



Reference SON: 2017-ER-18:
Quantifying Coastal Storm (and Flood) Risk Management Benefits for Natural and Nature-based Features; 2017-F-8: Biophysical System Performance of Natural and Nature Based Features (NNBFs) for Coastal Storm Risk Management (CSRM) SMART Planning Studies

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Project Development

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For more details, please see <https://ewn.erd.dren.mil/international-guidelines-on-natural-and-nature-based-features-for-flood-risk-management/>

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Incorporation of Natural and Nature-based Features into Feasibility Studies: Identification, Analysis, Benefits, and Costs

Research Need

Coastal resources such as beaches, dunes, wetlands, islands, and biotic reefs are important for both their ecological and storm protection value. However, the use these natural and nature-based features (NNBF) as part of a holistic flood risk management scheme is limited. This is due to a number of factors including uncertainty about NNBF efficacy, difficulty estimating project cost, and lack of information regarding environmental impacts. Better integration of NNBF into USACE planning will require synthesis of available knowledge to address uncertainties.

Project Objectives & Plan

The objective of this project is to determine and prioritize research needs related to NNBF and to support USACE efforts to develop NNBF guidelines. This will be accomplished by distilling existing knowledge on NNBF practices to develop guidelines for implementation by USACE. Through a series of engagement exercises such as surveys, webinars, and meetings input on use of NNBF will be gathered from across USACE. In parallel to this effort, contributions to an international NNBF guidance document will be made.

Payoff

Greater understanding of the function of NNBF during and between storm and flood events will help USACE implement more holistic and resilient flood risk management projects that provide benefit to the ecosystem restoration and navigation missions using a full array of measures, not just limited to structural measures that are better defined and understood. The use of NNBF in conjunction with structural and non-structural measures can create more sustainable flood risk management projects that can provide benefits beyond just flood risk management, attracting more partners and affording better buy-in from communities and other stakeholders. Additional benefits to the ecosystem restoration and

navigation mission areas creates synergy between major USACE business lines, leading to better management of coastal systems that can ultimately reduce costs.

Products

Bridges, T. and King, J. and Simm, J.D. and Beck, M. and Collins, G. and Lodder, Q. and Mohan, R., eds. (2021) International Guidelines on Natural and Nature-Based Features for Flood Risk Management. USACE, Vicksburg. ISBN 978-1-7325904-9-6

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