



NETWORK FOR **ENGINEERING** WITH **NATURE**

PROJECT FACT SHEET

NATURAL INFRASTRUCTURE LIFECYCLES: FUNCTION, RESILIENCE, MAINTENANCE AND LIFESPANS

Natural infrastructure (NI) is thought to be sustainable and resilient in the face of increasingly severe natural hazards. However, the data to quantify how natural infrastructure actually performs, as well as the costs of installation and upkeep, are sparse. To address this, we ask seven overarching questions:

- Do NI systems perform/function as intended?
 - Are NI projects adaptive and regenerative?
- How do functions (engineering, ecological and social) change over time?
 - How do the systems respond to events like large storms or floods?
- What maintenance is required over time, and how is maintenance projected to change as systems age?
 - Is NI adaptive and regenerative to disturbance events, and in what contexts?
 - What are project lifespans, with and without maintenance?

OBJECTIVE

To assess the availability of performance, maintenance and/or cost data for common types of NI, and to compile and analyze available data.

To identify and apply existing tools and methods to apply available dredge material to and estimate the associated maintenance requirements of NI projects in Savannah, Charleston and Jacksonville Corps Districts.

APPROACH

We will assess the state of knowledge related to aspects of NI lifecycle cost and analysis using currently available data and tools, assemble available data required to determine NI lifecycles from a subset of well-documented existing NI projects into a geospatial database, and we will analyze the adequacy of available data for different types of NI. A complementary effort will utilize available local data and existing tools and approaches to look at how dredged material management can be used to support maintenance requirements for NI in southeastern coastal region.

DELIVERABLES

A geospatial database of the international and local NI projects included in these analyses, and relevant data on performance, maintenance, and lifespan when available.

The findings and analysis of existing NI project data will be documented as a review paper. Outcomes from the analysis of local NI projects will include a local sediment budget including dredging activities, as well as identification of potential pilot projects in the area with associated recommended monitoring.

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