TAR-PAMLICO RIVER BASIN REGIONAL COUNCIL

Stark's Restaurant
1800 Western Blvd.
Tarboro, NC
252/641-4440

February 26, 1999

AGENDA

12:00	Meet at Stark's Restaurant for LUNCH	
1:00	Welcome & Call to Order	Chairman Earl Bell
1:05	Introductions	ALL
1:10	Acceptance of Minutes from 12-18-98 Meeting in Greenville	Chairman Bell
1:15	Update on Tar-Pamlico Rule-Making Stakeholder Group Meetings	Rich Gannon Division of Water Quality
1:35	Membership Vacancies Update	Joan Giordano APNEP Staff
1:45	Developing A Demonstration Project: 1- "Let's Review Our Program of Work" 2- Discuss Project Proposal Criteria 3- Formation of Demonstration Project Committee(s)	Guy Stefanski APNEP Staff
2:30	New Business 1- Update on 1-15-99 Coordinating Council Meeting 2- Plans for next TPRBRC Meeting (develop agenda items) -Status of 2nd Tar-Pamlico River Basin WQ Management Plan -NC Rivers Assessment Program	Chairman Bell
2:50	Open Discussion/Public comment	Open
3:00	Adjourn	Chairman Bell

Tar Pamlico River Basin Regional Council
Stack's Restaurant
Tarboro, North Carolina
February 26, 1999

MINUTES

The meeting was called to order at 1:15 pm by Chairman Earl Bell. There were 13 members present and 2 Division of Water Quality staff. A motion to accept the minutes from the December 18, 1998 meeting in Greenville was made, seconded and approved, and self-introductions were made. (See Attachment A.)

Rich Gannon from the Division of Water Quality was sick, so the agenda item on updating the Tar-Pamlico rule-making stakeholder group meetings was deleted.

Joan Giordano then gave an update on membership vacancies on the TPRBRC. A letter from DENR Assistant Secretary Bill Holman and TPRBRC Chairman, Earl Bell was sent February 5th to local governments in counties where vacancies exist, with a deadline of March 8 to respond with a candidate to fill the vacancy. Cheryl Byrd from Dare County has recently been appointed to fill a vacancy and was introduced to the Council. The Regional Council has some say in the interest group representation, and Joan went on to list the interest group vacancies. It was announced that Joan Mullen from Hyde County has had to resign her appointment.

Vince Bellis then raised a concern of not having anything concrete to show for the year and a half that this Council has been meeting. Joe Shearon then raised the issue of the General Assembly possibly looking at using money from the Clean Water Trust Fund for the General Fund. These two thoughts were combined and a motion was made, seconded and passed, that the TPRBRC should draw up a resolution stating our objection to such use of the Clean Water Trust Fund and forward it to legislators. Perry Jenkins volunteered to write the resolution stating our support for continuing to fully fund the North Carolina Clean Water Trust Fund. (See Attachment B.)

The next agenda item was the development of a demonstration project. Guy Stefanski led the discussion by reviewing our program of work, and going through the project proposal criteria developed by EPA and the Coordinating Council. Guy handed out two example project proposals from Florida for us to see the kinds of on-the-ground projects which include educational aspects that EPA has in mind.

A large-scale $880,000 BMP project on Rocky Branch Creek near the Wake/Franklin County line was brought up, which involved a farm/cattle/forestry operation. However, it was concluded that no opportunities exist to use the demonstration project money ($26,000) as a supplement to the existing project. It was mentioned that Dr. David Lindbo, a research professor at the Vernon James Center in Plymouth, is working on alternative septic systems, and that we might

be able to help him out on a research project involving septic systems.

Bruce Perkinson said that he has a project all set up with matching funds in Warren County on 10,000 acres encompassing 25 landowners to look at GPS and nutrient management on pasture land. All the project needs is $10,000 to get it started.

Another suggestion was to approach NRCS or SWCD personnel and ask them if they know of a project for which $26,000 would be useful, to put towards getting more or different information or data.

Earl Bell proposed a Demonstration Project Subcommittee to get together and attempt to develop a couple of project ideas and bring them back to the full TPRBRC to discuss. Subcommittee members proposed are Earl Bell, Adrienne Hiner, Jeff Furness, Jim Stephenson, Bruce Perkinson, Joan Giordano and Guy Stefanski. This subcommittee will meet on March 26, so any Regional Council member that has an idea for a project should give the information to a subcommittee member before March 26.

Next, Guy Stefanski gave an update on the January 15 Coordinating Council meeting in River Bend. He also reported that the draft of the Tar-Pamlico Basin Plan was just approved by the Environmental Management Commission Water Quality Committee to go out for public meeting.

Mary Jane Jennings stated that Sen. Wellons told her that he did not think there was any money available in the State budget for the Pamlico Environmental Education team. Mary Jane asked him to fund a Coordinator's position with an operating budget, a total of $75,000 - $80,000, which can go a long way, and he agreed, saying he could do that. All he needs is a rewrite of the request, which Mary Jane will do. Since the Regional Council voted on the whole proposal last year, no vote on the rewrite is necessary. (See Attachment C.)

The Tar-Pamlico River will be the pilot river for the North Carolina Rivers Assessment Program. This effort needs volunteers to help with the surveys and be a part of the River Corridor Volunteer Assessment Team.

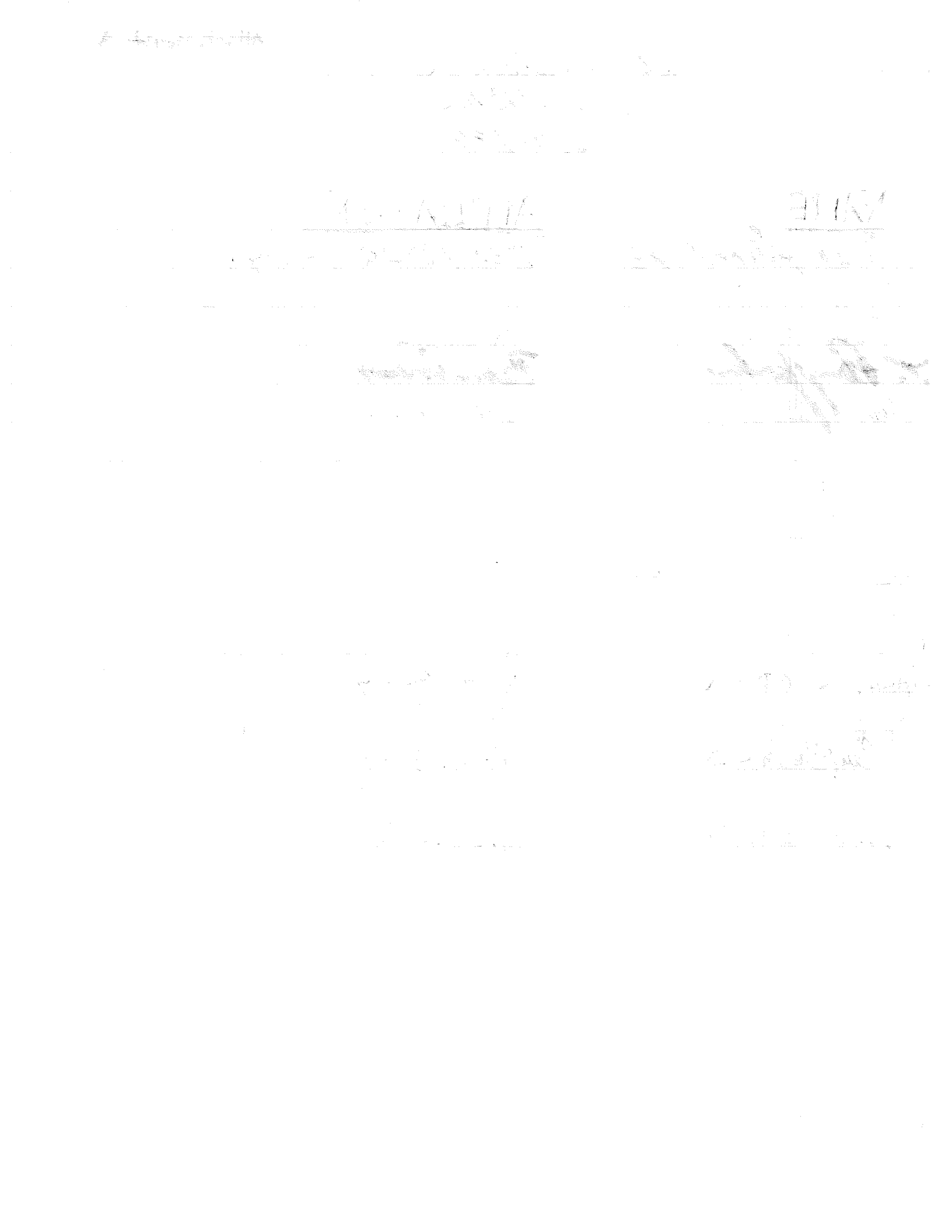
Joan Giordano reported that the APNEP newsletter (AP Beacon) will be coming out soon. She also made an announcement about the March 22nd Water Resources Research Institute (WRRI) Seminar on Water Quality Trends in the Neuse and Pamlico Basins, given by Dr. Don Stanley of ECU, at 3:00 in the Archdale Building in Raleigh. The next meeting was scheduled for Friday, April 9, in Washington.

NOTE: The next meeting location was changed to the Vernon James Center, Hwy. 64 in Plymouth due to the unavailability of facilities in Washington. There being no further business the meeting was adjourned.

Attachment A

Attendance List
T-PRRBRC
3/26/99

NAME	AFFILIATION
Jack Groseclose	NEP/DWQ Staff
DAN WYNNE	PITT PLANNING
Timm Thomas	Agriculture
T. Bryson	Business
Earl Bell	Agriculture
Meade Horne	Edge. Tar River Foundation
Cheryl Byrd	Dare County Board of Commissioners
Mary Jane Jennings	Conservation (Franklin Co)
JESSE A. SULLINS, JR	GRANVILLE CO. - OXFORD
Joe Shearon	LOUISBURG NC Town
WAYNE WALL JOYNER	Rocky Mt. Nash Co.
HARRY S. ODOM	NASH County
Jeff Furman	Pitt Co. Business/Industry
Guy Stefanski	APNEP Staff
BRUCE PERKINSON	WARREN SWCD
Vince Bellis	Greenville



Attachment B

RESOLUTION OF THE TAR-PAMLICO RIVER BASIN REGIONAL COUNCIL

Upon motion duly made, seconded and unanimously carried, it was

RESOLVED, that this Council is aware of the current budgetary constraints on the State of North Carolina. The Council would like to go on record and petition the Honorable James B. Hunt, Governor of the State of North Carolina, that the funds currently held in the Clean Water Management Trust Fund remain in said Fund and not be used for any purposes other than those established by the Trust Fund.

This the 26th day of February, 1999.

_____
Chairman

Attest:

(SEAL)

_____
Secretary

Attachment C

Proposal for Funding Appropriation - Coordinator Position
Tar-Pamilco Basin Extension Environmental Education Team

The Tar-Pamlico River Basin Regional Council requests funding for the Basin-Wide Coordinator position of the Tar-Pamlico Education Team. [The other four positions, three agents and one specialist, will be requested in the Year 2000 spring budget, in order to be in place when the Tar-Pamilco Nutrient Reduction Rules are approved in August, 2000.]

The plan of work for the Coordinator in this first year will be as follows:

- Prepare a comprehensive overview of Tar-Pamlico problem areas:
  - prioritize remediation sites
  - target potential demonstration sites
- To work with County Extension, Natural Resources Conservation Service, and Neuse Team Specialists on current projects
- Develop educational materials - slide sets, fact sheets and brochures, with special emphasis on new BMP research, riparian buffers, and septic system information.
- Presentations to Focus groups on nutrient management strategies.
  -stress education and assistance (not enforcement) role of Team
  -initiate project/cost share planning
- Facilitate partnerships between basin stake holders (for example, business and government) to address pollution sources and solutions.
- Pursue grant sources for NPS, CCMP, & NSW project funds.

Based upon current data and projections, the Tar-Pamlico Regulations will be more complex and stringent than the Neuse Rules, primarily because of the addition of Phosphorus limits. The Tar-Pamlico Education Team is going to be a leading component in the implementation of this pollution reduction plan.

Accomplishing this work ahead of Rule confirmation will give the citizens of the basin a substantial head start on achieving their water quality goals.

Tar-Pamlico Education Team
Basin-wide Coordinator

Salary	$50,000	
Benefits	12,000	Calculated at @ 24.1%
Travel	8,000	16 County territory @ .32½ ¢/mile
Equipment	6,000	Multi-media projector) one time expense
	4,000	Laptop computer)
Supplies	5,000	-2,000- Phone expense, 16 counties -1,000- Slide camera, film, replication -2,000- Signage, paper, Fax, etc.
Total	$85,000	

January 15, 1999

ALBEMARLE-PAMLICO NATIONAL ESTUARY PROGRAM

DEMONSTRATION PROJECTS

The Comprehensive Conservation and Management Plan (CCMP) of the Albemarle-Pamlico National Estuary Program (A-P NEP) was officially endorsed by the Governor of North Carolina and the U.S. Environmental Protection Agency (EPA) in November 1994. In September 1994, EPA awarded the North Carolina Department of Environment and Natural Resources (DENR) a grant to demonstrate specific recommendations or action items contained in the CCMP. The Division of Water Quality (DWQ) is administering the grant and has oversight of the CCMP implementation process. The EPA grant has been extended to September 30, 1999 and the total amount of the grant is $1,755,363.

As a part of the implementation strategy, the CCMP recommends the establishment of Regional Councils to foster public input from each of the five major river basins in the Albemarle-Pamlico region. Membership to the Councils consists of citizens and local government officials, representing every county and interest group in the region. In March 1995, Governor Hunt issued an Executive Order directing the creation of the Councils. All five Regional Councils have been established and meet on a regular basis.

A primary role of the Regional Councils is to establish local environmental priorities, based on those outlined in the CCMP, Governor Hunt's Coastal Agenda, and the DWQ's basinwide management plan recommendations. In addition, their role extends to developing support for the most cost-effective methods of dealing with those recommendations. Priorities of resource management vary from basin to basin because concerns for water quality, habitats and fisheries are diverse and widespread. The Regional Councils have been encouraged to develop and implement strategies which are most amenable to local action. Funds from the existing EPA grant have been dedicated to help support local demonstration projects recommended by the Regional Councils. Total funds available for demonstration projects are approximately $130,400. Individual projects approved for funding are eligible to receive a total of $26,080 for a single watershed and $52,160 for a combined watershed project.

Demonstration projects are scaled-down versions of innovative or unique engineering or management strategies that are designed to test the cost and effectiveness of these actions in addressing priority problems in a particular watershed. These projects also aid in defining the time and resources required for basinwide implementation. Demonstrations may include engineering projects, model ordinances, improved management of living resources, and modifications to remove institutional barriers to achieving progress on priority problems.

In order to be eligible for funding, proposed demonstration projects must address a priority problem identified in the CCMP and involve the demonstration of specific management or engineering strategies (not planning or assessment activities). Each Regional Council may submit its own demonstration project proposal or work with another Council(s) with similar problems and submit a combined proposal. Proposals should include all the required information outlined in the "Criteria for Selection of Demonstration Projects" and the "Demonstration Project Checklist".

Regional Councils are tasked with the solicitation, review, ranking, and selection of projects to be funded. In addition, Regional Councils are strongly encouraged to utilize an existing and approved system or process to evaluate project applications. One example is the evaluation system used by the Clean Water Management Trust Fund in its review of proposals. The Coordinating Council must approve all projects selected for funding.

Albemarle-Pamlico National Estuary Program
Regional Councils

Criteria for Selection of Demonstration Projects

Preparing a Demonstration Project Proposal

A demonstration project is a scaled-down version of an innovative or unique engineering or management strategy. The project proposal should call for immediate action. Available funding will not pay for planning, but is strictly intended for implementation of specific management or engineering strategies (shovel in the ground type projects). These projects are being funded to demonstrate the process of implementation and the effectiveness of a specific control strategy prior to basinwide or regional application. The demonstration project proposals submitted to the Coordinating Council for funding should discuss each of the components described in the Demonstration Project Checklist. It is important that each of the components be addressed under its own section in the proposal. Use of the checklist will ensure that the proposal is complete.

Selection Criteria

Regional Councils convened under Governor Hunt's Executive Order #75 (as amended #118) are eligible to receive funds from the existing U.S. Environmental Protection Agency grant to support local demonstration projects. In selecting demonstration projects, proposals will be reviewed according to and funds provided based on the following criteria:

1. Projects must address a priority problem in the estuary or its watershed as identified in the Comprehensive Conservation and Management Plan (CCMP), Governor Hunt's Coastal Agenda, or a basinwide management plan approved by the North Carolina Department of Environment and Natural Resources.

2. Proposals should demonstrate that the problem identified for action has been adequately characterized and evaluated and show that the cause(s) of the problem have been adequately assessed.

3. A majority of the members of the Regional Council(s) should support the project(s) recommended for funding. The proposal must be signed by the chair(s) or co-chair(s) of the Council(s).

4. Proposals should establish the commitment to action made by the respective local government entity, other agencies and/or educational institutions and the private sector. Commitment to ensuring regulatory, administrative, financial, and political cooperation that would enhance project success would be beneficial.

5. Proposals should establish that the opportunities and likelihood for success and improvements in environmental quality are good.

6. Proposals must accurately and thoroughly address all required components, as described in the Proposal Checklist.

7. Demonstration of innovative techniques or approaches which can be transferred throughout the watershed or other watersheds in the region will improve chances of selection or approval.

8. Proposals must guarantee that the project will include the development of cost estimates for full-scale application of the strategy throughout the watershed.

9. The proposal should describe appropriate public education and outreach methods to reach constituents and stakeholders throughout the watershed/region.

Albemarle-Pamlico National Estuary Program - Regional Councils
Demonstration Project - Proposal Checklist

____ 1. Discussion of the priority problem, identifying the probable causes and resource uses affected.

____ 2. Statement of the specific objectives of the project related to the problem, source, or cause.

____ 3. Discussion of the various management options considered.

____ 4. Discussion of the chosen option with reference to likelihood of success, public support, and time and resources (cost effectiveness).

____ 5. A complete outline of the specific plan needed to abate and control the problem or protect the resource. Each outline should address:

What: Describe specific environmental objectives and related measures of success and what will be done to attain them. For example, specify nutrient load reductions and use designations in the proposed location.

Who: Identify who will act, plan, and enforce; spell out roles and resource commitments for each participating agency, institution, or other entity.

How: Outline the procedure/process used to perform this project.

Where: Describe the location this project will affect.

When: Include schedules.

Budget: Provide detailed cost estimate.

____ 6. Description and schedule of activities to monitor success of the project.

____ 7. Timetable and description of reports (e.g., quarterly, final) concerning progress, costs, and results.

____ 8. Discussion of methods and schedules for review, evaluation, and redirection of the project.

____ 9. Discussion of possible basinwide and/or region wide application of the strategy.

____ 10. Commitment to develop cost estimates for basinwide application of the project.

____ 11. Discussion of public education and outreach methods.

____ 12. Formal endorsement of the demonstration project by the Regional Council(s).

Albemarle-Pamlico National Estuary Program
Regional Councils

Format for Demonstration Project Proposals

I. Discussion of Priority Problem(s)

II. Options Considered

III. Discussion of Selected Option/Project Abstract
- A. Project Title
- B. Lead Agency/Organization
- C. Objectives
- D. Likelihood of Success
- E. Public Support
- F. Time and Resources Required
- G. Cost Effectiveness
- H. Deliverables

IV. Detailed Project Description/Scope of Work
- A. What
- B. Who
- C. How
- D. Where
- E. When
- F. Budget

V. Activities to Monitor Success
- A. Monitoring Requirements
- B. QA/QC Plan

VI. Reports on Progress, Costs, and Results

VII. Review, Evaluation, and Redirection

VIII. Basinwide or Regional Application
- A. General Discussion
- B. Cost Estimate

IX. Public Education and Outreach

X. Endorsement by Regional Council(s) and Other Partners

(B)

Artificial Reef Demonstration Project

Tampa Bay National Estuary Program
Action Plan Demonstration Project

SCOPE OF WORK
June 1993

1. Discussion of the Problem and Project Introduction

Extensive waterfront development has severely altered the natural shoreline of Florida in many areas. Finger-fill canals have been constructed due to dredge-and-fill operations in low lying coastal areas which once were productive mangrove or salt marsh ecosystems. Historically little thought was given to the ecosystems that would be impacted. Main engineering criterion called for providing berthing facilities anywhere within the canal, and this led to the construction of vertical hardened seawalls.

Much of Tampa Bay's and Boca Ciega Bay's shallow uneven fringe of mangroves and marsh grass has been altered through dredge and fill activities. Taylor and Saloman in 1968 attributed the drastic decline in the biological resources of Boca Ciega Bay to the extensive construction of residential canals. Dredging and filling reduced the bay area by 20 percent, and the authors calculated a loss of annual production to be 26,000 metric tons of sea grasses, 73 metric tons of fishery products and 1100 metric tons of infauna (exclusive of meiofauna). While the loss of habitat to canal construction has slowed dramatically, vast areas of inter-tidal habitat have been permanently altered due to development with hardened shorelines (i.e., seawalls); this has had a severe impact on the natural systems. While Taylor and Saloman (1968) noted little difference in the plankton production in canals versus undredged areas of Boca Ciega Bay, they found that canals contained less than 20 percent of the faunal species of nearby unimpacted areas. "Forty-nine species of fish were taken from canal stations and 80 from bay stations. Individuals of a few species of fish in the canals were more numerous; however, none were demersal, indicating the lack of bottom food and habitat. Benthic invertebrate populations were particularly depauperate, apparently because of the soft, unconsolidated sediments occurring at canal sites. Taylor and Saloman further noted that canal creation resulted in the loss of substantial grassbeds and an overall decline in primary and secondary production" (ESE 1993).

The SWIM Department of the SWFWMD has funded a study aimed at developing best management practices for residential canals. Many of the problems associated with canals are difficult to overcome, our consultants did conclude that natural systems could be improved by a habitat enhancement program. Several suggestions were made including "the introduction of structures to encourage colonization of the canal with fish and crustacea species by providing

fabricated habitat structures" (ESE 1993). One system mentioned was that developed by Oyster Reef Designs, Inc. This design is modular and is maintenance free.

2. Statement of Specific Objectives

Although desirable, it is not fiscally possible not practical to return canal systems to a natural state; however, habitat value and natural systems can be markedly improved by introduction of artificial substrates for colonization of shell fish and other organisms. The Action Plan Demonstration Project proposed here will demonstrate the value of artificial substrates for the attachment and development of reef building and habitating organisms. Artificial reefs will attract other organisms including fishes and wading birds, ultimately improving the natural systems of the canal.

Specific objectives will include the installation of artificial reefs at a demonstration site (Madeira Beach Middle School, on Boca Ciega Bay); site monitoring to document habitat enhancement through the development of communities now absent from the area; and education through the monitoring effort which will be conducted by students or volunteers.

3. Management Options Considered

* No Action: do not attempt to improve the natural systems of residential canals by installing artificial reefs. This would lead to no improvement in habitat value of the canals, and canals would continue to be less diverse and less attractive to wildlife.

* Restore canal lands to their historic condition. This was considered impractical in most situations.

* Habitat enhancement to improve natural systems. A number of alternatives are available including the addition of limerock on the waterward side of a seawall, the use of interlocking modular concrete blocks that extend canalward (e.g., MacBlox), and artificial reefs.

4. Chosen Option

One method proposed by ESE (1993) was the use of artificial reefs. This method was chosen because it can be prefabricated, is easy to install, is relatively inexpensive, and can be arranged, modified and adapted to many situations. These reefs have been deployed in a number of places and appear to work based on anecdotal information. They offer considerable surface area for attachment of organisms, appear to be readily colonized, and become firmly anchored as sediment deposits increase.

5. Project Plan

WHO:
The project will be a joint effort between the Tampa Bay NEP and the SWIM Department of the Southwest Florida Water Management District. Madeira Beach Middle School students and teachers will provide additional assistance with ongoing monitoring. In addition, the National Marine Fisheries Service (NMFS) has recently entered into an agreement to provide assistance to the Middle School in their efforts to focus curriculum on marine science, and will be available to assist with long-term monitoring of the results of the artificial reefs. Oyster Reef Designs, Inc. will prefabricate and deploy the artificial seawall reef structures.

WHAT:
Polyethylene seawall reefs will be installed in a pattern creating a broken fringe shoreline of coves. Calmer areas of coves trap and settle out leaf detritus and other particulate organic matter. The polyethylene skeleton provides a substrate for attachment of fouling sessile organisms such as barnacles, oyster, and tunicates. Colonization of the open mesh results in a structure which offers an increasingly complex network of crevices and openings, and becomes the refugia and foraging area of an increasing number and diversity of organisms. Red mangroves have even become established in some of the systems already deployed. Additionally, these structures should help soften wave action against a sea wall, and create wading bird habitat for heron, egrets, etc. The placement of artificial reefs will effectively increase the length of shoreline fringe habitat due to the creation of coves. The particular design shown would increase the fringe by 60%.

WHERE:
The location is adjacent to the Madeira Beach Elementary and Middle School Property on Boca Ciega Bay. Five hundred feet of seawall will be treated with up to 50 perpendicular artificial reefs.

WHEN:
It will require approximately three months to build and install reefs. Site selection will be finalized during this time. Permits will be required which will take three to four months from application.

HOW:
Polyethylene reefs will be prefabricated into 7 inch diameter tubes and assembled into standing nine tube Seawall Reefs. Reefs will be placed along the outside face of the seawall and held in place with approximately sixty pounds of clay brick and four steel pods per four foot section of reef.

6. Monitor
Monitoring will be conducted by students and/or volunteers which will be trained and monitored by SWIM and NMFS staff with the exact scope of monitoring to be developed. One method used has been simply to weight the increase in mass of a small section of reef

over time. It is anticipated that the fauna of the site will at least be qualified over time to document an anticipated increase in species diversity and wildlife usage. Depending on the expertise and equipment available to the monitors, a quantitative approach may be taken.

Reef modules will be evaluated with regard to cost, ease of installation, stability, durability, longevity, and esthetics.

7. Reports
The SWIM Department will submit quarterly reports documenting costs, problems, and monitoring results. It is anticipated that this report will include extensive photo-documentation which should be useful in promoting other such projects if the proposed project is deemed successful. A Final Report will include methods, results, costs, and estimates of region-wide implementation.

8. Review
A SWIM staff member will be designated as the project manager, and will coordinate volunteer efforts, document project progress, and inspect the site at least monthly.

9. Basinwide and National Application
Residential canals and hardened seawalls are not unique to Florida's coast. Thousands of acres and many miles of shoreline have been impacted by the construction of finger-fill canals. Few viable options exist for improving habitat in these areas; the use of artificial reefs such as proposed here offer some promise. Demonstration projects are needed to document their worth and engender appreciation of the benefits they may offer. Public acceptance of this practice could result in improved habitat and productively in presently depauperate areas.

10. Cost Estimate for Basinwide Application
Costs for individual installations are minimal, and it is possible that some segments of the public may adopt this approach for habitat improvement without outside funding support; however, the public in general does not yet appreciate the benefits of local, small scale habitat enhancement projects. It is anticipated that initially local governments may have to subsidize large scale sea wall habitat enhancement projects before effective biological results can be noticed. It is also likely that several larger projects will have to be implemented and monitored so that the scientific community would openly and enthusiastically endorse such measures. The proposed annual report would attempt to arrive at basinwide cost estimates for a large scale habitat enhancement effort.

11. Project Budget

Construction and installation of 160-nine tube Seawall Reefs	$ 9,000
Monitoring and Volunteer Supplies	950

SWIM Department - Project Oversight, Volunteer Training, Annual Report		4,067
Contract Administration (TBRPC)		250
Permitting		2,000
Total		$ 17,200
	Request	$ 12,200
	Match (in-kind)	$ 4,067

D

ACTION PLAN DEMONSTRATION PROJECT
TAMPA BAY NATIONAL ESTUARY PROGRAM

Alafia River Oyster Bar Restoration

INTRODUCTION

Oyster bars are important natural communities which provide food, filter water and create habitat structure for many important fish and wildlife species. Historic dredge and fill activities and declining water quality have impacted oyster reefs throughout Tampa Bay. This project will initiate a program to place clean oyster shell along the south side of the Alafia River channel. Clean oyster shell is relatively inexpensive and will need to be carefully placed along portions of the Alafia Channel where submerged aquatic vegetation does not exist and the sediments will support the clutch material. Placement of the clean oyster material will be accomplished by barge with trained supervision.

Oyster communities provide a valuable food source for many important wildlife species such as redfish (*Sciaenops ocellatus*) as a targeted recreational fishery and the American oystercatcher (*Haematopus palliatus*) a listed Species of Special Concern in Florida. The oyster reef, once established, will additionally provide a renewed area where the community can fish or birdwatch after restoration of habitat. The project will additionally provide an informational brochure describing the project for distribution at local civic groups and bait shops.

Pinellas and Hillsborough Counties have active artificial reef construction programs. However, oyster bar restoration has not been accomplished in Tampa Bay to date. The Florida Department of Natural Resources will provide technical assistance using experience gained from oyster bar construction projects in the Florida Panhandle. Existing natural oyster communities and observed growth on seawall areas indicate an adequate supply of oyster spat in the area. Construction of oyster communities is expected to greatly enhance water quality and habitats leading to enhanced estuarine productivity.

PROJECT OBJECTIVES

Over the last 100 years, the Tampa Bay estuarine system has lost a significant portion of its natural communities to urbanization activities. The project is structured to facilitate replacement of one important natural community back to the bay, thereby enhancing the resource that are dependant upon oyster communities. The site will be monitored for three years by the Environmental Protection Commission of Hillsborough County (EPCHC) to determine the success of the project and applicability for other areas in Tampa Bay as well as other estuaries around the country.

The project will include a strong public education element through the creation of a brochure detailing the project and benefits to the Tampa Bay cultural and natural community.

MANAGEMENT OPTIONS

In consideration of the project site, the project participants examined locations where oyster communities once existed and have been removed due to dredge or fill activities. A site was selected based upon its ability to enhance local resources while providing recreational or educational opportunities. Additional consideration was given to proximity with onshore transfer area to expedite loading of barge and placement of shell.

Potential oyster sites were ruled out in areas of unconsolidated or fine sediments to prevent burial of shell material. Natural subtidal areas were eliminated from consideration to prevent unintentional impacts to existing or future seagrass communities or other benthic infauna. Locations where heavy boat traffic or future maintenance dredging is planned were not considered viable locations.

The no action scenario accepts existing conditions, which will not allow improvements to water quality and habitats provided by oyster communities.

SELECTED OPTION

The location at the mouth of the Alafia River was selected since:

1) it historically contained oyster communities prior to channel dredging and spoil disposal for industrial shipping activities at the Alafia River

2) it will provide habitat and food for a variety of species who utilize tributary and estuarine systems

3) the oysters will promote water quality benefits by filtering water entering Tampa Bay from the Alafia River basin

4) it will ease transportation access and transfer to the Alafia River Channel from the Williams Park boat ramp, and

5) the site is located in an area with significant recreational and commercial fishing activity that will benefit from oyster bar development, and

6) the area is adjacent to a significant bird nesting island (Alafia Banks), managed by the National Audubon Society, and characterized as one of the most productive bird nesting sites in the southeastern United States.

The Alafia River location is ideal for a number of important resource based criteria as well as

its availability to transfer oyster shell material for reef construction.

PROJECT SCOPE

The project will be accomplished by the Tampa Bay Regional Planning Council (TBRPC) and the Environmental Protection Commission of Hillsborough County (EPCHC). The TBRPC and EPCHC will design the reef along the south side of the Alafia River and apply for any required permits with the US Army Corps of Engineers, the Florida Department of Environmental Protection and Hillsborough County.

The TBRPC and EPCHC will further make application to the Pollution Recovery Fund administered by the EPCHC for additional project support. The Pollution Recovery Fund was established to restore areas impacted from environmental violations. A portion of the fund is specifically earmarked for projects in and around the Alafia River. Receipt of additional support from the EPCHC Pollution Recovery Fund will greatly expand the size and magnitude of the project.

After receipt of permits the TBRPC will submit an RFP to hauling companies and barge firms to transport and place material in the approved location. Clean oyster shell from local shell mines will be transported to the Williams Park boat ramp and loaded onto a small barge. The barge will transport the shell within one mile to a permitted location on the south side of the Alafia River. The shell will be offloaded along the subtidal fringe of the river creating an oyster attachment site similar to natural communities found in undisturbed locations around Tampa Bay. Placement of the material will be accomplished within marked locations and be supervised by staff from TBRPC and EPCHC. Initial indications are that an oyster reef up to one-acre in size can be constructed along the fringe of the Alafia River channel. Final size will be based upon permitting agency negotiations and transportation costs.

After placement of the material the EPCHC will monitor the site for three years, quarterly the first year after construction and semi-annually for the next two years. Monitoring will be critical to document lessons learned and feasibility for construction of oyster bars in other locations. The TBRPC will document the project after one year in an interim final report as well as prepare the informational brochure to be handed out at the boat ramps, bait shops and civic groups in the area and around Tampa Bay.

The project will not only benefit the immediate area surrounding the mouth of the Alafia River, in terms of enhanced water quality and improved habitats, but also the Tampa Bay estuary and ultimately the Gulf of Mexico, since many recreationally and commercially important species of fish are dependent upon estuaries and low salinity habitats within their life history.

The actual project is expected to be accomplished within one year with monitoring to continue for three years. Design of the project will be accomplished in 30-60 days by TBRPC and EPCHC. Permits will be submitted by TBRPC and reviewed within 90-120 days by the permitting agencies. The RFP process and construction will take 60 days and will be supervised by TBRPC and EPCHC. EPCHC will perform the monitoring, which will be initiated prior to

submittal of the permit applications and continue on a quarterly basis after construction. A final interim report will be prepared by TBRPC after one year to document the project. A final report will be prepared after three years of monitoring to identify program results. The brochure will be developed by the TBRPC after the reef has been constructed.

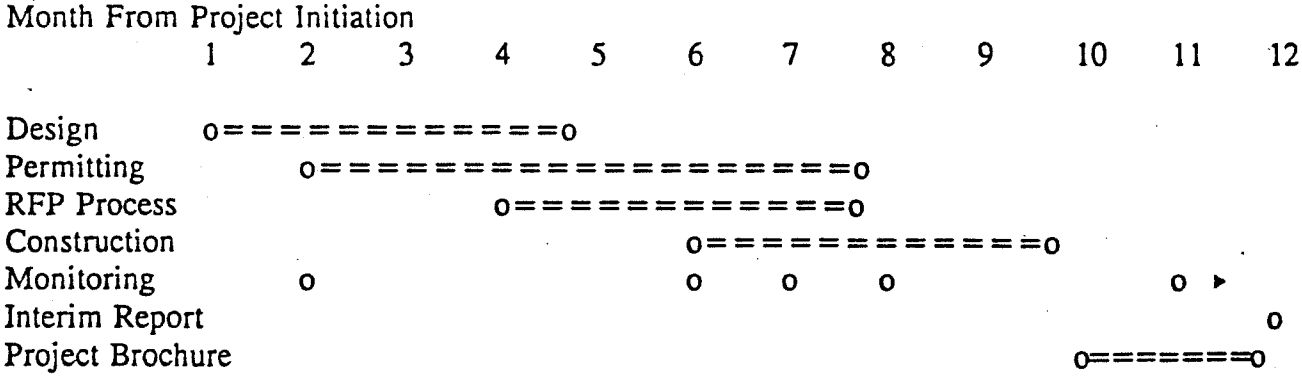
MONITOR

The EPCHC will conduct an initial site evaluation to document existing conditions along the Alafia River to determine acceptable locations for placement of shell material. Staff from EPCHC and/or TBRPC will supervise placement of oyster shell from the selected contractors. After shell placement the EPCHC will describe the area covered by new shell material and area to be monitored. It is expected that the new material will be placed from the mean tide line to depths up to ten feet deep. This will allow establishment of oyster spat over a range of depths to reduce mortalities. After placement, the EPCHC will monitor the project quarterly for the first year and semi-annually for the next two years to determine spat colonization, recruited oyster survival, burial of reef area and level of establishment compared with depth.

An evaluation can be extrapolated on the level of water quality improvements based upon surface area colonized and average filtering rates available in existing literature. Wildlife usage will also be assessed based upon actual sightings and known usage by local species. Results will be documented in an interim report after one year and a final report after three years.

TIMELINE

The project will be accomplished in the following time frame:



The project is designed to be completed in its entirety within a one year time frame. Monitoring will continue for two additional years to document the project and ensure success.

REVIEW

The project will receive oversight review from a design committee that will be established with representatives from the following organizations and areas of interest:

- o TBRPC - project coordination, implementation, public education
- o EPCHC - project coordination, permitting, implementation, monitoring
- o Florida Department of Environmental Protection (FDEP) - permitting, shellfish management
- o Florida Department of Natural Resources - technical assistance, project design
- o Tampa Bay National Estuary Program - project management, technical support
- o Cargill Fertilizer - adjacent terminal facility, support oyster transfer
- o Lewis Environmental Services - technical support
- o National Audubon Society - Alafia Banks bird sanctuary

This committee will review the initial project workscope, support development of the permitting package and assist with expedition of any required permits. The committee will be reconvened after project construction to evaluate the project and identify any additional monitoring that will support the project. The design committee can also support efforts to develop additional funds to expand the project through FDEP Pollution Recovery Trust Funds that are potentially available for restoration efforts in and around the Alafia River. The project can be redirected based on input from the design committee or permit review agencies prior to construction activities. The proposals in response to the RFP will be reviewed by TBNEP and TBRPC staff to ensure compliance with any permits.

APPLICATION

Oyster systems are prevalent in nearshore coastal waters of the United States. The communities are critically important in terms of maintaining natural resource systems and providing commercial products for human consumption. The construction of oyster communities in Tampa Bay has not been accomplished to date. Identification of methods and materials, monitoring of construction and oyster reef development and education of Tampa Bay residents will greatly enhance our understanding and ability to restore estuarine systems. Lessons learned from the Tampa Bay project can and will support oyster systems in other locations around the bay as well as document restoration methods for other estuaries around the country. The development of the Comprehensive Conservation and Management Plan (CCMP) by TBNEP will include methods and financial plans for restoring the Tampa Bay environment. The oyster restoration project will support the CCMP effort to document restoration efforts that not only apply to Tampa Bay but to the nation as well.

DELIVERABLES

- o one or more constructed oyster communities in Tampa Bay
- o final interim report after one year
- o final report after three years to include entire monitoring project
- o program brochure for public distribution

COST ESTIMATES

17,000 total
4,500 shell transport
3,000 barge transport
6,000 TBRPC 2,917 minimum match
4,000 EPCHC 2,917 minimum match

STATEMENT OF WORK

TASK 1. Project Design

Estimated Costs: $3,150
Due Date: 4th month

TASK 2.

Estimated Costs: $5,000
Due Date: 8th month

TASK 3.

Estimated Costs: $2,000
Due Date: 8th month

TASK 4.

Estimated Costs: $7,500
Due Date: 10th month

TASK 5.

Estimated Costs: $4,000
Due Date: 12 month

TASK 6.

Estimated Costs: $534
Due Date: 12th month