LONG TERM MANAGEMENT STRATEGY FOR MAINTAINING SAVANNAH HARBOR

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Abstract. The Long Term Management Strategy (LTMS) for Savannah Harbor will develop a 50 year comprehensive master plan for the operation and maintenance of the Savannah Harbor navigation project. The masterplan will address navigation and navigation related issues. In addition to the technical work necessary to accomplish this ambitious undertaking, coordination and communication activities are a crucial study element. The master plan must be supported by all impacted parties if the LTMS effort is to achieve its greatest possible success.

INTRODUCTION

Operation and maintenance (O&M) of the nation's navigable waterways is the responsibility of the U.S. Army Corps of Engineers (COE). The Corps' performance of O&M activities is of interest to many groups from fisheries biologists to international shipping companies to industries (Barr,1987). Local government plays a special role. As the "local assurer", it is their responsibility to provide disposal areas for dredged material. This is a unique partnership with each party dependent on the other's timely performance of his duties.

(1) To coordinate these many interests and (2) to ensure the most efficient operation of the harbor for the long term, including the availability of disposal sites, the Savannah District COE has undertaken the development of a Long Term Management Strategy (LTMS) for Savannah Harbor (Figure 1). The harbor is a benefit to Georgia in many ways - as a unique habitat, an avenue for international commerce and a site for business development. Each of these uses has certain preferred conditions - some of which are in conflict. Developing a strategy for the operation and maintenance of the harbor which incorporates these multifaceted needs is crucial for the continued viability of this valuable Georgia water resource.

BACKGROUND

This is a particularly important time in the history of the Savannah Harbor. Several recent improvements have affected the hydrodynamics of the harbor. The main ship channel has been widened; the New Cut connector has been closed; and the tide gate has been taken out of operation. In addition, the channel will be deepened from 38' to 42' during 1993 and 1994. In order to protect the harbor's environment, all dredging events are carefully planned and performed. To protect certain species, equipment modifications (turtle excluders) or seasonal shut downs (for striped bass spawning) have been implemented. All of these recent changes have added to the necessity for close coordination among the various parties and interests with responsibilities in the harbor. This is critical if dredging activities are to occur in a timely, efficient, effective and environmentally sound manner.

The situation related to dredging and disposal in Savannah Harbor is unusual in several ways:

- Existing disposal areas are adequate for at least medium term needs. Most areas undertaking LTMS studies have critical short term needs, i.e., less than five years, (Francingues/Mathis, 1990). The situation in Savannah Harbor allows for a truly proactive effort on long term planning, a 25 to 50 year time frame.
- Most of the disposal areas for Savannah Harbor dredging are located in South Carolina (Figure 2). The variations in state laws and regulations and lack of an obvious forum to mediate possible disputes has, in the past, injected an element of greater uncertainty into the disposal planning process.
- The local assurer is both capable and motivated. Chatham County is the local assurer for the Savannah Harbor project and they perform maintenance and mosquito control activities. For large engineering and construction projects they utilize the expertise of the Georgia Department of Transportation (GA DOT). The GA DOT is a well respected engineering organization and is committed to advance planning for disposal area needs as evidenced by their 1989 study "Waterways Dredged Material Containment Areas Study."

DISCUSSION

Purpose. The goal of this LTMS effort is to develop the most cost effective plan agreed to by those involved for maintenance of the Savannah Harbor, including disposal. To accomplish this goal, four major areas must be pursued: Technical (engineering) feasibility of dredging and

disposal alternatives; environmental requirements and opportunities; cost effectiveness of various operational strategies; and coordination with interested stakeholders.

Technical Feasibility. This element includes the physical data collection to establish the changed shoaling patterns in the Savannah Harbor, prediction of quantities of material which will require dredging and disposal, and a schedule for these events. The formulation of alternatives for managing the disposal areas is linked to this base data. This relationship illustrates one of the basic challenges of an LTMS: to integrate the dual needs to have disposal from a dredging event occur at the least cost (usually closest) area and to maximize the life of the disposal area system which may require bypassing the closest area to allow drying and consolidation of previously disposed material. Since the responsibility for dredging is Federal and the provision of disposal areas is non-Federal, an operating partnership is essential. The forecasts of dredging and disposal needs will cover a fifty year time frame. A detailed analysis will be done for a ten year period and repeated for five cycles with adjustments for items occurring at greater than 10 year intervals. Private dredging and disposal needs will be included in this venture.

Environmental Requirements and Opportunities. The importance of compliance with environmental regulations is accepted and supported by both the Federal sponsor and the local assurer. However, lack of awareness of new requirements or new interpretations of familiar guidelines may result in impacts to timely dredging and disposal operations. In addition, there is a lack of scientific studies on many relevant topics. This may result in either inappropriate restrictions to operations or lack of protection of a sensitive resource. The LTMS will focus on specific topics of concern to Savannah Harbor.

Sampling will be performed to test water quality characteristics at certain locations and options will be developed for addressing specific issues such as birds nesting at disposal sites. In addition, numerous cultural resources investigations will be performed. These will range from development of mitigation plans for resources currently at risk to a full harbor cultural resources plan. A particularly important task is the development of a compendium and timeline of environmental clearances required for dredging and disposal operations. This will ensure that adequate time is incorporated in operational schedules and that the local assurer is aware of all required procedures. Lastly, in conjunction with the engineering and cost effectiveness elements, beneficial uses such as near shore berm creation will be evaluated.

Cost Effectiveness. Federal, state, local and private entities all pay directly for portions of the maintenance of Savannah Harbor. The LTMS will seek to identify the least cost scenario for all participants. Among the inputs which will be analyzed are scheduling of dredging, especially the need for advance maintenance; scheduling of dike raisings; coordination of public and private dredging events; refinement of seasonal restrictions for environmental protection; innovative technologies; and beneficial uses. Accurate input to the cost matrix is essential if a supportable product is to result.

Coordination. Without the commitment of those with responsibilities in the harbor, the LTMS will be carefully designed, but limited in its usefulness. A three tier structure has been developed to get input and feedback from impacted parties. Those with major responsibilities for the harbor serve on a small executive group which reviews the policies and framework for the study. A larger work group includes those with ongoing interests in the harbor. This includes resource agencies in Georgia and South Carolina; local government representatives and other Federal agencies. Private interests are involved to ensure that their plans are fully incorporated in the LTMS. They are represented thru existing forums such as the Savannah Maritime Council and the Savannah Economic Development Authority. As needed, interest groups will be formed to deal with particular issues in greater depth.

CONCLUSIONS

(1) The development of a LTMS for Savannah Harbor will increase the efficiency of harbor maintenance and disposal efforts by increasing certainty for all parties with responsibilities in the harbor.

(2) Costs for the overall maintenance of the harbor will be lowered as the needs of all parties are coordinated and fewer resources must be devoted to dealing with short term crises.

(3) The environmental quality of the harbor will be maintained or improved. The data which is gathered will provide a better basis for management decisions and increased communication may identify new areas for cooperation. The updated EIS will ensure that all important factors are evaluated and their interactions assessed.

Products. The following products will be developed to support and further the LTMS effort:

- Establishment of Federal Standard for Savannah Harbor in accordance with 22 CFR 334-337.
- Comprehensive Savannah Harbor O&M EIS (Water Quality Certification, Coastal Zone Consistency, BATES, Cultural Resources).
  - Long Range Disposal Management Plan (50 years).
  - Main Ship Channel Dredging Plan.
  - Sediment Basin Dredging Plan.
  - Turning Basins Dredging Plan.

- Berthing Areas Dredging Plan.
- Environmental Monitoring Plan.
- Cultural Resources Plan.
- Process to deal with harbor issues.

Summary. The dredging and disposal operations in Savannah Harbor are very good compared to the rest of the country. This enables the LTMS to truly incorporate technical engineering needs, environmental parameters, and cost data to achieve a plan which can be supported by those with varied interests. The process and products produced as a part of the LTMS will provide greater efficiency and thus cost savings (Landin, 1992). The LTMS is not a time limited effort. Its legacy will be a process to deal with harbor issues and a process which will incorporate new data, assess new approaches, and deal with new problems in a proactive, efficient and effective manner to the satisfaction of those involved.

RECOMMENDATIONS

The LTMS should be implemented to its fullest extent and continued as a forum for addressing harbor issues. The overall plan should be reviewed on an annual basis and updated every 5 years or sooner if major events have occurred. National biennial forums such as the meeting held in Baltimore, Maryland, in 1991 (Francingues, Lamb and Mathis, 1992) should be continued.

LITERATURE CITED

Bradley Barr, June 1987, Dredging Handbook, A Primer for Dredging in the Coastal Zone of Massachusetts, Commonwealth of Massachusetts.

Norman R. Francingues, Jr., Melinda Lamb and David B. Mathis, Editors, June 1992, "Long-Term Management Strategys (LTMS) for Dredged Material: Corps of Engineers Assessment and Summary of the National Forum on Implementation Strategies 28-31 January 1991, Baltimore, Maryland, U.S. Army Waters Experiment Station, Vicksburg, MS.

The Georgia Department of Transportation, June 1989, Waterways Dredged Material Containment Areas Study.

Norman R. Francingues, Jr. and David B. Mathis, January 1990, Environmental Effects of Dredging, Technical Notes. Corps of Engineers Initiative to Develop Long Term Management Strategies for Navigation Dredging Projects: Overview and Framework.

Dr. Mary C. Landin, September 1992, Achieving Success in Wetland Restoration, Protection and Creation Projects, Presentation of the Fourth International Wetlands Conference, INTER COL IV, Columbus, Ohio.