

NORTH CAROLINA'S COASTAL HABITAT PROTECTION PLAN

2008 - 2009

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,
NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION, AND
NORTH CAROLINA WILDLIFE RESOURCES COMMISSION

AND

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

September 2009

Highlights

September 2008 – August 2009 Accomplishments

Goal 1: Improve effectiveness of existing rules and programs protecting coastal fish habitats

DCM/CRC

- DCM was successful in securing funding for the position of Compliance Education Coordinator through the express permitting program. However, the budget difficulties caused the funding to be rescinded. DCM will pursue this funding again once the state budget situation stabilizes.
- DCM was successful in securing funding for a position which coordinated both the Clean Marina Program and the Clean Vessel Act programs through the express permitting program. However, the budget difficulties caused the funding to be rescinded. DCM will pursue this funding again once the state budget situation stabilizes. When the position is established, the agency will be able to enhance the programs with more of a focus on the CHPP.
- The Cooperative Institute for Coastal and Estuarine Environmental Technology has awarded a \$717,000 grant to the N.C. National Estuarine Research Reserve (NERR) and the NOAA Center for Coastal Fisheries and Habitat Research to examine different methods of erosion prevention in sheltered coastlines. The project, “Sustainable Estuarine Shoreline Stabilization: Research, Education, and Public Policy in North Carolina,” is focused on understanding the environmental and economic tradeoffs of alternative erosion control measures. The project focuses on three regions along North Carolina’s coast (Northern, Central and Southern), where researchers will assess the ecosystem impacts of shoreline stabilization. The project will also design and construct a demonstration project based on alternative shoreline stabilization techniques at the Rachel Carson component of the NC NERR. During the two-year project, they will develop an approach to evaluate ecological and socioeconomic costs and benefits of shoreline erosion and protection alternatives. The NC NERR will develop outreach and educational products to disseminate the knowledge and tools developed by the research team.
- DCM staff reviewed CAMA Land Use Plans for Craven County, Dare County, Caswell Beach, Holden Beach, Ocean Isle Beach and Sunset Beach.

DMF/MFC

- Marine Patrol Officers have been trained by CAMA enforcement officers. They are to report when they see suspicious activities, such as nighttime or weekend dredging, shoreline disturbance without turbidity curtains installed, sediment plumes and fish kills. DMF has a contract to fly monthly with CAMA to check for violations.
- Joint MFC-WRC Coastal Recreation Fishing License (CRFL) Committee approved 2 positions for 5 yrs. The filling of these positions was delayed by budget processes, but is still proceeding.
- MFC approved the revised definition of SAV habitat in 2009 to more closely align the definition with the definition in the CHPP. The CRC referenced this new definition in its revised dock rules.
- DMF conducted data analysis as part of the Strategic Habitat Area Region 1 evaluation and found that habitat alteration ratings were a good indicator for fish abundance and diversity.
- DMF Library Committee drafted SOP for maintaining database of DMF gray literature; Fishery Management Plans, federal aid, CRFL, ASMFC compliance, License, Habitat and Resource Enhancement reports.

DWQ/EMC

- DWQ regional offices have prioritized inspections of estuarine sites associated with SA waters.

- An issue regarding Hybrid Striped Bass pond discharge in Beaufort County was raised at MFC's Habitat & Water Quality Committee. DWQ determined the discharges to contain elevated levels of chlorophyll a and BOD. DWQ has implemented a Special Order by Consent (SOC) for the five aquaculture farms in the Aurora area. These five Hybrid Striped Bass operations have submitted individual Farm Management Plans. These plans include operational information that specifies operation procedures and BMP's which minimize water quality impacts. DWQ requested additional information after the initial plans were filed. The first 6 month reports were submitted by the five farms on August 1, 2009.
- DWQ is participating with APNEP's Water Resources Monitoring Team which has started to draft indicator metric proposals.

WRC

- WRC became a full partner in the CHPP process with two commissioners serving on the CHPP Steering Committee.
- Participated in agency meetings to work with DMF and DCM on terminology within rules.
- Assisted with comments involving indicator monitoring and SAV programs
- WRC frequently shared data with DMF, DWQ, DCM, and the Natural Heritage program to update files and address wildlife concerns
- Habitat values were demonstrated at the State Fair, the three regional Wildlife Education Centers, Pechman Fishing Center, Outreach programs, festival booths, and WRC's mobile aquarium.
- WRC continues to maintain numerous fishing access and identification booklets as well as habitat enhancement brochures and articles in the WINC magazine.
- Coastal Technical Guidance staff attends interagency permit review meetings. Meetings have been canceled due to budget constraints since early 2009.

DENR

Albemarle Pamlico National Estuary Program

- 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.

Division of Forest Resources

- The NCDFR facilitated the formation of a silviculture and wetlands regulatory guidance group with the US Army Corps of Engineers (Wilmington District), the US Environmental Protection Agency, the NC Division of Water Quality, and North Carolina State University. The goal of this group is to give guidance to the forestry community that provides interagency consensus on forest management in wetlands. Other forestry stakeholders will be involved in aspects of this guidance process.

Department of Environmental Health – Shellfish Sanitation

- DEH – Shellfish Sanitation has produced an SOP document outlining the new shoreline survey methodology program procedures. The new shoreline survey methodology has been expanded coast wide to all growing areas with 95% of the survey now complete. Problems/violations/areas of concern are reported to the appropriate agency with jurisdiction regarding the violation. The central coastal area surveys using the new methodology are complete and 7 growing areas remain to be completed using the new methodology.
- DEH-SS has convened a shoreline survey "Task Force" which has been formed to review the DEH-SS Shoreline Survey SOP and design an inspection program to enhance habitat protection. Its purpose is to evaluate current inspection regimes within DENR in order to recommend ways

to share inspection findings among agencies and to reduce duplicative inspections carried out by different agencies. The taskforce held meetings in December 2008 and March 2009. Travel restrictions delayed another meeting and communication has been via email. Membership on the task forces is comprised of staff from DWQ, DCM, DEH, DMF and OCCA.

- The Interagency Task Force has produced a draft outline for the report for the new inspection program to meet the DEH CHPP recommendation. The draft outline was presented to CHPP Steering Committee at its August meeting and no major changes were suggested.

Division of Soil and Water Conservation

- The Division of Soil and Water Conservation has convened a workgroup to identify ways the Agriculture Cost Share Program can assist Hybrid Striped Bass (HSB) farmers to implement effective BMPs to address discharge concerns.

Goal 2: Identify, designate and protect strategic habitat areas

DCM/CRC

- The NC Coastal Reserve conducted a survey of members of the NC Interagency SAV Work Group to determine SAV outreach needs. The survey was used to develop a matrix of priorities for outreach products and audiences, as well as a plan to address those needs. The plan was incorporated as an outreach task of an SAV monitoring proposal submitted by members of the SAV Work Group for 2009 NC CRFL Marine Resources funding. Although the outreach task was not funded for 2009, it provides a basis for future proposals.
- A field survey of SAV at the Currituck Banks NC Coastal Reserve component has been postponed until spring of 2010, pending lifting of State travel and staffing restrictions. The field survey will be conducted following protocols used for surveys that have been conducted for the Rachel Carson and Masonboro Island Coastal Reserve components.

DMF/MFC

- The aerial photographs from the SAV Interagency Workgroup have been partially photo-interpreted. A position vacancy in winter 2008 stopped the progress of this effort. Currently the position is frozen due to the state's budget situation.
- DMF's Resource Enhancement section mapped 26,336 acres of shallow water estuarine shell bottom this past year in Brunswick, Hyde and Carteret Counties.
- A CRFL grant was awarded to APNEP/ECU/NCSU/NOAA to test monitoring techniques and collect associated environmental data for submerged aquatic vegetation habitat.
- A DMF intern in 2009 conducted a preliminary study in New Hanover Co. looking at the effects of floating docks, lifts and boat stops on benthic habitat condition. The draft report has been completed. More research is needed to support any management recommendations.
- The Strategic Habitat Area evaluation was completed for Region 1, the Albemarle Sound Area. The nominations for the areas were recognized by the CHPP Steering Committee and the MFC and will be incorporated into DENR's Conservation Planning Tool.
- A CMAST fellow was hired in 2009. The purpose of the Fellowship is to compile GIS data in order to advance the SHA analysis for remaining regions.
- Maps are now available from the DMF of the recently designated Anadromous Fish Spawning Areas (AFSA). These maps, and their associated data, have been provided to EEP for its use and also to DENR for use with the Conservation Planning Tool.

DWQ/EMC

- The DWQ Pamlico and Neuse Rapid Response Teams (RRTs) continue to participate in a special study that was initiated in 2005 involving shoreline mapping of the Western Pamlico Sound and associated tributaries. RRT SAV surveys will continue in 2009, concentrating efforts on the Pungo River tributaries, Jones Bay, Rose Bay, Porpoise Bay and Swanquarter Bay. Areas that have been found to have no SAV present in earlier years may be revisited.

WRC

- WRC continues to be an active participant in the SAV quarterly interagency meetings. They have provided in-kind staff time for ground truth points, and provided a portion of the funding for this effort.
- WRC commented on numerous waterfront development projects encouraging developers to minimize impacts to SAV and recommending alternative designs based on the latest science and information.
- WRC biologists worked closely with other agencies and universities in the designation of Strategic Habitat Areas in the Albemarle Sound Region.

DENR

Albemarle Pamlico National Estuary Program

- APNEP, in partnership with NOAA, DMF and others, has completed the acquisition of aerial photographs covering all coastal waters of North Carolina and Southeastern Virginia (Back Bay) where potential SAV habitat could exist. The digital images being used by DMF photo interpreters to create a baseline map of SAV presence as an initial step toward SAV habitat monitoring. Unfortunately, the lead DMF photo interpreter responsible for map production resigned in November 2008 and DMF has been unable to hire a replacement. APNEP is currently seeking the assistance of alternative organizations to assist in map production.
- The APNEP is working with the Environmental Defense Fund 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. The 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.

Ecosystem Enhancement Program

- EEP has incorporated DMF's proposed Strategic Habitat Areas data into its Targeted Local Watershed (TLW) designation for the 2009 Chowan River Basin Restoration Priority Plan (RBRP) update. The inclusion of this data in the RBRP and future ones is intended to elevate the importance of fish habitats in the selection of TLWs in which EEP and others will implement their restoration projects.

Goal 3: Enhance habitat and protect it from physical impacts

DCM/CRC

- The proposed rule changes to the Coastal Wetlands rules include a list of standards under which limited alterations, or alterations by resource agencies or academic institutions, shall be exempt from permit requirements. A second public hearing was heard at the June 2009 meeting with an anticipated effective date of November 1, 2009.
- DENR conducted a second set of public meetings regarding the Beach and Inlet Management Plans (BIMP) in March to update the public on the progress of the state's Beach and Inlet

Management Plan. Regional presentations can be found here. A summary of public comments received is available from the DCM web site here.

- DENR previously held five public meetings regarding BIMP development in December 2008. These meetings included a preview of the draft BIMP management regions, shown below, along with a presentation on accomplishments to date. DENR is currently reviewing a final draft of the document and it is expected to be released in August 2009.
- In an effort to determine the impacts associated with the construction of marsh sills, the Division of Coastal Management will be partnering with UNC Institute for Marine Science and NOAA Center for Coastal Fisheries and Habitat Research to survey of approximately 30 sills that have been constructed along the coast. The survey will include sampling vegetation transects looking at stem density or % cover; surveying elevation profiles; analyze sediments for organic content and particle size; and sampling nekton and macrofauna. The survey will be incorporated as part of the CICEET sills project.
- DCM has generated a methodology for delineating the shoreline and structures for North Carolina. This methodology has been used, through a contract with ECU, to delineate the estuarine shoreline of Hyde and Beaufort counties. An additional contract has been established with ECU to delineate the shoreline for Dare, Pasquotank, Perquimans and Tyrrell County, with additional monies anticipated to be available in FY10 for 7 other counties within the Albemarle/Pamlico Sound region. In addition, DCM staff are delineating two counties (Pamlico and Craven) in an effort to bring the total shoreline project to 15 completed counties by December 2010.
- The DCM is working with DENR to co-host a sea level rise forum in January 2010 intended to display the best available science on current and project sea level rise for NC to help form the scientific basis for policy and management decisions. All scientists and researchers investigating sea level rise in the state will be invited to present their work. The target audience will include legislators, state and local policy makers and resource managers, elected officials, emergency managers, planners, infrastructure interests, conservations, private sector and other interested parties. The forum will focus on how much relative sea level rise should NC prepare for by 2100.

DMF/MFC

- Approximately 18,000 tons of marl were planned for deployment this past year to be divided among new sites and existing sites. Due to budget constraints, the legislature reduced the original funding by half. This eliminated the approved new positions, but retained approximately \$1million for material purchases.
- An estimated 23,162 bushels of recycled oyster shell was collected. 70% of these were collected from restaurants, 36% were collected from public collection sites and 5% were collected from special events. 135,259 bushels of oyster shell were purchased along with 44,333 bushels of marl. A total of approximately 202,700 bushels of cultch have been, or will be, planted on cultch sites throughout the coast (170,000 done right now but expect to finish before end of 2009).
- All 9 oyster sanctuaries were monitored this past year. Parameters measured included size and structure of oyster beds, survival rates, growth rates, water quality conditions and colonization on cultch. A large amount of mortality was noted at the Ocracoke site although no cause was determined.
- A CRFL grant was awarded to look at fish utilization of oyster sanctuaries and the economic benefits associated with that utilization.
- A Fishery Resource Grant project continued this past year looking at the hydrodynamic circulation patterns of the Pamlico Sound and its effects on larval transport of oysters.
- The planning for the state's oyster hatchery at UNC-W is continuing.
- As part of the ongoing River Herring research, 9 continuous monitoring devices were purchased and deployed in the Chowan, Roanoke, Perquimans, Scuppernong, Pasquotank and Alligator

Rivers. These devices collect data every 2 hours, including water temperature, dissolved oxygen, salinity, pH and conductivity.

- In an effort to locate obstructions and impedances to river herring passage, surveys were conducted on the primary culvert, the lowest downstream culvert, in the Chowan and Meherrin River tributaries. Information collected included; culvert type, material, dimensions, water depth, distance between water level and top/bottom of culvert, water level and water body width.
- MFC approved a compensatory mitigation policy that shifts emphasis from simply no net loss (in-kind mitigation) to restoration of ecological functions within a watershed, and may incorporate restoration of other estuarine habitats that perform similar but effective functions.

DWQ/EMC

- DWQ established a compensatory mitigation database in late 2008 that will be maintained going forward.
- 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.

WRC

- WRC is an active member of the Program Assessment and Consistency Group (PACG) working closely with EEP and NCDOT on an appropriate crediting system for DOT mitigation projects.
- WRC submitted proposals to the Natural Heritage Trust Fund that benefit fisheries habitat.
- WRC works with local coastal governments and DENR in identifying navigation and stream restoration projects which are of particular importance to fish and fish habitats.
- WRC biologists work closely with APNEP and DMF to provide data and information regarding River Herring spawning areas and any obstructions found which may impede passage.
- WRC has participated in DCM's shoreline stabilization workshops and provide comments during permit reviews encouraging non-vertical structures and living shorelines.
- WRC has biologists that have attended several meetings and have provided input on benefits to fisheries management with dam removals.

DENR

Albemarle Pamlico National Estuary Program

- APNEP has received a grant from the US EPA to begin a pilot program addressing climate change issues in the Albemarle Pamlico region. APNEP is working with Duke University's Nicholas Institute and others on this Climate Ready Estuary project.
- APNEP is working with the Nature Conservancy and the Alligator River National Wildlife Refuge to develop techniques to provide for ecological adaptation to sea level rise for wetlands and riparian forests.
- APNEP co-facilitated seven listening sessions with support from the AP3C partner organizations with the goal of learning how the general public perceives the combined threat of sea level rise and population growth. These listening sessions provided the public with some basic information about sea level and population change and will solicit public opinion about how they view the changes and threats, what impacts they are already experiencing, and what types of solutions might be pursued. Information from these sessions will help to inform conservation and community planning in light of the significant threat from sea level rise to private property and the natural landscape. The final report is available on the APNEP website at: <http://www.apnep.org/pages/PublicListeningSessionsReport.pdf>

Division of Forest Resources

- 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 restoration. Permitting of the project is pending. EEP was unable to complete negotiations with adjacent landowners. Therefore, the current stream restoration project is expected to be contained on DFR nursery property.
- There is a channelized stream runs through the Division's 700+ acre Claridge Nursery, located just west of the City of Goldsboro. DFR established a research partnership with NCSU BAE Department to conduct baseline (pre-construction) water quality and quantity measurements. Three sampling stations are proposed: one upstream of the stream restoration, one mid-stream, and one downstream. Weirs, water flow, and water sampler installations were initiated in June of 2009 and will be completed in September of 2009. The NCDOT is supporting this monitoring project with a \$15,000 grant being processed through ITRE. Additional federal grant money is also being solicited to support and sustain project monitoring.

Division of Soil and Water Conservation

- The Division has placed a strong emphasis on the Community Conservation Assistance Program (CCAP) because it is the only retrofit program that can begin to help communities reverse stormwater pollution.
- The Division is working with local Districts to incorporate the Strategic Habitat Areas into local ranking systems for the CCAP and the Agriculture Cost Share Program (ACSP), and the Division is working to incorporate the SHA's in the establishment of priority areas for the Conservation Reserve Enhancement Program (CREP).

Ecosystem Enhancement Program

- EEP worked with multiple state and federal agencies to develop guidance that links project function with mitigation credit.
- EEP partnered with ECU and NC Environmental Defense to develop a non-traditional approach to mitigation in the White Oak basin. This Local Watershed Plan (LWP) is outlined [here](#) with links to the chapters of the project titled *An Approach to Coordinate Compensatory Mitigation Requirements to Meet Goals of the Coastal Habitat Protection Plan*. The final draft of Chapter 3 is currently under review.
- EEP investigated the mitigation potential of and presented findings of a non-traditional mitigation project in Manteo to its Program Assessment and Consistency Group Technical Committee (PACG-TC), the primary oversight committee of EEP. The project was proposed by the NC Coastal Federation and consisted of an innovative saltmarsh basin to treat 41 acres of stormwater runoff. The project was ultimately funded and implemented by NCDOT hydraulics unit as part of their stimulus funding award, but the effort advanced the understanding of EEP's PACG-TC, potentially paving the way for future non-traditional coastal mitigation projects.
- EEP has negotiated an option agreement with the landowner for the southern parcel of the Little River restoration project in Wayne County. This project is adjacent to the DFR-NCDOT project at Claridge Nursery.
- EEP actively participated in the development of SAV restoration goals and guidance as a member of the NC SAV Mapping Partnership and its Restoration Subcommittee. EEP will continue to contribute to the partnership and to educate the PACG-TC regarding the potential of SAV restoration for mitigation.
- EEP promoted the study of dam removal projects for mitigation by presenting a program titled *Incorporating Dam Removal Projects into EEP Local Watershed Plans* at the 2008 Stream Restoration in the Southeast conference in Asheville. The second of two case studies presented used the June 2008 dam removal guidance produced by the interagency team led by the Raleigh

office of the US Army Corp of Engineers to demonstrate potential mitigation credit produced by removing Cape Fear River Locks and Dams 1 & 2.

Goal 4: Enhance and protect water quality

DCM/CRC

- The NC NERR Coastal Training Program conducted the following workshops:
 - May 7, Wilmington: Coastal Growth Strategies (Leadership Training for Elected Officials) – A course designed to help local governing boards effectively integrate community water quality protection goals with growth and redevelopment. This one-day program aims to improve participants' understanding of land use and water quality linkages, the benefits of stakeholder and public involvement in environmental decision-making, and ways to integrate environmental protection and restoration into public policies and programs.
 - May 21, Beaufort: Getting to Know Wetlands: Value, Regulations & Conservation - Workshop topics included the value and function of wetlands, wetland regulations, and wetland restoration case studies. The workshop also included a presentation on the NC Wetland Assessment Method (NCWAM) and a field trip to a coastal wetland for experience in identifying wetland plant species and delineating wetland boundaries.
- CRC has adopted changes to docks and piers rules which give property owners flexibility in docking facilities (8 sq. ft. /linear ft. shoreline) and includes an 18 inch minimum distance requirement between the bottom of the floating structure and the substrate at normal water level or normal low water whichever is applicable for docking facilities under the General Permit if located in PNA, SAV or Shellbottom. The rule went into effect July 1, 2009.

DWQ/EMC

- DWQ is reviewing regulations for opportunities to provide incentives for upgrading all types of wastewater treatment systems and plans to make recommendation to the EMC in 2010.
- Four on-the-ground LID demonstration projects in the Neuse and Cape Fear basins and three LID education/guidance projects have been completed using 319 funding. Six additional projects are ongoing; five on-the-ground LID demonstration projects in the Neuse, Cape Fear, Tar-Pamlico, and Pasquotank basins and one educational project.
- DWQ's Coastal Stormwater Rules went into effect on October 1, 2008 requiring improved post construction stormwater management requirements.
- DWQ is developing a mitigation policy for intermittent streams that will go to public notice in August of 2009.
- DWQ has undertaken outreach programs to educate marina owners regarding the issue of wastewater and stormwater management.

WRC

- WRC is a member of Wetlands Function Assessment Team (WFAT) and participates in determining the status and trends of the state's wetlands.

DENR

Albemarle Pamlico National Estuary Program

- APNEP completed a project working with DMF that was funded by North Carolina General Assembly to monitor water quality parameters for river herring in the Albemarle Sound.
- 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.

- APNEP continues to support the Citizens' Monitoring Network (CMN); a network of private citizens who monitor surface water quality in the Albemarle-Pamlico estuary and its tributaries. The program began as an initiative of the Pamlico-Tar River Foundation in 1988, to protect, preserve and promote the water quality of the Tar-Pamlico River and its watershed. Today, the program includes all waters located in the Albemarle-Pamlico region. The CMN has three areas of activity: Baseline Monitoring, Targeted Monitoring and Surveys, and Water Quality Education. Program volunteers receive support in each of these areas through water quality education and training, QA/QC workshops, distribution of equipment and supplies, data management/analysis, and networking opportunities. Participants primarily monitor dissolved oxygen, pH, salinity, air and water temperatures, and turbidity to gauge the general health or quality of water in the estuary. Using basic but accurate water quality test kits, citizen volunteers analyze their water samples, observe qualitative factors such as weather conditions and other visual indicators, and record the results. All monitoring data are compiled by the CMN office at ECU. Information is available to the public on the APNEP website at <http://www.apnep.org/> and at <http://www.ecu.edu/icmr/cwqmp>

Division of Forest Resources

- The NCDFR purchased 5 additional sets of steel bridge mats and located 2 sets in the Neuse and Tar-Pamlico & Roanoke River Basins in 2008. A 6-year status report was compiled describing the use of bridge mats in NC for forestry. The report is online and can be accessed at: <http://www.dfr.nc.gov> Printed copies of the report will be available in October of 2009.
- The NCDFR has distributed an estimated 5,000 copies of its NC Forestry BMP Quick Reference Field Guide which was published last year.
- The NCDFR purchased and field-tested one TV/DVD monitor and is now ready to move forward with the remaining equipment purchases in 2009-10. This equipment will be used to support a forestry BMP outreach project that will bring the classroom to loggers in the woods.
- A revised 2nd edition of DFR's Riparian and Wetland Tree Planting Pocket Guide for North Carolina was produced, published and distributed in 2008 at the SE Stream Restoration Conference. The 2nd edition includes more information and color photographs.

Division of Soil and Water Conservation

- A marsh sill was added as a qualifying cost-share practice for the Community Conservation Assistance Program in DSWC.
- An additional \$1.1 million was made available for the implementation of environmentally superior alternatives to waste lagoon and spray field systems on hog farms through the Cooperative Conservation Partnership Initiative and funded by NRCS through DSWC.
- DSWC was awarded \$3 million in funding from the Clean Water Management Trust Fund (CWMTF) for the fourth phase of the voluntary hog lagoon buyout program. The finalists have been selected to participate in the buyout.

Ecosystem Enhancement Program

- EEP incorporated the Beddingfield Creek hydrologic unit into its Wake-Johnston Local Watershed Plan study area and has initiated water quality monitoring there. The watershed was originally proposed for long-term monitoring in the Urban Forest Watershed Protection and Education Initiative (UFWPEI).

September 2009 – August 2010 Planned Action and Needs

- Delineate SHAs in Region 3 (Approximately White Oak River Basin).(DMF/MFC, WRC, EEP/DENR).
- Conduct SHA evaluation and designation process for Region 2 (Pamlico Sound and tributaries).(DMF, WRC)
- Continue to review “Inner Banks” development issues and address environmental issues.(CRC/DCM, DWQ/EMC)
- Begin to 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, EEP/DENR)
- Continue to study the feasibility and benefits of dam and barrier removal in general and for mitigation.(DMF/DCM, EEP/DWR/DENR, WRC)
- 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.(DSWC/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.(DCM, 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, EEP/DENR)
- Take steps to encourage more restoration of degraded waters and work towards removal from the Federal 303-d listing.(APNEP, DWQ)
- 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 with the White Oak basin as a pilot project. 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.(EEP/DENR)
- 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)
- 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)
- Continue to study the feasibility and benefits of developing an SAV Restoration Program.(DMF, APNEP, EEP/DENR)
- Seek dedicated funding for the state SAV mapping program.(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 a shellfish hatchery.(DMF)
- Continue to work toward more funding for the Community Conservation Assistance Program. (DSWC)
- Workshops currently planned for next year include topics such as water reuse (i.e. rain water harvesting, gray water use), stormwater workshops for realtors, an invasive red fox symposium, a microbial pollution workshop, and a grant writing workshop depending upon budget constraints.(DCM/NERR)
- In the coming year, APNEP will work with the NC Division of Water Quality to implement several projects: 1) to host Coastal Stormwater and Riparian Buffer Rules Workshop for Development Professionals. 2) Develop information for display and distribution about Riparian Buffers and 401 Water Quality Certifications. Information will focus on the riparian buffer rules in the Neuse and Tar-Pamlico River Basins and the 401 Water Quality Certification Program which is in effect throughout the entire state. 3) A project will provide information to focus on students in K-12 understanding the biodiversity the lakes, streams and estuaries.(APNEP, DWQ)
- APNEP will continue to build upon the data inventory survey conducted in 2006 in partnership with the Virginia Institute for Marine Sciences. Data referenced in the survey for the Virginia portion of the Pasquotank and Chowan Rivers. Data will include monitoring data on water quality and living resources as well as land use, population trends and other potential ecosystem stressors. Analyses will be conducted for indications of change over the period of record. The goal is to develop a preliminary State of the River Basin report for the Pasquotank and Chowan Rivers. The approach will be holistic in that changes in monitored variables will be tracked throughout river basins and river systems. These stations are monitored by the Virginia Department of Environmental Quality. These data can be further analyzed to look for trends in seasons as well as trends in other monitored parameters. An attempt will be made to trace changes in water quality and living resources back to changes in the basin.(APNEP)
- DEH – SS will continue meeting with the Shoreline Survey Task Force finalizing proposed inspection program and put the plan in the form of a report for presentation to CHPP Steering Committee.(DEH-SS/DENR)

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 of the three original commissions 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 commissions with membership on the CHPP Steering Committee 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, as well as other DENR agencies, in implementing the CHPP during year beginning in September 2008 and ending in August 2009.

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 numerous management recommendations for the Coastal Resources, Environmental Management, Marine Fisheries and Wildlife Resources Commissions, DENR and its other agencies and others to implement in order to address the identified threats.

Attachment 1 lists the members of the CHPP Steering Committee for the 2008-2009 year.

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 and again in 2007. These implementation plans detail more than 100 specific steps the agencies involved would take during the identified fiscal years to implement the CHPP recommendations. The accomplishments of the CHPP have been reported annually since 2006 through a CHPP Annual Report.

In the fall of 2007 the second two-year Implementation Plan was adopted by the original three commissions. Many of the implementation actions begun in 2005-2006 were substantially completed or underway in 2007. Budget problems slowed progress in CHPP implementation somewhat in FY 2008-09. However, numerous specific actions have been accomplished during the past two years, or are well underway to being accomplished. This past year, the Wildlife Resources Commission (WRC) was asked to be a full participant in the CHPP process and two WRC commissioners were added to the CHPP Steering Committee. Currently, all four commissions and their DENR respective agencies are active in using the CHPP and its recommendations as guidance in their regulatory and operational programs. Attachment 2 lists the four main agencies, and their statutory responsibilities, which have voting members on the CHPP Steering Committee. The full 2007-2009 Implementation Plan can be accessed through the following website: http://www.onenaturally.org/pages/CHPP_Implementation.htm

Overall, the CHPP has been largely successful in implementing plan recommendations. To date, the greatest accomplishments of the CHPP have been non-regulatory. Prior to making large management changes, positions and funding were needed to assess compliance of existing environmental rules, complete mapping of fish habitats, and educate the public on environmental issues. Multiple large grants have been awarded to state agencies and universities to conduct research or projects in support of the CHPP. Examples include DCM receiving funding for the BIMP, shoreline mapping, and the CICEET project looking at shoreline stabilization; APNEP coordinating the pooling of resources to map SAV coastwide; and universities receiving Fishery Resource Grants (FRGs) and Coastal Recreational Fishing License (CRFL) grants to collect needed habitat information. Much has been done in those areas, but work still remains. The passing of the coastal stormwater rules marks the largest regulatory change that the CHPP influenced. It occurred through the hard work of numerous DENR staff, commissioners and CHPP supporters such as environmental NGOs. CRC also implemented sediment criteria rules for beach nourishment and other rule changes to minimize habitat impacts from water dependent activity. Regulatory changes for habitat protection tend to take longer to implement because scientific information is needed to support the change, discussions are needed among agencies, or educational outreach to stakeholders is required. Several large issues that involve regulations such as beach nourishment, estuarine shoreline stabilization, and protections for anadromous fish habitat are underway. Finally, the CHPP created a structured means for various agencies and commissions to discuss issues which have resulted in improved coordination and cooperation and better protection of coastal fish habitat.

Administration and Public Outreach

- Administrative Activities

During this past year, the second year of the most recent 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 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 remains posted on the CHPP web site, along with the accomplishments documented in the 2008 Annual Report in order to facilitate public review. The research priorities associated with the implementation of the CHPP are also a part of the CHPP website.

This past year, the Wildlife Resources Commission accepted an invitation to become full members of the CHPP Steering Committee. The WRC has been a part of the CHPP process from the beginning with several staff active on the technical aspects of the CHPP. With a significant amount of work being done in areas where the WRC has jurisdiction, River Herring, Strategic Habitat Area delineation and Anadromous Fish Spawning Areas, the CHPP Steering Committee felt the need to extend the invitation to fully participate in the CHPP decision making process.

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. However, due to the current budget situation within the state, a good portion of these monies have been reverted back to the General Fund and most of the positions have been frozen.

In the fall of 2008 and throughout 2009, the CHPP Team continued the 5-year update and review of the Coastal Habitat Protection Plan 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 has been diligently working on this review, with the goal of having it completed and presented to the respective commissions late in the first quarter of 2010. Included in the update and review will be CHPP accomplishments, emerging issues such as Sea Level Rise, invasive species, pharmaceuticals in our waters, the ongoing effects of localized population increases on the health of our waters, 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, now comprised of two members each from the Environmental Management, Coastal Resources, Marine Fisheries and Wildlife Resources 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, especially in the coastal region.

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, Interagency Permit Review Workgroup, Interagency Inspection Workgroup and a Shoreline Stabilization Workgroup.

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 continues to be a popular resource and it provides some excellent examples of CHPP success stories as well as a look towards some future CHPP opportunities. The 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 when called upon. Several of the efforts involving the CHPP and its recommendations have also been incorporated into DENR's Conservation Planning Tool. These include both SAV and Shellfish mapping efforts, Anadromous Fish Spawning Areas and Strategic Habitat Areas.

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. With the 5-year update and review of the CHPP, it is anticipated that many new research needs will be identified and some original needs will have been met or answered. This new list of updated needs will also be housed on the website for use by academic and resource agency personnel.

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. Last fall, the DMF became the lead agency in this

interagency effort. The flights to digitally photograph the coastal waters of North Carolina were flown during the fall of 2007 and remaining flight lines were flown in the spring of 2008. A GIS analyst had been allocated by DMF to photo-interpret the imagery. The employee assigned to this task left state employment shortly after receiving the initial batch of photographs. The position has been frozen due to budget constraints since his leaving. When rectified, the photographs will be used by several agencies involved with permitting, as well as used to help inventory docks, piers and hardened shoreline structures. This undertaking is extremely important to the CHPP, as SAV is acknowledged to be a vitally important coastal habitat.

Primarily through the efforts of the Division of Coastal Management, much work has been done on finding ways to encourage property owners and developers to consider using alternative methods to shoreline stabilization other than vertical structures. The Division has provided recommendations for appropriate shoreline stabilization methods taking into account the various estuarine shorelines types found in eastern North Carolina. In light of climate change, and specifically sea level rise, this is becoming a strategically significant effort. In the early spring of this year, the North Carolina Coastal Federation hosted a workshop targeting resource agency personnel regarding alternative shoreline stabilization methods and living shorelines.

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ATTACHMENT 1.

CHPP STEERING COMMITTEE MEMBERS, 2008 – 2009

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

Wildlife Resources Commission

Mr. Bobby Purcell	Cary	919-387-0465
Mr. Ray White	Manteo	252-441-4464

ATTACHMENT 2.

NORTH CAROLINA COASTAL HABITAT PROTECTION PLAN STEERING COMMITTEE

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, Environmental Management and Wildlife Resources 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 completion of the CHPP update, scheduled to be completed by late spring of 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 the agencies and their respective commissions with voting status on the CHPP Steering Committee.

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, forestland 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.

Wildlife Resources Commission

The Wildlife Resources Commission (WRC) and its agency became full members of the CHPP Steering Committee and the CHPP process in the fall of 2008. The WRC has as its mission "To manage, restore, develop, cultivate, conserve, protect, and regulate wildlife resources and their habitats for the citizens of the state of North Carolina." The Wildlife Resources Commission and its staff, as it directly relates to the CHPP, manage the state's freshwater fisheries through fisheries research, fisheries management, hatchery operation and habitat conservation, administers and coordinates educational programs designed to facilitate conservation of the state's wildlife and other interrelated natural resources and the environment people share with them.

INSERT TABLE HERE WHICH WILL BE HANDED OUT AT MEETING