



# NOAA and Nature-based Solutions

Nature-based Solutions (NBS) are a critical component of resilient ecosystems, communities and economies. Here's how NOAA contributes.



## Science

Supporting research, development, and implementation to understand the benefits and trade-offs of NBS

NOAA studies and implements NBS around the United States in partnership with federal agencies and state and local organizations. NOAA's research focuses on quantifying the value of natural coastal habitats in mitigating inundation and other climate change impacts, and **improves existing predictive erosion and sea-level rise models** used to inform coastal management.

NOAA also conducts social science research to explore how people use and value coastal ecosystems, including NBS, and respond to information on vulnerability and risk. These science investments provide the foundation for the service and stewardship elements of NOAA's mission.



Nature-based solutions include wetlands, living shorelines, islands, dunes, and reefs



## Collaboration and Partnerships

*NOAA partners with other agencies, including the U.S. Army Corps of Engineers, Dept. of Transportation, U.S. Geological Survey, and the Federal Emergency Management Agency to inform and facilitate implementation of NBS.*

- NOAA scientists co-authored the **USACE International Guidelines on Natural and Nature-based Features for Flood Risk Management**.
- Competitive grant programs, such as the **Effects of Sea Level Rise Program** and **Adaptation Sciences Program**, support coastal communities with interdisciplinary applied research to address climate-related challenges and advance science and tools to understand community vulnerability to hazards.
- **Mission: Iconic Reefs** is a partnership between NOAA and local partners to restore seven iconic reefs in Florida Keys National Marine Sanctuary using restoration techniques that enhance resilience to both climate and non-climate threats.
- NOAA collaborates on wetland conservation through the **Interagency Coastal Wetlands Working Group**, which was instrumental in developing a Nationwide Permit for living shorelines that streamlines the process for obtaining approval of nature-based bank stabilization projects.
- Within the **Coastal Resilience Interagency Working Group**, NOAA coordinates and accelerates the federal government's efforts to increase coastal resilience, and contributed to **The White House National Climate Task Force: Nature-based Solutions Report**.

# Stewardship

Establishing and supporting local and regional networks to advance and invest in NBS

NOAA uses scientific knowledge and expertise to protect people and the environment. We partner with coastal states and territories to implement policy and programs that advance NBS, investing directly in the conservation, restoration and creation of NBS for hazard mitigation, carbon sequestration, and other benefits.

The **National Coastal Zone Management Program** and **National Estuarine Research Reserve System (NERRS)** partner with states and territories in NBS implementation, education, and outreach.

**Sea Grant Extension Professionals** support resilient coastal communities by providing technical assistance for NBS projects. One example is the guide for **Nature-based Shorelines: Options for the Great Lakes coasts** from Wisconsin Sea Grant.

**Climate Adaptation Partnerships**: The CAP program supports sustained, collaborative research relationships to help communities build lasting, equitable climate resilience in mainstream social and economic planning. Research and engagement with NBS seeks to maximize ecosystem services provided by NBS, addressing multiple compound climate hazards.



# Service

Providing resources on NBS implementation and management for on-the-ground practitioners

NOAA shares knowledge through decision-support tools and provides training and technical assistance to help our partners better understand, plan for, and implement NBS. Services are delivered through regional staff, place-based partners, and online platforms.

Toolkits and data centers, such as the **Restoration Atlas**, **Digital Coast**, **Climate Mapping for Resilience and Adaptation**, and the U.S. **Climate Resilience Toolkit**, provide access to resources including coastal management trainings, economic analyses, data from existing NBS projects, and funding opportunities to coastal communities and restoration practitioners.

*Nature-based solutions are integral to NOAA's mission to conserve and manage coastal ecosystems and resources. Efforts addressing flooding, erosion, and improving resilience often incorporate NBS either directly or indirectly.*



NOAA supports projects that design, implement, and monitor NBS at different scales through several programs, many of which have been supported by the **Bipartisan Infrastructure Law** and the **Inflation Reduction Act**.

- **Community-based Restoration Grant Program**
- **National Coastal Resilience Fund**
- **Great Lakes Restoration Initiative**