

ENV Report 14 - *Comparison of NAVEFF Model to Field Return Velocity and Drawdown Data* by Stephen T. Maynard

ABSTRACT

The NAVEFF model is a one-dimensional model using conservation of energy and mass to determine return velocity and drawdown resulting from passage of vessels in a navigable river or channel. The NAVEFF model incorporates empirical exponential decay relations to provide the distribution of the maximum return velocity and maximum drawdown between the vessel and the shoreline. The NAVEFF model is compared herein to data that were not used in the development of the model from sites on the Mississippi River, Illinois Waterway, and Gulf Intracoastal Waterway. The observed prototype data are shown to exhibit considerable scatter based on comparison of similar vessels. Based on the comparisons of observed and computed values, the NAVEFF model over predicts maximum return velocity and drawdown by an average of about 25 percent. Detailed return velocity measurements between vessel and shoreline at one site on the Mississippi River support the use of the exponential decay of return velocity between vessel and shoreline.