheries habitats and their biological systems;
2. An evaluation of the functions, fisheries’ values, status, and trends within the habitats;
3. Identification of existing and potential threats to the habitats and impacts of those threats on coastal fishing; and
4. Recommended actions to protect and restore the habitats.

Role of the Commissions

The Coastal Resources, Environmental Management, and Marine Fisheries commissions adopted the CHPP in December of 2004. Now that the CHPP has been adopted, along with implementation plans which were adopted by each commission in June and July 2005 (see [Implementing the North Carolina Coastal Habitat Protection Plan 2005](#)), rule making and policy actions taken by all three commissions are to comply “to the maximum extent practicable” with the plan.

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 their progress in implementing the Coastal Habitat Protection Plan. This document reports on the progress made by the respective commissions and their supporting agencies in implementing the CHPP during year beginning in September 2006 and ending in August 2007.

North Carolina Coastal Habitat Protection Plan (CHPP)

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, adjacent lands, 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.

Attachment 1 lists the current members of the CHPP Steering Committee.

Major Accomplishments of the CHPP Implementation Plan

After the CHPP was formally adopted in December of 2004, the commissions, their administrative divisions, and DENR also developed and adopted implementation plans during the summer of 2005. These implementation plans detail more than 100 specific steps they would take during the 2005/06 – 2006/07 fiscal years to implement the CHPP recommendations.

Numerous specific actions have been accomplished or are underway. All three commissions and their DENR agencies are active in using the CHPP and its recommendations as guidance in their regulatory and operational programs. Attachment 2 lists the major accomplishments which were part of the 2005-2007 CHPP Implementation Plan and were completed this past year. Attachment 3 is the newly adopted 2007-2009 CHPP Implementation Plan, which includes the action items for the Department, its agencies and their respective commissions.

Administration and Public Outreach

- Administrative Activities

During the summer of 2007, a second two-year implementation plan was endorsed by the Department, its agencies and the regulatory commissions. This second iteration of the two year implementation plan once again details more than 100 specific action items DENR, its divisions and their respective commissions will undertake in the next two years to continue to carry out the CHPP recommendations. The draft and approved implementation plans were placed on the CHPP web site to facilitate public review. This new implementation plan will be placed on the CHPP web site, along with the accomplishments from the previous two years, to once again facilitate public review. In addition, this second two-year implementation plan will be included in a new publication which will be designed, printed and distributed to the general public early in 2008.

- Public Outreach

The CHPP Steering Committee, comprised of two members each from the Environmental Management, Coastal Resources, and Marine Fisheries commissions, continues to be very active role in the CHPP implementation process. Members of the Steering Committee meet quarterly with senior DENR officials and technical staff from DENR divisions and the Wildlife Resources Commission

(CHPP Team) to discuss CHPP related topics and exchange information regarding CHPP implementation activities of the respective commissions and divisions.

The DENR assigned its Eastern Region Field Officer as the coordinator for CHPP implementation. This person is strategically housed in the DENR Office of Conservation and Community Affairs, which also include the Albemarle-Pamlico National Estuary Program (APNEP) and the One North Carolina Naturally program, both of which focus heavily on improved management of important habitats, including the coastal area.

The CHPP Coordinator and the CHPP Team members participate in relevant meetings and give numerous CHPP presentations at various gatherings concerning coastal issues: DENR and its agencies, the Commissions, Coastal Resources Advisory Council, North Carolina Sea Grant Program, APNEP, Outer Banks Association of Realtors, The Nature Conservancy, the NC Coastal Caucus, the North Carolina Coastal Federation, local governments, and several local civic clubs and groups with environmental concerns.

In 2005, the CHPP program published the booklet *Implementing the North Carolina Coastal Habitat Protection Plan 2005* to provide an easy-to-understand version of the initial two year CHPP Implementation Plan. This booklet continued to be a valuable resource this past year. The three posters produced in the summer of 2006 under the theme “Home is where the habitat is...” were widely distributed through the State aquariums, environmental education centers and the various DENR divisions. The posters feature seagrass habitat, shell bottom, and the water column.

The Coastal Habitat Protection Plan was also a continuing theme in the *One NC Naturally Quarterly Newsletter*. Articles about Strategic Habitat Areas, river herring, and the 2007-2009 Implementation Plan were featured in the newsletter in 2006. The newsletter is distributed by DENR’s Office of Conservation and Community Affairs through the NC1 listserv.

The DCM produced a series of programs centered on the CHPP and specific habitat functions this past year. These programs were done in conjunction with *NOAA in the Carolinas* in May and featured SAV habitats, marshlands, soft bottom and shell bottom. The segments were seen by approximately 5,000 students during the three day on-line event.

The CHPP table top display was used at several meetings concerned with coastal habitat, such as the North Carolina Oyster Day held in Raleigh in late May. CHPP Team members gave talks at meetings of the NC Soil and Water Conservation Commission, the annual meeting of the Soil and Water District Supervisors, the Pamlico Tar River Foundation’s quarterly meeting and the Onslow Bight Estuarine and Marine Conservation Planning Group. CHPP team members and the Eastern Regional Field Officer provided updates to the CRC, EMC and MFC on a regular basis. In the three months prior to this report, the website for the CHPP continues to be one of the most accessed sites that the DMF tracks averaging 4858 visits per month and 3224 downloads per month.

Other Accomplishments

The CHPP, as adopted in 2004, identified more than 90 research needs. In 2005, 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. The identified research needs continue to be a vital component of the CHPP and its 2007-2009 Implementation Plan and the original report of research needs continues to be available on the CHPP web site.

With assistance from the divisions of Coastal Management and Marine Fisheries, as well as the Albemarle-Pamlico National Estuary Program (APNEP), 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 sea grass beds in northeastern North Carolina, including Currituck Sound and Back Bay, Kitty Hawk Bay, and portions of Albemarle Sound.

The APNEP, in conjunction with NOAA, NCDOT, ECSU and several DENR agencies has taken the lead in funding and coordinating a statewide effort to aeriually photograph all high salinity and low salinity beds of Submerged Aquatic Vegetation. The flights to digitally photograph the coastal waters of North Carolina will be flown this fall and next spring. The photographs will be used by several agencies involved with permitting, as well as used to help inventory docks, piers and hardened shoreline structures.

ATTACHMENT 1.

CHPP STEERING COMMITTEE MEMBERS, 2006 – 2007

Marine Fisheries Commission

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

Environmental Management Commission

Dr. Charles H. Peterson	Morehead City	252-726-6841
Mr. Tom Ellis	Raleigh	919-872-0897

Coastal Resources Commission

Dr. Courtney Hackney	Wilmington	910-962-3759
Mr. Bob Emory	New Bern	252-633-7417

ATTACHMENT 2.

NORTH CAROLINA COASTAL HABITAT PROTECTION PLAN GOALS AND IMPLEMENTATION RESULTS

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. During the summer of 2007 each Commission and the Department of Environment and Natural Resources (DENR) adopted a second two-year set of plans to implement the recommendations found in the CHPP, once again with a focus on actions that could be taken based on existing resources and within the 2007-2009 budget cycle. Some actions are well underway towards being completed, while others are just beginning. -Most will be completed before the update of the CHPP scheduled for 2010. There continues to be a basic understanding among agencies that all recommendations and their associated actions will be supported regardless of lead agency. Listed in this attachment are some of the completed actions, as well as those which will be completed within the year.

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 Department, 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 manages 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 specific actions to implement 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.

GOAL 1

IMPROVE EFFECTIVENESS OF EXISTING RULES AND PROGRAMS PROTECTING COASTAL FISH HABITATS

Division of Coastal Management

- (1.1) CRC has approved rule revisions for public hearing, which will strengthen DCM's enforcement programs after successfully seeking legislation to raise maximum Coastal Area Management Act penalties to \$1,000 for a minor development violation and \$10,000 for a major development violation. Anticipated effective date – December 1, 2007.
- (1.1) The Coastal Reserve and DCM's Regulatory Branch hosted four workshops for marine contractors in February 2007. These workshops provided marine contractors with up-to-date information on rules for coastal development. The workshops included an overview of general permit fees, construction of bulkheads, placement of riprap, and construction of piers. Coastal Management's shoreline stabilization, and pier and dock development initiatives were also be discussed with comments included in drafts being considered by the CRC.
- (1.1) The 2006-2007 North Carolina budget provided four new compliance and enforcement positions for DCM. These positions, one based in each of the four district offices, will focus primarily on compliance monitoring of permits issued under the CAMA and the State's Dredge and Fill Law and enforcement activity. In addition, these positions will provide compliance assistance to the regulated communities on how to comply with regulatory requirements. DCM has filled these positions.
- (1.1) N.C. National Estuarine Research Reserve's System-Wide Monitoring Program (SWMP) has been integrated with DWQ, APNEP and DMF monitoring efforts.
- (1.3) In conjunction with NOAA in the Carolinas on May 9, 2007, the NC National Estuarine Research Reserve produced a segment of Estuary-Live focusing on Shell Bottom, Marsh, Soft Bottom and SAV habitats. Approximately 5,000 students participated in this online 3-day event. CHPP habitats will be a recurring theme for Estuary-Live.
- (1.3) The Mid-Atlantic Marine Educators Association held a conference at the Aquarium at Pine Knoll Shores for teachers and educators on March 2, 2007. Participants took part in several activities specifically addressing the CHPP habitats.
- (1.3) North Carolina's Clean Marina Program and Clean Vessel Act activities will emphasize the threats to fish habitat and the benefits of BMPs
- (1.4) DWQ Basinwide Planners are reviewing CAMA Land Use Plans including plans for Currituck County, Hyde County, Emerald Isle, Oriental, Manteo and Southport.

Division of Water Quality

- (1.1) Two new full-time compliance positions were added in the Washington and Raleigh regional offices.
- (1.1) DWQ continues to inspect high density Coastal Stormwater Permits as they come up for renewal.

Division of Marine Fisheries

- (1.1) DCM trained DMF Marine Patrol to assist in noting and reporting possible CAMA permit violations
- (1.1) DMF prepared draft Shellfish and Submerged Aquatic Vegetation (SAV) habitat survey methods for Division of Coastal Management to provide to CAMA permit applicants to use in the permit application and review process
- (1.2) DMF and NOAA developing cooperative SAV habitat research program
- (1.3) Incorporated CHPP information into DMF outreach activities

Department of Environment and Natural Resources

- (1.2) Received funding for continuation of cooperative university-DOT water quality monitoring in Pamlico Sound through the FERRYMON program
- (1.2) The Division of Environmental Health (DEH) completed the mapping of all permanent shellfish harvest area closures and created new closure maps for distribution. All closure maps are now accessible on the DEH Web Site: <http://www.deh.enr.state.nc.us/shellfish/maps.htm>
- (1.2) GIS shellfish waters classification layer is now available on the NC One Map.
- (1.2) DEH completed the new shoreline survey methodology for the four pilot shellfish growing areas.
- (1.2) DEH received funding from the General Assembly for three new positions to expand the new Shellfish Sanitation Shoreline Survey methodology in all shellfish growing areas.
- (1.2) DEH, through Shellfish Sanitation is developing a data system to share information with other DENR agencies.
- (1.3) A draft of a new Memorandum of Agreement has been developed by NC Division of Forest Resources (DFR) and shared with staff of DWQ for their agency review and comments.

GOAL 2

IDENTIFY, DESIGNATE AND PROTECT STRATEGIC HABITAT AREAS

Division of Marine Fisheries

- (2.1) Submerged Aquatic Vegetation (SAV) cooperative mapping:
 - DMF signed MOU for cooperative SAV mapping and research efforts
 - DMF accepted lead responsibilities for SAV mapping groundtruth process and overall data management
 - DMF and partners trained 117 persons from various agencies in standardized SAV ground truth sampling methods to be used starting Fall 2007
- (2.1) Shellfish habitat mapping:
 - DMF received state funding to enhance mapping activities
 - 4 new state funded mapping positions
 - One GIS analyst to manage mapping data
 - Begin mapping in Brunswick County
 - Begin mapping deep waters in Pamlico Sound system
- (2.2) Strategic Habitat Area (SHA):
 - DMF completed the Strategic Habitat Area process report
 - MFC approved the Strategic Habitat Area process report
 - DMF began analysis to implement SHA process in Albemarle Sound area in support of River Herring FMP implementation
 - DMF and Sea Grant funded a fellowship to assist in data analysis for the Albemarle Sound SHA determination

Division of Coastal Management

- (2.1) DCM initiated a three Phase Monitoring Program for seagrass in the Coastal Reserves. Completed the mapping of Rachel Carson Reserve and will begin mapping of the Masonboro Island Reserve. The Coastal Reserves are tracking location, coverage by species, light, salinity and depth. They are considering adding nutrient load to the monitoring protocol. DCM signed MOU for cooperative SAV mapping and research efforts

Division of Water Quality

- (2.1) DWQ signed MOU for cooperative SAV mapping and research efforts
- (2.2) DWQ coordinated with DOT to conduct a feasibility study regarding SAV restoration and mitigation in the Currituck Sound.

Department of Environment and Natural Resources

- (2.1) APNEP coordinated Interagency SAV mapping effort and managed the contract to obtain digital aerial imagery of the North Carolina coast for mapping of SAV. Mapping project currently over 75% complete and ongoing.

GOAL 3

ENHANCE HABITAT AND PROTECT IT FROM PHYSICAL IMPACTS

Division of Marine Fisheries

- (3.1) DMF received state funding to enhance oyster restoration
- (3.1) Oyster shell recycling
 - One new state funded position to enhance shell recycling
 - More than 100 recycling sites established, mostly with volunteers
 - About 13,000 bushels of recycled shells annually
 - New state laws to support shell recycling
 - No oyster shells in landfills (effective 7/1/2007)
 - State tax credit for donated shells (effective 7/1/2007)
 - State agencies cannot use oyster shells for landscaping (effective in 2007 upon passage)
- (3.1) Oyster sanctuary management
 - 9 managed oyster sanctuaries in Pamlico Sound system
 - All closed to shellfish harvest
 - All function as artificial reefs
- (3.5) Anadromous fish spawning areas (AFSAs) for coastal waters were designated in MFC rules. The WRC is undertaking similar rule designations for AFSAs in inland waters.

Division of Coastal Management

- (3.2) The Beach and Inlet Management Plan (BIMP) was included in DCM's CZMA Section 309 5 - Year Program Enhancement Strategy (2006-2010) which has been approved by NOAA. Included in the BIMP are:
 - DWR and DCM are collaborating to develop a comprehensive Beach and Inlet Management Plan (BIMP) for the State. Contractor selection has been completed. DCM and DWR have consulted with the Department and selected an Advisory Committee to define what such a plan should include and a timeline for development, as well as defining the areas to be managed. The Advisory Committee is comprised of appropriate state and federal agencies and members from the affected coastal communities.
 - BIMP Advisory Committee – DENR has established a BIMP Advisory Committee of stakeholders. The Committee consists of representatives from the NC Ports Authority; USF&W Service; USACE; New Hanover County Ports, Waterway and Beach Commission; Environmental Defense; US Coast Guard; NC Dept of Commerce; ECU, NC Fisheries Assoc.; NCSU; Town of Topsail Beach; NC Sea Grant; Carteret County Shore Protection Office; National Marine Fisheries Service; Town of Caswell Beach; NC Coastal Federation; Town of Kill Devil Hills; and NC Division of Tourism, Film and Sports Development. The Committee held its first meeting in June 2007 to discuss the project with the contractor.

- Beach Fill Project Database: A database of historic, ongoing and future beach fill projects including beach nourishment, dredged material disposal, habitat enhancement, storm protection, and dune construction is being developed. Portions of this dataset already have been compiled by state and federal agencies as well as academic institutions. DCM is currently merging these data sets.
 - DCM's proposal to receive a NOAA Coastal Services Center Fellow for the period of August 2007 to August 2009 was approved. The Fellow will be assigned solely to tasks associated with the development of the BIMP (beach fill database, working with advisory group, etc.). The Fellow will begin working with DCM staff in August 2007.
- (3.4) The CRC is considering rule changes to its general permit for Shoreline Stabilization to reduce the distance waterward in which bulkheads encroach into public trust areas, by moving structure locations further landward of marsh vegetation to allow for marsh migration and to minimize construction impacts, and by promoting the benefits of rock structures. Currently, the DCM and the DWQ are discussing the recommended implementation strategies in order to most effectively incorporate each agency's management objectives for the coastal and estuarine shorelines.
- (3.4) DCM's CZMA Section 309 5-Year Program Enhancement Strategy (2006-2010) has been approved by NOAA. The following activities are proposed specific to the estuarine shoreline:
- Delineate the Estuarine Shoreline along with the Associated Shoreline Type and Shoreline Structures. The Center for Geographic and Information Systems (CGIA) has been contracted to determine the methodology for delineating the shoreline and structures for North Carolina. They have evaluated techniques such as LiDAR, Feature Analyst, and digitizing from the best available aerial photography. By July 2007, CGIA will deliver a suggested methodology report as well as a completed shoreline and delineated structures for all public trust waters in Carteret, Craven and Pamlico Counties.

Department of Environment and Natural Resources

- (3.1)(b) The DFR, along with NCDOT and EEP, has begun gathering preliminary information in order to reestablish riparian wetlands and stream hydrology within the Little River watershed in the Neuse River basin and the Claridge Nursery sight near the city of Goldsboro.

GOAL 4

ENHANCE AND PROTECT WATER QUALITY

Division of Coastal Management

- (4.5) The CRAC-sponsored a Stormwater Retrofitting Seminar in Manteo in conjunction with its March 2007 meeting. Approximately 70 attendees, including CRAC members, local elected officials, and municipal staff were present to learn about some of the technical and practical issues associated with retrofitting existing facilities for better stormwater control. DWQ briefed attendees on current and proposed permitting standards. Presentations were made on the technical aspects of retrofitting, focusing on his 16 broad criteria for designing a project. Staff of the N.C. Cooperative Extension Service office in Craven County highlighted projects that they have been involved with, and the services they offer to assist local governments that wish to undertake projects. Attendees also heard about the City of Kinston's experiences with retrofitting projects. A second seminar was held in Greenville in May 2007, and a third in Wilmington in July 2007.
- (4.7) The CRC has been considering changes to the docks and piers rules that would address the recommendations of the Multi-slip Docking Facilities Advisory Group and give property owners greater flexibility in designing docks and piers. Staff has presented the Commission with a square footage of public trust coverage formula based on lot width. Such a formula would give riparian property owners an "allowance" of coverage that they could use to fit their needs. Certain aspects of the draft rule (pier width and height) have been sent back to the P&SI Committee for further consideration.

Division of Water Quality

- (4.3) DWQ completed a survey of all municipally-owned stormwater outfalls to saline waters, including a GIS data layer.
- (4.5) DWQ completed revision of its updated Stormwater Best Management Practices (BMP) Manual.
- (4.6)(b) EMC completed the rulemaking process for, and began implementation of, the new Universal Stormwater Management Program.
- (4.6)(b) The EMC and DWQ initiated comprehensive revision of Coastal Stormwater Rules in the 20 coastal counties.
- (4.6)(b) The DWQ initiated implementation of Phase II Stormwater Rules with reduced low density thresholds for Onslow, Brunswick, and New Hanover Counties.
- (4.6)(b) The EMC designated Morehead City and Atlantic Beach as new Phase II municipalities.

Department of Environment and Natural Resources

- (4.5)(a) Within the DFR's four coastal districts, existing DFR bridgemats were used on 10 harvest tracts, protecting 12 stream crossings and accessing 426 acres of timberland. Specifications for new bridgemats have been drafted; purchase is expected later in calendar year 2007.

- (4.5)(a) Currently the work order and final production costs for publishing the *NC Forestry BMP Quick-Reference Field Guide* are being developed between DFR and Correction Enterprises. It is expected that this field guide will be available for distribution in the fall of 2007.
- (4.5)(c) Significant progress was made on the construction of an outdoor education and training pavilion at Clemmons Educational State Forest in Clayton, located within the targeted Beddingfield Creek watershed. This pavilion will be dedicated to the topic of nonpoint source pollution prevention and instructional workshops focusing on North Carolina's river basins. This pavilion is the first effort 'on-the-ground' to provide training and educational opportunities to the nearby community within the watershed and visiting school groups that frequently utilize the services of the State Forest.

Attachment 3

2007 – 2009 CHPP Implementation Plan

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
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.							
1	The Department will seek funding for additional compliance positions in appropriate programs.	Yes	No	No	Yes		DWQ needs one more for Wilmington. Land Resources needs positions; CRAC sending letter of support for establishment of additional DWQ compliance positions.
2	Cross train Marine Patrol officers to take note of and report violations of EMC rules and permits in Coastal Waters to appropriate agencies.	Yes	Yes	No	Yes	Plan in FY 2007-08; train in 2008-09; implement following training.	
3	Enhance DMF habitat alteration permit review capability.	No	Yes	No	No	Establish program and staff in FY 2008-09	One position in each regional office plus one clerical position (total=5) as requested in DMF expansion budget.
4	Design an effective Inspection Program to focus more resources on areas that are critical to coastal habitat protection similar to Shellfish Sanitation shoreline survey program (Lead: DEH-SS Shoreline Survey Coordinator)	Yes	No	Yes	Yes	2007-08 (1st step)	Steps: 1-Organize a DENR interagency inspection task force to examine the issue and develop a system to accomplish the objective; 2-Produce a report with proposed new inspection regime and list of

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							additional resources necessary to execute the plan; 3-Begin implementing the plan
5	Conduct outreach to educate citizens in their jurisdictions about DWQ's Neuse and Tar-Pamlico riparian buffer rules.	No	No	No	Yes		
6	Share COE permit tracking system to address cumulative impacts.	Yes	No	Yes	No		
7	Coordinate DMF, DWQ, and Dept. of Agriculture and Consumer Services actions concerning aquaculture operations in order to protect and enhance surface waters and estuarine resources.	Yes	Yes	No	Yes	2008-09	
8	Develop permit application survey protocols for shellfish and SAV habitats for CAMA applicants to use.	No	Yes	Yes	No	2007-08	Draft protocols under review by DCM.
9	Ensure consistency in habitat definitions among agencies and commissions.	Yes	Yes	Yes	Yes		Draft rule language for SAV habitat being reviewed by MFC. CRC would change their definition to, "SAV as defined by MFC."
1.2. Coordinate and enhance water quality, physical habitat and fisheries resource monitoring (including data management) from headwaters to the nearshore ocean.							
10	Enhance dependable water quality monitoring by investing in Neuse Estuary MODMON and FerryMon.	Yes	No	No	No		Work to secure funding
11	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.	Yes	No	No	No		Maps available on DEH-SS and NC-One map websites
12	The Department, through the Division of Environmental Health, will continue to refine and expand the data gathered in shoreline surveys to more effectively assess	Yes	No	No	No		

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
	pollution impacts to shellfish growing areas.						
13	The Department, through the Albemarle-Pamlico National Estuary Program (APNEP), will develop a comprehensive monitoring plan for the estuarine system.	Yes	Yes	Yes	Yes	End of 2008	Coordinate with data sharing processes (Action# 16 below).
14	Analyze DMF data to develop fish-based habitat indicators.	Yes	Yes	No	No	End of 2008	
15	Develop a suite of indicators of estuarine and nearshore coastal health (APNEP action).	Yes	No	No	No	Start in 2006-07; complete development by Dec 2007	
16	Work with other DENR agencies to develop data sharing processes. Specifically address data types and standards, data sharing standards, definitions, web services, scaling, integration mechanisms, administration, QA/QC, and other issues.	Yes	Yes	Yes	Yes	2007-09	Coordinate with comprehensive monitoring program (Action ID 187)
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.							
17	The Department, through the Public Information Office 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.	Yes	No	No	No	2007-09	
18	Develop an educational outreach plan for CHPP – NERR lead.	Yes	No	Yes	No	2007-08	NC-NERR included development of the plan in its activities for FY 07-08.
19	N.C. NERR will include a segment of E-Live to focus on fish habitat.	No	No	Yes	No		E-Live has featured shell bottom and SAV in its 2007 session; 2008 session will focus on soft bottom.

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20	North Carolina's Clean Marina Program and Clean Vessel Act activities will emphasize the threats to fish habitat and benefits of BMPs.	Yes	No	Yes	No		DCM has partnered with Sea Grant to revitalize the Clean Marinas Program and to assist DCM with implementation of BMPs at all coastal marinas. Clean marinas BMP manual being reviewed by DWQ. An Advisory Committee has been established to review criteria and check list (June 2007). Clean Marina workshops are scheduled for December 2007 to focus on power washing. Clean Boating Guide distributed to marinas.
21	DCM and N.C. Sea Grant will incorporate CHPP into their research and education efforts.	No	No	Yes	No		
22	Create interactive display(s) showing habitat functions and threats for use at festivals, etc.	No	Yes	No	No	2008	
23	Develop and distribute brochures about fish, fish habitat, and fishing	Yes	Yes	Yes	Yes	2007-09	To be available for general distribution by DENR staff.
1.4. Coordinate rulemaking and enforcement among regulatory commissions and agencies.							
24	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.	Yes	Yes	Yes	Yes		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. Discussion will include cumulative

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							impact and SEPA concerns
25	The NCDFR will revise its Memorandum of Agreement (MOA) documents with the NC Division of Land Resources and the NC Division of Water Quality to ensure compliance monitoring and enforcement policies are consistently practiced in a timely and seamless manner.	Yes	No	No	No	2007-09	These MOAs primarily address interdivisional communication on the nine forestry performance standards known as the Forest Practice Guidelines Related to Water Quality (FPGs) and the Riparian Buffer Rules applicable to NC's river basins. Additionally, the NCDFR will work with the US Army Corps of Engineers, Wilmington District, to create an additional guidance document for the forestry community that provides interagency consensus on what is allowable minor drainage in wetlands. Other forestry stakeholders will be involved in this guidance development process.
2.1. Evaluate potential Strategic Habitat Areas by:							
<i>a) coordinating, completing, and maintaining baseline habitat mapping (including seagrass, shellbottom, and other bottom types) using the most appropriate technology;</i>							
26	Map submerged aquatic vegetation (SAV) in coastal North Carolina.	Yes	Yes	Yes	Yes	Complete initial coastwide mapping 2007-08	APNEP will coordinate aerial photography in fall 2007.
27	Continue mapping of all shallow estuarine bottom and bottom types.	No	Yes	No	No		
28	Map deep (> 10 ft) estuarine bottoms, starting with lower Neuse River.	No	Yes	No	No	Begin 2007-08	

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
29	N.C. NERR will map SAV within reserve boundaries with data acquisition coordinated with multi-agency coastwide mapping effort: Repeat Rachel Carson mapping and map Masonboro and Currituck sites.	No	No	Yes	No	2007-08	
<i>b) selective monitoring of the status of those habitats;</i>							
30	Conduct cooperative DMF/NOAA research evaluating environmental conditions needed to provide suitable SAV habitat.	No	Yes	No	No	Begin summer 2007	
31	DMF and NERR will initiate SAV monitoring of sentinel sites	No	Yes	Yes	No	2008	
<i>c) assessing effects of land use and human activities on those habitats,</i>							
32	Conduct research on the effects of current dock siting practices on SAV and shell bottom, and determine design modifications that would minimize impacts.	No	Yes	Yes	No	2008-09	Possible federal aid or university research project
33	Develop and support graduate fellowship programs to address CHPP priority research needs.	No	Yes	No	No	2008-09	
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.							
34	Integrate information resulting from SHA committee into DENR Divisions' guidelines, policies, and rulemaking.	Yes	Yes	Yes	Yes	Start July 2007; continue through SHA designation	
35	Conduct SHA evaluation and designation process for Albemarle Sound area.	No	Yes	No	No	2007-08	Coordinate with DENR Strategic Conservation Plan
36	<i>MFC designate Anadromous Fish Spawning Areas.</i>	No	Yes	No	No	2007-08	Part of River Herring FMP actions
37	Work with DENR to include SHA priorities within EEP and Strategic Conservation Plan.	Yes	Yes	No	No	2007-09	
38	Conduct SHA evaluation and designation process for	No	Yes	No	No	2008-09	Coordinate with DENR Strategic

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
	White Oak basin.						Conservation Plan
3.1 Greatly expand habitat restoration, including:							
<i>a) creation of subtidal oyster reef no-take sanctuaries,</i>							
39	Enhance oyster sanctuaries in Pamlico Sound system. Expand several sanctuaries; plan new sites.	No	Yes	No	No		
40	Enhance Oyster Shell Recycling Program. Discourage use of shell material for landscaping or other uses besides shellfish cultch.	Yes	Yes	No	No		State law prohibits shell disposal in landfills.
41	Monitor all oyster sanctuaries for oyster recruitment, survival, and growth.	No	Yes	No	No		
42	Work with university researchers to monitor fish/invertebrate use of oyster sanctuaries and effect of oysters on local water quality.	No	Yes	No	No	Start 2007-08	
43	Cooperate with university researchers on oyster larvae distribution and movement investigations	No	Yes	No	No	2007-09	
44	DMF Resource Enhancement Section will initiate dissolved oxygen (DO) sampling in Pamlico Sound system to aid in determining suitable sites for oyster restoration.	No	Yes	No	No	2007-08	Coordinate with DWQ Rapid Response Program data collection.
45	Support funding for establishment and operation of shellfish hatcheries	Yes	Yes	Yes	Yes		
<i>b) re-establishment of riparian wetlands and stream hydrology.</i>							
46	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 oyster beds, and the removal of certain dams and other aquatic organism barriers.	Yes	No	No	No		More development of mitigation credit strategy using nontraditional means, ongoing data development for coastal cataloging unit screening. EEP is incorporating CHPP priorities into its coastal cataloging unit screening process to promote

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							internally (via its Full-Delivery and Design-Bid-Build programs) and externally (via programs like CREP) the implementation of restoration projects in hydrologic units where coastal functions can be most improved.
47	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.	Yes	No	No	No		Coordinate with DENR Strategic Conservation Plan
48	Make protection and restoration of critical fisheries habitats a priority part of the One North Carolina Naturally initiative, such as developing conservation plans for the twenty coastal counties that identify potential conservation focus areas.	Yes	No	No	No	2007-09	Coordinate with DENR Strategic Conservation Plan
49	The Department will assist coastal local governments in identifying navigation and stream restoration projects of particular importance to both fish and fisheries with grants from the State-Local projects program of the Division of Water Resources.	Yes	No	No	No		
50	Survey previously identified Albemarle Sound river herring spawning areas to estimate current condition and spawning function, and identify stream obstructions on river herring spawning streams.	Yes	Yes	No	No	2007-08	EPA grant through APNEP to Environmental Defense to do this in NC portion of Chowan Basin; WRC involvement needed for more comprehensive effort.
51	Include Strategic Habitat Areas as a priority area for CREP (DSWC).	Yes	No	No	No	2007-09	
52	DSWC encourage local SWCDs to include Strategic Habitat Areas and other CHPP priorities in local priority	Yes	No	No	No	2007-09	Need strong emphasis on Community Conservation Assistance

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
	ranking system for the Agriculture Cost Share Program and the Community Conservation Assistance Program.						Program because it is the only retrofit program that can begin to reverse stormwater pollution.
53	Establish and maintain an inventory of restoration projects describing the location, amount, and type of habitat established in the coastal river basins. Contributors: EEP, DWQ, etc.	Yes	No	Yes	No		APNEP is conducting an inventory in northeast region; DWQ 319 Program and CWMT also have inventories.
54	The NCDFR will partner with the NCDOT and NCEEP to restore ~13,000 linear feet of stream and floodplain (Priority 2 Restoration) and create ~10-30 acres of wetlands in the Little River watershed (Neuse River Basin).	Yes	No	No	No	2007-08	
55	The NCDFR will work with other DENR agencies to start pre-construction water quality and water quantity monitoring of 'The Canal'.	Yes	No	No	No	Start 2007-08	This channelized stream runs through the Division's 700+ acre Claridge Nursery, located just west of the City of Goldsboro.
<i>c) and other habitat restoration.</i>							
56	Study the feasibility and benefits of developing an SAV Restoration Program (Lead: EEP?).	Yes	Yes	Yes	Yes		Needs further discussion among agencies regarding exotic SAV species. Note: Split into stepwise actions - much more needs doing (research, policy); could be a DENR issue. NEED DENR DECISION.
3.2 Prepare and implement a comprehensive beach and inlet management plan that addresses ecologically based guidelines, socio-economic concerns and fish habitat.							
57	Develop minimum criteria for monitoring beach nourishment projects.	Yes	Yes	Yes	Yes		Part of the Beach and Inlet Management Plan (BIMP); contractor selection has been completed.
58	Convene stakeholder group to identify data gaps, funding	No	No	Yes	No		Part of the Beach and Inlet

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
	needs, and framework, and develop a timeline.						Management Plan. The Advisory Committee is comprised of appropriate state and federal agencies and members from the affected coastal communities. BIMP Advisory Committee meeting held in May 2007.
59	DCM will serve as a clearinghouse for beach nourishment monitoring data.	No	No	Yes	No		This is part of DCM CZMA section 309 program for 2006-2010; portions of this dataset already have been compiled by state and federal agencies as well as academic institutions. DCM is currently merging these datasets.
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.							
60	Prepare maps identifying areas where allowed use of bottom disturbing fishing gear does or could overlap areas with sensitive estuarine habitat.	No	Yes	No	No	By December 2008	Update GIS data layers for regulated area boundaries available - analysis required
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.							
61	Support/promote efforts to develop shoreline stabilization demonstration projects along non-ocean shorelines.	No	No	Yes	No		DCM has identified possible funding sources and will be submitting applications for assistance July 2007.
62	Encourage alternatives to vertical shoreline stabilization methods through permit requirements and fees.	Yes	No	Yes	No		The CRC is considering rule changes to its GP for shoreline stabilization that reduce the distance waterward in which bulkheads encroach into public trust areas, by moving

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							structure locations further landward of marsh vegetation to allow for marsh migration with sea level rise and to minimize construction impacts, and by promoting the benefits of rock structures.
63	Refine rule 15A NCAC 07H .2700 GP for Marsh Sills.	No	No	Yes	No	Ongoing	Included in ongoing effort of CRC Shoreline Stabilization Subcommittee.
64	Use NOAA grant to delineate estuarine shorelines; begin by developing mapping methods	No	No	Yes	No	2007-09	The Center for Geographic and Information Systems (CGIA) has been contracted to determine the methodology for delineating the shoreline and structures for North Carolina. They have evaluated techniques such as LIDAR, Feature Analyst, and digitizing from the best available aerial photography. By June 2007, CGIA will have delivered a suggested methodology report as well as a completed shoreline and delineated structures for all public trust waters in Carteret, Craven and Pamlico Counties.
65	Pursue and provide financial support for shoreline stabilization demonstration projects and studies	No	No	Yes	No		DCM has identified possible funding sources and will be submitting application for assistance July 2007.
66	Work with NOAA's Technical Advisory Committee members in their sponsored research program "Ecological Effects of Sea Level Rise" to develop information/tools to	No	Yes	Yes	No		DCM and DMF staff serving as management representatives; Presentations on SLR scheduled for

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	better forecast and manage landscape responses of critical natural resources relative to sea level rise.						July 2007 CRC (Projects Status Report). DCM participating in EPA Coastal Elevations and Sensitivity to SLR study – focuses on coastal areas of NY to NC.
67	Consider erosion rates as an additional factor in the siting of structures along estuarine and public trust shorelines.	No	No	Yes	No	2007-09	The Center for Geographic and Information Systems (CGIA) has been contracted to determine the methodology for delineating the shoreline. They have evaluated techniques such as LIDAR, Feature Analyst, and digitizing from the best available aerial photography. Recommendations expected June 2007.
3.5 Protect and enhance habitat for anadromous fishes by:							
<i>a) incorporating the water quality needs of fish in surface water use planning and rule-making</i>							
68	The Department, through the Division of Water Resources, will participate in a 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.	Yes	Yes	No	No	Complete study by 2012	Conduct study under section 216 of the federal Clean Water Act; include other DENR agencies with appropriate knowledge and programs.
<i>b) eliminating obstructions to fish movements, such as dams, locks, and road fills</i>							
69	The Department, through the Division of Water Resources and the Ecosystem Enhancement Program will focus on evaluation and possible removal of lock and dams 1, 2, and 3 on the Cape Fear River.	Yes	No	No	No		Being pursued by CHPP Steering Committee and FMP implementation group
70	The Department, through the Division of Water Resources and the Ecosystem Enhancement Program, will pursue dam removal projects where appropriate.	Yes	No	No	No	2007-09	

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
71	Modify dam removal policy with ACE to provide for accomplishing action #s 69 and 70, above.	Yes	Yes	Yes	Yes	2007-09	
72	Survey coastal river basins systematically to locate obstructions to fish migration and prioritize sites for removal/restoration.	No	Yes	No	No		
73	Obtain funding to restore designated streams and associated wetlands designated as anadromous fish spawning areas in the Albemarle Sound area as implementation steps for the River Herring Fishery Management Plan.	Yes	Yes	No	No		APNEP also pursuing funding.
4.1 Reduce point source pollution from wastewater by:							
<i>b) providing incentives for upgrading all types of wastewater treatment systems.</i>							
74	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.	No	No	No	Yes		
4.2. Adopt or modify rules or statutes to prohibit ocean wastewater discharges.							
75	Evaluate 15A NCAC 2H .0400 rules as they apply to ocean wastewater treatment systems and make recommendation to the EMC regarding modifications.	No	No	No	Yes		
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.							
76	Work with DENR to prioritize stormwater outfall mapping efforts on areas near critical fisheries habitats and implement DOT's Stormwater Pilot Project on new and innovative technologies to clean up discharges from NC DOT outfalls and associated outlets (DWR action).	Yes	No	No	No		Money with DENR; "Smart sponge" experiment underway in Dare County. Note: Consider UNC-Coastal Studies Institute as another partner in research.
77	Evaluate impact of deep-water ocean outfall for	Yes	Yes	Yes	Yes	2007-09	

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
	stormwater management (Lead: DWQ).						
78	Actively seek research on innovative technology to remove stormwater outfalls with 319 grant funding.	No	No	No	Yes		
79	Develop a plan to phase out municipal stormwater outfalls to sounds.	No	No	No	Yes	2007-09	All estuarine outfalls have been identified
80	Enhance DWQ coastal/state stormwater database by mid-2007	No	No	No	Yes	2007-08	Awaiting report
4.4. Enhance coordination with, and financial/technical support for, local government actions to better manage stormwater and wastewater.							
81	Provide Phase II stormwater educational & technical assistance to local governments through the DENR Runoff Pollution Campaign and through partnerships with the Division of Community Assistance and UNC Institute of Government.	No	No	No	Yes		
82	Implement Community Conservation Assistance Program with emphasis on CHPP stormwater priorities in coastal counties (DSWC action).	Yes	No	No	No	Start in 2007-08	DSWC program patterned after Agriculture cost share program. Need strong emphasis on Community Assistance Program because it is the only retrofit program that can begin to reverse stormwater pollution.
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:							
<i>a) improved methods to reduce sediment pollution from construction sites, agriculture, and forestry;</i>							
83	The NCDFR will use additional 319 Grant (NPS Pollution Prevention) funds in 2007 to purchase five additional sets of steel bridge mats for the Division's Bridge Mat Loan & Education Project.	Yes	No	No	No		Some of these new mats will be located at coastal plain district offices and made available to local loggers. Using bridge mats for stream or ditch crossings is a

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							preferred BMP with respect to protecting water quality and improving forest operation efficiency and costs.
84	Enhance DCM education efforts such as the N.C. NERR Septic Systems Workshops.	No	No	Yes	No		DCM held grant-writing workshops (2006) introducing participants to various funding agencies that provide assistance to local communities to make environmental improvements that control stormwater runoff, improve local water quality and restore watersheds. Coastal Reserves staff conducted a workshop on Stormwater Management and Sustainable Development in Morehead City on Nov. 1, 2006. (move to 2005-2007 actions)
85	The NCDFR will complete, publish, and distribute statewide 10,000 copies of the NC Forestry BMP Quick-Reference Field Guide in 2007-08.	Yes	No	No	No	2007-08	This 140+ page color-illustrated handbook will complement the Division's 2006 release of the NC Forestry BMP Manual To Protect Water Quality. The Field Guide is a hands-on document targeted at reaching loggers including their heavy equipment operators and laborers.
86	The NCDFR will seek funding to purchase 'rehab' fire plows for five of its coastal-based district offices.	Yes	No	No	No	2007-08	Pulled by tractors or dozers, fire plows are used by the Division to install many miles of prescribed fire and wildfire control lines on an

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							annual basis. Rehab plows leave a more environmental-friendly footprint on the landscape by minimizing sediment release and transport, while accomplishing similar forest protection goals as traditional fire plows. Rehab plows could be used to install control lines on prescribed burns and to mitigate wildfire control lines installed in sensitive areas under emergency conditions.
87	Obtain USDA approval to expand CREP to include the Roanoke, Pasquotank, White Oak, Lumber, and Cape Fear River basins. (DSWC action)	Yes	No	No	No		Awaiting USDA approval to include Roanoke and Pasquotank basins.
88	Implement enhanced marketing strategy for CREP to include education on Neuse and Tar-Pamlico buffer rules. (DSWC action)	Yes	No	No	No		
<i>b) increased on-site filtration of stormwater;</i>							
89	The NCDFR will begin long-term water quality and water quantity monitoring of Beddingfield Creek during 2007 in anticipation of implementing a 3,000+ acre watershed restoration effort in the Neuse River Basin.	Yes	No	No	No	2007-09	The Division is using 319 Grant funds to startup this watershed monitoring. The restoration will be part of the 10-year Urban Forest Watershed Protection and Education Initiative (UFWPEI). The UFWPEI seeks to improve the water quality in urbanizing watersheds by integrating managed forests with planned and existing development and protecting and enhancing sensitive areas in the

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							watershed. Phase 1 of the project has already generated > \$4.0 million in partnership funds, primarily used for land acquisition within the watershed.
<i>c) documentation and monitoring of small but cumulative impacts to wetlands and streams from approved, un-mitigated activities;</i>							
90	Coordinate with Wetland Functional Assessment Team to determine wetland status and trends.	Yes	No	Yes	Yes		Proposed for adoption by letter 21 May 2007.
<i>d) incentives for low-impact development (LID);</i>							
91	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.	No	No	No	Yes	Dec 2010	Four LID demonstration projects funded with Section 319 funds in Neuse, Tar-Pamlico, and Cape Fear basins
<i>g) other</i>							
92	The NCDFR will seek funding to establish two Water Quality Forester (WQF) positions in coastal-plain Districts 6 (Fayetteville) and 13 (Fairfield).	Yes	No	No	No	2007-09	The Division's WQFs provide a diversity of services including preharvest planning, onsite technical assistance, FPG compliance inspection, and forestry BMP education and training. The WQFs also engage in special projects related to forest water quality, such as the recurring Forestry BMP Implementation Survey Project.
93	The NCDFR will implement 'Tailgate BMPs for Loggers' in 2007-08, a customer education outreach project designed to take the classroom into the woods.	Yes	No	No	No	2007-09	This new service will target equipment operators and laborers that can not financially afford to take off a workday to attend forestry BMP training in a traditional

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							classroom environment.
94	The NCDFR will produce a 4th BMP video on forest operations.	Yes	No	No	No	2007-08	The video, entitled 'BMPs for Site Rehabilitation', will cover appropriate practices to use in stabilizing and closing out a harvested timber tract. Once completed, this video will be incorporated into NC Forestry Association's ProLogger Continuing Education program for water quality and other Division BMP training opportunities.
95	The NCDFR will produce a 2nd edition of the 'Riparian & Wetland Tree Planting Pocket Guide for North Carolina'.	Yes	No	No	No	2007-08	The Division produced 5,000 copies of this 77-page booklet in September 2006. The 1st edition is projected to be out-of-print by mid to late 2007.
96	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.	Yes	No	No	No		
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:							
<i>a) increased use of effective vegetated buffers,</i>							
97	<i>EMC solicit public comment on a proposal to extend the vegetative setback for new development within the 20 CAMA Counties from 30 feet to 50 feet.</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>2007-08</i>	<i>The EMC has initiated rulemaking action to revise DWQ's Coastal Stormwater rules. EMC is soliciting comment on the proposal.</i>
<i>b) reduction of impervious surfaces where feasible and reduction of the level of impervious surface allowable in the absence of engineered stormwater controls,</i>							

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
98	Require the use of engineered stormwater controls for all new development within 1/2 mile and draining to Shellfishing Waters that exceeds 12% impervious surfaces and new development that is not within 1/2 mile and draining to shellfishing waters would be required to install engineered stormwater controls is the impervious surface density exceeds 24%.	No	No	No	Yes	2007-08	The EMC has initiated rulemaking action to revise DWQ's Coastal Stormwater Rules (current threshold for engineered stormwater controls is 25% within 1/2 mile of shellfishing waters and 30% beyond 1/2 mile).
<i>c) expansion of CAMA Areas of Environmental Concern (AECs) upstream and landward, and</i>							
99	Expand CAMA Areas of Environmental Concern (AECs) upstream and landward within CAMA counties.	No	No	Yes	No	2007-09	
<i>e) Other</i>							
100	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.	No	No	No	Yes		Study is underway.
101	Develop a mitigation policy for intermittent streams.	No	No	No	Yes		In development.
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.							
102	Inventory docks and piers in the 20 coastal counties.	No	No	Yes	No		The Center for Geographic and Information Systems (CGIA) has been contracted to determine the methodology for delineating the shoreline and structures for North Carolina. They have evaluated techniques such as LIDAR, Feature Analyst, and digitizing from the best available aerial photography. By June 2007, CGIA will deliver a suggested methodology report as

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							well as a completed shoreline and delineated structures for all public trust waters in Carteret, Craven and Pamlico Counties.
103	<i>Incorporate EMC's prohibition of marinas in ORWs into CRC rules.</i>	No	No	Yes	Yes	2008-09	
104	<i>Evaluate marina development standards (rule NCAC 7H .0208(b)(5)). CRC consider rule changes to implement in dock and pier management.</i>	No	No	Yes	No		
105	Improve wastewater/stormwater management at coastal marinas	No	No	No	Yes		Evaluating existing and potential water/stormwater management at coastal marinas.
4.8 Reduce non-point source pollution from large-scale animal operations by the following actions:							
<i>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;</i>							
106	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.	Yes	No	No	No		
107	Support early implementation of environmentally superior alternatives to lagoon and spray field systems. Encourage commissions to express their support for early implementation.	Yes	No	No	No		
<i>b) seek additional funding to phase-out large-scale animal operations in sensitive areas and relocate operations from sensitive areas;</i>							
108	Seek funding for fourth phase of voluntary program to buy out active swine operations in the 100-year floodplain (DSWC action).	Yes	No	No	No		DSWC seeking funding from CWMTF.

