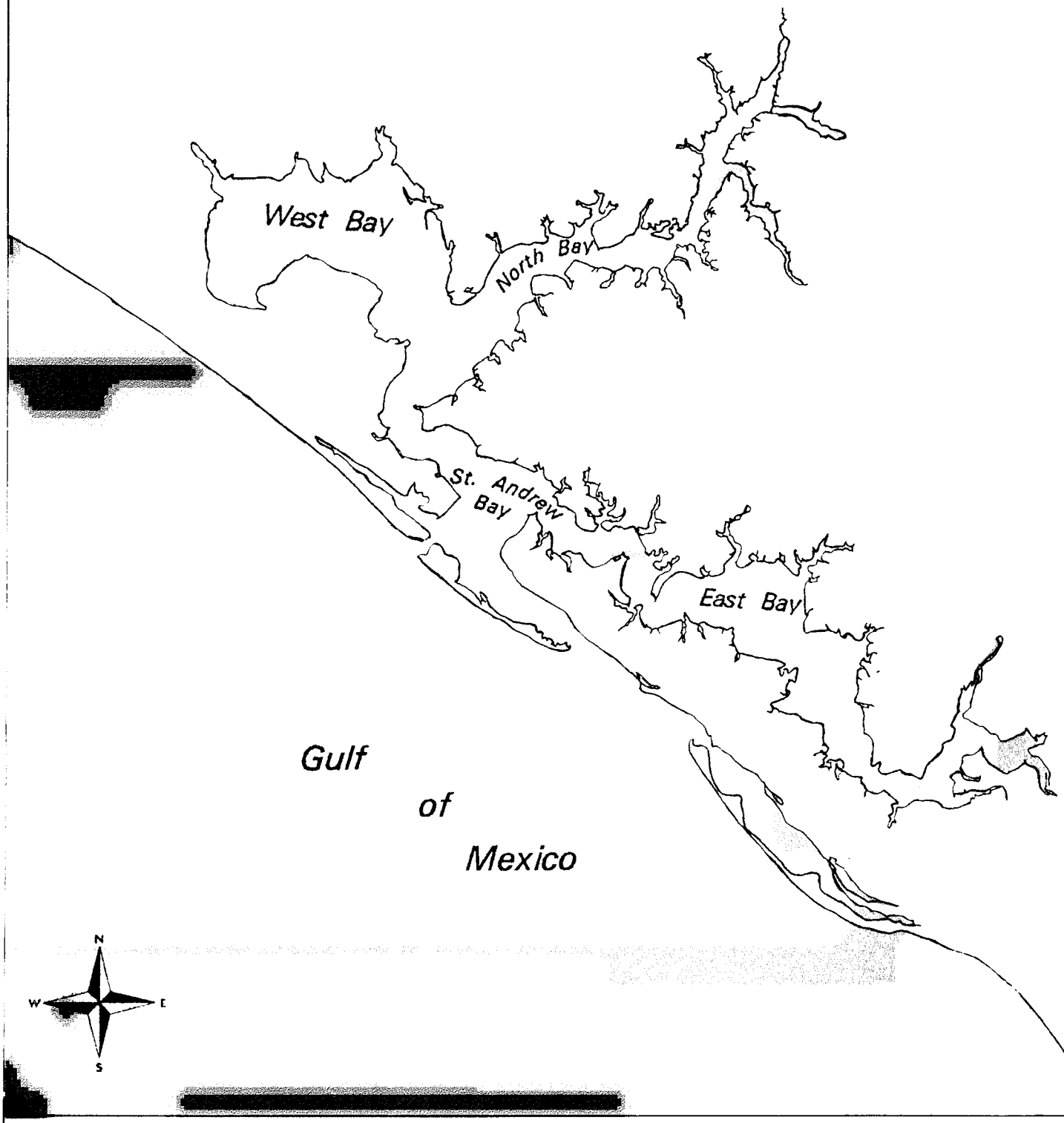
ST. ANDREW BAY



NEP NOMINATION

NOMINATION

OF

St. Andrew Bay and Its Watershed

NATIONAL ESTUARY PROGRAM

Northwest Florida Water Management District

Route 1, Box 3100, Havana, Florida 32333-9700
(On U.S. Highway 90, 10 miles west of Tallahassee)
(904) 539-5999 • (Suncom) 771-2080 • (Fax) 539-4380

Douglas E. Barr
Executive Director

March 3, 1995

Ms. Carol M. Browner, Administrator
U.S. Environmental Protection Agency
401 M Street SW
Washington, D.C. 20406

Dear ~~Ms. Browner~~ CAROL:

The Northwest Florida Water Management District has worked with the St. Andrew Bay - Bay Environmental Study Team (BEST) to prepare a National Estuary Program nomination package. The District has received strong local support for this nomination from the local City and County governments, industry, state and federal offices, the local community college, and local conservation associations. As the lead agency that would administer this program, we fully support the nomination of St. Andrew Bay and its watershed into the National Estuary Program. The proposed program will provide a very useful watershed management plan that will help guide future water resources protection activities towards the protection of the bay.

The development and implementation of an integrated planning approach is critical to the development of water resources protection activities along our coastal areas. The development of a NEP Comprehensive and Conservation Management Plan (CCMP) would be very timely with other land preservation, local water management and wastewater treatment programs currently being planned in the area. A comprehensive watershed management plan is vital to the long-term protection and restoration of this coastal area.

The District will use every means possible through its Surface Water Improvement and Management (SWIM) program, land acquisition, and regulatory programs to help implement the CCMP. It will provide all the necessary staff support to assist the BEST with the management conference, CCMP development, administration of funds and management of the program.

We believe that through BEST the opportunity exists for a very successful NEP program that will be driven by the local communities. We urge the U.S. Environmental Protection Agency to approve the nomination of the St. Andrew Bay into the National Estuary Program. Thank you.

Sincerely,

Douglas E. Barr
Executive Director

DEB:em

February 26, 1995

Ms. Carol M. Browner, Director
U.S. Environmental Protection Agency
401 M Street SW
Washington, D.C. 20406

Dear Ms. Browner:

I am sending you, with my full endorsement, my nomination of the St. Andrew Bay system for inclusion in the National Estuary Program (NEP).

You will find that the St. Andrew Bay system is an excellent candidate for addition to the NEP. Our application describes the strong local support and proven commitment to implementation that will ensure the success of this project. Our state agencies have also demonstrated a willingness to provide assistance in this locally-motivated planning effort.

The St. Andrew Bay system is a 69,000-acre estuary in northwest Florida's panhandle. The Bay and its watershed are contained mostly in Bay County. The Bay is a relatively deep estuary with small tides, clear, very saline to fresh water. Its major source of freshwater inflow is spring fed. The Bay has large areas of seagrasses and fringing marshes, and its shoreline is etched with numerous bayous and lagoons. Overall, the Bay supports some 300 vertebrate species, 240 plant species, and 1,300 species of invertebrates. Biologically, St. Andrew Bay is probably the most diverse estuarine ecosystem in the northern Gulf of Mexico because of its large acreage of high salinity marine waters.

The St. Andrew Bay watershed covers approximately 1,144 square miles of pine forests, sandhills, lakes, wetlands, coastal beach sand dunes, and suburban and urban areas. A substantial portion of the land is federally owned and operated; the other largest land owner is timber companies.

There are five major problems associated with the St. Andrew Bay ecosystem. These problems have been grouped in the following areas of concern:

- Conservation and Management of Wetland Habitats and Vegetation.
- Inventory and Management of Faunal Resources.
- Evaluation of the Impacts of the Chemical Contaminants.
- Public Outreach and Education.
- Growth Management within the St. Andrew Bay ecosystem.

Management strategies must be developed to protect this valuable resource and the high species diversity that exists in the St. Andrew Bay system. Completion of a Comprehensive Conservation and Management Plan through the NEP for St. Andrew Bay will provide a number of tools that will assist not only the citizens of this watershed, but will also demonstrate the success of several pilot projects with applicability to all coastal systems in Florida and many in the United States. In addition, data synthesized and developed for the St. Andrew Bay system will be useful to the Gulf of Mexico program in addressing Gulf-wide issues.

The St. Andrew Bay system community epitomizes Florida's long history of individuals, groups, industry, and various governmental agencies cooperating and working together to identify problems, develop plans, and implement solutions. The Bay Environmental Study Team has initiated strategies to improve the effective management of the St. Andrew Bay ecosystem. This existing partnership has worked diligently to improve communication and coordination among all with a vested interest to the ecosystem. They are prepared to take the next step toward designing and implementing an adaptive management plan based on a shared vision for the system.

The State of Florida and the St. Andrew Bay system community commit to providing at least 25 percent of the matching funds for the next three years. The match is being made with both case and in-kind services. We look forward to working with the U.S. Environmental Protection Agency in convening a Management Conference, developing a detailed work plan and implementing the National Estuary Program in the St. Andrew Bay system in Florida.

Sincerely,

Lawton Chiles, Governor
State of Florida

LAWTON CHILES
GOVERNOR

STATE OF FLORIDA
Office of the Governor
THE CAPITOL
TALLAHASSEE, FLORIDA 32399-0001

March 7, 1995

Ms. Carol M. Browner, Administrator
U.S. Environmental Protection Agency
401 M Street, Southwest
Washington, D.C. 20460

Dear Carol:

I am pleased to submit four nominations from the State of Florida for designation by the Environmental Protection Agency to the National Estuary Program. Each of my nominations has clearly identified and prioritized the problems to be addressed and has strong support within the local communities and from estuary stakeholders. In addition, each is capable of utilizing a streamlined three year process to develop a comprehensive conservation and management plan. They are, in order: Charlotte Harbor, the Lower St. Johns River, St. Andrew Bay, and Lake Worth Lagoon.

Florida has many highly productive and valuable estuaries, and the four that I am nominating are prime examples of this. While they all have unique attributes and problems, I believe each of these estuaries is of the character and nature that would benefit greatly by inclusion in the EPA National Estuary Program.

Charlotte Harbor

Charlotte Harbor is the second largest estuary in Florida and the eighteenth largest in the Un ed States. The pressure of Southwest Florida's growth on this natural system is immense. The land and rivers of the Charlotte Harbor region are beautiful resources in their own right, and their natural resources, including extensive mineral deposits, are vital to the state's economy. As a member of the Florida Legislature more than 20 years ago, I introduced the first act controlling pollution of surface waters by the phosphate industry. The industry is a significant part of the region's past and future, and we are pleased with the cooperation they have shown toward being good neighbors.

I have been very impressed by the initiative of the people of the Charlotte Harbor region. Because of their activism, more of the mangroves, marshes, and natural uplands around the Harbor are publicly owned and protected than in any other Florida estuary. And nearly all of the Harbor, including Lemon and Estero Bays, are designated as Florida Aquatic Preserves.

The proximity of Charlotte Harbor to other NEP projects (Tampa Bay, Sarasota Bay, and the Indian River Lagoon), and several other of Florida's important resource management initiatives, is a strength of this nomination that deserves special attention. I am excited by the prospects of a Charlotte Harbor NEP interacting with the South Florida Ecosystems Program, and in a few years, with Florida's Ecosystem Management Initiative.

Lower St. Johns River

The St. Johns River is one of Florida's most important natural resources. Shallow coastal waters near the mouth of the river serve as the only known calving grounds for the right whale. Manatees winter at various springs and warm-water discharges along the river, and it is the region's most significant source for shrimp, menhaden, and blue crab. The St. Johns River area is considered the "bass capital" of the world and, at the same time, the Lower St. Johns River hosts a major deepwater port and three Naval facilities.

Physically, the Lower St. Johns River estuary is atypical of most estuaries in the region as well as the nation. The St. Johns is considered a "blackwater" system due to the high levels of tannins from the decomposition of vegetation coupled with suspended solids. The river has an extensive floodplain and a tranquil flow along a longitudinal slope that averages a mere 0.1 ft./mile. In addition, the St. Johns River estuary lacks an embayment at the seaward end. The combination of low relief from the river's headwaters to its mouth and the lack of an embayment results in an elongated estuarine zone compared to most estuaries.

In 1987, the Florida Legislature passed the Surface Water Improvement and Management (SWIM) Act mandating that the state's five water management districts develop and implement management plans to restore and protect ecological, aesthetic, recreational, and economic values associated with "priority water bodies." The Lower St. Johns River basin was one of six Florida water bodies assigned immediate priority status in the SWIM Act. The resulting SWIM plan can form a foundation for, and benefit from, project coordination efforts associated with the National Estuary Program.

St. Andrew Bay

The St. Andrew Bay system in Northwest Florida is another excellent candidate for addition to the NEP. The Bay is a relatively deep estuary with small tides and clear, very saline to fresh water. Its major source of freshwater inflow is spring fed. The Bay has large areas of seagrasses and fringing marshes, and its shoreline is etched with numerous smaller bays and lagoons. Biologically, St. Andrew Bay is among the most diverse estuarine ecosystems in the northern Gulf of Mexico because of its large acreage of high salinity marine waters. A substantial portion of the land surrounding the Bay is federally owned; the second largest land owner is the timber industry.

The St. Andrew Bay estuary currently does not suffer as significantly from population-related stresses. Silviculture, undevelopable marshland, and publicly-owned lands make up the majority of the watershed. Projections indicate, however, that the area will experience a 16 percent population gain by the year 2002. Sensitive shoreline and wetland areas are being converted to other uses without a clear understanding of cumulative ecological effects. The population is still relatively small, and tremendous opportunities exist for implementing comprehensive resource management strategies. The National Estuary Program would provide excellent context for examining future options with respect to wetland conservation, stormwater runoff, point source discharges, sediment contamination, and public outreach and education.

The St. Andrew Bay system community has a long history of individuals, groups, industry, and various governmental agencies cooperating and working together to identify problems, develop plans, and implement solutions. The existing Bay Environmental Study Team has initiated strategies to improve the effective management of the St. Andrew Bay ecosystem. This partnership has worked diligently to improve communication and coordination among all stakeholders, and they are prepared to take the next step toward designing and implementing an adaptive management plan based on a shared vision for the system.

Lake Worth Lagoon

The Lake Worth Lagoon is Palm Beach County's most important water resource. Historically, however, it has been one of the most abused and least protected water bodies in Florida. Originally, the Lake Worth Lagoon was entirely freshwater except for the occasional breach by ocean waves during heavy storm conditions. Over the last 100 years, permanent inlets were constructed that dramatically changed Lake Worth into an estuary.

The Lagoon and surrounding estuary are extremely important in terms of recreational value and use, especially in light of the fact that Lake Worth is situated entirely within an urban setting. This estuary is unique in that it is located within the transitional subtropical climate. It lies in close proximity to the offshore Gulfstream which has resulted in an unusual diversity of species. The inlets allow oceanic water carrying a wide array of plankton, including hard and soft corals and many species of fish, to enter the Lagoon and colonize.

One source of freshwater inflow to the Lagoon is the Loxahatchee River, which has been federally designated as a "wild and scenic" river and together with the Little Lake Worth Creek is a state designated Aquatic Preserve. Other freshwater sources are five drainage canals from the Central and South Florida Project, a federal public works project maintained by the Army Corps of Engineers and the South Florida Water Management District. The basins that drain into the Lagoon include extensive agricultural areas. An NEP at Lake Worth Lagoon could assist with the coordination needed to insure that any future "replumbing" of

the federal project will be managed to improve the overall health of not only the Everglades but Lake Worth Lagoon as well.

As you can see, I am proud that I am able to recommend four outstanding areas to the National Estuary Program. It is difficult to prioritize these because each is unique and valuable to their respective areas. However, this is my responsibility and, at this time, I would prioritize them in the order I have described them above: Charlotte Harbor, Lower St. Johns River, St. Andrew Bay, and Lake Worth Lagoon. I am on record as supporting both Charlotte Harbor and the Lower St. Johns River in previous communications. St. Andrew Bay and Lake Worth Lagoon are highly capable "newcomers." All three of our existing NEP's have completed or are within a year of completing their comprehensive conservation and management plans. As such, it is an excellent time to utilize our resources and experience to add other successful estuaries to the National Estuary Program.

The State of Florida and the respective local governments are fully prepared to seek the necessary 25 percent match accompanying any NEP designation. In addition, Ms. Virginia Wetherell, Secretary of the Florida Department of Environmental Protection, supports these nominations. Her letter will be provided to you under separate cover.

Let me take this opportunity to invite your staff to Florida as part of the review. In addition please contact Mr. Estus Whitfield of my staff at (904) 488-5551, or any of the local and state agencies associated with these nominations, if you would like to discuss this further.

I sincerely appreciate the opportunity to make nominations to this important program.

With kind regards, I am

Sincerely,

LAWTON CHILES

LC/msr

cc: Virginia Wetherell, Secretary, Florida Department of Environmental Protection
Wayne Daltry, Southwest Florida Regional Planning Council
Kumar Mahadevan, Director, Mote Marine Lab
Bill Watkins, St. Johns River Water Management District
Richard E. Walesky, Director, Environmental Resources Mgmt., Palm Beach County
Douglas Barr, Executive Director, Northwest Florida Water Management District
Robert Perciasepe, Assistant Administrator, U.S. EPA

TABLE OF CONTENTS

TABLE OF CONTENTS
(continued)

LIST OF FIGURES

LIST OF TABLES

SECTION 1

EXECUTIVE SUMMARY

Vision: to maintain and restore a healthy St. Andrew Bay ecosystem for the benefit of all people.

Since 1987, the St. Andrew Bay Environmental Study Team (BEST) has met to share information on the natural resources of the bay and to address cumulative concerns for the ecological integrity of the bay. The BEST is composed of representatives of local industry, civic organizations, educational institutions, and government agencies. The mission of BEST is to evaluate the status of St. Andrew Bay, identify problems, and initiate corrective actions. Goals include improving coordination and communication, providing information to decision makers, and public education.

The goals and objectives of BEST parallel the National Estuary Program (NEP). The purpose of the program, sponsored by the U.S. Environmental Protection Agency is to assist communities in restoring the health of their estuaries while supporting economic and recreational activities. The framework for the NEP is a collaborative process involving local officials, technical experts, citizens, resource managers, and interest groups. The local program is to identify major environmental problems in their estuaries, decide what needs to be done, and develop comprehensive conservation and management plans (CCMP) to carry out the needed work for effective, sustainable resource management.

Our vision to maintain a healthy bay ecosystem could be imperiled if growth projections are realized in the next decade. In this regard, the Florida Department of Environmental Protection (FDEP) has identified this system as threatened. Selection of St. Andrew Bay as a National Estuary Program will allow the BEST to expedite its objective of integrating adaptive ecosystem management in the local comprehensive planning process. The following briefly summarizes the nomination for the NEP for the St. Andrew Bay ecosystem.

1.1 NATIONAL SIGNIFICANCE

- ***The Bay:*** The St. Andrew Bay system is a 69,000 acre estuary in northwest Florida's panhandle. Overall it is one of the more diverse bays in North America. It is a relatively deep estuary with small tides, clear, very saline to nearly fresh water. The major sources of freshwater inflows are from spring fed streams. Poor flushing action makes it vulnerable to anthropogenic contamination. The bay has large areas of seagrasses and fringing marshes.

  Over 2,100 marine dependent species have been recorded for this bay system. The largest seagrass stock in the Florida panhandle is in the St. Andrew Bay system. The diversity of habitats in the bay system provides essential spawning and nursery habitats for a variety of recreationally and commercially valuable species of finfish and shellfish. The dune and beach ecosystems include rare and federally protected species such as the snowy plover, threatened piping plover, threatened loggerhead sea turtle, endangered green turtle, and endangered Choctawhatchee beach mouse.

  The watershed of the estuary is entirely within the State of Florida. It covers approximately 732,275 acres of pine forests, sandhills, lakes, wetlands (composing more than 50,000 acres), coastal beach sand dunes, suburban, and urbanized areas. The majority of the watershed is Bay County (62 percent), followed by the counties of Gulf (18 percent), Washington (10 percent), Calhoun (4 percent), Walton (4 percent), and Jackson (2 percent). Most of the watershed is in silviculture. Urban areas compose about 5 percent of the area and include over 134,000 residents.

  The major economic components depending to some extent or entirely on the bay natural resources are: tourism and recreation, commercial and recreational fishing, industry/marine commerce, silviculture, and the military. The dominant factor in the local economy is tourism. The retail and

service companies employ the largest group of people. The U.S. Department of Defense is the largest single employer.

Area tourism is based on the relatively pristine beautiful environment of the Gulf of Mexico and the bay system. The St. Andrew Bay State Recreation Area alone averages 750,000 visitors annually, one of the top Florida parks in visitation. About 39,000 saltwater fishing licenses were purchased in Bay County, making it the highest number in the panhandle and the fifth largest in the state. Bay county was also fifth in Florida in commercial fish landings in 1992.

St. Andrew Bay has several protected port facilities. The area has more than 90 small and large manufacturers. Both Tyndall Air Force Base and the Coastal Systems Station are within the watershed and depend on the bay and Gulf for training exercises.

- ***Priority Issues:*** Bay County has been identified as an area expected to grow substantially in the next decade. The current growth rate is about 2 percent annually, more than double the national average. Historic growth has occurred without a clear understanding of the cumulative ecological effects. Wetlands and seagrasses have been converted to other uses. Certain areas of the bay have contaminated sediments from former industries and urban runoff. Harvests of commercial and recreational fish and shellfish have decreased.

- ***Transferability:*** Inclusion of St. Andrew Bay in the National Estuary Program will demonstrate the success of a number of innovative techniques including the organizational structure itself. The vision of the existing St. Andrew Bay Environmental Study Team (BEST) is to "maintain and restore a healthy St. Andrew Bay ecosystem for the benefit of all people." The key to the success of BEST is the intersection of the key ingredients for adaptive resource management: citizens/stakeholders, policy makers, scientists, and resource managers.

  The BEST will demonstrate how the NEP Comprehensive Conservation and Management Plan (CCMP) can be integrated in the Florida local comprehensive planning process to maintain a healthy estuarine ecosystem. Tools that others will find useful are a wetlands/property title data base, wetland status and trends information, a design for long-term resource monitoring, a process to integrate stormwater planning across political boundaries, and a program for public outreach using the community college system and high school academies. Information will be shared with other estuaries through use of bulletin board systems and distribution of reports. Some initial coordination on the BEST approach has already occurred with citizens in the St. Joseph, Choctawhatchee, and Pensacola bay systems.

1.2 NEED FOR NEP APPROACH

Efforts to conserve and manage the important resources of the St. Andrew Bay system became more active and complex with the state and federal regulatory programs of the 1960's and 1970's. Planning and regulation have become fragmented and increasingly complex. The state through its water quality assessment programs continues to classify the bay system as a threatened resource due to increased pollution. Although the watershed is entirely within one state and mostly within one county, (14) separate local political entities make decisions that affect the bay. This is in addition to the various state and federal agencies. The NEP will assist the local community to integrate as many of the plans as possible to seek common solutions for protection of the bay.

1.2.1 Major Environmental Problems

Five top priority problems to be addressed by a CCMP were identified through a BEST consensus building exercise. These include: conservation and management of wetland habitats and vegetation, inventory and management of faunal resources, minimizing the impacts of chemical contaminants (urban stormwater runoff, point sources), public outreach and education, and growth management.

The CCMP will provide all the steps that are necessary to solve these problems and protect the ecological integrity of the bay system. Several specific tools will be developed to address the priority problems.

A vegetation evaluation and geographic inventory (VEGI) system will organize existing wetland information to address potential solutions to reduce wetland degradation in the system. Bay inventory of populations and species information (BIOSP)) will be used to evaluate the status and ecological integrity of the estuarine system. The stormwater inventory monitoring and management (SWIMM) system will provide the elements for a comprehensive stormwater plan that protects the estuarine system. The point source inventory and pollutant evaluation system (PIPES) will evaluate the need to eliminate or reduce significant point sources. The diversified estuarine education program (DEEP) will assess public outreach needs of the watershed and develop specific outreach materials and a volunteer network to inform the public of the primary problems.

Implementation of actions recommended by the VEGI, SWIMM, PIPES, BIOSP, and DEEP will be addressed by the estuarine management implementation and technical support (EMITS) system. This system will describe workable methods and procedures for politically and socially integrating and implementing on the ground solutions.

1.2.2 Institutional Arrangements

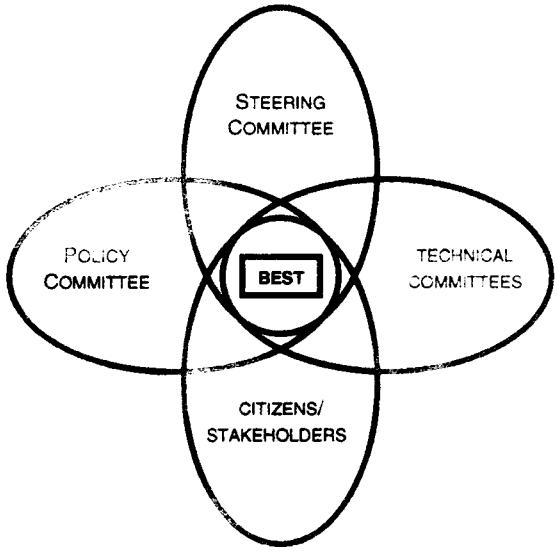
Many federal, state, and local agencies as well as local industry, business, and civic organizations participate in the management of the bay's natural resources. Currently, BEST is the only coordination mechanism for all the institutions described. None of the institutions have fully implemented a watershed approach to managing the bay ecosystem.

1.3 LIKELIHOOD FOR SUCCESS

The St. Andrew Bay Environmental Study Team (BEST) will be the core of the St. Andrew Bay National Estuary Program. The primary purpose of the St. Andrew Bay NEP will be to identify resource management alternatives and develop an action plan to integrate adaptive ecosystem management within the Florida Local Comprehensive Planning process. The NEP will bring bay stakeholders together to both understand the complexities of the bay ecosystem and to chart a shared vision course of action.

1.3.1 Management Conference Participants

The philosophy of BEST is that successful resource management requires the presence of four key ingredients - citizens and stakeholders, policy makers, resource managers, and scientists. The success of the Comprehensive Conservation and Management Plan will depend upon a strong intersection of all four of the key ingredients. This intersection is what we think of as the BEST organizational structure. In addition, the activities of BEST will be facilitated through a private, nonprofit trust designated to support the mission of BEST. The trust will receive gifts, grants, or property from public or private sources.



The core of the NEP management conference will be the existing BEST organization including the ***Steering Committee*** and the five Technical Committees. The Steering Committee manages the activities of BEST and is composed of industry, civic organizations, academia, local government, state government, and federal government representatives. Each chair of the technical committees are a part of the Steering Committee. The Steering Committee will oversee the drafting of the CCMP and developing the program budget. ***Technical Committee*** membership is open to all interested in the various issues: wetlands conservation, contaminants, resource inventory, public outreach and growth management. The Technical Committees will draft the initial action plans.

Two additional committees will be formed. BEST will build on its citizen involvement by developing stakeholder groups for industry, tourism, small business, commercial and recreational fishing, developers, conservation and sport organizations, and government officials. Each stakeholder group will clarify issues of concern and potential alternative solutions. Two representatives from each stakeholder group will be selected to form the ***Citizen's Advisory Committee***. This committee will work closely and may participate in many of the Technical Committee activities.

A ***Policy Committee*** will be appointed by government agencies with significant direct authority to manage natural resources of the estuarine ecosystem. Members will include a representative from Bay County, Panama City, Lynn Haven, the League of Cities (representing the remaining cities), the Regional Planning Council (representing the remaining counties), the Northwest Florida Water Management District, Florida Department of Environmental Protection, Florida Department of Community Affairs, the U.S. Environmental Protection Agency, and the U.S. Army Corps of Engineers. The Policy Committee will be co-chaired initially by Bay County, the Water Management District, and USEPA. The Chairman of the Steering Committee and the Citizen's Advisory Committee will be ex-officio members. The Policy Committee will approve the CCMP for public release and will review and approve all significant expenditures recommended for implementation of the CCMP.

- ***Management and Oversight:*** The CCMP will be developed in three years. The Northwest Florida Water Management District will be the managing and administrative entity. The BEST Steering Committee has identified a need for a core staff consisting of a Plan Coordinator, an Outreach Specialist, and GIS Data Base Manager.

- ***Political Will/Commitment***: The Governor of Florida has nominated St. Andrew Bay for the National Estuary Program at the recommendation of the Secretary of the Florida Department of Environmental Protection. This nomination is supported by the Honorable Pete Peterson, U.S. House of Representatives, Representative Scott Clemons, Florida House of Representatives,

Senator Robert Harden, Florida Senate, the cities of Panama City, Lynn Haven, Panama City Beach, Callaway, Springfield, Cedar Grove, Mexico Beach, and Parker, and Bay County.

Matching funds will come from commitments of cash received from the City of Panama City, City of Panama City Beach, Lynn Haven, local industry sponsors, and in-kind contributions through the services of Gulf Coast Community College, Northwest Florida Water Management District, BEST, non-federal members and other local government sponsors.

- ***Public Support:*** Through the activities of BEST, local conservation organizations, the community college, and the local newspaper, the issues surrounding management of St. Andrew Bay have been identified and discussed in open public forums.

  Additional letters of support have been received from the Organized Fisherman of Florida, [industry], League of Women Voters, St. Andrew Bay Resource Management Association, Audubon Society, Save Our Shores, Coastal Systems Station and U.S. Fish and Wildlife Service.

  The BEST will seek to expand public involvement with the addition of the stakeholder groups and the Citizen's Advisory Committee. A public outreach strategy (DEEP) has been identified as one of the priority issues to be addressed in the CCMP. The BEST framework will remain active during the implementation phase of the CCMP.

  The BEST looks forward to forging strong partnerships to achieve its vision to maintain and restore a healthy St. Andrew Bay ecosystem for the benefit of all people. As members of this community, the BEST also looks forward to a healthy and viable economy. We strongly believe that the two visions can co-exist so that future generations can enjoy all the splendors of St. Andrew Bay.

SECTION 2

NATIONAL SIGNIFICANCE

2.1 GEOGRAPHIC SCOPE

2.1.1 The St. Andrew Bay System

The St. Andrew Bay system is a 69,000 acre estuary in northwest Florida's panhandle. The bay and its watershed (Figure 1) are contained mostly in Bay County, whose largest municipality is Panama City, located approximately 100 miles southwest of Tallahassee.

The St. Andrew Bay System is large, extending approximately 31 miles along an axis parallel to the Gulf of Mexico and 13.5 miles inland to Econfina Creek, its major freshwater source. The bay is relatively deep, averaging 17 feet and a maximum depth of 65 feet. The Bay has 6,631 acres of seagrasses and 10,331 acres of coastal marshes, and its shoreline is etched with many bayous and lagoons. Overall, the Bay supports some 300 vertebrate species, 224 plant species, and upwards of 1,567 species of invertebrates.

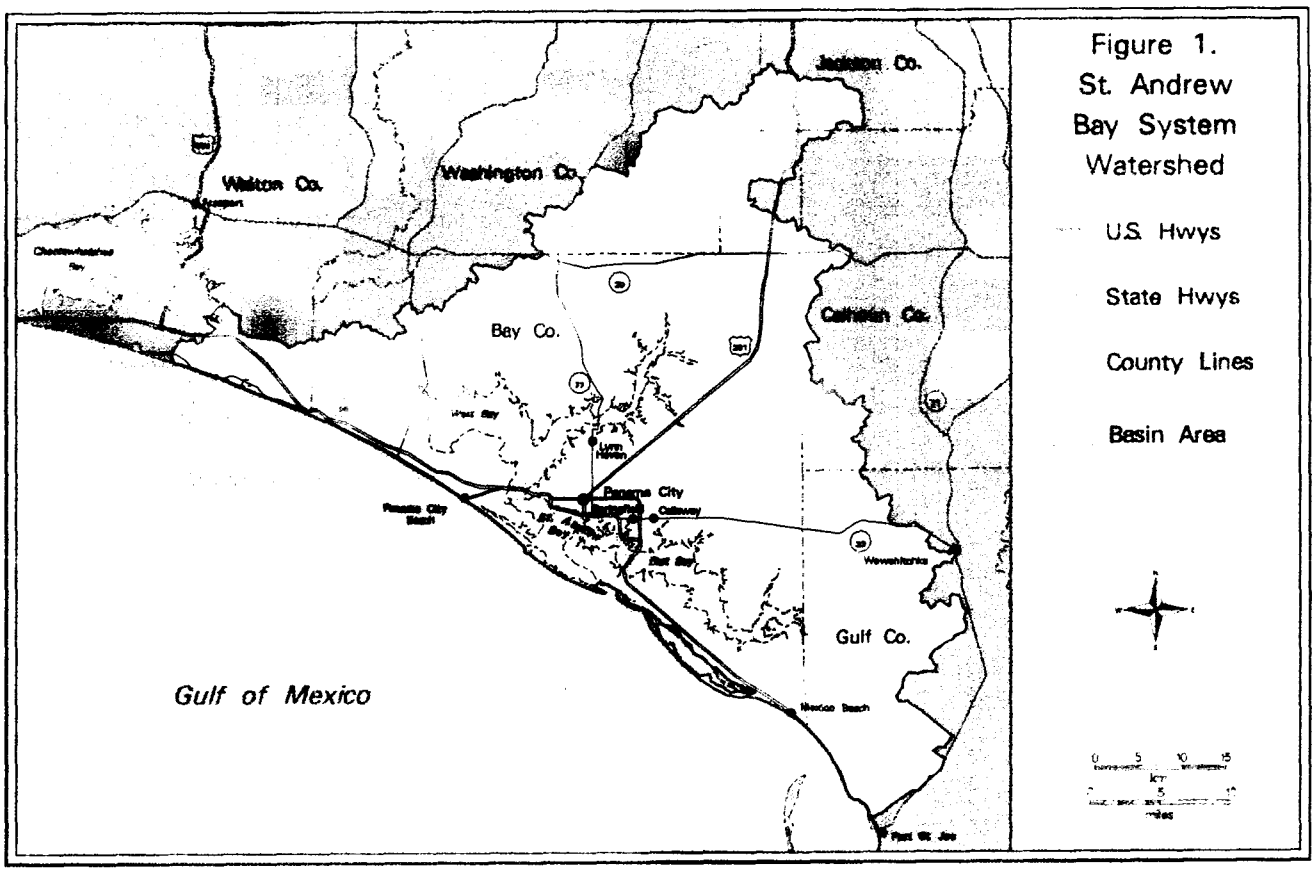
Four interconnected coastal estuaries make up the St. Andrew Bay system: North Bay, West Bay, East Bay, and St. Andrew Bay proper, which connects to the Gulf of Mexico via two passes. East Pass was historically the bay's only inlet. In 1934, a shipping channel was dredged through a portion of a narrow peninsula framing the bay's harbor, turning the tip of the peninsula into a barrier island called Shell Island. This channel, West Pass, today carries half to two-thirds of the tidal flow. The bay is transected by the intracoastal waterway with entrances on the west edge of West Bay and the east edge of East Bay.

The St. Andrew Bay system is fed with an average 1,460 cfs of fresh water, 60 percent of which comes primarily from primary tributaries, Econfina and Bear creeks. Water from these creeks pass through the Deer Point Lake reservoir into North Bay. Other inflows are from smaller tributaries which flow into East and West bays and from drainage runs immediately adjacent to the bay.

Throughout the estuary, salinities are generally highest in February and lowest in April. Bottom and mid-water salinities typically exceed 30 parts per thousand (ppt) year-round. Following heavy rainfalls, salinity frequently falls below 10 ppt in the upper reaches of the bay system. Measurements show a stratified water column with colder, more saline water found at mid-depth and near the bottom of the water column during the summer. On average, water quality is high. Dissolved oxygen typically exceeds 7.0 mg/l. Tidal oscillations are chiefly diurnal in period, small in amplitude, and susceptible to modification by wind and weather. East Bay and the northern portions of West Bay that are furthest from the Gulf and river inflows are the most poorly flushed parts of the estuarine system. There are concerns that pollutants generated in these areas may have a cumulative impact and may never reach the lower portions of St. Andrew Bay.

2.1.2 The Watershed

The St. Andrew Bay watershed is entirely within the State of Florida. It covers approximately 732,275 acres of pine forests, sandhills, lakes, wetlands (composing more than 50,000 acres), coastal beach sand dunes, suburban and urbanized area. In support of a comprehensive management strategy, the entire watershed is included in the study area. Bay County makes up the majority (457,226 acres) of the watershed. Portions of adjoining counties are located at the upper reaches of the St. Andrew Bay watershed: Calhoun (26,743 acres within the watershed), Jackson (18,111 acres), Gulf (134,249 acres) and Washington (70,191 acres). Walton County (25,755 acres) is located to the far west of the bay along the coast.



The region is underlaid by sediments of sands and gravels with dispersed lenses of clay on top of the relatively deep limestones of the Floridan Aquifer. The Floridan Aquifer discharges ground water to Econfina Creek through numerous springs where the creek is incised into the aquifer. The upgradient aquifer recharge area and the origin of a majority of the creek flow is centered in southeastern Washington County and northern Bay County.

Silviculture by far outranks all other land uses in the watershed. In 1990, in Bay County alone, forested areas covered about 350,000 acres, or 80 percent of its unincorporated land area. The next highest category of land use consists of tidal marshes, floodplains, and large wetland areas not suitable for development. Conservation areas in public ownership at 47,000 acres comprise the third major category. Tyndall Air Force Base alone covers nearly 29,000 acres of the county's Gulf coastline, most of it undeveloped, and the Coastal Systems Station on the west shore of St. Andrew Bay covers 665 acres.

Trailing these major land uses are residential, recreational, commercial, industrial uses and roads. In the unincorporated area of Bay County, these uses together make up about five percent of the land area. The county's largest industry is the Stone Container Corporation and Arizona Chemical Company complex, which produces paper products and byproducts and is located on the northern shore of St. Andrew Bay in unincorporated Bay County. Table 1 summarizes land uses in the watershed area as a

Table 1. Land Uses in the St. Andrew Bay Watershed

Silviculture	74.6%
Floodplain/Wetlands	8.3%
Public/Conservation*	6.4%
Urban	5.7%
Cropland/Pasture	3.0%
Lakes/Streams	2.0%

*Includes Tyndall Air Force Base

percentage of total. Most of the commercial and residential areas are clustered in eight incorporated areas in the southern portion of Bay County adjacent to St. Andrew Bay and a narrow strip of development along the Gulf. Incorporated areas in Bay County cover some 24,000 acres. These cities and their populations are listed below.

City	1993 Population
Callaway	13,504
Cedar Grove	1,501
Lynn Haven	10,050
Mexico Beach	1,013
Panama City Beach	4,341
Panama City	35,914
Parker	4,834
Springfield	9,051

Bay County's total population is approximately 134,000.

All of the smaller sub-basin boundaries and basic hydrographic features of the study area are outlined as GIS overlays in Figures 2 and 3. The most intensively studied portion of the study area to date has been the Deer Point Lake Watershed, which is being used as a principal source of freshwater supplies for public and industrial uses as well as the primary source for the estuary. It covers 282,880 acres in the northern, rural portion of the St. Andrew Bay watershed.

2.1.3 Study Area Problems

The impacts of population growth and development in the study area are key concerns for the ecological well-being of the Bay system. The county population is growing at a rate of about 2 percent annually, more than double the national average. Bay County has been identified as a county that will gain substantially in population over the next decade: mid-range projections by the University of Florida's Bureau of Economic and Business Research predict the county will experience a 16 percent gain in population between 1992 and 2002.

Sensitive shoreline and wetland areas are being converted without a clear understanding of cumulative ecological effects or coherent planning within and among the watershed's political entities. At the same time, opportunities for implementing coherent growth management strategies are great. The county's population is still relatively small and large portions of the shoreline, especially in West Bay, are undeveloped. Intact wetlands exist and timber holdings are just starting to be converted to other uses such as suburban development. The major issues that need to be addressed in the study area in the

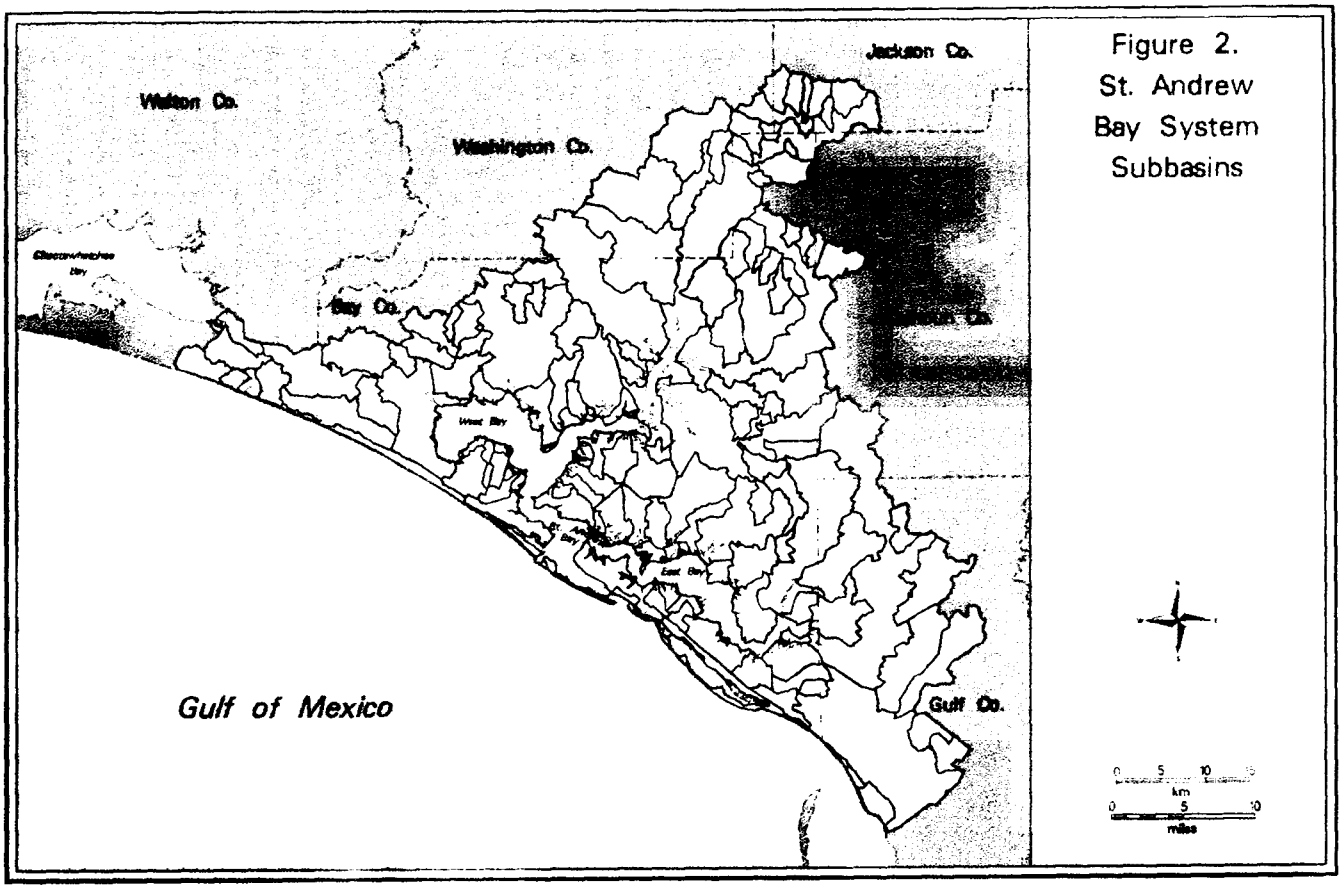


Figure 2.
St. Andrew
Bay System
Subbasins

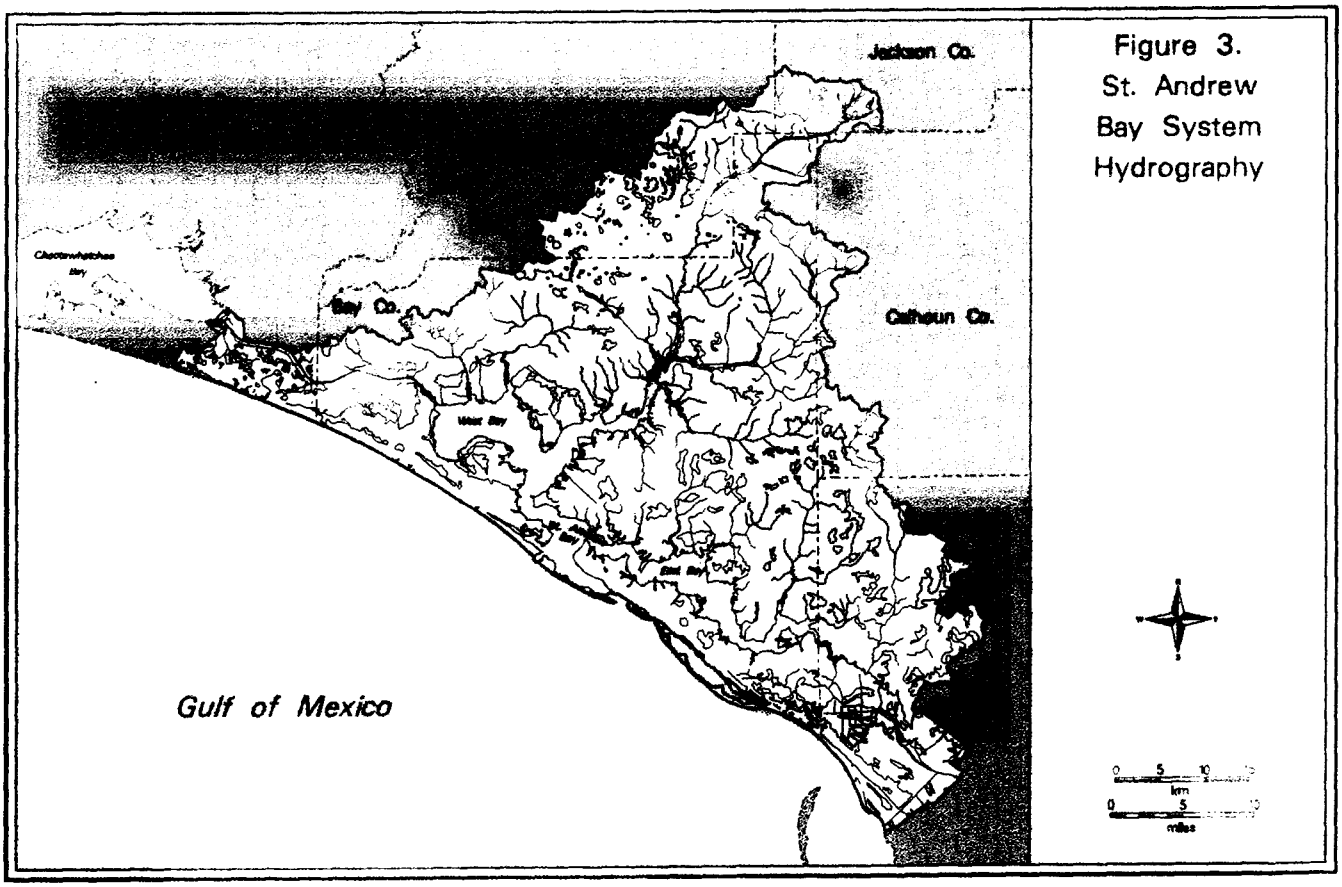


Figure 3.
St. Andrew
Bay System
Hydrography

context of future growth are wetlands conservation, stormwater runoff, point source discharges, sediment contamination, and public outreach and education.

2.2 ST. ANDREW BAY ESTUARINE VALUES

St. Andrew Bay is highly significant to the local, regional and national economies due to its uses for industry, military and tourism. Biologically, St. Andrew Bay is probably the most diverse estuarine ecosystem in the northern Gulf of Mexico due to its large acreage of high salinity marine waters.

2.2.1 Economic Significance of the Bay System

St. Andrew Bay is the primary reason for the existence of Bay County and its municipalities. The abundance of marine life in the Bay, and climate were the initial attractions for the native Americans, and started the basis for what Bay County is today. The major economic categories in the area are tourism, silviculture, trades, services, manufacturing, construction, fishing (commercial and recreational), and the military. Retail trade and service companies employ the largest group of people. The largest single employer is the U.S. Government.

- ***Ecological Health: The Critical Key for Survival:*** All of the economic activities described below are dependent in some way on the ecological health of the Bay. For many activities such as human water-contact sports and harvest of living resources, such dependence is obvious. For other activities the link may not be quite as clear. However, both military bases rely on quality estuarine conditions for many of their tests. Other economic interests such as waterfront restaurants and motels provide beautiful views of the Bay for visitors. Educational institutions use the Bay as one of the best examples of a high diversity estuary on the entire U.S. coast. Even industries, such as the area's power plant, require high quality water for their cooling intake needs. Maintaining the ecological quality of St. Andrew Bay is solidly linked to the economy of Bay County and northwest Florida.

- ***Tourism/Recreational Activities:*** Three million visitors came to Panama City Beach in 1994. The metropolitan statistical area Panama City, had $448.9 million in tourist/recreation taxable sales in 1993. The Tourist Development tax collection (bed tax) resulted in $2.37 million in 1993, indicating a four to five percent increase per year for Panama City Beach (Tourist Development Council 1995). At the end of 1991, 3,407 businesses in Bay County reported payrolls for approximately 58,700 employees. Of this figure, 32,000 were employed in the retail and service industries (BEST 1993).

  The tourism is based on the relatively pristine and beautiful environment of Bay County. The clear, emerald green Bay and Gulf waters, and white sandy beaches are the outstanding features of the area. The 27 miles of beach and 69,000-acre clear water estuary system provide a multitude of water-related activities including boating, fishing, island hopping, snorkeling, scuba diving, shell collecting, swimming, parasailing, jetskiing, and windsurfing. Many visitors come to the beach just to relax and enjoy the scenery (Bay County Chamber of Commerce 1995; Tourist Development Council 1995). Finally St. Andrew Bay and the Gulf of Mexico affords an exceptional experience in snorkeling or scuba diving.

  St. Andrews State Recreation Area has consistently been the fourth or fifth most visited park in the state of Florida, with approximately 750,000 visitors annually. Private concession boats accommodate an additional 200,000 people (per year) to Shell Island which is partially owned by the State Recreation Area. The money spent by these visitors for fishing, boating, diving, etc., and for food and accommodations is vital to the local economy.

- ***Fishing:*** The value of estuarine habitats, such as St. Andrew Bay, becomes apparent when one learns that over 90 percent (by weight) of all commercial fishery landings and about 70 percent of all recreational catches in the Gulf of Mexico consist of species that are dependent on estuaries like St. Andrew Bay for completion of their life cycles (Nakamura 1985).

Evidence of the importance of recreational fishing to Bay County includes two fishing piers located on the Gulf at Panama City Beach and six annual fishing tournaments for billfish, king mackerel, cobia, spotted seatrout, sharks, and spearfishing. In Bay County, approximately 39,000 saltwater fishing licenses were purchased from the Bay County tax office in 1993. Based on saltwater fishing license data and U.S. Fish and Wildlife Service's estimates, expenditures for saltwater fishing trips are estimated between $15-20 million per year. Bay County had the highest number of licenses sold in the panhandle and had the fifth highest license sales (excluding snook licenses) in the state (FDEP 1995). Also, approximately 14,000 boats for recreational use were registered locally according to the Bay County Tax office in 1993, Most of these boats are used for at least occasional marine boating and fishing activities.

St. Andrew Bay supports a substantial fishing industry for mullet, shrimp, blue crab, and many other species. Bay County ranked in the top five among Florida's 37 coastal counties in terms of commercial fishery landings in 1992. This accounted for 11 million pounds of finfish and shellfish worth over $12 million. Over 60 species of finfish and shellfish are landed by commercial fishermen in Bay County. The top ten species taken in 1992 included ladyfish, round scad, yellowfin tuna, menhaden, Spanish sardines, blue runner, shrimp, oysters, mullet, and blue crabs according to state landings data (FDEP).

Another aspect of commercial fishing is Bay County's charter boat fishing industry. The industry contributes untold millions of dollars directly, through purchases of fuel, bait supplies, and jobs; and indirectly through lodging, food, and transportation. The charter boats operated from Bay County accounted for approximately six percent of all the charter boats in Florida (Atlantic and Gulf coasts) and 29 percent of the charter boats in the panhandle (Holland and Milon 1989, Nakamura 1985, Albertson 1992). Target fish species from the charter/party boats are snapper, grouper, amberjack, dolphin, cobia, king and spanish mackerel, and shark (Holland and Milon 1989).

- ***Industry/Marine Commerce:*** St. Andrew Bay provides many protected harbor facilities. Port Panama City is a 130-acre, deep water port located directly on St. Andrew Bay. In 1991, the port handled exports of 512,000 tons with a value of $205 million and imports of 42,000 tons with a value of $48 million (BEST 1993). These figures do not take domestic traffic into consideration, nor do they represent net economic benefit to the area. Exports of pulp, paper, and paperboard from local paper mills include 86 percent of Foreign Commerce from the Port of Panama City. Other major activities include imports of coal, steel plates and iron (U.S. Army COE 1994). Stone Container also has port facilities for transport of liner board. This company is the largest private employer in the area. Other major industries using the bay include: Arizona Chemical Company, Wellstream, and Gulf Power.

- ***Silviculture:*** The silvicuture industry contributes to the Bay County economy. At least 350,000 acres of private lands in the watershed are dedicated to forestry production. Main softwood and hardwood forest products include saw logs and pulpwood composing. In 1993, there was 580 mill employees earning wages of $29 million.

- ***Military:*** The two military bases, Tyndall Air Force Base (AFB) and the Coastal Systems Station are located here because of the availability of the waters. Tyndall AFB is situated on 29,000 acres surrounded by East Bay, St. Andrew Sound, and the Gulf of Mexico. A major function of the base is to train F-15 Eagle pilots in air superiority skills. Access to the ocean waters is a major requirement for conducting training. Approximately, 5,000 military and 1,700 civilian personnel are employed at Tyndall AFB. Total economic impact in the local area was $304.7 million in 1993. The Coastal Systems Station is located on 665 acres along St. Andrew Bay and is a major research and development facility in support of naval operations such as amphibious missions, swimmer operations, diving and salvage, and mine countermeasures. The Naval Diving and Salvage Training Center is headquartered at the Station. The Station employs 1,300 military and 1,300 civilian personnel contributing $228.6 million annually to the local economy. The Coast Guard also has a facility adjacent to the Station.

2.2.2 Living Resources of St. Andrew Bay

Biologically, St. Andrew Bay could be one of the most diverse estuarine ecosystem in the U.S. because of its large acreage of high salinity marine waters (BEST 1993). A review of the literature reveals 80 publications and other works that mention directly or discuss species that occur in the St. Andrew Bay system which have been examined to date. No other areas along the gulf coast have been found to have as much biodiversity.

- ***Fauna:*** The literature reports 224 species in 143 genera occur in the Bay system, including 121 species of phytoplankton, 68 species of periphyton, 24 species of macrophytic algae, and 12 species of angiosperms. The majority of studies reported are from the St. Andrew Bay portion of the estuary where most studies of development have occurred. There are additional reports in the marsh areas and upper bay areas.

- ***Invertebrates:*** The total number of invertebrates reported from the entire St. Andrew Bay marine system to date is 1567. The most intensively studied animals belong to the macrobenthic infaunal community and the epibenthos. The Arthropoda, Annelida, and Mollusca account for the vast majority of the species reported from the bay. The diversity of invertebrate species in St. Andrew Bay is high; therefore, managing the system to maintain this diversity is important to the overall quality of the bay. A number of invertebrates in the bay are of commercial and/or recreational importance. Species harvested commercially and/or recreationally from the bay include oysters, blue crab, shrimp, bay scallops, clams, and stone crabs. Sea urchins have also been harvested commercially from the bay.

- ***Vertebrates:*** The list of finfish reported from the St. Andrew Bay marine system contains 217 species in 150 genera. Of the 217 species present, 65 species are considered to be of value to the recreational fishing industry and 25 species are considered to be of value to the commercial fishing industry. This diversity of species reflects the varied habitats and food webs within the bay. It is crucial that the system be managed to maintain this diversity.

  The number of species of reptiles reported from the bay or the adjacent land is seven. The avian fauna of St. Andrew Bay varies with the season. Approximately 86 species in 51 genera are considered to have a direct dependence on the estuarine system. This is not a complete total of birds from the St. Andrew Bay area. A single species of mammal is listed from the bay, the bottle-nosed Dolphin (Tursiops truncatus). Other mammals are present such as otter, raccoon, deer, bobcat etc., but are not considered to be directly dependent on the estuarine system.

  In summary, the inventory of the fauna of the St. Andrew Bay system reveals that 2,103 species of plants and animals in 1,147 genera have been reported from the system. The Indian River lagoon of the east coast of Florida is reported to have one of the highest number of species known for any North American estuary (2,976). Additional studies in St. Andrew Bay could bring the number of species known close to that of the Indian River. The vast majority of the studies performed in St. Andrew Bay have occurred south of the Hathaway Bridge and in a the lower part of East Bay. Therefor, additional studies in the other parts of the system will likely show an even greater biodiversity of the system (Keppner, pers. comm.).

- ***Spawning, Nursery and Natural Production Areas within the Bay:*** Many of the most important commercial fish and invertebrates spawn in the Bay or use it as a nursery area for their larval, juvenile or subadult forms. Natural production areas include seagrasses for scallops and gag grouper, brackish areas of oysters, inlets and channels for redfish and seatrout, tidal flats for flounder, and a variety of habitats for blue crabs and commercial shrimps. Because of the diversity of habitats and salinities within the St. Andrew Bay system, literally dozens of other important species have also been scientifically documented as utilizing the Bay's resources. No other coastal embayment on the Gulf of Mexico coast has been observed with as wide a range of habitats and micro-habitats as does St. Andrew Bay.

- ***Endangered Species:*** Several Federal and State endangered or threatened species are dependent upon and utilize the St. Andrew Bay ecosystem including the bald eagle; least tern; loggerhead, leatherback, green and ridley sea turtles; and the Choctawhatchee beach mouse. The American

alligator and brown pelican are two formerly-listed species that have recovered their population numbers, in part because of the resources the Bay provides. Bald eagle reproduction occurs at, at least, two sites adjacent the Bay, and the eagles have been observed feeding in the Bay and its tributary waters. Least terns nest in locations associated with the Bay's barrier island system. Loggerhead sea turtles nest on the beaches of Shell Island and subadult turtles regularly utilize the Bay, as do ridley, leatherback and occasional green turtles. The Choctawhatchee beach mouse resides on the Bay's barrier island.

2.2.3 Biological Habitats within the St. Andrew Bay Ecosystem

The diversity of habitats within St. Andrew Bay provides essential spawning and nursery habitat for a variety of recreationally and commercially valuable species of finfish and shellfish.

- ***Dune and Beach Ecosystem:*** These systems provide wildlife functions and values such as nesting, resting, and feeding habitat for migratory and resident birds including shore birds; feeding and burrowing sites for small crustaceans; and nesting habitat for sea turtles. Of particular note is the use of these habitats by the federal candidate and state-listed threatened species, southeastern snowy plover (*Charadrius alexandrinus tenuirostris*) for nesting, and the federal and state-listed threatened, piping plover (*C. melodus*) for wintering (Gore and Chase 1989, Nicholls 1989, Haig and Plissner 1992). Two species of sea turtles are known to nest along the panhandle of Florida; the threatened loggerhead (*Caretta caretta*) and endangered green turtle (*Chelonia mydas*). Since 1991, when intensive sea turtle nest monitoring began on Panama City Beach, an estimated annual average of 19 sea turtles have nested on the beaches from the west boundary of the St. Andrews State Recreation Area (SRA) to Phillips Inlet. The nesting density is approximately one nest per mile of beach (Watson 1991, 1993, 1994). Also present is the Choctawhatchee beach mouse (*Peromyscus polinotus allophrys*), listed state and federally-endangered. Critical habitat has been designated in the Shell Island at St. Andrew Bay where the mouse is presently distributed (U.S. Fish and Wildlife Service 1987, 1989b, 1992). The survival of this species is largely due to the east pass, a small opening to the bay which isolates the island from exposure to domestic animals.

- ***Oyster Reefs:*** Commercially harvestable oyster reefs occur in various parts of the system and also occur in areas closed to harvest due to water quality problems.

- ***Seagrasses:*** Seagrasses within the estuary are a major component of the bay ecosystem and a particularly important nursery ground for commercial and recreational finfish and shellfish. As in several northern Gulf of Mexico estuaries, seagrasses provide important habitat and shelter, and are a major food chain resource in the coastal ecosystem, supporting direct herbivory, detrital food webs, and nutrient export to adjacent ecosystems (WES-Environmental Laboratory 1978, Zieman and Zieman 1989). Seagrasses are also very important in the St. Andrew Bay for their unique ability to bind shallow underwater sediments with their roots and rhizomes while baffling waves and currents with their leaf canopy, thereby stabilizing water clarity (Fonseca 1994). The large areas of seagrasses increase the biodiversity of the estuary through provision of habitat and ecological processes.

  At least 90 percent of the southeast United States seagrass acreage exists in the Gulf of Mexico (Fonseca 1994) and northwest Florida accounts for one-third of that acreage (BEST 1993). McNulty et al. (1972) note that St. Andrew Bay contained, in total acreage, the largest seagrass stock in the Florida panhandle. The grass beds in St. Andrew Bay provide spawning and nursery habitat for harvestable penaeid shrimp, scallops, blue crab, spotted sea trout, gag grouper, mullet, redfish, and other economically important finfish.

  St. Andrew Bay is at the northern limit of growth for the two dominant species of seagrasses within the Bay. McNulty et al. (1972) estimated that the St. Andrew Bay system contained 6,631 acres of submerged aquatic vegetation, noting turtle grass (Thalassia testudinum), and shoal grass (Halodule wrightii) as the two dominant species. Manatee grass (Syringodium filiforme), star grass(Halophila engelmanni), and widgeon grass (Ruppia maritima) are also present in the system but form less extensive beds. Most of the reported losses or thining of seagrass beds have been in certain bayous. A decrease in the extent of the

sea grass beds in the bay is considered serious, because the climax vegetation (T. testudinum) recolonizes naturally at a very slow rate. Transplanting of this species as mitigation for losses has achieved minimal success. In accordance with the U.S. Fish & Wildlife Service's mitigation policy, seagrasses of St. Andrew Bay are designated as a Resource Category 1 habitat. The definition of a Category 1 is a habitat of high value, unique and irreplaceable on a national ecoregion or basis. The mitigation goal is no loss of the existing habitat value (U.S. Fish and Wildlife Service 1981).

- ***Marshes:*** There are few reports of emergent marsh vegetation specific to St. Andrew Bay in the literature. However, seven species of emergent plants appear to dominate the salt marshes of the system. McNulty et al. (1972) estimated that the St. Andrew Bay system contained 10,223 acres of tidal marsh. Marsh plants are primary producers, provide essential spawning and nursery habitat for a variety of economically important species such as peneaid shrimp, redfish, menhaden, croaker, callinectid crabs, etc., produce detritus for the detrital based food chain, stabilize sediments, and filter pollutants in runoff from adjacent uplands. Smooth cordgrass (Spartina alterniflora) dominates in the intertidal zone, but is restricted in extent of coverage by the small tidal amplitude of the bay. Black rush (Juncus roemerianus) forms extensive marsh systems in certain areas of the bay. Many other species of wetland plants are present. Little has been written about absolute losses of salt marsh in the system. However, about 650 acres were removed from the system for aquaculture in the early 1970's. Those 650 acres are now being restored by breaching the existing dikes that impounded the areas.

- ***Riverine and Other:*** The major tributary to the St. Andrew Bay marine system is Econfina Creek. Prior to impoundment, this creek was used by anadromous fish including the threatened Gulf sturgeon (Acipensir oxyrinchus oxyrinchus). There are numerous other faunal communities supported by terrestrial wetlands, palustrine, riverine, and lacustrine habitats in the upstream reaches of the watershed. The faunal communities of these habitats have been identified peripherally (NWFWMD, 1991) by reference to similar type habitats studied elsewhere in Florida and numerous small studies.

2.2.4 Important Differences in St. Andrew Bay Ecology That Serve Like Settings

- Compared to other estuaries, the St. Andrew Bay watershed is relatively pristine and undeveloped. Thus, most of the problems addressed are those related to development and growth.

- Nitrogen and phosphorus are more manageable in St. Andrew Bay because riverine sources of nutrients are very low.. Only St. Joseph Bay shares this characteristic in the Florida panhandle (NOAA, 1989). As a result, point and non-point source loading is very localized.

- The most diverse salinity profile of any estuary in Florida; and probably any estuary on the U.S. coast of the Gulf of Mexico. Ranging from freshwater to full strength seawater; with one square mile of freshwater, 55 square miles of mixing zone, and 38 square miles of sea water (NOAA, 1985). It allows for the study of salinity regimes that are only partially experienced by other estuaries in the area.

- Because of its diverse salinity profile, St. Andrew Bay could very well be the most biologically diverse estuary on the U.S. coast (estimate in excess of 2,100 spp). It may very well rival Florida's Indian Lagoon estuary when all biological diversity assessments are complete. Along the Gulf of Mexico coast, no other areas as high in biodiversity have been found.

- Because of its unusually high average of total organic carbon (3-4 percent) in the sediments of the bay, compared with the average for most estuaries (1.2 percent; Long et al., 1995): St. Andrew Bay is more sensitive to chemical contamination than most estuaries.

2.2.5 Changes in Quality that Affect Living Resources:

Although the major freshwater inflows into St. Andrew Bay are from the water released from the Deer Point Dam and small undeveloped tributaries, much of the water reaching the system is from untreated stormwater runoff. The amount of stormwater runoff from urban areas and construction sites to the bay is continuing to

increase as the area around the system develops. This can result in an increase of suspended sediments which will reduce the depth of light penetration, change water color, and alter the characteristics of the natural sediments. These changes have begun to seriously alter the quantity and quality of the seagrass beds that play an essential role in the ecology of the system. As evident in neighboring systems such as Pensacola Bay, (NWFWMD, 1991) the direct loss of seagrass beds and tidal marshes from human activities at a steady pace in the system will decrease the quality and quantity of organisms dependent on those habitats. In turn, further reductions in recreational and commercial fishing catches within this bay system and the Gulf are expected.

2.3 TRANSFERABILITY

Completion of a Comprehensive Conservation and Management Plan (CCMP) for St. Andrew Bay will provide a number of program elements that will assist not only the citizens of this watershed, but will have applicability to all coastal systems in Florida and many in the United States. However, our approach to common generic problems will add significant new experiences in dealing with these problems. The problems will be addressed in a comprehensive way that integrates administrative/political necessities with ecological realities and provides for adaptive ecosystem management. The specialized program elements complement one another. They are as follows:

1) Vegetation Evaluation and Geographic Inventory (VEGI) System
2) Bay Inventory of Species and Populations (BIOSP) System
3) Storm Water Inventory, Monitoring and Management (SWIMM) System
4) Point-Source Inventory and Pollutant Evaluation (PIPES) System
5) Diversified Estuarine Education Program (DEEP)
6) Estuarine Management Implementation and Technical Support (EMITS) System

Each of these program elements will be created by the Management Conference (Bay Environmental Study Team), which includes scientists from federal, State and local government, universities and colleges, and major private industries. Each element will be designed in such a way as to evaluate cumulative and long-term impacts and trends. Each element will be readily transferable as a packaged tool and applicable to any estuary in the U.S. because of the generic nature of the problems being evaluated and the solutions being sought (i.e. reduce chemical impacts, maintain quality habitats and ecosystem health, maintain or recover species diversity, and maintain or restore vital economic components). Among the many useful features of the elements are the ability to track wetland values and preservation requirements with property titles, thus informing potential buyers and developers, early on, of CCMP management requirements. Also, the elements allow a means of integration of the State of Florida's Local Government Comprehensive Plans for any particular ecosystem. Often several of these plans are operating independently, and without coordination, within an ecosystem. Both important concepts are discussed in more detail, below. Data synthesized and developed for the St. Andrew Bay CCMP will be useful to the *Gulf of Mexico Program* (GOMP) in addressing Gulf-wide and state-wide issues and shared with other estuary managers through the GOMP and Florida Coastal Connection Bulletin Boards. Finally, careful inspection of our timeline information found on page 39 of this document demonstrates that development of application elements for the program can be expected in a relatively short time frame.

2.3.1 BEST Organization for Adaptive Management

The purpose of the St. Andrew Bay National Estuary Program will be to identify alternatives and develop an action plan to integrate adaptive ecosystem management within the Florida Local Comprehensive Planning process. The NEP will provide funding to bring bay stakeholders together to both understand the complexities of the bay ecosystem and to chart a shared vision course of action. Adaptive management recognizes the uncertainties in ecosystem management and the value of experimentation and learning from experience. Adaptive management seeks to avoid the traditional crisis driven policy and management that occurs often at the expense of ecological integrity.

BEST has recognized that implementing adaptive management requires a slight departure from the traditional organizational structure of a National Estuary Program. The philosophy of BEST is that successful resource management requires the presence of four key ingredients -- citizens and stakeholders, policy makers, resource managers, and scientists. Following the adaptive management approach a larger than usual group size is currently desired because of the less predictable human effects and the need to share learning and experience. The stakeholders group is uniquely supported by a very active membership of local industry and commercial interests in the bay. In addition, the activities of BEST will be facilitated in the future through a private, nonprofit trust designated to support the mission of BEST. The trust will receive gifts, grants, or property from public or private sources.

2.3.2 Ecosystem Management Planning within Local Government Comprehensive Plans

The St. Andrew Bay CCMP will demonstrate how estuarine management planning can be fully integrated into the State of Florida's Comprehensive Planning process in a short period of time and in an economical way. Currently, most Florida Comprehensive Plans include very basic and separate environmental protection and water management elements. However, none have been completed with the aim of growth management planning in the context of a whole estuary and adaptive ecosystem management. The St. Andrew Bay CCMP will identify priorities that the local communities may establish consistent with the implementation schedules of their Local Government Comprehensive Plans. This has applicability to the Comprehensive Planning program in the State of Florida and Federal Coastal Zone Management efforts nationwide.

2.3.3 Wetlands Informed Buyer Data Base

Another significant tool will be a pilot project involving jurisdictional wetlands and mitigation actions. The data base will be developed to identify jurisdictional wetland determinations, past permit actions, and mitigation agreements. Ways to ensure that this information will run with the title to the land will be investigated. Currently, most of this data is buried within specific files of many different agencies. New buyers as well as public agencies are generally unaware of past jurisdictional determinations and mitigation requirements. This project will seek to keep all buyers fully informed. It will also assist permitting agencies and the local governments in addressing potential cumulative wetland losses in an area. This pilot project can be transferred nationwide to improve the wetland regulatory process.

2.3.4 Wetlands Management Through Watershed Management

Based on the St. Andrew Bay seagrass trends analysis being conducted by the National Biological Survey, a project will be completed to compile information on the relationship between urban stormwater management and wetlands. Work will be completed to identify the wetlands decline over the last 50 years and watershed subunits to focus planning efforts. Potential wetland restoration needs will address factors which can be enhanced by stormwater management planning and controls. This geographic based analyses will become a part of the overall watershed plan. The methods used will be useful to other coastal communities addressing stormwater mitigation needs and wetland restoration opportunities.

2.3.5 Integrating Stormwater Management Systems

Data will be compiled into a GIS for point and nonpoint sources, stormwater and sediment quality, land use, future growth projections, and stormwater systems analysis of each of the local governments, and compared to habitat data as available. A comprehensive multi-jurisdictional stormwater management plan will be developed at the lowest level of government. Watershed plans of this type are rare because they usually originate at the state level. The strategy will focus on cause and effects relationships with the bay and collaborative or collective efforts that may be accomplished by local communities. The methods used in developing the strategy will benefit other coastal communities by demonstrating steps needed for the development of comprehensive and integrated watershed management programs across political boundaries.

2.3.6 Public Outreach Using the Community College and Public School Systems

Public outreach for the St. Andrew Bay CCMP will be coordinated by Gulf Coast Community College (GCCC). The outreach efforts for St. Andrew Bay will be integrated and emphasized with a number of ongoing programs including Elderhostel, summer youth activities, continuing education seminars, family educational programs, credit courses, televised town forums and participation in the GCCC/W.K. Kellogg Foundation Citizen Leadership Institute. This unique partnership will greatly expand outreach needs for the various stakeholder groups and be used to develop a model for the Florida Community College system.

Environmental education through public schools will be initiated through a partnership with local high schools. The high schools are interested in expanding environmental problem solving and marine science classes to address issues of St. Andrew Bay. Efforts will be made for participating students to receive math, science, and technology high school or college credit. They will become a core of volunteers to teach younger students about the bay. These academy style programs will become model programs for the state as well as other coastal communities.

2.3.7 Cross Estuary Communication and Implementation

Special reports on the projects described above will be completed, peer reviewed and distributed to the participating partners and to other estuary managers. Each project will be required to publish new information in a suitable journal. A local citizen's guide to hosting a bay day will also be completed. It will draw from the experiences of a repeated St. Andrew Bay Day which has previously attracted over 5,000 local residents for a day to learn about the bay. The guide will be useful in continuing this popular event and in planning similar events in other coastal communities. All of this information will be announced through the aforementioned electronic bulletin boards.

Some of the driving forces for the CCMP are the need for revisions to the local comprehensive plans, the use of state land acquisition funds in the watershed, and development of local government master drainage plans all within the next three years. Therefore, many of the recommended actions of the CCMP will be implemented almost immediately after plan approval.

SECTION 3

NEED FOR THE NEP APPROACH

Efforts to conserve and manage the myriad of important natural resources within St. Andrew Bay began in earnest with the implementation of important regulatory programs developed by the federal and state and local governments in the 1960's and 1970's. These included water quality programs, wetland permitting systems, and local government planning efforts. However, there is a need to consolidate and collaborate this fragmented management system that addresses individual jurisdictions or permitting activities of the federal, state, and 14 separate local governments. Holistic watershed management that focuses on the bay as a system is greatly needed.

3.1 MAJOR ENVIRONMENTAL PROBLEMS

Water quality in the St. Andrew Bay watershed is generally very high, in part because of the bay's unique geography. Natural tributaries are generally clean, and several are spring-fed. A major source of the freshwater inflow to the estuary is in fact from ground water. Also, no large river systems drain into the estuary or nearby offshore waters. This situation contributes to the estuary's overall low turbidity, high water clarity, and clean sediments. Furthermore, most of the urbanized area is presently concentrated where the bay is better flushed by the Gulf.

Three bayous have been significantly degraded by historical chemical contamination. Faunal diversity in these isolated areas has been greatly reduced (USFWS, in preparation). Current regulatory programs are permitting cumulative direct losses of wetland resources (USCOE unpublished data) which exceed 100 acres per year. Seagrass areas have been degraded by stormwater runoff and by indiscriminate boating practices. The estuary is experiencing increasing levels of point source and growth-induced nonpoint source pollution. Point-source pollution in the bay system now exceeds 30 million gallons per day (secondary domestic and industrial effluent). Dissolved oxygen values and biological richness are reduced in the vicinity of the waste water treatment plants (USFWS, in preparation). Legal action has been necessary to bring both wastewater and stormwater treatment programs into compliance. Runoff from developed property has already degraded, through increased shoaling, most of the bayous around the perimeter of North Bay, St. Andrew Bay, and East Bay.

The major pollution source and water quality problems were identified in the 1994 water quality assessment report (FDEP) under federal 305 (b) and 319 programs. Key sources and problem areas identified in the 305(b) report are discussed below.

Deer Point Lake is the drinking water source for most of the incorporated areas in Bay County. Although its major inflow is from Econfina Creek, its other tributaries have some pollution impacts. Bayou George Creek has the Majette Landfill located in its watershed. In a 1987 study, effluent to the creek had significant amounts of ammonia and in-ionized ammonia. Perhaps most threatening to the lake is the impact from recreation activities and shoreline development (e.g. shoreline erosion, sedimentation). Other threats to the lake's water quality include non-point source pollution from agriculture and silviculture activities, and periodic seepage from substandard septic tank systems. Boating docks and facilities, construction activities, and residential development runoff add fertilizer, pesticides, sediment and oils and greases to the watershed. The lake has severe weed problems which were treated for years with chemical herbicides. Chemical treatment has been replaced by biological control (grass carp). Sampling in 1989 indicated elevated values for some metals in the sediments near the dam and depauperate benthic fauna and low diversities in the mid-to lower lake. Water quality sampling indicates low DO values and some bacteria problems.

Nonpoint pollution also affects some of the creeks and bayous. Beatty Bayou below Deer Point was affected by the Lynn Haven WWTP sprayfields. The plant diverted its flow to the Bay County WWTP in April, 1994. Watson Bayou, in Panama City, also suffers from historic WWTP discharge and urban runoff. A major fish kill

in the summer to fall of 1991 was linked to leaking sewage lines and a sewage discharge from the Millville WWTP. A nonpoint source assessment indicates some metals contamination of that waterbody. A study performed by NOAA's National Status and Trends Program found high concentrations of lead, mercury, DDT, chlordane, PCBs, and polycyclic aromatic hydrocarbons in sediments from Watson Bayou. West Bay in the vicinity of the Panama City Beach WWTP, is also showing water quality problems with decreased DO values. Panama City Beach's recent application for an operating permit renewal was denied based on their current discharge to Class II waters. Finally, the St. Andrew WWTP which handles wastewater from Panama City appears to be affecting the sediments and biological richness in the vicinity of its outfall in St. Andrew Bay.

The most significant point source problems in the basin are treatment plants that receive more industrial wastes than domestic. The Bay County Regional WWTP treats industrial wastewater from Stone Container (paper/pulp mill) and Arizona Chemical Company (a resin processor) as well as domestic wastewater from several small communities. The Bay County facility and the industries have jointly signed a consent order requiring better treatment and outlining the financial penalties for non-compliance. St. Andrew Bay, in the vicinity of the outfall at Military Point, indicates biological degradation with poor diversity and productivity. The sediments in the vicinity of the outfall have high BOD and are rich in organics. Other domestic pollution sources in this basin include many small package plants and septic tanks which discharge poorly treated waste into ditches emptying into St. Andrew Bay.

Large amounts of highway and construction site runoff and runoff from logging operations reach the waters of the bay. With increasing development activity of this type degraded water quality and nonpoint source pollution will be experienced. Poor stormwater management in the bay area will contribute to the overenrichment (eutrophication) of the bay and its freshwater inflows. Stormwater may also contribute to the loss of seagrasses in the St. Andrew Bay area because of turbidity from sediments and other suspended solids washed in by streams, and through urban culverts and ditches. This loss of threatened fish populations. Stormwater has also caused productive oyster harvesting areas and public swimming areas in the bay to close because of bacterial contamination.

Much sediment enters the St. Andrew Bay system from erosion of poorly engineered and maintained clay roads and ditches. Bay County is presently under a consent order to correct stormwater runoff sedimentation and erosion problems at 61 sites. Many more areas throughout Bay County that have stormwater problems that need to be resolved. Stormwater washes suspended solids, and oxygen demanding substances to the St. Andrew Bay system. Sediment-laden stormwater has damaged bottom dwelling communities of plants and animals in the bays and bayous of the system and has caused problems with navigation due to shoaling. Shoaling of some bayous, lagoons and estuaries has also decreased the natural flushing action of the system and contributed to poor water quality. The legacy of inadequately designed, operated, or maintained stormwater systems built over the last 20 years is only now being realized. Managers of stormwater are just beginning to understand that there is more to stormwater than flood control. The old systems, designed only to move stormwater away as swiftly as possible, contribute an unknown, but large, amount of the sediment and other pollutants that reach the waters of the St. Andrew Bay system.

Hundreds of acres of wetland fill have been permitted and unmitigated through the general and isolated wetland permit programs (USCOE unpublished data). Several miles of shoreline tidal wetland vegetation has also been lost due to construction of bulkheads and use of riprap (USCOE unpublished data). Seagrasses continue to be destroyed due to indiscriminate recreational boating (FDEP unpublished report). Oyster harvesting and public swimming have been closed in some areas due to bacterial contamination.

The primary result of the above activities is the degradation of floral and faunal resources and potential risks to the ecological integrity of the bay. Species diversity and abundance has been reduced at sites of historic chemical and sediment contamination (USFWS, in preparation). Loss of seagrasses reduces available habitat for spawning of commercially available marine fishes and invertebrates important to estuarine ecology. During 1993 BEST identified well over 70 issues and concerns related to the quality of the St. Andrew Bay ecosystem (BEST 1993). Issues were brought forward based on existing literature (Shafer, 1993), technical expertise of team members, and a public brainstorming session. General issue areas to be the focus of BEST were selected through a Team consensus building exercise. These issue

were debated in a Citizen's Forum and discussed in depth at issue workshops held by BEST in 1994. In November 1994, the BEST Technical Committees identified short-term action items for each issue. During this consensus building process the five priority problems identified below were selected as the most pressing issues that needed to be addressed in order to protect and conserve the bay ecosystem.

3.1.1 Priority Problems

The selection of priority problems began with the formation of the St. Andrew Bay -- Bay Environmental Study Team (BEST) which consisted of a group of federal, state, and local interests. BEST activities were partially supported in 1992 through the EPA Near Coastal Waters Program.

The five priority problem areas and the need to address these problems and develop on-the-ground (OTG) and administrative solutions using the NEP approach within the St. Andrew Bay ecosystem are as follows:

1. **Conservation and Management of Wetland Habitats and Vegetation**

   Problem: Wetland Habitat Losses.

   Impact to Estuary Values: Reductions in biological diversity and productivity; reduced commercial and recreational harvest/economic losses; reduction in human recreational activities (Chambers 1992; Kusler et al., 1994).

   Existing Information: A seagrass trends analysis is being conducted by the National Biological Service. USFWS wetlands classification maps were completed for the ecosystem in 1979. The Florida Game and Freshwater Fish Commission completed a large scale GIS habitat assessment that included the watershed (1992). Important jurisdictional information exists in federal and state wetland permit files.

   Cause/Effect: Physical loss of wetlands causes degradation of the bay's water and sediment quality (via increased, untreated stormwater runoff) and reduction in available estuarine and inland wetland habitats (Ladd, et al., 1979). Many losses are indirectly caused because citizens that purchase property have no knowledge of previous jurisdictional wetland determinations, past permit actions, and/or mitigation agreements.

   Need for Further Work: An updated quantitative inventory of all wetlands in the watershed (including inland wetlands important to stormwater mitigation) is needed, including classification of biological value and ecological function. A wetland database system that provides management information for deciding on future protection activities could be improved by developing a system that runs with the title of the land. Developement of a system for continuous updates of wetlands and jurisdictional determinations data.

   Identified Solution: The solution to the wetland loss problem is to inventory wetland types, assign biological/social values, prioritize sites based on importance to the ecosystem, and implement appropriate physical actions, legal modifications, and management strategies that result in the maximum conservation and/or protection to maintain the integrity of the estuary and the quality of life of the community. To realize this solution, a Vegetation Evaluation and Geographic Inventory **(VEGI)** System will be developed that will allow comprehensive management and oversight of the status and trends of wetlands. The System will also provide property owners with valuable management information that will be linked to property titles. In addition, implementation of a comprehensive wetland management plan is needed to provide consistency and uniformity in wetland policy among local comprehensive plans.

   Solution Development: Utilize chronological series of aerial photography and wetlands inventory mapping. Continue on-site ground-truthing through Section 10/404. Rank solutions relative to their importance for conserving/protecting wetlands. Develop time table and budget needs for implementation.

2. Evaluation and Reduction of Chemical Contaminant Impacts

Problem 2(a): Increased sedimentation, sediment contamination, and water quality degradation due to Urban Stormwater Runoff

Impact to Estuary Values: Reduction in bay's health, production and diversity; adverse impact to the local resource-harvest economy; and elimination of important human recreational areas and activities (Gulf of Mexico Program, 1993).

Existing Information: Federal, state, county and municipal water quality data; extensive U. S. Fish & Wildlife Service and County sediment data; some biota chemical residue data. Raw land use data in a GIS format.

Cause/Effect: Chemicals, nutrients and sediments carried by unmanaged urban runoff degrade bay habitats and water quality; and harm to bay flora and fauna (Middlemas, 1994).

Need for Further Work: Specific data on the chemical quality/toxicity of runoff from numerous drainage areas is lacking and needed to set management priorities. Need to evaluate the cumulative impact of all stormwater sources and determine St. Andrew Bay's capacity to accept and assimilate stormwater chemicals and pollutants, with consideration of the chemical/pollutant loading related to point sources. Need to evaluate all stormwater components of 14 local government comprehensive plans and provide guidance for a consistent and comprehensive management approach for the bay ecosystem that eliminates or greatly reduces negative stormwater impacts (Bay County, 1994).

Identified Solution: The solution is to identify specific problem sites, rank the magnitude of adverse impacts associated with each site, evaluate the cumulative impacts of all sites upon the ecosystem, develop on-the-ground site-specific solutions, and implement those solutions through appropriate management strategies that are site-specific, and include adequate funding, legal and administrative components. To achieve this solution, a Stormwater Inventory, Monitoring and Management **(SWIMM)** System is proposed. The SWIMM system will clearly identify problem areas where there are affects of stormwater releases upon localized habitat areas and biota. The on-the-ground alternatives will be implemented through a stormwater management plan designed within the framework of locally developed stormwater programs. The stormwater management plan will be a component of the CCMP.

Solution Development: Acquire data about the chemical and physical characteristics of stormwater from existing records and field monitoring. Obtain sediment and water quality data. Acquire the stormwater elements of 14 local government comprehensive plans; obtain projections for future growth and stormwater management requirements. Where possible, location maps and information on historic and current stormwater controls and designs will be obtained. As appropriate enter stormwater data will be entered into a GIS application and evaluate it using overlays of vegetation, habitat types and biological communities. Identify geographic sites of significant stormwater related problems. Evaluate stormwater components of comprehensive plans for adequacy.

Identify components lacking in the plans related to cause and effect relationships with the bay. Evaluate all stormwater components for consistency between plans and effectiveness to address future stormwater problems. Develop OTG solutions using the results of the other CCMP action items and collaborating the efforts by neighboring communities seek a shared vision to implement stormwater management programs. Document methods for implementing the solutions.

Problem 2(b): Reduction in benthic faunal richness and abundance due to cumulative chemical and pollutant impact from point source discharges.

Impact to Estuary Values: Reduced or contaminated food sources for fishes and invertebrates; limitations on recreational uses; restrictions or reductions in harvest of economically important food species (Varanasi, 1992).

Existing Information: Records and chemical data are available for all existing permitted point source discharges. Extensive records of water quality and sediment chemical data exist for most of the bay area, in federal, state and private data files. Some records exist for chemical analyses performed on estuarine organisms. Some long-range growth projections also exist for county and municipal growth. Three-dimensional hydrodynamic and water quality numerical models have been developed for the bay. Extensive sediment and chemical data for Watson Bayou, Massalina Bayou and Martin Lake.

Cause/Effect: Chemicals and pollutants released at permitted concentrations have cumulative, long-term impacts upon the Bay. Historic unpermitted discharges have continuing long-term effects. These impacts include reductions in water quality, accumulation of excess nutrients, contamination and/or degradation of sediments

Need for Further Work: A complete database needs to be constructed for current data and analyzed to better define the cumulative loading of chemicals within the system and the estuary's capacity to accept and assimilate chemicals and pollutants. In addition, the ecological fate and pathways for particular chemicals, especially dioxin compounds, need to be better understood. Need to submit appropriate information to calculate ecological risks and damages of historic discharges; and determine if the three areas qualify under any federal or state programs for natural resources damage assessment actions and any types of restoration.

Identified Solution: The solution to this problem is to evaluate the current cumulative point source loading of nutrients and chemical compounds, estimate the Bay's capacity to accept effluent discharges (considering unavoidable contributions from storm water), critically review all other effluent disposal alternatives, and design and implement a point source management plan for the ecosystem that incorporates the best alternatives, and allows maintenance of the estuary's ecological integrity and the community's quality of life. The solution will be achieved through the design of a Point-Source Inventory and Pollutant Evaluation System (PIPES) to provide a readily accessible management information about total chemical loading, hydrologic distribution, environmental fate, and impacts to habitats and biota.

Solution Development: The PIPES System will be developed by obtaining EPA and State of Florida data through federal and state point source compliance data systems. Identify any unpermitted point sources. Enter all data into a computerized data base compatible with the EMITS system described below for statistical analysis and evaluation. Inventory existing circulation and water quality models and hydrodynamic data define the cumulative loading of pollutants into the bay and evaluate data to determine locations of contamination or excess nutrification. Compare all information with the other action items in CCMP and identify all practical alternatives to eliminate or reduce causes of pollution from point-sources. Rank alternatives as to their practicality, considering cost, staff needs, economic importance (for example recreation, commercial/sport fishing, etc.), and the natural resources and specific species to be benefited. Select the best OTG solutions.

Damage assessments need to be conducted for Watson Bayou, Massalina Bayou and Lake Martin. Management and potentially restoration plans need to be developed for historic contamination sites.

3. Inventory and Management of Faunal Resources

*Problem **3(a):*** Species richness of the Bay is being gradually reduced, and important species are being lost.

Impact to Estuary Values: Decline in the faunal diversity indicates that the system is suffering perturbations that are altering the quality and/or quantity of available habitats and likely affect ecological integrity, diversity, commercial and recreational fishing economics (Duke and Kruczynski, 1992).

Existing information: The studies performed in St. Andrew Bay in the past have not been followed by comparable studies to establish accurate trends in the faunal elements of the system (Shaffer, 1993).

Changes in the bay's faunal diversity resources are unknown. A compilation of the faunal studies completed within the St. Andrew Bay system is underway. It will provide information as to the number of species present within the system and point toward the studies that are necessary to establish trends in faunal diversity. There are a few monitoring stations with faunal diversity information tracked over a significant period of time.

Cause/Effect: Causality for temporal and spatial trends in faunal diversity could be due to a number of factors including type of habitat and geographical locations in the system related to environmental data (Comp and Seaman, 1985).

Need for Further Work: Adapt appropriate criteria for ecosystem and trend evaluations. Temporal trends in diversity could be established by repeating previous studies at the same sites to obtain comparative data. Monitoring stations should be established for regular and long-term data collection.

Identified Solution: The solution to the problem is to identify existing species and populations by compiling II faunal studies that have been completed within St. Andrew Bay and create management strategies that protect sensitive and important species. The solution to protect the Bay's species is to develop a bay Inventory of Species and Populations **(BIOSP)** System that can be integrated with all other analysis tools for the St. Andrew Bay NEP. Develop this specific long-term ecosystem evaluation tool utilizing existing data and field survey technology to quantify faunal diversity. Utilize the BIOSP design for comparison, where feasible, with historic data and thus establish basic needs of the ecosystem.

Solution Development: Document the presence of species; estimates of relative abundance of populations; seasonal occurrence of species and emigration/immigration patterns; preferred habitats and geographic locations; long-term trends for species diversity, population sizes, and community structure and integrity; and observed stresses and causes affecting species and populations. Identify information gaps. Acquire new data through field surveys and research. Identify causes of stresses resulting in reductions in estuarine diversity and productivity, such as types of habitat reduction, impacts of pollutants and/or contaminants, and effects of harvest upon target species or incidental bycatch. After evaluation of species status and identification of primary negative stresses, conduct analyses of all alternatives that could result in protection and conservation of species and populations. Integrate this work with all other system analysis tools and habitat protection efforts. Prioritize alternatives and develop on-the-ground solutions based on assessment of ability to implement and critical species/population needs.

Problem 3(b): Declines in the density of the populations of important species.

Existing Information: Primary data is from creel survey from the 1970's (Sutherland, 1977). The Gulf of Mexico Program, a multi-agency effort, through its Living Aquatic Resources Committee, has issued a contract to identify potentially endangered species throughout the Gulf of Mexico and we will utilize output from that effort as applies to the St. Andrew Bay System.

Cause/Effect: A decline in the carrying capacity of the various habitats within the system results in a decline of the quality and quantity of the organisms dependent on those habitats (Zedler, 1988). Declining carrying capacity requires continuous refinement of rates of exploitation to maintain species and their ecological function in the system.

Need for Further Work: Assessment of the quality and quantity of the various habitats within St. Andrew Bay is required. Assessments using the tools in 3(a) above for evaluating alternatives to maintain or restore the condition of the stocks of economically important species should be undertaken.

Identified Solution: Direct the development and implementation of management strategies to enhance, maintain or restore affected habitats to sustain faunal diversity and address species of special interest.

Solution Development: Using information obtained through the BIOSP System and other estuarine evaluation tools, prioritize species and threats to their welfare, evaluate alternatives and identify management strategies to protect species of special interest.

4. Public Outreach and Education

Problem 4 (a): Degradation of the estuarine system is caused in part by lack of an informed citizenry.

Impact to Estuary Values: Seagrass beds are lost due to indiscriminate recreational boaters. Tidal wetlands are destroyed by homeowners hardening of the shoreline. Water quality is reduced when septic systems are not properly maintained.

Existing Information: Adequate environmental education material exists but is generally unavailable. While related environmental information may be generally known, Bay County citizens have not been properly informed of conservation and adaptive management actions or activities in which they can participate.

Cause/Effect: A lack of an educated citizenry causes a continuation of social practices that have proven to be detrimental to the conservation and management of the resources of the Bay Citizen participation in voting and decision making lacks an understanding of the intertwining of ecological and economic issues in the watershed.

Need for Further Work: Complete a needs assessment and marketing plan that strategies how to inform local citizens. Some specialty environmental education programs need to be developed such as citizen's workshops on environmental law and management, habitat conservation, chemical contaminants, and resource harvest issues. Unique educational programs need to be developed to reach special audiences such as community leaders, policy makers, developers, commercial fishermen and recreational users.

Identified Solution: Develop and implement a specialized education program, the Diversified Estuarine Education Program DEEP) and then incorporate stakeholder groups into BEST and add a Citizen's Advisory Committee. Conduct an information needs assessment. Provide information about the ecosystem to the stakeholder groups. Conduct community forums. Integrate St. Andrew Bay ecosystem outreach in existing programs. Initiate high school volunteer corps to assist with outreach efforts.

Solution Development: Establish important components necessary and acquire information for determining how to inform the diverse groups who access St. Andrew Bay and develop DEEP using this information. Acquire needs assessment data through such steps as the distribution of surveys to capture a variety of forms of opinions and concerns related to the bay, hosting another local community forum on TV, and through the consensus building process established by BEST.

Employ several of the decided upon strategies to best educate the diverse populations. Foster a network through the local community college. Use the Gulf Coast Community College (GCCC) which is located on the shores of St. Andrew Bay as the vehicle to offer environmental education programs to all ages and a neutral space where individuals from all walks of life can come together to solve problems. Through its environmental education programming, offer the desired educational programs including, but not limited to:

Summer youth activities - offer classes, camps, activities
Sponsor professional development (continuing education (CEU), seminars, conferences, workshops, etc.)
Day long family oriented educational programs
Credit courses such as:

- Invertebrate Animals of St. Andrew Bay (1 college credit)
- Vertebrate Animals of St. Andrew Bay (1 college credit)
- Sea Life and Resource Management of St. Andrew Bay (3 college credits)

Community Forums and workshops
Elderhostel - a senior adult international education program

5. Growth Management within the St. Andrew Bay Ecosystem

Problem: Degradation of the bay's natural resources affects the local economy.

Impact to Estuary Values: Without uniform, consistent program components, further degradation of water, sediment and habitat will take place, causing inter-related impacts to the living resources of the bay and the economics that are dependent on these resources (Weber, et al., 1992).

Existing Information: Fourteen separate local government growth management plans exist within the Bay ecosystem. These plans do not uniformly and consistently address critical management program issues, such as stormwater, wetlands, point source discharges, and bay resources. They also do not allow for evaluation of the cumulative impacts of various activities on an ecosystem basis and appropriate adaptive management revisions. A high growth is anticipated in the next decade. All plans will be revised and updated in the next decade.

Cause/Effect: Without integrating these plans and incorporating the components that are lacking into a comprehensive management tool, the current situation will cause continued piecemeal management of the bay's resources.

Need for Further Work: All plans need to be reviewed for consistency and adequacy for management concerns such as wetland conservation, stormwater runoff, point source discharges.

Solution Identification: Develop an Estuarine Management Implementation and Technical Support **(EMITS)** System that describes all the workable methods and procedures for politically and socially integrating and implementing the OTG solutions and ecosystem requirements for St. Andrew Bay. Implement and support all the appropriate existing management programs such as local government comprehensive plans, city & county ordinances, interagency agreements, and State and Federal environmental laws and regulations.

Solution Development: Acquire growth plans and projections for municipalities and county, and a complete set of local government comprehensive plans for the St. Andrew Bay ecosystem. Inventory and map current and projected land use and overlay (using GIS applications) with data from the VEGI, BIOSP, SWIMM, and PIPES systems. Receive proposed resource management solutions from VEGI, BIOSP, SWIMM, PIPES, and DEEP. Correlate current and growth-related needs and problems with resource locations and requirements. Evaluate monetary requirements, define staff and technical assistance needs, and identify funding sources necessary to implement the OTG solutions. Using the EMITS system formula obtain all necessary interagency agreements, amendments to existing management programs, amendments or additions to required ordinances, regulations and laws, that allow acquisition of necessary funding and assure legal implementation of the OTG solutions.

3.2 INSTITUTIONAL ARRANGEMENTS FOR THE ESTUARY

Many federal, state, regional, and local agencies participate in the management of the St. Andrew Bay and its resources. The following information summarizes an Institutional and Regulatory Assessment (McAnnally et. al; 1990) of the major laws and management programs by which these agencies operate and the major role each has that might affect water quality and living resources within the Bay. A citizen's handbook of Environmental Laws Affecting Bay County's Saltwater Resources (Brim, 1991) has also been developed. There are well over 30 major federal and state laws as well as 36 local ordinances and laws under which the current institutional structure has been developed. These reports discuss the resource protection activities and the management issues each agency currently addresses related to the problems identified for the bay and its watershed. The institutional limitations described point the major gaps in environmental programs that they fail to address. Estuarine problems are not reviewed in a comprehensive manner and there is a need for greater coordination and communication among agencies. None of the agencies currently have management programs on a watershed wide basis

3.2.1 Federal Agencies

- ***Environmental Protection Agency (EPA):*** responsibilities under the Clean Water Act (CWA) are development in wetland areas and wastewater discharges. Wetlands programs are administered jointly with the COE but the EPA sets and monitors the guidelines for issuing permits related to wetlands regulations and has the authority to veto permit decisions. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service have important advisory roles in the permit process.

  The EPA is authorized to enforce discharge standards for wastewater and to dispense federal grants for sewage treatment. Its National Pollutant Discharge Elimination System (NPDES) was established to protect and conserve the quality of waters in the United States by reducing discharges of pollutants, particularly from industrial sources, into U.S. waters. The EPA administers its NPDES program in Florida but works closely with the state in the preparation of compliance actions, especially in cases where state laws are more stringent than federal laws.

  Near Coastal Waters (NCW) program was initiated for St. Andrew Bay in 1992 to help identify specific impairments of the bay and ways to improve coordination with all levels of government. Under new funding, the BEST was reorganized and goals established. Short-term action planning was accomplished, but without dedicated staff, long-term action planning is difficult.

  EPA is also the lead agency for development of guidance for management of nonpoint pollution in coastal waters under the authority of the Section 6217 of the Coastal Zone Reauthorization Amendments of 1990. Coastal Zone Management Programs submitted through NOAA and the State could be improved and better streamlined through a more comprehensive watershed approach.

- ***Army Corps of Engineers (COE):*** Through its Regulatory Program, the COE administers laws passed by Congress to regulate various activities in waters and wetlands. Section 10 of the Rivers and Harbors Act of 1899 authorizes the COE to regulate structures and work in navigable waters of the United States. Section 404 of the Clean Water Act authorizes the COE to regulate the discharge of dredged or fill material into all waters of the United States, including wetlands. There are numerous activities subject to COE jurisdiction within the St. Andrew Bay watershed such as construction of docking facilities, dredging and fills in wetlands. The COE issues different types of permits to authorize construction and fill activities depending upon the nature and cause of environmental impacts.

  Extensive wetlands exist within the St. Andrew Bay watershed that are considered by the COE to be "above the headwaters" of nontidal streams. Filling of these wetlands (i.e., 1 to 10 acre projects) can be authorized, after opportunity for interagency review. At present, there is a need to quantify the acreage of "above the headwaters" wetlands being lost in the St. Andrew Bay watershed and the effect such losses may be having on the water quality of the bay.

- ***U. S. Fish and Wildlife Service (Service):*** The Service has maintained a field office in Panama City, Florida, since 1973. Biologists at that office carry out the legally mandated programs of the Service. These programs include administration of provisions of the Endangered Species Act, Migratory Bird Treaty Act, Anadromous Fish Act, Fish and Wildlife Coordination Act, and the North American Wetlands Conservation Act. The office also provides environmental evaluations and technical support to federal regulatory agencies, other public agencies, and the general public related to projects subject to issuance of federal permits (Section 10 of the River and Harbor Act; Section 404 of the Clean Water Act). Under provisions of the Fish and Wildlife Coordination Act, the Service assures that fish and wildlife will receive equal consideration with other features of water resources development projects. The field office also provides technical support in the identification and delineation of wetlands, coastal barrier systems, and occurrence and ranges of endangered species. Field studies are conducted in a number of areas relating to wildlife habitats and the species utilizing those habitats. The Service will also evaluate permits for outer continental self oil and gas projects;

is involved in oil spill response planning with the U. S. Coast Guard and EPA; and conducts field studies and evaluates projects involving environmental chemical contaminants. Service biologists at the Panama City Office are conducting population/management studies for the Gulf of Mexico sturgeon and the gulf coast striped bass. The Service conducts the National Wetland Inventory and has mapped the wetlands of the watershed. Finally, the Service has a strong interest and initiative in public education and public awareness involving management and conservation of fish and wildlife resources.

- ***U.S. Geological Survey (USGS):*** Cooperative programs with state and local agencies involve a limited amount of hydrologic data collection in the bay watershed. The USGS also maintains a data base of historic hydrologic and water quality data collected by the agency. The USGS has conducted a number of studies in the area related to groundwater and surface water hydrology.

- ***Soil Conservation Service (SCS):*** Provides technical assistance to state agencies and local governments concerns erosion control, water quality, and wildlife protection and enhancement and other conservation practices. The SCS also coordinates with the Florida Cooperative Extension Service to develop pesticide use evaluation plans and nutrient management practices. Its soils mapping projects provide information used to delineate wetlands and wet environments.

- ***U.S. Coast Guard (USCG):*** Responsibilities include enforcement of the Marine Protection and Sanctuaries Act that prohibits dumping of wastes into the marine environment, and oil spill response which is done in cooperation with the state DEP.

- ***U.S. Air Force (Tyndall AFB):*** Scientists have studied the unique habitats, rare and endangered species, and sedimentation problems associated with federally preserved lands on the Tyndall AFB. One of the more critical ongoing studies at Tyndall is the potential closing of the bay's east pass due to the drift of coastal sediments. If the pass were to close, circulation in the bay could be dramatically altered and this portion of the bay would function as a sound. The Air Force is also working to clean up contaminated sediments of the bay caused by historic dumping of toxic wastes. Under its Natural Resources Management Plan for the Eglin AFB, and through the Undersecretary of Defense for Environmental Security the Air Force has embraced an "adaptive ecosystem management" philosophy (McWhite and Hardesty 1994). Air Force personnel have been instrumental in the edification of this approach to Scientists and Managers in the Tyndall - St. Andrew Bay Area.

- ***U.S. Navy (Coastal Systems Station):*** Operations on the bay relate to military operations however, the Navy provides a high level of technical support in the area of diving operations, marine exploration and research.

- ***National Oceanographic and Atmospheric Administration (NOAA):*** Includes the National Marine Fisheries Service (NMFS). The NMFS, as the lead agency for managing living marine resources, provides advice to federal permitting agencies, manages saltwater fisheries, tracks wetland alterations, and participates in related projects. NMFS helps identify wetlands and important wetland habitats effecting estuarine aquatic life and fisheries. It also comments on wetland impacts related to dredge and fill activities. The NMFS maintains a local office in Panama City that has been very active in the development of a St. Andrew Bay reference library and a taxonomic inventory of marine species found in the bay.

  Under the Fish and Wildlife Coordination Act and through the FWS, NOAA tracks wetland alterations associated with COE permitting activities. Local communities have suggested that COE permitting activities could be improved through a comprehensive mapping program that is coordinated with local ordinances and comprehensive plans designed to avoid future activities in wetlands.

Under the Coastal Zone Management Act, NOAA works with the Florida Coastal Management Program (FCMP) to provide incentives for the adoption of federally approved coastal zone management programs.

- ***Federal Emergency Management Agency (FEMA):*** provides financial incentives for communities in the watershed to adopt federally approved floodplain management programs. Although not its primary focus, development in wetlands is covered, since nearly all the coastal area and inland wetlands occur in floodplains. Implementation of the floodplain management programs including stormwater controls that may serve the dual purpose as nonpoint source controls is the responsibility of the local governments.

- ***The Coastal America Partnership:*** is a coordinated, multi-agency effort to solve environmental problems along the Nation's shoreline. The program began in 1991 and ensures close coordination between federal, state, and local agencies, and the private sector.

  A Coastal America project in St. Andrew Bay consisted of the Fish & Wildlife Service, Tyndall AFB, and the State of Florida working together to stabilize and restore the dune systems on Shell Island, a highly visited barrier island. The project action called for construction of boardwalks over the dunes to carry pedestrian traffic between the bay and the Gulf beach.

- There are no international or interstate agencies that have jurisdiction over the estuary.

3.2.2 State Agencies

- ***Florida Department of Environmental Protection (DEP):*** As the lead state agency for environmental protection and natural resources, DEP is responsible for administering a number of programs that protect the quality and maintain the beneficial uses of the St. Andrew Bay. DEP tries to balance its programs through the use of research, regulation, resource management, enforcement, and education. An emphasis, in using all these tools, is ecosystem management.

  The ecosystem management activities are a department-wide planning and coordination effort for the development of strategies that implement ecosystem management at both the policy and operational levels. It evaluates needs for ecosystem research and monitoring, and develops cooperative projects with universities and institutions.

  Under the federal programs' 305(b) water quality assessments and 319 nonpoint source (NPS) assessments, DEP has identified St. Andrew Bay as a threatened water body. Two communities on the estuary, are currently active in the DEP administered state revolving fund (SRF) program, Bay County and the City of Callaway.

  In addition to federal NPS programs DEP also has the primary responsibility for regulatory point and nonpoint source programs that are currently being implemented in Northwest Florida. This includes a strong statewide stormwater regulatory program for new development and a point source permitting system for domestic and industrial wastewater treatment. DEP maintains an active compliance monitoring and enforcement program for the permitted discharges to the St. Andrew Bay and watershed. Within Bay County alone it processed over 537 permits in 1994, a steady increase from 345 permits in 1989. Within the last 15 months it completed 871 permit compliance inspections and to date has taken 64 enforcement actions in the study area. Its permitting and compliance programs have resulted in increased knowledge of the estuary concerning water quality and circulation and reduced discharges of pollutants. Its enforcement program has resulted in several consent orders to correct sedimentation and erosion problems. In response to DEP as well as federal permit complicance problems in the 1980s Bay County completed several improvements to it's wastewater treatment plant by 1990. This has reduced it's annual average wastewater treatment plant BOD in the effluent to 60 percent and suspended solids to 39 percent of 1988 values.

DEP is the primary state agency with responsibility for the majority of wetlands protection programs. DEP's wetland resource permitting jurisdiction over waters of the state is determined pursuant to Florida Statutes. Wetland permitting is one of the ways the DEP protects the St. Andrew Bay waters and the wetlands around it. The DEP's wetland resource permitting program includes numerous types of dredge and fill or construction activities. Since these permitting activities are similar to the COE's, joint permitting procedures have been developed.

DEP also implements state and federal laws relating to solid and hazardous waste management, pollutant storage tanks, is responsible for cleanup of hazardous waste and pollutant spill sites, and it implements the Federal Clean Air Act. To ensure a safe drinking water supply for Florida, it oversees the construction and operation of drinking water treatment facilities, administers the state's reclaimed water reuse and ground water protection programs, and establishes and monitors standards for drinking water and public water which meet or exceed the Safe Drinking Water Act requirements.

DEP's Division of Marine Resources protects and manages for a diverse array of marine species including endangered species and their habitats. Its Recreation and Parks service operates the St. Andrews State Recreation Area that is also part of its Aquatic Preserves Program. DEP has police powers through programs in maritime law enforcement. The Florida Marine Patrol and Florida Park Patrol are both active in the St. Andrew Bay area. The DEP maintains a local branch office in the City of Panama City.

- ***Florida Environmental Regulation Commission (ERC):*** As the rule-making arm of DEP, it establishes environmental standards, such as water body use classifications, and air and water quality standards.

- ***Florida Marine Fisheries Commission (FMFC):*** The Marine Fisheries Commission promulgates all rules of the Department of Environmental Protection relating to marine life, except for endangered species. Its rules are subject to final approval by the Governor and Cabinet.

- ***Florida Department of Community Affairs (DCA):*** Programs include Developments of Regional Impact (DRI) review, designation of Areas of Critical State Concern, and Local Government Comprehensive Planning. DCA is the lead agency for land use programs in the state. The rules of DCA require each county and municipality to develop a comprehensive plan that meets specific criteria related to the guidance and control of future development. Emphasis is placed upon the appropriate use of land and water resources and the timely provision of public facilities such as water, sewer, drainage, and others; and the conservation, protection, development, and use of natural resources. There is a need to increase communication and technical assistance in the development of comprehensive plans and related planning efforts as they relate to St. Andrew Bay resources.

  DCA administers the Florida Coastal Management Program (FCMP) and grant funds under the Coastal Zone Management Act (CZMA). The act authorizes the state-federal partnership and review of federal activities for consistency with state coastal programs. Currently there is one small wetlands restoration project in the watershed receiving funding under CZMA.

- ***Florida Game and Fresh Water Fish Commission (FGFWFC):*** Activities are for freshwater aquatic life and wild animal life and their habitats. The FGFWFC is involved in law enforcement activities associated with fresh water habitat. The officers of the Commission have police powers and can enforce laws that are directed toward eliminating pollution of surface waters. The agency may acquire land and waters for fish and wildlife purposes and is responsible for management of endangered and threatened species. It also provides review of permits considered by state and federal agencies involving wetland and water quality impacts.

- ***Florida Department of Health and Rehabilitative Services (HRS):*** Regulations for onsite sewage disposal address nonpoint sources of pollution as a result of old, faulty, poorly placed or installed septic tanks. HRS may take enforcement action against faulty systems and seeks to prevent violations through education and a contractor registration program.

- ***Florida Division of Forestry (DOF):*** Goals are to restore, maintain and protect native ecosystems. Presently, DOF is considering a $15 million 31,000 acre acquisition in the sand hills recharge area adjacent to Econfina Creek. This area could be given a higher priority for purchase if supported through the NEP process.

3.2.3 Regional Agencies

- **Northwest Florida Water Management District (NWFWMD):** Through its consumptive use permitting program regulates water withdrawn from ground water and surface water sources. Along the coastal and more populated areas of the bay it encourages the use of reclaimed water rather than discharging wastewater effluent directly into surface waters.

  Through the state's Surface Water Improvement and Management (SWIM) Act, the NWFWMD has designated the St. Andrew Bay System and the Deer Point watershed as SWIM priority water bodies. The District has not been financially able to fully implement a SWIM program throughout the St. Andrew Bay watershed but has developed an initial plan for the portion of the watershed that drains into the Deer Point Lake reservoir. As the St. Andrew Bay and its watershed are both on the SWIM priority lists, these areas are also a priority in DEP's statewide NPS program and eligible to receive funding under CWA section 319.

  The NWFWMD receives state land acquisition funds under the state Save Our Rivers, CARL, and Preservation 2000 programs to preserve lands that have a high water resources value. Several parcels have already been acquired along the Econfina Creek. Most of these land acquisition programs have been limited to spring discharge areas related to water supply protection. However, a broader program is in the planning stages at a cost of $10 million. This land preservation program could be an important part of an overall plan to protect the St. Andrew Bay watershed and it's water resources. Potential funding in the amount of $10 million has been identified for this watershed.

- **West Florida Regional Planning Council (WFRPC):** Coordinates the efforts of local governments to improve their planning capabilities and identify funding options. WFRPC assists with resource assessments and inventories. The WFRPC has a close working relationship with local governments.

3.2.4 County Governments

- **Bay County** encompasses most of the St. Andrew Bay System. It covers most of the Bay's watershed area and has the highest population of the counties in the watershed. Having the most potential for affecting the bay, its role in almost all of the local government planning and management activities to protect local water resources is crucial. Because the northern portions of Bay county are rural, much like its neighbors, there are no major intergovernmental problems at the county level.

  During the 1970's Bay County, through the 208 program, begun to collect data on stormwater runoff problems throughout the county. The most common pollutant in all waters of Bay County was ammonia nitrogen, although only a limited number of pollutants were actually sampled for. Mercury contamination also occurred in excess of numerical criteria through the sampled area.

  Bay County is presently working to develop and implement a regional stormwater management system through a Stormwater Strategic Plan. The plan identifies several areas of concern dealing with stormwater runoff problems in the county. These areas include stormwater treatment, flooding at over 400 flood locations, erosion prevention, maintenance of conveyance and navigable systems, and priorities by regulatory agencies. In addition the plan prioritizes projects for implementation according to need and mandates by regulatory agencies. Bay County Utilities is largely responsible for protecting potable water supplies and providing treatment for municipal and industrial wastewater before it is discharged into the bay. The Bay County wastewater facility improvements are in the planning stage of development with $41 million in new sewage treatment, transmission, and reuse facilities identified in the SRF.

- **Washington, Jackson, Calhoun, Gulf and Walton counties** are predominantly rural and are situated in the upper and outermost reaches of the watershed. The major activities that will effect the future quality of the bay in these counties are those which plan for future growth. Currently, much of the area in these counties is undeveloped and forested. In Washington county, the primary concern is the water quality effects on the ground water recharge area. Much of the precipitation failing in this county and surrounding area never leaves as surface water but drains into the underlying aquifer and emerges at a much later time as spring discharge. In contrast, the other counties are more susceptible to the typical perils of increased development and stormwater discharges. Currently, the primary efforts for water resources in these communities have been through state and water management district land acquisition programs. The preservation elements of the comprehensive plans in these counties could be improved by recognizing their importance as part of an integrated plan designed to protect the estuary.

3.2.5 Municipal Governments

The coordination efforts and participation by Municipalities to help develop the CCMP is a crucial element of St. Andrew Bay NEP. The major cities, Panama City, Callaway, and Lynn Haven are expected to contribute most to CCMP implementation. The City of Panama City has begun efforts to develop a GIS that may be used to help develop a database for the purpose of stormwater management planning. Port Panama City has also pledged its strong support for the nomination and development of the CCMP. The City of Callaway has received a pre-construction loan for $.8 million from the SRF assuring it for future funding in the amount of $8.1 million for new treatment plant, transmission and reuse facilities.

3.2.6 Educational Institutions

There are several local educational institutions and facilities that could have a significant role in the protection and management of the estuary. These institutions and their possible roles are briefly summarized as follows:

- Gulf Coast Community College - lead for citizen involvement and public education
- Florida State University - marine research and technical support
- University of Florida - Institute of Food and Agricultural Science Cooperative State Extension Service - marine and watershed extension for private homeowners
- University of West Florida - research and technical support
- Rutherford High School - summer and gifted student programs on the bay
- Florida A & M University - biological research and technical support
- University of South Alabama - sediment chemistry research and technical support

3.2.7 Current Programs and Estuarine Management

No single institution or organized groups of institutions are responsible for ensuring a healthy St. Andrew Bay ecosystem. The Northwest Florida Water Management District has not been financially capable of implementing a SWIM plan for the entire watershed. A portion of the watershed is addressed in the Deer Point Lake SWIM plan. This program provided some protection to the extent that local drinking water quality and recreational benifits of the watershed water resources could be protected through appropriate land use practices. However, the threat from overuse of the resource and excessive nutrient loading still exists, primarily from stormwater runoff and septic systems.

Legal action was necessary to bring Bay County's wastewater treatment system into compliance with regulations. One wastewater treatment plant's permit application was denied because it could not meet standards for Class II waters. Bacterial contamination from stormwater has caused oyster harvesting and public swimming to be closed. Bay County is currently under a consent order to correct stormwater runoff sedimentation and erosion problems at 61 sites. Hundreds of acres of isolated and tidal wetlands are being converted to urban use under the existing wetland regulatory programs (general and nationwide permits) and have not been mitigated. Changes in the existing programs are required in anticipation of future economic growth in the watershed.

Several efforts are now ongoing to address some of the above problems. Bay County has begun to develop a stormwater management plan for a portion of the county. The COE is compiling data on all permits issued in the a portion of the watershed in order to assess potential cumulative effects of wetland losses. There are local efforts to identify potential wetland mitigation banking sites. The Water Management District is acquiring wetland and riparian habitat to protect water supplies.

3.3 ENHANCEMENTS FOR EXISTING PROGRAMS

The main question, among all the existing programs affecting and protecting the bay, is what else is needed? The answer is very simply the NEP management approach. Though there are numerous institutional arrangements already in place to manage and protect the estuary there have been no major efforts to improve agency coordination and collectively provide for a comprehensive estuarine management program. Programs to maintain water quality are those related to wastewater treatment plant improvements. However, these programs have not kept pace with growth. Through the CCMP, proposed pilot projects, and BEST as the forum, better communication and collaboration can be achieved. The overall need is to provide clarity and sound technical reasoning for the individual efforts taken by each institution so that these efforts can collectively have a measurable impact. Also, there is very little water quality monitoring at the state and federal level to determine the status or changes in the bay as a whole.

Though there are a number of local efforts underway to manage growth and address the most pressing problems within the individual local jurisdictions there are widely differing manners and to various extents that local authority is exerted. In particular, it is unclear to what extent plans, ordinances, and policies of the local government entities are consistent with federal and state efforts to restore and conserve the resources of the estuary system. Consistency between state and federal programs is also uncertain. The most important plans that governments are in the midst of developing for the watershed are for water resources protection, flood control, open space and wetlands conservation, water supply, land development, growth management, and

wastewater utilities infrastructure. All of these plans are piecemeal and none have had the central focus of the St. Andrew Bay System. The greatest opportunity and time to develop a comprehensive management plan for the St. Andrew Bay is now. The proposed CCMP for the St. Andrew Bay system should provide the opportunity for these jurisdictions to cooperate and coordinate their respective watershed and estuary strategies. A more pressing problem at the local level is the need for a public outreach and education programs that will result in widespread public support of local government involvement and interagency coordination. Under the proposed NEP approach, every effort is made to include the affected population within the planning area.

Some of the more obvious problems that the can be rectified using the collaborative approach are as follows:

- An economic comprehensive watershed plan is needed since many agencies lack the technical or financial capabilities for plan development.

- To be successful the estuarine and watershed management plans developed need to integrate all of the federal, state and local issues.

- The most difficult problems for development of an integrated plan are at the local level because of the number of municipalities that border the estuary.

- No single agency has jurisdiction nor the capability to manage the entire bay system.

- Local planning may frequently be inconsistent simply because the objectives of estuary programs are unknown.

- A broad base of government, private sector, and public involvement is needed.

An NEP Management Conference with BEST as the forum will certainly bring many other issues to the table that typically are not well understood. The proposed NEP for the St. Andrew Bay system has the potential to effectively rectify such discrepancies and voids and remove a good deal of confusion within the watershed. Because there are no disputes between states or counties this is also a unique opportunity to support the development of a comprehensive watershed management approach for the entire estuary at the local level.

SECTION 4

LIKELIHOOD OF SUCCESS

4.1 MANAGEMENT CONFERENCE MEMBERSHIP

The St. Andrew Bay Environmental Study Team (BEST) would be the core group for the Management Conference. A history of the Team is set out below in order to demonstrate the Team's experience in drawing together the key interests in St. Andrew Bay and its capability of achieving goals even with the minimal support that has been available.

BEST is a grassroots organization that was organized in the fall of 1987. It began to grow and receive very active support after 1992 when it received support for reorganization under the EPA Near Coastal Waters Program. Initial funding was provided through an interagency agreement between EPA and the U.S. Fish and Wildlife Service. Although the Team did not have specific funding for 1994, it has made significant progress in the last two years through voluntary support.

The Team established a *VISION*: "To maintain and restore a healthy St. Andrew Bay ecosystem for the benefit of all people" and developed a *MISSION STATEMENT*: "Evaluate the status of St. Andrew Bay, identify problems, and initiate corrective actions." A steering committee met six times a year in 1993 and 1994 to set agendas for team meetings and to identify priority actions.

4.1.1 Present Membership of the BEST Steering Committee

Chair: Candis Harbison, League of Women Voters
Past Chair: Ken Loritsch, Arizona Chemical Company
Industry Representatives: Rachel Allen, Gulf Power Company
Kenyon Gandy, Gandy Seafood
Civic Representative: Candis Harbison, League of Women Voters
Academic Representative: Noor Tietze, Florida A & M Research Lab
Local Govt. Rep.: Audrey Parker, representing County Commissioner Atkinson
State Govt. Rep.: Gary Shaffer, Florida Dept. of Environmental Protection
Federal Govt: Rep.: Gail Carmody, U.S. Fish and Wildlife Service
Contaminants Comm. Chair: Mike Brim, U.S. Fish and Wildlife Service
Resource Inventory co-Chairs: Herb Kumpf, Natl. Marine Fisheries Serv.
Jim Barkuloo, Florida Wildlife Federation
Wetlands Comm. Chair: Kevin O'Kane, Corps of Engineers
Educ./Outreach Comm. Chair: Lynn Gager, Gulf Coast Community College
Growth Mgmt. Comm. Chair: Jim Mann, Stone Container Corporation

The Bay Environmental Study Team meets the membership criteria of Section 320(c) of the Clean Water Act. The BEST steering committee and subcommittees represent all of the aforementioned institutional levels of government as well as private and public sectors.

The BEST steering committee and subcommittee membership is expected to expand as newly interested parties are identified. The counties of Washington, Gulf, Calhoun, Jackson, and Walton contain small portions in the upper reaches of the St. Andrew Bay watershed with interests in water management and land preservation activities. The North Bay Clan of the Lower Creek/Muskogee Tribe has been contacted to determine their interest. Participation of local government elected officials has historically been through BEST meetings and representation by staff and appointment of delegates to the BEST. Direct participation by elected officials will continue to be encouraged through the Management Conference organizational structure.

4.1.2 Organizational Structure

BEST has recognized the need to implement an adaptive management approach that is a slight departure from the traditional organizational structure of National Estuary Programs. The philosophy of BEST is that successful resource management requires the presence of four key ingredients - citizens and stakeholders, policy makers, resource managers, and scientists. The success of the Comprehensive Conservation and Management Plan will depend upon a strong intersection of all four of the key ingredients. This intersection (Figure 4) is what we think of as the organization of BEST. Additionally, the activities of BEST are in the process of being facilitated in the future through a private, nonprofit trust designated to support the mission of BEST. The trust will receive gifts, grants, or property from public or private sources.

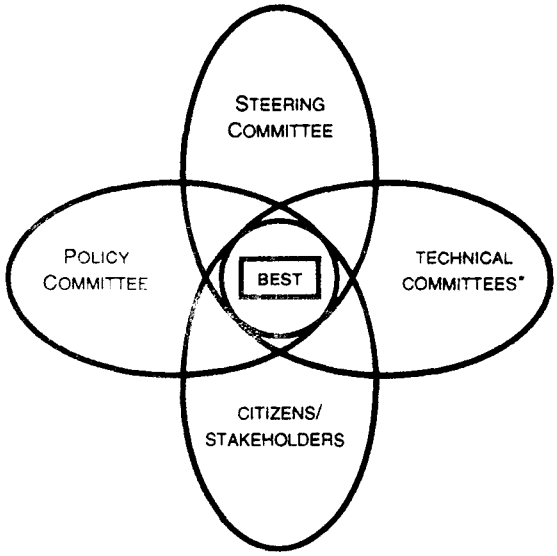
The existing BEST organization structure is analogous to a NEP management conference. BEST will continue to operate all committees by a consensus building process.

Five ***Technical Committees*** are the backbone of BEST and focus on the five priority problem areas to be addressed in the CCMP. These committees offer a stronger foundation than most NEP programs. The technical committees include Wetlands Conservation, Contaminants, Resource Inventory, Public Outreach, and Growth Management. Membership on the technical committees is open and generally involves expertise from government, industry, and educational institutions. Over 43 individuals are current members of BEST technical committees. Membership is expected to expand as newly interested parties are identified. The role of the technical committees will be to oversee studies necessary for action planning and develop of draft action plans.

The BEST ***Steering Committee*** has a role similar of a NEP management committee. The Steering Committee is selected by the overall BEST membership and is composed of representatives of industry, civic organizations, academia, local government, state government, and federal government. The past two committee chairs were either an industry or civic organization representative. The chairs of the technical and citizens advisory committees are also members of the Steering Committee. The role of the Steering Committee is to organize and lead BEST activities, determine a budget, approve special contract needs, and to oversee the action planning process. The Steering Committee will ensure that all the key ingredients of BEST maintain a strong intersection throughout the planning and implementation process.

Two additional committees will be formed. BEST will build on its citizen involvement by developing stakeholder groups for industry, tourism, retail/service business, commercial and recreational fishing, developers, conservation and sport organizations, and government officials. Each stakeholder group will clarify issues of concerns and potential alternative solutions. Two representatives from each stakeholder group will be selected to form the ***Citizen's Advisory Committee***. The role of the citizen's advisory committee will be to provide liaison on issues of concern to the BEST committees, review early draft action plans and provide feedback to BEST, develop an outreach strategy for public review of the draft CCMP, and initial selection of recommended action items. The chair of the Citizen's Advisory Committee will be a member of the Steering Committee and be active on the Public Outreach Technical Committee.

A ***Policy Committee*** will be appointed by government agencies with significant direct authority to manage natural resources of the estuarine ecosystem. Members will include a representative from Bay County, Panama City, Lynn Haven, the League of Cities (representing the remaining cities), the Regional Planning Council (representing the remaining counties), the Northwest Florida Water Management District, Florida Department of Environmental Protection, Florida Department of Community Affairs, the U.S. Environmental Protection Agency, and the U.S. Army Corps of Engineers. The Policy Committee will be co-chaired initially by Bay County, the Water Management District, and USEPA. The Chair of the Steering Committee and the Citizens Advisory Committee will be ex-officio members. The role of the Policy Committee will be to give general guidance regarding the content of the CCMP, review and approve substantial expenditures recommended by the Steering Committee, approve the draft CCMP for public review, and approve the final CCMP for forwarding to the implementing agencies.



*Chemical Contaminants Committee, Resources Inventory Committee, Wetlands Resources Committee, Education/Outreach Committee and Growth Management Committee.

Figure 4. BEST: The Intersection and Integration of Four Key Ingredients to Adaptive Ecosystem Management.

4.1.3 BEST Technical Committees

The BEST subcommittees deal with the top five issues, developed through consensus, as affecting the Bay system: Chemical Contaminants; Resource Inventory; Wetlands; Education/Outreach; and Growth Management. In addition, *ad hoc* committees are appointed as needed, such as the East Pass Committee which in 1993 began investigating the possible natural closing of East Pass. In 1993 and 1994, bimonthly Team general meetings were arranged by the subcommittees. The meetings were devoted to issues and potential action items relating to each committee's area of interest. Attendance at these meetings ranged from 30 to 50 participants. Most of the attendees were government employees, followed by industry representatives, and civic organizations. The same meeting schedule is being carried on during 1995. The sixth Team meeting of the year is an "Annual Meeting" during which steering committee officers are elected, subcommittee annual summaries are given, and subcommittee future action goals are announced.

As a demonstration of the committee's areas of expertise and problem solving capabilities, a summary of committee action and goals follows:

Chemical Contaminants Committee: The committee was organized because chemical contamination of the Bay's water, sediment, soil, and biota (particularly problems associated with urban stormwater runoff) was identified as a priority concern by Team members in 1993. Specific action items targeted are:

- Submit, a grant proposal to the State of Florida under the federal Clean Vessel Act, for vessel pumpout facilities.
- Evaluate operational procedures at marine construction and repair yards and submit proposed legislation to the State of Florida to incorporate proper stormwater and wind drift controls.
- Assess and rank Watson and Massalina Bayous for evaluation under the Comprehensive Environmental Response Compensation and Liability Act.

- Review local government comprehensive plans for consistent and adequate contaminant related elements.
- Identify information gaps relative to contaminant and nutrient loading of stormwater runoff.
- Initiate drafting of a Stormwater Action Plan.

Resources Inventory Committee: An inventory of organisms present in St. Andrew Bay, based on a review of the literature, was initiated in 1988 and has been periodically updated. The list currently contains 2,000+ species and the important data gaps have been highlighted. "A Bibliography of Research on St. Andrew Bay, its Tributaries, and the Nearby Coastal Waters of Bay County, Florida," was provided by BEST through EPA/FWS funds. Continuing activities of the committee have been to:

- Complete the biological inventory to provide managers with an idea of the biological diversity.
- Identify any losses or gains in flora and fauna that must be considered in the management of the St. Andrew Bay ecosystem.
- Update the comprehensive bibliography of the Bay.

Wetlands Resources Committee: A compendium of reports and outlines from presentations made at the Wetlands Issues Meeting arranged by the committee in 1994 has been made available. From these and other committee activities on wetland issues and problems Action Items for 1995 are:

- Identify information gaps concerning wetland status and trends in the St. Andrew Bay watershed and potential mechanisms for acquiring needed information.
- Work through the Florida Marine Research Institute to produce an informative brochure to be handed out to boaters when they pick up their boat tags.
- Find good sites for "mitigation banking," so that developers and other permit applicants can contribute to meaningful mitigation.
- Monitor developments and keep the Team informed on the following issues: proposed airport expansion into Goose Bayou; Port Panama City expansion; proposed second cross-bay bridge; preparation and implementation of Bay County's stormwater program.

Education/Outreach Committee: The committee chair coordinates with Gulf Coast Community College for all Team meeting facilities. The committee co-sponsored the Citizen's Public Issues Forum held in October 1993 on FOX TV, and continues to provide videotapes and "Citizen Guides" to school and civic groups who request them. The Committee's primary activity for 1994 was "Health and the Sea Day," a free day-long program where about 500 citizens learned about St. Andrew Bay and related health issues. For 1995, the committee decided to begin gathering public input and to coordinate with action plans being formulated by BEST. The following activities suggested and in progress are:

- Compile information materials on stormwater management for use in public education programs.
- Complete and distribute a brochure on seagrass propeller scarring.
- Compile information on coastal resources computer bulletin boards.
- Seek more citizen input through an avenue entitled "Have Your Say About the Bay."
- Publish a Bay Repair Kit for citizens.
- Coordinate with the Community College's summer program for gifted high school students.

Growth Management Committee: The Committee's goals have been to increase participation in BEST by government planning agencies and elected officials. Its major activities have been to increase the level of interest in coordinated growth management among nine local governments in the area. In 1993, the committee used a "harvest" of majority opinions from the FOX TV Public Issues Forum for setting future goals. In 1994 increased participation by Panama City and Bay County staff members was achieved, as well as increased communication with state and local planning officials. Current action items targeted by the committee are:

- Involve the newly revived League of Cities (includes eight local municipalities) with BEST.
- Make formal presentations to County Commissions and City Commissions on BEST activities.

- Seek representation from the construction and development industry.
- Continue contact with Florida's DCA and Regional Planning Councils on comprehensive planning requirements and intergovernmental coordination.
- Monitor local government comprehensive plan revisions and appraisals due by April 1997.

The preceding discussion of the goals, accomplishments, and members of the five interest subcommittees of the Bay Environmental Study Team make it clear that the BEST Committees are qualified to function as Technical Advisory Committees for the Management Conference, able to define problems, recommend needed studies and actions to meet program goals and assist in developing and reviewing requests for proposals. In addition, a new Citizens Advisory Committee will be able to assist in public participation and awareness and in developing implementation plans.

4.2 MANAGEMENT AND OVERSIGHT

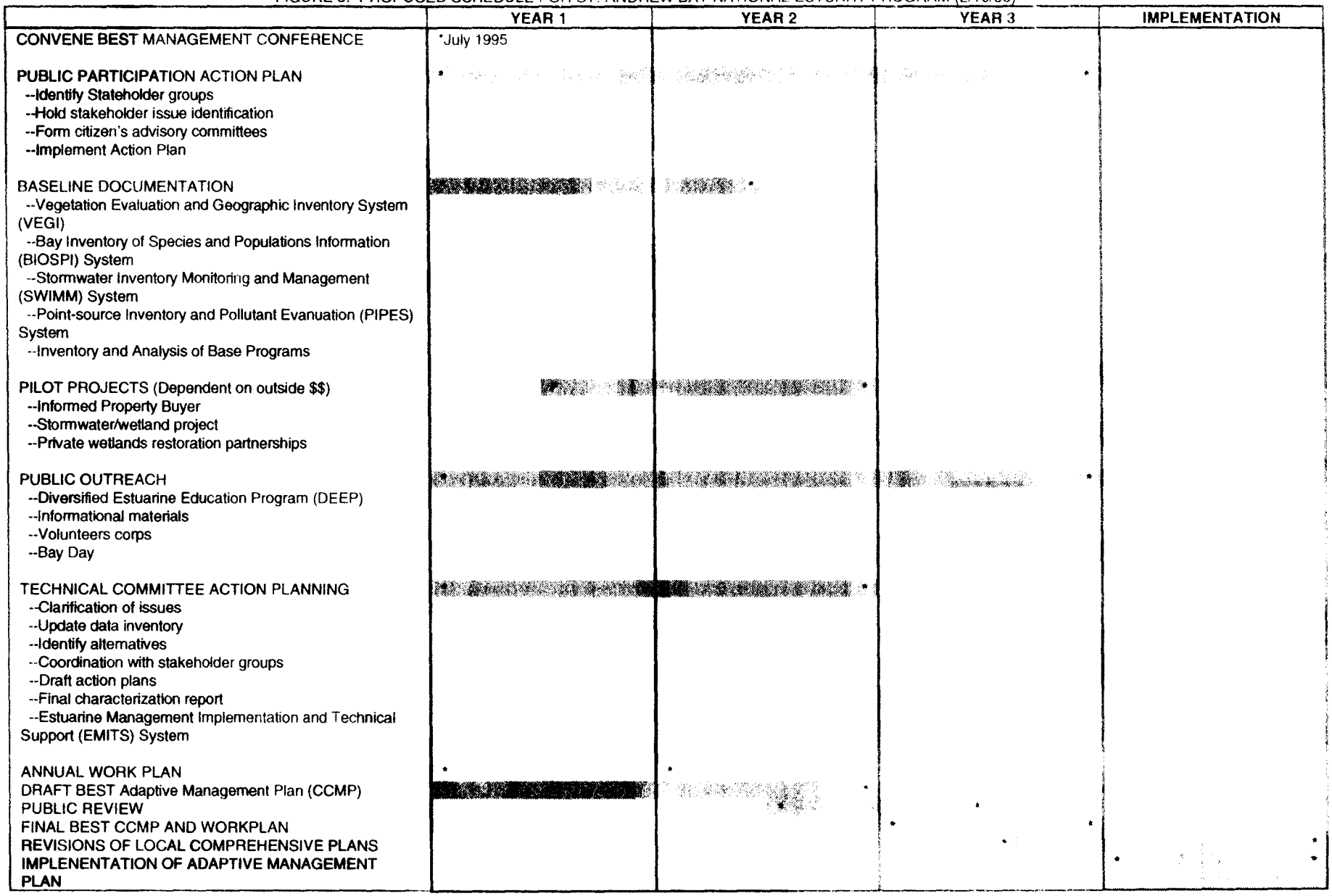
The purpose of the St. Andrew Bay National Estuary Program will be to identify alternatives and develop an action plan to integrate adaptive ecosystem management with local government comprehensive planning processes. The NEP will provide funding to bring bay stakeholders together to both understand the complexities of the bay ecosystem and to chart a shared vision course of action. Adaptive management recognizes the uncertainties in ecosystem management and the value of experimentation and learning from experience. Adaptive management seeks to avoid the traditional crisis driven policy and management that occurs often at the expense of ecological integrity (Hardesty and Murin 1994).

We propose management through a unique association of city, county, regional, state and federal governments, local industries, commercial and recreational fishing interests, conservation groups, academic institutions, military bases and the public. This association is already in place as the BEST. A great deal of baseline information related to wetlands and seagrass inventory, sediment and water chemistry, and biological resources already exist for St. Andrew Bay, minimizing the need for extensive data gathering. Because BEST has been in existence for several years, group consensus of those involved in the management of the Bay can be obtained on vital management issues more rapidly than usual. Therefore, management plan results can be expected to be completed within three years.

The CCMP will be developed in three years (Figure 5). The Northwest Water Management District will be the local entity to receive and administer the NEP grants. The NWFWMD in conjunction with the BEST Steering Committee will provide for project oversight and be the hiring and managing entity for NEP core staff. The BEST Steering Committee has identified a need for a core staff consisting of a Plan Coordinator, an Outreach Specialist and GIS Data Base Manager. The staff will be housed locally in the offices of the Florida Department of Environmental Protection in Panama City. Communications, computer, and GIS facilities will be made available through the NWFWMD. Additional space and support can be made available at the National Marine Fisheries Service facilities in Panama City Beach. The duties of the program staff are outlined in the attached draft management conference agreement.

The BEST holds bi-monthly meetings and will be able to initiate the management conference upon notification of acceptance into the program. Priority will be given to convening the Policy Committee and stakeholder groups. The assistance of the community college local citizen leadership institute will facilitate timely stakeholder involvement.

FIGURE 5. PROPOSED SCHEDULE FOR ST. ANDREW BAY NATIONAL ESTUARY PROGRAM (2/16/95)



*Assumes financing available July 1995; Draft CCMP completed July 1996; Final CCMP completed March 1998

The Technical Committees are continuing the action planning process started in 1994. In the coming months, the technical committees will also prepare detailed request for proposals so that contracts as needed can be let expeditiously. The Steering Committee will continue to work with all members to achieve consensus on action plans and implementation recommendations.

The BEST adaptive management approach to the CCMP will result in a plan that will have elements that can be immediately implemented upon its completion. We look forward to integrating the NEP process as an ecosystem partnership for local growth management planning.

A draft EPA/State Conference Agreement is attached below. The draft agreement identifies the major commitments and milestones and provides annual 3 year budget estimates (Table 2). The total budget based on the currently identified cash match and in-kind services is $1,084,000. The total NEP (federal) request is $825,000 It is amost certain that the in-kind amount of work will grow through the BEST trust and other local government contributions as soon as the benefits of the NEP program begin to be realized. Under the current NEP (federal) amount requested all of the planning efforts will be completed and the CCMP implementation will have begun in some areas.

4.3 POLITICAL WILL/COMMITMENT

The Governor of Florida has nominated St. Andrew Bay for the National Estuary Program at the recommendation of the Secretary of the Florida Department of Environmental Protection. This nomination is supported by the Honorable Pete, U.S. House of Representatives, Representative Scott Clemons, Florida House of Representatives, and Senator Robert Harden, Florida Senate. The Governor's letter of nomination and commitment of the state to provide the 25 percent match is provided in the opening letter. Letters of support from key congressional members are attached at the end of this package. The cities of Panama City, Lynn Haven, Panama City Beach, Callaway, Springfield, Cedar Grove, Mexico Beach, and Parker, the League of Cities and Bay County all support the NEP. Letters of support from the BEST, USFWS, COE, FDEP, DCA, NWFWMD, and WFRPC are attached as well.

Matching funds will come from commitments of cash received from the City of Panama City, City of Panama City Beach, Lynn Haven, and in-kind contributions from Bay County, Gulf Coast Community College, Northwest Florida Water Management District, BEST non-federal members and local industry sponsors. The cities of Springfield, Parker, and Callaway have all pledged cooperation and some funding. The largest cash contribution from the cities is $15,000 per year from Panama City. Bay County would be the largest county contributor at $42,000 in-kind and $15,000 in cash match upon NEP nomination in fiscal year 1995-96. Gulf Power Company and Stone Container Corporation have committed $5,000 and $2,000 per year. Other industry members are currently working through their endowment programs to provide cash match. The NWFWMD and GCCC have committed in-kind contributions of at least $10,000 and $9,000 per year.

Additional letters of support have been received from the Bay County Chamber of Commerce, Organized Fisherman of Florida, Arizona Chemical Company, Gulf Power, Port of Panama City, Coastal Systems Station, NMFS, League of Women Voters, St. Andrew Bay Resource Management Association, Audubon Society, Save Our Shores, Coastal Systems Station and Florida A&M Research Lab.

The BEST includes members from the key jurisdictions. In addition, Steering Committee representatives have met with all the key city and county officials that will be involved in the CCMP to discuss this nomination and obtain support of NEP and consensus building process.

In addition, Florida has two key programs that receive local legislative support for the management of programs for estuary protection: Ecosystem Management and the Surface Water Improvement and Management (SWIM) Program. Ecosystem Management is a statewide program through the FDEP, but it recognizes the need to develop programs on the basis of desecrate ecological systems. SWIM

TABLE 2. PROPOSED SUMMARY OF ST. ANDREW BAY NEP BUDGET

Major Environmental Problems	Initial Actions	3 Year Budget	Benefits/ Transferable Products
Conservation and Management of Wetland Habitats	* Vegetation Evaluation and Geographic Inventory (VEGI) System	$135,000	* Consolidation of available data and field truthing * Base maps for selected areas outlining wetland habitats * Pilot Project for Informed Property Buyer Data Base * Identification of restoration pilot projects * Identification of potential conservation measures * Wetlands Conservation Action Plan
Inventory and Management of Faunal Resources	*Bay Inventory of Populations and Species Integrator (BIOPSI) System	$115,000	* Completion of species inventory * Identification of significant data gaps * Fisheries baseline evaluation * Identification of potential conservation measures * Resource Inventory Action Plan
Evaluation of Chemical Contaminants	*Storm Water Inventory, Monitoring and Management (SWIMM) System *Point-source Inventory and Pollutant Evaluation (PIPES) System	$102,000 $82,000	* Compilation of existing data for point source and nonpoint discharges * Consolidated database of existing water and sediment quality data * Consolidation and review of existing stormwater plans and strategies of all Comprehensive Plans in the basin * Identification of structural and non-structural alternatives to point and nonpoint discharges * Pilot project to evaluate new or different alternatives * Stormwater Action Plan
Public Outreach and Education	*Diversified Estuarine Education Program (DEEP)	$165,000	* Survey of watershed public outreach needs * Community Forum * Bay Day * Outreach materials for marinas, schools, stakeholder groups, and general distribution * Volunteer Network * Identification of public outreach and education needs and alternatives * Public Outreach Action Plan *Facilitate Public Review and approval of draft CCMP
Growth Management with Ecosystem	* Estuarine Management Implementation and Technical Support (EMITS) System * Citizens and Stakeholders Participating in Bay Management (CitPart) * Comprehensive Conservation and Management Plan (CCMP)	$105,000 $95,000 $285,000	* Participation of BEST Technical Committees in Action Planning Process * Stakeholder meetings for industry, tourism, small business, commercial fishing, developers, conservation organizations, government officials, etc. * Citizen's Advisory Committee formed from stakeholder representatives * Policy Review Committee established representing local decisionmakers * Plan for an integrated GIS for watershed * Identification of adaptive growth management alternatives * Growth Management Action Plan * Draft CCMP for St. Andrew Bay * Public Review of CCMP * Final CCMP for St. Andrew Bay * Guide for applying BEST concept for other estuaries
Total Budget		$1,084,000	($392,000, Yr 1; $392,000, Yr 2; $300,000, Yr 3)
In-kind Available		$259,000	($92,000, Yr 1; $92,000, Yr 2; $75,000, Yr 3)
Total NEP Request		$825,000	($300,000, Yr 1; $300,000, Yr2; $225,000, Yr 3)

activities are carried out on a regional basis by the state's five Water Management Districts with administrative oversight by the FDEP. The BEST will work closely with NWFWMD under its SWIM program to adopt and implement the CCMP under SWIM and FDEP to recognize the St. Andrew Bay CCMP as a State of Florida Ecosystem Management program.

There are numerous funding sources and programs that are applicable to the implementation of the type problem solutions likely to be found in the CCMP for St. Andrew Bay. Most of these sources were discussed under Institutional Arrangements, Section 3.2. On the state level this includes Florida land acquisition trusts, Pollution Recovery Trust Fund, SWIM, SRF, and legislative special appropriations. Local level spending includes comprehensive planning and public works projects for stormwater and wastewater utilities infrastructure through ad valorem tax, special sales tax, and utility revenues. Federal spending includes the aforementioned EPA programs and OCZM funds under NOAA. BEST is currently in the process of better facilitating and perpetuating it's functions over the long term through a private, nonprofit trust designated to support the BEST mission. The trust will receive gifts, grants, or property from public or private sources. The trust will be able to increase implementation funding by being eligible to match grants from public and private sources.

4.4 PUBLIC SUPPORT

Support for St. Andrew Bay comes from a broad and diverse group of citizens. It involves business and industry, several local civic organizations, a large network of community volunteers, an active community college and high school, an active media, and BEST members. Listed below are some specific examples of how the above mentioned individuals and groups are dedicated to the preservation of St. Andrew Bay.

Industry/Business: There are several large industries and businesses that are very active members of the bay community. Their roles have been one of stewardship for the estuary, acting in a technical advisory capacity regarding environmental controls and environmental compliance programs, and as sponsors of the NEP program. There are several private companies and industry representatives and personnel who are actively participating on the BEST steering committee or technical committees. These companies have also helped to facilitate meetings through the purchase of stationery and other meeting supplies and have expressed a willingness to contribute funds for the implementation of future BEST programs. The current active members are as follows:

- Arizona Chemical
- Gulf Power Company
- Stone Container
- Organized Fisherman of Florida
- St. Joe Paper Company
- St. Joseph Land and Development Company
- Port of Panama City
- Baskerville-Donovan, Inc.

Conservation Organizations and Associations: The major civic and conservation organizations involved that provide a volunteer work force and a voice for St. Andrew Bay are as follows:

- St. Andrew Bay Resource Management Association (RMA)
- Bay County Audubon Society
- Friends of St. Andrew State Park
- Bay County Save Our Shores
- League of Women Voters
- Florida Wildlife Federation

The RMA is an example of just one of the local environmental organizations that have met with success. It is a private, non-profit organization in which the membership is dedicated to the protection and conservative management of water resources in Bay County, Florida. Since its inception in 1986, RMA has been involved in more than a dozen public-service initiatives. These include shoreline clean-up; protection of endangered marine species (i.e. sea turtles); saltmarsh restoration; wastewater and stormwater management studies and recommendations; environmental education; community planning; and water quality monitoring. In 1990, it initiated the Lake/Baywatch Program that is an on-going, citizen volunteer water quality monitoring program undertaken through a cooperative agreement with the Institute of Food and Agricultural Sciences (IFAS-LAKEWATCH), at the University of Florida in Gainesville.

Community College Activities: GCCC began sponsoring St. Andrew Bay Awareness Day educational activities as early as August 1986. With financial support from the Florida Department of Education's Community Services/Education grant, an all-day St. Andrew Bay Awareness Day was held. GCCC opened its entire campus in 1986 and 1989. In 1986, over 3,000 citizens and in 1989 over 6,000 citizens of all ages enjoyed free, day-long activities promoting awareness of St. Andrew Bay. Many activities for the day were planned, but some of the favorite features were free seafood, live touch tanks, exhibitors demonstrating how they benefited from the bay, a seaside safari, and a historic look at St. Andrew Bay through a slide show.

GCCC has been awarded a $1,030,000 grant by the W. K. Kellogg Foundation to establish a citizen program in leadership training. The purpose of the GCCC, W. K. Kellogg Foundation, Citizen Leadership Institute, is to provide a multi-discipline instructional program designed to provide citizens with the knowledge and skills to identify and assess crucial issues, to bring people together and facilitate public talk, and to effectively engage in creative problem solving, making decisions based on facts. The institute will be a catalyst of public support and through a cooperative effort with NEP staff can provide training to assist St. Andrew Bay stakeholders and the public with cooperative problem-solving, decision-making process skills, building and sustaining collaborative community efforts, consensus building, problem framing, and much more.

On April 30, 1994, Gulf Coast Community College (GCCC), BEST, National Marine Fisheries Service (NMFS), and The Bays Medical Society sponsored "Health and the Sea Day." This program was free to the public and offered concurrent activities at both GCCC and National Marine Fisheries Service. GCCC provided free shuttle service between the GCCC campus and the NMFS facility. Activities at GCCC included guest lectures on health, medicine, and the sea. Additional presentations were made by subcommittee members of the BEST team. There were special activities on the GCCC campus for youth of age 10 and above, including fish printing, underwater photography, environmental awareness, etc. Activities at the NMFS facility included hands-on aquariums, microscopic demonstrations on marine plankton, live sharks, boats and fishing gear used by laboratory research projects, videos, and displays. The Florida Institute of Oceanography's research vessel, the "R/V Bellows," was open for tours at the NMFS dock. Approximately 500 citizens of all ages participated in "Health and the Sea Day."

The BEST Growth Management and Education/Outreach Committees, the League of Women Voters, and the GCCC co-sponsored a public issues forum in which 40 cross-sectional representatives of the citizenry of St. Andrew Bay watershed discussed "A Vision For St. Andrew Bay." A 32 page "Citizen's Guide" was written by BEST members to outline basic ecological principles and present three different strategies for bay management for discussion by participants. The guide was augmented by a 15-minute videotape prepared by the broadcast students at ***Rutherford High School***.

Media: The **Panama City News Herald** publishes a monthly Waterfront section in the Sunday edition. The section frequently deals with issues of the St. Andrew Bay ecosystem. This past year, four full pages were dedicated to seagrasses and tidal wetlands. In another edition, the efforts of the Lake/Bay Watch program were highlighted. The RMA publishes a newsletter containing information on current environmental issues surrounding the Bay.

Bay Environmental Study Team: One of the primary needs facing the Bay County community is effective management of St. Andrew Bay by local government agencies, citizens, educators, civic organizations and policy makers. Effective management strategies employed should include improvement in communication, collaboration, networking, volunteerism and information dissemination; the same is

true for St. Andrew Bay. BEST networking activities and coordination efforts are many and represent the collective efforts of a very supportive citizenry. BEST has maintained records and produced several documents that reflect the collective efforts of community support such as the:

- West Bay Wetlands Marsh Replanting Project
- Meeting Summary Report
- Citizen's Guide: "Choosing a Vision for St. Andrew Bay"
- Media Contact Summary
- Summary of BEST Issue Workshops
- Health and Sea Day of Gulf Coast Community College
- Near Coastal Waters Annual Summary Report
- BEST Committee Goals and Action Items Summary for 1995

The BEST will seek to expand public involvement with the addition of the stakeholders groups and Citizen's Advisory Committee. A public outreach strategy (DEEP) has been identified as one of the priority issues to be addressed in the CCMP. The BEST framework will remain active during the implementation phase of the CCMP to achieve a public consensus of the solutions for the Bay.

Public Participation Plan: The public participation strategy will be to involve all interested citizens and stakeholders in workshops within three months of initiating the NEP. Assistance in organizing and implementing the workshops will be provided by the local leadership institute. Separate workshops will be held for each stakeholder group (i.e. industry, tourism, small business, commercial fishing, recreational fishing, developers, conservation organizations, etc.). Participants will be provided a Citizen's Handbook (BEST 1993) prior to the workshop to learn more about the bay and its problems. Workshop participants will participate in facilitated sessions to clarify issues and identify potential solutions.

Each stakeholder group will select two representatives to participate on the Citizen's Advisory Committee. The role of the citizen's advisory committee will be to provide liaison on issues of concern to the BEST committees, review early draft action plans and provide feedback to BEST, develop an outreach strategy for public review of the draft CCMP, and initial selection of recommended action items. The chair of the Citizen's Advisory Committee will be a member of the Steering Committee and be active on the Public Outreach Technical Committee. The Citizen's Advisory Committee will work closely with the Outreach/Education Committee to develop a continuing public involvement plan for the CCMP

SECTION 5

REFERENCES

Albertson, M. 1992. Party boat fishing. The News Herald. June 28. Panama City, Florida

Bay County, Board of County Commissioners. 1994. Strategic Plan for Stormwater System. The Board, Panama City, FL, 122 p.

Bay County Chamber of Commerce. 1995. Informational Literature. Panama City, Fl. 32pp.

Bay County Tax Office. 1995. pers. comm.

Bay Environmental Study Team (BEST). 1993. Choosing a vision for St. Andrew Bay: A citizen's guide.

Brim, M.S. 1991. Student / Citizen Handbook of Environmental Laws Affecting Bay County's Saltwater Resources. Gulf Coast Center for Instructional Innovations, Panama City, Fl.

Chambers, J.R. 1992. "Coastal degradation and fish populations losses." pp. 45-58 In: R.H. Stroud (ed.), Stemming the Tide of Coastal Fish Habitat Loss. National Coalition for Marine Conservation, Savannah, Ga.

Comp, G.S., and W. Seaman, Jr. 1985. "Estuarine habitat and fishery resources of Florida." pp. 337-436 In: W. Seaman, Jr. (ed.), Florida Aquatic Habitat and Fishery Resources. American Fisheries Society, Florida Chapter, Kissimmee, FL.

Duke, T.W., and W.L. Kruczynski. 1992. "A summary of the report: status and trends of emergent and submerged vegetated habitats of the Gulf of Mexico, USA." pp. 11-28 In: The Environmental and Economic Status of the Gulf of Mexico. Proceedings of the Symposium, Dec. 2-5, 1990, New Orleans, La. Gulf of Mexico Program, Stennis Space Center, Miss.

Dykes, C. 1995. St. Andrew State Recreation Area. pers. comm.

Florida Department of Environmental Protection, Division of Marine Resources. Summary of Florida Commercial Marine Landings. (Annual publication)

Florida Department of Environmental Protection, Bureau of Surface Water Management. 1994. 1994 Water Quality Assessment for the State of Florida, 305(b) Technical Appendix, 157 p.

Florida Department of Environmental Protection. Florida Marine Research Institute. 1995. Saltwater fishing license program. Sales for the period 06/01/93-06/30/94. St. Petersburg, Florida.

Fonseca, M.S. 1994. A guide to planting seagrasses in the Gulf of Mexico. Texas A&M University Sea Grant College Program. TAMU-SG-94-601.

Gore, J.A. and C.A. Chase. 1989. Snowy plover breeding distribution. Final performance report. Florida Game and Fresh Water Fish Commission. Nongame Wildlife Section. Tallahassee, FL. 23pp.

Gulf of Mexico Program. 1993. Nutrient enrichment action agenda (3.2) for the Gulf of Mexico. Gulf of Mexico Program, Stennis Space Center, Miss., 161 p.

Haig, S.M. and Plissner, J.H. 1992. 1991 International piping plover census. Report to the U.S. Fish and Wildlife Service Region 3, Division of Endangered Species, Ft. Snelling, MN. 148 pp.

Hand, J., J. Col, and E. Grimison. 1994. Northwest Florida District Water Quality Assessment, 1994, 305(b) Technical Appendix. Florida Dep. Environ. Prot., Bureau of Surface Water Management, p. 131-141.

Holland, S.M. and J.W. Milon. 1989. The structure and economics of the charter and party boat fishing fleet of the Gulf Coast of Florida. Marine Fisheries Initiative (MARFIN). Gulf of Mexico Phase. Presentation Abstracts. Second Annual Marfin Conference. September. New Orleans, LA. (MARFIN #NA87WC-H-06141). 20-21pp.

Keppner, E.J. 1995. National Marine Fisheries Service. pers. comm.

Kusler, J.A., W.J. Mitch, and J.S. Larson. 1994. "Wetlands." Scientific American 270(1):64-70.

Ladd, E., M. Post, and P. Swatek. 1979. Wetlands and the water cycle. Massachusetts Audubon Society, Lincoln, MA, 22 p.

McAnnally, C., T. L. Macmillan, and P. Wieland. 1990. Institutional and Regulatory Assessment for the Northwest Florida Water Management District SWIM plan. NWFWMD. 203 p.

McNulty, J.K., W. N. Lindall, Jr., and J.E. Sykes. 1972. Cooperative Gulf of Mexico Estuarine Inventory and Study, Florida: Phase I, Area description. U.S. Dep. Commer., NOAA Tech. Rep. NMFS Circ. 368, 126 p.

McWhite, R. and J. Hardesty. 1994. Adaptive Management at Eglin Air Force Base. Eglin AFB Scientific Meeting Summary. Eglin AFB, Fl. pp. 6-11.

Milins, D.C., H.O. Hodgins, B.B. McCain, D.W. Brown, and S.L. Chan. 1984. "Toxic chemicals and biological damage in estuarine systems." pp. 161-176 In: B.J. Copeland, et al. (eds.), Research for Managing the Nation's Estuaries. Proceedings of a conference held March 13-15, 1984, Raleigh, NC. Univ. North Carolina Sea Grant Pub. UNC-SG-84-08.

Middlemas, K. 1994. "Stormwater runoff." News Herald (Panama City, FL) Oct. 30, 1994, p. 1-3D

Nakamura, E. 1985. Saltwater fishing in Bay County. Bay Biz. Autumn. pgs. 13-14.

National Oceanic & Atmospheric Administration (NOAA). 1985. National Estuarine Inventory Data Atlas. v. 1: Physical and Hydrological Characters. U.S. Dep. Commer., NOAA, p. 3.07.

National Oceanic & Atmospheric Administration (NOAA). 1989. Susceptibility and Status of Gulf of Mexico Estuaries to Nutrient Discharges. Summary report. U.S. Dep. Commer., NOAA, Rockville, Md., 36 p.

Nicholls, J.L. 1989 Distribution and other ecological aspects of piping plovers *Charadrius melodus* wintering along the Atlantic and Gulf Coasts. Masters Thesis. Auburn University, Alabama. 153pp.

Northwest Florida Water Management District. 1991. Surface Water Improvement and Management Plan for the Deer Point Lake Watershed. NWFWMD Program Devel. Ser. 91-4.

Northwest Florida Water Management District. 1991. Surface Water Improvement and Management Plan for the Pensacola Bay System. NWFWMD Program Devel. Ser. 91-2.

Shaffer, R.N. 1993. A bibliography of research on St. Andrew Bay, its tributaries, and the nearby coastal waters of Bay County, Florida. U.S. Dep. Commer.. NOAA Tech. Memo. NMFS-SEFC-320, 62 p.

Sutherland, D.F. 1977. Catch and catch rates of fishes caught by anglers in the St. Andrew Bay system, Florida, and adjacent coastal waters, 1973. U.S. Dep. Commer., NOAA Tech. Rep. NMFS SSRF-708, 9 p.

Tourist Development Council. 1995. Informational magazine. Panama City Beach, Florida. 74pp.

U.S. Army Corps of Engineers, Mobile District. 1994d. Panama City Harbor, Florida general reevaluation report, deep draft navigation project. 101 pp. with appendices. October.

U.S. Fish and Wildlife Service. 1981. Mitigation policy; Notice of Final Policy. Part III. Federal Register. Vol. 46, No. 15. January 23. pp. 7644-7663.

University of Florida. College of Business Administration. 1994. Florida Statistical abstract. 28th edition. Bureau of Economic and Business Research. Gainesville, Florida.

Varanasi, U. 1992. "Chemical contaminants and their effects on living marine resources." pp. 59-71 In: R.H. Stroud (ed.), Stemming the Tide of Coastal Fish Habitat Loss. National Coalition for Marine Conservation, Savannah, Ga.

Waterways Experiment Station. Environmental Laboratory. U.S. Army Corps of Engineers. 1978. Preliminary guide to wetlands of the Gulf coastal plain. Tech. Rep. Y-78-5. Vicksburg, MS. 103 pp.

Watson, K. 1991. Turtle watch 1991 sea turtle monitoring on Panama City Beach, Bay County, Florida. 17 pp. with appendices.

Watson, K. 1993. Turtle watch 1992 sea turtle monitoring on Panama City Beach, Bay County, Florida. 19 pp. with appendices. Report No. 2.

Watson, K. 1994. Survey of marine turtle nesting activity on Panama City Beach in 1993. 20 pp. with appendices. Report No. 3.

Weber, M., R.T. Townsend and R. Bierce. 1992. Environmental Quality in the Gulf of Mexico. Center for Marine Conservation, Washington, D.C., 132 p.

Zedler, J.B. 1988. Restoring diversity in salt marshes--can we do it? pp. 317-325 In: E.O. Wilson (ed.), Biodiversity. National Academy Press, Washington, D.C.

Zieman, J.C. and R.T. Zieman. 1989. The ecology of the seagrass meadows of the west coast of Florida: a community profile. U.S. Fish and Wildlife Service. Biological Report 85(7.25). 155 pp.

NATIONAL ESTUARY PROGRAM
ST. ANDREW BAY PROGRAM

MANAGEMENT CONFERENCE AGREEMENT

(DRAFT)

This Draft Agreement has been developed by the BEST Steering Committee and the Northwest Florida Water Management District under the auspices of its Surface Water Improvement and Management Program. It is subject to approval by the members of the BEST policy committee. When complete it is intended for this agreement to be signed by the EPA and the policy committee parties. It has been drafted as a consensus document showing the commitment by the State and all the local parties to support the NEP work.

NATIONAL ESTUARY PROGRAM
ST. ANDREW BAY PROGRAM

MANAGEMENT CONFERENCE AGREEMENT

(DRAFT)

INTRODUCTION

Over the past several years, the St. Andrew Bay Environmental Study Team (BEST) has met to share information on the natural resources of the bay and to address cumulative concerns for the ecological integrity of the bay. The BEST is composed of representatives of local industry, civic organizations, educational institutions, and government agencies. The mission of BEST is to evaluate the status of St. Andrew Bay, identify problems, and initiate corrective actions. Goals include improving coordination and communication, providing information to decision makers and public education.

The goals and objectives of the St. Andrew Bay National Estuary Program (NEP) are to assist communities in restoring the health of the estuary while supporting economic and recreational activities. The framework for the NEP is a collaborative process involving local officials, technical experts, citizens, resource managers, and interest groups. The program is intended to identify major environmental problems in the estuary, decide what needs to be done and develop comprehensive conservation and management plans (CCMP) to carry out the needed work for effective, sustainable resource management.

Our vision to maintain a healthy bay ecosystem could be imperiled if growth projections are realized in the next decade. In this regard, the Florida Department of Environmental Protection (FDEP) has identified this system as one of the state's waterbodies that are threatened by pollution. Under the St. Andrew Bay National Estuary Program the objective of the BEST to expedite the process for local growth management plans in a comprehensive manner and to integrate adaptive ecosystem management into the planning and watershed management process.

STUDY AREA AND RESOURCE OVERVIEW

The St. Andrew Bay system is a 69,000 acre estuary in northwest Florida's panhandle. Overall, it is one of the more diverse bays in North America. It is a relatively deep estuary with small tides, clear, very saline to nearly fresh water. The major source of freshwater inflows are from spring-fed streams. Poor flushing action makes it vulnerable to anthropogenic contamination. The bay has large areas of seagrasses and fringing marshes.

Over 2,100 marine dependent species have been recorded for this bay system. The largest seagrass stock in the Florida panhandle is in the St. Andrew Bay system. The diversity of habitats in the bay system provide essential spawning and nursery areas for a variety of recreationally and commercially valuable species of finfish and shellfish. The dune and beach ecosystems include rare and federally protected species such as the snowy plover, threatened piping ployer, threatened loggerhead sea turtle, endangered green turtle, and endangered Choctawhatchee beach mouse.

The watershed of the estuary is entirely within the State of Florida. It covers approximately 1,144 square miles of pine forests, sandhills, lakes, wetlands (composing more than 50,000 acres), coastal beach sand dunes, suburban, and urbanized areas. The majority of the watershed is in Bay County. About 48 percent of the watershed is in silviculture. Urban areas in the County compose about three percent of the area and include over 134,000 residents.

The major economic components depending to some extent or entirely on the bay natural resources are: tourism and recreation, commercial and recreational fishing, industry/marine commerce, silviculture, and the military. The dominant factor in the local economy is tourism. The retail and service companies employ the largest group of people. The U.S. Department of Defense is the largest single employer.

Area tourism is based on the relatively pristine beautiful environment of the Gulf of Mexico and the bay system. The St. Andrews Bay State Recreation Area alone averages 750,000 visitors annually, one of the top Florida parks in visitation. About 39,000 saltwater fishing licenses were purchased in Bay county, making it the highest number in the panhandle and the fifth largest in the state. Bay County was also fifth in Florida in commercial fish landings in 1992.

St. Andrew Bay has several protected port facilities. The area has more than 90 small and large manufacturers. Both Tyndall Air Force Base and the Navy's Coastal Systems Station are within the watershed and depend on the bay and gulf for training exercises.

Bay County has been identified as an area expected to grow substantially in the next decade. The current growth rate is about two percent annually, more than double the national average. Historic growth has occurred without a clear understanding of the cumulative ecological effects. Wetlands and seagrasses have been converted to other uses. Certain areas of the bay have contaminated sediments from former industries and urban runoff. Harvests of commercial and recreational fish and shellfish have decreased.

PRIORITY PROBLEMS AND SOURCES

Five top priority problem categories to be addressed by a CCMP were identified through a series of open meetings, a citizens forum, and a BEST consensus building exercise. These include:

1) **Loss of Wetland Habitats and Vegetation**

2) **Impacts of Chemical Contaminants**

3) **No Specific Efforts to Evaluate and Manage Faunal Resources**

4) **A lack of Public Education and Understanding**

5) **A lack of Comprehensive Management Planning within the St. Andrew Bay Ecosystem**

Efforts to conserve and manage the important resources of the St. Andrew Bay system became more active and complex with the state and federal regulatory programs of the 1960's and 1970's. However, planning has become more fragmented as regulations have increased in complexity. The state continues to classify the bay system as a threatened resource because of continued growth and the discharge of pollutants in the Bay. Although the watershed is entirely within one state and mostly within one county, fourteen (14) separate local government entities make decisions that affect the Bay. This, in addition to the various state and federal agencies regulations, has resulted in a splintered and inconsistent management effort. The NEP will assist the local communities in integrating as many of the plans as possible, thereby allowing these communities to seek and realize common, cooperative solutions for protection of the Bay. Within the five identified problem categories, the following 8 priority problems, and the associated basic causes of those problems, have been identified, as follows:

1) **Wetland Losses and a Lack of a Management Inventory**
   Loss of valuable wetlands by piece-meal growth, erosion, chemical/nutrient runoff, and physical damage (i.e. propeller scaring) is a significant problem in St. Andrew Bay. The cumulative impacts of these losses results in reduced water quality and is a threat to commercial and recreational fishing and drinking water quality. In spite of numerous regulatory programs, the fact is, each year more interior, forested wetlands are eliminated, more saltmarsh and tidal flats are lost to erosion and sedimentation, and more sea grass beds are damaged by vessel traffic, sedimentation, turbidity, and excess nutrients.

2) **Pollution and Contamination from Urban Stormwater Runoff**
Urban stormwater runoff has been identified by BEST as one of the most important, chronic and insidious problems within the Bay. Although some provisions are in place to address urban stormwater, the Bay continues to experience significant loading of chemicals and pollutants from unidentified and/or unmanaged sites throughout the Bay watershed. These contributions continue to slowly degrade water quality, contaminate vital bay habitats, and over-enrich with nutrients, areas of the Bay with associated growth of unwanted algae or with serious depletion of water column oxygen concentrations. These impacts, in turn, contribute to reductions in populations of fauna and in the probable elimination of some sensitive species.

3) **Cumulative Chemical/Pollutant Impacts from Point Source Discharges.**
There are several point sources that release effluents into the Bay. Currently the total volume of all discharges is between 35 and 40 million gallons per day. Although each discharge is permitted, no evaluation of the cumulative contamination or pollution impacts of these discharges has been done. Furthermore, there is a need within the rapidly growing Bay County area to increase effluent discharges. St. Andrew Bay is poorly adapted for flushing particulates, pollutants and chemicals because of limited freshwater inflow, relatively small and highly irregular size, depths greater than most coastal embayments, and minimal solunar tidal action. It is imperative that the total cumulative loading, both present and future projections, be evaluated for management purposes, and that options for disposal, other than discharge directly into the Bay, be thoroughly investigated and seriously considered.

4) **Historic Sediment Contamination**
It has been documented that three specific sites within the Bay have suffered excessive chemical contamination. These sites are Watson Bayou, Massalina Bayou and Martin Lake (formerly an important bayou of the Bay). These sites once provided prime habitat for estuarine resources and they were among the largest bayous within the Bay system. The high salinity common to these bayous once made them desirable areas for a large number of species. However, species diversity, especially among benthic/demersal species, has been greatly reduced. Efforts need to be made to halt further degradation of these stressed resource areas, evaluate management alternatives, and implement actions that will restore and mitigate the damage that has been done.

5) **Faunal Losses and Lack of a Species/Populations Inventory**
St. Andrew Bay is among the most diverse estuarine systems in the U.S. However, it is generally agreed that associated with stresses to wetlands, water and sediment quality, there has been a loss of some unknown number of sensitive, and possibly unique and important species. However, it is impossible

to document these losses at the present time because of the lack of an adequate system for inventorying the species and populations within the Bay. Without a faunal management tool in place that identifies the most sensitive or stressed species, and provides information about population dynamics and distribution, a proper management plan for the Bay, that protects these species, cannot be developed.

6) **Lack of Management Plans for Species of Special Interest**
It is recognized that there are species, the welfare of which is of special interest to society. Species within this group include the important commercial and recreational fauna, and species that are listed by the Federal or State governments as endangered or threatened. Because of their importance to society as a whole these species require special management consideration. However, there are currently very few site specific plans that exist to assure proper management of these species within St. Andrew Bay.

7) **Need for Expanded Community Environmental Education**
Significant progress has been made by area educators in their efforts to enlighten the citizens living within, and visitors to, the Bay watershed. However, the complexity of an estuary as diverse as St. Andrew Bay and its management requirements calls for a very diversified environmental education program. The scope of the task, from coastal dynamics and erosion, to management of stormwater by 14 separate governments, requires special educational efforts for children, high school and college students, working citizens, retired people, managers and politicians, developers, industries, and conservation groups, to name a few. Without an expanded environmental education program, the public (particularly voting citizens) will not appreciate or support many of the programs and legal modifications required to properly manage the Bay.

8) **Lack of a Comprehensive Basinwide Management Plan**
As has been pointed out, some 14 separate county or municipal government entities affect, and play a role in the fate and management of, St. Andrew Bay. Development of a Comprehensive Coastal Management Plan (CCMP) for the Bay is critically needed to assure the most cost-effective, conservation and management plan for the St. Andrew Bay ecosystem. Without such an integrated and comprehensive plan, management of important resources will be accomplished in a less-than-adequate, and perhaps in a totally inappropriate way.

PROGRAM GOALS AND OBJECTIVES

Goal:

Our vision is to maintain and restore a healthy St. Andrew Bay ecosystem for the benefit of all people.

Primary Objective:

Our mission is to evaluate the status of St. Andrew Bay, identify problems, and initiate corrective actions.

Multiple Objectives:

A) To properly manage and conserve the wetland vegetation resources of the Bay and retain their socially important, natural ecological functions.

B) To properly manage the renewable, economically important, highly diverse, and unique and/or endangered, faunal resources of the Bay.

C) To significantly reduce or eliminate adverse impacts to the Bay caused by chemicals and pollutants.

D) To adequately educate our citizens and visitors about the resources, management needs and management programs of the Bay, in such a way as to foster a strong appreciation of, and dedication to, the proper management of the Bay's unique and diverse natural ecosystem.

E) To integrate local land use planning with watershed ecosystem conservation.

SUMMARY OF ACCOMPLISHMENTS TO DATE

ORGANIZATION AND HISTORY OF BEST

The St. Andrew Bay Environmental Study Team (BEST) is a grassroots organization that was organized in the fall of 1987. It began to grow and receive very active support after 1992 when it received support for reorganization under the EPA Near Coastal Waters Program. Initial funding was provided through an interagency agreement between EPA and the U.S. Fish and Wildlife Service. Although the Team did not have specific funding for 1994, it has made significant progress in the last two years through voluntary support of primarily state, federal, and local agencies. It is now a well organized (see conference management structure below) supported by all the primary state and local agencies who have a role in the management of the bay. As a group of lead scientists, planners,

engineers involved in the day to day activities concerning St. Andrew Bay the BEST technical support role is unsurpassed by no other entity.

The NEP application package was developed through a BEST steering committee. Current BEST government agency members will form the basis for the policy committee members in the NEP organizational structure. BEST members have also been the foundation for the development of citizen involvement activities and development of public issues forums related to the Bay and its watershed. Through it's publications Issues Identification Summary Report, Citizens Guide: "Choosing a Vision for St. Andrew Bay", Summary of Best Issue Workshops, Near Coastal Waters Annual Summary Report, BEST Committee Goals and Action Items Summary for 1995, well over 100 problems have been identified and priority issues and programs have emerged.

The existing BEST organization structure is analogous to a NEP management conference. BEST will continue to operate all committees by a consensus building process.

SCIENTIFIC DATA AND MANAGEMENT PROGRAMS

The available information covering St. Andrew Bay and its watershed is immense. Well over 300 publications documenting available environmental data and studies have been included in a library and bibliography maintained by National Marine Fisheries Service in its Panama City office. This reference system continues to be updated on a regular basis and should be consulted to understand all of the information and data resources available to researchers and managers prior to embarking upon new studies. This reference system also maintains a list of scientific data bases and GIS coverage's of the area that are publicly available through various government programs.

As outlined in the NEP nomination Package there are well over 30 institutions and government agencies fulfilling management roles under current laws, regulations and guidelines affecting the Bay. To date these programs have been effective in maintaining the current status of the Bay according to what the Florida Department of Environmental Protection defines as threatened under its federally sponsored water quality assessment programs 319 and 305(b). The watershed has several government entities that are in the midst of developing plans related to the implementation of programs in watershed protection, flood control, open space conservation, water supply protection, land development, growth management, and wastewater utilities infrastructure. However all of these plans are piecemeal and none have had the central focus of the St. Andrew Bay System. This fragmented approach diminishes and reduces the effectiveness of federal, state, and local restoration and preservation efforts. It is now recognized by the scientific and

management community that a more comprehensive and integrated ecosystem approach is needed.

CONSERVATION ORGANIZATIONS

The St. Andrew Bay Resource Management Association and its 100+ membership has been fostering proper management of the Bay's resource since its organization in 1986. The association has conducted the Baywatch volunteer water quality sampling program for the past four years. Its database is estuary wide and includes both field and analytical laboratory concentration determinations.

The Bay County Audubon Society has actively worked for protection of the bay's avian fauna and all other resources since the early 1970's. It oversees the Christmas bird counts for tracking long term migratory bird trends.

Save Our Shores was one of the first conservation groups to energetically pursue the conservation and management of the St. Andrew Bay ecosystem with its beginning in the early 1970's.

CONFERENCE COMMITMENTS

This Management Conference Agreement sets forth the work to be accomplished by the St. Andrew Bay - Bay Environmental Study Team from October 1995 to October 1998. The negotiated work activities and timeline (see Figure 1) presented in this Agreement will be the general guide to St. Andrew Bay NEP activities, while annual workplans will lay out specific projects, associated budgets (see Table 1) and how each project relates to the purposes of the NEP as stated below.

LEGISLATIVE AND EPA GUIDANCE

The overall framework for the three years of work outlined in this Agreement consists of the seven purposes stated in Section 320 of the Water Quality Act of 1987. These seven purposes are to:

1) Assess trends in the estuary's water quality, natural resources, and uses;

2) Identify causes of environmental problems by collecting and analyzing data;

3) Assess pollutant loadings in the estuary and related them to observed changes in water quality and natural resources;

4) Recommend and schedule priority actions to restore and maintain the estuary, and identify the means to carry out these actions (this is the comprehensive conservation and management plan, or CCMP);

5) Ensure coordination on priority actions among federal, state and local participants in the conference;

6) Monitor the effectiveness of actions taken under the plan; and

7) Ensure that federal assistance and development programs are consistent with the goals of the plan.

In addition to the seven purposes stated in the Water Quality Act, EPA has provided additional guidance designed to ensure that the seven purposes will be met. This agreement spells out that guidance and provides that the state and local program sponsors. The agreement spells out the activities, products, and schedules by which the management conference will complete its CCMP within three years. At a minimum, the agreement commits the State of Florida and the St. Andrew Bay NEP partners to:

- Identify and support a project office or its equivalent, to support the activities of the management conference and its participants;

- Take early action where problems and solutions have been identified, such as improving base programs within the State's immediate control;

- Educate and involve the public in the development and implementation of the CCMP; and

- Develop and implement a CCMP and its supporting financing strategy.

Specifically, the St. Andrew Bay conference agreement discusses the following key activities, products and their completion dates:

- An identification of priority problems of the estuary based on public and other input;

- A status report on all of the program activities undertaken to date related to priority problems identified;

- An inventory of applicable Federal programs with potential conflicts identified;

- An analysis of the current scope and effectiveness of existing federal, state and local natural resource management programs should be completed within one

year. This base program analysis is essential for identifying and developing recommendations for the CCMP;

- A draft CCMP should be completed within the first twelve to eighteen months. The draft CCMP should focus on protection actions that agencies and other entities can commit to taking immediately, as well as potential actions that require further consideration or information gathering. The draft CCMP should include a preliminary finance plan based on public input that considers costs of potential actions and identifies how such actions will be financed, a Federal consistency report, and plans for coordinated implementation and monitoring;

- Final reports on the estuary's status and trends, probable causes of environmental problems, and pollutant loadings may be combined in a final characterization report. Characterization reports will be primarily devoted to the synthesis of existing data on the estuary.

- The management conference will focus on "action now," and to be simultaneously developing CCMPs and synthesizing remaining data as opposed to sequential development of these items; and

- A final CCMP should be completed within three years of the signed conference agreement. The final CCMP shall identify action plans for implementing the CCMP, including a discussion of their likelihood of success, lead implementation agencies, funding required and sources of funding and schedule for implementation.

- The administrator of EPA has 120 days to approve the final CCMP. The workplan for the final year of CCMP development will reserve a portion of that year's funds to support the management conference during the approval period. This will ensure that the conference remains officially in place to respond to potential concerns about the CCMP during this review period as well as facilitate a smooth transition from CCMP development to implementation. The workplan also needs to propose post-approval activities for the management conference.

- One of the tasks for the management conference during the final year of CCMP development is to prepare a workplan defining the first year of post-approval activities. This workplan will be submitted concurrently with the final CCMP and will identify tasks necessary to support project oversight during implementation of the CCMP. Activities to be discussed in the final year workplan will include process, staff, and support to:

- close out any remaining technical and development projects;
- complete any remaining public reviews;

- monitor and oversee CCMP implementation;
- conduct consistency reviews;
  prepare biennial reports on the success of actions taken as a result of the plan; and
- identify state and local support to maintain project oversight during implementation of the CCMP.

ANNUAL WORKPLAN (July 1995, July 1996, July 1997)

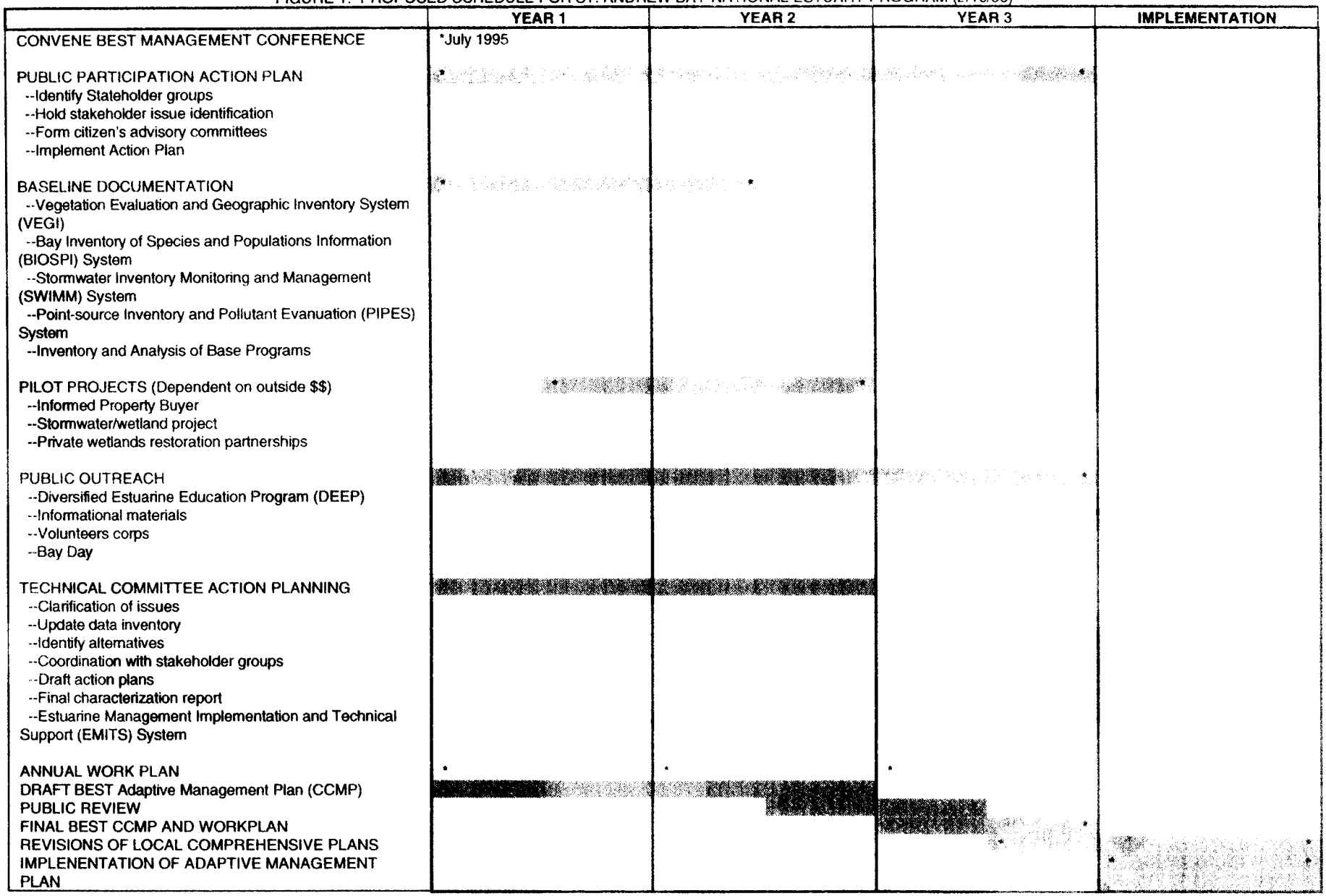
Each year a work plan will be developed. The work plan will identify actions and demonstration projects to be taken in the upcoming year and describe how these activities address the priority issues identified by the Management Conference. Requests for "early action" projects are anticipated in the first annual workplan based on the priority problems identified by the Management Conference. Thereafter, the annual workplan will include a summary and status of the previous year's "early action" commitments. As work under the NEP progresses, the "early action" agenda will incorporate new technical information and experience gained from characterization studies, action/demonstration projects, and the initial base program analysis with a view of the final CCMP. A public participation action plan will be a critical component of the NEP's "early action" agenda based on priority issues identified by the public. The public participation action plan will focus on the review and approval of the draft CCMP by local governments, including issues related to financing and implementation of the final management plan.

INVENTORY AND ANALYSIS OF BASE PROGRAMS (October 1995)

The purpose of the base programs analysis is to characterize and understand the scope and effectiveness of federal, state and local agencies, laws, and regulations in managing coastal-related issues. An objective of the analysis is to identify duplicated efforts, gaps and weaknesses in ongoing management and regulatory programs and to recommend enhancements for meeting NEP goals. This analysis was initiated with the submittal of the NEP nomination package in February 1995. Base Program Analysis will assist in identifying areas that are not covered by existing programs, and those programs that need to be modified to meet the goals of the Management Conference.

The BEST Growth Management Committee will recommend which programs would be further assessed and will identify which recommendations can be fast-tracked for immediate implementation. In the following year, program analysis activities will be enhanced and specific programs that require more in-depth analysis and assessment will be identified and their examination enhanced. For non-point sources of pollution, the scope and effectiveness of existing programs should be characterized in terms of their effectiveness of achieving or implementing

FIGURE 1. PROPOSED SCHEDULE FOR ST. ANDREW BAY NATIONAL ESTUARY PROGRAM (2/16/95)



*Assumes financing available July 1995; Draft CCMP completed July 1996; Final CCMP completed March 1998

TABLE 1. PROPOSED SUMMARY OF ST. ANDREW BAY NEP BUDGET

Major Environmental Problems	Initial Actions	3 Year Budget	Benefits/ Transferable Products
Conservation and Management of Wetland Habitats	* Vegetation Evaluation and Geographic Inventory (VEGI) System	$135,000	* Consolidation of available data and field truthing * Base maps for selected areas outlining wetland habitats * Pilot Project for Informed Property Buyer Data Base * Identification of restoration pilot projects * Identification of potential conservation measures * Wetlands Conservation Action Plan
Inventory and Management of Faunal Resources	*Bay Inventory of Populations and Species Integrator (BIOPSI) System	$115,000	* Completion of species inventory * Identification of significant data gaps * Fisheries baseline evaluation * Identification of potential conservation measures * Resource Inventory Action Plan
Evaluation of Chemical Contaminants	*Storm Water Inventory, Monitoring and Management (SWIMM) System *Point-source Inventory and Pollutant Evaluation (PIPES) System	$102,000 $82,000	* Compilation of existing data for point source and nonpoint discharges * Consolidated database of existing water and sediment quality data * Consolidation and review of existing stormwater plans and strategies of all Comprehensive Plans in the basin * Identification of structural and non-structural alternatives to point and nonpoint discharges * Pilot project to evaluate new or different alternatives * Stormwater Action Plan
Public Outreach and Education	*Diversified Estuarine Education Program (DEEP)	$165,000	* Survey of watershed public outreach needs * Community Forum * Bay Day * Outreach materials for marinas, schools, stakeholder groups, and general distribution * Volunteer Network * Identification of public outreach and education needs and alternatives * Public Outreach Action Plan *Facilitate Public Review and approval of draft CCMP
Growth Management with Ecosystem	* Estuarine Management Implementation and Technical Support (EMITS) System * Citizens and Stakeholders Participating in Bay Management (CitPart) * Comprehensive Conservation and Management Plan (CCMP)	$105,000 $95,000 $285,000	* Participation of BEST Technical Committees in Action Planning Process * Stakeholder meetings for industry, tourism, small business, commercial fishing, developers, conservation organizations, government officials, etc. * Citizen's Advisory Committee formed from stakeholder representatives * Policy Review Committee established representing local decisionmakers * Plan for an integrated GIS for watershed * Identification of adaptive growth management alternatives * Growth Management Action Plan * Draft CCMP for St. Andrew Bay * Public Review of CCMP * Final CCMP for St. Andrew Bay * Guide for applying BEST concept for other estuaries
Total Budget		$1,084,000	($392,000, Yr 1; $392,000, Yr 2; $300,000, Yr 3)
In-kind Available		$259,000	($92,000, Yr 1; $92,000, Yr 2; $75,000, Yr 3)
Total NEP Request		$825,000	($300,000, Yr 1; $300,000, Yr2; $225,000, Yr 3)

the management measures of Section 6217 of the Coastal Zone Reauthorization Amendments of 1990 ("6217").

FINANCIAL STRATEGY (March 1996)

Information for the Base Program Analysis will be used to identify priority areas where state, federal, and local programs and funding sources may be redirected or developed to implement actions, improve programs, and carry out demonstration projects. The Financial Strategy to be outlined in the Management Conference will include local, regional, state-wide and federal strategies for financing projects and programs to reduce pollution or manage the estuary. Private funding sources shall also be investigated. The financial strategy will be a key component of the CCMP.

In addition the management conference shall continue to function beyond the three year NEP grant period through private and local funding sources, to assure continued oversight, public consensus, and technical assistance for the implementation phase.

FEDERAL CONSISTENCY REPORT (October 1995)

National Estuary Programs are required to ensure consistency of other federal programs with the purposes and objectives of the CCMP. This requirement is intended to coordinate federal programs to gain optimum benefits toward program objectives. To fulfill this requirement, an inventory of federal programs will be completed as part of Base Program Analysis by March 1996. From this information, a Federal Consistency Report will be prepared and incorporated into the Draft and Final CCMP.

CHARACTERIZATION REPORT (July 1997)

Studies will be performed to address the St. Andrew Bay system's current status and historical trends, probable causes of environmental problems, and pollutant loadings. These studies will be combined into a Characterization Report where technical and scientific findings are described in lay terms. This report will be completed as part of the CCMP.

Aside from being an important public education tool, the Characterization Report may also demonstrate a need to reprioritize or revise the current list of priority problems as described in this Agreement and in the Nomination Document. In addition, by summarizing current knowledge, the report will address questions integral to the effective management of the St. Andrew Bay living resources and ecosystem.

MONITORING PROGRAM PLAN (July 1997)

Data collected through environmental monitoring is essential for characterizing water and natural resources and to assist in the development and to determine the success of management plans. The primary goals of the St. Andrew Bay NEP Monitoring Program Plan will be to measure the success of the CCMP and to provide information that can be used to redirect and refocus management. This detailed plan will be incorporated in the CCMP, including sampling and analytical protocols, data management specifications, quality assurance guidelines, data reporting requirements, methods of coordination, and cost estimates.

ADAPTIVE MANAGEMENT TOOLS (July 1997)

A number of adaptive management tools described in the NEP nomination package and Overview of the Program Elements will be developed. These are VEGI, SWIMM, PIPES, BIOSP, DEEP, and EMITS.

PUBLIC EDUCATION AND INVOLVEMENT PROGRAMS (July 1995 - 1998)

Support for St. Andrew Bay comes from a broad and diverse group of citizens. It involves business and industry, several local civic organizations, a large network of community volunteers, an active community college and high school, an active media, and BEST members.

Effective management strategies employed will be improvement in communication, collaboration, networking, volunteerism and information dissemination. Through continuing the efforts of the BEST networking activities and coordination efforts will be many and represent the collective efforts of a very supportive citizenry. The BEST will seek to expand public involvement with the addition of the stakeholders groups and a Citizen's Advisory Committee. The public outreach strategy (DEEP) has been identified in the nomination package as one of the priority issues to be addressed in the CCMP. The BEST framework will remain active during the presentation phase of the CCMP to achieve a public consensus of the solutions for the Bay and as part of the solution during the implementation phases.

Public outreach for the St. Andrew Bay CCMP will continue to be coordinated with the Gulf Coast Community College (GCCC). The outreach efforts for St. Andrew Bay will be integrated and emphasized with a number of ongoing programs including, continuing education seminars, family educational programs, credit courses, televised town forums and participation in the GCCC/W.K. Kellogg Foundation Citizen Leadership Institute.

Environmental education through public schools will be initiated through a partnership with a local high school. The high schools are interested in expanding

environmental problem solving and marine science classes to address issues of St. Andrew Bay. Efforts will be made for participating students to receive math, science, and technology high school or college credit. They will become a core of volunteers to teach younger students about the bay and express their views.

DRAFT CCMP WITH FINANCING STRATEGY (July 1996)

Development of the CCMP is the major objective of an NEP management conference. The CCMP combines results of the scientific/technical investigations with proposed management activities designed to address the priority problems of the estuary. Integral components of the CCMP include:

- Workable implementation plans with on the ground solutions
- Strong public participation and commitment
- Consensus among program participants concerning regulatory, program and organizational aspects of proposed management action
- Funding strategy for proposed actions
- Integration of the roles and responsibilities of government agencies at all levels
- An effective means of measuring the success of actions

Results of the St. Andrew Bay NEP will be integrated in a draft CCMP, scheduled to be produced in October 1996. The draft CCMP will include a draft federal consistency report as required by Executive Order 12372 to ensure consistency of other federal programs with the purposes and objectives of the CCMP, proposed action plans with schedules and lead implementation agencies identified, proposed plans for coordinated implementation of the actions, proposed plans for coordinated monitoring to determine the success of the NEP and a discussion of the likelihood of success.

The draft CCMP will also incorporate an initial financing strategy which provides approximate costs and benefits for the actions proposed and an array of financing alternatives for consideration. This financing strategy will be developed with substantial state and local government input.

The schedule for the St. Andrew Bay draft CCMP will be coordinated closely with local governments' schedules for updating their comprehensive plans. The intent is to address appropriate proposed CCMP actions in these plan updates of local governments and to coordinate or combine opportunities for public review and comment.

FINAL CCMP WITH FINANCING PLAN (March 1998)

The St. Andrew Bay CCMP is scheduled for completion in September 1998, a full year after the draft CCMP, to allow for extensive review by the regulatory

community, regulated community, local governments and the public. The final CCMP will adjust, change and add to the draft CCMP to incorporate comments received. The CCMP will include specific action plans for each priority problem, a financing plan including funding sources for each recommended action, a lead implementation agency for each action, a final federal consistency report, and a monitoring plan. Appropriate monitoring of living resources, water quality, and potentially sediment quality will be included in the final CCMP to evaluate the effectiveness of management actions.

NON-FEDERAL MATCH (Fiscal Years 1995, 1996, 1997)

A 25% non-federal match will be provided by the City of Panama City, Bay County, Gulf Coast Community College, the Northwest Florida Water Management District, the State of Florida, Stone Container Corporation, Gulf Power Company, Arizona Chemical Company as well as other local industry and other non-federal local and state sources. BEST has established a non-for-profit trust to seek funds and grants from private sources.

STRATEGIES AND MANAGEMENT CONFERENCE STRUCTURE

The St. Andrew Bay Environmental Study Team (BEST) will be the core of the St. Andrew Bay National Estuary Program. The primary purpose of the St. Andrew Bay NEP will be to identify resource management alternatives and develop an action plan to integrate adaptive ecosystem management within the state and local government comprehensive planning process. The NEP will bring bay stakeholders together to both understand the complexities of the bay ecosystem and to chart a shared vision course of action. The adaptive management approach recognizes the uncertainties in ecosystem management and the value of experimentation and learning from experience. Adaptive management seeks to avoid the traditional crisis driven policy and management that occurs often at the expense of ecological integrity.

The structure of BEST presented in Figure 2 shall be the structure of the St. Andrew Bay Estuary Program Management Conference. BEST requires an innovative adaptive management approach. Furthermore it is a slight departure from the traditional command and control format of organizational structure that may result in communication and coordination problems. The philosophy of BEST is that successful resource management requires the interaction and presence of four key ingredients - citizens and stakeholders, policy makers, resource managers, and scientists. The success of the Comprehensive Conservation and Management Plan will depend upon a strong intersection of all four of the key ingredients. This intersection will be the BEST organizational structure. Each of the BEST committees shall be designed to operate on a consensus basis and to freely interact with other committees through the management conference. Committee meetings

and regular meetings are designed specifically to include all members. All meetings will be open to the public. A regular BEST meeting that is widely advertised will be held immediately upon the start-up of the NEP grant funds. It will be attended by all of the BEST committees and discuss the new additions to the BEST and the importance of the management conference.

The St. Andrew Bay Environmental Study Team (BEST) as the core group for the Management Conference shall continue to meet the membership criteria of Section 320(c) of the Clean Water Act. The BEST steering committee and subcommittees represent all of the required institutional levels of government as well as private and public sectors.

COMMITTEES

The BEST ***Steering Committee*** has the role of the NEP management committee. The Steering Committee is selected by the overall BEST membership and is composed of representatives of industry, civic organizations, academia, local government, state government, and federal government. The chairs of the technical and citizens advisory committees are also members of the Steering Committee. The role of the Steering Committee is to organize and lead BEST activities, determine a budget, approve special contract needs, and to oversee the action planning process. The Steering Committee will ensure that all the key ingredients of BEST maintain a strong intersection throughout the planning and implementation process. The Steering Committee will oversee the drafting of the CCMP and developing the program budget. The Steering Committee will coordinate all approval and funding matters through the Northwest Florida Water Management District, the local managing entity responsible for hiring the St. Andrew Bay NEP director and dispersing and overseeing grant funds.

BEST will build on its citizen involvement by developing stakeholder groups for industry, tourism, retail/service business, commercial and recreational fishing, developers, conservation and sport organizations, and government officials. Each stakeholder group will clarify issues of concerns and potential alternative solutions. Two representatives from each stakeholder group will be selected to form the ***Citizen's Advisory Committee***. The role of the citizen's advisory committee will be to provide liaison on issues of concern to the BEST committees, review early draft action plans and provide feedback to BEST, develop an outreach strategy for public review of the draft CCMP, and initial selection of recommended action items. The chair of the Citizen's Advisory Committee will be a member of the Steering Committee and be active on the Public Outreach Technical Committee.

BEST provides for strong citizen involvement by developing stakeholder groups for industry, tourism, small business, commercial and recreational fishing, developers, conservation and sport organizations, and government officials. Each stakeholder

group will clarify issues of concern and potential alternative solutions. The Citizen's Advisory Committee will work closely and may participate in many of the Technical Committee activities as well as bimonthly meetings and the management conference.

The ***Policy Committee*** will be appointed by government agencies with significant direct authority to manage natural resources of the estuarine ecosystem. Members will include a representative from Bay County, Panama City, Lynn Haven, the League of Cities (representing the remaining cities), the Regional Planning Council (representing the remaining counties), the Northwest Florida Water Management District, Florida Department of Environmental Protection, Florida Department of Community Affairs, the U.S. Environmental Protection Agency, and the U.S. Army Corps of Engineers. The Policy Committee will be chaired initially by Bay County, the Water Management District, and USEPA. The Chairman of the Steering Committee and the Citizens Advisory Committee will be ex-officio members. The role of the Policy Committee will be to give general guidance regarding the content of the CCMP, review and approve substantial expenditures recommended by the Steering Committee, approve the draft CCMP for public review, and approve the final CCMP for forwarding to the implementing agencies.

Technical Committee(s) membership is open to all interested in the various issues: wetlands conservation, contaminants, resource inventory, public outreach and growth management. The Technical Committees draft the initial action plans. The five ***Technical Committees*** are the backbone of BEST. These committees offer a strong foundation organized around the five priority problems to be addressed in the CCMP. These include Wetlands Conservation, Contaminants, Resource Inventory, Public Outreach, and Growth Management. Membership on the technical committees is open and generally involves expertise from government, industry, and educational institutions. Over 43 individuals are current members of BEST technical committees. Membership will be encouraged to expand as newly interested parties are identified. The role of the technical committees will be to oversee studies necessary for action planning and develop of draft action plans.

DESCRIPTION OF BEST TECHNICAL COMMITTEES

The BEST subcommittees deal with the top five issues, developed through consensus, as affecting the Bay system: Chemical Contaminants; Resource Inventory; Wetlands; Education/Outreach; and Growth Management. In addition, *ad hoc* committees are appointed as needed. Bimonthly Team general meetings will be arranged by the subcommittees. The meetings are devoted to issues and potential action items relating to each committee's area of interest. The sixth Team meeting of the year is an "Annual Meeting" during which steering committee officers are elected, subcommittee annual summaries are given, and subcommittee future action goals are announced.

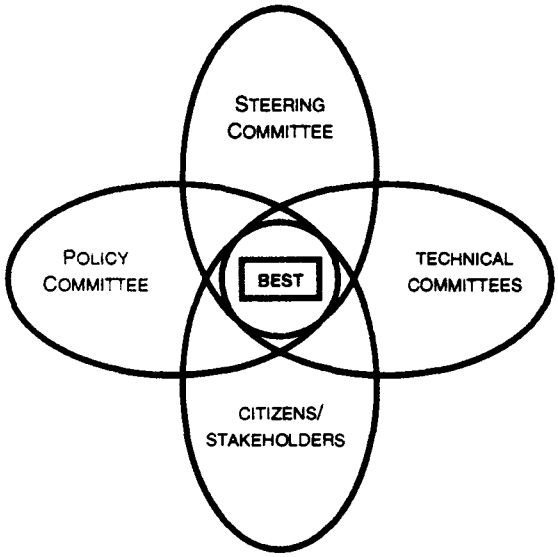


Figure 2. St. Andrew Bay NEP Organizational Structure.

Chemical Contaminants Committee: The committee was organized because chemical contamination of the Bay's water, sediment, soil, and biota, particularly problems associated with urban stormwater runoff were identified as a priority concern by the BEST. It focuses on the Identification of information gaps relative to contaminant and nutrient loading and development of Stormwater Action Plans.

Resources Inventory Committee: An inventory of organisms present in St. Andrew Bay, based on a review of the literature, was initiated in 1988 and has been periodically updated. The list currently contains 2000+ species. The biological inventory will continue to provide managers with an idea of the biological diversity and Identify any losses or gains in flora and fauna that must be considered in the management of the St. Andrew Bay ecosystem.

Wetlands Resources Committee: Committee activities on wetland issues and problems focus on Identify information gaps concerning wetland status and trends in the St. Andrew Bay watershed and potential mechanisms for acquiring needed information for wetlands management.

Education/Outreach Committee: The committee chair coordinates with Gulf Coast Community College for all Team meeting facilities. The committee will co-sponsor activities such as the Citizen's Public Issues Forums and continue to provide public education materials to schools and civic groups who request them. The committee will coordinate with action plans being formulated by BEST.

Growth Management Committee: The Committee's goals have been to increase participation in BEST by government planning agencies and elected officials. It's major activities have been to increase the level of interest in coordinated growth management among 14 local governments in the area. It will continue to increase participation by City and County government staff members, as well as increased communication with state and local planning officials.

PUBLIC PARTICIPATION STRATEGY

The public participation strategy will be to involve all interested citizens and stakeholders in workshops within three months of initiating the NEP. Assistance in organizing and implementing the workshops will be provided by the Gulf Coast Community College Local Leadership Institute. Separate workshops will be held for each stakeholder group (i.e. industry, tourism, small business, commercial fishing, recreational fishing, developers, conservation organizations, etc.). Participants will be provided a Citizen's Handbook (BEST 1993) prior to the workshop to learn more about the bay and its problems. Workshop participants will participate in facilitated sessions to clarify issues and identify potential solutions.

Each stakeholder group will select two representatives to participate on the Citizen's Advisory Committee. The role of the citizen's advisory committee will be to provide liaison on issues of concern to the BEST committees, review early draft action plans and provide feedback to BEST, develop an outreach strategy for public review of the draft CCMP, and initial selection of recommended action items. The chair of the Citizen's Advisory Committee will be a member of the Steering Committee and be active on the Public Outreach Technical Committee. The Citizen's Advisory Committee will work closely with the Outreach/Education Committee to develop a continuing public involvement plan for the CCMP.

DATA MANAGEMENT STRATEGY

The BEST will seek to integrate the existing Geographic Information Systems (GIS) data bases of the Northwest Florida Water Management District, Bay County, Panama City, FDEP, and other BEST member agencies. concerning available data bases and Geographical Information Systems (GIS). A data management strategy will be formalized by October of 1995. The data management information system will be a part of the EMITS. Wherever possible the data base system will make use of storage and retrieval systems such as the EPA STORET.

PROGRAM OFFICE

The Management Conference participants have agreed to establish a Program Office immediately upon commencement of the NEP. The Program Office roles and responsibilities are outlined as follows:

Management Responsibilities

- Communicates regularly with all the BEST participants about activities and issues to ensure consensus and that all views are fairly represented in work products.
- Coordinates activities among federal, state, county, and local agencies as well as the public sector to obtain program objectives.
- Participates in inter-agency work groups.
- Manages the preparation of annual workplans, the CCMP, and budgets, in cooperation with all BEST participants.
- Coordinates conference activities in identifying and seeking alternative sources of funding for activities associated with St. Andrew Bay.
- Coordinates per review of all products.

Technical Responsibilities

- Manages the planning, development, and implementation of all phases of the NEP using knowledge of marine and estuarine environmental systems related to scientific/engineering operations, and programmatic issues.
- Coordinates the compilation of findings of other estuary programs and transmits them to the Management Conference.
- Identifies, participates in, and ensures the transfer of scientific/engineering information to Program participants.

Program Administration

- Provides administrative support to the Management Conference.
- Implements the public participation plan.
- Manages development of Requests for Proposals for tasks identified in the annual workplan among all involved agencies and advisory committees.
- Oversees the administration and performance of contract and grant activities to ensure quality products are produced on time and within budget.
- Facilitates the convening of conferences and meetings for local and state officials and legislators to brief them on CCMP development and progress in coordination with other Conference participants.
- Prepare status reports, as needed, and coordinates review with all participants.

Administrative Support Responsibilities

- Attends meetings of major committees (not limited to the technical, local citizens, management and policy committees).
- Manages preparation of all NEP work products, including data summaries, annual reports, technical reports, for content and accuracy before publication.
- Ensures the transfer of all NEP materials (e.g., work products, annual reports, meeting minutes, etc.) to the appropriate persons and locations (e.g., Management Conference participants, the public, local libraries, etc.).
- Receives and responds to requests for technical information and assistance regarding the St. Andrew Bay NEP from the public, elected officials, USEPA Headquarters, and others.

Program Office Requirements

- A Program Manager receives responsibilities from and reports directly to the Northwest Florida Water Management District through the BEST Steering Committee.
- A Program Office with central office space will be located in Panama City. Large Conferences and bimonthly BEST committee meetings shall be held at the Gulf Coast Community College located on the Bay.
- Staff, including an Outreach Specialist and Data Base Manager.
- Provides for computer and communications equipment including office links through the information highway (INTERNET) with participating and administering government offices and other estuary program managers.
- Provides a meeting and work place for all technical staff on the BEST.

OVERVIEW OF PROGRAM ELEMENTS

TECHNICAL PROGRAM ELEMENTS

The technical components of the St. Andrew Bay NEP can be described in five major and interrelated program elements. Each element contains specific projects that will be carried out. These projects focus on collecting and evaluating existing data, identification of data gaps, filling in those gaps, and producing management tools that will enable proper conservation and preservation decisions to be made. All work will be accomplished within the priorities set by the Management Conference, i.e. the Bay Environmental Study Team (BEST). An important objective is the identification and implementation of On-The-Ground (OTG) solutions to the management problems facing the St. Andrew Bay ecosystem. The five basic technical elements are overviewed below.

Conservation and Management of Wetland Habitats and Vegetation

An updated quantitative inventory of all wetlands in the watershed (including inland wetlands important to stormwater mitigation) will be produced, including classification of biological values and ecological functions. A wetland ***Vegetation Evaluation and Geographic Inventory (VEGI) System*** will provide management information for deciding on future protection activities and will created to include a component that runs with, and integrates, the title of the land. The **(VEGI)** System will allow comprehensive management and oversight of the status and trends of wetlands. A wetlands database for property owners will also provide important management information. A comprehensive wetland management plan is envisioned that will provide consistency and uniformity in wetland policy among local government comprehensive plans.

Evaluation and Reduction of Chemical Contaminant Impacts

Specific data on the chemical quality/toxicity of storm water runoff from numerous drainage areas is lacking and will be needed to set management priorities. There is also a need to evaluate the cumulative impact of all storm water sources and determine St. Andrew Bay's capacity to accept and assimilate storm water chemicals and pollutants, with consideration of the chemical/pollutant loading related to point sources. An evaluation of all storm water components of 14 local government comprehensive plans will be completed which will provide guidance for a consistent and comprehensive management approach for the bay ecosystem that eliminates or greatly reduces negative storm water impacts. A ***Storm Water Inventory, Monitoring and Management (SWIMM) System*** will be designed to identify problem areas, provide information that will help manager define the magnitudes of adverse effects of storm water releases upon localized areas and biota, and to calculate loading estimates into the Bay of chemicals from storm water and point sources. On-the-ground (OTG) alternatives will be identified or developed for implementation into a management plan within the framework of locally developed stormwater programs.

*A **Point-Source Inventory and Pollutant Evaluation (PIPES) System*** will be developed to provide readily accessible management information about individual point source and total chemical loading, hydrologic distribution of chemicals, environmental fate, and impacts to habitats and biota. Chemicals and pollutants released at permitted concentrations have cumulative, long-term impacts upon the Bay. These impacts include reductions in water quality, accumulation of excess nutrients, contamination and/or degradation of sediments, reduction in the overall value of habitats, and stress related disorders or contamination of estuarine species. A complete database will be created to house current data and future point source permit data. The data will be evaluated to define the cumulative loading of chemicals within the bay ecosystem and the estuary's capacity to accept and

assimilate chemicals and pollutants. In addition, the ecological fate and pathways for particular chemicals, especially dioxin compounds, will be better understood.

Management and Restoration Plans for Three Bayous Watson Bayou, Massalina Bayou and Martin Lake have extensively degraded sediments caused by a variety of chemicals. There is a need to assemble already existing data to calculate ecological risks and damages; and determine if the three areas qualify under any federal or state programs for natural resource assistance and restoration. Using the data bases created for the SWIMM and PIPES Systems, and information attained through evaluations by federal and State agencies, environmental assessments of each damaged bayou will be completed. The assessments, will then allow development of a management (and potentially restoration) plan for each site.

Inventory and Management of Faunal Resources

All faunal studies completed within the St. Andrew Bay system will be compiled. Such a compilation will provide information as to the number of species present within the system and point toward studies that are necessary to establish trends in faunal diversity. There is a need to adopt appropriate criteria for ecosystem and trend evaluations. Temporal trends in diversity should be established by repeating previous studies at the same sites to obtain comparative data. Monitoring stations should be established for regular and long term data collection. A ***Bay Inventory of Species and Populations (BIOSP) System*** will be integrated with all other analysis tools for the St. Andrew Bay NEP. This specific ecosystem evaluation tool will be developed utilizing existing data and field survey technology to quantify spatial and temporal biodiversity relationships. The BIOSP System will be used for comparison, where feasible, with historical data and thus establish basic needs of the ecosystem.

Information regarding species of special interest will also be included in the **BIOSP** database. Species believed to require special management plans, based on dated obtained from the **BIOSP System**, will be prioritized and recommended for plan development within the CCMP. Information gaps that need to be filled for management purposes will also be identified. Management Plans for Species of Special Interest will be developed.

Public Outreach and Education

Via the St. Andrew Bay NEP, we intend to develop a unique educational program called the ***Diversified Estuarine Education Program (DEEP)***. A Needs Assessment will be done to establish important components necessary and acquire information to determine how to effectively educate the diverse groups about the importance of the St. Andrew Bay ecosystem, and management concerns of the Bay. Needs assessment data will be conducted. A local community forum on TV will be

hosted as well as additional consensus building workshops. Using this information, and the guidance of the Management Conference membership (BEST) the long term **DEEP** environmental education program for St. Andrew Bay will be developed.

Growth Management within the St. Andrew Bay Ecosystem

The objective is to develop an ***Estuarine Management Implementation and Technical Support (EMITS) System*** that assures conservation of Bay resources, and harmony and consistency among and between the fourteen local government comprehensive plans that exist for the land that makes up the Bay ecosystem, while realize important growth objectives within the ecosystem. All the local government comprehensive plans are required, by the State, to be revised and updated in the next decade. Without integrating these plans, and incorporating components that are lacking, into a comprehensive management tool, the current situation will result in continued piece-meal management of the Bay's resources. The EMITS System will be developed as part of the CCMP. It will describe all the workable methods and procedures for politically and socially integrating and implementing the On-the-Ground (OTG) solutions and ecosystem requirements for St. Andrew Bay. Through EMITS developed under the St. Andrew Bay NEP, all existing management programs will be evaluated, modified as appropriate, integrated with other programs, and implemented to achieve a basinwide, consistent and harmonious ecosystem growth management program. Other important components of the St. Andrew Bay NEP will include a compilation of all local government comprehensive plans, city & county ordinances, interagency agreements, and State and Federal environmental laws and regulations. This information will be stored and processed through EMITS and allow for information such as data inventories and maps of projected land uses to be used as overlays in conjunction with data overlays from other elements (VEGI, BIOPSI, SWIMM, and PIPES) of the NEP to be evaluated.

ADMINISTRATIVE/REGULATORY PROGRAM ELEMENTS

The administrative/regulatory components of the St. Andrew Bay NEP will include, but not be limited to, an inventory of applicable federal programs for purposes of consistency review, development of procedures for ensuring that programs are consistent with recommendation from the St. Andrew Bay NEP, an evaluation of federal, state and local water quality and natural resource management programs, consistent criteria regarding implementation that addresses financial needs, and a workplan for post-approval activities that cannot be funded through the NEP or other grant programs. Actions for improved management of the Bay's resources, that can be implemented immediately and do not require additional study, will be

identified early on in the program. All enforceable actions of the CCMP will be incorporated into the State Coastal Management Program.

PUBLIC INVOLVEMENT

The Educational/Outreach Committee within the Bay Environmental Study Team has been charged with developing an appropriate, effective, and comprehensive public outreach program. Initially the Committee will incorporate stakeholder groups into BEST and add a Citizen Advisory Committee. Through these vehicles, we will conduct an information needs assessment. The Committee will provide information about the ecosystem to the stakeholder groups, conduct community forums, and integrate St. Andrew Bay ecosystem outreach efforts into existing educational programs. A high school volunteer corps will be created to assist with outreach efforts. The Committee will establish important components necessary and acquire information for determining how to inform the diverse groups who access St. Andrew Bay. Additional public involvement will be sought through the use of citizen's forums and a Bay Day event.

PROGRAM SUPPORT

Program support will be provided by all the member agencies/groups that make up the Bay Environmental Study Team (BEST) including members at large, technical committees, steering committee, policy committee, and stake holders groups. A full-time NEP Program Coordinator, (and support staff) as well as all the BEST participating government agency scientists, engineers, and other technical staff will carry out all the day-to-day work required by the Management Conference (BEST). This work will include coordinating intra-agency and inter-agency governmental activities regarding the NEP, and conducting meetings to formulate positions on all topics. The Coordinator and his staff will be responsible for preparing and developing the CCMP, annual workplans and budgets, publishing Committee Reports and Action Plans, and producing progress summaries and other work products required by the Program; in cooperation with the Management Conference. In addition to supporting the administrative elements of the St. Andrew Bay NEP, support staff will also provide some of the technical services, as specified in the workplan.

Florida House of Representatives

SCOTT W. CLEMONS
REPRESENTATIVE, DISTRICT 6

February 14, 1995

The Honorable Lawton Chiles
PL 05, The Capitol
Tallahassee FL 32399-0001

Dear Governor Chiles:

I am writing to express my encouragement for state support funding for the St. Andrew Bay Environmental Study Team (BEST). BEST is applying to the U. S. Environmental Protection Agency (EPA) for inclusion into the National Estuarine Program. This program requires a State commitment to support the implementation of a Comprehensive Conservation and Management Plan.

BEST is a tremendously important organization to the citizens of Northwest Florida, committed to the conservation and protection of the St Andrew Bay basin through study and community participation. It is comprised of citizens from all walks of life in our community including leaders from industry, civic groups, local governments, educational institutions, and area governmental agencies. Best is an established organization that over the years has proven worthy of our wholehearted support.

I know that your administration has been innovative in developing ways that state funds can be used to secure larger amounts of federal funding. This "seed money" concept is actually an investment by the State of Florida that can and will reap tremendous dividends from Washington. BEST is asking for your support as an investment to secure 75% funding from Washington. A commitment from you and the State of Florida for a 25% non-federal match is necessary to secure the nomination of BEST for the National Estuarine Program.

I urge your support for this worthwhile request. If I can provide further information, please do not hesitate to contact me. Thank you for your earnest attention in this matter.

Sincerely,

Scott W. Clemons
State Representative
District 6

SWC/rs

410 House Office Building
Tallahassee FL 32300-1300
904-488-0000

COMMITTEES
Commerce ◇◇ Finance & Taxation
Juvenile Justice ◇◇ Utilities & Telecommunications

PO Box 2326
Panama City FL 32402-2326
904-872-7757

PETE PETERSON
2E DISTRICT FLORIDA

COMMITTEE
ON
APPROPRIATIONS
SUBCOMMITTEES
ENERGY AND WATER
RESOURCES
AGRICULTURE AND RURAL
DEVELOPMENT

Congress of the United States
House of Representatives
Washington, DC 20515-0902

February 14, 1995

WASHINGTON OFFICE
426 CANNON BUILDING
WASHINGTON DC 20515-0902
(202) 225-5235

DISTRICT OFFICES
930 THOMASVILLE ROAD SUITE 101
TALLAHASSEE FL 32303
(904) 561-3979

MARIANNA
(904) 526-7516

LAKE CITY
(904) 752-1086

30 WEST GOVERNMENT STREET
ROOM 203
PANAMA CITY, FL 32401
(904) 785-0812

Mr. John H Hankinson, Jr.
Regional Administrator
U.S. Environmental Protection Agency
Room 400
345 Courtland Street NE
Atlanta, Georgia 30365

Dear Mr. Hankinson:

I am writing this letter on behalf of the St. Andrew Bay Environmental Study Team (BEST), regarding their application for inclusion in the National Estuarine Program.

BEST focuses on the study of the St. Andrew Bay basin to help conserve and protect the entire estuarine system. For the past two years, BEST has worked in partnership with numerous groups in the area, in an attempt to initiate a "Bay Management Plan" for estuarine waters in Bay County. Public input and support have been a vital part of this process. Representatives from industry, civic groups, local governments, educational institutions, and government agencies have worked together to exchange information and to coordinate programs in a community effort to protect the estuarine system.

I strongly support the efforts of BEST to gain inclusion in the National Estuarine Program. Funding through this program would be extremely beneficial in the maintenance and protection of the beautiful St. Andrew Bay.

Thank you in advance for your positive consideration.

Sincerely,

Pete Peterson

Pete Peterson, M.C.

DBP:blb

St. Andrew B.E.S.T.

Bay Environmental Study Team

March 2, 1995

Mr. Douglas Barr
Northwest Florida Water Management District
Route 1
Havana, Florida 32333

Dear Mr Barr:

The St. Andrew Bay Environmental Study Team (BEST) is excited about the opportunity to further our vision for St. Andrew Bay through the National Estuary Program (NEP). The BEST Steering Committee concurs with the draft Management Conference Agreement and will work to initiate a NEP-style management conference by July of this year.

The BEST Technical Committees have already begun the process of drafting action plans for the priority problems. The priority problems were identified over the past two years through a series of open meetings and a citizen's forum. With the assistance of the NEP, we anticipate being able to complete draft action plans for public review by July 1996. The proposed policy committee, stakeholder groups and citizen's advisory committee will become integral to the planning process.

The support of the NEP will mean estuarine ecosystem management can be incorporated into the next revisions of the local comprehensive plans. The initial revisions are required by the Florida Department of Community Affairs to be submitted in 1997. Without the support of the U.S. Environmental Protection Agency, the BEST will be unable to assist more than the county government in this round of revisions, and adaptive management policies will be more difficult to implement within this century.

We look forward to continuing to work with you on St. Andrew Bay and the tremendous challenges and opportunities that lie ahead.

Sincerely,

Candis Harbison

Candis Harbison
BEST Steering Committee Chair

Participating: Bay County, City of Panama City, City of Panama City Beach, City of Callaway, FL Dept. of Environmental Protection, FL Freshwater Fish and Game, US Environmental Protection Agency, US Army Corps of Engineers, US Naval Coastal Systems Station, Tyndall Air Force Base, US Fish and Wildlife Service, US Coast Guard, Stone Container, Arizona Chemical, Gulf Power, League of Women Voters, Audubon Society, St. Andrew Bay Resource Management Association, Save Our Shores, Northwest Florida Water Management District, West Florida Regional Planning Council, Gulf Coast Community College, Florida State University, Marine Lab, Tupelo Soil and Water Conservation District, Organized Fishermen of Florida, Rutherford High School, Florida A&M University and National Marine Fisheries Service.

THE FLORIDA SENATE

Tallahassee, Florida 32399-1100

SENATOR ROBERT T. HARDEN
7th District

COMMITTEES:
Governmental Reform and Oversight
Chairman
Community Affairs
Executive Business, Ethics and Elections
Natural Resources
Ways and Means,
Sub. A (General Government)

JOINT COMMITTEE:
Legislativ Auditing

February 24, 1995

Ms. Carol Browner
U.S. Environmental Protection Agency
401 M Street S.W.
Washington D.C. 20406

Dear Ms. Browner:

This letter is to highly recommend St. Andrew B.E.S.T. for inclusion in the National Estuarine Program (NEP) for which they are in submitting a nomination.

St. Andrew Bay Environmental Study Team will be focussed on strategically addressing non-point pollution sources caused by stormwater runoff. The plan will also seek to improve the mechanism for conservation of wetlands in the context of future growth of the county. In the process, existing GIS data from numerous governmental entities will be compiles and made more readily available. The St. Andrew B.E.S.T. has strived to maintain and improve this beautiful Bay.

Your consideration of St. Andrew B.E.S.T.'s nomination for inclusion in the NEP would greatly be appreciated. If I can be of any assistance in this matter, please do not hesitate to let me know.

Sincerely,

Robert T. Harden

ROBERT T. HARDEN
State Senator

RH:la

REPLY TO:
❒ Executive Park, Suite D-3, 11 Racetrack Road, N.E., Fort Walton Beach, Florida 32547-1868 (904) 833-9155
❒ 328 Senate Office Building, Tallahassee, Florida 32399-1100 (904) 487-5009
1-800-266-7088

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Field Office
1612 June Avenue
Panama City, FL 32405-3721
Tel: (904) 769-0552
Fax: (904) 763-2177

IN REPLY REFER TO

February 22, 1995

Mr. Douglas Barr
Northwest Florida Water Management District
Route 1
Havana, Florida 32333

Dear Mr Barr:

I would like to take this opportunity to fully support the nomination of St. Andrew Bay into the National Estuary Program. This program will allow the local community to significantly improve and enhance their efforts to protect the nationally significant natural resources of the St. Andrew Bay system.

The partnership approach proposed by the St. Andrew Bay Environmental Study Team (BEST) is critical to long-term conservation of fish and wildlife resources, particularly the wetlands and seagrasses of the area. The U.S. Fish and Wildlife Service will continue to actively participate on several of the BEST technical committees.

We look forward to our continuing ecosystem approach partnership on this system. We urge the U.S. Environmental Protection Agency to recognize and share the dedication and commitment of the local community in achieving a shared vision for St. Andrew Bay.

Sincerely,

Gail A. Carmody

Gail A. Carmody
Project Leader

cc: Candis Harbison, BEST

GA/nwfwmd

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P. O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

Regulatory Division

February 28, 1995

Mr. Douglas Barr
Executive Director
Northwest Florida Water Management District
Route 1
Havana, Florida 32333

Dear Mr. Barr:

This letter is written in support of the nomination of St. Andrew Bay into the National Estuary Program. This program will allow for improved management and protection of the nationally significant resources of the bay ecosystem.

At present, U.S. Army Corps of Engineers' staff are actively involved on the wetlands committee of the St. Andrew Bay Environmental Study Team (BEST). We strongly support the efforts of BEST to obtain wetland inventory information for the St. Andrew Bay watershed. Such information will be invaluable for making secondary and cumulative impact evaluations associated with Department of the Army permit reviews.

We look forward to continued participation with the local community and other government agencies in developing an ecosystem approach to managing the resources of the St. Andrew Bay watershed. We urge the U.S. Environmental Protection Agency to approve the nomination of St. Andrew Bay for inclusion in the National Estuary Program.

Sincerely,

John R. Hall
Chief, Regulatory Division

STATE OF FLORIDA
DEPARTMENT OF COMMUNITY AFFAIRS

2740 CENTERVIEW DRIVE • TALLAHASSEE, FLORIDA 32399-2100

LAWTON CHILES
Governor

LINDA LOOMIS SHELLEY
Secretary

March 3, 1995

Ms. Carol Browner
Administrator
U.S. Environmental Protection Agency
401 M Street SW
Washington, DC 20406

Dear Ms. Browner:

I would like to take this opportunity to offer my support for the nomination of the St. Andrew Bay system into the National Estuary Program. I feel that the projects proposed through this designation will offer valuable information to supplement several activities that are already underway. I have been especially encouraged by the participation of the local communities in the Bay Environmental Study Team (BEST), and feel that an NEP designation will build upon this fine foundation.

One of the primary purposes of the Florida Coastal Management Program is to identify local and regional initiatives which will increase the effectiveness of state coastal and environmental management programs. The designation of St. Andrew Bay can provide the local and regional agencies with the valuable technical information that they need to better implement their programs. We also expect that the Comprehensive Conservation and Management Plan (CCMP) will be a very valuable asset for coordinating the implementation of the local government comprehensive plans on a watershed basis

The integrated planning approach used by the NEP programs is critical to the development of a consistent and efficient management program and vital to the long term protection of this coastal area. My staff will continue to participate in the activities of the BEST, and pledge to assist in any way that we can with the development and implementation of the CCMP.

I look forward to the designation of St. Andrew Bay as a National Estuary, and to the successful implementation of the CCMP. I strongly urge your agency to accept this nomination and provide funds for the protection of the bay.

Should you have any questions or wish to learn more about our activities in the St. Andrew Bay area, please contact me at 904/922-5438 at your convenience.

Sincerely,

Ralph Cantral, Executive Director
Florida Coastal Management Program

CITY OF PANAMA CITY

POST OFFICE BOX 1880
PANAMA CITY, FLORIDA 32402

February 24, 1995

Ms. Candis Harbison
St. Andrew B.E.S.T.
300 Cherry Street, #2
Panama City, FL 32401

Dear Ms. Harbison:

This letter is written to confirm the actions of the Mayor and City Commission of the City of Panama City at their regular scheduled meeting of February 14, 1995 to support your application for a grant project for the Bay Study.

The Mayor and City Commission supported the application to be presented to the Environmental Protection Association for the grant to consolidate the former studies on the Bay, as well as, the additional work to be done on the Bay. The Mayor and Commission supported a statement for consideration of a $15,000.00 allocation to be presented in the FY 1996 budget for the City of Panama City.

On behalf of the Mayor and City Commission we wish you the best efforts in proceeding with this grant application.

Yours truly,

Kenneth R. Hammons
City Manager

KRH/pc

Department of
Environmental Protection

Lawton Chiles
Governor

Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794

Virginia B. Wetherell
Secretary

February 27, 1995

Honorable Carol M. Browner
Administrator
U.S. Environmental Protection Agency
401 M Street SW
Washington, D.C. 20406

Dear Ms. Browner:

The purpose of this letter is to promote the nomination of the St. Andrew Bay system for inclusion in the National Estuary Program (NEP). We feel that inclusion of the St. Andrew Bay in the NEP is a very worthy project. The Bay Area Study Team (BEST), which the Department's Northwest District's Panama City Branch Office is a member, has been focusing on the study of the St. Andrew Bay basin to help conserve and protect the entire estuary area. BEST has been pro-active in the protection and conservation of the St. Andrew Bay system for the last several years. During this time representatives from Bay County industry, civic groups, local governments, educational institutions, and government agencies have worked together to exchange information, coordinate programs, and make recommendations.

Public input and support has been a vital part of the BEST process promoting activities such as "Health and the Sea Day" and the "Vision for St. Andrew Bay" public issues forum. If the St. Andrew Bay were included in the NEP, a Comprehensive Conservation and Management Plan (CCMP) would be implemented that would assure that the necessary steps are taken to retain the economic, health, and recreational interests which depend on a healthy bay. This plan will be available for use by local governments during compilation of the Evaluation and Appraisal Reports that they submit to the Florida Department of Community Affairs in 1997.

A large portion of the CCMP will focus on strategically addressing non-point pollution sources caused by stormwater runoff. The plan will also seek to improve the mechanism for conservation of wetlands in the context of future growth of the County. In addition, the plan will address urban stormwater management; the evaluation/monitoring of species diversity, relative abundance, and seasonal occurrence of the estuary's biological resources; development of innovative, cost effective environmental education programs; and social/political growth management techniques for a high diversity semitropical estuary.

We are sure that the inclusion of the St. Andrew Bay in the NEP is a most worthy project and fully support it.

Sincerely,

Bobby A. Cooley
District Director

BAC/nmw

On behalf of the Board of County Commissioners, we look forward to working with you and the Bay Environmental Study Team on this worthwhile project.

Sincerely,

John S. Robbins
Chairman

JSR/TJ/jmm

cc: Board of County Commissioners
County Manager
Public Services Director

"NORTH FLORIDA'S FASTEST GROWING CITY"

5708 CHERRY STREET • CALLAWAY, FLORIDA 32404
PHONE: (904) 872-7780 SUNCOM: 777-7780 FAX: (904) 872-7789

March 1, 1995

Carol M. Browner
U. S. Environmental Protection Agency
401 "M" Street SW
Washington, DC 20406

Dear Ms. Browner:

The St. Andrew Bay nomination to the National Estuary Program is a long overdue project. The City of Callaway is willing to support this project any way it can. We feel very strongly over the issue of protecting our local natural resources and this is one project that will have definite impact and a positive effect on the environment.

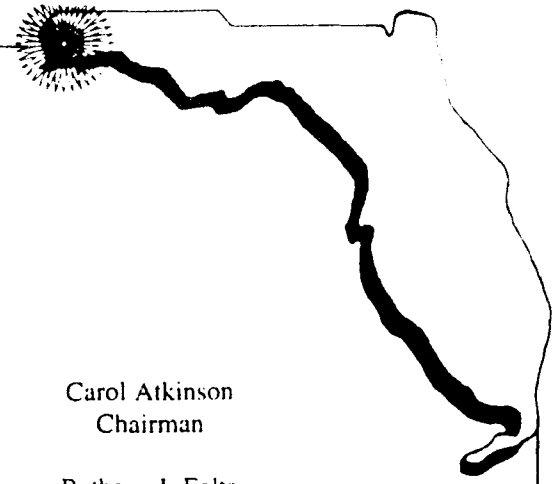
The City of Callaway is committed to support and will review this issue at budget time. We will continue to work with this project.

Sincerely,

Hubert L. Rodgers

Hubert L. Rodgers
Mayor

/gb



WEST FLORIDA REGIONAL PLANNING COUNCIL

POST OFFICE BOX 486 • 3435 NORTH 12TH AVENUE
PENSACOLA, FLORIDA 32593-0486 • PHONE (904) 444-8910
S / C 693-8910 • FAX (904) 444-8967

Daniel F. Krumel
Executive Director

Carol Atkinson
Chairman

Bethany L Folta
Vice-Chairman

February 7, 1995

Ms. Candis Harbison
Bay Environmental Study Team
U.S. Fish & Wildlife Service
Panama City Field Office
1612 June Ave
Panama City, FL 32405

Dear Candis:

This letter will serve as the Planning Council's support for the Bay Environmental Study Team (BEST) to nominate the St. Andrew Bay Area for the Environmental Protection Agency's National Estuary Program (NEP). Ms. Terry Joseph, Director of Environmental Planning, at our agency will continue to participate in your planning efforts for the bay area.

If you have any questions or need further information, please give me a call.

Sincerely,

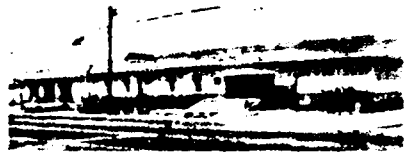
Daniel F. Krumel
Executive Director

CITY OF SPRINGFIELD

"IN BAY COUNTY, FLORIDA"

Charles "Jerre" Deason, MAYOR

COMMISSIONERS:
Irene Henderson Bowen
Henry J. Brooks
M. J. "Jimmy" Whaley
Allen Webb, Jr.



PHONE (904) 872-7570
Box 3717
3529 EAST 3rd STREET (HWY 22)
PANAMA CITY, FLORIDA 32401

February 21, 1995

Carol M. Browner
U.S. Environmental Protection Agency
401 M Street SW
Washington, D.C. 20406

Dear Ms. Browner:

We are in support of the St. Andrew Bay nomination to the National Estuary Program. We feel this is a very worthy project for Bay County and the surrounding community. We in the City of Springfield stand 100 percent behind this nomination and are committed to help any way we can either momentarily or through an in-kind project, or both. This project will significantly add to the development and improvement of the St. Andrew Bay watershed and ecosystem.

I look forward to the approval of this project and the opportunity to work with the dedicated people on this program.

Sincerely,

Jerre Deason,
Mayor

rjt

PORT PANAMA CITY
U.S.A.

March 1, 1995

Ms. Candis Harbison
Bay Environmental Study Team
Panama City, Florida

Dear Candis:

The Port of Panama City supports the nomination of the St. Andrew Basin for inclusion into the National Estuaries Program. We feel it will be a valuable step in helping safeguard St. Andrew Bay.

Should you need additional support please advise.

Sincerely,

H.R. "Rudy" Etheredge
Port Director

HRE/pw/21

Panama City Port Authority & Foreign Trade Zone 65
P.O. BOX 15095 Panama City, Florida USA 32406 904/763-8471
TELEFAX: 904/769-5673 TELEX: 324775 PORT PC USA

Gulf Coast Community College

5230 West U.S. Highway 98
Panama City, Florida 32401-1041

(904) 769-1551

February 16, 1995

Mr. Douglas Barr
Executive Director
Northwest Florida Water Management District
Route 1, Box 3100
Havanna, FL 32333-9700

Dear Mr. Barr:

I am pleased to forward to you this letter of support and extend Gulf Coast Community College's commitment for the Environmental Protection Agency's National Estuary Program grant application. The St. Andrew Bay proposal addresses the compelling need to promote education of all local citizens while restoring the health of the bay estuaries.

Gulf Coast Community College is very active in the Bay Environmental Study Team and supports numerous environmental educational programs throughout the year. It is with great pride that I offer our commitment of $9,000 per year for three years of in kind match to support this grant application.

For your convenience, further inquiries related to this proposal should be addressed to Lynn Gager, coordinator of community services and recreation, at (904) 872-3821.

Sincerely,

Robert L. McSpadden
President

esw

PANAMA CITY CHAPTER OF
ORGANIZED FISHERMEN OF FLORIDA

P. O. BOX 4207
PANAMA CITY, FLORIDA 32401-4207

PHONE 904-784-0663 FAX 904-785-7587

February 5, 1995

To whom it may concern;

The Panama City Chapter of Organized fishermen of Florida supports the concept of The Bay Environmental Study Team (B E S T) of Bay County filing application for the grant proposal from the National Estuary Program (N E P). We will assist in what ever capacity we can.

Kenyon R. Gandy, Director

Panama City Chapter of
ORGANIZED FISHERMEN OF FLORIDA

League of Women Voters
of Bay County
P.O. Box 1813
Panama City, Florida 32402

February 2, 1995

Environmental Protection Agency
National Estuary Program

Dear EPA,

The League of Women Voters of Bay County wish to give our support to the nomination of St. Andrew Bay to the National Estuary Program. Our local, state, and national organizations are all strong proponents of comprehensive planning and conservation. We have worked closely with B.E.S.T. in the area of public outreach and education, primarily by conducting a public forum on different bay management strategies.

Our goals for the coming year include promotion of just the sort of public consensus building that the NEP process could provide, and we would hope to be closely involved in any activities enabled by the NEP grant.

Sincerely,

Jo Ann Cain

JoAnn Cain,
President

The combined value of these potential foundation grants, corporate contributions and in-kind gifts should equal or exceed $5,000 annually, over a three-year period. I hope and believe this is sufficient commitment to enable BEST to compete for EPA funding of the estuary study.

You are aware that Arizona Chemical is a charter member of BEST and has contributed to the organization's work since inception. Ken Loritsch, Arizona Chemical's manager-manufacturing, chaired BEST in 1994. At Ken's request, other employees have made various in-kind contributions to BEST. These include assembling public environmental data, helping edit community awareness publications produced by other BEST volunteers, and helping BEST obtain coverage on National Public Radio affiliate stations.

We look forward to continued partnership with BEST members to maintain a healthy St. Andrew Bay ecosystem for the benefit of the entire community. Please keep me updated on progress toward the proposed estuarine study, so Arizona Chemical can plan for appropriate contributions in timely fashion.

Sincerely,

Arizona
CHEMICAL

ERNEST SPI
GENERAL M
1001 EAST E
PANAMA CI
800 526 529
PHONE 90
FAX 904 78

March

Ms. Candis Harbison
Chair, BEST
300 Cherry Street
Panama City, Florida 3240

Dear Ms. Harbison:

Thank you for the inform[illegible]on regarding the St. Andrew Bay National Esti process being led by Bay [illegible]nvironmental Study Team (BEST), and your requ Chemical pledge a contribu[illegible]tion to the Estuary program if BEST receives fundi Environmental Protection [illegible]gency.

BEST has requested that, no later than March 7 1995, Arizona Chemical pledge $5,000 annually for three [illegible]ears. Our company's budgeting process requires a and approval of significant [illegible]xpenditures or corporate contributions. While it i Arizona Chemical to respo[illegible]d specifically as requested, we are able to make a we believe will meet the n[illegible]eeds of your organization.

Arizona Chemical shares t[illegible] BEST goal of improving coordination and comm government, business inter[illegible]sts, educators and civic organizations regarding the ecosystem. The possibility [illegible] of an estuarine study is interesting because it can future water quality in St. [illegible]ndrew Bay.

We have several potentia[illegible] funding sources to assist BEST. Our corporat consider grant requests up [illegible]to $5,000 annually, beginning July 1, 1995. The record of supporting envir[illegible]ament and education programs nationwide, and will endorse a BEST gra[illegible]t request. Arizona Chemical can develop a pl contributions to augment fo[illegible]ndation gifts if these are less than $5,000, beginnin 1996. Additionally, we [illegible] continue to provide in-kind contributions incluc technical support.

BAY COUNTY
Chamber of Commerce

February 23, 1995

Candis Harbison, Chair
B.E.S.T. Steering Committee
300 Cherry St. #2
Panama City, FL 32401

Dear Ms. Harbison,

The Bay County Chamber of Commerce recognizes that a clean and healthy bay is a prerequisite to a healthy economy in Bay County. Both new and long-time residents have chosen to live here because of our abundant natural resources, and we want to maintain this natural asset.

Therefore, we support your application for the National Estuaries Program and look forward to working with you in the process of formulating a St. Andrew Bay Comprehensive Conservation and Management Plan. We especially like the idea that this will be a community effort and that the plan will reflect only the desires of the major industries who utilize the bay system and persons who actually live in the St. Andrew Bay watershed.

Sincerely,

Vic Jones
President

Stone Container Corporation
North American Containerboard,
Paper and Pulp Division

Post Office Box 2560
Panama City, Florida 32402

(904) 785-4311

February 23, 1995

Ms. Candis Harbison
Bay Environmental Study Team
Panama City, FL

Dear Candis:

This will confirm Stone Container Corporations support of the nomination of the St. Andrew Basin for inclusion into the National Estuaries Program.

Furthermore, we pledge the amount of $2,000 per year for three years, for a total contribution of $6,000, to support this effort.

We feel that the inclusion of the St. Andrew Basin will be a valuable step in helping safeguard St. Andrew Bay.

Sincerely,

Jack B. Prescott
General Manager

Gulf Power Company
500 Bayfront Parkway
Post Office Box 1151
Pensacola, FL 32520
Telephone 904 444-6111

Gulf Power

the southern electric system

March 2, 1995

Ms. Candis Harbison, Director
Bay Environmental Study Team
300 Cherry Street, #2
Panama City, Florida 32401

Dear Candis:

This is in response to your letter of February 17, 1995 which concerned the efforts of the St. Andrew Bay Environmental Study Team (BEST) to gain inclusion into EPA's National Estuarine Program. This program will provide funds that will enable BEST to develop and support the implementation of a Comprehensive Conservation and Management Plan for Bay County. It is my understanding that BEST intends to seek a grant from EPA in the amount of $375,000 which will be spread over the next three years.

It was indicated in your letter that in order to submit a complete grant application package to EPA, BEST must secure a 25% non federal fund match. Therefore, Gulf Power Company is pleased to pledge support towards this goal in the amount of $5,000 per year for each of the three program years. It is my understanding that the first $5,000 will be needed by October 1, 1995.

If I may be of further assistance or if you have any questions, please contact me at (904) 444-6127.

Sincerely,

Rachel Allen

Rachel Allen
Environmental Affairs Specialist

cc: M. L. Gilchrist
E. B. Parsons, Jr.
J. O. Vick