The Effects of Sea Level Rise (ESLR) Program

ESLR is a multidisciplinary research program that co-develops science products with coastal managers to identify local coastal vulnerability and solutions to mitigate flood risk.

Science to Inform Coastal Ecosystem, Community, and Infrastructure Protection

Program at a Glance

10 active projects
$8.37 Million Total

Supporting 55 PI's at 38 institutions

Our Focus

Sea level rise
Storm surge
Flooding

NNBFs
Marshes
Barrier islands

Communities

Describe the vulnerability of coastal communities and ecosystems due to sea level rise (SLR) and inundation, based on shoreline conditions

Determine the services and benefits that natural and nature based features (NNBFs) provide for protecting communities and ecosystems from SLR and inundation

Predict the effects of SLR and inundation under varying management strategies using innovative science to inform management solutions

ESLR research uses a collaborative science model, integrating stakeholder input to ensure **relevancy**, **applicability**, and **value** to coastal managers.

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ACTIVE ESLR PROJECTS

Benefits of natural features in the Chesapeake Bay under sea level rise (MD)
Analysis of how marshes, aquatic vegetation, and other natural features reduce wave energy and flood risks along the Chesapeake Bay to inform management actions to maintain or enhance marshes and other features.

Determining if older dunes are more resilient to storms and sea level rise (NC)
Determining if long-term vegetated dunes are more robust to storm surge and erosion than bare dunes in NC, while offering guidance on whether dunes planted today will affect future vulnerability and protection.

Impacts of sea level rise on natural and managed beaches and dunes (NC)
Developing a tool to assess barrier island recovery and vulnerability from storms under several sea level rise and management scenarios

How natural features could enhance coastal resilience of urban and natural ecosystems (FL)
Simulating sea level rise and rainfall scenarios to determine how mangroves will be impacted in the future, providing insights for future restoration needs in Southern FL.

Ecosystem and community vulnerability to surface and subsurface flooding with sea level rise (CA)
Identifying the role of natural features and gray infrastructure in controlling local sea level rise – driven flood hazards. This model will be tested in Santa Monica Bay and Humboldt Bay in California.

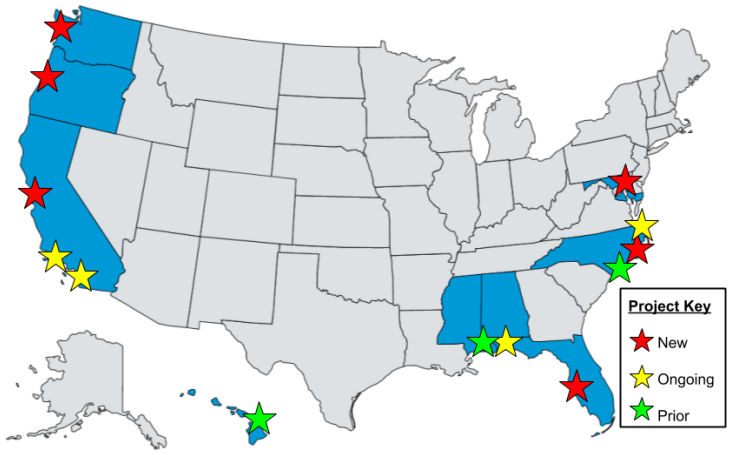
Sediment management to enhance natural infrastructure and flood protection (CA)
Evaluating sediment management scenarios on natural features (e.g., beaches) and the resulting effects on coastal inundation vulnerability in Southern California.

Tidal wetland adaptation strategies (CA)
Investigating how heavily altered estuaries in Southern CA will be affected by sea level rise, while identifying natural conservation and restoration strategies to mitigate sea level rise impacts.

How to increase the ecosystem services of coastal beaches and dunes in the Pacific Northwest (WA, OR)
Evaluating the impact of sea level rise and storms on the geomorphology and ecology of beaches and dunes in OR and WA, with an emphasis on the ecosystem services and economic values they provide.

Ecological impacts of sea level rise on flood protection and blue carbon capture in Pacific Northwest wetlands (WA, OR)
Evaluating how restored and natural wetlands buffer flooding impacts in the Coos Estuary (OR) and Grays Bay (WA).

Natural features abilities to mitigate surge and nuisance flooding (AL, FL, MS)
Evaluating the potential for natural features to mitigate flood risk under multiple sea level rise scenarios in the Northern Gulf of Mexico.



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