

1 Introduction

Background

The Upper Mississippi River-Illinois Waterway System (UMR-IWWS) Navigation Study evaluates the justification of additional lockage capacity at sites on the UMR-IWWS while maintaining the social and environmental qualities of the river system. The system navigation study is implemented by the Initial Project Management Plan (IPMP) outlined in U.S. Army Engineer Districts, St. Paul, Rock Island, and St. Louis (1994). The IPMP outlines Engineering, Economic, Environmental, and Public Involvement Plans.

The Environmental Plan identifies the following: significant environmental resources on the UMR-IWWS; the impacts to threatened and endangered species; water quality; recreational resources; fisheries; mussels and other macro invertebrates; waterfowl; aquatic and terrestrial macrophytes; and historic properties. In a preliminary way the plan also considers the systemwide impacts of navigation capacity increases, while assessing potential construction effects of improvement projects. The physical forces studies are part of the Environmental Plan.

Physical Forces Objectives

According to the IPMP the objectives of the physical forces studies are as follows:

- a.* Use Illinois State Water Survey (ISWS) field data to calibrate and validate the physical model.
- b.* Increase density of field measurements to refine their spatial distribution.
- c.* Make a range of measurements which could not be made in the field.
- d.* Expand measurements to different cross sections.
- e.* Carry out statistical data analyses.

- f. Develop models by combining existing field data with new data developed from physical model.
- g. Evaluate the feasibility of developing numerical solutions.

Scope of Report

The Kampsville site was one of several sites used in the physical model to achieve the physical forces objectives outlined in the previous paragraph. (Several references are made to the Clark's Ferry site on the Mississippi River, the second site examined.) Specifically, the Kampsville site study evaluated the far field velocities and drawdown induced by underway tows. Far field refers to all areas except those beneath and immediately adjacent to the tow. The Kampsville study gives primarily the following: physical force data, an understanding for developing analytical models, and numerical model verification of far field effects.