

**NORTH CAROLINA'S COASTAL HABITAT PROTECTION PLAN**

**2007 - 2008**

**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 2008

# Highlights

## September 2007 – August 2008 Accomplishments

### CHPP

- Coastal Habitat Protection Plan (CHPP) Steering Committee continues to meet quarterly to review multi-agency habitat issues and facilitate necessary changes in governance where unacceptable threats to habitat exist.
- CHPP Quarterly Permit Coordination meetings continue to improve effectiveness of permit process.
- A CHPP publication highlighting CHPP implementation was produced by the Department of Environment and Natural Resources (DENR) using money allocated from the Marine Fisheries Commission's (MFC) Conservation Fund, and 100,000 copies are being distributed coast-wide.
- Staff began work on the 5 year CHPP review and update, with completion scheduled for December 2009.

### MFC/DMF

- Anadromous Fish Spawning Areas were designated by the MFC (effective Dec. 2007) and the Wildlife Resources Commission (effective July 2008).
- The Division of Marine Fisheries (DMF) conducted river herring spawning surveys in the Chowan River system and began identifying stream obstructions.
- Acquisition of aerial imagery of submerged aquatic vegetation (SAV), the coastal shoreline and wetlands was completed by multi-agency effort (Albemarle Pamlico National Estuary Program, National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, DMF, and other DENR agencies). DMF was the lead agency for field groundtruthing and photo-interpretation for SAV, which is partially complete.
- Oyster sanctuaries in Pamlico Sound were enhanced through 1) additional rock placement, 2) development of remote setting tanks and seeding of oyster reefs, 3) establishment of a biological monitoring program to monitor survival, growth, and habitat colonization. Coordinating with several universities to provide additional monitoring in sanctuaries.
- Oyster shell recycling continues to grow; over 30,000 bushels of oyster shell have been recycled.
- A Strategic Habitat Area (SHA) analysis in the Albemarle region was completed, with assistance from a scientific advisory committee. Status - pending public input and approval.
- MFC SAV habitat definition was modified with input from DENR interagency workgroup to improve protection of the habitat and ensure consistency among regulatory agencies. Status - pending public hearing and MFC approval.
- Increased staffing allowed DMF to map an additional 83,000 acres of bottom habitat in Brunswick, Onslow, Carteret, Dare, Hyde, and Beaufort counties and to develop a process to map deeper areas.
- Legislative funding was received to move forward with the establishment at UNC-W of a shellfish hatchery for research and oyster seed production..

### DWQ/EMC

- The Environmental Management Commission (EMC) adopted revised coastal stormwater rules in the twenty coastal counties, which will increase protection of coastal waters from the effects of stormwater pollution. These rules were modified, then passed as a session law by the General Assembly and will be effective October 1, 2008 after extensive legislative review.
- Two stormwater compliance positions were created in 2007 and filled in 2008. Each position, one in the Wilmington Regional Office and one in the Washington Regional Office, will work initially to establish priorities and coordinate enforcement.
- Continuing inspection of high density Coastal Stormwater Permits as they come up for renewal.

- Continued water quality monitoring in the Neuse Estuary by way of the MODMON and FerryMon programs with money appropriated by the General Assembly.
- Hosted a water quality monitoring forum, NC for Water, at UNC-Charlotte in May 2008, aimed at coordinating monitoring efforts among state and federal agencies, universities, and local governments.
- DWQ worked with DOT on a SAV and oyster habitat restoration and mitigation project in the Currituck Sound. Restoration work has been completed and monitoring continues to assess the success of the project.

### **DCM/CRC**

- Drafting of the Beach and Inlet Management Plan (BIMP) is underway. It will include establishing a database on past, current, and future beach nourishment and associated relevant geologic and ecological relevant data. Two advisory committees were formed to provide input.
- The Division of Coastal Management (DCM) completed a draft methodology for delineating the shoreline and structures for North Carolina. Once this methodology is approved, DCM will begin digitizing efforts.
- The Coastal Resources Commission (CRC) has proposed rule changes to its General Permit for shoreline stabilization that will reduce the distance waterward in which bulkheads encroach into public trust areas, and by promoting the benefits of rock structures through permit fee structure. Working with DWQ on other shoreline stabilization issues.
- DCM's N.C. National Estuarine Research Reserve (NERR) has received a Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET) grant to partner with NOAA and UNC to study shoreline stabilization and marsh sills.
- CRC has proposed changes to dock and pier rules, which give property owners flexibility in docking facilities (8 sq. ft./linear ft. shoreline) and includes minimum water depth for docks permitted under a General Permit (2') and minimum water depth for floating docking facilities under the General Permit if located in a Primary Nursery Area (PNA), SAV or Shell bottom (18").
- NCNERR and APNEP produced a Newspaper in Education insert for the Raleigh News and Observer in November 2007 about coastal fish habitat. 170,000 inserts were distributed throughout the state.
- NCNERR Coastal Training Program 1) held a course on alternatives to how and where growth will occur in their communities, 2) conducted online demonstrations of the Habitat Priority Planner, a geospatial planning tool that uses data to help people visualize ecological scenarios and make resource decisions, 3) conducted On-site Wastewater Treatment and Disposal Systems Basics workshops.
- DCM is participating in the Environmental Protection Agency's Coastal Elevations and Sensitivity to Sea Level Rise study. The study focuses on the coastal areas from New York to North Carolina.

### **DENR**

#### *Division of Soil and Water Conservation*

- The North Carolina Division of Soil and Water Conservation (NCDSWC) has begun implementing the Community Conservation Assistance Program on a statewide basis. No additional funding was received from the General Assembly in 2008. This program has great potential for retrofitting stormwater problems.
- The NCDSWC obtained USDA approval to expand CREP to include the Roanoke, Pasquotank, White Oak, Lumber, and Cape Fear River basins.
- The Lagoon Conversion Program selected 3 projects in Sampson County for assistance. NCDSWC may fund one additional project. \$2 million was appropriated in FY2007-08. The voluntary swine buyout program received a grant for the 4<sup>th</sup> phase of the buyout.
- In CREP training events in March 2008, the NCDSWC included information on the Neuse/Tar-Pamlico buffer rules and strategies to encourage proactive buffer installation.

#### *Division of Environmental Health*

- The Shellfish Sanitation shoreline survey coordinator has held several meetings with representatives of both DENR and county agencies. DEH-SS has produced a draft Standard Operating Procedure (SOP) document outlining new shoreline survey methodology program procedures. To expand the new shoreline methodology to all coastal growing areas, a shoreline survey “Task Force” is planned to meet in 2008 to review DEH-SS Shoreline Survey SOP and define an inspection program to enhance habitat protection.
- All shellfish closure maps are complete and online at the DEH-SS web site.

#### *Division of Forest Resources*

- The NCDFR purchased five additional sets of steel bridge mats and located two sets in the Neuse and Tar-Pamlico and Roanoke River Basins.
- The NCDFR produced a 2nd edition of the ‘*Riparian & Wetland Tree Planting Pocket Guide for North Carolina.*’ Ten thousand copies were printed.
- The NCDFR has submitted documentation to NCDOT that will support a \$15,000 NCDOT stipend to fund startup of two water quality monitoring stations upstream and downstream of the Claridge Nursery project just west of Goldsboro.

#### *Environmental Enhancement Program*

- As of September 2008, EEP has over 150 restoration, enhancement and preservation projects within coastal river basins. These projects encompass more than 100 miles of stream, 22,000 acres of riparian and non-riparian wetland, 450 acres of coastal marsh, and 750 acres of buffer.
- EEP has engaged the U.S. Army Corps of Engineers in determining the practicality of developing dam removal projects in the mitigation context. Specific dam removal projects are being incorporated into the recommendations of ongoing Local Watershed Plans.
- EEP received legislative approval to modify their fee structure to allow them to continue to perform mitigation when selected on a voluntary basis by permit applicants to fulfill mitigation requirements.

#### *Albemarle Pamlico National Estuary Program*

- APNEP, in partnership with NOAA and DMF, has overseen the production of aerial photographs covering all coastal waters of North Carolina where SAV habitat could exist. The digital images were acquired during 1,795 flight line miles in autumn 2007 and spring 2008, and are being used by DMF photo interpreters to create a baseline map of SAV presence as an initial step toward SAV habitat monitoring.
- Contracted with DMF to monitor water quality parameters for river herring in the Albemarle Sound. Purchased seven remote water quality sensors for the river herring work.
- In partnership with NCNERR, produced a *Newspaper in Education* insert for the *Raleigh News and Observer* in November 2007 about estuaries and coastal fish habitat. 170,000 inserts were distributed throughout the State.
- APNEP identified a stream segment in the upper Tar River Basin for restoration of degraded waters and work towards removal from the Federal 303-d impaired waters listing.

## September 2008 – August 2009 Planned Action and Needs

- Continue work towards full implementation of the EMC's amended Coastal Stormwater Rules (EMC/DWQ).
- Ensure the progress of the BIMP (CRC/DCM).
- Delineate SHAs in the Albemarle Sound and White Oak River priority areas (DMF/MFC, WRC).
- Continue to review "Inner Banks" development issues and address environmental issues (CRC/DCM, DWQ/EMC).
- APNEP's Living Aquatic Resources and Water Resources Monitoring Teams, whose membership include state and federal agency plus university representatives, will begin work on developing monitoring plans for freshwater, estuarine, and marine habitat indicators.
- Begin to seriously address the challenges associated with Sea Level Rise and climate change more broadly in a context consistent with the reports of the Legislative Committee on Climate Change to NC (DENR).
- 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 (DMF/DCM/DENR).
- Examine the feasibility and preferred siting of wind turbines in North Carolina without significantly impacting fish habitat (DENR).
- Pursue funding for the Community Conservation Assistance Program (CCAP) in the Division of Soil and Water Conservation (DENR).
- 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 (DENR).
- Continue development and refinement of shoreline stabilization rules that preserve ecosystem function and consider rising sea levels and a changing land/water interface (DCM/CRC).
- Form an Interagency Task Force to develop an effective Inspection Program to focus more resources on areas that are critical to coastal habitat protection (Shellfish Sanitation).
- Take steps to encourage more restoration of degraded waters and work towards removal from the Federal 303-d listing (APNEP/DWQ).
- APNEP will continue to collaborate with Environmental Defense to develop a comprehensive assessment methodology for wetland functionality in the Chowan Estuary of Western Albemarle Sound, as the basis for setting goals for wetland extent and condition, developing programs to achieve those goals, and tracking progress. This work will be used to prioritize short-term actions, and as an integral part of the long-term implementation plans for state and federal resource management in the region, and will include the establishment of a Core Wetland Reserve and implementation pilots in one or two key watersheds.
- APNEP will receive a grant from the US EPA to pilot a program addressing climate change issues in the A-P region. They will be working with the Nicholas Institute and others on the project.
- Continue to identify problems regarding infrastructure for Waste Water Treatment Plants and system maintenance. Work with the local governments to develop and implement plans to correct deficiencies (DWQ).
- Continue to develop a non-traditional mitigation strategy for the White Oak basin (EEP). The consultants developing the Local Watershed Plan (East Carolina University and Environmental Defense Fund) are working through EEP's Non-Traditional Mitigation Steering Committee and two ad hoc advisory committees to seek consensus goals and a viable mitigation strategy.
- The CHPP Steering Committee has extended an invitation to the WRC to formally join the steering committee with two members and to fully participate in the implementation of the CHPP.

- Work with the Division of Water Resources to minimize conflicts between Aquatic Weed Control practices and protection of SAV habitat (DMF/MFC, WRC).
- Consider development of a conservation lease for the purpose of oyster and other habitat restoration (DMF/MFC).
- Finalize and approve Strategic Habitat Areas in Region 1 and develop recommended work plans for those SHAs (DMF).
- Seek funding to initiate research on impacts of endocrine-disrupting chemicals to blue crabs and oysters (DENR).
- Work with the Department of Agriculture and Consumer Services to develop and implement a drug disposal program for pharmaceuticals (DMF/MFC).
- Complete photo-interpretation of SAV imagery of coast (DMF/APNEP).
- Complete river herring spawning surveys in Albemarle system and prioritize obstruction removals (DMF).
- Continue expanding the oyster sanctuary program, seeding sanctuaries with live oysters, and construct oyster hatchery (DMF).
- Update the Coastal Habitat Protection Plan (DMF).

## **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 2007 and ending in August 2008.

### **North Carolina Coastal Habitat Protection Plan (CHPP)**

The CHPP focuses on six basic fish habitats: water column, shell bottom, submerged aquatic vegetation (SAV), wetlands, soft bottom, 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. The accomplishments of the first two years of the CHPP were reported in the 2007 CHPP Annual Report.

In the fall of 2007 a second two-year Implementation Plan was adopted by the three commissions. Numerous specific actions have been accomplished during this past year or are well 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 that are part of the 2007-2009 CHPP Implementation Plan and have been completed this past year, or have realized significant progress.

### **Administration and Public Outreach**

- **Administrative Activities**

During this past year, the second two-year implementation plan (2007-2009) has been at the forefront of the Department's priorities, as well as those priorities of its divisions and their respective regulatory commissions. This second iteration of the two-year implementation plan once again details more than 100 specific action items the agencies within DENR have undertaken, or will undertake, in an effort to carry out the ambitious CHPP recommendations. This most recent implementation plan has been placed on the CHPP web site, along with the accomplishments documented in the 2007 Annual Report to facilitate public review. The research priorities associated with the implementation of the CHPP are also a part of the CHPP website.

The Coastal Habitat Protection Plan continues to receive significant support from the General Assembly. In the 2008-2009 fiscal year budget, the continuing effort to rebuild and rehabilitate North Carolina's oyster populations received a large amount of help from the legislature. The legislature appropriated \$2,000,000 to expand NC's Oyster Sanctuary Program, which included money for six new positions within DMF. Along with this appropriation, the General Assembly designated \$4.3 million of COPs money towards the building of an oyster research hatchery located at UNC-Wilmington. Additionally, \$146,312 was designated for River Herring restoration work from the money appropriated for the Fishery Resource Grant (FRG) Program.

In August of 2008, the first meeting was held by the CHPP Team to begin the 5-year review mandated by the Fisheries Reform Act of 1997. According to that legislation, every management plan must be reviewed and updated at least every 5 years. The Team will be diligently working on this review, with the goal of having it completed and presented to the respective commissions in late 2009. Included in the update will be CHPP accomplishments, emerging issues such as Sea Level

Rise, pharmaceuticals and population increase, status reports on each of the six identified CHPP habitats and any additional research needs that may be identified with the emerging issues.

- Public Outreach

The CHPP Steering Committee, comprised of two members each from the Environmental Management, Coastal Resources, and Marine Fisheries commissions, continues to play a 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 to discuss CHPP-related topics and exchange information regarding CHPP implementation activities of the respective commissions and divisions.

In 2006, DENR assigned its Eastern Regional Field Officer as the coordinator for CHPP implementation. The CHPP Coordinator is strategically housed in DENR's Office of Conservation and Community Affairs, which also includes 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. These groups include DENR and its agencies, the regulatory commissions, the Coastal Resources Advisory Council, North Carolina Sea Grant Program, APNEP, The Nature Conservancy, the NC Coastal Caucus, the North Carolina Coastal Federation, local governments, and several local civic clubs and groups with environmental concerns. The CHPP Coordinator is working with the Soil and Water Conservation District supervisors in the 20 coastal counties regarding specific issues pertaining to habitat conservation and protection. Team members participate in meetings associated with various CHPP implementation actions, such as the Beach and Inlet Management Plan Advisory Committee, Ocean Policy Steering Committee, and Habitat Priorities Advisory Committee.

In 2008, the CHPP program published a twelve-page newsprint brochure entitled: "*Coastal Habitat Protection Plan for North Carolina: Celebrating Success and Looking Toward Tomorrow.*" This brochure provides some excellent examples of CHPP success stories as well as a look towards some future CHPP opportunities. This brochure has been well received by the public and will continue to be an excellent resource to keep CHPP in the forefront on the issues involving the coastal habitats of eastern North Carolina. The brochure has been widely distributed through the aquariums, environmental education centers, state parks and through various DENR divisions. It will be readily available at the Seafood Festival in Morehead City in October, as well as the State Fair.

The CHPP tabletop display was used at several meetings concerned with coastal habitat. CHPP Team members and the Eastern Regional Field Officer provided updates to the CRC, EMC and MFC on a regular basis.

## **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. The original report of research needs continues to be available on the CHPP web site.

The APNEP, in conjunction with NOAA, NCDOT, ECSU and several DENR agencies has taken the lead in funding and coordinating a statewide effort to aerially photograph all high salinity and low salinity beds of Submerged Aquatic Vegetation. The flights to digitally photograph the coastal waters of North Carolina were flown during the fall of 2007 and remaining flight lines were flown this past spring. Some follow up flights may need to be flown this fall in an effort to achieve better resolution and clarity in specific areas. A GIS analyst has been allocated by DMF to photo-interpret the imagery. The photographs will be used by several agencies involved with permitting, as well as used to help inventory docks, piers and hardened shoreline structures. Currently, almost half of the pictures have been turned over to DMF for interpretation.

## ATTACHMENT 1.

### CHPP STEERING COMMITTEE MEMBERS, 2007 – 2008

#### Marine Fisheries Commission

|                    |               |              |
|--------------------|---------------|--------------|
| Mr. Jess Hawkins   | Morehead City | 252-808-3354 |
| 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

|                     |            |              |
|---------------------|------------|--------------|
| Mr. Wayland Sermons | Washington | 252-946-0006 |
| 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 CHPP update scheduled to be completed by December of 2009. 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 recently 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 complement those of the MFC/DMF and EMC/DWQ.

| Action   | Agencies |     |     |     |     | Target year | Status | Status (details)   | ActionID |
|--|----------|-----|-----|-----|-----|-------------|--------|--|----------|
|  | DENR     | DMF | DCM | DWQ | WRC |             |        |  |          |
| <i>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.</i>   |          |     |     |     |     |             |        |  |          |
| 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.  | -        | -   | X   | -   | -   | 2008        | C      | Rules effective 1 February 2008  | 289      |
| The Department will seek funding for additional compliance positions in appropriate programs.  | X        | -   | X   | X   | -   | Ongoing     | C      | DWQ needs one more for Wilmington. Land Resources needs positions; CRAC sending letter of support for establishment of additional DWQ compliance positions (5/1/2007). Washington stormwater compliance position created in 2007 was filled in 2008. Will begin work by establishing priorities and coordination of enforcement. Do not know if Raleigh compliance positions have been filled or how msny inspections have been done. Continued inspection of high density Coastal Stormwater Permits as they come up for renewal. | 253      |
| The Division of Coastal Management will develop a Compliance Education Coordinator position. Compliance promotion by DCM will encourage voluntary compliance with CRC and CAMA/Dredge and Fill rules, laws, and requirements, helping overcome some of the barriers to a successful and effective enforcement program. | -        | -   | X   | -   | -   |             | PC     | Moving forward   | 290      |

|   |   |   |   |   |   |   |    |   |     |
|---|---|---|---|---|---|---|----|---|-----|
| Cross train Marine Patrol officers to take note of and report violations of EMC rules and permits in Coastal Waters to appropriate agencies.                                      | - | X | X | X | - | Plan in FY 2007-08; train in 2008-09; implement following training. | NA | Marine patrol   | 168 |
| Enhance DMF habitat alteration permit review capability.  | - | X | - | - | - | Establish program and staff in FY 2008-09                           | PC | One position in each regional office plus one clerical position (total=5) as requested in DMF expansion budget (6/11/07). Requested 2 positions through CRFL grant and expansion budget processes. Currently pending.   | 165 |
| 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. | X | - | X | X | - | 2007-08 (1st step)  | PC | Steps: 1-Organize a DENR interagency inspection task force to examine the issue and develop a system to accomplish the objective - DEH – Shellfish Sanitation Shoreline Survey Coordinator has held several meetings with representatives of both DENR and County agencies. DEH-SS has produced a draft SOP document outlining the new shoreline survey methodology program procedures. Progress has continued on expansion of the new shoreline methodology to all coastal growing areas. Draft letter to lead CHPP agencies complete and will be sent to CHPP team for review. Shoreline survey “Task Force” will be formed by the end of this year to review DEH-SS Shoreline Survey SOP and define an inspection program to enhance habitat protection; 2-Produce a report with proposed new inspection regime and list of additional resources necessary to execute the plan; 3-Begin implementing the plan. | 166 |
| Conduct outreach to educate citizens in their jurisdictions about DWQ's Neuse and Tar-Pamlico riparian buffer rules.  | - | - | X | X | - |   | DK | Additional needs?   | 167 |
| Share ACE permit tracking system to address cumulative impacts.   | X | - | X | - | - |   | NA | The Division is re-evaluating this proposed action.   | 153 |

|  |   |   |   |   |   |         |    |   |     |
|--|---|---|---|---|---|---------|----|---|-----|
| 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.  | - | X | - | X | X | 2008-09 | PC | Issue of striped bass pond discharge raised at MFC Habitat & Water Quality Committee due to high chl a levels at discharge sites. DWQ submitted a draft SOC for final review. Once a DWQ consensus has been reached the SOC will be sent to the first five farms for the signature. SOC calls for the preparation of a Farm Management Plan, which will minimize water quality impacts during the life of the SOC, and a Final Solution Plan which will, when implemented resolve all water quality standard impacts. | 131 |
| Develop permit application survey protocols for shellfish and SAV habitats for CAMA applicants to use.   | - | X | X | - | - | 2007-08 | C  | Draft protocol developed. Incorporated into DMF permit review guideline document.   | 133 |
| Ensure consistency in habitat definitions among agencies and commissions.  | X | X | X | X | X | Ongoing | PC | Habitat section - draft rule language for SAV habitat being developed by DENR interagency workgroup; public hearings in Oct. Working with DCM since its related to dredging and dock rules.   | 152 |
| <i>Recommendation 1.2 Coordinate and enhance water quality, physical habitat and fisheries resource monitoring (including data management) from headwaters to the nearshore ocean.</i>   |   |   |   |   |   |         |    |   |     |
| Enhance dependable water quality monitoring by investing in Neuse Estuary MODMON and FerryMon.   | X | - | - | - | - | Ongoing | C  | Continued water quality monitoring in the Neuse River by way of the MODMON and FerryMon programs.   | 184 |
| 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. | X | X | X | X | X |         | PC | All shellfish closure maps available on DEH-SS and NC-One map websites (5/1/2007). Monitoring data IBEAM development has been at a stand still. No DENR programmer available to complete IBEAM system for water sampling data and shellfish closure data.   | 185 |

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| 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. | X | X | X | X | X | Ongoing  | C  | New shoreline methodology has been expanded to all shellfish growing areas for both the Triennial and Annual Shoreline Surveys with 60% complete. Problems/violations/areas of concern are reported to the appropriate agency with jurisdiction regarding the violation. Spreadsheet attached listing Growing Area Shoreline Surveys completed using the new methodology.                               | 186 |
| The Department, through the Albemarle-Pamlico National Estuary Program (APNEP), will develop a comprehensive monitoring plan for the estuarine system.   | X | X | X | X | X | End of 2008  | PC | Coordinate with data sharing processes (ActionID 132). Related to ActionID 188: development of estuarine and nearshore health indicators. APNEP's Living Aquatic Resources and Water Resources Monitoring Teams, whose membership include state and federal agency plus university representatives, began work on developing monitoring plans for freshwater, estuarine, and marine habitat indicators. | 187 |
| Analyze DMF data to develop fish-based habitat indicators.   | X | X | - | - | - | End of 2008  | C  | Fisheries Management and Habitat sections. Indicators developed for DMF habitat and fish indicators selected by APNEP – so. Flounder, shrimp and crab populations, clam & oyster extent, obstructions to upstream migration, shellfish disease, anadromous fish spawning areas. SeaGrant fellow analyzed habitat indicators in Albemarle Region.  | 134 |
| Develop a suite of indicators of estuarine and nearshore coastal health.   | X | X | X | X | X | Start in 2006-07; complete development by Dec 2007 | PC | Finalizing ecosystem indicators.  | 188 |

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| 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.                                       | X | X | X | X | X | 2007-09 | PC | Coordinate with comprehensive monitoring program (ActionID 187). Fisheries Management and IT sections. 1) DMF is developing process for documenting DMF reports and data sets. Will be available on website for other agencies. 2) Provided GIS habitat data to One NC Naturally for the Conservation Planning Tool. DCM's Estuarine Shoreline Mapping Summit to develop consistent mapping strategies is part of this effort. | 132 |
| Host Forum for Coordinating Water Related Monitoring among Government Agencies, Universities, and Local Governments.   | - | - | - | X | - | 2008    | C  | Hosted NCforWater at UNC Charlotte in May 2008, a water quality monitoring forum aimed at coordinating monitoring efforts among state and federal agencies, universities, and local governments.   | 286 |
| <i>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.</i>   |   |   |   |   |   |         |    |  |     |
| 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. | X | - | - | - | - | 2007-09 | DK |  | 190 |

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| Develop and implement an educational outreach plan for CHPP.   | X | - | X | - | - | Ongoing | PC | NC-NERR included development of the plan in its activities for FY 07-08 (5/1/2007). NCNERR and APNEP produced a Newspaper education insert for the Raleigh News and Observer in November 2007. A full page of the insert was dedicated to Coastal Fish Habitats. 170,000 inserts were distributed throughout the State. NCNERR designed the centerfold of the CHPP update in May 2008. 100,000 copies were distributed throughout the State. NEER also: (1) produced an interpretive sign on Coastal Fish Habitats for the Rachel Carson Boardwalk, (2) developed two curricular activities (Estuary Keeper & ECO-Logical) that focused on CHPP habitats, (3) held a Stormwater Management workshop in the Fall of 2007, and (4) developed a one-page educational brief on Stormwater Management for the CRAC in Sept. 2007. NCNERR encourages Graduate Research Fellow applicants to address CHPP research priorities. | 20  |
| NERR will include a segment of E-Live to focus on fish habitat.  | - | - | X | - | - | Ongoing | PC | E-Live has featured shell bottom and SAV in its 2007 session; 2008 session will focus on soft bottom.   | 192 |
| North Carolina's Clean Marina Program and Clean Vessel Act activities will emphasize the threats to fish habitat and benefits of BMPs. | - | - | X | - | - | Ongoing | PC | 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. Clean Boating Guide distributed to marinas (5/1/2007). Two Clean Marina workshops held in December 2007 focused on power washing.  | 193 |
| DCM and N.C. Sea Grant will incorporate CHPP into their research and education efforts.  | - | X | X | - | - |         | DK |   | 195 |
| Create interactive display(s) showing habitat functions and threats for use at festivals, etc.   | X | X | X | X | X | 2008    | PC | Public Information section. DMF is partnering with other DENR agencies to develop a "Habitat House" (env. friendly house) as educational display at state fair.   | 135 |

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| Develop and distribute brochures about fish, fish habitat, and fishing to be available for general distribution by DENR staff.  | X | X | X | X | X | 2007-09   | PC | NCNERR will print out copies of the Coastal Fish Habitat interpretive sign for the Seafood Festival   | 269 |
| Educate traditional economic interests on the impact of stormwater rules  | - | - | - | X | - | Ongoing   | C  | Sponsoring five workshops in September 2008 to inform consultants, developers, local government, and other state agencies on the impact of new stormwater rules   | 285 |
| <i>Recommendation 1.4 Coordinate rulemaking and enforcement among regulatory commissions and agencies.</i>  |   |   |   |   |   |           |    |   |     |
| 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.  | X | X | X | X | X | Ongoing   | PC | 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 impact and SEPA concerns   | 196 |
| The DFR 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. 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. | X | - | - | X | - | Late 2009 | PC | Project delayed due to staff vacancy. [The Water Quality & Wetlands Staff Forester position accountable for completing this project was refilled in early 2008.] 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. | 169 |

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| DWQ Basinwide Planners review CAMA Land Use Plans   | - | - | X | X | - | Ongoing                                    | PC | Reviewed plans for Caswell Beach, Holden Beach, North Topsail Beach, Ocean Isle Beach, Swansboro, Tyrrell County/Columbia, and Sunset Beach.   | 291 |
| <i>2.1. Evaluate potential Strategic Habitat Areas by:</i>  |   |   |   |   |   |  |    |  |     |
| <i>a) coordinating, completing, and maintaining baseline habitat mapping (including seagrass, shellbottom, and other bottom types) using the most appropriate technology;</i>                 |   |   |   |   |   |  |    |  |     |
| Map submerged aquatic vegetation (SAV) in coastal North Carolina.   | X | X | X | X | X | Complete initial coastwide mapping 2007-08 | PC | All photos taken (1795 linear mi) in fall 2007 and spring 2008 with pre-water clarity monitoring. 1490 ground truth points taken in 67 areas. Photos partially photo-interpreted. Expected due date mid 2009 for fall 2007 photos.                   | 202 |
| Continue mapping of all shallow estuarine bottom and bottom types.  | - | X | - | - | - |  | PC | Resource Enhancement- working to complete western Pamlico near Swanquarter and Brunswick Co. In 07-08, mapped 83,676 acres in Brunswick, Onslow, Carteret, Dare, Hyde and Beaufort Counties. Expect to have all shellfish bottom mapped by Dec 2009. | 203 |
| Map deep (> 10 ft) estuarine bottoms, starting with lower Neuse River.  | - | X | - | - | - | Begin 2007-08                              | PC | Resource Enhancement. Developing protocol using Acoustic Ground Discrimination System. Will train techs in fall.   | 254 |
| 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. | - | - | X | - | - | 2007-09                                    | PC | Completed the mapping of Rachel Carson Reserve and Masonboro Island Reserve. Planning to map the Currituck Banks Reserve in 2009.  | 205 |
| <i>b) selective monitoring of the status of those habitats;</i>   |   |   |   |   |   |  |    |  |     |
| Conduct cooperative DMF/NOAA research evaluating environmental conditions needed to provide suitable SAV habitat.   | X | X | - | - | - | Begin summer 2007                          | PC | Habitat section. Original DOT funding fell through. However, APNEP/NOAA/ECU submitted CRFL proposal for this. Pending.   | 138 |

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| DMF and NERR will initiate SAV monitoring of sentinel sites   | - | X | X | - | - | 2008  | NA | Initial concepts have been discussed at NC SAV Workgroup meetings. Monitoring activities are dependent on identification of funding; a multi-agency SAV Workgroup team submitted a proposal for long term field monitoring of SAV for CRFL funding in Aug. '08. NERNER sites may be included in monitoring sites if the project is selected for funding. | 154 |
| <i>c) assessing effects of land use and human activities on those habitats.</i>   |   |   |   |   |   |   |    |  |     |
| Conduct research on the effects of current dock siting practices on SAV and shell bottom, and determine design modifications that would minimize impacts.   | - | X | X | X | X | 2008-09   | NA | Possible federal aid or university research project.   | 208 |
| <i>d) and other SHA related activities.</i>   |   |   |   |   |   |   |    |  |     |
| Expand CMAST fellows program to include habitat and SHA research.   | - | X | - | - | - | 2008-09   | C  | Habitat section and Directors Office. CMAST fellow Tim Ellis analyzed Prg 100 data in relation to SHA analysis.  | 278 |
| <i>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.</i> |   |   |   |   |   |   |    |  |     |
| Integrate information resulting from SHA committee into DENR Divisions' guidelines, policies, and rulemaking.   | X | X | X | X | X | Start July 2007; continue through SHA designation | PC | Habitat, MFC, and Directors Office. Meeting was held to discuss management options.  | 210 |
| Conduct SHA evaluation and designation process for Albemarle Sound area.  | - | X | - | - | X | 2007-08   | C  | Habitat section. Region 1 (Albemarle Sound) SHA committee formed. HAVe completed draft selections and public workshop. Final report pending.   | 140 |
| MFC/WRC designate Anadromous Fish Spawning Areas.   | - | X | - | - | X | 2007-08   | C  | Designated by MFC (eff. 12/07) and WRC (eff. 7/08)   | 207 |
| Work with DENR to include SHA priorities within EEP local watershed plans and DENR conservation planning tool.  | X | X | - | - | X | 2007-09   | PC | Some data provided to DENR for Conservation Planning Tool. Working with EEP on compensatory mitigation. EEP will continue to participate in the Conservation Planning Tool effort and help facilitate SHA updates as they become available.  | 270 |

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| Conduct SHA evaluation and designation process for White Oak basin.   | - | X | - | - | X | 2008-09       | PC | Habitat section. GIS data layers being assembled   | 141 |
| Conduct SHA evaluation and designation process for Pamlico Sound and tributaries  | - | X | - | - | X | 2008-09       | PC | Habitat section. GIS data layers being assembled.  | 284 |
| <i>3.1 Greatly expand habitat restoration, including:</i>   |   |   |   |   |   |               |    |  |     |
| <i>a) creation of subtidal oyster reef no-take sanctuaries,</i>   |   |   |   |   |   |               |    |  |     |
| Enhance oyster sanctuaries in Pamlico Sound system. Expand several sanctuaries; plan new sites.                                       | - | X | - | - | - |               | PC | Resource enhancement. In 2008, ~7,300 bu rock and ~300 bu of oyster shell were deployed. Legislature allocated \$2 million in appropriations - will support 6 new positions, purchase of rock material, and establishment of remote setting programs.            | 212 |
| Enhance Oyster Shell Recycling Program. Discourage use of shell material for landscaping or other uses besides shellfish cultch.      | - | X | - | - | - | Ongoing       | PC | Resource enhancement. State law prohibits shell disposal in landfills. Through increased public awareness, over 300,000 bu shell were collected in 2007. Increased partner assistance in collections. Appropriated additional \$ for seasonal recycling program. | 213 |
| Monitor all oyster sanctuaries for oyster recruitment, survival, and growth.  | - | X | - | - | - |               | PC | Resource Enhancement. Prg. 611 established for oyster sanctuary monitoring. 7 of 9 oyster sanctuaries monitored this year. Parameters included size structure of oysters, survival, growth rates, wq conditions, colonization on oyster shell.                   | 214 |
| Work with university researchers to monitor fish/invertebrate use of oyster sanctuaries and effect of oysters on local water quality. | - | X | - | - | - | Start 2007-08 | PC | Resource Enhancement. FRG underway by Dr. Peterson looking at fish utilization on oyster sanctuaries. DMF working to assign different researchers to different sanctuaries to spread out monitoring.   | 261 |
| Cooperate with university researchers on oyster larvae distribution and movement investigations                                       | - | X | - | - | - | 2007-09       | PC | Resource Enhancement. Ongoing FRG by Cudaback and Hasse/Egleston.  | 256 |

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| DMF Resource Enhancement Section will initiate dissolved oxygen (DO) sampling in Pamlico Sound system to aid in determining suitable sites for oyster restoration.  | - | X | - | - | - | 2007-08 | C  | Coordinate with DWQ Rapid Response Program data collection. Resource Enhancement (6/11/07). DMF working with UNC-G who is deploying continuous monitoring devices at 3 locations in Neuse R.  | 271 |
| Support funding for establishment and operation of shellfish hatcheries   | X | X | X | X | - | Ongoing | PC | General Assembly approved funds for building the hatchery. DMF and UNC will use the funds to build the hatchery. Coastal Resources Advisory Council submitted a resolution supporting funding of hatcheries   | 275 |
| <i>b) reestablishment of riparian wetlands and stream hydrology.</i>  |   |   |   |   |   |         |    |   |     |
| Work with the Corps of Engineers and the Department of Transportation on innovative mitigation projects and an appropriate crediting system for them under the 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. | X | X | - | - | X | Ongoing | PC | EEP is incorporating CHPP priorities into its coastal cataloging unit screening process to promote 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. Work continues on a rapid assessment method for evaluating the condition of estuarine habitats in order to target subwatersheds for mitigation/restoration. The consultants developing rapid assessment method (ECU and NC Environmental Defense) are working through EEP's Non-Traditional Mitigation Steering Committee and two ad hoc advisory committees to seek consensus goals and a viable mitigation strategy. This strategy will be presented to the Program Assessment and Consistency Group (PACG—includes representatives of the USACE and NCDOT) for review and approval during the following year. | 265 |
| 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  | X | X | - | - | X |         | DK | Coordinate with DENR Strategic Conservation Plan  | 217 |

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| habitats.  |   |   |   |   |   |         |    |  |     |
| 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.   | X | X | X | - | X | 2007-09 | DK | Coordinate with DENR Strategic Conservation Plan   | 218 |
| 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. | X | X | - | - | X |         | DK |  | 219 |
| 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.   | - | X | - | - | X | 2007-08 | PC | Fisheries Management section. EC staff conducted surveys in Chowan R. system spring '08. Will continue '09 | 146 |
| Include Strategic Habitat Areas as a priority area for CREP.   | X | X | - | - | X | 2007-09 | NA | Once SHA maps are completed, CREP may incorporate them into the ranking                                    | 149 |

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| DSWC encourage local SWCDs to include Strategic Habitat Areas and other CHPP priorities in local priority ranking system for the Agriculture Cost Share Program and the Community Conservation Assistance Program. | X | - | - | - | - | 2007-09                         | NA | Need strong emphasis on Community Conservation Assistance Program because it is the only retrofit program that can begin to reverse stormwater pollution. Waiting on completion of SHA designation.   | 150 |
| Establish and maintain an inventory of restoration projects describing the location, amount, and type of habitat established in the coastal river basins.  | X | - | - | X | - | Ongoing                         | PC | APNEP is conducting an inventory in northeast region; DWQ 319 Program and CWMT also have inventories. EEP maintains a database of restoration projects and will provide DMF with updates of projects located in coastal river basin SHAs. EEP tracks the number of stream, wetland (riparian, non-riparian, coastal marsh) and buffer projects. In the upcoming year, EEP will work with DMF to identify and track projects at the SHA scale. As of September 2008, EEP has over 150 restoration, enhancement and preservation projects within the drainages containing SHAs. These projects encompass more than 100 miles of stream, 22,000 acres of riparian and non-riparian wetland, 450 acres of coastal marsh, and 750 acres of buffer. | 163 |
| The DFR will partner with the DOT and EEP 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).  | X | - | - | - | - | Partial completion by late 2009 | PC | The DOT and DFR have agreed to easement compensation for loss of nursery tree production and a NCDOT engineering consultant is completing engineering and design plans for the stream and riparian corridor; permitting of the project is pending. The EEP has secured lands north of the nursery property and is actively engaged with a landowner on the southern nursery property line to further expand the reach of the restoration project. They are currently pursuing funding for monitoring. EEP has been in negotiation with adjacent landowners to pursue the balance of the project.  | 170 |

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| The NCDFR will work with other DENR agencies to start pre-construction water quality and water quantity monitoring of 'The Canal'.   | X | - | - | X | - | Start late 2008-early 2009 | PC | This channelized stream runs through the Division's 700+ acre Claridge Nursery, located just west of the City of Goldsboro. The DFR has submitted documentation to DOT that will support a \$15,000 DOT stipend to fund startup of two WQ monitoring stations upstream and downstream of the project. Related to ActionID 170.   | 266 |
| The CRC may amend its administrative rule governing coastal wetlands (15A NCAC 7H 0.0205 Coastal Wetlands) to prevent alteration resulting in conversion of wetlands to uplands over time. | - | - | X | - | - |                            | PC | The proposed changes include a list of standards under which limited alterations, or alterations by resource agencies or academic institutions, shall be exempt from permit requirements. The changes were approved for public hearing at the March 2008 meeting with an anticipated effective date of December 1, 2008.   | 292 |
| <i>c) and other habitat restoration.</i>   |   |   |   |   |   |                            |    |  |     |
| Study the feasibility and benefits of developing an SAV Restoration Program.   | X | X | X | X | X |                            | PC | 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 (5/1/2007). DWQ coordinating with DOT to conduct a feasibility study regarding SAV restoration and mitigation in Currituck Sound. EEP has initiated internal research to determine the functional value of SAV restoration. EEP will investigate the DCM permitting requirements involving impacts to SAV. EEP will incorporate SAV restoration recommendations into the non-traditional mitigation strategy to be proposed to the PACG in the following year. | 276 |
| <i>3.2 Prepare and implement a comprehensive beach and inlet management plan that addresses ecologically based guidelines, socio-economic concerns and fish habitat.</i>                   |   |   |   |   |   |                            |    |  |     |
| Develop minimum criteria for monitoring beach nourishment projects.  | X | X | X | X | - |                            | NA | Part of the Beach and Inlet Management Plan (BIMP); no action at this time.  | 65  |

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| Convene stakeholder group to identify data gaps, funding needs, and framework, and develop a timeline for beach and inlet management plan. | - | - | X | - | - |            | C  | Part of the Beach and Inlet Management Plan. The Advisory Committee is comprised of appropriate state and federal agencies and members from the affected coastal communities. BIMP Advisory Committee meetings were held in November 2007 and September 2008.   | 66  |
| Complete beach and inlet management plan   | X | - | X | - | - | April 2009 | PC | DWR and DCM are collaborating and developing a comprehensive Beach and Inlet Management Plan (BIMP) for the State. Moffitt and Nichol were selected as the Contractor and began working in November 2007 to help with this effort. DCM and DWR have consulted with the Department and selected two different Committees to help with the initial plan development. The Advisory Committee(s) are comprised of an internal DENR working group made up of DENR agencies that will help with data gathering and coordination, and a BIMP advisory group made up of appropriate state and federal agencies and members from the affected coastal communities. Both these groups have met twice. The first meeting was in November 2007 when the work on the plan began, and in September 2008 to discuss the Draft Regional Management regions. | 295 |
| DCM will serve as a clearinghouse for beach nourishment monitoring data.   | - | - | X | - | - |            | PC | 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. A database of historic, ongoing and future beach fill projects including beach nourishment, dredged material disposal, habitat enhancement, storm protection, and dune construction is also part of the BIMP database being gathered by Moffitt and Nichol. This information is being put into a database called E-Coastal. This database is also the one that the USACE is using for this effort as well.   | 222 |

*3.3. Protect Submerged Aquatic Vegetation (SAV), shell bottom, and hard bottom areas from fishing gear effects through improved enforcement, establishment of*

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| <i>protective buffers around habitats, and further restriction of mechanical shellfish harvesting.</i>   |   |   |   |   |   |                  |    |  |     |
| Prepare maps identifying areas where allowed use of bottom disturbing fishing gear does or could overlap areas with sensitive estuarine habitat.   | - | X | - | - | - | By December 2008 | PC | Fisheries Management, IT, and Habitat sections. Bay scallop FMP (11/07) and oyster FMP (6/08) identified & resolved gear/habitat conflicts.  | 223 |
| <i>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.</i> |   |   |   |   |   |                  |    |  |     |
| Support/promote efforts to develop shoreline stabilization demonstration projects along non-ocean shorelines.  | - | - | X | - | - | Ongoing          | PC | DCM has identified possible funding sources and will be submitting applications for assistance July 2007 (5/1/2007). DCM NC NERR has received a CICEET grant to study marsh sills  | 78  |
| Encourage alternatives to vertical shoreline stabilization methods through permit requirements and fees.   | - | X | X | X | X | Ongoing          | PC | The CRC has proposed rule changes to its GP for shoreline stabilization that reduce the distance waterward in which bulkheads encroach into public trust areas, by moving structure locations to approximate normal high water, and by promoting the benefits of rock structures through permit fee structure. | 229 |
| Refine rule 15A NCAC 07H .2700 GP for Marsh Sills.   | - | - | X | - | - | Ongoing          | PC | Included in ongoing effort of CRC Shoreline Stabilization Subcommittee.  | 74  |

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| Use NOAA grant to delineate estuarine shorelines; begin by developing mapping methods   | - | - | X | - | - | 2007-09 | C  | 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 (6/15/2007). DCM has generated a draft methodology for digitizing a contiguous estuarine shoreline for North Carolina. Additionally, DCM has established an Estuarine Shoreline Working Group (ESWG) comprised of Federal, state and local government agencies, academics and various stakeholders. The ESWG will review DCM's shoreline delineation methodology and their comments will be incorporated into the document in an effort to enhance stakeholder use and acceptance of the finalized shoreline. The ESWG met in August 2008. | 80  |
| Work with NOAA's Technical Advisory Committee members in their sponsored research 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. | - | X | X | - | - | Ongoing | PC | DCM and DMF staff serving as management representatives; Presentations on SLR scheduled for 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 (5/1/2007). DCM and DMF staff continue serving as management representatives; Most recent meeting held May 1 & 2 in Morehead City. All three projects are progressing at various stages -- however, it appears each will be extended beyond the original 3-year time period. No products have been produced to this point as the hydrodynamic and habitat response models continue to be developed. Next meeting is assumed to be this fall.  | 230 |

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| Consider erosion rates as an additional factor in the siting of structures along estuarine and public trust shorelines.  | - | - | X | - | - | 2007-09                | PC | Will be incorporated into DCM's draft methodology for digitizing a contiguous estuarine shoreline for North Carolina (ActionID 80).   | 267 |
| <i>3.5 Protect and enhance habitat for anadromous fishes by:</i>   |   |   |   |   |   |                        |    |   |     |
| <i>a) incorporating the water quality needs of fish in surface water use planning and rule-making</i>  |   |   |   |   |   |                        |    |   |     |
| 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. | X | X | - | - | X | Complete study by 2012 | DK | Conduct study under section 216 of the federal Clean Water Act; include other DENR agencies with appropriate knowledge and programs.  | 262 |
| <i>b) eliminating obstructions to fish movements, such as dams, locks, and road fills</i>  |   |   |   |   |   |                        |    |   |     |
| 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.   | X | X | - | - | X | Ongoing                | PC | Being pursued by CHPP Steering Committee and FMP implementation group (5/1/2007). These dams are currently being scrutinized by the legislature for removal or modification. Inasmuch as these dams can be incorporated into River Basin Restoration Priorities or Local Watershed Planning, EEP will document their potential functional uplift and pursue project development if mitigation needs justify the cost. | 160 |
| The Department, through the Division of Water Resources and the Ecosystem Enhancement Program, will pursue dam removal projects where appropriate.   | X | X | - | - | X | Ongoing                | PC | EEP has engaged the ACE in determining the practicality of developing dam removal projects in the mitigation context. Specific dam removal projects are being incorporated into the recommendations of ongoing Local Watershed Plans. In any case, dam removal projects must yield affordable mitigation credits in cataloging units with mitigation needs in order for EEP to pursue them.                           | 231 |
| Modify dam removal policy with ACE to provide for accomplishing action #231.   | X | X | - | - | X | 2007-09                | DK |   | 268 |

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| Survey coastal river basins systematically to locate obstructions to fish migration and prioritize sites for removal/restoration.   | - | X | - | - | X |  | PC | SHA Region 1 analysis identified all potential obstructions in Albemarle region. During spawning surveys in '08, information on type/size of obstructions recorded. Plan to survey thoroughly in '08-'09. | 162 |
| 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.  | X | X | - | - | X |  | PC | Fisheries Management and cooperators. APNEP received money that was used to purchase conservation land and buy wq monitoring devices to be used at spawning locations.                                    | 164 |
| 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.   | - | - | - | X | - |  | DK |   | 87  |
| <i>4.2. Adopt or modify rules or statutes to prohibit ocean wastewater discharges.</i>  |   |   |   |   |   |  |    |   |     |
| Evaluate 15A NCAC 2H .0400 rules as they apply to ocean wastewater treatment systems and make recommendation to the EMC regarding modifications.  | - | - | - | X | - |  | PC | Reviewed existing rules restricting ocean discharges and is asking DENR legal counsel to review findings and comment on the true extent of those restrictions.  | 88  |
| <i>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.</i> |   |   |   |   |   |  |    |   |     |
| 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).  | X | X | - | - | X |  | DK | Money with DENR; "Smart sponge" experiment underway in Dare County. Note: Consider UNC-Coastal Studies Institute as another partner in research.  | 232 |

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| Evaluate impact of deep-water ocean outfall for stormwater management.   | X | X | X | X | - | 2007-09          | DK |   | 89  |
| Actively seek research on innovative technology to remove stormwater outfalls with 319 grant funding.  | - | - | - | X | - |                  | DK |   | 234 |
| Develop a plan to phase out municipal stormwater outfalls to sounds.   | - | - | - | X | - | 2007-09          | C  | All estuarine outfalls have been identified   | 233 |
| Enhance DWQ coastal/state stormwater database by mid-2007  | - | - | - | X | - | 2007-09          | PC | Awaiting report   | 94  |
| <i>4.4. Enhance coordination with, and financial/technical support for, local government actions to better manage stormwater and wastewater.</i>   |   |   |   |   |   |                  |    |   |     |
| 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. | X | - | - | X | - |                  | DK |   | 235 |
| Implement Community Conservation Assistance Program with emphasis on CHPP stormwater priorities in coastal counties.   | X | - | - | - | - | Start in 2007-08 | C  | 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 (5/2007). Program being implemented statewide, but no additional funding from legislature in 2008. | 151 |
| <i>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>       |   |   |   |   |   |                  |    |   |     |
| <i>a) improved methods to reduce sediment pollution from construction sites, agriculture, and forestry;</i>  |   |   |   |   |   |                  |    |   |     |

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| The DFR 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. | X | - | - | - | - | 2008    | C  | 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 preferred BMP with respect to protecting water quality and improving forest operation efficiency and costs (5/1/2007). The NCDFR purchased five additional sets of steel bridge mats and located two sets in the Neuse and Tar-Pamlico & Roanoke River Basins.  | 171 |
| Enhance DCM education efforts such as the NERR Septic Systems Workshops.   | - | - | X | - | - | Ongoing | PC | DCM NC NERR Coastal Training Program conducted three On-site Wastewater Treatment and Disposal Systems Basics workshops. DCM NC NERR Coastal Training Program conducted two Online demonstrations of the Habitat Priority Planner, a geospatial planning tool that uses data to help people visualize ecological scenarios and make decisions about resource management issues. Demonstration conducted by the NOAA Coastal Services Center and this program was offered as a regional collaboration between the Southeast Regional NERRs. DCM NC NERR Coastal Training Program hosted An introductory, two-day course that actively engaged participants in learning about alternatives to how and where growth will occur in their communities. It provided them with the background, examples, and strategies to support alternative development efforts in coastal communities. Conducted by the NOAA Coastal Services Center. | 240 |
| The DFR will complete, publish, and distribute statewide 10,000 copies of the NC Forestry BMP Quick-Reference Field Guide in 2007-08.  | X | - | - | - | - | 2007-08 | C  | 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 (5/1/2007). The NCDFR completed this project and printed a total 20,000 copies.   | 172 |

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| The DFR will seek funding to purchase 'rehab' fire plows for five of its coastal-based district offices.  | X | - | - | - | - | 2007-08 | PC | NCDFR submitted a grant application to NCDMF for funding of four rehab plows and personnel project time oriented towards this project and other Coastal Plain WQ Projects.  | 173 |
| Obtain USDA approval to expand CREP to include the Roanoke, Pasquotank, White Oak, Lumber, and Cape Fear River basins.  | X | - | - | - | - |         | C  | USDA approval received to include Roanoke and Pasquotank basins.  | 180 |
| Implement enhanced marketing strategy for CREP to include education on Neuse and Tar-Pamlico buffer rules.  | X | - | - | - | - | Ongoing | C  | Included information in Neuse/Tar-Pamlico buffer rules and strategies to encourage proactive buffer installation in CREP training events in March 2008  | 181 |
| <i>b) increased on-site filtration of stormwater;</i>   |   |   |   |   |   |         |    |   |     |
| The DFR 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. | X | - | - | - | - | 2007-09 | PC | 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 watershed. Phase 1 of the project has already generated > \$4.0 million in partnership funds, primarily use for land acquisition within the watershed. | 174 |
| <i>c) documentation and monitoring of small but cumulative impacts to wetlands and streams from approved, un-mitigated activities;</i>  |   |   |   |   |   |         |    |   |     |
| Coordinate with Wetland Functional Assessment Team to determine wetland status and trends.  | X | X | X | X | X |         | NA | Proposed for adoption by letter 21 May 2007. No action since then.  | 241 |
| <i>d) incentives for low-impact development (LID);</i>  |   |   |   |   |   |         |    |   |     |

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| 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. | - | - | - | X | - | Dec 2010 | DK | Four LID demonstration projects funded with Section 319 funds in Neuse, Tar-Pamlico, and Cape Fear basins   | 108 |
| <i>g) other</i>  |   |   |   |   |   |          |    |   |     |
| The DFR will seek funding to establish two Water Quality Forester (WQF) positions in coastal-plain Districts 6 (Fayetteville) and 13 (Fairfield).  | X | - | - | - | - | 2007-09  | NA | No progress to report. These positions will likely be included in NCDFR's 2009-2010 expansion budget for DENR review.   | 178 |
| The DFR will implement 'Tailgate BMPs for Loggers' in 2007-08, a customer education outreach project designed to take the classroom into the woods.  | X | - | - | - | - | 2007-09  | PC | The NCDFR purchased and field-tested one TV/DVD monitor and is now ready to move forward with the remaining equipment purchases.  | 175 |
| The DFR will produce a 4th BMP video on forest operations. The video, entitled 'BMPs for Site Rehabilitation', will cover appropriate practices to use in stabilizing and closing out a harvested timber tract.  | X | - | - | - | - | 2007-08  | NA | Project delayed to meet revised delivery schedule requested by NCFA.  | 176 |
| The DFR will produce a 2nd edition of the 'Riparian & Wetland Tree Planting Pocket Guide for North Carolina'.  | X | - | - | - | - | 2007-08  | C  | 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 (5/1/2007). The 2nd Edition is complete and at the printers. Ten thousand copies will be printed. | 177 |

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| 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.   | X | - | - | - | - |         | DK |  | 243 |
| <i>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>  |   |   |   |   |   |         |    |  |     |
| <i>a) increased use of effective vegetated buffers,</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.  | - | - | X | X | - | 2007-08 | PC | The EMC has initiated rulemaking action to revise DWQ's Coastal Stormwater rules. EMC is soliciting comment on the proposal.   | 280 |
| <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>  |   |   |   |   |   |         |    |  |     |
| 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%. | - | - | X | X | - | 2007-08 | PC | The EMC has initiated rulemaking action to revise DWQ's Coastal Stormwater Rules. The current threshold for engineered stormwater controls is 25% within 1/2 mile of shellfishing waters and 30% beyond 1/2 mile (6/12/2007). EMC adopted revised coastal stormwater rules in the 20 coastal counties. The new rules were signed into law and will be effective October 1, 2008. | 281 |
| <i>c) expansion of CAMA Areas of Environmental Concern (AECs) upstream and landward, and</i>  |   |   |   |   |   |         |    |  |     |
| Expand CAMA Areas of Environmental Concern (AECs) upstream and landward within CAMA counties.   | - | - | X | - | - | 2007-09 | DK |  | 114 |
| <i>e) Other</i>   |   |   |   |   |   |         |    |  |     |

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| 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.  | - | - | - | X | - |         | PC | Study is underway.   | 244 |
| Develop a mitigation policy for intermittent streams.   | - | - | - | X | - |         | PC | In development.  | 245 |
| EMC working on mandatory application of Phase II stormwater program to all 20 coastal counties. EMC approved initial concept at January 2007 meeting.   | - | - | - | X | - |         | DK |  | 288 |
| <i>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.</i>   |   |   |   |   |   |         |    |  |     |
| Inventory docks and piers in the 20 coastal counties.   | - | - | X | - | - | Ongoing | PC | DCM has generated a draft methodology for delineating the shoreline and structures for North Carolina. This methodology was presented to an Estuarine Shoreline Working Group in August 2008 for review. Once the final methodology is accepted DCM will begin digitizing efforts. | 122 |
| Incorporate EMC's prohibition of marinas in ORWs into CRC rules.  | - | - | X | X | - | 2008-09 | DK |  | 247 |
| Evaluate marina development standards (rule NCAC 7H .0208(b)(5)). CRC consider rule changes to implement in dock and pier management.   | - | - | X | - | - | Ongoing | PC | CRC has proposed changes to docks and piers rules which give property owners flexibility in docking facilities (8 sq. ft./linear ft. shoreline) and includes minimum water depth (18 in.) for docking facilities under the General Permit if located in PNA, SAV or Shellbottom.   | 248 |
| Improve wastewater/stormwater management at coastal marinas   | - | - | X | X | - |         | PC | Evaluating existing and potential water/stormwater management at coastal marinas.  | 250 |
| <i>4.8 Reduce non-point source pollution from large-scale animal operations by the following actions:</i>   |   |   |   |   |   |         |    |  |     |
| <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> |   |   |   |   |   |         |    |  |     |

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| 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. | X | - | - | - | - |         | DK |  | 251 |
| Support early implementation of environmentally superior alternatives to waste lagoon and spray field systems. Encourage commissions to express their support for early implementation.   | X | - | - | X | - | Ongoing | C  | \$2 million appropriated in FY2007-08. Lagoon Conservation Program selected 3 projects in Sampson County for assistance. Considering funding for one additional project from two applications on hand. | 158 |
| <i>b) seek additional funding to phase-out large-scale animal operations in sensitive areas and relocate operations from sensitive areas;</i>   |   |   |   |   |   |         |    |  |     |
| Seek funding for fourth phase of voluntary program to buy out active swine operations in the 100-year floodplain.   | X | - | - | - | - |         | C  | DSWC seeking funding from CWMTF (5/1/2007). Grant for 4th phase awarded. Have solicited applications from interested participants. Now collecting field data for ranking applications.                 | 183 |