NETWORK FOR ENGINEERING WITH NATURE

PROJECT FACT SHEET

Enhancing Coastal Resilience through Thin Layer Placement

SUMMARY

Critical to saltmarsh restoration is understanding the physical and ecological drivers of degradation and fragmentation in saltmarsh ecosystems. Physical and ecological processes of a broad range of spatiotemporal scales affect the success and effectiveness of potential thin-layer placement EWN solutions. This project will develop and share with stakeholders a multiscale monitoring and model framework, an approach which is in high demand.

OBJECTIVE

To develop a multiscale monitoring and modeling framework to:
1. Quantify the ecological-physical coupling of coastal wetland-oyster reef mosaics considering interactions among flow, vegetation, reefs and sediment through field studies and experiments;
2. Develop and validate a multiscale numerical model framework;
3. Provide theoretical support and assessment tools for the TLP practice.

APPROACH

1. Field observations on hydrodynamics and sediment transport processes.
2. Small-scale CFD models for flow-vegetation interactions and sediment transport.
3. Derive and implement improved parameterization of sub-grid processes in large-scale eco-geomorphic models.
4. Investigate the effectiveness of potential thin-layer placement solutions.

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