

NORTH CAROLINA'S COASTAL HABITAT PROTECTION PLAN

2011 - 2013

BIENNIAL IMPLEMENTATION PLAN

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

August 2011

Executive Summary

The goal of the N.C. Coastal Habitat Protection Plan (CHPP) is the long-term enhancement of coastal fisheries associated with coastal habitats. Since 2004, when the CHPP was originally approved, North Carolina's environmental agencies and commissions have been working together to achieve this goal through the development of biennial implementation plans that work toward achieving the goals and recommendations of the CHPP.

Agencies involved with CHPP implementation include the N.C. Department of Environment and Natural Resources (DENR), Divisions of Marine Fisheries (DMF), Coastal Management (DCM), Water Quality (DWQ), Ecosystem Enhancement Program (EEP), Environmental Health/Shellfish Sanitation (reorganized in July 2011 as a section under DMF), North Carolina Forest Service (FS) (reorganized in July 2011 under the N.C. Department of Agriculture and Consumer Services (DACS)), Parks and Recreation (DPR), Soil and Water Conservation (DSWC) (also reorganized in July 2011 under DACS), and Water Resources (DWR). The Wildlife Resource Commission joined the CHPP Steering Committee (CSC) in 2010. Additional agencies involved in implementation of the CHPP include the Albemarle Pamlico National Estuary Program (APNEP), Duke University, National Estuarine Research Reserve (NERR), N.C. Sea Grant, National Oceanic and Atmospheric Administration (NOAA), U.S. Army Corps of Engineers (ACE) and the Water Resources Research Institute (WRI).

The first implementation plan covered the 2005-2007 time period. Two updates (2007-2009, 2009-2011) have been made to that original implementation plan. This document serves as the third update (2011-2013) to the original CHPP implementation plan.

Each division and commission was charged with developing biennial implementation actions that address the goals and recommendations of the CHPP. The CHPP was updated and approved in 2010 (http://www.onencnaturally.org/pages/CHPP_Overview.htm). The majority of the recommendations in that plan remained similar to the original recommendations, with a few additions and modifications (Appendix 2). The 2011-2013 implementation plan contains some ongoing actions from previous plans; new actions for previously existing recommendations; and some new actions for new recommendations contained in the 2010 CHPP.

By working together on complicated, multijurisdictional issues, the CHPP Steering Committee has played a key role in accomplishing or making substantial progress on several CHPP goals over the past six years. This included improving compliance with existing environmental rules; completing or making major progress on mapping critical fisheries habitat such as shell bottom, submerged aquatic vegetation (SAV) and wetland shorelines; restoring subtidal oyster reefs; increasing public awareness on environmental issues; supporting research and conducting analyses to identify Strategic Habitat Areas for focused protection; completing a beach and inlet management plan; and passing the coastal stormwater rules.

Over the next few years, successful implementation of a number of CHPP initiatives will be more difficult with the reductions in funding and staff needed to work on these initiatives. A number of the reductions involved programs and personnel critical to the implementation of the CHPP and the restoration and protection of important fish habitats. Eastern North Carolina's economy is strongly linked to a healthy environment, including clean waters for swimming and shellfish harvesting and robust fish populations for recreational and commercial fishing. Studies compiled in the CHPP clearly show that degraded habitats and water quality negatively impact fish populations and the economy. With that in mind, the CSC remains committed to moving forward to protect our estuarine resources through execution of the 2011-2013 Implementation Plan.

Implementation of the CHPP will continue in the face of budget cuts, but progress will likely slow down given the reductions in staff and funding seen in each agency. Over the next two years, implementation will focus on:

Outreach to increase awareness of the value of habitat conservation, the effect of human activities on the environment, and voluntary means to reduce nonpoint pollution such as low impact development and proper use and disposal of endocrine-disrupting chemicals, such as certain pesticides and prescription medications.

Monitoring and assessment of habitat conditions through continued mapping and monitoring support of applicable research and analysis of Strategic Habitat Areas.

Restoration of fish habitat, with particular focus on improving fish passage through obstruction removal or modification and developing non-traditional compensatory mitigation techniques to restore ecological functions where traditional mitigation is not feasible.

Protecting shallow wetlands and nursery areas by considering modifications of shoreline stabilization rules.

Introduction

The goal of the N.C. Coastal Habitat Protection Plan (CHPP) is the long-term enhancement of coastal fisheries associated with coastal habitats. Since 2004, when the CHPP was originally approved, North Carolina's environmental agencies and commissions have been working together to achieve this goal through the development of biennial implementation plans that work toward achieving the goals and recommendations of the CHPP.

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Over the next few years, successful implementation of a number of CHPP initiatives will be more difficult with the reductions in funding and staff needed to work on these initiatives. A number of the reductions involved programs and personnel critical to the implementation of the CHPP and the restoration and protection of important fish habitats. Eastern North Carolina's economy is strongly linked to a healthy environment, including clean waters for swimming and shellfish harvesting and robust fish populations for recreational and commercial fishing. Studies compiled in the CHPP clearly show that degraded habitats and water quality negatively impact fish populations and the economy. With that in mind, the CSC remains committed to moving forward to protect our estuarine resources through execution of the 2011-2013 Implementation Plan.

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Monitoring and assessment of habitat conditions through continued mapping and monitoring, support of applicable research and analysis of Strategic Habitat Areas.

Restoration of fish habitat, with particular focus on improving fish passage through obstruction removal or modification and developing non-traditional compensatory mitigation techniques to restore ecological functions where traditional mitigation is not feasible.

Protecting shallow wetlands and nursery areas by considering modifications of shoreline stabilization rules.

Below is a complete list of implementation actions that each agency has committed to working on in the next two-year cycle:

Division of Marine Fisheries

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

Rec	Action
1.2	Develop a data system for monitoring data and mapping the closure of shellfishing waters to enhance the sharing of information among departmental divisions.
1.3	Promote habitat conservation by creating informational materials highlighting life history, habitat use and threats of local species at festivals; 2) set up fish habitat displays, such as a marsh tank, for longer events; 3) seek funding for additional displays.
1.3	Incorporate CHPP materials into current DMF outreach activities ('This Week at the Fisheries' articles, Fish Eye News and Zoo FileZ).
1.3	Encourage coastal recreational fishing license projects related to habitat education.
1.4	Continue to review development issues and address environmental issues as they relate to the Coastal Area Management Act (CAMA) Land Use Planning Program.
1.6	Participate in state and federal efforts to control invasive aquatic species and educate staff and partner agencies.

Goal 2: Identify, designate and protect strategic habitat areas

Rec	Action
2.1a	Facilitate mapping of deep (>15 ft) estuarine bottoms, starting with lower Neuse River.
2.1b	Conduct cooperative DMF/NOAA research on methods for evaluating status and trends in SAV distribution and condition.
2.1b	Continue mapping of all shallow estuarine bottom and bottom types.

2.1b	Investigate SAV and shell bottom monitoring methods for trend assessments.
2.2	Complete Strategic Habitat Area (SHA) evaluation for Region 2.
2.2	Conduct groundtruthing of Region 1 SHA nominations.
2.2	Conduct SHA evaluation for Region 3.
2.2	Integrate resulting criteria and information from SHA committee into DENR divisions' guidelines, policies and rulemaking.
2.2	Study the feasibility and benefits of developing an SAV Restoration Program.
2.2	Work with DENR to include SHA priorities within EEP local watershed plans and DENR conservation planning tool.

Goal 3: Enhance habitat and protect it from physical impacts

Rec	Action
3.1a	Continue expanding the oyster sanctuary program.
3.1a	Cooperate with university researchers on oyster larvae distribution and movement investigations.
3.1a	Enhance oyster shell recycling program. Discourage use of shell material for landscaping or other uses besides shellfish cultch.
3.1a	Work with university researchers to monitor fish/invertebrate use of oyster sanctuaries and effect of oysters on local water quality.
3.1b	Make protection and restoration of critical fisheries habitats a priority part of the One North Carolina Naturally initiative, through incorporation of DMF data on habitat and SHAs.
3.1b	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.
3.1b	Support efforts to restore SAV.
3.2	Work with DWR to minimize conflicts between Aquatic Weed Control practices and protection of SAV habitat
3.3	Evaluate through the Fisheries Management Plan process the need for further restrictions of bottom-disturbing gear.
3.5b	Continue to study the feasibility and benefits of dam and barrier removal in general and for mitigation.
3.5b	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.

Goal 4: Enhance and protect water quality

Rec	Action
4.1a	Seek funding to initiate research on impacts of endocrine-disrupting chemicals to blue crabs and oysters.
4.1a	Work with the DACS to develop and implement a drug disposal program for pharmaceuticals.
4.5b	DMF will seek grant funding to reduce stormwater runoff from the DMF Headquarters'

	property through use of stormwater infiltration, rain gardens, and shoreline marsh plantings.
4.6c	Form workgroup to determine water quality standards necessary to support SAV habitat.

Division of Coastal Management

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

Rec	Action
1.3	DCM will incorporate CHPP into its research and education efforts.
1.3	Distribute brochures and posters about fish, fish habitat and fishing; make available for general distribution by DENR staff.
1.3	Provide information to focus students in K-12 understanding the biodiversity of lakes, streams and estuaries.
1.4	Continue to review development issues and address environmental issues as they relate to the CAMA Land Use Planning Program.
1.5	Begin analysis of DCM's estuarine shoreline mapping project.

Goal 2: Identify, designate and protect strategic habitat areas

Rec	Action
2.1b	The National Estuarine Research Reserve (NERR) will initiate emergent wetland vegetation monitoring of sentinel sites.
2.1c	Conduct research on the nursery role of SAV, oysters and wetlands (through NERR in conjunction with UNC-IMS).
2.1c	Conduct research to manage intertidal oyster reefs in a changing climate (through NERR in conjunction with UNC-IMS).

Goal 3: Enhance habitat and protect it from physical impacts

Rec	Action
3.1c	Conduct research to determine if clams can enhance eel grass growth.
3.1c	Support efforts to restore SAV.
3.2	DCM will serve as a clearinghouse for beach nourishment monitoring data and distribute reports to review agencies.
3.2	Develop minimum criteria for monitoring beach nourishment projects.
3.4	Use shoreline mapping to develop methodology to determine estuarine shoreline recession rates.
3.4	Encourage alternatives to vertical shoreline stabilization methods through permit requirements and fees (including but not limited to refining rule 15A NCAC 07H .2700 GP for Marsh Sills).
3.4	Use NOAA grant to delineate estuarine shorelines; apply methods to CAMA counties.
3.7	Develop an interagency policy for marina siting to minimize impacts to ecologically important shallow habitats such as Primary Nursery Areas (PNA), Anadromous Fish Spawning Areas (AFSA), and SAV.

3.8	Develop CRC Sea Level Rise Policy.
3.8	Teach the value and function of estuarine habitats, how sea level rise may affect these habitats and alternative methods (other than bulkheads) of estuarine shoreline stabilization.
3.8	Develop a sea level rise education strategy including messages and audiences with Coastal Training Program (CTP) and other DCM staff using the information gathered from the DCM's Sea Level Rise Perception Survey, APNEP's Climate Ready Estuary Program and existing sea level rise educational materials available through the NERRs and other programs.

Goal 4: Enhance and protect water quality

Rec	Action
4.1c	Incorporate power washing best management practices (BMPs) into the Clean Marina Manual.
4.5a	Enhance DCM education efforts such as the N.C. NERR Septic Systems Workshops.
4.5a	Implement Pivers Island stormwater BMP project.
4.5e	Incorporate areas of high aquatic habitat value in addition to high terrestrial habitat value into the N.C. Coastal and Estuarine Land Conservation Program (CELCP).
4.5f	Develop a clean boater initiative.
4.7	Improve wastewater/stormwater management at coastal marinas.
4.7	Inventory docks and piers in the 20 coastal counties.
4.7	N.C. Clean Marina Program and Clean Vessel Act activities will emphasize the threats to fish habitat and benefits of BMPs.
4.7	Seek dedicated funding to staff DCM's Clean Marina Program and effectively implement BMPs as a non-regulatory way to improve water quality in and around marinas and docks.

Division of Water Quality

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

Rec	Action
1.3	Conduct outreach to educate citizens about DWQ's Neuse and Tar-Pamlico riparian buffer rules and 401 Water Quality Certification program.
1.3	Provide information to focus the understanding of students in K-12 about the biodiversity of lakes, streams and estuaries.
1.3	Implement workshops for engineers and consultants on stormwater, buffer and 401 Water Quality Certifications.
1.4	Continue to review development issues and address environmental issues as they relate to the CAMA Land Use Planning Program.

Goal 2: Identify, designate and protect strategic habitat areas

Rec	Action
2.2	Study the feasibility and benefits of developing an SAV Restoration Program.

Goal 3: Enhance habitat and protect it from physical impacts

Rec	Action
3.1c	Support efforts to restore SAV.
3.5b	Continue to study the feasibility and benefits of dam and barrier removal in general and for mitigation.

Goal 4: Enhance and protect water quality

Rec	Action
4.1a	Work with the DACS to develop and implement a drug disposal program for pharmaceuticals.
4.1c	Incorporate power washing BMPs into the Clean Marina Manual.
4.4	Provide Phase II stormwater educational and technical assistance to local governments through the DENR Runoff Pollution Campaign and through partnerships with the Division of Community Assistance and UNC's School of Government.
4.6b	Work towards developing a model framework to begin evaluating the impact of the new coastal stormwater rules on the level of nonpoint source runoff pollutant concentrations.
4.6c	Form workgroup to determine water quality standards necessary to support SAV habitat.
4.7	Improve wastewater/stormwater management at coastal marinas.
4.8a	Support early implementation of environmentally superior alternatives to waste lagoon and spray field systems. Encourage commissions to express their support for early implementation.

Wildlife Resources Commission

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

Rec	Action
1.3	Promote habitat conservation through the Wildlife Action Plan (Green Toolbox) and Educational Centers.
1.3	Encourage CRFL projects related to habitat education.
1.4	Continue to review development issues and address environmental issues as they relate to the CAMA Land Use Planning Program.
1.6	Participate in state and federal efforts to control invasive aquatic species and educate staff and partner agencies.

Goal 2: Identify, designate and protect strategic habitat areas

Rec	Action
2.2	Conduct SHA evaluation and designation process for the Pamlico Sound and its tributaries (Region 2).
2.2	Conduct SHA evaluation and designation process for the White Oak basin (Region 3).

2.2	Integrate resulting criteria and information from SHA committee into DENR divisions' guidelines, policies and rulemaking.
2.2	Study the feasibility and benefits of developing an SAV Restoration Program.

Goal 3: Enhance habitat and protect it from physical impacts

Rec	Action
3.1b	Obtain funding to restore 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.
3.1b	Continue to study the feasibility and benefits of dam and barrier removal in general and for mitigation.
3.1b	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.

Goal 4: Enhance and protect water quality

Rec	Action
4.1c	Work with N.C. State University to develop a GIS-based map of potential sources of endocrine disrupting chemicals statewide.

DENR

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

Rec	Action
1.3	Develop and distribute brochures and posters about fish, fish habitat and fishing to be made available for general distribution by DENR staff.
1.3	The department, through the Office of Environmental Education and Public Affairs will coordinate with the Zoo, Aquariums, Museum of Natural Sciences, DPR, Educational State Forests and Environmental Education Centers to integrate the relevant components of the CHPP into exhibits and programs.

Goal 2: Identify, designate and protect strategic habitat areas

Rec	Action
2.1a	Complete and disseminate photo-interpretation of 2007-08 coast-wide SAV imagery.

Goal 3: Enhance habitat and protect it from physical impacts

Rec	Action
3.1b	DENR review of state agency requests to the Natural Heritage Trust Fund will prioritize those proposals that would further the protection and restoration of critical fisheries habitats.
3.1b	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 20 coastal counties that identify potential conservation focus areas.
3.1b	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.
3.6	Provide support for ongoing marine spatial planning efforts while working with the Bureau of Ocean Energy Management (BOEM) task force.

Goal 4: Enhance and protect water quality

Rec	Action
4.4	Provide Phase II stormwater educational and technical assistance to local governments through the DENR Runoff Pollution Campaign and through partnerships with the Division of Community Assistance and UNC's School of Government.
4.4	Pursue funding for the Community Conservation Assistance Program (CCAP) with emphasis on CHPP stormwater priorities in coastal counties.
4.8a	Support early implementation of environmentally superior alternatives to waste lagoon and spray field systems. Encourage commissions to express their support for early implementation.

Other Agencies

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

Rec	Agency	Action
1.1	FS	Evaluate use of forestry BMPs at logging sites.
1.2	APNEP	The department, through the APNEP, will develop a comprehensive monitoring plan for the estuarine system.
1.3	APNEP	Conduct outreach to educate citizens about DWQ's Neuse and Tar-Pamlico riparian buffer rules and 401 Water Quality Certification program.
1.3	DPR, APNEP, DSWC	Provide information to focus students in K-12 understanding the biodiversity of lakes, streams and estuaries.
1.3	FS	Enhance forestry BMP compliance with education videos, outreach projects and guide books.
1.3	WRRI	Implement workshops for engineers and consultants on stormwater, buffer and 401 Water Quality certifications.
1.4	N.C. Sea Grant	Continue to review "Inner Banks" development issues and address environmental issues

1.4	FS	The FS will revise its memorandum of agreement (MOA) documents with the N.C. Division of Land Resources (DLR) and the DWQ 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 the state's river basins.
1.5	FS	Develop threshold criteria for determining when a noncompliant forestry operation directly contributes to a degradation or loss of in-stream aquatic habitat sufficient to warrant restoration or remediation of the affected water resource.

Goal 2: Identify, designate and protect strategic habitat areas

Rec	Agency	Action
2.1a	APNEP	Complete and disseminate photo-interpretation of 2007-08 coast-wide SAV imagery.
2.1a	APNEP	Conduct cooperative DMF/NOAA research on methods for evaluating status and trends in SAV distribution and condition.
2.2	EEP	Study the feasibility and benefits of developing an SAV Restoration Program.
2.2	EEP	Work with DENR to include SHA priorities within EEP local watershed plans and DENR conservation planning tool.

Goal 3: Enhance habitat and protect it from physical impacts

Rec	Agency	Action
3.1b	DSWC	DSWC will encourage local Soil and Water Conservation Districts SWCD 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.
3.1b	DSWC	Include Strategic Habitat Areas as a priority area for the Conservation Resource Enhancement Program (CREP).
3.1b	DWR	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.
3.1b	FS	The FS will work with DENR agencies to start pre-construction water quality and water quantity monitoring of 'The Canal,' which is a tributary of the Little River that flows through the NC Forest Service's Claridge Nursery in Wayne County. The tributary will be a future NC Department of Transportation mitigation project.

3.1b	EEP	EEP will work with the Army Corps of Engineers, the N.C. Department of Transportation and the Interagency Review Team (IRT) on innovative mitigation projects and an appropriate crediting system. Such projects may include the protection and restoration of SAV and oyster beds (or other degraded fish habitats), and the removal of certain dams and other aquatic organism barriers.
3.1b	APNEP, EEP	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.
3.5b	EEP, ACE	Continue to study the feasibility and benefits of dam and barrier removal in general and for mitigation.
3.5b	EEP, ACE, DWR	The department, WRR and EEP will pursue dam removal projects where appropriate.
3.1c	APNEP, EEP	Support efforts to restore SAV.

Goal 4: Enhance and protect water quality

Rec	Agency	Action
4.4	DSWC	Pursue funding for the Community Conservation Assistance Program with emphasis on CHPP stormwater priorities in coastal counties.
4.5a	Duke, NOAA	Implement Pivers Island stormwater BMP project.
4.5b	FS	FS 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.

APPENDIX 1. GLOSSARY OF ACRONYMS

ACE	U.S. Army Corps of Engineers
AFSA	Anadromous Fish Spawning Area
APNEP	Albemarle Pamlico National Estuary Program
BOEM	Bureau of Ocean Energy Management
CCAP	Community Conservation Assistance Program
CELCP	Coastal and Estuarine Land Conservation Program
CHPP	Coastal Habitat Protection Plan
CREP	Conservation Resource Enhancement Program
CSC	CHPP Steering Committee
DACS	Department of Agriculture and Consumer Services
DCM	Division of Coastal Management
DENR	Department of Environment and Natural Resources
DMF	Division of Marine Fisheries
DSWC	Division of Soil and Water Conservation
DWQ	Division of Water Quality
DWR	Division of Water Resources
EEP	Ecosystem Enhancement Program
FS	North Carolina Forest Service
NERR	National Estuarine Research Reserve
NOAA	National Oceanic and Atmospheric Administration
PNA	Primary Nursery Area
SAV	Submerged Aquatic Vegetation
SWCD	Soil and Water Conservation District
UNC-IMS	University of North Carolina Institute for Marine Science
WRRI	Water Resources Research Institute

APPENDIX 2. CHPP GOALS AND RECOMMENDATIONS (DEATON ET AL. 2010)

GOAL 1. IMPROVE EFFECTIVENESS OF EXISTING RULES AND PROGRAMS PROTECTING COASTAL FISH HABITATS

1. Continue to enhance enforcement of, and compliance with, Coastal Resources Commission (CRC), Environmental Management Commission (EMC), Marine Fisheries Commission (MFC), and Wildlife Resources Commission (WRC) rules and permit conditions.
2. Coordinate and enhance water quality, physical habitat, and fisheries resource monitoring (including data management) from headwaters to the nearshore ocean.
3. Enhance and expand educational outreach on the value of fish habitat, threats from land-use and human activities, climate change, and reasons for management measures.
4. Coordinate rulemaking and data collection for enforcement among regulatory commissions and agencies.
5. Develop and enhance assessment and management tools for addressing cumulative impacts.
6. Enhance control of invasive species with existing programs.

GOAL 2. IDENTIFY, DESIGNATE, AND PROTECT STRATEGIC HABITAT AREAS

1. Support Strategic Habitat Area assessments by:
 - a. Coordinating, completing, and maintaining baseline habitat mapping (including seagrass, shell bottom, shoreline, and other bottom types) using the most appropriate technology,
 - b. Selective monitoring of the status of those habitats, and
 - c. Assessing fish-habitat linkages and effects of land use and human activities on those habitats.
2. Identify, designate, and protect Strategic Habitat Areas.

GOAL 3. ENHANCE HABITAT AND PROTECT IT FROM PHYSICAL IMPACTS

1. Expand habitat restoration in accordance with ecosystem restoration plans, including:
 - a. Creation of subtidal oyster reef no-take sanctuaries,.
 - b. Re-establishment of riparian wetlands and stream hydrology,
 - c. Restoration of SAV habitat and shallow soft bottom nurseries, and
 - d. Developing compensatory mitigation process to restore lost fish habitat functions.
2. Sustain healthy barrier island systems by maintaining and enhancing ecologically sound policies for ocean and inlet shorelines and implement a comprehensive beach and inlet management plan that provides ecologically based guidelines to protect fish habitat and address socio-economic concerns.
3. Protect habitat from fishing gear effects through improved enforcement, establishment of protective buffers around habitats, modified rules, and further restriction of fishing gears, where necessary.
4. Protect estuarine and public trust shorelines and shallow water habitats by revising shoreline stabilization rules to include consideration of erosion rates and prefer alternatives to vertical shoreline stabilization measures that maintain shallow nursery habitat.
5. Protect and enhance habitat for migratory fishes by:
 - a. Incorporating the water quality and quantity needs of fish in water use planning and rule making.
 - b. Eliminating or modifying obstructions to fish movements, such as dams and culverts, to improve fish passage.

6. Ensure that energy development and infrastructure is designed and sited in a manner that minimizes negative impacts to fish habitat, avoids new obstructions to fish passage, and where possible provides positive impacts.
7. Protect important fish habitat functions from damage associated with activities such as dredging and filling.
8. Develop coordinated policies including management adaptations and guidelines to increase resiliency of fish habitat to climate change and sea level rise.

GOAL 4. ENHANCE AND PROTECT WATER QUALITY

1. Reduce point source pollution discharge by:
 - a. Increasing inspections of discharge treatment facilities, collection infrastructure, and disposal sites.
 - b. Providing incentives for upgrading all types of discharge treatment systems.
 - c. Develop standards and treatment facilities that minimize the threat of endocrine disrupting chemicals on aquatic life.
2. Adopt or modify rules or statutes to prohibit ocean wastewater discharges.
3. Prevent additional shellfish and swimming closures through targeted water quality restoration and 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 (as defined by the Division of Water Quality's Stormwater Flooding Relief Discharge Policy) when public safety and health are threatened, and continue to phase-out existing outfalls by implementing alternative stormwater management strategies.
4. Enhance coordination with, and financial/technical support for, local government actions to better manage stormwater and wastewater.
5. Improve strategies throughout the river basins to reduce non-point pollution and minimize cumulative losses of fish habitats through voluntary actions, assistance, and incentives, including:
 - a. Improved methods to reduce pollution from construction sites, agriculture, and forestry.
 - b. Increased on-site infiltration of stormwater.
 - c. Documentation and monitoring of small but cumulative impacts to fish habitats from approved, un-mitigated activities.
 - d. Encouraging and providing incentives for low impact development.
 - e. Increased inspections of onsite wastewater treatment facilities.
 - f. Increased water re-use and recycling.
6. Improve strategies throughout the river basins to reduce non-point pollution and minimize cumulative losses of fish habitats through rule making, including:
 - a. Increased use of effective vegetated buffers.
 - b. Implementing and assessing coastal stormwater rules and modify if justified.
 - c. Modified water quality standards that are adequate to support SAV habitat.
7. Maintain adequate water quality conducive to the support of present and future aquaculture.
8. Reduce non-point source pollution from large-scale animal operations by the following actions:
 - a. Support early implementation of environmentally superior alternatives to the current lagoon and spray field systems as identified under the Smithfield Agreement and continue the moratorium on new/expanded swine operations until alternative waste treatment technology is implemented.
 - b. Seek additional funding to phase-out large-scale animal operations in sensitive areas and relocate operations from sensitive areas, where necessary.
 - c. Use improved siting criteria to protect fish habitat.

APPENDIX 3. CHPP STEERING COMMITTEE MEMBERS, 2009–2010

Marine Fisheries Commission

Ms. Anna Beckwith	Morehead City	(252) 671-3474
Dr. B. J. Copeland	Pittsboro	(919) 837-5024

Environmental Management Commission

Dr. Charles H. Peterson	Morehead City	(252) 726-6841
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Coastal Resources Commission

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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