STEWARDSHIP PLAN

GOAL

Promote responsible stewardship of the natural resources of the Albemarle-Pamlico region.

OBJECTIVE A: PROMOTE LOCAL AND REGIONAL PLANNING THAT PROTECTS THE ENVIRONMENT AND ALLOWS FOR ECONOMIC GROWTH.

Strategy: Different planning requirements affect the cities, towns and counties of the APES region. In North Carolina, coastal communities must prepare land use plans. Counties that provide public water service must prepare water supply plans. And counties with water supply watersheds must plan for protecting those areas. Virginia requires comprehensive planning for all counties, and tidewater counties have specific environmental standards. While these requirements result in environmental planning for many parts of the region, many local communities -- as well as local natural resources -- would benefit from expanded comprehensive planning aimed at meeting both environmental and economic goals. To accommodate future growth and change while preserving the quality of life within the estuarine area, North Carolina would augment existing regulations with a proactive, voluntary planning initiative. Specifically, in the APES region, the state would fund local plans that address the combined goals of economic growth and environmental protection. The state would provide six planners proficient with Geographic Information Systems (GIS) who would provide technical assistance for local economic and environmental planning. As an incentive, the state would give localities with approved environmental plans higher priority for construction funds from the State Revolving Fund. To support local environmental and economic planning, the state GIS in the Center for Geographic Information and Analysis (CGIA) would be more accessible and affordable. The APES program has funded the development of numerous data layers on this system. Within the region, a few councils of government, counties, and municipalities already have GIS systems in place. Local government planning would benefit from affordable and up-to-date GIS data. The state would fund CGIA sufficiently to provide access to the standardized GIS database at affordable rates. CGIA would update GIS data layers as needed. (See Management Action 2 under Objective A in the Vital Habitats Plan.) Providing GIS work stations at the three DEHNR regional offices that serve the APES region would make the system even more accessible.

Management Action 1: Support local planning by providing funding and economic incentives to local governments to integrate environmental and economic planning by 1999.

Explanation: *Local planning gives governments the opportunity to direct their own growth and enables private investors and local citizens to make informed decisions. Comprehensive planning also promotes economic development and environmental protection that are compatible. Financial assistance to local communities would encourage land and water uses that have the least impact on natural resources while promoting sound economic growth, including increased opportunities for nature-based tourism.*

Critical Steps

1. DEHNR would work with the Department of Commerce (DOC) to introduce legislation in support of a local government planning program. This legislation would include the addition of six new staff members to the Division of Community Assistance (DCA) within the DOC to provide technical assistance to local planners and establish a grant program to fund 80 percent of the cost to local governments for the development of local economic and environmental plans.

2. In the 1995-1996 legislative planning year, the General Assembly would be asked to approve funding for this proactive planning initiative for the APES region, covering costs of grants to support local environmental and economic planning and regional planners to assist local governments.

3. Once legislation is approved, DCA would hire six regional planners to provide technical assistance to local governments in the APES region. These planners would be GIS-proficient so that they could aid in the use

of the APES GIS data base. Planners would be located in the DCA regional offices in Washington, Raleigh and Wilmington. They would provide local governments with GIS and planning expertise, and would act as liaisons for the state while supporting local governments in environmental planning.

4. Funding for local plans would be available through DCA grants. In exchange for grant funds, local governments would agree to prepare integrated environmental and economic plans in accordance with planning guidelines. DCA grants would cover 80 percent of the cost of developing plans. Coastal counties and municipalities would be eligible for funding to augment existing Coastal Area Management Act (CAMA) land use plans. Coastal counties could use funding for additional maps (such as standardized land classification maps), additional implementation strategies and/or water use plans.

5. DCA would form a Joint Committee with the Division of Coastal Management (DCM) and the Division of Environmental Management (DEM). This committee would oversee the grant process and develop planning and implementation guidelines. The planning liaisons would act as staff for the Joint Committee.

6. By 1996, the Joint Committee would develop a targeting strategy for funding local plans, via a grant application and approval process that considers such factors as special regional environmental and economic concerns, population and development trends, land use conversion trends, and innovative planning and implementation strategies.

7. By 1996, the Joint Committee would develop an incentive strategy, based on giving localities with approved environmental plans higher priority for construction moneys from the State Revolving Fund.

8. By 1996, the Joint Committee would design and implement a review process for local plans, implementation strategies, and updates. This process would review local implementation strategies for consistency with local environmental plans. The following agencies would be included in the review process: DCA (to consider commerce-related issues), DCM (to review plans from coastal counties and municipalities), and DEM (to review plans for compliance with environmental guidelines).

9. Planning and implementation guidelines would be developed by the regional planners under the Joint Committee oversight. Guidelines for development would include frequent opportunities for input from local officials and planners. Guidelines would ensure that participating local governments address issues vital to protecting the natural and economic values of the estuarine area. General planning guidelines would incorporate requirements for data collection and analysis, community participation, policy development, implementation and evaluation, and land classification maps based on the State Land Use Classification System. To receive full funding, environmental plans would be required to incorporate land use, public water supply, and water disposal elements. Where environmental plans have already been developed, some funding may be available for the implementation of the plans. Availability and distribution of grant money would be determined by the Joint Committee. Plans also would be required to explore options for balancing public access to public trust areas with the preservation of public resources (in conjunction with 15A NCAC 7M 0300. G.S. 113A-1334.1 et seq; and Section 315 of the federal Coastal Zone Management Act of 1972). Water use planning, including public access planning for the ocean, estuarine, and riverine shoreline would be encouraged. (see APES Publication Number 90-10, Clark, "A Pilot Study for Managing Multiple Use in the State's Public Trust Waters".) Guidelines would address concerns for vital area and water quality protection described elsewhere in this document (see Vital Habitats Plan, Fisheries Plan and Water Quality Plan). Plans would address potential water use conflicts and access to public trust areas. Guidelines would be flexible enough to allow for innovative planning and implementation strategies, such as eco-tourism designs and land-use-guidance systems (LUGS). (For model Land Use Guidance Systems, see Burke County, N.C. "Land Use Management Ordinance" or Bedford County, Virginia LUGS plan; for eco-tourism designs, see "Eco-Tourism in Tyrrell County", Chapel Hill, N.C.,1993; or Coastal Initiative Committee, "A Guide for the Development and Revitalization of the Waterfront", Columbia, N.C., 1992.) Planning guidelines would require consistency between implementation strategies and environmental plans. Implementation strategies could include infrastructure investment designs, subdivision ordinances, zoning, land use guidance systems (LUGS), and/or other devices.

10. Because environmental planning must consider entire water bodies and drainage basins to effectively protect natural resources, the six planners would encourage local jurisdictions to coordinate with adjacent counties and municipalities and other agencies to promote regional planning

efforts. Guidelines would be designed to allow for the possibility of eventual coordination with a state-wide planning effort (such as revival of the Land Policy Act or legislative action on the Partnership for Growth).

11. The regional planners would encourage local governments to coordinate other local planning efforts (such as economic development plans, land development plans, policy development plans, and strategic plans) with environmental plans.

12. The state of Virginia would work with the state of North Carolina to ensure a similar level of local planning in the Virginia portion of the APES watershed.

Evaluation Method

DCA would maintain an ongoing count and inventory of local planning documents and implementation strategies funded by this program to determine the extent to which funding is being used to develop and implement local environmental plans. DCA would perform a periodic survey of local governments and the public to assess local government perception of the effectiveness of environmental planning liaisons, determine the perceived value of services provided, and to estimate unmet demands for local environmental planning. DCA would examine each Albemarle-Pamlico river basin in five-year increments to determine whether population, development, and land use conversion pressures and public access needs have been managed effectively by local planning and implementation strategies. In determining the effectiveness of local growth management on environmental protection, DCA would use relevant DEM indicators (from water quality monitoring data) to determine the effect of local environmental plans on water quality in the region.

Costs and Economic Considerations

Twenty North Carolina counties would need full funding for planning. Sixteen coastal North Carolina counties would need partial funding to augment existing plans. Local plans and implementation strategies would receive funding for 80% of the cost of developing plans. Assuming that municipalities are covered under county plans, and that there is full participation by all counties that are eligible, it would cost state government an estimated $450,000 per year to implement this Management Action. It would cost local governments an additional $38,000 per year per county to develop individual plans. Other local government costs would be incurred for ordinance updates, enforcement, and other administrative costs. (Note that the costs of planning in Virginia communities have not been included

here.) Local planning serves the local economy by helping government and private citizens predict and guide future development patterns in their community, making it a more desirable place to live. Guiding growth is also important to local fiscal stability -- rapid development can, in many cases, lead to higher infrastructure and public service costs, and in turn, to higher taxes. Effective local environmental planning can provide for such public amenities as resource preservation, open space, park land, and public access to public trust areas. Planning can give local citizens more control over resources and activities within their government's jurisdiction. Environmental planning can help preserve and enhance the value of land and other resources for the future production of both market and non-market goods and services desired by the community. In addition, local planning enhances total economic benefits of land by reducing conflicts between incompatible land uses. For each plan that is developed, these benefits should be estimated and weighed against the economic impacts of the plan. In certain circumstances, land use controls (such as zoning) that could result from the environmental planning process can reduce the relative value of regulated land. In some cases, housing costs could increase and the availability of low-cost housing could decrease if restrictions on land or water use are very broadly applied (for instance, if they do not allow for construction demand to be fully shifted from regulated areas to unregulated areas). Typically, land use controls related to environmental protection would not have this impact since development demand can usually be met on less environmentally sensitive lands in the same area. Water use controls, if needed, would similarly reduce the options for development for landowners. This would need to be judged in comparison to the benefits to the community that any water use controls would generate in terms of water quality. Another important consideration in environmental planning is the need to ensure that land and water use plans are as fair and equitable as possible, balancing the rights of individual landowners, public trust users, and others with the public's interest in maintaining environmental quality.

Funding Strategy

DEHNR would take the initiative to develop legislation for an economic and environmental management program. State appropriations would be needed to cover the costs of hiring 6 regional planners and the money necessary to fund grants to local governments. Although at this time federal grants are not available to fund this action, DCA would seek out and use any appropriate federal funds to augment state appropriations. The cost of GIS regional workstations and maintenance will be discussed in the following management action. The Joint Committee, including DCA, DCM, and DEM will be formed using existing staff and resources.

Management Action 2: Provide to local governments affordable and accessible data from the state Geographic Information System (GIS) for use in planning and public education within the region by 1996.

Explanation: *Local comprehensive plans influence private and public development and management decisions, and should be supported with accurate and timely geographic information. Increasing the availability of state GIS data to local governments will help in environmental and economic planning.*

Critical Steps

1. The General Assembly would be asked to authorize and appropriate funding for the Center for Geographic Information and Analysis (CGIA) sufficient to allow the Center to provide easy and inexpensive access to APES' GIS database. Using these funds, CGIA would provide an accessible, affordable GIS database to local, regional, and state agencies by 1996. CGIA would continue as the state agency responsible for the APES GIS database and would oversee regular updates of land use, land cover, and other relevant databases.

2. The General Assembly would be asked to authorize and appropriate funding for CGIA to maintain new GIS systems for use in the study area and to hire three additional staff members: one in the central office to provide assistance to local, regional, and state agencies and two in regional offices to train and assist the six planners from the Division of Community Assistance (DCA) with GIS systems.

3. CGIA would develop and implement a reasonable pricing system for access and use of the CGIA database by 1995.

4. CGIA would establish three GIS work stations in the regional offices of the Department of Environment, Health, and Natural Resources (DEHNR), by 1995. The six planners from the DCA (described in Step 4, Management Action 1) would provide GIS assistance to local governments in accessing GIS planning information. For example, the planners would work with local governments, upon request, to perform GIS suitability analyses, environmental assessments, demographic characterizations, and other environmental and economic planning functions. (Refer to Vital Habitats, Objective A, of this document for more information on GIS data base updates that would be available for use at the regional work stations.)

5. The two new regional CGIA staff members would work with the six DCA planners to provide outreach into the APES study area. CGIA would coordinate with the six planners to provide technical assistance, including workshops, in the use of GIS and the APES database, by 1995. The planners would travel, as needed, to municipal, county, Council of Governments (COG), or state offices to provide workshops and ongoing GIS assistance to government staff for use in developing environmental plans.

6. To educate the public on the potential values of GIS technology relative to environmental and economic considerations (soil suitability, inventory of existing land uses and so forth), CGIA would provide public displays and demonstrations of GIS systems at a pilot "education station" in an aquarium or other eco-tourism location within the region by 1995.

7. CGIA would develop a database plan for geographic information that scales maps with greater resolutions.

8. Beginning in 1996, CGIA would oversee the process of updating all existing and new databases as needed, including a periodic statewide land use/land cover inventory. CGIA would oversee updating Land Cover maps every five years. (See Vital Habitats, Objective A)

Evaluation Method

During review of local plans, DCA would evaluate the effectiveness of the GIS system in providing relevant, useful, accurate and timely information for local environmental planning and implementation. DCA would conduct a periodic survey of local governments to assess the accessibility, affordability, and usefulness of the GIS system in plan development.

Costs and Economic Considerations

CGIA is not currently funded directly through state appropriations. Instead, CGIA supports the state's geographic information management program through cost-recovery based agreements. This project calls for ongoing funding to ensure long-term maintenance and operation of the APES GIS database and to support a training and education program that promotes the APES geographic information system capabilities. Additional annual funding would support the universal needs of the state's geographic information system user community and enhance communication links among government agencies. Initial costs of implementing this action would be $200,000 for equipment and installation of GIS systems. Annual administrative costs to implement this action would be $460,000. This figure includes $180,000 annually to fund three additional staff members, $200,000 annually to oversee and update all existing and new databases under the land use/land cover initiative, $30,000 annually for maintenance of three new regional GIS workstations, and $50,000 in support and operations fees for other database layers. Local governments wishing to use CGIA services and data would incur some costs, but the rates would be lower than at present. Providing to local governments affordable, accessible GIS data would reduce local costs of data gathering, storage, analysis, and presentation. GIS technology has the potential to greatly improve efficiency in the provision of many public services, including land use planning and natural resource management. For instance, GIS has been successfully used to improve fire and police protection, as well as public works planning and maintenance. With respect to environmental protection, local governments would have access to a vast library of reliable GIS data. Local officials could use the system to analyze the potential impacts of new development proposals, new regulations, or new land use ordinances on the local economy and tax base, thereby identifying potential opportunities, problems, costs and benefits of various scenarios.

Funding Strategy

CGIA activities has been funded by fees for the services they provide. In order to expand the program to meet the planning needs of the Albemarle-Pamlico region, additional staff members would have to be funded by state appropriations. The USGS Innovative Partnerships Program and the federal Geographic Data Commission's competitive grants for coordination of state-wide uses may be possible funding sources for the maintenance of data, but the amount actually available will vary. State appropriations would have to cover additional operation costs in order to keep costs low to local governments.

Management Action 3: Implement a comprehensive, coordinated and proactive approach to managing the state's public trust waters by 1996.

Explanation: *North Carolina holds the waters, the lands beneath them and the resources living in them in trust for its citizens. The state has the authority and responsibility to preserve their natural value as a part of our common heritage. Several state agencies are responsible for the stewardship of this public trust. As the region's population continues to grow, public use of the sounds and waterways will increase as well. Greater conflicts are likely between various groups, including those who use the resources of public trust areas for profit. Therefore, closer coordination is necessary between the agencies that manage these resources. Public trust policy should be proactive and should consider issues related to future population growth, including public access and compensation for uses of public trust resources.*

Critical Steps

1. A management committee consisting of state government departments and agencies involved in managing public trust waters would be formed. This committee would be comprised of the Department of Environment, Health, and Natural Resources (DEHNR), Department of Administration (DOA), and Department of Justice (DOJ). In DEHNR, the following divisions would participate: the Division of Environmental Management (DEM), the Division of Coastal Management (DCM), Wildlife Resources Commission (WRC), and the Division of Marine Fisheries (DMF). Coordination with private conservation groups as well as other involved state agencies such as the Division of Water Resources (DWR) and the Division of Parks and Recreation (DPR) would be important.

2. The committee would ensure that there is coordination in the development of state policies for public trust waters.

3. The committee would evaluate the feasibility and practicality of establishing a system that provides compensation for activities which affect and use public trust resources. For example, fees might be charged for marinas and piers and license fees might be paid by recreational saltwater fishermen.

4. The committee would promote and balance efforts to balance access and use with public resource preservation.

Evaluation Method

Implementation would be indicated by the development of policies which consider and improve management of public trust issues.

Costs and Economic Considerations

This Management Action would cost the state agencies involved an estimated additional $75,000 over the next two years for feasibility studies of compensation mechanisms for the private use of public trust resources. Other components of this Management Action would incur no incremental costs to government unless some compensation mechanism is established. If so, a fee system would incur additional administrative costs that would be determined by the complexity of the system. Fees or other forms of compensation that the interagency committee might recommend could have a significant economic impact on the most directly affected users. The magnitude of this impact is entirely dependent on the fees that could be proposed; they might be nominal or they might be large enough to significantly reduce profitability of private operations or inhibit new development in public trust areas. These impacts are unlikely to be large from a regional perspective but could be important locally if there is a strong likelihood of marina development, commercial oyster bed development, or other public trust use development and if there are only a limited number of alternative sites for this development. Balancing this economic cost is the fact that funds raised by compensation mechanisms could be reinvested by the state into improving public access to estuarine areas and other improvements in public trust management. Any compensation mechanism should be designed to assure that the economic and environmental benefits outweigh the expected economic costs. This would include taking into consideration the impact on local communities as well as on vital estuarine resources. For instance, a fee system could be used to minimize the impacts of new development on vital fisheries habitats that would be affected (see Management Action 4, Objective B of the Vital Habitats Plan).

Reduced threats to these habitats could help commercial and recreational fishing.

Funding Strategy

The coordinating function of this management committee should not impose additional agency costs. If incremental costs arise, the agencies involved will absorb those costs into existing authorities. The management committee will determine which agencies are to conduct feasibility studies. Feasibility studies would require state appropriations for some of the administering agencies. Where possible, federal grants, such as the U.S. National Park Service's Land and Water Conservation Fund, will be used.

Management Action 4: Provide support to organizations that promote nature-based tourism and environmental education as a way of fostering environmentally sound economic development in the region.

Explanation: *The mission of the recently formed Partnership for the Sounds is to promote economic development through environmental conservation, education and nature-based tourism. The Partnership seeks to educate people who come to the Albemarle-Pamlico region to enjoy its natural environment. The more people know about the ecological balance of a region where they vacation or earn a living, the more invested they will be in the stewardship of its resources.*

Critical Steps

1. The General Assembly would be asked to support, both financially and in principle, the development of the Partnership for the Sounds. The Partnership would pursue a mission of regional economic development through nature-based tourism, as well as provide administrative oversight for three new environmental education centers which will be built in the Albemarle-Pamlico watershed. A non-profit, non-advocacy

Board of Directors comprised of representatives from local government, non-profit organizations, businesses, and resource managers would direct the Partnership.

2. The General Assembly would be asked to support the establishment of new environmental education/interpretive centers in the APES region by appropriating funds to help staff and operate these centers. Local, federal, and private/philanthropic funds would also be utilized in this effort. Three new environmental education facilities that are already in planning stages and have funding efforts underway are:

    1. An Estuarine Education Center -- Where the Rivers Meet the Sea (located in Washington, NC) -- whose prototype originated in an APES-funded project and is envisioned to include interactive displays that would attract and educate regional residents, students, and tourists;

    2. The Walter B. Jones Sr. Center for the Sounds (located in Columbia, NC), which will be a visitor's center focusing on the Pocosin Lakes-Alligator River national wildlife refuge area;

    3. Refurbishment of the old pumping station at Lake Mattamuskeet (in Hyde County) to serve as a university field research station and retreat for conferences.

    These centers, and the numerous other local, state, and national parks, refuges, forests, and natural areas in the region would be the main attractions for the ecotourism initiative. Educational centers and activities taking place in natural areas would stimulate economic opportunities in the region, thus creating an economic reason for conserving and protecting the natural systems. At the same time, broader knowledge of the systems' ecological value would promote a greater sense of stewardship among the public.

Evaluation Method

The establishment and long-term existence of the Partnership and the educational centers are easily measurable and would reflect the relative success of the effort.

Costs and Economic Considerations

A state appropriation of $846,000 has been allocated for design work on the three proposed facilities and initial staffing for the Partnership. Federal and philanthropic grants have supplemented this appropriation and funded the

development of a regional strategy for nature-based tourism. The strategy will include environmental education and marketing plans for the region. State, federal, local, and philanthropic/non-profit support would continue to be needed in the future. The intent of the Partnership is to stimulate economic opportunities in the private sector related to nature-based tourism and associated activities. Also, numerous job opportunities would be created through staffing for the Partnership and the educational centers. Economic benefits should accrue in the region due to this effort.

Funding Strategy

Long-term funding for the Partnership and the educational centers will require a diverse funding strategy. In addition to the anticipated state and federal assistance, allocations from some local governments, businesses, individuals, and philanthropic foundations would be required. Federal granting programs under the U.S. Environmental Protection Agency (EPA), National Oceanic and Atmospheric Administration (NOAA), and U.S. Fish and Wildlife Service (USFWS) are likely sources for federal funding. Private foundations, including the Bryan Family Foundation and the Z. Smith Reynolds Foundation, have been supportive of planning efforts for the educational facilities. Other broad-based fund-raising efforts among citizens in the region would need to be pursued by the Partnership's Director and board.

OBJECTIVE B: INCREASE PUBLIC UNDERSTANDING OF ENVIRONMENTAL ISSUES AND CITIZEN INVOLVEMENT IN ENVIRONMENTAL POLICY MAKING.

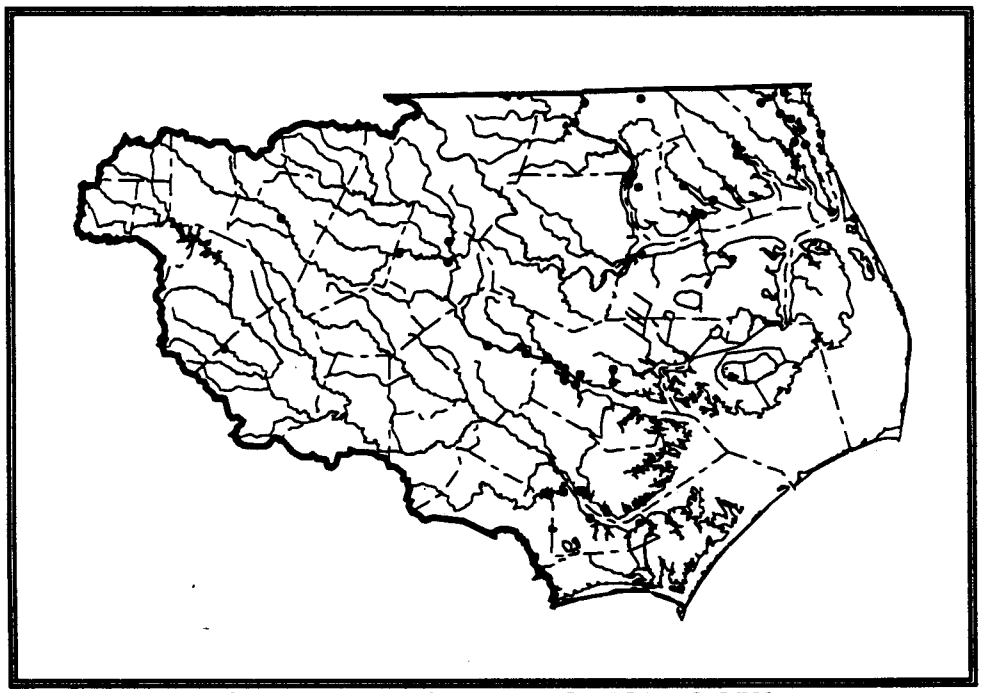

FIGURE 22 *CITIZEN WATER QUALITY MONITORING SITES IN THE APES REGION*

Strategy: A combination of state, federal, and local efforts would be undertaken to broaden opportunities for the public to learn about the Albemarle-Pamlico estuary and management issues surrounding it. APES has been the stimulus for a variety of recent proposals and initiatives involving estuarine education, some of which are already underway, like the Citizen's Water Quality Monitoring Program (CWQMP). Figure 23 shows CWQMP sites in the region. Continuation of these initiatives beyond the Study, in addition to several new efforts, would form the basis of a long-term program of public involvement and education. Information about economic and cultural issues as they relate to estuarine protection would be integral to this undertaking. Efforts should be made to coordinate programs as much as possible with the Coastal Futures Committee and Year of the Coast activities which will occur during 1994 and will focus public attention on coastal issues.

Management Action 1: Expand and coordinate education projects about the Albemarle-Pamlico estuary, focusing on both environmental and economic issues.

Explanation: *The future security of the estuary depends on whether people who live, work, and vacation there understand its environmental challenges. These education efforts must be innovative, must include adults as well as children, and must take place outside of traditional school settings as well in the classroom.*

Critical Steps

1. The Department of Environment, Health, and Natural Resources (DEHNR) Office of Environmental Education (OEE) would expand its function to work with environmental education programs both within DEHNR and external groups (community colleges, educational centers, non-profit and citizen groups, and other interested organizations) to provide accurate and unbiased education about the estuarine region. Much of OEE's efforts would be directed toward coordinating and distributing materials which have already been produced through APES and many other programs, but are not reaching a wide enough audience. Seminars, classes, public forums, and similar activities would be other ways of providing necessary public education. The best way to administer this expanded effort would be to locate an OEE staff position in each of the two DEHNR regional offices (Washington and Raleigh), as well as an additional staff person in the central OEE office.

2. OEE would promote and coordinate partnerships between government, user groups, interest groups, and the public to provide environmental education experiences for people of all ages. Too often there is a lack of knowledge among groups as to the variety of efforts to protect the estuary being undertaken by other groups.

Fostering partnerships and more interaction between differing interests would lessen the tension caused by this lack of knowledge, as well as open up avenues of greater cooperation and understanding in the future.

3. In addition to expanded environmental education programs, published information about the estuarine environment, including related economic and cultural concerns, would continue to be produced and distributed to the public on a regular basis. This would include a newsletter that would contain articles on estuarine functions and on estuarine management and opportunities for citizen input into that management. There is currently no publication devoted to providing an overview of all agencies involved in estuarine management. This newsletter could be mailed to the mailing list of the APES newsletter, which now reaches nearly 16,000 people. Any interested citizen could request to be placed on the mailing list.

Evaluation Method

There is no simple way to determine if education efforts are successful. Conducting a baseline survey of public attitudes and knowledge now and reassessing those at a later date would be one potential method of quantifying the success of educational efforts. Greater participation at hearings and other windows for public input in the policy-making process would be another way to gauge effectiveness, but cannot be considered a sure measure.

Costs and Economic Considerations

The addition of an OEE position in the two APES-area regional offices, as well as a new position in the main office to coordinate the newsletter and other environmental education efforts in the APES region, would cost about $50,000 per position, or $150,000 annually. In addition, publication and postage of a newsletter to a mailing list of 16,000 would cost about $4,000 per issue ($16,000 a year for a quarterly distribution).

Funding Strategy

All of these positions would require additional appropriations from the General Assembly. Federal and philanthropic grants are widely available to assist with the production of environmental education materials.

Management Action 2: Increase opportunities for citizens to communicate with members of environmental agencies and policy-making commissions.

Explanation: *Citizens are more likely to support environmental protection and be involved in decision making when they feel governments and regulatory agencies are working with them as equal partners. Increased opportunities for public participation and education will promote citizen involvement in environmental policy making.*

Critical Steps

1. State agencies involved with estuarine and environmental protection would increase their efforts to provide education to the public about their mission and the resources they manage. Some specific educational goals would be to:

   -- Increase the state's effort to provide education on wetlands and other important habitats to broaden the public's understanding of the extent, significance, delineation, and regulation of these areas. (Primarily involves the Division of Environmental Management-DEM, Division of Coastal Management-DCM, and the Division of Soil and Water Conservation-DSWC.)

   -- Enhance outreach and education to small landowners and small logging operators to increase the use of forestry best management practices. (Primarily involves the Division of Forest Resources-DFR, and the Division of Land Resources-DLR.)

-- Enhance outreach to commercial fishermen to promote more widespread understanding of fisheries management programs and goals. Also, provide more opportunity for joint meetings of commercial and recreational fishermen where concerns can be aired and common ground can be established. (Primarily involves the Division of Marine Fisheries-DMF and the Wildlife Resources Commission-WRC.)

2. The Department of Environment, Health, and Natural Resources (DEHNR) would immediately look for cost-effective ways that public participation in environmental policy-making could be enhanced. Currently all DEHNR divisions and their oversight citizen commissions must run notification of public hearings, meetings, and permit applications in the legal notice section of local newspapers. News releases are also distributed to area media prior to hearings and meetings. Several DEHNR divisions maintain mailing lists of "interested parties" to whom news releases and meeting agendas are mailed directly. Any interested citizen can request to be put on the lists. Two avenues DEHNR would consider for expanding the effort to advise the public of division and commission activities are:

   -- Distributing press releases after meetings to report any votes or actions taken at the meeting, and other pertinent information as necessary.

   -- Using display ads instead of the legal notice section to announce upcoming commission and division meetings.

Evaluation Method

Evaluating the extent to which these actions may increase public participation would be difficult, as there is no simple way to determine why people become active in the public policy process. The public is more apt to be involved when it feels agencies are working with them in good faith and as equal partners. All educational efforts would be reviewed regularly to ensure that accurate information is being distributed and that target audiences are being reached effectively.

Costs and Economic Considerations

The benefits of this Management Action would be to increase the availability of information available to citizens and provide policy makers with better sources of feedback from the public. Like the previous Management Action, this would help to improve the decisions made regarding resources in the region.

Funding Strategy

While display ads may be somewhat more expensive to run than legal notices, the costs of these actions would be relatively minor and absorbed in the general DEHNR budget.

Management Action 3: Enhance and heighten local public involvement in issues affecting the estuary.

Explanation: *Public involvement in local policy processes can be promoted through Environmental Advisory Boards. These boards would not have a regulatory role. Instead, they would provide credible information and insight to local governments on the environmental issues surrounding projects such as landfill and roadway siting, water supply and sewage discharge, land use planning and stormwater control.*

Critical Steps

1. Local governments would form Environmental Advisory Boards (EABs) to serve as focal points for discussions on environmental aspects of local projects. An EAB would not have a regulatory role, but would exist to provide credible information and insight to local governing bodies on the environmental concerns surrounding activities such as landfill and roadway siting, water supply and sewage discharge, land use planning, and stormwater control. General Statutes already allow for the creation of local EABs. EABs would particularly call upon local citizens with backgrounds in natural sciences, public health, and resource management.

Evaluation Method
Local governments would evaluate the effectiveness of their EABs individually. The extent to which the EAB can act autonomously and provide legitimate insight on environmental issues that the local government needs to consider would be the measure of their success.

Costs and Economic Considerations
The administration of EABs would pose only minimal costs to local governments in the form of the usual incidental expenses associated with public meetings. EABs could benefit the community by fostering creative thinking, conflict resolution, and consensus on ways to deal with local environmental concerns. It would provide another avenue for citizens to provide input to important decisions regarding environmental issues as well as for citizens to become involved in the decision making process.

Funding Strategy
To implement this action, local governments would form the Environmental Advisory Boards using existing staff and resources.

Management Action 4: Expand involvement in the Citizen's Water Quality Monitoring Program (CWQMP) and make the program more interactive with regulatory agencies.

Explanation: *Citizen monitoring gauges the estuary's health and is an important education tool. In the Albemarle-Pamlico region, the CWQMP has served both purposes. The CWQMP would continue and broaden efforts to provide accurate data to water quality management agencies, thereby expanding their ability to track potential problems.*

Critical Steps

1. The CWQMP would need to secure a long-term funding source. The program currently is housed at East Carolina University and is funded through APES. Future funding would have to come from another source.

2. Upon securing funding, the CWQMP would focus its efforts on intensive monitoring in areas of particular concern, with the goal of collecting data that water quality agencies could use as a basis for pursuing further investigation or initiating mitigation steps. The CWQMP would work closely with water quality agencies to identify ways the program could best complement agency activities; e.g., by monitoring in areas with high urban runoff or by focusing on tributary streams, which the agencies often can not monitor well due to lack of personnel.

3. CWQMP would work with state and federal agencies to cultivate ways its volunteers could be involved in other types of monitoring, such as observing changes in submerged aquatic vegetation and other habitats or recording the presence of various types of wildlife.

Evaluation Method

The primary goal for the CWQMP would be for its data to be usable -- and used -- by resource managers. Achieving and sustaining that would be the measure of the program's success.

Costs and Economic Considerations

The CWQMP would require $75,000 a year for staff, equipment for routine monitoring, and housing/administration. In addition to the benefits of water quality monitoring, this management action would have the further advantage of providing for significant citizen involvement in the stewardship of the region's water resources. Such local participation would broaden public understanding of water quality issues in general.

Funding Strategy

Given that the CWQMP's primary goal is establishing a long-term database, the best funding option for the program would be to secure institutional funding rather than having to depend on short-term grants. Several other states operate citizen monitoring efforts through their Cooperative Extension Service, and that would be an excellent alternative here as well. Continuing the program through ECU's Institute of Coastal and Marine Research or the

UNC Sea Grant program would be alternative possibilities. An additional alternative would be operating the program through the Partnership for the Sounds (see Stewardship Plan, Objective A, Management Action 3). This would likely require the frequent pursuit of grants from foundations or from programs like the EPA's Section 106 grants which could threaten the maintenance of a continuous database. This funding avenue may be the most likely and should be pursued if others do not work out.

Management Action 5: Create a citizen ombudsman position within the Department of Environment, Health, and Natural Resources (DEHNR).

Explanation: *A citizen ombudsman is an independent advocate for citizen concerns within a government agency. An ombudsman would respond to and track these concerns, and would serve as the public's "eyes and ears" with regard to activities of DEHNR divisions.*

Critical Steps

1. A citizen ombudsman is an independent advocate for citizen concerns within a government agency. The ombudsman would be appointed by the Governor through the Office of Citizen Affairs and housed within DEHNR, but would be independent and work as an advocate for citizen concerns.

Evaluation Method

The ombudsman's role as a liaison between the public and DEHNR makes the position answerable to citizen opinion.

Costs and Economic Considerations

This action would require funding of $50,000 a year to staff the position and

its ancillary needs. The benefits of having an ombudsman in DEHNR would be greater accountability of state employees to the public.

Funding Strategy

In order to ensure the ombudsman's independence, the position would not be funded from within DEHNR. However, DEHNR would in effect need to release the necessary funding to the Governor's Office of Citizen Affairs in order to create this position.

OBJECTIVE C: ENSURE THAT STUDENTS, PARTICULARLY IN GRADES K-5, ARE EXPOSED TO SCIENCE AND ENVIRONMENTAL EDUCATION.

Strategy: The Department of Public Instruction (DPI) is currently updating its statewide science curriculum requirements. DPI expects to include a significant environmental education component at all grade levels, though the specific focus in each grade will vary. The Office of Environmental Education (OEE) within DEHNR would assist DPI in the effort to make environmental education an important part of every student's learning experience. Also, OEE would work with DPI and individual school systems to increase opportunities for teachers to gain a background in environmental education and to have access to environmental education materials.

Management Action 1: Support the development of a comprehensive environmental science and education curriculum.

Explanation: *The Division of Environment, Health, and Natural Resources (DEHNR) will expand the operation of the Office of Environmental Education (OEE) to establish an ongoing liaison between DPI and OEE. DPI must address a variety of concerns in developing curriculum. However, OEE would provide assistance as needed in targeting environmental education components.*

Critical Steps

1. OEE would establish an ongoing liaison between DPI and OEE. DPI has a variety of concerns it must address in developing curriculum, but OEE would provide assistance as needed to DPI in helping to refine environmental education components.

2. OEE would act as a statewide clearinghouse and repository for environmental education materials and resources, including maintaining a speakers bureau, computerizing a database of existing programs, and developing new environmental education programs. OEE would maintain regular contact with DPI regarding the needs for particular resources.

Evaluation Method
Cooperative and ongoing communication between OEE and DPI would be an important measure of success. A more quantifiable way of determining the effectiveness of the effort would be to keep track of where environmental education curriculums are implemented and how extensively various materials, speakers, and programs are used.

Costs and Economic Considerations
The work of this position would be included in the additional staff position recommended for the OEE in Objective B, Management Action 1.

Funding Strategy
See Objective B, Management Action 1.

Management Action 2: Provide for teachers at all levels ongoing opportunities to gain renewal credits in workshops on environmental and estuarine education.

Explanation: *OEE would assist DPI and other state agencies, such as the Wildlife Resources Commission (WRC), Division of Parks and Recreation (DPR), and the Division of Soil and Water Conservation (DSWC), in conducting*

teacher in-service workshops that provide renewal credits. These workshops not only would help teachers stay current in environmental science but would provide broad perspectives on the relationship between the estuary and human activities.

Critical Steps

1. OEE would assist DPI and other state agencies (e.g., WRC, DPR, DSWC, etc.) in conducting teacher in-service workshops which provide renewal credits.

Evaluation Method

A specific number of annual workshops would be set as a goal by OEE, thus making this objective fairly easily measurable. DPI and local school systems would assist OEE in determining areas of need.

Costs and Economic Considerations

This effort would be directed by the OEE liaison with DPI, described in Objective B Management Action 1. An additional $10,000 per year would be required to pay for travel expenses, materials, and other needs of the OEE liaison with DPI. Local school districts would bear the costs of time spent by teachers in in-service workshops, which would be run by the OEE/DPI liaison. The benefits of this activity would be to develop an awareness of environmental issues among teachers and their students. Developing critical thinking skills and exposing students to the difficult problems faced in the management and wise use of natural resources can improve their ability to make future decisions that best serve a variety of interests.

Funding Strategy

Expansion of state appropriations to OEE would be required to help cover the incidental expenses, but federal and philanthropic grants are also widely available to assist environmental education programs. OEE will devote considerable effort to grant-writing.