

### THE CHALLENGE

Navigable waterways within the United States are a cornerstone of American transportation, economic, and security activity. Because waterways play such an important role in our nation's infrastructure, multiple federal agencies are responsible for maintaining the safety and navigability of waterways. These varied organizations maintain their own digital records of waterways under their domain, leading to inconsistent nomenclature and complications for collaboration between agencies.

### WATERWAY HARMONIZATION PHASE I

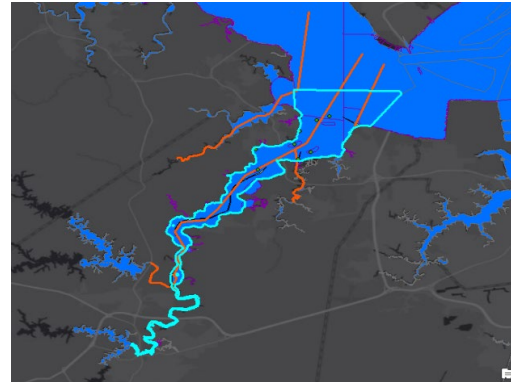
In 2017, the U.S. Coast Guard (USCG) began the Waterway Harmonization project to align federal agencies' digital identification and geographic definitions for navigable waterways in the United States. That exploratory effort demonstrated the value of cross-referenced waterway identification and was the first step toward improving both delivery of information to ships navigating waterways and the federal government's ability to collect data for various agencies. Phase I of the Waterway Harmonization effort was completed in December 2017.

During Phase I of the Waterway Harmonization Project, USCG recognized the need for consistent naming conventions across their own agency as well as United States Army Corps of Engineers (USACE), and National Oceanic Atmospheric Administration (NOAA). Without those consistent naming conventions, textual information could not be linked to a geographic representation of the waterways. The current Phase II of the Waterway Harmonization project seeks to develop consistent naming conventions across USCG, USACE), and NOAA to improve geographic representation of waterways across the federal government.

### WATERWAY HARMONIZATION PHASE II

The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) is working with USCG on the Waterway Harmonization Phase II project to develop a methodology to standardize geographic representation of the beginning and end of waterways.

Phase II also includes further improvements to waterway harmonization. DHS and USCG are developing a methodology for consistently identifying and demarking waterways in the



eastern United States, up to and including the Mississippi River. Phase II will create a generalized polygon layer representing the spatial area of each waterway. This layer will utilize existing datasets as a starting parent layer, and combine with additional available geometry from other data sources to ensure complete coverage of all related waterways.

The project will also establish the attributes that link multiple textual inputs from federal datasets to the correct polygon feature.

### ACCOMPLISHMENTS TO DATE

- Completion of Eastern and Central Segments of U.S. waterways (3Q FY2021 and 1Q FY22, respectively)

### UPCOMING MILESTONES

- Completion of Western Segment of waterways (Q3 FY22)
- Development of Relational Database and Standardized Maritime Naming Conventions (Q4 FY22)

### PERFORMERS AND PARTNERS

- Ardent Management Consulting (Arlington, VA) and Zekiah Technologies (La Plata, MD)
- United States Coast Guard
- United States Army Corps of Engineers
- National Oceanic and Atmospheric Administration
- United States Geological Survey
- U.S. Maritime Administration
- Fisheries and Oceans Canada