Indicating Seaport Vulnerabilities to Climate and Extreme Weather Impacts:
Pilot Study for North Atlantic Medium and High-Use Seaports

The Third U.S. National Climate Assessment indicates that seaport infrastructure is already being damaged by sea level rise, heavy downpours, and extreme heat, and that these damages are expected to continue.

To facilitate far-sighted planning for a climate-resilient Marine Transportation System (MTS) the United States Army Corps of Engineers (USACE), in collaboration with University of Rhode Island researchers in the Department of Marine Affairs, are piloting a climate-vulnerability indexing method that is driven by data and informed by expert knowledge.

This research will contribute to a better understanding of the regional distribution of

USACE High and Medium-Use Ports in North Atlantic

vulnerabilities to climate and extreme weather impacts across North Atlantic ports in order to inform transportation resilience and climate-adaptation planning.

This pilot study will investigate the vulnerabilities of seaports to climate and extreme weather impacts by applying expert elicitation methods to develop indicators of climate vulnerability for the 22 medium and high-use ports of the USACE North Atlantic Division. In addition to refining a set of high-level indicators of seaport climate vulnerability, this research will employ expert elicitation methods to weight and aggregate selected indicators to determine the suitability of available data to differentiate ports within a region in terms of relative climate vulnerabilities.

Results will serve as an entry point to inform MTS decision-makers in the USACE and other agencies about the nature of seaport vulnerabilities to climate and extreme weather impacts, the components and determinants of those vulnerabilities, the mechanisms through which a port is vulnerable, and the suitability of available data to serve as high-level indicators of seaport climate vulnerability. Ultimately, this research will support more resilient national and regional transportation systems.

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