

**LAKE WORTH INLET MANAGEMENT STUDY
IMPLEMENTATION PLAN**

CERTIFICATE OF ADOPTION

WHEREAS the Department of Environmental Protection, in partnership with the Town of Palm Beach, has conducted a study of the inlet known as Lake Worth, under the provisions of Section 161.161, Florida Statutes, for the purposes of evaluating the erosive impact of the inlet on adjacent beaches, and

WHEREAS the Department has developed an implementation plan which contains corrective measures to mitigate the identified impacts of the inlet, and

WHEREAS the implementation plan is consistent with the Department's program objectives under Chapter 161, Florida Statutes,

The Department does hereby adopt the following implementation actions:

- 1) Reactivate and enhance the performance of the existing sand transfer plant.

Specific improvements to the facility should include the lengthening of the discharge pipelines with the capability for multiple discharge points. Upon reactivation, the operation of the plant at its current capacity should be evaluated to determine the necessity to upgrade the pumps and associated machinery and the removal of the "L" groin located north of the jetty. An investigation of the use of a sand fluidizer system at the suction intake or other modifications should also be conducted to determine if such enhancements would be cost effective.

- 2) Bypassing of all beach compatible material dredged during channel maintenance activities to downdrift beaches.

As a first priority, place material on the beach in areas most in need and environmentally suited in accordance with a placement plan approved by the Department. As a minimum, bypassing of material shall meet average annual placement objectives as stated in the sediment budget. The sediment budget contained in the study report is adopted as an interim measure and shall be formally validated or redefined in subsequent revisions of the plan based on a comprehensive monitoring plan by December 31, 2001.


- 3) Conduct additional studies to determine the downdrift beaches to be restored as mitigation for the effects of the inlet.
- 4) Conduct studies to determine the necessity of expansion of the settling basin.
- 5) Implement a comprehensive beach and offshore monitoring program subject to the approval of the Department.

This plan is based on the supporting data contained in the study report, Lake Worth Inlet Management Plan, April 1995, Applied Technology and Management, Inc., studies conducted by the U.S. Army Corps of Engineers associated with Lake Worth Inlet, and comments provided by public agencies and the citizenry of Palm Beach County. Each implementation action contained in this plan is subject to further evaluation, and subsequent authorization or denial, as part of the Department's environmental permitting and authorization process. Any action that may affect navigation associated with the inlet shall be consistent with all applicable federal requirements and subject to authorization from the U.S. Army Corps of Engineers.

It is the intent of the Department to assist in the implementation of the plan through the provision of funds granted under the Florida Beach Erosion Control Program. The Department's financial obligations shall be contingent upon sufficient legislative appropriations.

Nothing in this plan precludes the evaluation and potential adoption of other alternatives or strategies for management at Lake Worth Inlet.

APPROVED FOR ADOPTION



Virginia B. Wetherell, Secretary
Department of Environmental Protection

11.25.96

Date

**LAKE WORTH INLET MANAGEMENT STUDY
SUMMARY OF FINDINGS REPORT
and
RECOMMENDED IMPLEMENTATION PLAN**

Introduction

The Department of Environmental Protection, in partnership with the Town of Palm Beach and Palm Beach County, completed a study of the inlet known as Lake Worth. The study, Lake Worth Inlet Management Plan , April 1995, Applied Technology and Management, Inc., was conducted under the provisions of Section 161.161, Florida Statutes, for the purposes of evaluating the erosive impact of the inlet on adjacent beaches, and to recommend corrective measures to mitigate identified impacts.

The study has been evaluated by the staff of the Bureau of Beaches and Coastal Systems as it relates to the Bureau's statutory responsibilities and program objectives. As a result of that evaluation, the Bureau has developed a recommended implementation plan. Adoption of the plan will facilitate and streamline the coastal construction permitting process during its implementation by providing a basis for consistency determination, and enable governmental entities to seek financial assistance from the Department for the conduct of management activities authorized in the plan.

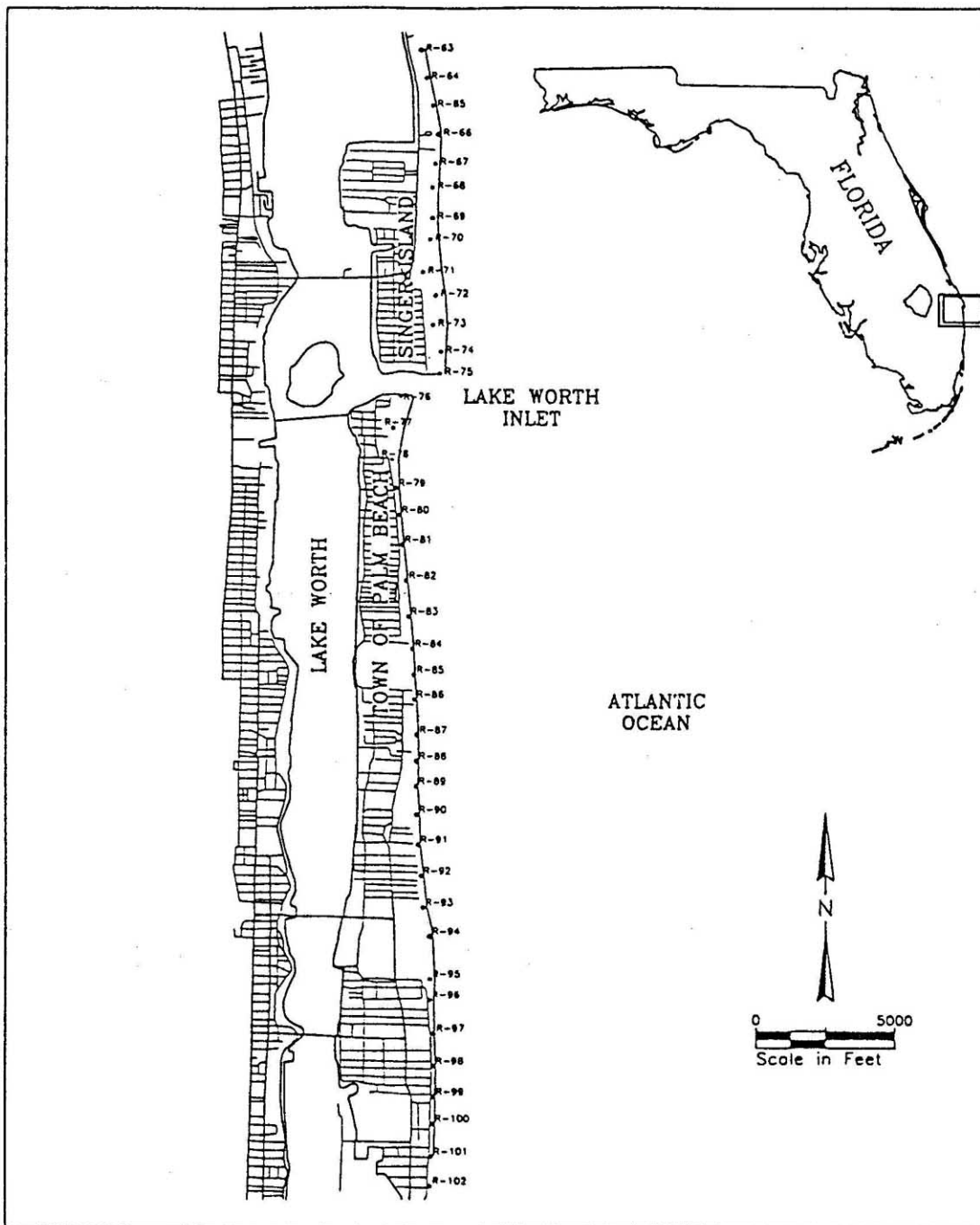
This report contains a brief history of Lake Worth Inlet, a summary of the inlet study findings, and a consistency determination. The report also contains the recommended implementation plan.

History of Lake Worth Inlet

Lake Worth Inlet is a federally maintained inlet and deep water port located on the Atlantic Ocean in Palm Beach County (see Figure 1). The inlet, also known as Palm Beach Inlet, is the northernmost of two inlets connecting Lake Worth with the Atlantic Ocean and serves as the entrance to the Port of Palm Beach.

Efforts to construct the inlet in its present day location were initiated by local interests in 1918, followed by the installation of rock jetties in 1925. During the period of 1935 and 1939, the jetties were rebuilt and extended to a length of approximately 2,000 feet. In 1958, a sand transfer plant was constructed alongside the north jetty with a discharge point located adjacent to the south jetty. The U.S. Army Corps of Engineers, since 1934, maintains the Palm Beach Harbor Navigation Project which includes the jetty structures, channel, turning basin, inlet revetments and a settling basin located north of the entrance channel. The entrance channel is maintained to a depth of approximately -35 feet MLW with the interior channel and turning basin maintained at -33 feet MLW.

Figure 1
General Location Map



The creation of the inlet and subsequent modifications has resulted in updrift accretion and downdrift erosion as evident by the substantial offset of the shorelines adjacent to the inlet. A sediment budget developed as part of the study estimates the need to bypass 171,300 cubic yards annually to offset the impacts of the inlet. The sediment budget is based primarily on the evaluation of data from the period of 1974 and 1994, which reflects the most recent modifications to the inlet. The study estimates that the impact of Lake Worth Inlet on the downdrift shoreline is at least nine miles south of the inlet and has resulted in a historical deficit of approximately 12,000,000 cubic yards. The Mid-Town Beach is located within the identified area of shoreline impact.

Study Summary

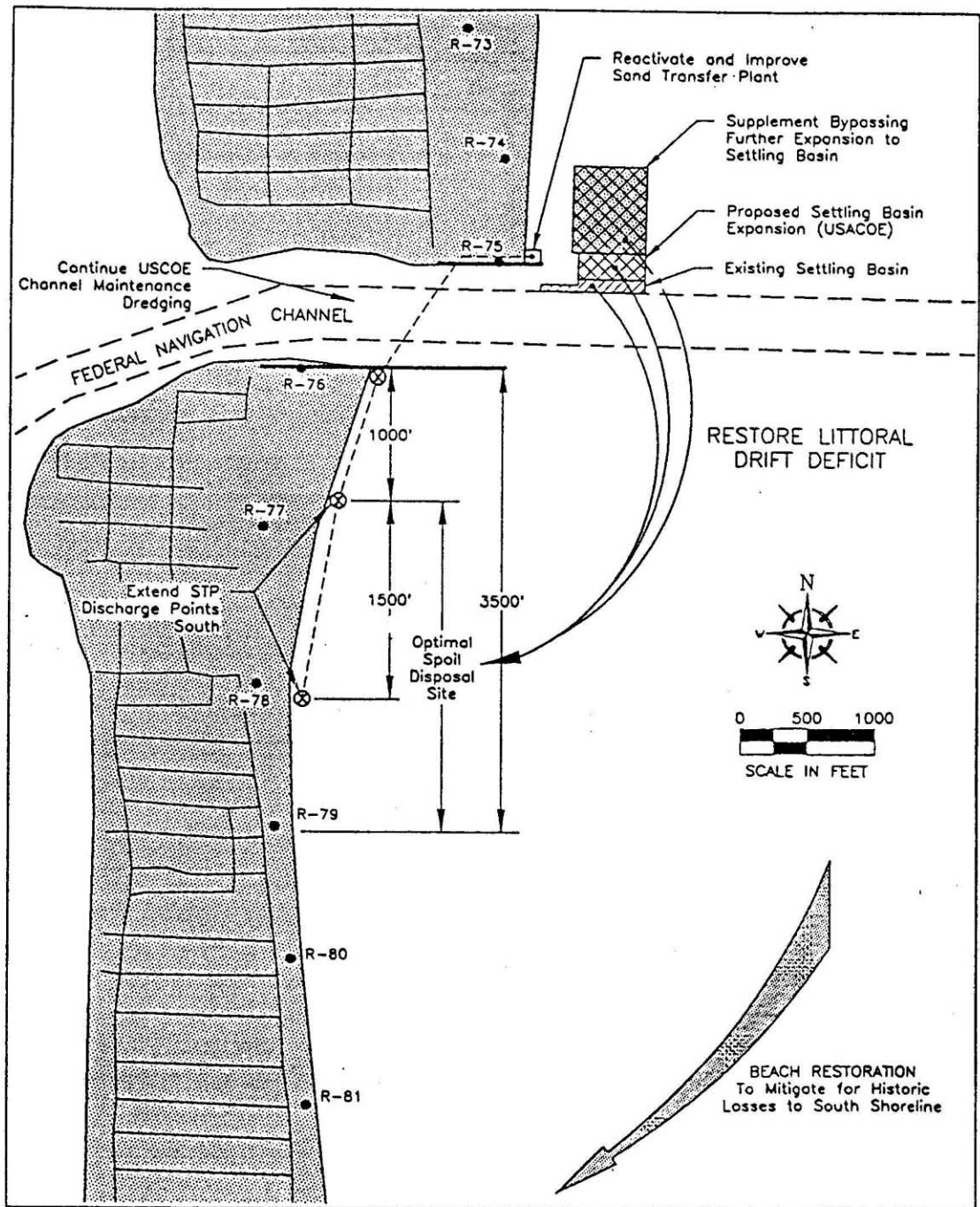
To accomplish the plan objectives, the study evaluated thirteen potential management activities in terms of environmental impacts, permitting constraints, fiscal concerns, and potential achievability. The study recommends four principle elements involving sand bypassing, channel maintenance and mitigation of inlet impacts, as depicted in Figure 2.

- 1) Reactivate and enhance the performance of the existing sand transfer plant. Specific improvements to the facility include: a) removing the “L” groin located north of the jetty to allow an uninhibited flow of sand to the suction intake pipe; b) lengthen the discharge pipelines and allow for multiple discharge points to be located at the south jetty and at approximately 1,000 and 2,500 feet south of the south jetty; c) increase the sand transfer capabilities through the upgrade of pumps and associated machinery; and d) investigate additional enhancement alternatives such as a sand fluidizer system at the suction intake.
- 2) Continue periodic maintenance dredging of navigation channel and settling basin with sand bypassing to the beaches located south of the inlet. Current authorized disposal area should be relocated further south of the inlet and berm elevation raised to allow placement on upland beaches.
- 3) Expand settling basin to reduce shoaling of navigation channel and to supplement bypassing efforts.
- 4) Restore downdrift beaches to mitigate the effects of the inlet.

Consistency Determination and Comments

Each of the four primary recommendations has been evaluated for consistency with program objectives under Chapter 161, Florida Statutes. The consistency determination is based solely upon the recommendations as presented in the study report. A determination does not preclude further study of other potential management alternatives. Comments regarding each recommendation are as follows.

Figure 2
Study Recommendations



- 1) Reactivation of the sand transfer plant is consistent with state policy. Enhancements to the operational performance of the facility should be explored provided the bypassing of material does not exceed the average annual longshore sediment transport, as determined in the study, whereby adversely impacting the adjacent shorelines and associated environs.
- 2) Bypassing of suitable material dredged during channel maintenance activities is consistent and should be continued. Placement of material shall be on beaches located downdrift of the inlet in areas of greatest need based on a plan approved by the Department. Areas of placement may be further refined based upon results from long term monitoring of the inlet and adjacent beaches.
- 3) Expansion of the settling basin would facilitate the bypassing of material and therefore is consistent. However, the extent of expansion, as proposed in the study, could have significant adverse impact upon the shoreline adjacent to the north jetty. Suitable geotechnical and wave refraction studies should be conducted to demonstrate that expansion of the settling basin is a feasible activity.
- 4) Restoration of downdrift beaches to mitigate the effects of the inlet is consistent provided that those beaches are located within the influence of the inlet.

Recommended Implementation Plan

The Bureau recommends the following implementation plan be adopted to meet the requirements of Chapter 161, Florida Statutes:

- 1) Reactivate and enhance the performance of the existing sand transfer plant. Specific improvements to the facility should include the lengthening of the discharge pipelines with the capability for multiple discharge points, Upon reactivation, the operation of the plant at its current capacity should be evaluated to determine the necessity to upgrade the pumps and associated machinery and the removal of the “L” groin located north of the jetty. An investigation of the use of a sand fluidizer system at the suction intake or other modifications should also be conducted to determine if such enhancements would be cost effective.
- 2) Bypassing of all beach compatible material dredged during channel maintenance activities to downdrift beaches. As a first priority, place material on the beach in areas most in need and environmentally suited in accordance with a placement plan approved by the Department. As a minimum, bypassing of material shall meet average annual placement objectives as stated in the sediment budget. The sediment budget contained in the study report is adopted

as an interim measure and shall be formally validated or redefined in subsequent revisions of the plan based on a comprehensive monitoring plan by December 31, 2001.

- 3) Conduct additional studies to determine the downdrift beaches to be restored as mitigation for the effects of the inlet.
- 4) Conduct studies to determine the necessity of expansion of the settling basin.
- 5) Implement a comprehensive beach and offshore monitoring program subject to the approval of the Department.

This plan is based on the supporting data contained in the study report, Lake Worth Inlet Management Plan, April 1995, Applied Technology and Management, Inc., studies conducted by the U.S. Army Corps of Engineers associated with Lake Worth Inlet, and comments provided by public agencies and the citizenry of Palm Beach County. Each implementation action contained in this plan is subject to further evaluation, and subsequent authorization or denial, as part of the Department's environmental permitting and authorization process. Any action that may affect navigation associated with the inlet shall be consistent with all applicable federal requirements and subject to authorization from the U.S. Army Corps of Engineers.

The implementation activities identified above shall be eligible for state financial participation subject to Department approval and an appropriation from the Florida Legislature. The level of state funding shall be determined based upon the activity being conducted and Department policy. The Department may choose not to participate financially if the proposed method for implementation is not cost effective or fails to meet the intent of Section 161.142, Florida Statutes.

Nothing in this plan precludes the evaluation and potential adoption of other alternatives or strategies for management at Lake Worth Inlet.