TAMPA BAY, FLORIDA

NATIONAL ESTUARY PROGRAM ANALYSIS:

RECOMMENDED NATIONAL SIGNIFICANCE CRITERIA FOR THE

GOVERNOR'S NOMINATION REPORT

SUBMITTED TO:

OFFICE OF THE GOVERNOR,

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

and

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT -

SURFACE WATER IMPROVEMENT AND MANAGEMENT PROGRAM

SUBMITTED BY:

TAMPA BAY REGIONAL PLANNING COUNCIL
AGENCY ON BAY MANAGEMENT
ST. PETERSBURG, FLORIDA

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NATIONAL SIGNIFICANCE OF TAMPA BAY

Description of the Estuary's Boundaries

Tampa Bay is the largest open water estuary in the State of Florida. The Bay meets the Clear Water Act definition of an estuary as "all or part of the mouth of a river or stream or other body of water having unimpaired natural connection with the open sea and within which sea water is measurably diluted with the fresh water from land drainage." The Bay is located on the west central coast of peninsular Florida (Figure 1) and was formed as a drowned river valley during the melting of the last major ice age of the Pleistocene Epoch.

The Tampa Bay estuary is roughly a Y-shaped system 35-miles in length and 10-miles wide. The geographic subdivisions and limits of the bay are represented on Figure 2. Combining open water measurements and intertidal wetland areas produces the summary of area measurements for Tampa Bay and total 398-square miles (1031 km^2) for the entire estuary. (Table 1). The shoreline length for the periphery of the bay totals 904 miles with the subdivision lengths further detailed on Table 2.

The Tampa Bay estuary is bordered by the counties of Pinellas, Hillsborough and Manatee (Figure 3) and three additional counties (Pasco, Polk and Sarasota) that lie partly in the watershed. In addition, the bay system is further subdivided by seventeen local govenments and a multitude of federal, state and regional regulatory agencies. Clearly Tampa Bay is a shared resource requiring coordination efforts from a number of resource managers.

The Tampa Bay Region has a subtropical climate that is characterized by long, warm, humid summers and warm winters. In general terms, the mild subtropical climate of the watershed is a reflection of the low-geographical relief, proximity to the Gulf of Mexico and the Atlantic Ocean, and the watershed's relatively low latitude (Schomer, Drew and Johnson, in press). The slight relief allows an uninterrupted movement of wind and rain across the terrain. Because of its history of mild climatic conditions and abundant sunshine, the area surrounding Tampa Bay has become known as the "Florida Suncoast."

The average bay area temperature is 23 degrees C (73 degrees F), and freezing temperatures are experienced only four nights each year on average. Total rainfall averages 53 inches (134.6 cm) per year. More than half the rainfall occurs from June through September, primarily from thunderstorms. Approximately 60 to 100 thunderstorms occur in an average year, over 85 to 90 days (Lewis and Estevez, 1988).

The watershed, or the area in which all rainwater will eventually drain into Tampa Bay is depicted on Figure 4 and is approximately 1,800 square miles (4,623 km^2) in size (Lewis and Estevez, 1988). Approximately 85 percent of all freshwater in flow to the bay emanates from discharges of the Hillsborough, Alafia, Little Manatee and the Manatee Rivers. In addition, Tampa Bay receives surface water inputs from numerous smaller tidal creeks.

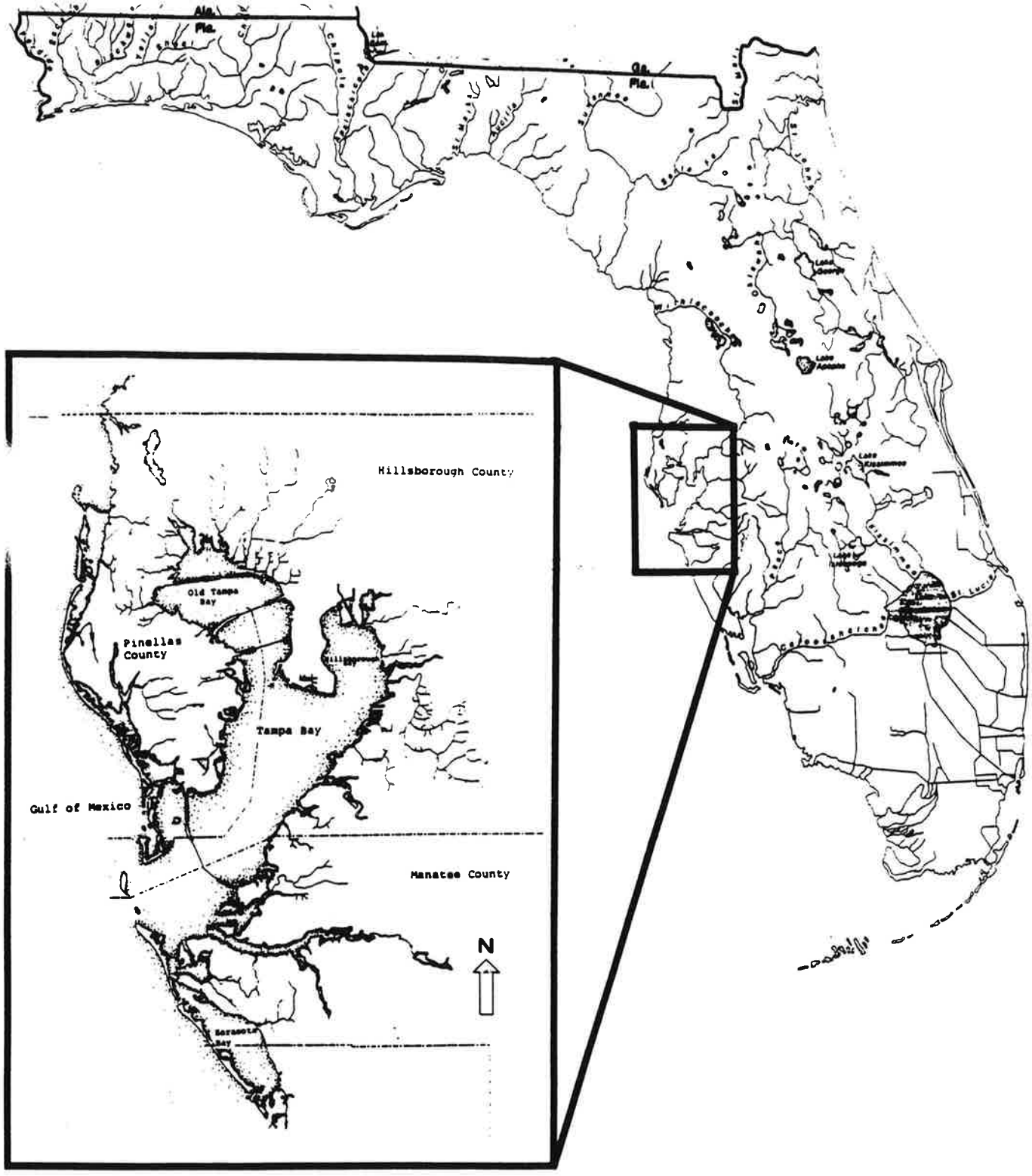


Figure 1. **Location of Tampa Bay in the State of Florida (Clark and MacAulay, 1988).**

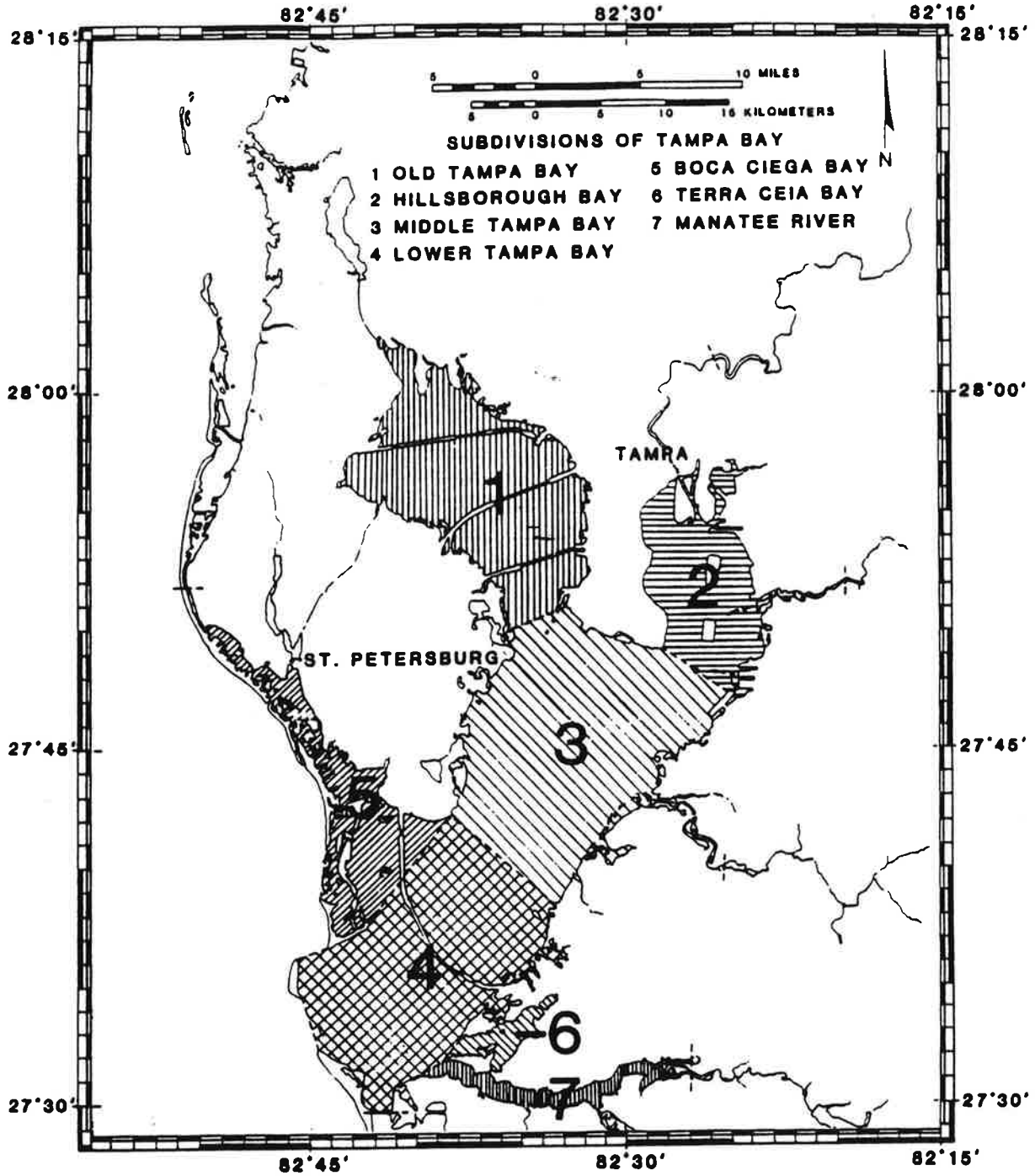


Figure 2. Subdivision of Tampa Bay (Lewis and Whitman, 1985).

Table 1. **Summary of areal measurements for subdivisions of Tampa Bay, including emergent wetlands (Lewis and Whitman, 1985).**

Subdivision Name	mi^2	km^2	acres	hectacres
1. Old Tampa Bay	80.5	200.7	51,542.0	20,067.2
2. Hillsborough Bay	40.2	105.3	26,119.6	10,534.3
3. Middle Tampa Bay	119.7	309.9	76,547.1	30,990.7
4. Lower Tampa Bay	95.2	246.6	60,906.4	24,658.4
5. Boca Ciega Bay	35.9	93.1	22,985.6	9,305.9
6. Terra Ceia Bay	8.0	20.6	5,098.3	2,064.0
7. Manatee River	18.6	54.6	11,935.1	5,462.0
Total	398.1	1,030.8	256,164.9	103,082.5

Table 2. **Shoreline lengths of subdivisions of Tampa Bay (Lewis and Whitman, 1985)**

Subdivision Name	mi	km
1. Old Tampa Bay	211.1	339.8
2. Hillsborough Bay	207.0	128.6
3. Middle Tampa Bay	163.3	262.8
4. Lower Tampa Bay	75.6	121.6
5. Boca Ciega Bay	180.5	290.4
6. Terra Ceia Bay	25.9	41.6
7. Manatee River	118.7	191.0
Total	903.7	1,454.2

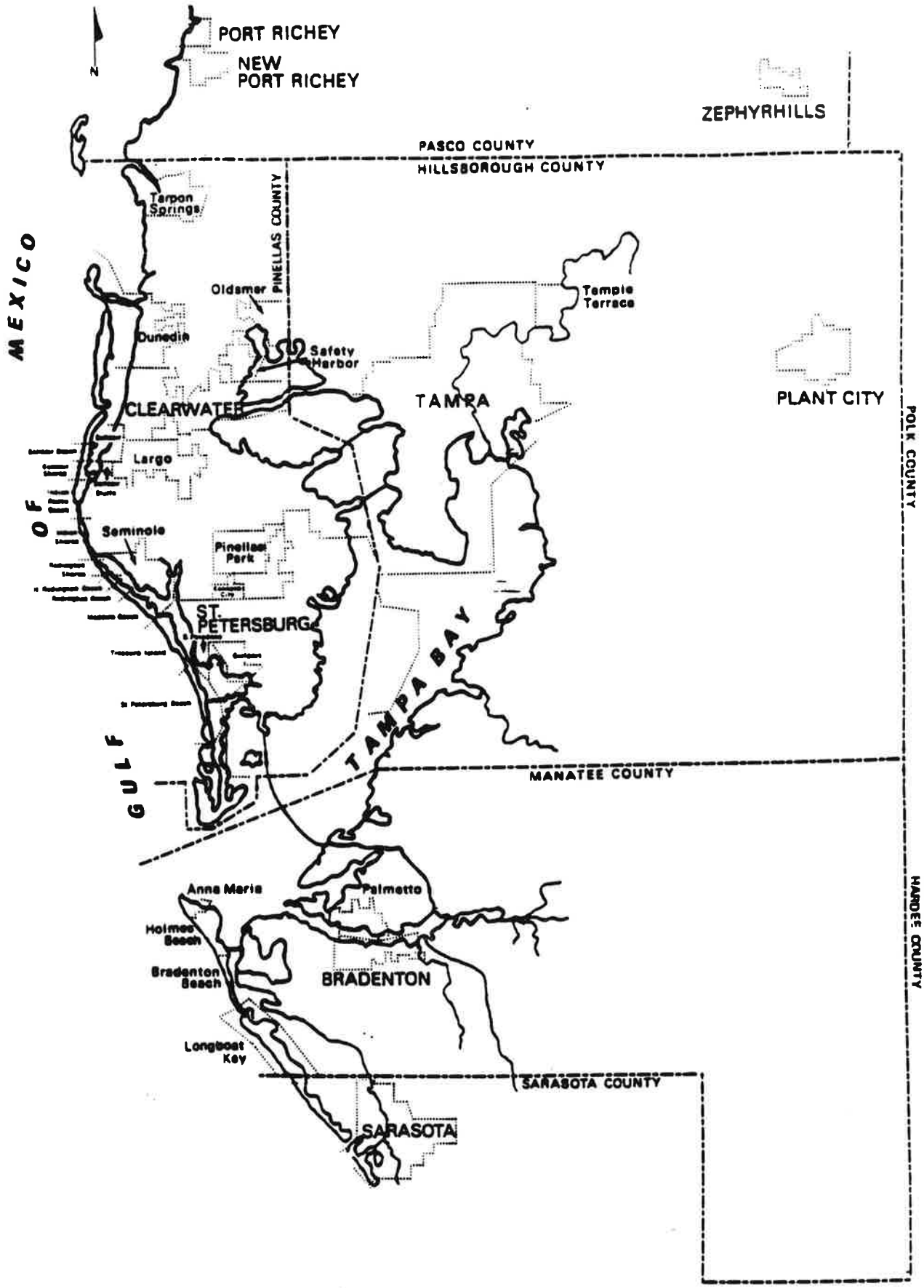


Figure 3. **Political boundaries within the Tampa Bay region (TBRPC, 1985).**

Both circulation and flushing in the bay are determined largely by the inflow of freshwater relative to tidal action. Total freshwater inflow to Tampa Bay is about 45 m^3/sec., much less than the average tidal flow at half tide of 25,500 m^3 /sec. Thus, Tampa Bay may be considered a neutral or mildly positive estuary which, due to bottom topography and low inflows, is vertically well mixed and unstratified with regard to salinity (Dinardi, 1978 in SWFWMD, 1988).

In general, maximum currents exist at the mouth of the bay where velocities exceed 6.0 ft./sec. on ebb tide and are below 3.5 ft./sec. on flood tide. Current velocities decrease markedly moving from the mouth to the head of the bay system, such that in Hillsborough Bay and northern Old Tampa Bay currents of less than 10% of those at the bay mouth are observed (Simon, 1974). The pattern of circulation in the lower portions of the bay has a net counterclockwise movement, with the flood flow being concentrated toward the eastern side. The major component of the ebb flow, especially from Old Tampa Bay, is directed towards the western shore. Little circulation is apparent in Hillsborough Bay, which serves as a trap for the effluents entering from both municipal and industrial outfalls, as well as from the Hillsborough River (Simon, 1974).

Water quality refers to the fitness of water for human and natural uses and can be described by concentrations of specific parameters (such as bacteria) or by the relation of observed concentrations to state standards (allowable levels of bacteria). The Hillsborough County Environmental Protection Commission (HCEPC) has monitored such parameters throughout Tampa Bay every month since 1972. The HCEPC summarizes monitoring data in a series of annual reports in which a "general water quality index" for Tampa Bay is presented. Values of the index range from excellent (collectively low values) to undesirable (collectively high values) and are based on ranked averaged values for total coliform bacteria, turbidity, chlorophyll *a* and organic carbon or biochemical oxygen demand (Lewis and Estevez, 1988).

Tampa Bay is a multiple use water body as defined by Chapter 17-3 of the Florida Administrative Code. The majority of the Bay is designated Class III: recreation-propagation and maintenance of a healthy well-balanced population of fish and wildlife. The remainder of Tampa Bay is designated as Class II: shellfish propagation and harvesting. Finally, parts of Tampa Bay have been designated as Outstanding Florida Waters and are afforded the highest level of protection. Figure 5 shows the designated use areas of Tampa Bay. The most critical water quality indicators for designated use attainment are dissolved oxygen, nutrients and chlorophyll *a*, coliforms, and toxicants (TBRPC, 1985).

In summary, general water quality is good to excellent in much of lower and middle Tampa Bay, declining in Old Tampa Bay and undesirable in Hillsborough Bay (Lewis and Estevez, 1988). In addition, the following qualifying points apply (TBRPC, 1985):

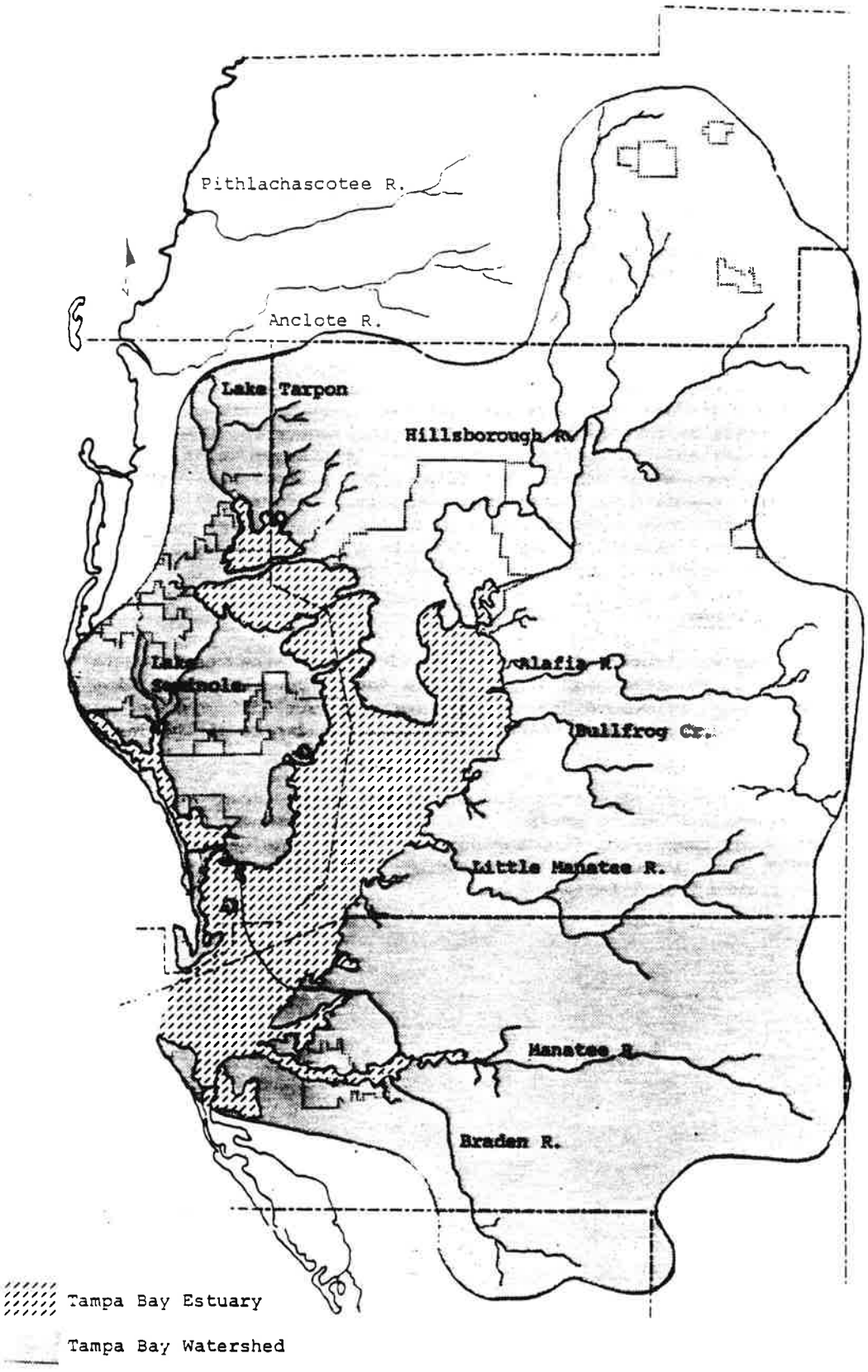


Figure 4. Tampa Bay Watershed (TBRPC, 1984).

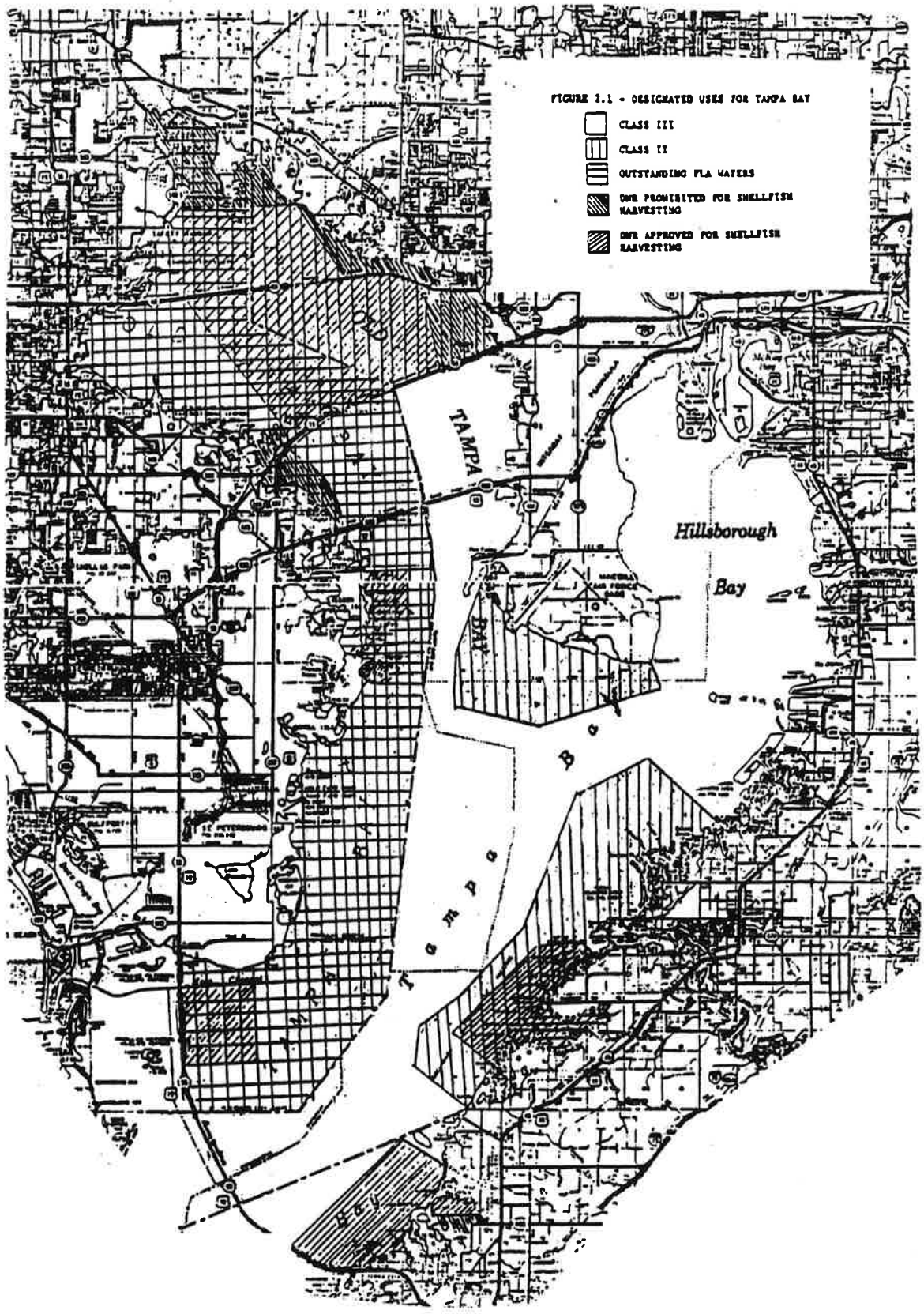


Figure 5. Designated uses for Tampa Bay (TBRPC, 1985).

- that Tampa Bay is not grossly "polluted," certainly not beyond the point of rehabilitation;

- that parts of the Bay are "cleaner" than others for natural as well as cultural reasons;

- that levels of some pollutants in the Bay have been declining over the past decade, while others have increased; and

- that the overall "quality" of bay zones is the same whether judged by ecological or human use criteria.

Significance of the Tampa Bay Estuary

The Tampa Bay estuarine system constitutes an asset of great regional, state and national significance. In fact its value is evident even when examined from numerous perspectives including biological, demographic, tourism, recreation, institutional and industrial.

Biological

The state's largest open water estuary and contiguous coastal waters serve as home, feeding ground and/or nursery for more than 270 species of resident and migratory fishes of the Gulf of Mexico that utilize the estuary at some time in their life cycle. The most critical use of Tampa Bay, for numerous species, is as a protected nursery area for larval and juvenile stages. The protective function arises from the generally greater osmoregulatory capabilities of younger marine fishes, shallow depths and protective cover. Reduced salinities in estuarine waters tend to exclude larger marine restricted fishes that otherwise prey on young juveniles and larvae. The nursery function is developed from the high primary productivity of estuaries which provide a ready source of food (TBRPC, 1986 a).

The recorded diversity and abundance of macro-invertebrate marine life in the Tampa Bay estuary is not exceeded by any other estuary between Chesapeake Bay and the Laguna Madre of Texas (Taylor, 1973). The richness of Tampa Bay marine life has been attributed to the geographic position of the estuary between temperate and subtropical waters (Simon, 1974). Another contributing factor to the diversity and abundance of Tampa Bay marine life is that salinity typically ranges between 25-35 parts per thousand (ppt) throughout the estuary, without the wide fluctuations and significant vertical stratification that characterize many other estuaries. As a result of the stability of the salinity regime, many ocean species can co-exist with typical estuarine species.

The importance of mangrove forests, salt marshes, and seagrass beds to coastal and estuarine ecosystems has been well documented over the past two decades. As primary producers, these species of wetland vegetation provide the foundation of coastal and estuarine food webs, both as direct sources of nutrition and as generators of detrital particles. Secondary to their role as primary producers, coastal and estuarine wetlands provide protection and habitat for such organisms as shrimp,

crabs, scallops and juvenile fishes. Also, wetland vegetation provides necessary substrate for the attachment of organisms that are major food sources for many economically important species of finfish.
In addition to their contributions to the biology of the marine ecosystems, coastal and estuarine wetlands play an important role in modifying the geologic and hydrographic characteristics of the area. Acting as baffles, roots and leaves reduce the velocity of water over the bottom, causing suspended particles to settle out and become trapped at the base of the plants. In this way mangroves, marshes, and seagrasses reduce turbidity, increase sedimentation rates, stabilize sediments, and attenuate wave action on adjacent shorelines. The binding and stabilization characteristics of these habitats are documented by reports of some coastal marshes and seagrass meadows surviving the destructive scouring forces of coastal storms and hurricanes in the Gulf states.

In addition to the specialized vegetation that occurs in this extremely sensitive zone, salt prairies and marshes provide habitat for a variety of fish and wildlife. Salt barrens, because of the hypersaline soil water, are generally devoid of vegetation. As this soil water slowly leaches from the surface and is diluted by rainwater, salt flats, (prairies) and meadows (marshes) may form. These rapidly changing physicochemical conditions caused by tides, evaporation, and freshwater runoff result in unique and sporadic assortment of vegetation. In general, the moderate to high salinity marshes support more marine invertebrates (snails, mussels, polychaetes) than do the low salinity marshes. Other important invertebrate groups include amphipods, benthic formininferans, insects and their larvae.

Additionally, marshes attract numerous wading birds (herons and egrets), other more transient birds (red winged blackbird, marsh hawk), mammals (rabbits, raccoons), and some reptiles (alligators, salt marsh snake).

Seagrasses play at least four roles in the ecology of an estuary: (1) habitat; (2) food source; (3) nutrient buffer; and (4) sediment trap. As an example, seagrasses serve as a fisheries habitat including: nurseries for juvenile stages of some fish species; refuge for mating blue crabs, other invertebrates, and finfish; a substrate for epiphytic plants and animals; and habitat for all fauna subsisting directly on seagrasses and its epiphytes or detritus derived from them (TBRPC, 1986).

Tampa Bay is home to 20 species of colonial nesting birds (i.e.: pelicans, herons, ibis, spoonbills, gulls, terns and skimmers). The colonial species in the bay area are most notable for their numerical size, remarkable diversity and presence of scarce species (Paul, personal communication).

The Alafia Bank Sanctuary, managed by the National Audubon Society, currently represents the largest and most diverse colony of pelicans, ibis, herons and allies in the state, with 7-12 thousand breeding pairs nesting annually. In addition, Tarpon Key (Pinellas National Wildlife Refuge) provided pelicans to Louisiana to assist in the recovery of

this species in the 1970s. The reddish egret and roseate spoonbill [both are Species of Special Concern (Florida Game and Fresh Water Fish Commission, 1987)] returned to Tampa as nesting species in the mid-1970s. The bay system is the only site in Florida north of Everglades National Park where roseate spoonbills breed. The long term protection of breeding habitat in the bay system is ensured for the mangrove nesting species due to the preservation of Alafia Bank (Hillsborough County), Tarpon Key (Pinellas County), and Terra Ceia Bird Key (Manatee County) sanctuaries, all of which are maintained by either the National Audubon Society or the U.S. Fish and Wildlife Service.

In summary, Paul (personal communication) provided the following conclusions as relevant to the continued management of avifauna in the Tampa Bay region:

- The bay system provides nesting sites of major significance to a large number of colonial birds, including several rare species.

- Tampa Bay provides a breeding population that serves as a reservoir for national recovery of rare species, including the brown pelican - formerly an Endangered Species - and also species such as the roseate spoonbill, reddish egret, American oystercatcher and royal tern, whose numbers have never recovered since plume hunting a century ago.

- Birds that forage primarily in freshwater feeding habitats are declining in the face of continuing human population growth. To maintain a viable population of those species, growth management must consider wildlife concerns.

Demographic

Population estimates from 1890 reveal that approximately 17,836 residents inhabited Hillsborough County (including what is now Pinellas County) and Manatee County (including what is now Sarasota County) (Figure 6). This figure increased approximately 500 percent to 87,924 in 1910 (U.S. Department of Commerce, 1913). The estimated population of the four counties in 1950 was approximately 473,000, increasing 260 percent to approximately 1.23 million residents in 1970 (Bureau of Economic and Business Research, 1988). The 1987 estimated population of the area was approximately 2.06 million residents. Medium projections indicate that the area's population will reach 2.53 million by 2000, an 18.5 percent increase over the 1987 figure (BEBR, 1988 in Clark and MacAulay, 1988).

Of the 176 largest cities in the United States, the cities of Tampa and St. Petersburg ranked 55 and 61, respectively. In addition, the Tampa-St. Petersburg-Clearwater Metropolitan Statistical Area (MSA) was ranked 20th largest in the United States in 1983. Furthermore, review of Figure 7 indicates there are only seven estuarine MSAs with larger populations and only one estuarine MSA with a greater population growth between 1980-1983 (Department of Commerce, 1983).

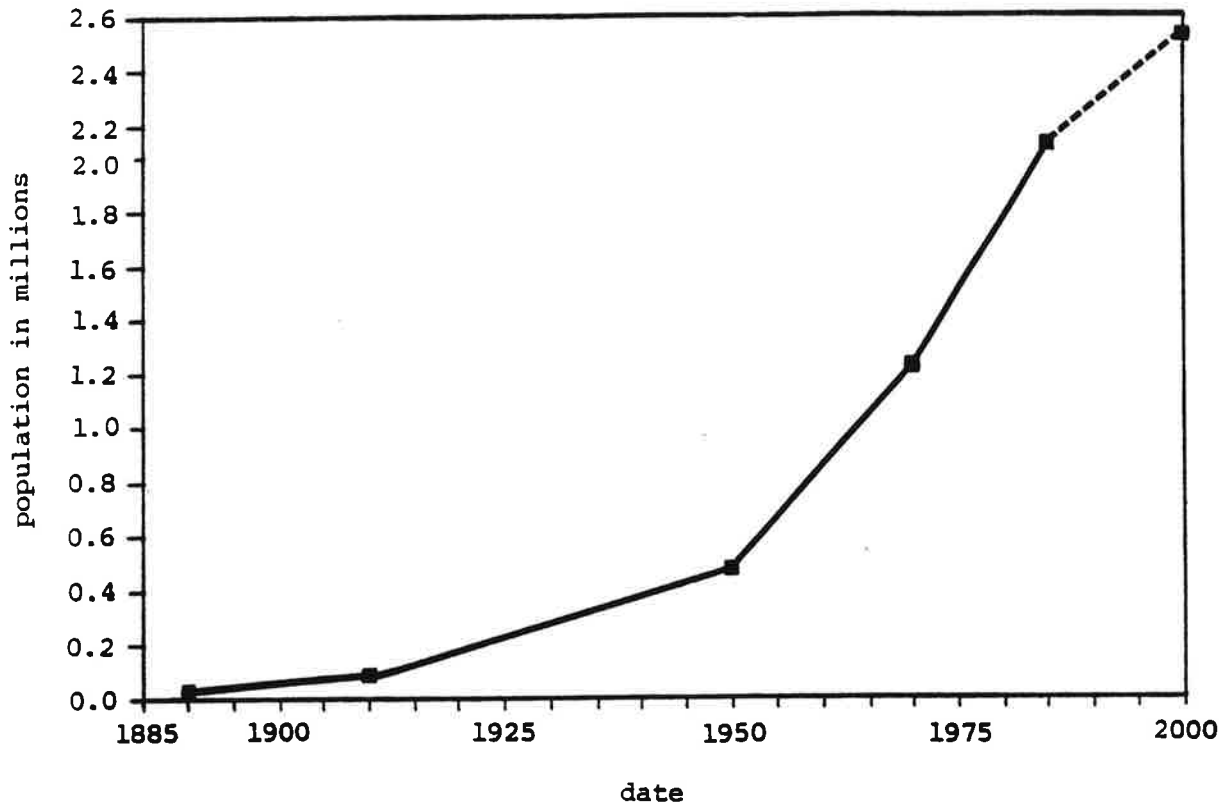
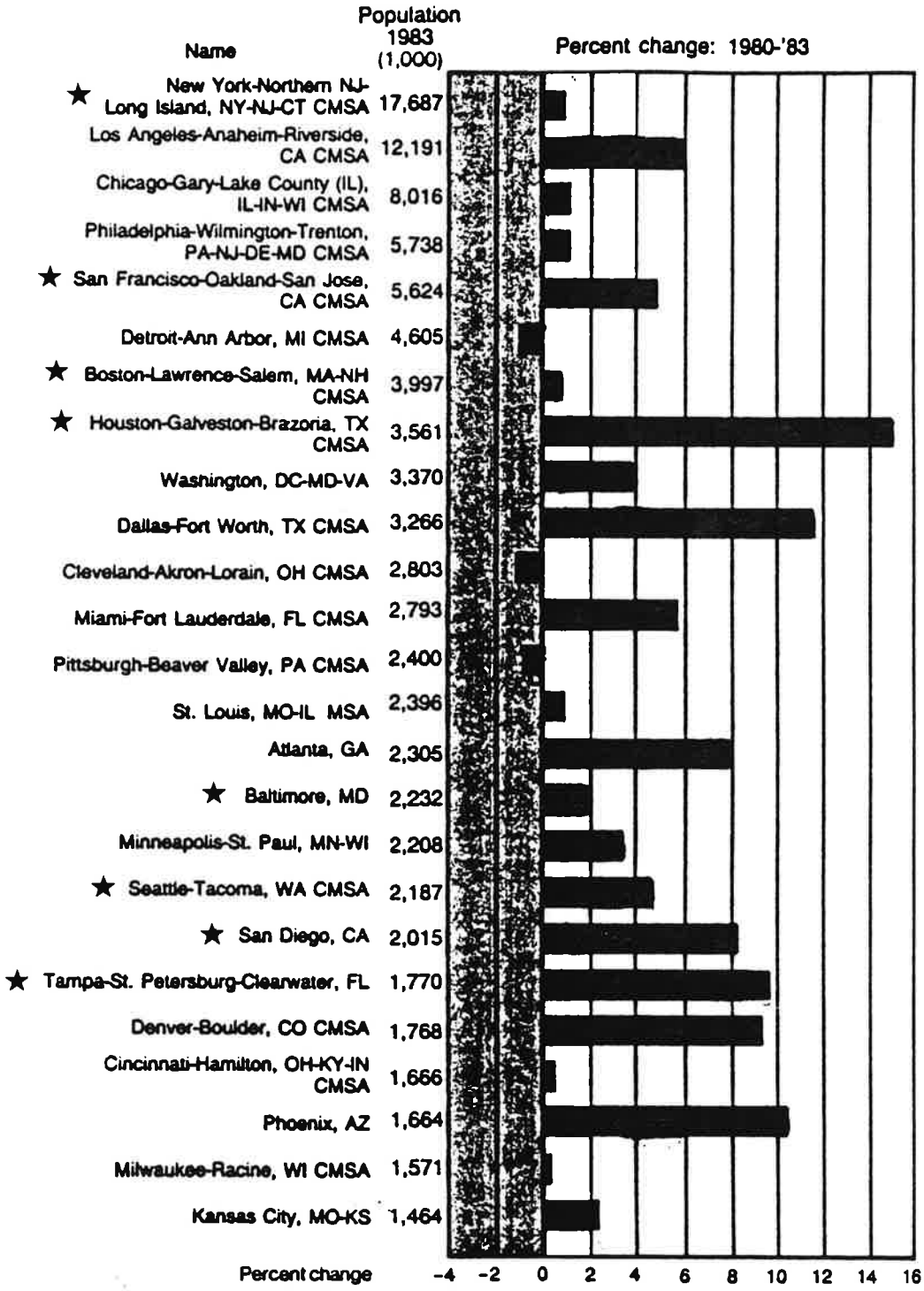


Figure 6. **Recorded and projected population estimates for Hillsborough, Pinellas, Manatee and Sarasota Counties (Department of Commerce, 1913; BEBR, 1988; in Clark and MacAulay, 1988)**



Note: Metropolitan statistical areas (MSA) defined as of June 30, 1984.

Source: Chart prepared by U.S. Bureau of the Census.
in Department of Commerce, 1983

★ Estuarine MSA's.

Figure 7. Top 25 Metropolitan Areas: 1983

The presence of Tampa Bay on the "Florida Suncoast" has historically shaped -- and continues to influence -- the economic base of the counties and cities surrounding the Bay system. Fishing villages along the shore of Tampa Bay became active trade centers in the early 1800s, stimulated by thriving agriculture and cattle industries (Powell, 1973). The expansion of the railroad system toward the end of the 19th century is perhaps the single most important reason why the City of Tampa was transformed from a viable port city to a productive metropolis; moreover, the City's development into a major seaport and trading center influenced the growth and development of the entire west coast of Florida (Mormino and Pizo, 1983).

Tourism and Recreation

Tourism and recreation are major industries along the Florida Suncoast, generating millions of dollars each year. Tampa Bay serves as a primary attractor of tourists as well as permanent residents for recreation. One useful indicator of tourist and recreation activity is employment, particularly in those industries which are sensitive to tourist expenditures. The retail trade and services industries, or sectors, are especially influenced by tourism, specifically the hotel/motel industry, eating and drinking establishments and recreation services. The economic base study (TBRPC, 1986 b) identified these three sectors as being export industries and therefore key components of the local economy.

When compared with Florida's eastern seaboard and other Gulf coast states, the Florida Suncoast ranks as one of the leading sites of marine recreational activity, exceeding 25 million activity occasions per year in 1980 (Department of Natural Resources, 1981). Recreational fishing, sailing, swimming and beach activities are some of the recreation-related benefits provided by the Tampa Bay system. Although tourist and recreational benefits are difficult to quantify, there have been attempts made to identify the potential magnitude of the recreational benefits associated with Tampa Bay. The economic value of other types of water-related recreation, including saltwater boat ramp use and beach activities for Hillsborough, Manatee and Pinellas Counties was estimated to be $220,176,156 (in 1983 dollars) (TBRPC, 1986 b).

The number of recreational (pleasure) boats registered in Hillsborough, Manatee, and Pinellas Counties is also indicative of water-related recreational demands. In 1984, the retail sales reported for pleasure boats in the Tampa Bay Region was approximately $185 million (TBRPC, 1986 b).

The Tampa Bay Region supports its own symphony orchestra, dance and drama companies, and public and private art galleries. In addition, the region contains many major attractions which include:

- Busch Gardens
- Clearwater Marine Science Center
- Museum of Science and Industry
- Ringling Museum Complex

- Ruth Eckerd Hall
- Salvador Dali Museum
- Sunken Gardens, and
- Tampa Bay Performing Arts Center

Professional sports in the area include the Tampa Bay Bucaneers (football) and the Rowdies (soccer). The Tampa Bay Region served as host for the Superbowl in 1984 and will again host Super Bowl XXV in 1991.

Institutional

There are numerous educational and research facilities located in the Tampa Bay area. The University of South Florida maintains three campuses in the four county area - in Tampa (main campus), St. Petersburg (Bayboro) and Sarasota (New College). The Bayboro area of St. Petersburg is also the site of the Florida Department of Natural Resources-Bureau of Marine Research, and the Florida Institute of Oceanography.

The U.S. Department of the Interior-United States Geological Survey (USGS) maintains a field office in Tampa, while another office is being proposed for the Bayboro area of St. Petersburg. The Southeast Regional Office (St. Petersburg), the Gulf of Mexico Fisheries Management Council (Tampa) branches of the National Marine Fisheries Service, and the United States Fish and Wildlife Service (St. Petersburg) all have offices in the bay area. In addition, the United States Air Force maintains the Rapid Deployment Command at the MacDill Air Force Base. The Air Force is a major landowner along Tampa Bay on the Interbay Peninsula.

Industrial and Economics

Many of the bay-influenced industries historically important to the Tampa Bay area remain key components of the local economy today. An economic base analysis conducted in 1986 identified agriculture, boat building, commercial fishing, construction and port activities to be export industries or those industries which "drive the local economy" (TBRPC, 1986 b). There is much evidence that tourism played a major role in the local economy during the 1800s (Pumphrey, 1987). Since the 1950s, however, the bay has increased in economic importance for a variety of reasons, principal among these being benefits accrued by the sanitary and electric service industries, residential waterfront property owners and the recreation service industry.

Commercial fishing and port or shipping activities are perhaps the most noticeable industrial uses of the two estuaries. Although commercial fishermen are reporting that both finfish and shellfish have become less abundant over the past 20 years, the industry remains important to the local economy. In 1984, approximately 2,000 commercial fishermen plied their trade in Hillsborough, Manatee and Pinellas Counties, landing a total of 22.1 million pounds of finfish and shellfish, with an ex-vessel value of approximately $19.3 million (TBRPC, 1986 b).

The Port of Tampa has served as a vital transportation link for the West Central Florida region since the early nineteenth century. The port evolved initially as a gateway for agricultural products flowing to and from Cuba. Improvements to the natural harbor began with the discovery of phosphate in the region and the first Congressional authorization in the 1880s. During the past 100 years, channel dimensions have repeatedly been enlarged (Figure 8), the size of ships calling on the port has increased, and the annual tonnage transiting the port has increased from one million tons in 1920 to 50 million tons in 1980. In the fiscal year 1984-85, the Port of Tampa registered 48,856,924 net tons, making it Florida's number one port, and seventh largest in the nation in terms of export quantities (TBRPC, 1986 b).

Port Tampa and Port Manatee, both located on Tampa Bay, are major sources of employment and income for Bay area residents. In addition, it has been estimated that shippers and consignees that engage in commerce on Tampa Bay realize an annual savings in transportation-related costs of approximately $281 million, i.e., waterborne commerce versus railroad or truck commerce (TBRPC, 1986 b).

Tampa Bay continues to serve as receiving water bodies for discharges of treated wastewater from municipal sewage treatment plants. This use of the bay provides a cost savings of approximately $238 million, when taking into consideration the alternative of secondary wastewater treatment and spray irrigation. In addition, Tampa Bay serves as a source for condenser cooling water and a disposal site for waste heat water from five steam electric power plants operated by the Florida Power Corporation and the Tampa Electric Company. This results in a cost savings of between $40 and $126 million when considering the alternatives of constructing a closed-cycle cooling system and on-site cooling towers (TBRPC, 1986 b).

The Tampa Bay estuarine system is both directly and indirectly a vitally important economic asset to the Florida Suncoast. When taking into consideration the myriad of uses and attributes of the bay system, including commercial fishing, shipping and port-related activities, benefits to the sanitary and electric service industries, waterfront property values and tourism and recreation, their total annual value can be placed at approximately $3 billion (Clark and MacAulay, 1988). Strong evidence supports Tampa Bay's significant contribution to the Florida Suncoast's rapid growth and development over the past 100 years. With active protection and management, the bay will continue to serve as a valuable natural, as well as economic, resource.

Status of Bay Management Efforts

The Tampa Bay estuarine system has received past physical modifications created to:

- Develop and expand port facilities
- Improve navigation
- Provide transportation routes across the water

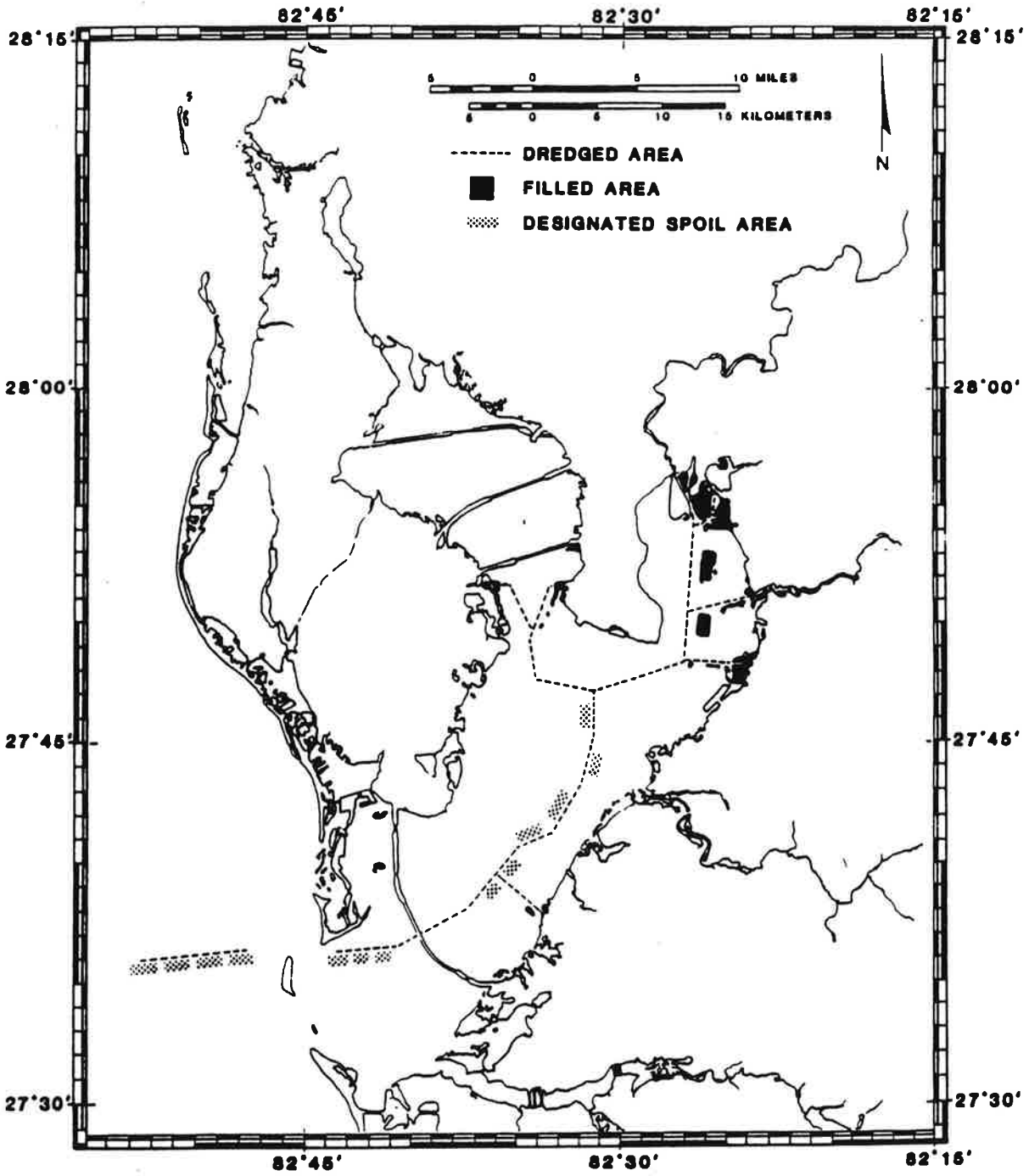


Figure 8. **Areas of Tampa Bay dredged or filled in the past 100 years for port development (Fehring, 1985).**

- Build waterfront homes
- Construct power plants
- Develop recreational areas
- Provide flood control

The Tampa Bay estuarine system is criss-crossed and modified by four major causeways and an extensive network of dredged canals. Creation of the 35 mile shipping channel resulted in 70 million cubic yards of bay bottom being moved and deposited as large spoil island or submerged disposal areas in the bay (Figure 8). Previous to dredge and fill activities the average depth in Tampa Bay was 11 feet. Due to the extent of bay development, the average depth has increased by one foot bay-wide and the surface area has diminished by 3.6 percent (Goodwin, 1987).

Overall, the work of Goodwin (1987) underscores the following important conclusions: (1) that physical changes to the bay have caused significant effects in circulation and flushing; (2) that Hillsborough Bay was naturally an area of poor flushing (and was thus the worst place for municipal and industrial waste to have been discharged); and (3) that the continued flow of freshwater to Tampa Bay and especially Hillsborough Bay is essential to maintain flushing, even though the volume is low compared to the average tidal prism. These same conclusions probably apply to Old Tampa Bay as well (Lewis and Estevez, 1988).

Rapid urban and industrial development have radically changed the character and ecology of Tampa Bay and adjacent estuarine systems. For example, recent studies have indicated that 44 percent of the original 25,000 acres of mangroves and marshes has been destroyed, and 81 percent of the original 76,500 acres of seagrasses has disappeared. Many of the tidal tributaries entering Tampa Bay have been filled, diverted, hardened, channelized, or otherwise modified by point and non-point source discharges. This habitat loss has resulted in declining populations of commercially valuable fish and shellfish, including a complete collapse of such fisheries as those for scallops and oysters, and major declines for bait shrimp, red drum, and spotted sea trout.

There has been historical concern for the bay and growing recognition of need to implement a comprehensive management program for the bay that seeks to correct past mistakes and prevent or minimize future impacts. The following excerpt from State of the Bay - 1986 (TBRPC, 1987) which acquired sections from The Future of Tampa Bay (TBRPC, 1985) provides a historical account of efforts to improve bay management.

> "There have been numerous attempts over the past 25 years to establish a committee or commission to examine the problems in Tampa Bay. In response to growing public concern about the environmental degradation of Tampa Bay, the Legislature passed a local act in 1970 creating the Tampa Bay Conservation and Development Commission. This Commission was to consist of 10 select members composed entirely of local legislators and other

elected officials. The Commission was empowered to undertake studies to ascertain the public interest in Tampa Bay, and to determine the effects of further dredging and filling on navigation, and fish and wildlife resources in the Bay. Unfortunately, the Tampa Bay Conservation and Development Commission never met.

In 1982 the first symposium on Tampa Bay was held at the University of South Florida. The Tampa Bay Area Scientific Information Symposium (BASIS) lasted four days and involved topical presentations by 50 invited speakers. Major conclusions of the Symposium were that (1) Tampa Bay can and should be comprehended, and managed, as a single ecological system; (2) the Bay is remarkably resistant to environmental challenges; (3) a clear pattern of decline is evident in some measures of ecological health; and (4) the management needs of Tampa Bay are relatively clear and, if implemented in a comprehensive and baywide basis, would result in tangible improvements to the Bay and its usefulness to people.

It was further concluded that state and federal regulatory agencies, local governments surrounding the Bay, and an array of industries and user groups often carry out their respective activities independently. The effect of Bay management by a multitude of overlapping and often conflicting interests and jurisdictions had contributed to a number of environmental and growth management problems in the Bay area.

In partial recognition of these problems, BASIS organizers suggested that the Tampa Bay Regional Planning Council initiate a comprehensive investigation of Tampa Bay from a variety of viewpoints. On May 10, 1982, a motion was passed by the Council to establish the Tampa Bay Management Study Committee. The Committee was charged with the task of identifying critical Bay management problems and evaluating potential solutions for those problems. In December 1982, a grant was received from the Florida Department of Environmental Regulation, through the federal Coastal Zone Management program to help support committee activities for one year and to develop a management plan for Tampa Bay.

By December 1983, the Tampa Bay Study Committee had identified 40 specific Bay issues; however, because of the large number and complex nature of the issues affecting Tampa Bay, the Committee did not reach a consensus regarding the approach to management of the Bay. As a result, the Committee recommended, and the Council approved, the interim establishment of a 15 to 20 member Tampa Bay Management Steering Committee in October, 1983. The composition of this Committee provided for effective representation from a wide range of Tampa Bay's business, environmental and industrial interests, as well as from the local regulatory agencies having jurisdiction over the Bay. During its six-month tenure, the Steering Committee concentrated primarily on a comprehensive

survey and review of all entities having management responsibility for Tampa Bay with the objective of documenting all major jurisdictional gaps and overlaps.

The conclusions reached at the BASIS conference underscored the importance of approaching estuarine management at the ecosystem level. In recognition of the need for a credible and structural forum within which to pursue a more unified management scheme, BASIS organizers urged local legislators to introduce a bill creating a special task force to review and make recommendations regarding the management of the Tampa Bay estuarine system. During the 1984 session, the Florida Legislature created the Tampa Bay Management Study Commission under a special act. While administered by TBRPC, the Commission received a one year mandate to develop a recommended Bay management plan and work program to address priority Bay management issues in conjunction with ongoing efforts by Congress, the U. S. Fish and Wildlife Service, state agencies, port authorities, and other regulatory entities, for submittal prior to the 1985 legislative session.

In its final report entitled the Future of Tampa Bay (TBRPC, 1985), the Tampa Bay Management Study Commission recommended to the Florida Legislature the establishment of a 40 member coordinating and advisory committee as an interim solution to the management inconsistencies plaguing Tampa Bay. The committee, to be entitled the Agency on Bay Management, became an official arm of the Tampa Bay Regional Planning Council with membership from the following groups:

- The Florida Senate representing the Tampa Bay Region
- The Florida House of Rep. representing the Tampa Bay Region
- The Tampa Bay Regional Planning Council
- The U. S. Army Corps of Engineers
- The U. S. Geological Survey
- The National Marine Fisheries Service
- The Florida Department of Natural Resources
- The Florida Department of Environmental Regulation
- The Florida Game and Freshwater Fish Commission
- The Florida Marine Patrol
- Florida Sea Grant
- The Florida Department of Transportation
- The Southwest Florida Water Management District
- Manasota 88
- MacDill Air Force Base
- The National Audubon Society
- The Organized Fishermen of Florida
- The Florida Conservation Association
- The Florida Phosphate Council
- The Tampa Electric Company
- The University of South Florida
- Environmental consulting firms
- Hillsborough, Manatee and Pinellas Counties
- The Tampa, Manatee and St. Petersburg Port Authorities
- The Cities of St. Petersburg, Tampa, Clearwater and Oldsmar.

The Council's Agency of Bay Management first convened in September of 1985 and continues to meet on a bi-monthly basis. To date, the Agency has served as a useful forum for the sharing and discussion of information related to Bay management issues. The Agency has been very successful in facilitating communication between responsible agencies and affected interests, providing coordinated recommendations regarding environmentally sensitive projects within the Tampa Bay watershed, establishing a vital link between Tampa Bay interest and the state legislature, and implementing the recommendations set forth in the Future of Tampa Bay."

The State of Florida passed the Surface Water Improvement and Management (SWIM) Act at the end of the 1987 legislative session. Heralded as one of the most important pieces of environmental legislation in recent years, the Act was to initiate the restoration and protection of surface water bodies on a state-wide basis. The legislation mandated that the state's five Water Management Districts would be the agencies to implement the bill with the Department of Environmental Regulation as the State's overview agency. The state also created the SWIM Trust Fund to which appropriations would be made to support the program. The first year's appropriation of $15 million was allocated for six priority water bodies of which four were estuarine waters. Tampa Bay was identified as one of the priority water bodies and $2 million was appropriated to the Southwest Florida Water Management District for Tampa Bay during fiscal year 1988.

Currently the SWIM program is progressing toward state approval of the management plan for the Tampa Bay priority water body. The SWIM program provides the opportunity to create, annually update, and partially fund and implement a management plan for the Tampa Bay ecosystem (SWFWMD, 1988). The existing network of working, dedicated individuals currently involved with the management/restoration of the Tampa Bay ecosystem within the TBRPC Agency on Bay Management and SWFWMD-SWIM department provide the substantial representation for the EPA National Estuary Program Management Conference. Local lessons learned during historical bay management initiatives will assist in the timely creation and implementation of NEP program objectives.

Application of Results to Other Areas and the Likelihood of Success

The National Estuary Program is managed by the EPA to identify nationally significant estuaries threatened by pollution, development, or overuse, and to promote the preparation of comprehensive management plans to ensure their ecological integrity. The program's goals are protection and improvement of water and sediment quality, and enhancement of living resources.

To achieve these goals, NEP conducts activities to help participating areas:

- Establish working partnerships among federal, state, and local governments.

- Transfer scientific and management experience and expertise to program participants.

- Increase public awareness of pollution problems and ensure public participation in consensus building.
- Promote basinwide planning to control pollution and manage living resources.

- Oversee development and implementation of pollution abatement and control programs.

NEP administrators readily recognize that program funding limitations preclude direct assistance to all estuarine areas, and stress that candidate areas are included in the program based both on their significance and the extent that experience gained through area programs will be translatable to other estuarine areas in the country.

The management experiences gained in the Tampa Bay region can indeed serve as a case study to be applied toward other estuaries in the state or nation. Most significantly, Tampa Bay is a shining example of what can be accomplished through local initiatives and coordinated local, state and federal efforts.

In addition, Tampa Bay shares many problems and attributes with other surface waterbodies nationwide. Urbanized areas require restoration while pristine environs focus on preservation as a management tool. The advanced stage of management and planning in Tampa Bay will bring vital experience into the EPA National Estuary Program to facilitate success and ease of application to other estuaries. Experience gained dealing with the largest Florida estuary using state SWIM and federal NEP funds can be applied to other areas, especially since Tampa Bay is likely to see definitive results sooner than most other areas due to ongoing local initiatives.

Management of the Tampa Bay ecosystem has provided valuable experience in mobilizing and organizing local, state and federal interest to achieve a common goal. The bay system has received many innovative strategies for funding management of the shared resources, and include: using gill-net license fees specifically for habitat restoration and research; federal coastal zone management funds administered through the state for planning and management of Tampa Bay; state creation of the SWIM program; and supporting federal agencies to accomplish bay related research and management.

Tampa Bay is utilizing novel technical approaches toward research and restoration that could be tried elsewhere. Numerous local, state, and federal agencies are cooperatively conducting seagrass transplanting and research. The bay has a very active artificial reef program to supplement recreational fishing activities. The SWIM program is proposing to establish water quality criteria based on living resource and user requirements. The Department of Transportation is currently

proposing to create the largest fishing pier in the world through conversion of the old Sunshine Skyway Bridge. Currently the Department of Natural Resources is conducting a comprehensive fisheries assessment for the Tampa Bay estuary with the intent of developing a bay-wide fisheries plan.

Finally, the concerns and recognition of the bay resources by bay citizens are reflected in numerous public relation activities which occur year-round. The local media is strongly supportive and understanding of environmental needs and problems. Boat-a-Cade events transport elected officials and the public to pristine and impacted locations around the bay to increase individual awareness. Bay Day events in Tallahassee inform legislators on Tampa Bay problems and potential solutions. Numerous slide shows, documentaries and bay brochures have been produced and distributed for additional public education.

Inclusion of the Tampa Bay ecosystem into the Environmental Protection Agency National Estuary Program is expected to require a minimal investment while providing a big success in a relatively short time frame which then can be applied to other estuarine systems.

Summary of Significant Findings

The Tampa Bay system is an extremely unique and productive estuarine ecosystem. The Tampa Bay region is of national significance due to its biological, social, economic and industrial attributes. The bay area has historically been impacted due to urbanization activity and has a strong local commitment to improve, restore and manage the resource. Designation of Tampa Bay into the Environmental Protection Agency National Estuary Program will facilitate ongoing bay management and restoration activities.

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An Alliance of Agencies, Organizations and Interest Groups for the Management of Tampa Bay

Tampa Bay Regional Planning Council
Florida Senate
Florida House of Representatives
Florida Department of Environmental Regulation
Florida Department of Natural Resources
Florida Department of Transportation
Florida Game and Fresh Water Fish Commission
Florida Marine Patrol
Florida Department of Community Affairs
Southwest Florida Water Management District
Florida Sea Grant
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St. Petersburg Port Authority
Hillsborough County
Pinellas County
Manatee County
Pasco County
City of Tampa
City of St. Petersburg
City of Clearwater
City of Oldsmar
Hillsborough County Environmental Protection Commission
Greater Tampa Chamber of Commerce
Florida Power Corporation
Tampa Electric Company
Florida Conservation Association
Organized Fishermen of Florida
Mote Marine Laboratory
National Audubon Society
Manasota 88
Hillsborough Environmental Coalition
League of Women Voters
University of South Florida
Bay Area Scientific Information Symposium

September 1, 1988

The Honorable Robert Martinez
Governor of Florida
The Capitol
Tallahassee, FL 32399

Dear Governor Martinez:

The Tampa Bay Regional Planning Council (TBRPC) and its Agency on Bay Management view the inclusion of Tampa Bay into the Environmental Protection Agency (EPA) National Estuary Program (NEP) as vital to the continued management and restoration of our natural resources. The Council and its Agency on Bay Management appreciate your recent nomination of Tampa Bay for consideration by EPA, and submittal of the nomination package upon receipt of additional qualifying material from EPA on criteria to determine an estuary's "national significance." In order to expedite the process, the Agency has directed me, as chairman, to submit the enclosed material for your consideration suggesting why Tampa Bay is of national significance.

The National Estuary Program is managed by EPA to identify nationally significant estuaries threatened by pollution, development, or overuse, and to promote the preparation of comprehensive management plans to ensure their ecological integrity. Interim guidelines provided by EPA include the following questions which need to be addressed to qualify the estuary for national significance:

- What is the geographic scope of the estuary?
- Why is the estuary important to the nation?
- How can the lessons learned from the estuary be applied to other coastal areas within the state or other states?

In addition, the discussion of national significance must demonstrate why EPA should promote comprehensive planning for the estuary being nominated. The enclosed material is suggested to resolve and fulfill the EPA requirements on national significance for your nomination package. In addition, since the Florida Department of Environmental Regulation, with assistance from the Southwest Florida Water Management District-Surface Water Improvement and Management Program, is developing the nomination package, a copy will be provided to each agency for consideration.

If there is anything the Council or its Agency can do to be of further assistance, please contact me or Mr. Peter Clark of Council staff at (813) 577-5151.

Sincerely,

Jan K. Platt

Jan. K. Platt, Chairman
Agency on Bay Management

JKP:PAC:pef
Enclosure

cc (with enclosure): Mr. Dale Twachtman, DER
Ms. Roxanne Dow, DER
Mr. Paul Johnson, Office of the Governor
Mr. Peter Hubbell, SWFWMD
Mr. Mike Perry, SWFWMD-SWIM