Great Lakes Reliability Study

Start Date: Oct 2005

Projected End Date: Sep 2008

Lead Researcher(s):

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Problem Addressed:

Funding constraints have impeded efforts to complete necessary maintenance activities on harbor channels and associated infrastructure on the Great Lakes. Corps planners must prioritize maintenance activities and construction work to ensure that the available dollars are used to the maximum effect on projects with the greatest need or the greatest potential return on investment. In order to do this, reliable data and models are needed to efficiently and effectively measure project performance. In the Great Lakes the data readily available for review is often lacking in sufficiency to make informed decisions. In the near term, this initiative will seek to develop the data sources and methods necessary to develop more consistent, more complete and more robust estimates of Great Lake navigation project benefits and costs. The longer-term goal is to work through the CXIN with the Institute for Water Resources (IWR) and Transport Canada in developing non-traditional benefit estimates, state-of-the art and current engineering cost projections, and more robust system investment prioritization models.

Objective:

This study is the first step in a planned multi-phase effort aimed at improving the level of data available related to harbor maintenance projects on the Great Lakes and developing tools to assess the risk and reliability of harbor components. The study will develop methods to evaluate and prioritize proposed budgeted Great Lake harbors maintenance activities to include channel dredging and breakwater and jetty repair and rehabilitation. The study will look at shoaling rates, variable lake levels, vessel characteristics, vessel costs, harbor, lock, and connecting channel depths, age and rehabilitation related shore protection structure characteristics. A computer model will be developed to easily assess the economic consequences of maintaining harbor channels based on transportation cost differences using harbor current shipping data.

Benefits:

The first phase of study will provide initial evaluation tools and method to prioritize proposed Great Lakes maintenance activities. It will assess data requirements and method to efficiently update and maintain relevant databases. Also, it will lay the groundwork for a risk and reliability framework to evaluate and prioritize the existing infrastructure repair and rehabilitation projects. The second phase of the study will be to develop a detailed methodology to identify non-traditional benefit measures, develop a methodology for estimating non-traditional benefits; make estimates of non-traditional benefits; assist in preparation of conceptual model capable of measuring individual traditional and non-traditional project benefits in a system context; develop methods and process for keeping engineering cost information current and projecting reliability of channels, harbor, and other infrastructure supporting their use; assist in development of detailed comprehensive model, including required data sets, description of validation process, and output reports suitable for prioritizing investment options under unconstrained and constrained budget conditions.

Status: In Progress Phase 1 in process. Phase 2 not yet initiated

Contract Data:

120171, A1200

Progress:

Products (Bookshelf/Toolbox):

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Related Links:

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