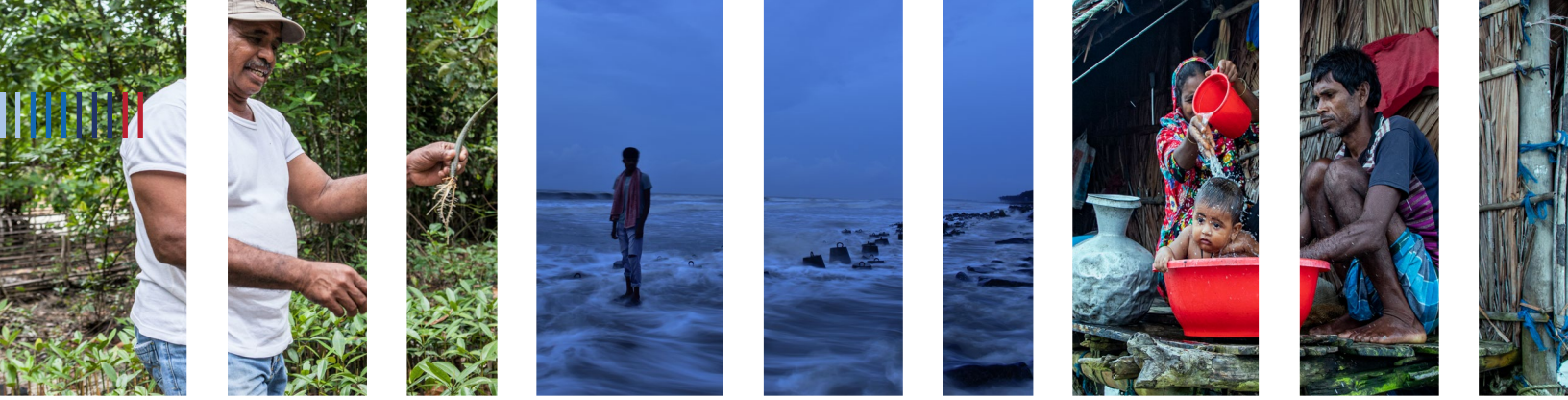


SUPPORTING THE MOST VULNERABLE COMMUNITIES TO PREPARE FOR **SEA-LEVEL RISE**

2024 PREPARE Snapshot Series

Nearly 40 percent of the global population resides in coastal regions, where their lives and livelihoods are intrinsically linked to the ocean. For these populations, particularly those in small island developing states and low-lying coastal communities, sea-level rise presents an urgent and immediate threat. Impacts of sea-level rise include the inundation of coastal areas, higher tides and high-tide flooding events, saline intrusion into freshwater resources, intensified shoreline erosion, and the loss of important natural ecosystems such as salt marshes, seagrass beds, and mangroves, which sequester carbon, buffer against storms, and provide other important benefits. It is imperative that the global community acts to reduce sea-level rise by limiting global warming to 1.5 degrees Celsius, and to support communities as they adapt to rising seas. Through the President's Emergency Plan for Adaptation and Resilience (PREPARE), U.S. government agencies are collaborating to help more than half a billion people adapt to and manage the impacts of climate change, including sea-level rise, by 2030.

Wave-driven flooding and overwash on Roi-Namur Island within Kwajalein Atoll, Republic of the Marshall Islands. Source: USGS.

In line with the three pillars of PREPARE, the U.S. government's approach to sea-level rise includes **monitoring and modeling** current and future sea-level rise impacts, **assessing and planning** for impacts, and **partnering to act** in implementing those approaches for adapting to and managing impacts.

MONITOR AND MODEL

Preparing for and responding to the impacts of sea-level rise require a better understanding of current and projected impacts. The U.S. government is gathering information and sharing critical data on sea-level rise with partners around the world, including mapping saltwater intrusion and impacts on freshwater systems, predicting and tracking flooding, and monitoring coastal changes.

SPOTLIGHT PROGRAMS:

The National Oceanic and Atmospheric Administration (NOAA), with support from the U.S. Department of State, is working with the Federated States of Micronesia (FSM) to develop enhanced ocean and climate observations, including through the co-design and deployment of ocean-observing instruments, coastal inundation mapping tools, and the creation of a professional fellowship program for Micronesian women in the ocean sciences.

The National Aeronautics and Space Administration's (NASA) Sea Level Change Team has developed high-resolution technical assessments of future sea-level rise and associated impacts for every Pacific Island country. Continuing to monitor sea-level rise using satellites and tide gauges is essential to understanding the pace at which changes are occurring.

ASSESS AND PLAN

Combining sea-level rise monitoring and modeling with national, subnational, and local planning efforts as well as Indigenous knowledge supports science-based adaptation action in the face of sea-level rise. Agencies across the U.S. government are providing support to incorporate these outputs into planning and adaptation efforts.

SPOTLIGHT PROGRAMS:

In 2023, for the first time, **NOAA designed and held a tailored, Spanish-language training course on tides and sea-level principles and practices** in Puntarenas, Costa Rica. The course focused on improving capacity to measure sea-level rise through water-level observations, station operation, and maintenance. It also utilized data to improve sea-level measurements for climate change applications that support early warning systems for hazards such as storm surges. Participants attended from 16 Central and South American countries.

The Department of the Interior's Geological Survey is working with the FSM and the Republic of the Marshall Islands (RMI) to develop models to better understand sea-level rise vulnerabilities and to simulate future coastal inundation scenarios. In FSM, modeling outputs have informed planning and decision-making – including for flood management and protection projects that employ nature-based solutions, such as coral reef and mangrove habitat management and restoration. In RMI, the project's findings will be integrated into disaster risk reduction strategies and discussed in community consultations.

The State Department, in partnership with the Pacific Community (SPC), is working with Palau on a Resilient Pacific Blue Economy project for marine spatial planning. This project increases the climate resilience of coastal communities by planning for and managing multiple uses of the marine environment, such as conservation, tourism, and resource use, while accounting for impacts of climate change.

PARTNER TO ACT

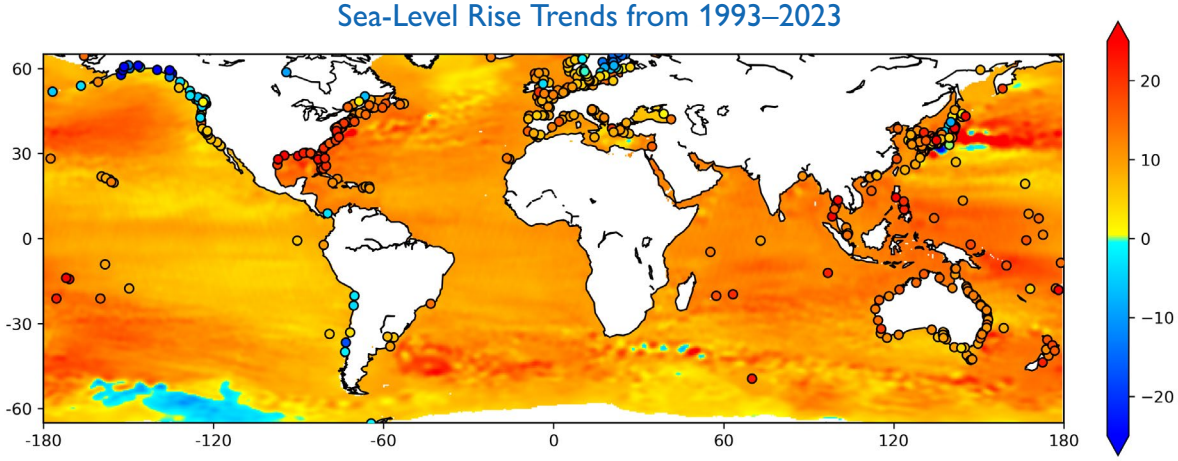
Partnerships and investments in communities, including resilient infrastructure, community-led programs, and collaborative adaptation efforts, are critical for addressing the impacts of sea-level rise. Through PREPARE, the U.S. government is mobilizing resources for and expanding partnerships with vulnerable islands and coastal communities to strengthen climate resilience.

SPOTLIGHT PROGRAMS:

Sea-level rise has the potential to shift coastal baselines and thus shift established maritime zones. **In 2022, the United States announced a policy** stating that it will not challenge maritime zones and baselines that have been established consistent with international law and that are not subsequently updated despite sea-level rise caused by climate change. For the many countries that derive substantial income from the resources found within their exclusive economic zone, this policy helps preserve access to critical sources of revenue. In support of this policy, the United States is exploring opportunities to collaborate with countries and regional organizations to support their efforts to determine and publish their coastal baselines.

The U.S. Agency for International Development (USAID)'s Caribbean Resilient Economies and Sectors Activity (RESET) supports national governments and the private sector to access climate and disaster finance, and to expand approaches and technologies for climate resilience. Seventy percent of the population in the Eastern and Southern Caribbean nations lives in coastal zones vulnerable to rising sea levels and severe weather conditions. Increasing access to climate and disaster finance will improve their ability to plan for and respond to climate shocks and stresses, including sea-level rise.

Sea-Level Rise Trends from 1993–2023



Both satellite altimeters (which measure the height of the ocean from space) and tide gauges (which measure the height of the ocean relative to land at the coast) show that sea-level rise is occurring almost everywhere over the last 30 years. The difference between the satellite and gauges could also tell where the land itself is rising or sinking over the past decades. Sea level changes are measured in cm. Credit: NASA.