

The Albemarle-Pamlico Estuarine Study
Technical Committee Meeting
Manteo, North Carolina
October 9, 1992

MINUTES

The meeting was called to order at 1:20 p.m. by Technical Committee Co-Chair, Bo Crum. Attendance list (see Attachment A). Randall Waite introduced visiting Bulgarian scientist Professor George Detchev, and Guy Stefanski, new APES technical staff member.

CONSIDERATION OF MODIFICATIONS TO THE CCMP

Updated CCMP Schedule (see Attachment B) A revised timeline was discussed. The final dates for the next meetings are as follows: Technical Committee December 7, 1992 in Raleigh; Citizens' Advisory Committee December 8, 1992 in Washington; and Policy Committee December 9, 1992 in Raleigh.

Public Meeting Comments (see Attachment C) Randall Waite explained that these were the main concerns expressed during the CCMP Public Meetings held in September. The two main themes from the agricultural and fishing communities were "we don't want to be over-regulated" and "you are driving us out of business". The first public meeting, held in New Bern, resemble more of a public hearing than a public meeting owing to the room set-up with people reading prepared comments/speeches and not engaging in dialogue with the staff. A more informal room set-up in subsequent meetings allowed for constructive dialogue with the public more receptive to staff explanations.

Dr. Carl asked for clarification of the theme of the concerns-- are these users indeed over-regulated; are they additional regulations, needed; or are the current regulations working to improve the situation? Randy Waite said that the problem with was the perception of over-regulation, for example the state wetlands program being perceived as a state wetlands permit program. Dr. Carl suggested that, once language was clarified, little change in content would be necessary.

Mr. Crum suggested having a section in the CCMP which discussed Virginia's involvement. Randy Waite explained the CCMP contained mention of Virginia in the Bi-State Agreement as well as a recommendation to include a Virginia representative on the Implementation Council. Currently Virginia has representation on both the Policy and Technical Committees. Virginia has not always had representation on the Study committees (as they did with the Chesapeake Bay program), but certain actions are recommended by the CCMP for inclusion in Virginia such as vegetated buffer strips.

Further discussion of the buffer strip issue ensued. Dr. Carl mentioned the CCMP recommendation of 20 feet will exceed current EMC water supply/watershed regulations of 10 feet. Mr. Cummings explained that it was still less than the distance required by the confined animal regulations. Randy Waite replied that while the current EMC regulations were adequate for the watershed and water supply, the CCMP buffer strip recommendation did not concern either health or water supply issues but addressed the issue that biota are more sensitive to water quality than humans.

Dr. Mike Orbach responded that buffer strips, for optimum effect, should be customized to the land-slope conditions. Since individual customization was

not deemed feasible by the committees, the suggested 20 foot length was suggested. Mike Orbach explained that rules such as establishing minimum buffer strip requirements are necessary so that, in the future, as people change their landuse patterns (as farmers sell their lands to developers) and economic configurations change either a huge government cadre of people can be employed to make sure that each change of landuse is appropriate or a minimum length requirement can be established now.

Tom Ellis voiced two concerns: buffer strips should not be used as the only method of control and people resent being forced into compliance with any practice-- even if they currently have the practice in effect. Mr. Cummings stated that a reasonable buffer strip regulation should contain, in addition to a set length, an "or equivalent control" statement that would recognize the use of alternative methods, such as berms or catch-basins, that would be as good, or better, methods of protection.

Mr. Crum mentioned that buffer strips perform more functions than just pollution control. The strips provide habitat, maintain stream bank integrity and regulate appropriate water temperature. Tom Ellis replied that the contention arose because mandatory regulation was perceived "government interference" with private property. Mike Orbach clarified that this should be a discussion of the function and propriety of buffer strips not Public Trust Rights. Dr. Orbach suggested that Public Trust Rights, including compensation, should be discussed in a separate section.

Dr. Carl interjected that this discussion was the result of a particular suggestion that the recommendation of buffer strips is an error in the CCMP. There are two issues involved here, that of the identification of something to be accomplished and the suggestion of the method of accomplishing it. The discussion should focus on whether that suggestion is correct. Mr. Crum mentioned a suggestion, proposed by Keith Buttleman in the last Policy Committee Meeting, of a standard buffer strip (50--100 feet) that could be reduced with demonstrated use of effective BMPs.

Tom Ellis voiced concern over taking action that would affect large numbers of individuals without knowing what percentage of those individuals already had some form of buffer strip in place. He further stated that he believed buffer strips were good but cautioned that people, infuriated over something that might be a problem for a few people, would turn against the whole set of recommendations based on the single issue (of buffer strips). He suggested that the CCMP focus on the development, maintenance and easement of buffer strips rather than imposing a mandatory length.

Bo Crum asked if the committee could reach consensus relative to changing the document, or to put forth the document as it stood. Randy Waite reminded the Committee that at least half of the public comment concerned the mechanics of the buffer strip. Tom Ellis stated that the public perceived buffer strips as preserved areas. Tom Wicker stated that in non-agricultural areas there are currently no incentive programs in place to motivate people to voluntarily comply.

Dr. Carl asked if there was an answer to the public questioning about "blue line" streams? Meg Scully replied that the wording in the CCMP now read "perennial streams (blue lines on the USGS map)". Randy Waite stated that the purpose of this wording was to clarify that the use of buffer strips on drainage ditches was not being recommended. A "ditch" that may pose a problem is the Intercoastal Waterway-- it shows as a "blue line" on the USGS map. Jim Cummings suggested the use of "blue line" for consistency purposes.

Randy Waite referred to the proposed modification of the action plans (see Attachment D) to ensure that each management action contained environmental benefits, implementation strategy, implementation costs, implementation timeline, and considerations (i.e., research needs, information needs, etc.).

Meg Scully began discussion on the Human Environment Action Plan highlighting "biological diversity" as a term that needs additional clarification. Dr. Carl stated that his reaction was that biological diversity is a global, not a local, problem. Meg Scully questioned having biological diversity as an environmental concern. She remarked that the statement seemed to be causing concern at the public meetings, specifically the issue of monoculture and is not built into any other action plans. After extensive discussion, Bo Crum suggested eliminating the phrase all together or significantly changing the wording. Randy Waite reminded the Committee that the reason the wording was included was to cover the philosophical concern, not a management action.

Mike Orbach cautioned against ignoring the issues of monoculture and biodiversity because many CCMP items are related to the effects of those things.

Tom Ellis suggested the following wording: "by losing this form of habitat and replacing it with another form you have changed these parameters and it is no longer acceptable for these animals, it has changed the mix." In conclusion, Meg Scully reported that she was adding the projected implementation costs and providing timelines for the action plans.

Randy Waite mentioned that clarification is needed to correct the public perception of landuse planning as state-mandated zoning. Discussion revealed a consensus that clarification was necessary to stress that landuse plans need to be approved by EHNHR as they relate to the environmental quality of "Public Trust" Areas.

Vital Terrestrial Area and Wetlands Action Plan was the next plan to be discussed. Dr. Bill Hogarth began discussion with the CCMP definition of wetlands. Randy Waite commented that changes in definitions create public distrust. Bo Crum recommended separating the definition of wetlands for regulatory purposes from planning purposes.

Kristin Rowles began comment on the Fisheries Action Plan by mentioning that most changes were of an editorial nature. Next time Option A will have freshwater species added. She added that the wording will be changed to reflect concerns voiced at the public meetings stressing coordination of existing regulation, not over-regulation, and uniform compliance by all users (not just fishermen).

Public opposition was also evident concerning recreational fishing licenses.

A recommendation was made in the public meetings to adopt the CRC definition of submerged aquatic vegetation (SAV). Tom Ellis said that the CRC is involved in a philosophical discussion of exotic versus native SAV. Dr. Carl mentioned that all SAV, in a mechanical sense, provide cover but the native species functions quite differently in the ecosystem. Mike Wicker suggested that Currituck sound, with its unique historical perspective, be considered separate from other areas. Dr. Carl mentioned that the "young" Currituck sound system is experiencing erratic fluctuations. Kristin Rowles summarized the discussion by suggesting that Eurasian Milfoil should not be protected at the same level in Currituck sound as native species but should be recognized as important for habitat, along with mentioning that there were past eradication efforts. Mike Orbach suggested not being that specific, but mentioning that Currituck may

habitat, along with mentioning that there were past eradication efforts. Mike Orbach suggested not being that specific, but mentioning that Currituck may present a special case.

Dr. Bill Hogarth mentioned that at two recent (public) fisheries meetings fishermen's concerns centered around over-regulation. Fishermen don't seem to be that concerned with the plan but are concerned with too many regulations.

Joan Giordano began discussion of the Public Education and Involvement Plan with two suggestions from the public meetings. The first suggestion was additional information dissemination. The second was that the plan advocate teaching "how" to think rather than "what" to think. Ms. Giordano mentioned that the addition of implementation timeline, implementation costs and additional information will make the plan more consistent with the other plans.

Tom Ellis asked if there were any public comments on the implementation council. Meg Scully responded that there were some requests for additional representation from Virginia, legislative appointments, and citizens. Dr. Carl mentioned that APES, currently in its implementation phase, needed to have people who can implement these plans on the council. Mr. Crum mentioned Keith Buttleman's (Virginia) example of the three citizens on the Chesapeake Bay committee that were able to get the program moving after the governmental people were unable to accomplish anything. Mr. Crum mentioned that most of the other estuarine programs that are in the implementation phase have a post-CCMP committee or council and a smaller program staff. Dr. Carl warned that the council could be a hinderance, a bureaucracy looking for more work. Mr. Crum suggested leaving the mention of the implementation council in the CCMP for the next document to see what additional public comment is received. He also suggested letting the Policy Committee know that these concerns were discussed. Randy Waite clarified that the public concern was not the council structure itself, but the amount of public representation on that council. Mr. Crum disclosed that this issue would be discussed when he and Randy Waite attended the National Estuarine Program (NEP) Directors Meeting in Washington. He indicated that comment from other programs would be sought.

Randy Waite announced that two main additions to the CCMP were being prepared-- a listing of specific steps for implementation and an accounting of economic aspects, the costs and benefits of each of these recommendations. While these additions will not be ready for inclusion in the second draft, a summary will be available for the next Technical Committee meeting. Dr. Hogarth suggested that each Division Director meet with Dr. Carl to go over their parts in the CCMP, and also work more closely with the APES staff to discuss CCMP recommendations. Dr. Hogarth recommended ending the CCMP with a listing of concrete steps and timeline that must be followed by each agency and division involved.

Bo Crum suggested that the CCMP contain another section which showed a listing of specific actions to be taken and a timeline with dates. Larry Saunders suggested that there also be a summary of all of the recommended actions.

The Water Quality Plan was the next area of discussion. Randy Waite stated that there were some specific problems-- the anti-degradation implementation procedures. He hoped getting what DEM had put out would satisfy the concerns. Other comments received at the public meetings concerned the agricultural cost share program expansion monies and the new cost share programs. We've got some money in our budget to work with Soil Conservation Service (SCS) on actually mapping out a demonstration area where BMPs have been put in to see

Dr. Carl began discussion on the effectiveness of septic systems. Randy Waite relayed public endorsement of several on-going studies in various counties on the effectiveness of alternative systems. Dr. Carl stated two things are routinely responsible for septic tank failures-- insufficient maintenance and toilet flushing. Bo Crum suggested shifting the emphasis from regulation to more stringently enforced permitting, inspection and maintenance of septic systems. Dr. Carl stated that every county that has a one-time review of the installation of a system although there is no permanent oversight. Regarding the performance package systems, Tom Ellis stated that Homeowners Associations are generally obligated to keep the package systems functioning, and often hire contractors to perform routine maintenance.

Randy Waite said more information would be necessary before specific recommendations, other than more stringent regulations, could be made. Dr. Carl recommended using certification that the system had been pumped at regular intervals (i.e. 5 years).

Dr. Orbach asked if alternative water treatment systems, biological treatment systems were discussed in the CCMP? Do we get progressive in the discussion at all? Bo Crum suggested adding a recommendation to focus on pollution prevention.

Dr. Orbach and Tom Ellis recommended that research be done on the amount of "disturbed" land from urban, suburban, agricultural, etc. sources going down to stream beds to aid in determination of buffer strip recommendation.

Public meeting comments from the forestry community voiced concern that the "intent-to-harvest" notification would not only provide additional paperwork but also would be the first step to permitting. The "intent-to-harvest" notification is proposed to allow state forestry personnel the opportunity to know where small operations are occurring so that they can have the opportunity to get information (educational as well as cost share) to the landowner. Often state foresters don't know when a logging operation is going to be done until after the fact. Jim Cummings recommended making the logger, rather than the landowner, responsible for any violation. Dr. Orbach brought attention to the fact that the effect of logging was a "Public Trust" issue and submitted that, until this issue was addressed, the committee could not make any reasonable suggestion. Dr. Carl suggested consulting with the state forest resources personnel.

The final item of concern was coordinated guidelines for the management of marinas. The CCMP concern is the cumulative effect of multiple marinas on the study area. Dr. Orbach asked for a more specific recommendation taking into consideration that some aspects of this issue will concern "Public Trust" areas.

Meg Scully requested that the Technical Committee add the APES subcommittee work (document) on wetlands to their next agenda.

There being no additional business, the meeting was adjourned at 4:50 p.m.

APES TECHNICAL COMM.

Attendance 10/09/92 Mantec

NAME

AFFILIATION

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Bill Hogarth

DMF

CCMP SCHEDULE*Revised 11/2/92*

<u>WEEK</u>	<u>ACTION</u>
9/28	Public Meetings
10/5	Summarize Public Comments
10/12	Staff Revises CCMP
10/19	Staff Revises CCMP
10/26	Staff Revises CCMP
11/2	Staff Revises CCMP
11/9	Print CCMP
11/16	Mail CCMP to Committees
11/23	Committees Review Revisions to CCMP
11/30	Committees Review Revisions to CCMP
*12/7	TC (12/7), CAC (12/8), and PC (12/9) Meetings
12/14	Staff Revises CCMP
12/21	Print and Release CCMP to Public
12/28	Public Review
1/4	Public Review
1/11	Public Review
1/18	3 Public Meetings (1/18, 19, and 20), CAC (1/21) and TC (1/22) Mtgs.
1/25	Staff Revises CCMP
2/1	Print and Mail CCMP to All Committees
2/8	Committees Review Revisions to CCMP
2/15	Committees Review Revisions to CCMP
2/22	Final TC (2/22), CAC (2/22), and PC (2/23) Meetings for CCMP Approval

* **Revision**

OVERVIEW OF COMMENTS RECEIVED DURING PUBLIC MEETING
(9/28/92-10/1/92)

The CCMP needs more stringent regulations rather than weak recommendations. (ex. marinas)

There are economic impacts of CCMP recommendations which have not yet been discussed.

Extend the current review period of the CCMP.

Landowners should be compensated for restrictions on the use of their property.

Fishing, forestry, and farming industries are already overregulated. New regulation is not needed.

Recommended mandatory land and water use plans is opposed by the Farm Bureau because it is a "mandatory zoning requirement

Further clarify environmental concerns associated with the creation of large areas of single species of crops and subsequent shift of biological diversity.

Clarify that proposed wetland program does not include a new statewide regulatory permit program. Comments we received on the recommendation to develop a statewide wetlands program all addressed the new wetland "permit" program which is not now the intent of the recommendation.

Acquisition of important natural areas should not be through condemnation.

Clarify the purpose of and benefits associated with the requirement of landowners filing "notifications of intent to harvest" when preparing to harvest trees.

Buffer strips: Clarify allowed uses within buffer strips. Buffer strips should not be mandatory but part of an incentive program. Twenty feet is not wide enough to protect water quality. Clarify water bodies included in buffer strip requirement (some ditches are illustrated as "blue-lines" on USGS topo maps). In Virginia owner can harvest 50% of basal area in 50' buffer and can graze animals in the buffer strip if grazing does not impair water quality.

Alternative domestic septic disposal systems should be cost-shared just as agriculture, forestry, WWTP, and fisheries practices.

Cost-share programs are effective in getting best management practices in place. These were widely supported for all industries.

Change the definition of SAV recommended for protection from "native SAV" only to "non-native", "native", and "historic SAV beds", or at a minimum to "native" and "Eurasian millfoil". Adopt a definition which is at least, if not more, broad and inclusive than the CRC's.

The overfishing issue is addressed by existing regulations. We will just be adding to the existing regulations.

The enforcement of regulatory programs in the farming and development industry are not as heavy as in the fishing industry.

Recommendations for a "license to sell" and a saltwater fishing license are beyond the purview of APES.

Forestry environmental seminars should be conducted on best time to harvest.

A/P information dissemination should be extended (ex. E-mail system of Cooperative Extension and other such trade groups).

Funding strategies should be implemented statewide, not just in the A/P region.

Increase general citizen input as well as user groups on the A/P Estuarine Council. Have some appointments made by the legislature.

Virginia cooperation: More clearly describe how recommendations apply to Virginia. Recommend that Virginia consider recommendations made in the CCMP, determine if these are applicable to Virginia, and if current programs are sufficient or if further action is needed. Virginia representation on the committees should be proportional to the amount of land and activity in the Virginia portion of the A/P region.

Enhancement of oyster stocks through protection from high levels of harvesting and through rehabilitation could be an effective approach to reduce nutrient levels in the estuary.

Concern was expressed that trawlers may contribute to the spread of oyster diseases through their transport as bycatch.

Explain which BMP's would be funded with increased funding for the Agricultural Cost Share Program.

Expand information on pesticides concerning amounts purchased, leachate, and run-off.

What are the qualifications of the staff?

Modifications and Improvements for the Action Plans

We have reviewed each management action to ensure that each of the following items are mentioned within each management action discussion. These items include: (1) environmental benefits of the management action, (2) implementation strategy, (3) implementation costs (4) implementation timeline, and (5) considerations (i.e., research needs, information needs, etc.). Where discussion of a particular item can be enhanced, we have noted that in the following information. We intend to provide this information for the next draft where feasible.

Throughout the CCMP implementation costs have not been completely defined. Economists at NCSU will be contracted to work with us in developing these costs.

Human Environment Action Plan

Background information:

We will better balance the benefits that each of the user group activities offers the region with the environmental concerns related to their operations. In addition, we will move the entire discussion of the user groups to the Introduction and leave the Human Environment discussion section entirely for background information related to the management actions (e.g., planning, GIS, public trust, and public access).

public comment: We need to further describe the environmental concerns associated with the creation of large areas of single species of crops and the subsequent shift of biological diversity which is noted in the agriculture and forestry sections.

- A. Require and fund development of local land and water use plans for all counties and municipalities in the Albemarle-Pamlico region.**

Next steps: We will be funding the development of specific guidelines for land and water use plans.

- B. Expand and maintain a central, geographically-referenced data base to serve as a basis for local and state planning in the Albemarle-Pamlico region.**

Environmental benefits: Improve the description of GIS and how it provides for efficient environmental management.

- C. Develop state comprehensive public trust legislation and a comprehensive state public access plan to recognize and implement public trust rights.**

Environmental benefits: Need further discussion on how access will provide opportunities for education of the natural resources and promote environmental stewardship.

Strategy: Strategy for development of public trust legislation needs to be further described.

Implementation costs: Implementation costs needed for both.

Timeline: Timeline is needed for development of public trust legislation and public access master plan.

- D. Promote cooperative planning efforts among local, regional, state, and federal**

agencies.

Vital Terrestrial Areas and Wetlands Action Plan

- A. Promote coordinated inventory and mapping of vital terrestrial areas and wetlands.**
Environmental benefits: Need further description of environmental benefits associated with mapping and inventory.
Implementation costs: Implementation costs need further discussion.
Timeline: Timeline needs further development.
- B. Increase government and nongovernment acquisition of vital terrestrial areas and wetlands while promoting public and private protection incentives and strategies.**
Environmental benefits: Need further description on how acquisition and incentives for protection of natural resources will provide for greater protection of these areas.
Implementation costs: Implementation costs need further discussion.
Timeline: Timeline for specific actions needs further development.
- C. Include vital terrestrial areas and wetlands preservation, conservation, and management in local land and water plans.**
Implementation costs: Implementation costs need further discussion
Timeline: Timeline for specific actions needs further development.
- D. Develop a statewide comprehensive wetlands protection program for coastal and noncoastal wetlands.**
Environmental benefits: Further discussion of the environmental benefits of wetlands protection/wetlands protection program is needed.
Implementation costs: Implementation costs need further consideration.
Timeline: Timeline needs further development.
- E. Develop a state mitigation program to compensate the loss or degradation of wetlands which results from permitted activities.**
Timeline: Timeline needs further development.
- F. Develop and implement a state wetlands restoration program to recoup the state's wetland resources and the benefits that they provide.**
Timeline: Timeline needs further development.
- G. Strengthen enforcement of existing management programs.**

Implementation costs: Implementation costs need to be further developed.

Timeline: Timeline needs to be developed.

- H. Increase the state's effort in public education on the extent, significance, conservation, and regulation of vital terrestrial areas and wetlands.**

Discussion is in the Public Involvement and Education Plan.

FISHERIES ACTION PLAN

Generally in this plan, the discussion of benefits needs to be expanded under each option. Specific proposed improvements are discussed for each option below.

- A. Develop and implement state fishery management plans with targets for the elimination of overfishing for species important to recreational and commercial fishing interests.**

Environmental benefits: Discussion of the benefits of coordinated, justified, and predictable management needs to be added.

Strategies: Needs expansion of implementation discussion to address development of fishery management plans for freshwater species.

Timeline: Define expected completion dates for plans more specifically. Refer to the timeline given in the Goals and Objectives to complete and implement fishery management plans by 1998.

- B. Control fishing effort where necessary to protect the stocks and the fishermen.**

Environmental benefits: Expand this discussion to address impacts of controlled fishing effort on the stocks.

- C. Expand development of bycatch reduction gear and bycatch-reducing fishing practices and require their use as their practicality is demonstrated.**

Environmental benefits: Discussion of potential effects on stocks of reduced bycatch is needed.

Timeline: Target dates for gear development for specific fisheries are needed. Discuss implementation of this action with respect to the timeline given in the Goals and Objectives to reduce bycatch in several fisheries by 50% by 1996.

Considerations: Discussion of fishermen's concerns of costs and reference to option L, a cost-share program for fishery best management practices, should be added. Discussion is needed concerning research needs to assess further the impact of bycatch is needed.

- D. Develop and implement additional bycatch reduction policies including areal and seasonal restrictions and reduced bycatch allowances.**

Environmental benefits: Discussion of potential effects on stocks of reduced bycatch is needed.

Timeline: Discuss implementation of this action with respect to the timeline given in the Goals and Objectives to reduce bycatch in several fisheries by 50% by 1998.

Considerations: Discussion is needed concerning research needs to assess further the impact of bycatch is needed.

- E. Officially designate for protection native submerged aquatic vegetation (SAV) beds, shellfish beds, spawning areas, and additional nursery areas.**

Environmental benefits: Discussion of the benefits of habitat protection will be summarized from the information given in the introduction.

Timeline: Add the Goals and Objectives timeline of designation by 1996.

- F. Adopt protective regulations and land and water use plans for the protection of these designated vital fish habitats.**

Environmental benefits: Discussion of the benefits of habitat protection will be summarized from the information given in the introduction.

Timeline: Add the Goals and Objectives timeline of cessation of losses of function in vital habitat areas through implementation of protective strategies by 1998.

- G. Expand acquisition of lands and develop incentive programs to encourage private land owners to implement conservation measures on lands associated with designated vital fish habitats.**

Environmental benefits: Discussion of the benefits of habitat protection will be summarized from the information given in the introduction.

Timeline: Projected dates for acquisition of a specific acreage of land needs to be specified.

- H. Restore, where feasible, finfish and shellfish vital habitats.**

Environmental benefits: Discussion of the benefits of habitat enhancement should be added. The potential for nutrient reduction by increased populations of oysters and other organisms will be addressed.

Timeline: Discuss implementation of this action with respect to the timeline given in the Goals and Objectives to restore degraded habitat areas by 2003.

- I. Establish a continuous database of information on finfish and shellfish kills and diseases in an effort to determine causal and exacerbating factors.**

Timeline: Target dates for establishment of the response network and for research projects should be suggested. Currently the Objective related to this option sets a goal of determining the role of anthropogenic impacts in kill and disease occurrence; the validity of this objective should be evaluated.

Considerations: Discussion of related research needs should be expanded to include more specifics.

J. Initiate a long-term, coordinated, public education program.

Strategies: Implementation of the recommended initiatives should be discussed further in this option or in the Public Involvement and Education Plan.

K. Strengthen enforcement, coordination, and implementation of existing management programs.

Strategies: The discussion of cross-training for enforcement personnel will be included in the Public Involvement and Education Plan. Some reference to this recommended initiative will remain in this plan and in the Vital Terrestrial Areas and Water Quality plans.

L. Institute cost-share program for "Best Management Practices" in commercial fishing.

Timeline: A target date for establishment of this program should be added.

Implementation costs: Comments at public meetings expressed concern that this program would not receive sufficient funding.

M. Change the existing marine fisheries license structure to include a license to sell and a recreational saltwater fishing license.

Strategies: Additional information can be added to expand discussion of implementation based on existing proposals for these licenses.

Timeline: A target date for the establishment of these license systems needs to be set.

Implementation costs: The costs of implementing these licenses need to be evaluated.

Considerations: A discussion should be added to address the concerns under consideration in the development of these licenses.

WATER QUALITY ACTION PLAN

In general, for each option we will expand discussion of the environmental benefits to be provided. target dates for each option need to be established in accordance with Goals and Objectives.

A. Expand or refine water quality classifications and criteria where necessary to ensure adequate aquatic resource protection for special communities from chronic and acute toxicity and from general cumulative degradation.

Strategy: Discussion of implementation strategy could be further described.

B. More clearly define implementation procedures for the Antidegradation Clause of the State Water Quality Standards.

Need to consider DEM's proposed implementation procedures and consequently, to evaluate the validity of this recommendation.

Strategy: Expand the discussion of the procedures to define more clearly the implementation procedures.

- C. Expand water quality modeling efforts.**
- D. Expand funding for the existing North Carolina Agricultural Cost-Share Program for existing nonpoint sources of pollution.**

Strategy: Discuss what kind of BMPs will be implemented with this increased funding (and what potential benefits they may have).

- E. Provide cost-share money to develop and implement new non-agricultural best management practices (BMPs) to control other existing nonpoint sources of pollution.**

Strategy: Discussion could be expanded with more specifics regarding implementation.

- F. More stringently regulate the installation, inspection, and maintenance of on-site wastewater treatment systems.**

This entire management action is under consideration for alteration based on information to be gathered.

- G. Require the maintenance of undisturbed (i.e., no ground disturbing activities) 20-foot vegetated buffer strips along all perennial streams, rivers, and tidal water bodies (i.e., the blue line on U.S. Geological Survey topographic maps) as one component of comprehensive water quality management. Further protection or buffering of these water bodies should be encouraged through voluntary programs.**

Strategy: Need to better define the allowed uses and required management associated with buffer strips.

- H. Apply the current coastal state stormwater regulations statewide and ensure the proper installation and regular maintenance of all stormwater management systems.**

- I. Require the submittal of a notice of intent to harvest prior to all logging operations - private and corporate, large and small. Notices of intent should be filed with county foresters and forwarded to the central office of the state Division of Forest Resources for incorporation into one database.**

Environmental benefit: From comments received from public meetings, we need to clarify purpose of the notification of "the intent to harvest".

Strategy: We should address the concern that the implementation of this procedure would create a "burden" of paperwork.

- J. Develop coordinated guidelines for the management of marinas.**

The effectiveness of this option needs to be evaluated.

K. Strengthen the enforcement of nonpoint source violations of water quality standards.

Strategy: Need to address further the specifics of implementation of nonpoint source enforcement program.

L. Strengthen current North Carolina water quality policies on available assimilative capacity and secondary treatment.

Environmental benefit: Expand discussion of the benefits of reduced allocation of assimilative capacity and of reduced secondary treatment standards.

M. Increase availability and utilization of waste reduction and plant performance analyses and operator training programs to reduce end-of-pipe concentrations of pollutants.

N. Evaluate for potential remediation areas of sediment proven to be contaminated or toxic.

Strategy: The specific implementation of this action needs further description.

O. Ensure adequate numbers of well-trained staff to implement fully all programmatic goals of education, outreach, and enforcement.

P. Strengthen compliance with Special Orders by Consent by providing financial assistance to facilities as needed.

The validity of this option needs to be evaluated.

Management Actions-- Public Involvement and Education Plan

This plan needs to be written in a manner more consistent with the format of the other four plans.

- A. Develop a coordinated approach to determine the most effective means of implementing effective environmental science education in all primary and secondary schools in North Carolina.

Strategy: DPI is currently rewriting the science education curriculum for grades K-12.

Benefit: ensures that all students become scientifically literate

Timeline: projected implementation-- school year 1994-95

Implementation Costs: Further work needs to be done to calculate this cost.

Consideration: EHNR's Office of Environmental Education should be included in the implementation of this action item.

- B. A long-range plan for the creative presentation of (environmental) sciences in primary and secondary schools should be generated.

Strategy: Same as A

Benefit: Add-- students become proficient in using science process skills.

Timeline: For the 12 years between grades K-12 commencing with school year 1994-95.

Consideration: The plan should include the presentation of environmental science integrated with the presentation of other sciences and other subjects.

- C. Provision of opportunities for continuing education in science for active certified teachers should be considered.

Strategy: public/private efforts by DPI and private sector entities

Benefit: keeps teachers' knowledge current and provides for creative teaching methods

Timeline: Immediately.

Implementation Cost: would depend on the opportunity (i.e. field trip, substitute teacher, etc.) needs more work

- D. A comprehensive listing of teaching resources for each area of science education should be provided to all schools.

Strategy: work with DPI and OEE to develop or round-out any existing materials

Benefit: Enables schools and teachers to be creative and up-to date in the development of science programs.

Timeline: ongoing, commencing immediately.

- E. Specific science coursework requirements for the second two years of undergraduate and the second year of graduate programs in education should be developed to ensure for the provision of high quality science programs in primary and secondary schools.

Strategy: work through the North Carolina university system.

Benefit: All teachers will be scientifically literate and better able to participate in the multi-disciplinary approach necessary for the presentation of environmental science.

Timeline: more work needs to be done to determine this

- F. Actively promote partnerships among government, industry and the public.

Timeline: can be implemented beginning school year 1993--94

Consideration: EHNR's OEE can be instrumental in promoting this within the divisions and departments of state government.

- G. Curricular support materials and school outreach programs should be developed.

Timeline: Development of materials can begin when DPI's new science curriculum is complete ~ 1994-95.

Consideration: Research and information gathering can begin immediately with the development of materials to foster positive attitudes toward science and technology and understanding basic scientific concepts and principles.

Implementation Cost: needs to be researched

- H. Local Governments and school districts should provide at least two subject-focused "teacher workdays" per year to promote new ideas, concepts and methods.

Timeline: could begin with school year 1993--94

Consideration: need to gather information on existing policies as regards teacher workdays

Implementation Cost: would depend on the type of "focus" (e.g. out-of-school) more work needs to be done

- I. Institutional arrangements should be made to foster public involvement in environmental decision making processes at the local and state levels.

Timeline: Again, would depend on the effort undertaken. "Adoption" programs can be implemented almost immediately aquaria, information booths, mobile education centers, etc. require more time.

Implementation Cost: would depend on the arrangement additional work needs to be done on an array of efforts

- J. Interaction between the general public and elected officials on issues of environmental concern should be promoted through the creation of opportunities for open communication and the dissemination of information designed to increase public involvement.

Timeline: can be implemented more fully, immediately

Implementation Cost: depends on the medium. More research needs to be done to array cost of media-mix.

- K. Public awareness about the actions of Regulatory Commissions (e.g. Marine Fisheries Commission, Environmental Management Commission, Coastal Resources Commission, and Wildlife Resources Commission) should be increased through the public notice process.

Benefit: add-- provides for a more informed citizenry and therefore more involved participation

Timeline: immediately implementable

Implementation Cost: depends on the type and cost of advertising

L. Provide for active public involvement in environmental research through a well-developed program of volunteer environmental monitoring.

Benefit: can increase the public's involvement in decision-making regarding environmental research, policy and management

Timeline: needs further development

Implementation Cost: depends on parameters being tested, type of equipment, analyses, etc. More work is needed.