



**Strategic Plan
for the Conservation and
Improvement
of North Carolina's
Marine Resources
Through Funding From
the
Coastal Recreational
Fishing License**



March 12, 2007

Executive Summary

In 2005, the North Carolina General Assembly enacted N.C.G.S. § 113-175 which requires those who harvest finfish recreationally in state coastal waters to purchase a fishing license. Revenues from license sales are deposited into two funds depending upon the type of license: the North Carolina Marine Resources Fund and the North Carolina Marine Resources Endowment Fund. The legislation directs that the funds will be used “*to manage, protect, restore, develop, cultivate, conserve, and enhance the marine resources of the State.*” Furthermore, the State Treasurer will disburse these revenues “*only upon written direction of both the Marine Fisheries Commission and the Wildlife Resources Commission.*”

To guide management efforts and research to be funded by the license, Division of Marine Fisheries (DMF) staff developed the Draft Strategic Plan for the Conservation and Improvement of North Carolina’s Marine Resources through Funding from the Coastal Recreational Fishing License (Plan). The Plan identifies three broad management goals: ‘Fish’, ‘Habitat Enhancement’, and ‘People’. Objectives and strategies are identified to achieve each goal. As with all management plans, the Plan is a working document that will be modified as objectives are accomplished and priorities change. Activities identified under Plan goals include:

Fish- Biological research and surveys that provide crucial information on the abundance and characteristics of fish stocks, harvest rates, and other data necessary for developing and implementing fisheries management plans. Specific project examples include: sampling juvenile and adult stages of recreationally important fishes, expanding the DMF creel survey program to estimate fish harvest, and implementing studies designed to estimate the contribution of recreational anglers to the State’s economy.

Habitat Enhancement- Activities related to identifying, protecting, managing, conserving, restoring, enhancing, and mapping critical aquatic habitats; including implementation of the Coastal Habitat Protection Plan recommendations. Specific project examples include mapping of vital aquatic vegetation beds by aerial photography or acquisition of wetlands adjacent to fish nursery areas.

People- Activities related to public outreach and education, and improving public fishing and boating access and angling opportunities. Specific project examples include boating access areas, fishing piers, expansion of the artificial reef program, public education programs on marine resource conservation.

New revenues from the saltwater fishing license will improve DMF’s abilities to manage coastal recreational fisheries. Division of Inland Fisheries staff will work cooperatively with DMF staff to evaluate proposed projects and recommend those to the Wildlife Resources Commission that will meet marine resources management and research priorities.

I. Introduction

A Coastal Recreational Fishing License (CRFL) statute was enacted by the North Carolina General Assembly in 2005 (N.C.G.S. § 113-175) and the requirement for licenses began on January 1, 2007. The license is required to recreationally harvest finfish in the state's Coastal Fishing Waters, which include sounds, coastal rivers and their tributaries, out to three nautical miles in the ocean. Recreational anglers who catch fish in the ocean further than 3 nautical miles offshore are required to have this license to land fish in state waters. Persons fishing in Joint Waters [(areas managed by both the Marine Fisheries Commission (MFC) and the Wildlife Resources Commission (WRC)] are required to purchase either the CRFL or a WRC inland fishing license.

The law establishes the North Carolina Marine Resources Fund and the Marine Resources Endowment Fund (Funds) to provide monies for the enhancement of the marine resources of the State. The MFC and the WRC are authorized to jointly disburse these funds **to manage, protect, restore, develop, cultivate, conserve, and enhance the marine resources of the State**. All proposals to the MFC and WRC for these funds are to be made through the Fisheries Director of the North Carolina Division of Marine Fisheries (DMF). It should be noted that this plan is a working document subject to change or modification as objectives are met and priorities are adjusted.

II. Goal

The overall goal for the use of Funds is **to manage and enhance the marine resources of North Carolina based on sound science and strategies**. The Strategic Plan for the Conservation and Improvement of North Carolina's Marine Resources Through Funding from the Coastal Recreational Fishing License (Plan) sets forth a framework of objectives and strategies to meet this goal. The Plan provides the basis upon which to evaluate and select proposals for CRFL funds. The objectives and strategies described have been compiled based on priority research needs in Fishery Management Plans approved by the MFC, issues identified in the Coastal Habitat Protection Plan (CHPP), and needs identified cooperatively with other state and federal agencies.

III. Program Areas

There are three important programmatic areas under which strategies have been proposed to achieve the goal:

- A) Fish: Biological research and surveys that provide crucial information on the abundance and life history parameters of fish stocks, social and economic factors affecting abundance levels, interdependence of fisheries or stocks of fish, and other data necessary for developing and implementing fisheries management plans (FMP).

- B) Habitat: Activities related to protecting, managing, conserving, identifying, restoring, enhancing, and mapping critical aquatic habitats; including implementation of the CHPP recommendations.
- C) People: Activities related to public outreach and education, and improving public fishing access and fishing opportunities.

North Carolina DMF data collection programs are more extensive than most, if not all, other east coast states, but deficiencies remain. As a result, a major area of emphasis will be to ensure that fisheries-independent (e.g., sampling of fish populations by DMF staff) and fisheries-dependent (e.g., MRFSS) sampling programs adequately and sufficiently represent the target species and fisheries and the resultant data are accurate and unbiased. Implementation of the provisions of the CHPP directly addresses the statutory charge to identify, protect, restore, and enhance critical fish habitats in order to provide the “substrate” and water quality necessary to maintain our fisheries at healthy and productive levels. Enhancing public fishing access to coastal waters and conservation education programs will build public confidence in the benefits of the CRFL.

FISH

Management and Science

The following objectives (in no order of priority) are established to improve fishing through the collection and use of sound science.

Objective 1

Estimate fishing effort, catch, harvest, and mortality of important coastal fish species

FMP development and stock assessments require information and data from both recreational and commercial fisheries. Precise estimates of recreational fishing effort, catch, harvest, and mortality are needed to manage important recreational species. Stock abundance, harvest, and life history information are necessary inputs for population models that enhance management programs by estimating mortality rates and determining appropriate harvest levels. Fishery-independent sampling provides key components of stock assessments, including stock and age class abundance. The precision of recreational harvest data, currently collected by the National Marine Fisheries Service (NMFS) and by DMF through telephone surveys and intercept surveys, may be enhanced by evaluating sampling methodologies.

- Strategy F.1.1. Increase current recreational sampling levels to obtain estimates with greater precision.
- Strategy F.1.2 Develop and expand statistically sound juvenile and adult fishery-independent sampling programs.
- Strategy F.1.3. Identify and gather life history information needed for stock assessment models for recreationally important fish species.
- Strategy F.1.4. Initiate a comparison of the random digit dialing survey (MRFSS) vs. license frame survey for fishing effort.
- Strategy F.1.5 Develop methodologies and initiate sampling of important night fisheries (e.g., flounder gigging, adult red drum). Increase focus on released species (discards) and direct more effort toward rare event species.
- Strategy F.1.6. Enhance upper estuarine recreational sampling programs to produce estimates of catch and angler participation directed at recreational anadromous species and other fishes occupying low salinity waters.
- Strategy F.1.7. Develop detailed data analysis programs (similar to data requests for trip tickets) for recreational catch and harvest data for use by the Division and the public.
- Strategy F.1.8. Initiate surveys of recreational fishermen targeting shellfish, crustacea, and bait.
- Strategy F.1.9. Set up a carcass collection pilot program for recreationally important fish to expand age, reproductive, and other life history sampling and analysis.

Objective 2

Characterize socio-economic attributes of coastal fisheries

The collection and analyses of socio-economic data are needed for descriptive and behavioral information on recreational fishermen who fish in coastal waters of North Carolina. These data can provide estimates of value and economic contributions of recreational fishing. These data may also be used to evaluate the impacts of fishery management plans and fishing regulations on recreational fishing.

- Strategy F.2.1. Initiate a socio-economic survey of recreational fishermen.

Strategy F.2. 2. Identify and enumerate different users groups within the recreational sector

Objective 3

Characterize catch and release mortality in coastal fisheries

While it is apparent to scientists, natural resource managers, and the general public that by-catch is an important issue that must be addressed, characterizing the nature and extent of by-catch has proven extremely difficult. Discards impact fishery yields and fishery managers' ability to accurately assess fishery stocks. The North Carolina Marine Fisheries Commission adopted a policy in November 1991 directing the NCDMF to establish the goal of reducing by-catch to the absolute minimum and to incorporate that goal into its actions

Strategy F.3.1 Initiate by-catch and discard mortality studies of recreationally important fish and fisheries.

Strategy F.3.2 Develop gear and methodology for reducing release mortality from recreational fishing.

HABITAT AND ENHANCEMENT

The goal of the following objectives is to enhance coastal fisheries through the protection, enhancement, and restoration of coastal fish and fish habitats.

The health of North Carolina's fishery resources is dependent upon the health of their habitats. Human activities, however, can degrade these habitats and impact the important ecological functions they provide. The Fisheries Reform Act of 1997 required DENR to prepare plans to protect coastal habitats. The CHPP was adopted by the Marine Fisheries, Coastal Resources, and Environmental Management commissions in December 2004, and the CHPP Implementation Plan was approved in June and July 2005. The objectives and strategies here are based on the CHPP and its Implementation Plan.

Objective 1

Improve effectiveness of existing programs

Numerous programs are in place to protect coastal habitats. Improvements to these existing programs in the areas of stronger enforcement of existing regulations and better coordination among agencies was a primary need identified by many stakeholders in the CHPP process.

Strategy H.1.1. In cooperation with other DENR agencies and university scientists, conduct coastal habitat status assessments using standard indicators of estuarine and near shore ocean conditions.

Strategy H.1.2. Enhance DENR habitat alteration permit compliance monitoring and DMF habitat alteration permit program review capability.

Strategy H.1.3. Contribute to DENR initiatives to improve comprehensive water quality monitoring.

Strategy H.1.4. Enhance education of fishermen and the public concerning fish habitats, how they function, and what people can do to protect them.

Strategy H.1.5. Expand and utilize the Oyster Shell Recycling Program and the Under Dock Oyster Culture Program to enhance public awareness and foster volunteer, government agency, and NGO partnerships.

Objective 2

Identify, designate, and conserve fish habitat and Strategic Habitat Areas (SHAs)

Strategic Habitat Areas are defined as specific locations of individual fish habitat or systems of habitat that have been identified to provide exceptional habitat functions or that are particularly at risk due to imminent threats, vulnerability, or rarity. These areas include unique habitats and combinations of habitats that result in greater production of fish resources than other habitats. A number of other important coastal fish habitat areas are already recognized under existing programs, while some others are not. This effort will develop and implement a coordinated program to apply standardized methods to locate, delineate, and protect these critical areas.

Strategy H.2.1. Expand the mapping of important coastal fisheries habitat such as submerged aquatic vegetation (SAV), shell bottom and other bottom types.

Strategy H.2.2. Identify and delineate candidate sites for designation as Strategic Habitat Areas.

Strategy H.2.3. Inventory and conduct research and monitoring to determine status of and trends in the six basic fish habitats (SAV, shell bottom, wetlands, water column, hard bottom, soft bottom)

Strategy H.2.4. Conduct research to clarify the linkages between coastal fish habitat and fish production and identify the key aspects of habitat function and how these functions are affected by human activities

Strategy H.2.5. Coordinate mapping and monitoring of fish habitats to delineate causes of and effects of habitat disturbance and loss

Objective 3

Enhance habitat and protect it from physical harm

Coastal fish habitats have been damaged by direct physical impacts (e.g., dredging, filling, and damming). The Division of Marine Fisheries conducts several activities intended to protect, enhance, and restore important fish habitats. These efforts will be enhanced to ensure that important fish habitats are protected and restored so they can continue to help produce fish for the benefit of North Carolina.

Recent efforts to enhance fishery resources have focused on providing increased fishery habitat, such as estuarine and ocean artificial reefs, cultch planting for oyster habitat, and establishment of no-take oyster sanctuaries. Research, monitoring, and sampling have focused on improving the quality and function of created or enhanced habitat by improving materials, deployment strategies, and techniques. Successful management and enhancement of estuarine and marine resources depends on the timely identification, location, and health of habitat resources. Enhanced research and monitoring, and incorporation of research results into enhancement projects will be necessary to ensure the efforts provide the most effective and efficient use of available funds. The identification, protection, and enhancement of essential fisheries habitats are vital to successful management and preservation of our fisheries resources.

Strategy H.3.1. Identify degraded fish habitat and implement restoration measures

Strategy H.3.2. Initiate monitoring programs to evaluate success of restoration and enhancement projects

Strategy H.3.3. Conduct research on restoration techniques in order to improve the quality and function of created or enhanced habitat

Strategy H.3.4. Refine materials and deployment techniques to maximize long-term ecological function and structural integrity of restoration efforts

Strategy H.3.5. Enhance the ongoing oyster sanctuary program, including shell recycling

Strategy H.3.6. Expand Oyster Shell Recycling Program outreach and public participation

Strategy H.3.7. Solicit collaborative research on larval transport and dispersal patterns and incorporate results into siting oyster habitat restoration projects and no-take oyster sanctuaries

PEOPLE

Fishing Access and Public Information and Education

Anglers, environmental organizations, and other interested parties, have expressed the need for an expansion of our recreational fisheries information program. Major topics of interest include the loss of public access, and methods to improve the quality and frequency of publications and events aimed at the recreational fishing public.

Objective 1

Provide fishermen increased access to fisheries resources and enhancement structures.

Successful enhancement of fishery and habitat resources cannot fully benefit the residents of North Carolina, especially the recreational fishing community, without improved access to these resources. Additional access sites including boat ramps, fishing piers, and beach access, and more accessible habitat enhancements should be constructed to support and provide broader use of these resources. Careful consideration of habitat disturbance and responsible design and construction of the access structures will be necessary, as will restoration of degraded habitat. Acquisition, preservation, and limited development (access structures) of coastal lands should be included in the overall goal of increasing access to enhanced fishery resources while limiting environmental impacts of such development. Collaboration with other agencies including the Department of Transportation (DOT), WRC, and Department of Environment and Natural Resources (DENR) agencies, could result in multiple use facilities at locations already owned by the State.

Strategy P.1.1. Collaborate with DOT, WRC, and DENR to site boat ramps and piers at highway bridges and State Parks and provide habitat enhancement such as artificial reefs or oyster cultch in conjunction with these facilities to provide increased access for both boat and pier fishermen.

Strategy P.1.2. Incorporate access structures into strategic land acquisitions.

Strategy P.1.3. Utilize access structures and strategic land acquisitions for outreach, environmental education, and community based environmental enhancement activities.

Strategy P.1.4. Coordinate the siting of artificial fishing reefs and oyster reefs with the locations of access structures to increase utilization by the recreational fishing community.

Strategy P.1.5. Increase the function of artificial reefs through refinement of materials and techniques based on research and monitoring.

Strategy P.1.6. Develop a unique web page for artificial reef activities, reef locations, and material deployment locations.

Strategy P.1.7. Update, print, and distribute the N.C. Artificial Reef Guide.

Strategy P.1.8. Partner with local governments and private entities to maintain ocean fishing piers.

Objective 2

Provide better products and programs aimed at improving public information, education, and enrichment

Fishing effort in North Carolina's recreational fisheries is at an all-time high with over two million active coastal anglers in 2004. North Carolina is ranked third in the country in the numbers and poundage of recreationally-caught fish from coastal waters. These numbers are anticipated to rise as coastal populations and visitation continue to increase. It is imperative that this expanding segment of the fishing industry understand the dynamics of our fisheries so that they become active participants in our management system, observe conservation-based fishing practices, and become stewards of the resource. It is important to deliver products and services to meet the expectations of the recreational fishing community.

Strategy P.2.1. Develop workshops, clinics and pamphlets on ethical fishing practices, conservation methods, and how-to seminars.

Strategy P.2.2. Expand recognition programs such as the Governor's Cup series, citation catch and state record programs.

Strategy P.2.3. Expand the scope and content of the DMF website

Strategy P.2.4. Develop a comprehensive guide to fishing in North Carolina to be issued with the CRFL.