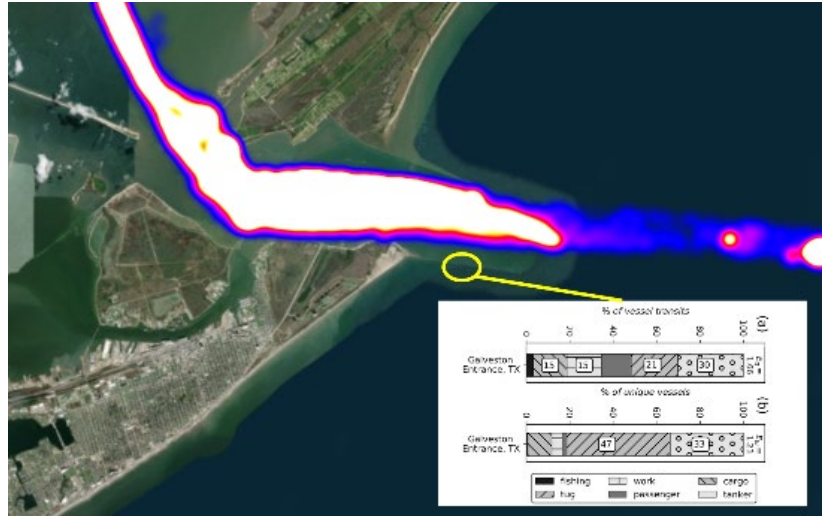


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Navigation Portfolio Metrics Derived from AIS Vessel Traffic Data (FY20)

Background: The USACE maintains a vast infrastructure portfolio of deep-draft coastal entrance channels and aging rubble-mound jetties and breakwaters. Due to limited budgetary outlooks for maintenance dredging and repair of coastal structures, the Corps must be able to objectively identify the most actively used structures in the portfolio so that resources may be directed at the navigation structures that are most critical to overall marine transportation system.



Approach: Identify and mine relevant metrics from shipborne Automatic Identification System (AIS) data that provide quantitative profiles and performance gain of vessels operating in proximity to coastal navigation structures at the national portfolio scale. Apply developed methods to multi-year nationwide record of vessel activity in context with coastal structures and assess the results as a method for comparative analysis of structures in terms of quantified user profiles. Further develop methods and relevant metrics into an operational tool for providing objective performance metrics for coastal structures.

Technical Advancements: This work aims to develop and test methods to quantify performance of coastal structures for the purpose of comparative analysis across the structure portfolio. Given the size of the portfolio, the number of users, and the diversity of both, a distributed parallel computational approach provides results in a time-frame that makes informing managerial decisions feasible, while providing unprecedented insight into the domain of users interacting with coastal structures.

Payoff: Enables the USACE Navigation business line to shift thinking of structures as a collection of individual assets to broad classes of assets with similar management requirements. This methodology will help align asset maintenance activity with level of use/service by making better use of available performance measurement data and aligning measurement and management with organizational goals.

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Coastal Inlets Research Program

