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# FISHERIES PLAN

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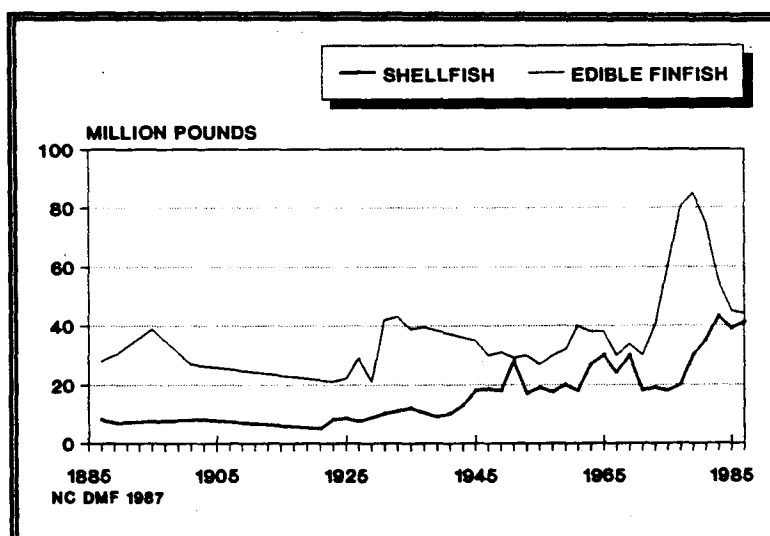
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## GOAL

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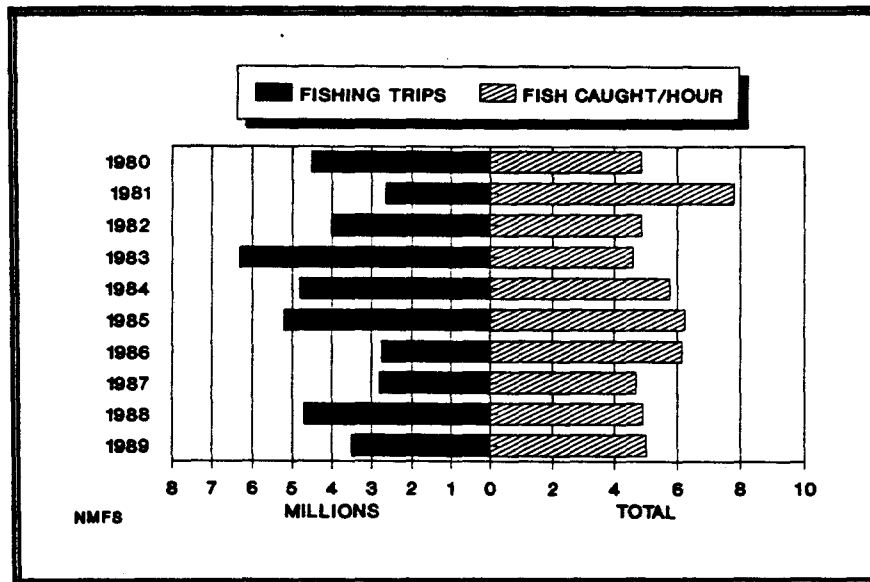
*Restore or maintain fisheries and provide for their long-term, sustainable use, both commercial and recreational.*

**OBJECTIVE A: CONTROL OVER-FISHING BY  
DEVELOPING AND IMPLEMENTING FISHERY  
MANAGEMENT PLANS FOR ALL IMPORTANT  
ESTUARINE SPECIES.**



**FIGURE 20** TRENDS IN COMMERCIAL LANDINGS  
FOR EDIBLE FINFISH & SHELLFISH IN THE APES REGION

**Strategy:** The Marine Fisheries Commission (MFC) and Wildlife Resources Commission (WRC) would develop management plans, modeled after those currently used at the federal level, to help ensure the long-term availability of important commercial and recreational species. Figures 21 and 22 illustrate commercial and recreational fishing effort which will be considered in the development of fishery management plans. Where necessary, additional management controls would be recommended to conserve the resource. Recent efforts by the Division of Marine Fisheries (DMF) to develop a state strategic plan lay a good foundation. However, improved and expanded data collection and analysis are necessary. These could be provided in part by modifying the existing marine fisheries license structure.



**FIGURE 21** MARINE RECREATIONAL FISHING STATISTICS: NORTH CAROLINA

**Management Action 1: Develop and implement management plans for fisheries that are important to recreational and commercial fishing interests. These plans would include recovery objectives for severely depleted stocks by 1999.**

**Explanation:** State fishery management plans will allow the Marine Fisheries Commission (MFC) and Wildlife Resources Commission (WRC) to identify and maintain healthy stocks of important commercial and recreational fish. The plans will enhance depleted and declining stocks and restore economically important species for future harvest.

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### **Critical Steps**

1. DMF has been working to establish a strategic plan to manage important North Carolina fisheries. A comprehensive state framework for fisheries management would be developed in accordance to the Magnuson Fishery Conservation and Management Act of 1976 (Magnuson Act 1976) to include both marine and estuarine species. These plans, developed by DMF and WRC, would set objectives for management of each important species or group of species and recommend management measures to achieve those objectives. Some management plans are currently under development or have been developed. Those which have not been developed will be completed by 1998.
2. The General Assembly would be asked to support financially and in principle the development of additional fishery management plans, including the support staff necessary to develop plans.
3. A Memorandum of Agreement would be considered between DMF, WRC, National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), and National Wildlife Service (NWS) to ensure long term cooperation and coordination on sustainable fisheries management plans within the APES region. In accordance with this agreement, state fishery management plans would agree to achieve the objectives of federal inter-jurisdictional fisheries management plans.
4. DMF would collect and analyze data as necessary to conduct stock assessments for the preparation of each management plan. Adequate data exists for several species. But for others, data gaps hinder management decisions. For an analysis of data needs, see the APES report, "Scoping Study of Data Requirements for Fisheries Stock Assessments in North Carolina," by Street and Phalen (1989).
5. Fishery management plans would include goals and recommendations for each fishery. These strategies may include effort control measures such as individual vessel limits, annual trip limits, vessel quotas, individual transferable quotas, time restrictions, area restrictions, various gear restrictions, and limited entry. Strategies would also include habitat protection or bycatch reduction measures. MFC and WRC would adopt and develop rules for each state fishery management plan.

6. The state fishery management plans would guide rule making for the following important commercial and recreational species:

- |       |   |         |   |
|-------|---|---------|---|
| State | American eel ( <i>Anguilla rostrata</i> )           | State   | Red drum ( <i>Sciaenops ocellatus</i> )               |
|       | American shad ( <i>Alosa sapidissima</i> )          | State   | River herring ( <i>Alosa</i> sp.)                     |
|       | Atlantic croaker ( <i>Micropogonias undulatus</i> ) | Prq.    | Shrimp ( <i>Penaeus</i> sp.)                          |
|       | Atlantic menhaden ( <i>Brevoortia tyrannus</i> )    | State   | Southern flounder ( <i>Paralichthys lethostigma</i> ) |
|       | Atlantic sturgeon ( <i>Acipenser oxyrinchus</i> )   | ✓       | Spanish mackerel ( <i>Scomberomorus maculatus</i> )   |
| No    | Bay scallops ( <i>Argopectan irradians</i> )        | ✓       | Spot ( <i>Leiostomus xanthurus</i> )                  |
| State | Blue crabs ( <i>Callinectes sapidus</i> )           | ✓       | Spotted seatrout ( <i>Cynoscion nebulosus</i> )       |
|       | Bluefish ( <i>Pomatomus saltatrix</i> )             | ✓ State | Striped bass ( <i>Morone saxatilis</i> )              |
| No    | Catfish ( <i>Ictalurus</i> sp.)                     | ✓       | Summer flounder ( <i>Paralichthys entatus</i> )       |
| State | Hard clam ( <i>Mercenaria mercenaria</i> )          | ✓       | Weakfish ( <i>Cynoscion regalis</i> )                 |
| State | Mullet ( <i>Mugil cephalus</i> )                    | No      | White perch ( <i>Morone americana</i> )               |
| State | Oysters ( <i>Crassostrea virginica</i> )            | WRC? No | Largemouth bass ( <i>Micropterus salmoides</i> )      |

The MFC and WRC would establish requirements and schedules for preparing, updating and evaluating fishery management plans.

7. The WRC would work closely with the MFC in developing and implementing rules for managing estuarine species which overlap in jurisdiction.
8. Where appropriate, management plans would consider restocking severely depleted native species such as Atlantic and shortnose sturgeon. The DMF, WRC, and USFWS would conduct these efforts.
9. The General Assembly would be asked to require fisheries managers to consider the economic and social impact of effort control measures in a manner similar to that required in and consistent with the federal Magnuson Act (1976). Members of the coastal fishing industry (commercial and recreational) would be involved in planning and evaluating these measures. Careful attention would be given to the nature of existing fisheries, with special consideration given to those small-scale fishermen who depend on a variety of seasonal fisheries over the course of a year.
10. The General Assembly would be asked to grant MFC and WRC authority to limit entry in fisheries as necessary to prevent over-fishing.
11. DMF would consider and recommend measures to restore shellfish populations (hard clams, oysters and bay scallops) within fishery management plans. Currently, shellfish population enhancement is done through a seeding program at the University of North Carolina Institute of Marine Sciences (funded by the General Assembly and APES) and

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the Oyster Rehabilitation program of DMF. Oyster seeding projects would target historical oyster beds and would include potential high-growth sites as identified by Ortega and Sutherland (1990) in an APES funded project. Oyster aquaculture (intensive production on rafts or other artificial structures) would be promoted as another way to increase oyster populations. The state would evaluate the feasibility of an oyster hatchery to enhance populations.

12. Management planning for striped bass would address recommendations made in the Striped Bass Management Board report on species recovery in the region. These recommendations would be evaluated and implemented as necessary. This is a complex issue that demands the continued cooperation of North Carolina, Virginia, and federal agencies.
13. Management plans would be subject to external peer review to provide for a high level of scientific quality.
14. Management plans would be subject to public review in public meetings to consider the effectiveness and impact of proposed strategies, as well as possible alternative strategies.
15. A schedule would be set for future updates of management plans.

#### **Evaluation Method**

Evaluation of fishery management plans would occur during the annual development of management rules by the MFC and WRC. The effectiveness of regulatory methods to limit entry would be assessed in terms of social and economic costs to the fishing community and impact on fish stocks. For severely depleted stocks, or those for which replenishment has been recommended, evaluation should be based upon the status of the stock. Plans for the above listed species should be completed by 1998.

#### **Costs and Economic Considerations**

Administrative costs for developing a fishery management planning process have been estimated at \$300,000 per year for five years. Staff requirements to implement planning include at least one biologist, one economist, one population dynamics specialist and three data collection technicians. Fishery management would result in long-term benefits through improved stocks. These benefits could include larger harvests, greater profits for commercial fishermen, lower prices for consumers, better trips for recreational fishermen, and economic benefits to communities with ties to commercial and recreational fishing. Shellfish enhancement, for

example, would benefit not only the fishery but potentially benefit water quality through increased filter feeding. Where management plans result in greater restrictions, some fishermen may experience short-term economic losses. Consideration of socioeconomic characteristics can help address the equity of such regulations.

#### **Funding Strategy**

Although the federal sources of grant money are appropriate for the development of fishery management plans, much of this action would need to be funded by expanding DMF's budget. If modifications in the fishing license structure are made and revenues are generated, money collected from license fees could be used in lieu of state appropriations. WRC would use existing resources to complete the development of freshwater and interjurisdictional fishery management plans.

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### ***Management Action 2: Modify the existing marine fisheries license structure to improve data collection with respect to landings, demographics and fishing effort, and to generate increased revenues for fisheries management.***

***Explanation:*** A license system that enhances fisheries data collection is critical to developing and implementing state fishery management plans. The data collected is necessary for additional research on how regulations impact the fisheries. License revenues can support fisheries research, habitat restoration and other management improvements.

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#### **Critical Steps**

1. The General Assembly would continue efforts by a legislative study committee to determine how to modify the marine fisheries license structure to improve data collection and generate additional revenues. Options include establishing a saltwater recreational fishing license, expanding or modifying existing gear license fees (such as modifying the

license fees to account for differences in fishing effort), integrating new license requirements with existing ones, and simplifying the overall licensing process and structure.

2. The Marine Fisheries Commission (MFC) would consider using its existing authority to issue gear licenses. Other new licensing procedures may be flexible, considering allocation and equity issues and be implemented as necessary to conform to new fishery management plans.
3. Revenues generated by the new license sales would be directed toward fisheries management and enhancement.

#### **Evaluation Method**

Modifications to the license structure would be completed by 1995. DMF would evaluate the new structure's ability to collect data and the simplicity of license requirements.

#### **Costs and Economic Considerations**

The costs of modifying the existing marine fisheries license structure will depend on how data gathering is improved and whether new licenses are implemented. A bill to establish a license to sell fish has already been passed by the legislature. If a recreational salt water fishing license is implemented, start up funds may be needed, however, the amount of funds required will depend on how the license structure is modified. Once the license is implemented, revenues from license fees should more than offset government costs of operating and enforcing new license programs and managing data. In fact, in other states that have implemented a recreational salt water fishing license, revenues have far exceeded the cost of administering the license, and have funded data collection and research to improve recreational fishing. For example, in South Carolina, Virginia, and Florida, 5 to 10 percent of the revenues from marine recreational fishing license fees go to administration. The rest are earmarked for fisheries research, public education, enforcement, habitat protection, acquisition and other programs to benefit recreational fishing. In addition to facilitating better data collection and generating revenue to fund marine recreational fishing enhancement, revenues from the implementation of a marine recreational fishing license would help the state secure more federal Sport Fish Restoration matching funds for fisheries management enhancement.



License fees would have some impact on fishermen; the effect depends on which licenses are implemented and what fees are established. Setting reasonable fees would minimize the impact on tourism. Modifying the license structure would benefit the public by supporting fisheries management that is both biologically and socioeconomically sound.

**Funding Strategy**

No additional state agency program costs are anticipated to modify the existing marine fisheries license structure. Establishing a new marine recreational fishing license would entail first-year start-up costs. These costs could be offset by revenues from the license program. After the first year, revenues from license fees would cover administration of the licenses as well as research and other initiatives to enhance marine recreational fishing.

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## **OBJECTIVE B: PROMOTE THE USE OF BEST FISHING PRACTICES THAT REDUCE BYCATCH AND IMPACTS ON FISHERIES HABITATS.**

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**Strategy:** The Division of Marine Fisheries (DMF) and the UNC Sea Grant Program would continue to develop effective methods to reduce bycatch. New measures would be considered as they are proven effective. Commercial and recreational fishermen would be closely involved in developing bycatch reduction measures. DMF would develop best fishing practices, similar to agricultural best management practices, to preserve fisheries stocks and habitats. The model of cost sharing for agricultural best management practices would be employed for developing a similar program for best fishing practices.

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**Management Action 1: Continue and expand the development of bycatch reduction gear and practices, and require their use as practicality is demonstrated. Aim to reduce inside trawl, long haul seine, pound net, and gill net bycatch by at least 50 percent by 1995.**

**Explanation:** Minimizing non-targeted harvests will preserve the diversity of fish populations and support the long-term use of fisheries resources. Implementing efficient and effective measures to reduce bycatch eventually may result in lower costs to commercial fisherman.

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### **Critical Steps**

1. The General Assembly would be asked to provide stable, long-term funding for a bycatch reduction program in DMF.
2. DMF would use this funding to create a bycatch reduction program and achieve the above bycatch reduction objective. The program especially would pursue methods that minimize capture of non-target organisms and loss of the target catch. (These measures also may improve the efficiency of some commercial fishing practices by reducing unnecessary weight in hauls and time required for sorting catches.)
3. The DMF would improve bycatch estimates so that progress toward the above objective can be accurately assessed.
4. Commercial fishermen would be closely involved in developing bycatch reduction methods, since they can provide valuable information. Their involvement also provides an opportunity to evaluate the social and economic impacts of new measures. (The cost share program discussed in the next management action would compensate fishermen for their time and effort.)
5. When a bycatch reduction practice is demonstrated to be practical and effective, the Marine Fisheries Commission (MFC) would require its use. (The cost share program discussed also would help implement such requirements.)
6. MFC would evaluate the need to reduce current bycatch allowances or would enhance enforcement efforts to achieve the above objective. (Currently, estuarine trawl fisheries are allowed to take 1,000 pounds of finfish per vessel, plus an unlimited quantity of flounder of legal size. Pound net and long haul seine operations may land 5,000 pounds of scrap fish per vessel per day.)

### **Evaluation Method**

The program would use gear and fishing practice testing results, as well as bycatch estimates, to calculate the projected reduction of each new required practice.

### **Costs and Economic Considerations**

An average of \$200,000 per year for five years is needed to establish a gear development program in the DMF and to fund gear research in the trawl, long haul seine, pound net and gill net fisheries. Fishermen would

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have to pay for equipment to comply with new restrictions, although much of these costs would be offset by the cost share program described below. A greater ability to target the catch may result in lower culling and towing costs. Possible increased catches may mean lower overall fuel and equipment costs although reduced catches may result in some cases if new gear results in increased fishing time. Stock increases may mean lower fish prices for consumers, and better trips and increased spending by recreational fishermen.

#### **Funding Strategy**

Some federal funding sources are eligible for this action but are largely unavailable. Costs of this action would need to be covered through an expansion of the DMF's budget. License fees may contribute to funding research of bycatch reduction gear if available.

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### ***Management Action 2: Institute a cost share program for best fishing practices for commercial fishing gear by 1995.***

***Explanation:*** A cost share program would help alleviate the financial burden and encourage commercial fishermen to implement best fishing practices.

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#### **Critical Steps**

1. The General Assembly would be asked to establish and fund a Best Fishing Practices Cost Share Program, using the N.C. Agriculture Cost Share Program as a model.
2. The Best Fishing Practices Cost Share Program would:
  - a. make funds available to develop best fishing practices. These funds would encourage fishermen to become involved in experiments with new fishing gear or methods by compensating them for their time, effort and the use of equipment;

- b. share costs with fishermen who voluntarily use approved best fishing practices; and
  - c. share costs with fishermen to implement new requirements for the use of best fishing practices. In the second and third tiers, cost share funding would be available to existing fishermen only, since the program is intended to mitigate the costs of modifying existing gear and practices. New fishermen can adopt these measures as they begin fishing.
3. Where cost sharing involves purchasing new gear, fishermen receiving funds would trade in their old gear to remove it from use.
  4. For practices in the third tier, funding should be fair and equal, rather than on a first-come, first-served basis.
  5. The Marine Fisheries Commission (MFC) would develop a policy for implementing the Best Fishing Practices program. The Commission would approve practices as eligible for cost sharing, determine levels of funding for each approved practice and compensate fishermen who help develop these practices. In making such policy decisions, the MFC would consult its regional advisory committees.
  6. In the establishment of this program, the use of alternatives to direct cost sharing, such as income or property tax breaks, would be considered.

#### **Evaluation Method**

The cost share program should be established by the end of 1995. The program's effectiveness could be evaluated by assessing compliance with regulatory best fishing practices and by estimating use of voluntary practices.

#### **Costs and Economic Considerations**

An average of \$200,000 per year for five years is needed to establish and implement a cost share program for best fishing practices for commercial fishermen through the Division of Marine Fisheries (DMF). Program costs include start up costs, yearly administrative costs, leasing of commercial fishermen's boats and payment for their participation in gear research projects, technical assistance and the provision of cost share funding to commercial fishermen to phase in gear changes and modifications for their trawls, long haul seines, and pound nets. The 25 percent share borne by fishermen has been estimated at \$5 to \$10 per net for installing revised

finfish excluder devices on trawls, \$37.50 per rig for long haul seine modifications, and \$12.50 per net for pound net modifications (RAI 1993, draft).

**Funding Strategy**

Establishing a cost share program would require an appropriation from the General Assembly to cover start-up costs, annual administrative costs, and the costs of gear changes and modifications.