# Identifying Locations of Coral Reef Climate Resilience

Background. Promoting climate resilience is critical to ensuring that coral reefs can continue to provide resources and economic opportunities throughout the US Pacific Islands. To achieve this, regional collaboration is a priority for the federal government. Executive Order 13840, regarding the ocean policy to advance the economic, security, and environmental issues of the US, guides federal participation in long-standing regional coordination efforts of coastal managers and policymakers in Guam, the Commonwealth of the Northern Mariana Islands (CNMI), American Samoa, and Hawai'i. The Pacific Regional Ocean Partnership, then the Pacific Islands Regional Planning Body, and now the Regional Ocean Data Sharing Initiative, focuses on the identification and collaboration of coastal management data needs.

<u>Project description</u>. This is a one-year project in Guam and American Samoa to map locations where corals could potentially be more resilient to climate change. The Regional Ocean Data Sharing Initiative identified this project in partnership with NOAA, EPA, PaclOOS and is funded by NOAA and the Pacific Islands Climate Adaptation Science Center (PI-CASC) within USGS. The objective of this project is to: 1) identify areas of coral reef habitat suitability and survivability in Guam and American Samoa under multiple climate scenarios; and 2) engage with coastal managers to identify where resilience-based management strategies could be suitable. This effort commenced in August 2020 and will build upon recent efforts in the region to map overlapping environmental conditions to best target resilience-based management and restoration activities.

### Project process.

### Information Gathering

- Identify researchers and scientists who can contribute
- Scope existing body of work on resilience mapping & frameworks
- Talk with researchers to understand factors in resilience mapping
- Build synergies and avoid duplicating existing efforts

#### Data gathering

- Make data requests to researchers and scientists on needed data for the mapping effort
- Incorporate existing data on coral health, herbivore populations, water conditions, and climate stress
- Maintain corresponding metadata

#### Co-Produce maps

- Consult with managers and intended users to refine scope of maps
- Identify areas of favorable and unfavorable conditions for coral resilience
- Data will be made available on ScienceBase.gov, and PacIOOS will host outputs through a web map viewer

# Share with reef managers

- •Share maps with managers to identify degree of overlap in resilience conditions with existing management areas
- Develop resulting maps of locations suitable for resilience-based management in Guam and American Samoa

**<u>Project contact.</u>** Monica Moritsch, Research Ecologist, United States Geological Survey

Phone: 650-439-2295 | Email: mmoritsch@usgs.gov | Moffett Field, CA 94035

Western Geographic Science Center: usgs.gov/centers/wgsc









