Coastal Habitat Protection Plan
FOR NORTH CAROLINA:
Celebrating Success and Looking Toward Tomorrow

HOME IS WHERE THE HABITAT IS...

Fish use habitats: Like seagrass and shellfish beds, wetlands and water, mud flats and the ocean bottom. Many fish use more than one habitat during their lives. Human actions, even hundreds of miles from the coast, can damage the places fish and shellfish live, grow and reproduce.

Coastal habitat protection starts in your own habitat:
your home, your town *and* **your watershed.**

photo by stammphoto.com

Photo by Ed Ziegler

WHY ARE THE COASTAL FISH HABITATS SO IMPORTANT TO NORTH CAROLINA?

Photos courtesy of NOAA

The first time someone looks at a map or a satellite image of our coastline, they are immediately struck by two things:

First, behind our barrier islands we have approximately 2.3 million acres of inside waters. North Carolina has the largest estuarine system of any single state on the East Coast.

These shallow waters, where the land and sea gradually merge to form estuaries, marshes and brackish swamps, serve as nursery areas for 90 percent of our economically-important fisheries, such as blue crabs, shrimp, striped bass, southern flounder, red drum, weakfish, spot, croaker and many other finfish. These nursery areas provide the protection and nourishment needed for juvenile fish and crustaceans to grow.

And do they ever grow! For many years, these estuaries have supported both a strong commercial fishery and a strong recreational fishery. Together, they bring more than $1 billion in annual revenue to North Carolina.

The second thing that you normally notice about our coastline is the way it juts out into the Atlantic Ocean. We are in the fortunate position of being in a mixing zone - where two major water currents collide.

Just offshore from Cape Hatteras, about 30 miles, the cold Labrador Current collides with the warm waters of the Gulf Stream, bringing us both cool water and sub-tropical migratory species. **Where else on the East Coast can you catch a Maine lobster and a red snapper on the same fishing trip?**

IDENTIFYING, DESIGNATING AND PROTECTING **STRATEGIC HABITAT AREAS**

All three commissions have agreed on rules to protect Primary Nursery Areas and their functions. In an effort to emulate the success of PNAs, a more holistic approach was envisioned to protect, enhance, and restore entire systems of interdependent habitat. The designation of Strategic Habitat Areas, or SHAs, is meant to provide additional protections to a variety of ecologically important habitats in strategically located areas, so that ecosystem integrity can be sustained over time.

Strategic habitat areas are defined as "specific locations of fish habitat that provide exceptional habitat functions or that are at-risk due to imminent threats, vulnerability, or rarity." In order to apply this definition, a regional focus group of experts and staff from resource management agencies, including staff from the Division of Marine Fisheries, must be involved.

The current focus of this work is on Albemarle Sound, where concern over river herring stocks is the primary issue. After all, what good is it to protect river herring stocks if their spawning and nursery habitat is not also protected and restored? Initial nominations of SHAs will go out for public review in 2008.

Coastal Habitat Protection Plan
– *mandated by state law*

Photo by Jimmy Johnson

By passing the Fisheries Reform Act in 1997, the North Carolina General Assembly took a bold step to protect our fisheries. This far-reaching reform package set up a framework to restructure fisheries management in North Carolina. The law requires the development of Fishery Management Plans, which will identify problems in our major fisheries and focus our efforts toward long-term management of these stocks. Additionally, the law requires the N.C. Department of Environment and Natural Resources to prepare a plan for protecting our coastal habitats.

The **Coastal Habitat Protection Plan** was adopted by the Marine Fisheries Commission (MFC), the Environmental Management Commission (EMC) and the Coastal Resources Commission (CRC) in December 2005. This plan, known as CHPP, identifies six critical fish habitats that support North Carolina's coastal fisheries. It also requires the three adopting commissions and their associated agencies to work together when formulating rules. Those rules must complement the CHPP whenever practicable. The CHPP is a science-based document with far-reaching goals.

The implementation of the CHPP continues to be a significant part of the decision-making process of DENR's divisions and three regulatory commissions. In 2007, the CRC, EMC and MFC all endorsed their respective divisions' plans for the next two years of CHPP implementation actions. The actions are ambitious and progressive and will be significant as we all continue to conserve, protect and restore those habitats critical to our fisheries and the other living organisms that use them.

The Coastal Habitat Protection Plan's goal is the "...long-term enhancement of coastal fisheries associated with each habitat," according to G.S. 143B-279.8.

CHPP requirements:

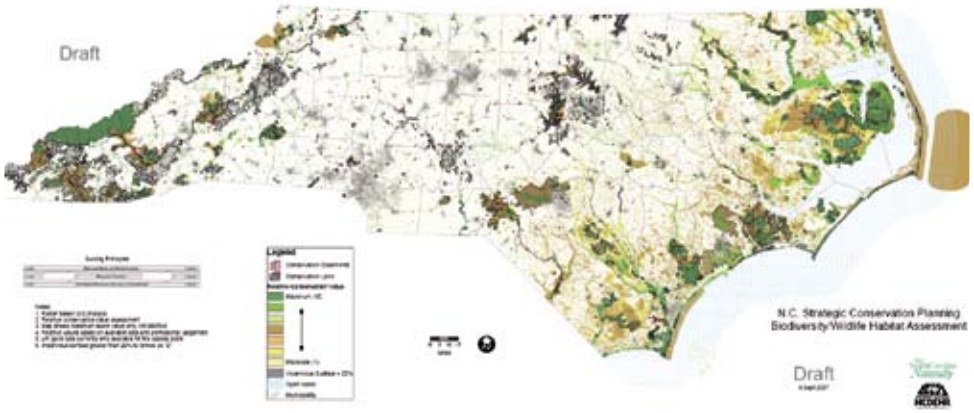
1. Describe and classify biological systems in the habitat.
2. Evaluate the function, value to coastal fisheries and trends in habitat.
3. Identify existing and potential threats to the habitat and impact on coastal fishing.
4. Recommend actions to protect and restore the habitats.

PROGRESS SO FAR

- Focused direction of the three regulatory commissions
- Major improvements in commissions' and agencies' communication and cooperation, with mutual support and coordinated programs
- Strong support from the General Assembly, regulatory commissions and DENR agencies, including 19 new state-funded positions within DENR to implement the CHPP initiatives

NEXT STEPS

- Delineate Strategic Habitat Areas beginning in the Albemarle Sound area.
- Continue the coast-wide mapping effort of estuarine shell bottom habitat and submerged aquatic vegetation.
- Address challenges of sea level rise.
- Further enhance the oyster reef sanctuary program.
- Develop the Beach and Inlet Management Plan.
- Work with agencies to further refine shoreline stabilization rules.
- Continue to improve marina and dock siting practices.
- Continue work to adopt and implement the EMC's Coastal Stormwater Rules in the 20 coastal counties.



Planning for Growth in an Environmentally Sensitive Way

State environment officials have developed the One N.C. Naturally Conservation Planning Tool, a series of maps of North Carolina's natural features that will be used to inform land use planning efforts. Rapidly increasing population is putting significant pressure on our natural resources, and it is important to safeguard the coast's wildlife and water, scenic beauty and outdoor recreation areas.

The Conservation Planning Tool is designed to streamline the state's process of identifying and prioritizing the areas of North Carolina's landscape that are essential for conservation. State and local agencies can use these maps to plan future water, wastewater and transportation projects, while avoiding environmentally sensitive areas.

The planning tool will include six natural resource assessment maps; already available are the biodiversity and wildlife habitat assessment and the open space and conservation map. The assessments for water services, agricultural lands, and forest lands will be completed in June 2008. A separate map is being developed to support implementation of the Coastal Habitat Protection Plan; this marine and estuarine resources assessment is anticipated in 2009.

By using the assessment maps independently or in combination, state and local agencies will be able to quickly identify lands that provide multiple benefits for compatible uses.

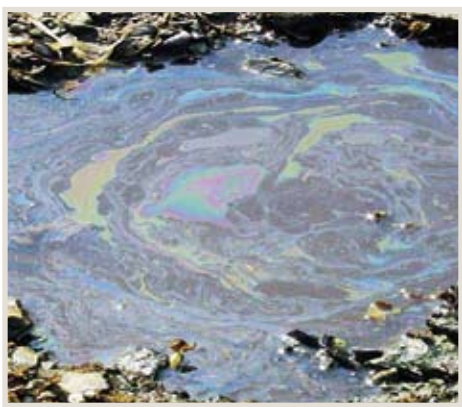
Check out the Conservation Planning Tool online at www.oneNCnaturally.org.

N.C. **BEACH** AND **INLET** MANAGEMENT PLAN

Together with the N.C. Division of Water Resources, the N.C. Division of Coastal Management is developing a comprehensive Beach and Inlet Management Plan (BIMP) for North Carolina. The BIMP is the state's first attempt at developing a systematic management strategy for its 326 miles of oceanfront beaches and 19 active tidal inlets.

During the first phase of the project, DCM is working with the engineering firm of Moffatt & Nichol to identify and gather data from various sources, define management regions for the coast and develop some draft management strategies. Several stakeholder and public meetings will be held later this year to gain public input on this process.

Eventually, the BIMP will help determine priorities for state funding of sediment management projects such as beach nourishment and navigational dredging; identify and make the most effective use of the state's limited, beach-compatible sand resources; and promote "soft" beach management strategies that will help to maintain the natural functioning of beach and inlet ecosystems and their associated habitats. It also will help North Carolina achieve an effective balance between sediment management projects (such as beach nourishment and storm protection), and coastal navigation, tourism, commerce, recreation and protection of natural resources.



CLEAN MARINA PROGRAM; PUMPOUT GRANTS

Those of us who use North Carolina's waters for boating can put those waters – and the people who use them – at risk if we don't dispose of our marine sewage properly. The N.C. Division of Coastal Management's Clean Marina and Pumpout Grant programs help boaters keep our waters clean by providing access to pumpout facilities.

The Clean Marina program is designed to show that marina operators can help safeguard the environment by using management and operations techniques that exceed regulatory requirements. If a marina meets criteria developed by N.C. Boating Industry Services and the Division of Coastal Management, it will be designated as a Clean Marina. Clean Marina flags signal to boaters that a marina cares about the cleanliness of area waterways. There are 15 certified Clean Marinas in North Carolina.

You can find a list of currently certified Clean Marinas and pumpouts on the Division of Coastal Management's Web site, www.nccoastalmanagement.net/Marinas/marinas.htm.

Fishery Management Plan Update

The Coastal Habitat Protection Plan is authorized to address water quality and habitat concerns, which greatly impact many of North Carolina's favorite fish species. Fishery management plans (FMP) for North Carolina's commercially or recreationally significant species are required by the 1997 Fisheries Reform Act. The condition of some important fish stocks declined during the late 1980s and early 1990s. To support stock recovery, plans must be developed to protect and enhance the habitats used by such species.

For each management plan, the Division of Marine Fisheries includes information on how well the fishery is doing in the wild and areas of concern that regulators have regarding the fishery. Habitat and water quality issues and scientific assessments used to determine the status of the stock are also a significant part of each FMP. Of special interest to the fishing public, and contained in several fishery management plans is the amount of fish allowed to be caught by recreational and commercial fishers, while maintaining that fragile balance between maximizing the benefit of the stock for all user groups and overfishing.

Currently, there are 36 coastal stocks or species groups for which FMPs have been developed or are planned. Each FMP is produced by following an established protocol, and normally takes two years to complete. The process of developing an FMP is a collaborative effort between fishermen, scientists, environmental groups and other state and federal agencies. Since 1999, almost 200 fishermen, scientists and interested residents have participated in the development of these fishery management plans. Each FMP undergoes a thorough review at least every five years.

STOCK STATUS UPDATE

BLUE CRAB = concern
2004 FMP

RIVER HERRING = depleted
2007 FMP

RED DRUM = recovering
2008 FMP

SOUTHERN FLOUNDER = depleted
2005 FMP

OYSTERS = concern
2008 FMP

STRIPED MULLET = viable
2006 FMP

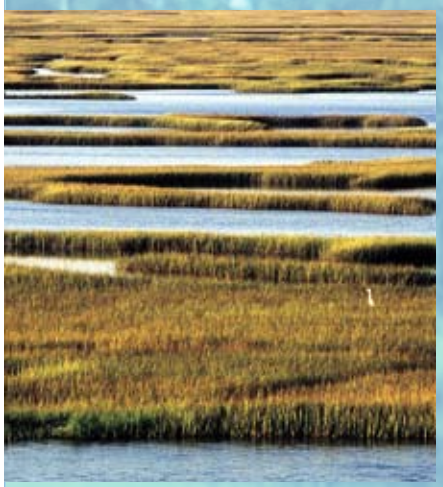
SPOTTED SEATROUT = unknown
FMP to be completed in 2009

INFORMATION ON ALL OF THE FMPS CAN BE VIEWED, DOWNLOADED OR PRINTED AT:

WWW.NCFISHERIES.NET
under FISHERY MANAGEMENT PLANS

STRIPED BASS = viable
(Albemarle Sound + Atlantic Ocean)
STRIPED BASS = depleted
(central + southern regions)
2008 FMP

Rachel Carson Reserve
North Carolina National Estuarine Research Reserve



Wetlands

WETLAND FUNCTIONS

- Provides refuge and food for fish and other animals
- Filters pollutants
- Traps sediments
- Protects shoreline by slowing wave energy
- Holds and slowly releases flood waters

HOW FISH USE WETLANDS

- Nursery area for blue crabs, shrimp and southern flounder
- Foraging area for sea trout, red drum and flounder
- Spawning area for river herring, killifish and grass shrimp
- Refuge area for blue crabs and grass shrimp

HUMAN IMPACTS

- Reduction in habitat quality from draining and ditching for roads
- Erosion from boat wakes reduces habitat
- Habitat loss also occurs from shoreline development, bulkheads and rip-rap

Soft Bottom

SOFT BOTTOM FUNCTIONS

- Stores and recycles nutrients, microbes and chem
- Supplies sand for other habitats
- Provides an area for marine animals to burrow

HOW FISH USE SOFT BOTTOM

- Nursery area for blue crabs, flounder and croaker
- Foraging area for sea trout, red drum and flounder
- Spawning area for shrimp, sturgeon and kingfish
- Refuge area for hard clams, shrimp and flounder

HUMAN IMPACTS

- Habitat disturbance from dredging, filling and fish
- Degradation and loss of habitat from construction
- Removal of habitat by excavation for mining and b

Shell Bottom

SHELL BOTTOM FUNCTIONS

- Provides structure, shelter and food sources
- Filters pollutants and other particles from water
- Protects shoreline by slowing wave energy

HOW FISH USE SHELL BOTTOM

- Place for oysters and other shellfish to attach
- Nursery area for blue crabs, sheepshead and stone crab
- Foraging area for drum, black sea bass and southern flounder
- Spawning area for hard clams, toadfish and goby
- Refuge for goby, grass shrimp and anchovy

HUMAN IMPACTS

- Destruction of habitat by fishing gear, boats and dredging
- Excessive oyster harvest reduces shell bottom
- Runoff carrying toxic chemicals and sediment can kill oysters
- Excess nutrients and other inputs from land can impact shell bottom species and the species they support

Submerged Aqu

SAV FUNCTIONS

- Provides refuge for fish and other a
- Serves as food for fish and waterfo
- Produces dissolved oxygen
- Reduces wave energy and limits er
- Uses nutrients and traps sediments

HOW FISH USE SAV

- Nursery area for blue crabs, pink sh
- Foraging area for spotted sea trout
- Spawning area for spotted sea trou bay scallops
- Refuge for bay scallops and hard cl

HUMAN IMPACTS

- Uprooting of plants from boat prop
- Degradation of water quality from and sedimentation
- Shading by piers and docks reduce
- Habitat destruction from dredging a

Coastal Fish Habitats

icals

ing gear
of docks, jetties and bulkheads
beach nourishment

Hard Bottom

HARD BOTTOM FUNCTIONS

- Provides a place for sponges, seaweed and coral to attach
- Offers refuge for reef fish
- Supplies new sand through erosion

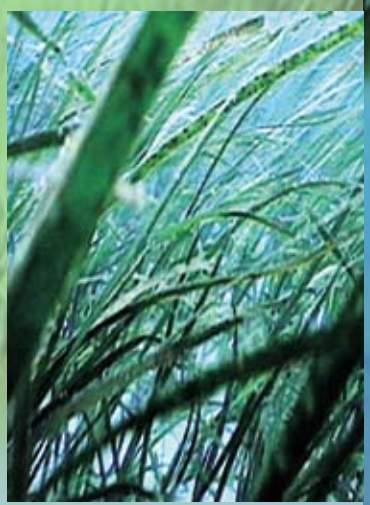
HOW FISH USE HARD BOTTOM

- Nursery habitat for grouper, snapper, spadefish and black sea bass
- Foraging area for king mackerel, gag and snapper
- Spawning area for black sea bass, grouper and damselfish
- Refuge area for gag and black sea bass

HUMAN IMPACTS

- Dredging for beach nourishment directly removes hard bottom habitat
- Damage from fishing gear, boat anchors and ocean dumping uproots coral and tears loose rocks
- Harvesting of coral reduces hard bottom habitat

atic Vegetation (SAV)



aquatic animals
owl

rosion
s

hrimp and red drum
, gag and flounder
ut, grass shrimp and

lams

s and fishing gear
excess nutrients

s plant growth
and filling

Water Column

WATER COLUMN FUNCTIONS

- Connects all habitat types
- Allows fish to move among habitats
- Surrounds and supports aquatic animals and habitats

HOW FISH USE THE WATER COLUMN

- Transports eggs, larvae, and oxygen
- Nursery area for all fish species
- Foraging area for all fish species
- Spawning area for all fish species

HUMAN IMPACTS

- Excessive runoff after rainfall reduces water quality
- Alteration of natural water flow by dams, ditches, roads and culverts impacts fish movement
- Loss of shoreline vegetation (buffers) increases turbidity, causing fish gills to become clogged and burial of other aquatic species
- Conversion of natural areas to agriculture and developed uses impacts both water quality and clarity



from left: ***bulkhead; revetment; marsh toe protection revetments***

Estuarine shoreline stabilization

Shoreline erosion is common along North Carolina's broad sounds and tidal rivers (part of the "estuarine" system). Many waterfront owners would like to slow or prevent further erosion by stabilizing the shoreline using engineered structures, vegetation or land management practices to protect the shoreline from future or existing erosion. Although the most commonly used method is a vertical bulkhead, there are many other options available, some of which can actually improve the local habitat.

The CRC is considering rule changes to its general permits for shoreline stabilization projects along estuarine waterways. They are considering these changes to encourage property owners to bypass vertical bulkheads in favor of more environmentally-friendly stabilization, such as rip rap or marsh sills.

DCM and the North Carolina National Estuarine Research Reserve (NCNERR) in cooperation with the NOAA Center for Coastal Fisheries and Habitat Research in Beaufort have recently been awarded a grant from the Cooperative Institute for Coastal and Estuarine Environmental Technology to further study shoreline stabilization and its effects on fisheries habitats.

Here are some examples of estuarine shoreline stabilization, from most-to-least-damaging (in most situations):

A **bulkhead (a.k.a.: vertical structure, seawall, gravity wall)** is any shore-parallel vertical structure designed to prevent overtopping, flooding, or sliding of the land. Bulkheads are usually placed along an eroding bank or escarpment to hold back the land and prevent erosion. Bulkheads are long lasting hearty structures that can withstand moderate-to-high wave energy. However, they also prevent the natural migration of wetland vegetation.

A **revetment** (**a.k.a.: riprap, sloped structure**) is a shore-parallel, sloping structure constructed against a bank/escarpment to protect it from erosion while absorbing moderate-to-high wave energy. Revetments are long-lasting structures designed to hold back the land to prevent erosion. Although revetments cause a loss of soft bottom habitat, they cause less habitat destruction and loss than bulkheads and also create fisheries habitat.

Marsh toe protection revetments (**a.k.a.: riprap at the waterward toe of marsh**) are a shore-parallel, sloping structure constructed against a marsh escarpment to protect the marsh wetland roots from undermining. Placing riprap or stone on the waterward edge of the marsh helps stabilize or reestablish the marsh vegetation. Marsh grasses dissipate wave energy and wave height through friction and drag, and thus help to reduce erosion further inland (usually on the high ground). Marsh vegetation also increases the marsh habitat and provides food for the lower organisms such as algae and seaweeds, finfish and shellfish, mammals and shorebirds.

MANAGING BEACH NOURISHMENT

A new set of rules designed to ensure the quality of sand used for beach nourishment projects in North Carolina took effect in 2007. These new rules are a significant step forward in the Division of Coastal Management's efforts to improve the quality of material used in beach nourishment projects, and will greatly reduce the possibility of finding rocks, mud and other incompatible materials on nourished beaches along our coast.

Beach nourishment, also known generically as beach fill, is the practice of placing sediment on a beach to combat shoreline erosion. North Carolina law prohibits "hard" oceanfront structures such as seawalls and groins because they can increase erosion on neighboring properties. Because of this, beach fill has become a popular alternative in North Carolina for erosion control. Sediment deposited on beaches is either excavated from upland locations or collected during navigation maintenance projects in inlets and the Atlantic Intracoastal Waterway. The sediment from these sites may be significantly different in character from the beach on which it is to be placed.

The new rules provide an objective definition of sediment compatibility for beach fill projects, and outline specific protocols for sampling the beach scheduled to receive nourishment and the proposed borrow site in order to correctly characterize the material found there. These methods will help ensure that future beach fill projects will closely mimic the native characteristics of North Carolina's beaches.

Photos by N.C. Division of Marine Fisheries

Oyster Shell Recycling Program

What good does it do to put one family's bushel of oyster shells back into the water?

A whole lot, if that one family's bushel of shells is joined by another family's bushel, and then another family's bushel. Add in the shells from a couple of non-profit oyster roasts and you've soon got enough oyster shells to build an oyster reef.

That's the concept behind the N.C. Division of Marine Fisheries' Oyster Shell Recycling Program, which began in 2003.

"It's a volunteer-based program where the public, restaurants and other businesses can donate their shells to help rebuild the state's oyster population," said DMF Oyster Shell Recycling Coordinator Sabrina Varnam.

Oyster beds are not only an important habitat for oysters. They also provide hiding places and attract organisms that serve as food for juvenile fish, crabs and shrimp. At least 12 economically-important fishery species such as blue crabs, sheepshead and stone crabs, and many other non-fishery species, use the shell bottoms as nurseries.

Additionally, oysters filter algae and bacteria from the water column, helping to improve water quality. Oyster reefs also serve as breakwaters, reducing turbidity and protecting shorelines from erosion.

Oyster reefs were once so numerous in North Carolina waters they were considered a hazard to navigation. Much of decline in shells came as the result of over-fishing in the late 1800s and early

1900s. Oyster beds have declined 90 percent since that time, and poor water quality and disease outbreaks have prevented recovery of the species.

Shells collected by the Oyster Shell Recycling Program are put back into public waters, where they immediately begin to colonize. Oyster sanctuaries are created by building reefs with a combination of oyster shells and rip-rap marl. DMF has begun to seed some of these sanctuaries with baby oysters, called spat, which will grow and produce offspring. The reefs attract native oyster larvae, as well as clams, juvenile finfish, crabs and other marine organisms. Harvest of oysters is not allowed on sanctuaries so that a brood stock can develop.

Recycled shell is also used in the division's cultch planting program and for cooperative research and resource enhancement projects with other state and federal agencies, academic institutions and non-profit conservation groups.

Together, these programs help create sub-tidal oyster reef no-take sanctuaries. In doing so, the programs meet one of the plan's major goals – to enhance habitat and protect it from physical impacts.

As the public gets involved in the Oyster Shell Recycling Program, they learn firsthand the value of fish habitat, threats from human activities, effects of non-native species and reasons for management measures.

The Oyster Shell Recycling Program has collected more than 62,000 bushels of shell since it began in the fall of 2003. There are now 71 public drop-off sites and 44 participating restaurants in 21 North Carolina counties.

For more information, contact the N.C. Oyster Shell Recycling Program, P.O. Box 769, Morehead City, NC 28557 at 1-800-682-2632, (252) 726-7021 or www.ncdmf.net.

PLANNING FOR THE FUTURE: KURE BEACH

"We are very sensitive to the environment and try to ensure all activities by the town are environmental friendly and will hopefully leave the town in better condition than when we came here to live."
– Eric Vann, chair, *Kure Beach Stormwater Committee*

Kure Beach has seen its fair share of development in recent years, so people here are familiar with the coastal rules designed to reduce stormwater runoff and protect water quality. Now this beach town has taken the initiative to go even further with their environmental protection efforts by voluntarily adopting the Universal Stormwater Management Program (USMP) effective Sept. 1, 2007.

The USMP is an optional, voluntary stormwater management program that allows local governments to adopt and implement a single, simplified set of stormwater rules for their jurisdiction. Local governments work with the Division of Water Quality to develop a USMP ordinance and then apply for approval from the Environmental Management Commission. Once approved, towns that adopt the program agree to follow certain guidelines and requirements for development activities. Examples of USMP guidelines include requiring the use of stormwater control devices such as infiltration systems, establishing minimum setbacks from waterways when installing impervious surfaces and limiting the proximity of paved areas to shellfishing waters.

As part of their USMP ordinance, Kure Beach also voluntarily reduced the lot size that requires a stormwater permit to 5,000 square feet, instead of the standard 10,000 square feet. Residents and town officials agreed on this rule because lots in the town are typically about that same size. There is limited space here, so when it is built upon, residents want to see it done in an environmentally sound way.

Kure Beach has found one key to stewardship success is utilizing citizen-led committees to implement programs. "This is a small town with limited resources, so the committee system allows us to accomplish many things that could not be done with such limited funds," says Eric Vann. "We're very proud of how well this has worked in Kure Beach."

NORTH CAROLINA COASTAL STORMWATER RULE REVISIONS 2008

FREQUENTLY ASKED QUESTIONS

Get the facts on what the proposed rule changes mean for you.

BACKGROUND: The existing stormwater requirements were intended to protect coastal waters from the impacts of runoff from developed areas. The Division of Water Quality (DWQ) and Environmental Management Commission (EMC) recently performed a comprehensive review of the effectiveness of the existing Rule. The conclusion of the study was that the existing Coastal Stormwater Rule was outdated and ineffective in providing an adequate level of environmental protection to the coastal ecosystem. In response to this finding, the EMC has finalized amendments to the Rule to provide further protection.

Q. ***When could these changes to the Coastal Rules become effective?***

A. These new rule changes could become effective on Aug. 1, 2008.

Q. ***If my lot is only 5,500 square feet, will the new rule changes make it impossible to build on my lot?***

A. These proposed rule changes will not affect individual lot owners with lots of less than 10,000 square feet in size. Therefore, these rule changes will not have any impact on the development of individually owned lots that are less than 10,000 square feet.

Q. ***Will the new rule changes make many lots 'unbuildable?'***

A. Nothing in these rule changes will limit what can be built on a lot. These rule amendments **only require the control and treatment of the stormwater runoff from new development.**

Q. ***Is the 50-foot "buffer" in the new rule changes a "no touch" buffer, like in the Neuse and Tar-Pamlico River Basins?***

A. The 50-foot buffer, or setback, from surface waters in the Coastal Stormwater Rule is not a "no touch" buffer. Under the Coastal Stormwater Rule, this 50-foot buffer may be cleared and graded, and planted with grass. You simply can not put **new impervious surfaces** within this 50-foot buffer area.

Q. ***Will these new rule changes require the use of rain barrels or cisterns?***

A. A number of alternatives can be used for the control and treatment of stormwater runoff. No one will be required to install rain barrels or cisterns if they would like to use a different method for stormwater control. However, the EMC strongly believes that rain cisterns are a practical solution that provides many benefits to both the homeowner and the environment and will support sustainable development in coastal North Carolina.

The Coastal Stormwater Rule applies to 20 counties in North Carolina, including:

Beaufort
Bertie
Brunswick
Carteret
Camden
Chowan
Craven
Currituck
Dare
Gates
Hertford
Hyde
New Hanover
Onslow
Pamlico
Pasquotank
Pender
Perquimans
Tyrell
Washington

Q. ***Under the new rule changes, will I be able to rebuild my house if it is destroyed in a hurricane or a fire?***

A. The EMC's standard redevelopment provision allows for the rebuilding of homes, businesses and other structures destroyed/damaged in the event of natural disasters or fire.

The redevelopment provision allows redevelopment of existing lots to be exempted from these proposed rule changes when the redevelopment will result in the **same net built-upon area as the previous development.**

Q. ***Will these changes make coastal housing unaffordable?***

A. DWQ staff engineers performed a thorough analysis and determined that a 3,600 square foot home with an associated driveway and patio within ½ mile of shellfishing waters could meet the most stringent requirements contained in these proposed changes with an appropriate rain garden that would cost approximately $3,000 for installation.

When one considers that the median price in 2006 for a home in Dare County was $397,000 and the median price for a home in 2006 in Carteret County was $255,000, it does not appear that these changes would drastically affect the overall affordability of coastal housing.

Q. ***What about the area outside of the 20 coastal counties? Does Raleigh have to control its stormwater?***

A. Other communities do have to control stormwater runoff. The majority of the area within North Carolina (including all of Wake County and most of the other major metropolitan areas of the state) that is outside of the 20 coastal counties is already covered under some type of federal or state stormwater program.

It should be noted that nearly all of the programs that are already implemented within the 80 non-coastal counties are significantly more stringent than the stormwater control program that is currently in place in most of the 20 coastal counties. For instance, almost no program in the 80 non-coastal counties allows development density above 24% without structural stormwater controls. However, in 90% of the 20 coastal counties today, a site can be developed with up to 30% impervious surface density without implementing structural stormwater controls. This is one of the inequities that is being addressed with this rule change.

To learn more, contact the:
NC Division of Water Quality,
Wetlands & Stormwater Branch
1617 Mail Service Center
Raleigh, NC 27699-1617
(919) 733-7015 • h2o.enr.state.nc.us/su/coastal.htm

Improved enforcement of existing CAMA rules

The Coastal Area Management Act and rules set forth by the N.C. Coastal Resources Commission govern development in the 20 coastal counties. The Coastal Resources Commission recently adopted a legislatively approved increase in the maximum penalty for Coastal Area Management Act violations. This rule allows Coastal Management to quadruple the maximum penalties the division can assess for violations of these rules. Previously, DCM could assess fines of up to $250 for minor development violations and up to $2,500 for major development violations. The rule change increases the maximum penalties to $1,000 for minor permit violations and $10,000 for major permit violations.

These measures should act as a deterrent to future violations of CRC rules. They govern any type of coastal development, including building a dock or dredging a channel, without a valid CAMA permit. For more information, see www.nccoastalmanagement.net/Handbook/contents.htm

For years, Marine Patrol Pilot Shephard Newman has flown over coastal North Carolina looking for illegal fishing activity. Nowadays, when Newman goes out on patrol, he keeps his eyes open for other environmental violations, such as a potential dredge and fill violation.

Since 2006, N.C. Marine Patrol Officers have undergone extensive cross training with the Division of Coastal Management so that they can recognize potential Coastal Area Management Act violations. They do not enforce CAMA regulations; they report suspicious activities to the Coastal Management authorities. This inter-agency collaboration is an effective and efficient enforcement strategy that provides better enforcement of the existing rules.

UP AND AWAY: *Marine Patrol Pilot Shephard Newman prepares for an enforcement flight in a Marine Patrol helicopter.*

YOU CAN BE A PART OF THE SOLUTION: REPORTING VIOLATIONS

While DENR agencies check for compliance with environmental permits, they also rely on the public eye to report potential violations to coastal fish habitat. If you see an activity that looks suspiciously damaging to the environment, contact the closest regional DENR office to make an anonymous report.

Wilmington Regional Office: 910-796-7215
Washington Regional Office: 252-946-6481

DEVELOPING A COMPREHENSIVE MONITORING PROGRAM FOR NORTH CAROLINA'S ESTUARINE SYSTEMS

What better way to demonstrate improved effectiveness of rules and programs than to document whether our efforts to protect and restore natural resources are having the desired impact?

In order to track the state of our natural resources, we measure what are called "indicators," or elements of the natural world that are indicative of the health of the ecosystem. These indicators, which are being developed by the Albemarle Pamlico National Estuary Program, document both (1) status and trends in resource condition and (2) the causal factors, in particular human actions, which might be influencing that condition. It is important to measure cause, in addition to status, because it helps resource managers understand the reasons for improving or declining trends.

If we measure the:	*It will indicate the:*
size of juvenile fish populations →	health of estuarine fisheries
area of submerged aquatic vegetation in the sounds →	health of fish habitats
prevalence of certain practices for treating stormwater runoff on the coast →	influence of management actions

These metrics should provide CHPP managers with information that helps them adapt their actions based on whether a management practice is indeed making improvements in habitat condition and the health of the species that depend on it. Giving managers and stakeholders the ability to respond and adapt will ultimately lead to more sustainable natural resources management and more effective governance.

To protect aquatic habitats and encourage plant and animal life, we must use our water resources wisely and keep harmful chemicals, nutrients and sediment out of our waterways.

Statewide efforts being led by the Division of Water Quality include:

- Improving and upgrading all types of wastewater treatment systems
- Developing and encouraging opportunities for use of reclaimed water
- Preventing and minimizing pollution through on-site management of stormwater
- Increasing collaborative solution-finding among government agencies, industries and environmental groups

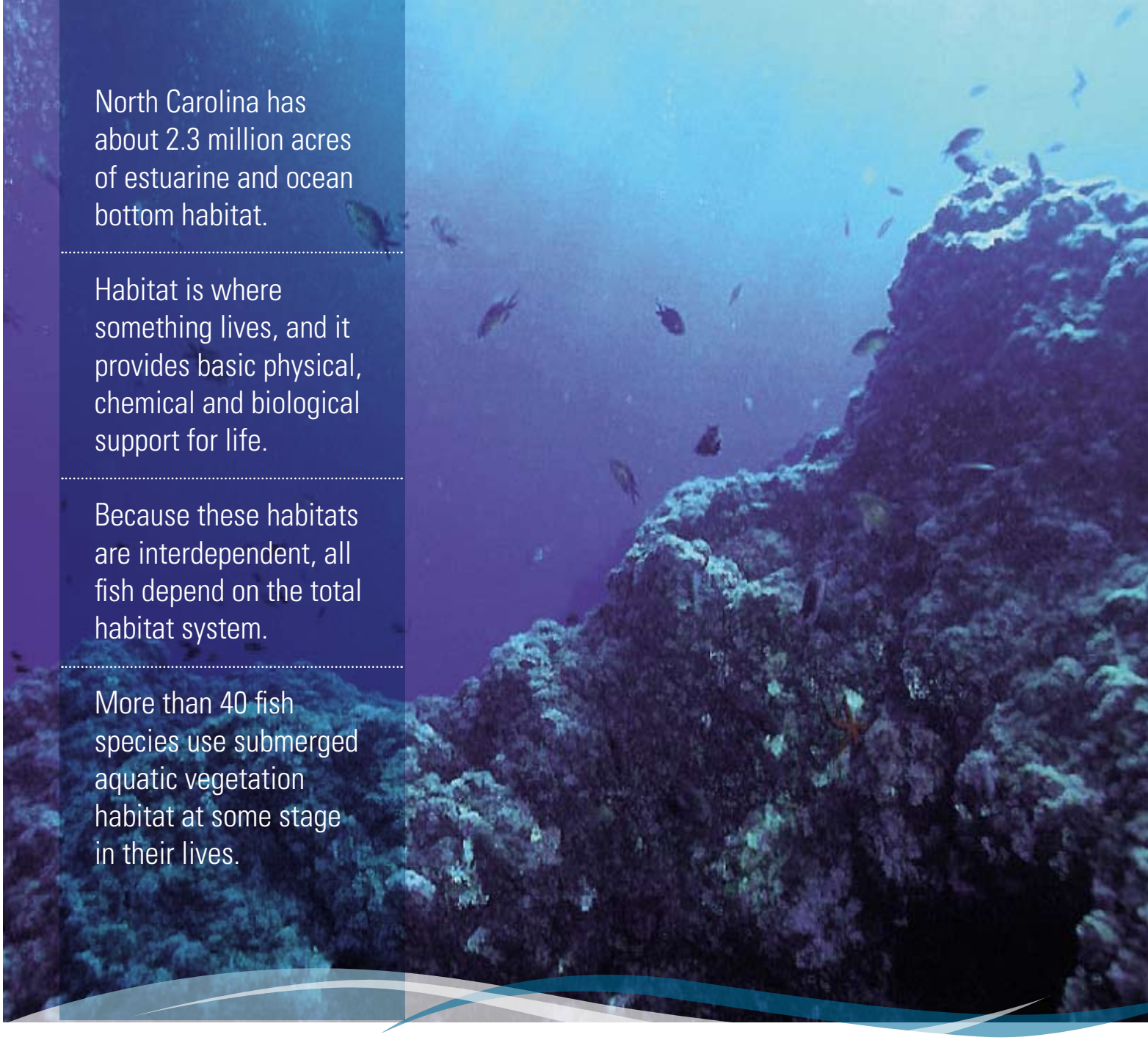
Effective community level efforts include **Low-Impact Development (LID)** which is a decentralized approach for managing stormwater. LID uses site design and engineered infiltration systems (such as rain gardens) to manage rain where it falls. These methods reduce runoff by replicating natural drainage patterns that harness the capacity of the land to store and treat runoff.

As the tremendous environmental and economic benefits of Low Impact Development become apparent, more communities are incorporating these techniques. Not only can LID reduce polluted stormwater entering coastal waters, but it also can make communities greener and more beautiful. Local governments and planners appreciate the way these design principles help them to balance growth with environmental protection. In many cases, LID saves developers money by reducing the costs of preparing the site, building expensive stormwater infrastructure and then maintaining it. LID has proven to be very versatile and can be used with residential, commercial and industrial projects and fixing existing sources of stormwater. For more information about LID, contact the North Carolina Coastal Federation at (252) 393-8185 or go to www.ncoast.org.

Homeowners can manage stormwater on their own property by using some of Mother Nature's own secrets to encourage their yards to absorb it. With a backyard rain garden, a small depression filled with lovely trees, shrubs and perennials, water soaks into the soil instead of a nearby creek. Cisterns collect rain running off the roof for later use in watering lawns and gardens.

The **Community Conservation Assistance Program (CCAP)** is a voluntary, incentive-based program available to help landowners install these types of projects (known as best management practices) on urban, suburban and rural land. CCAP provides outreach and education, technical guidance and financial assistance for landowners to retrofit their property. The program is run by the N.C. Division of Soil and Water Conservation and the local soil and water conservation districts. The Clean Water Management Trust Fund and the federal Section 319 Grant Program provide funding for CCAP.

Projects selected in the coastal region often include shoreline protection, stream restoration, cisterns and rain gardens. Contact your local soil and water conservation district for more information. www.enr.state.nc.us/dswc/pages/district%20offices.html



North Carolina has about 2.3 million acres of estuarine and ocean bottom habitat.

Habitat is where something lives, and it provides basic physical, chemical and biological support for life.

Because these habitats are interdependent, all fish depend on the total habitat system.

More than 40 fish species use submerged aquatic vegetation habitat at some stage in their lives.

Why should these six coastal habitats matter to me?

Six interdependent fish habitats support North Carolina's coastal fisheries: wetlands, soft bottom, shell bottom, submerged aquatic vegetation, hard bottom and the water column itself.

- **95%** of fish depend on coastal wetlands habitat during their life cycle.
- Soft bottom habitat **stores** and **recycles nutrients** and sediments.
- Submerged aquatic vegetation is like an underwater garden that **supplies food**, **oxygen** and **shelter** for young fish.
- Hard bottom habitat structure provides **crucial spawning habitat** for snapper and grouper.
- Living oyster reefs **filter pollutants from water.** North Carolina has **lost 90%** of our **original oyster reefs**.
- All coastal habitats are connected by water. **Clean water is essential to all aquatic life.**

One North Carolina Naturally

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For more information go to
www.onencnaturally.org

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