



# NOAA OFFICE FOR COASTAL MANAGEMENT

NOAA *#OceanAndCoasts50*: Geospatial Data for Then, Now, and Beyond

**Tim Schierenbeck**

Lynker Technologies on Contract to NOAA Office for Coastal Management

August 5, 2022

# 50 Years of Ocean and Coastal Conservation

*1972 to 2022*



Coastal Zone  
Management Act  
(CZMA)



National Marine  
Sanctuaries Act  
(NMSA)



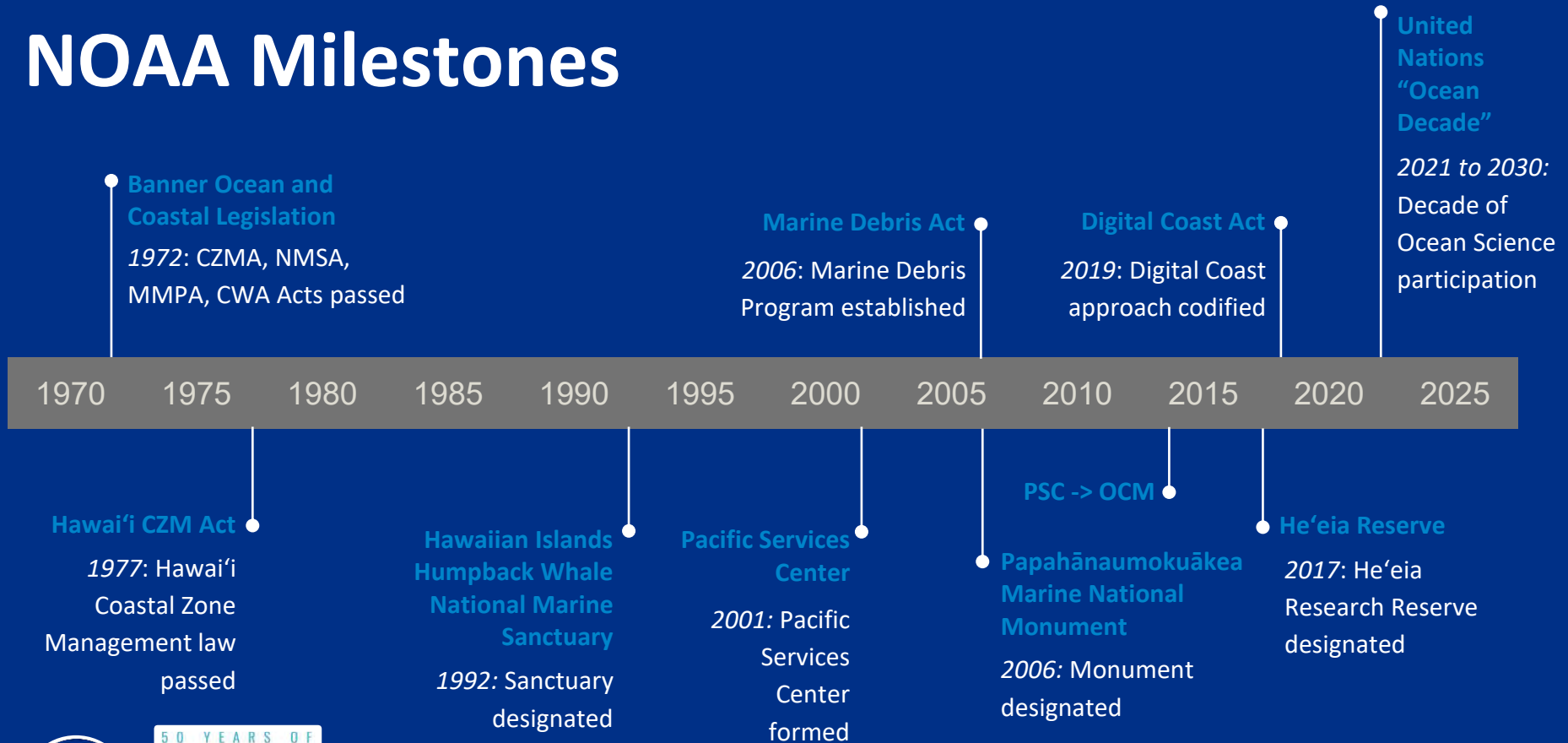
Marine Mammals  
Protection Act  
(MMPA)



Clean Water Act  
(CWA)

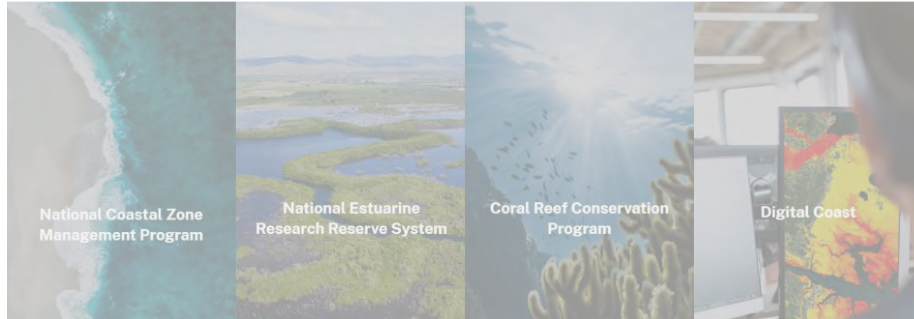


# NOAA Milestones



# NOAA Office for Coastal Management

Connecting coastal communities to geospatial tools and services



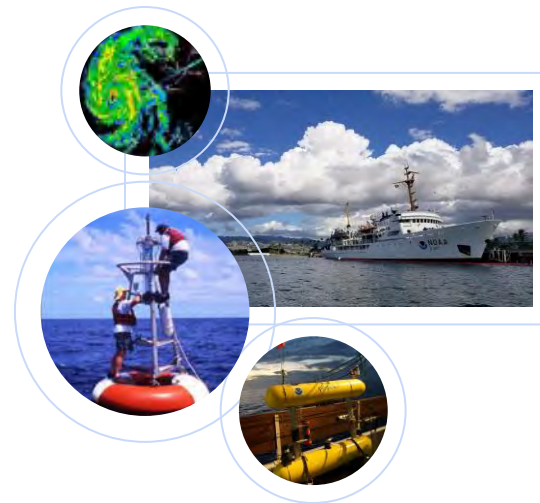
*How does the OCM use geospatial to support resilient ecosystems, communities, and economies?*





## Ocean-to-Orbit Observation

- Distributed observation networks
  - Satellite constellations
  - Local, in-situ
    - Aircraft, ships, ground assets
    - Uncrewed and remote systems





## Data Sets in Acquisition

- NOS/NOAA Fisheries ocean mapping and reef surveys in Guam and the Mariana Islands
- High-resolution bathymetric data
- Ridge-to-reef model
- Seabed habitat characterization



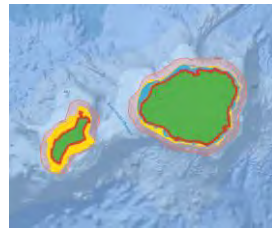


# Data Sets in Acquisition

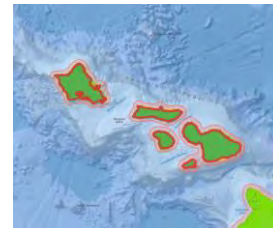
- Upcoming **Lidar** data sets:



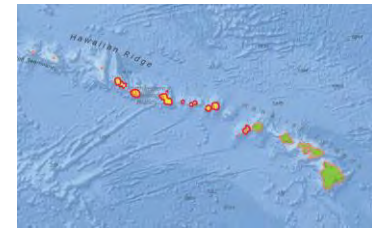
2018 Hawai'i  
Island lidar



2019 Kaua'i  
topobathy/  
lidar topobathy



2020 O'ahu  
& Maui County  
lidar



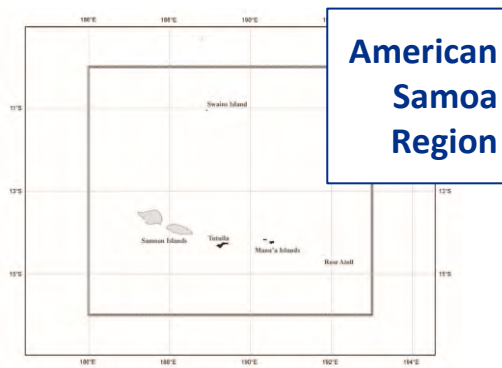
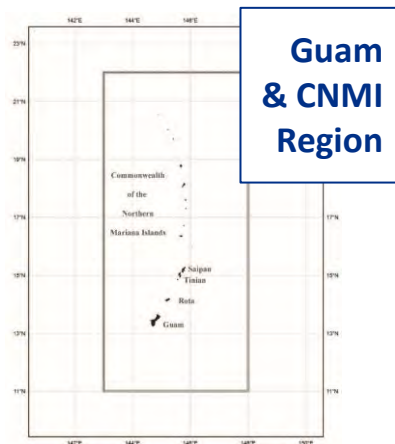
2021 Northwestern  
Hawaiian Islands  
topobathy





## Geodesy updates

- National Geodetic Survey redefining **vertical** and **geodetic datums**
  - PATRF2022/MATRF2022
  - **GEOID2022**
- Gravity for the Redefinition of the American Vertical Datum (**GRAV-D**) project

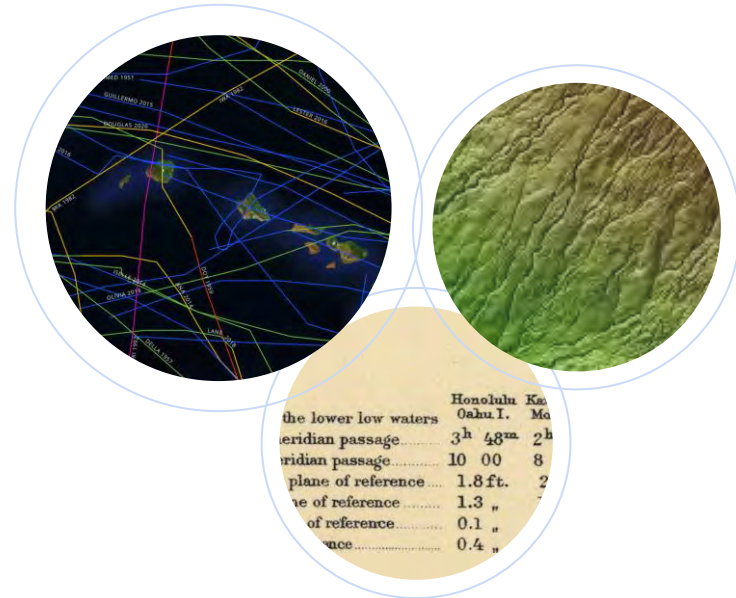






## OCM Data Holdings

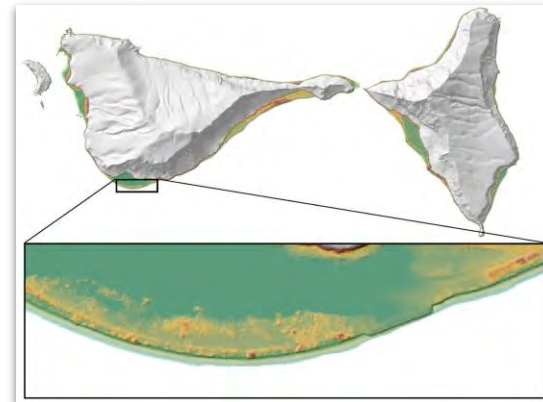
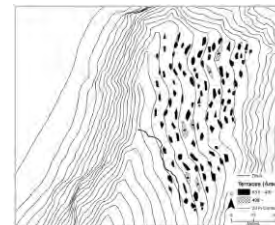
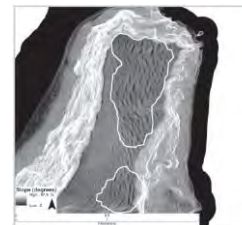
- **Digital Coast at a glance**
  - 80+ terabytes of elevation, land cover, and imagery data
  - 200+ web mapping services
  - 190+ learning resources
  - 70+ decision-support and visualization tools
  - 120+ stories from the field





# Insights from the Past

Biocultural restoration at ahupua'a of He'eia



Archeological findings in American

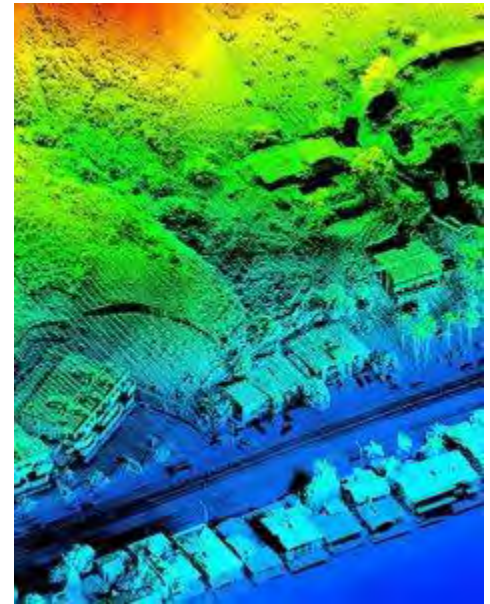
Samoa





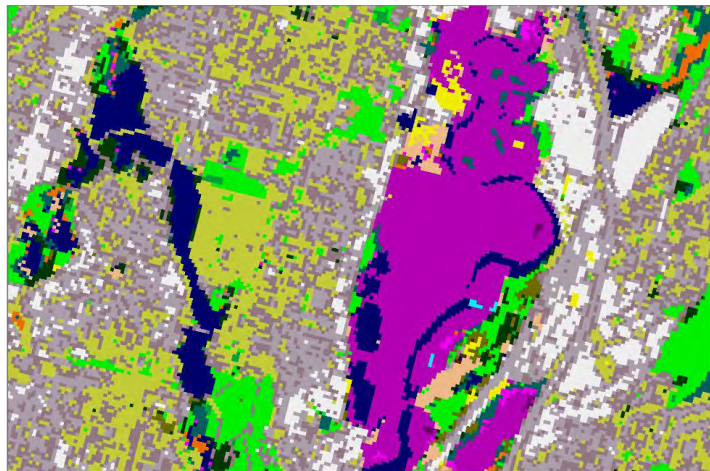
## Innovating for the Future

- Understand -> Predict -> Share -> Manage
- Artificial intelligence and machine learning
- Big data and cloud computing
- State-of-the-science and community approaches in concert with each other

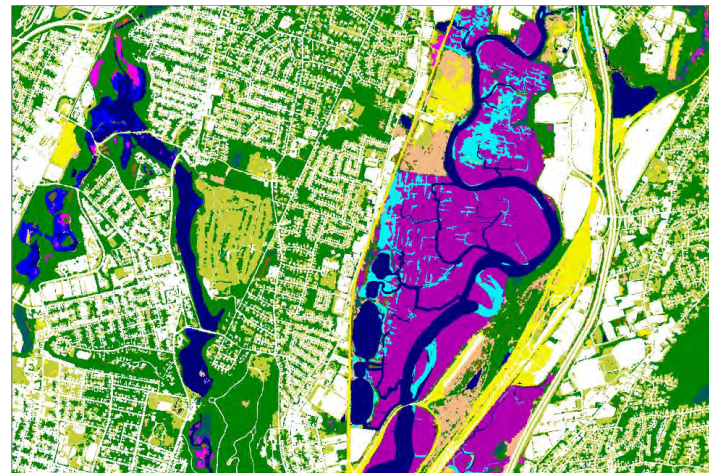




# AI-Powered Image Processing

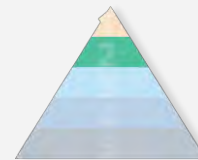


NOAA C-CAP 30 meters



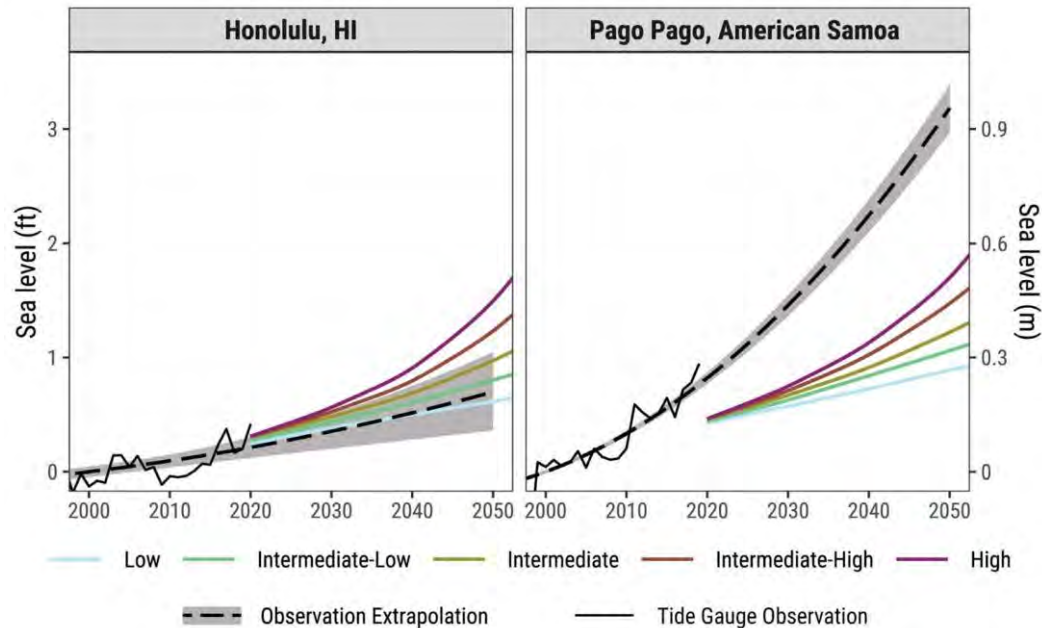
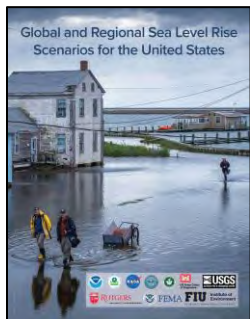
NOAA C-CAP 1 meter

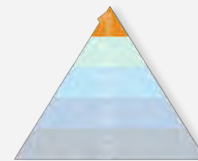




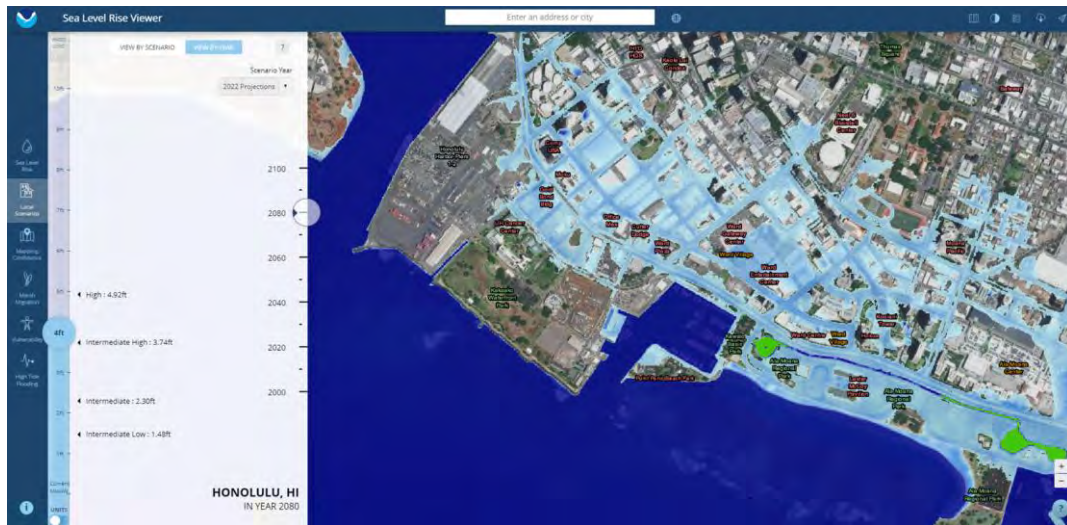
## Sea Level Rise

- 2022 Sea Level Rise Technical Report and Application Guide

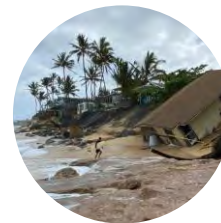




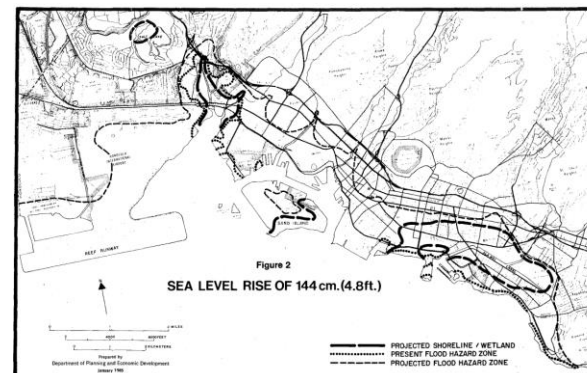
## Planning for Sea Level Rise



Credit: Fox Weather, Isabella Sloan

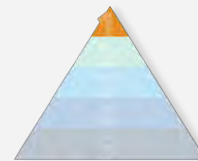


Credit: Honolulu Star-Advertiser

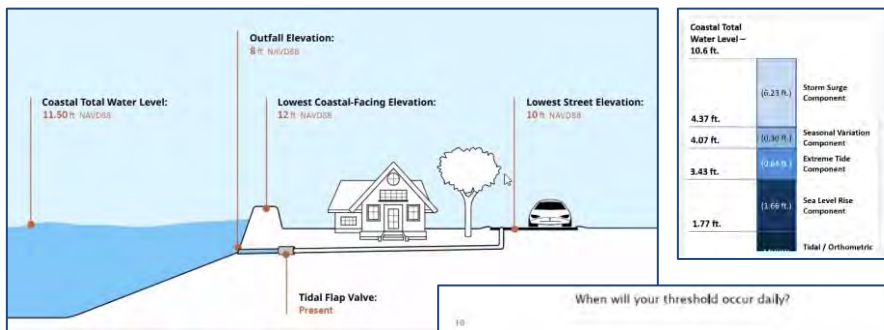


Sea Level Rise Viewer

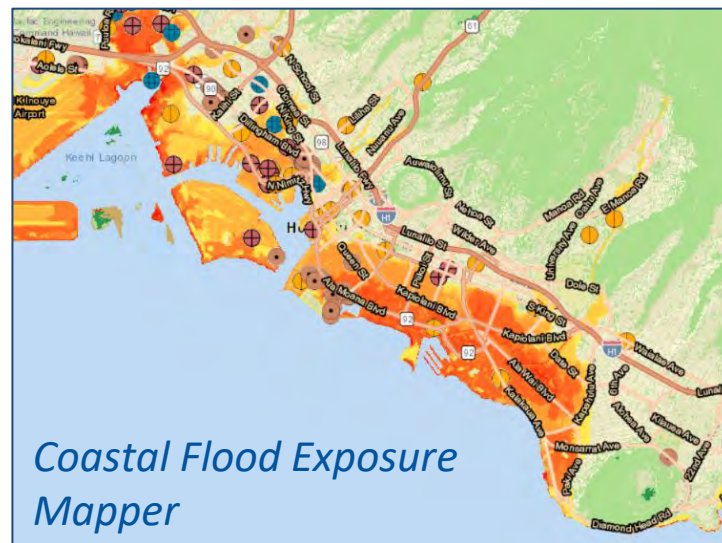
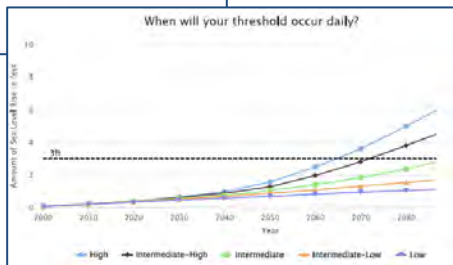


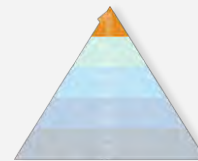


## Planning for Sea Level Rise

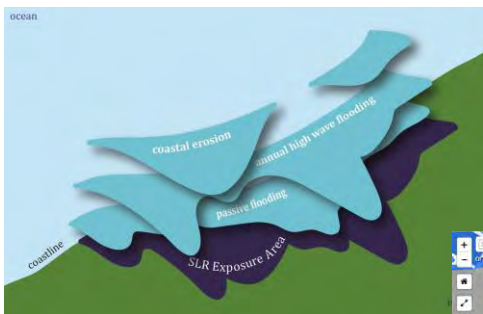


*Adapting Stormwater Management for Coastal Floods*



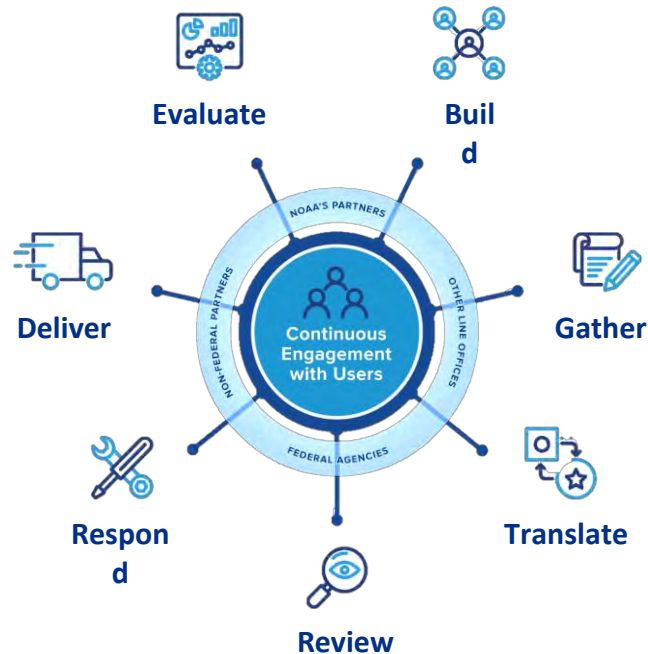


## Partnership in Action



*Hawai'i Sea Level Rise Viewer*

*University of Hawai'i  
Sea Grant Program*





# Connect with the Digital Coast



*<https://coast.noaa.gov/digitalcoast/>*



*[Andrew.McGowan@noaa.gov](mailto:Andrew.McGowan@noaa.gov)*

*[Tim.Schierenbeck@noaa.gov](mailto:Tim.Schierenbeck@noaa.gov)*



*[facebook.com/NOAADigitalCoast](https://facebook.com/NOAADigitalCoast)*



*[@NOAADigCoast](https://twitter.com/NOAADigCoast)*

