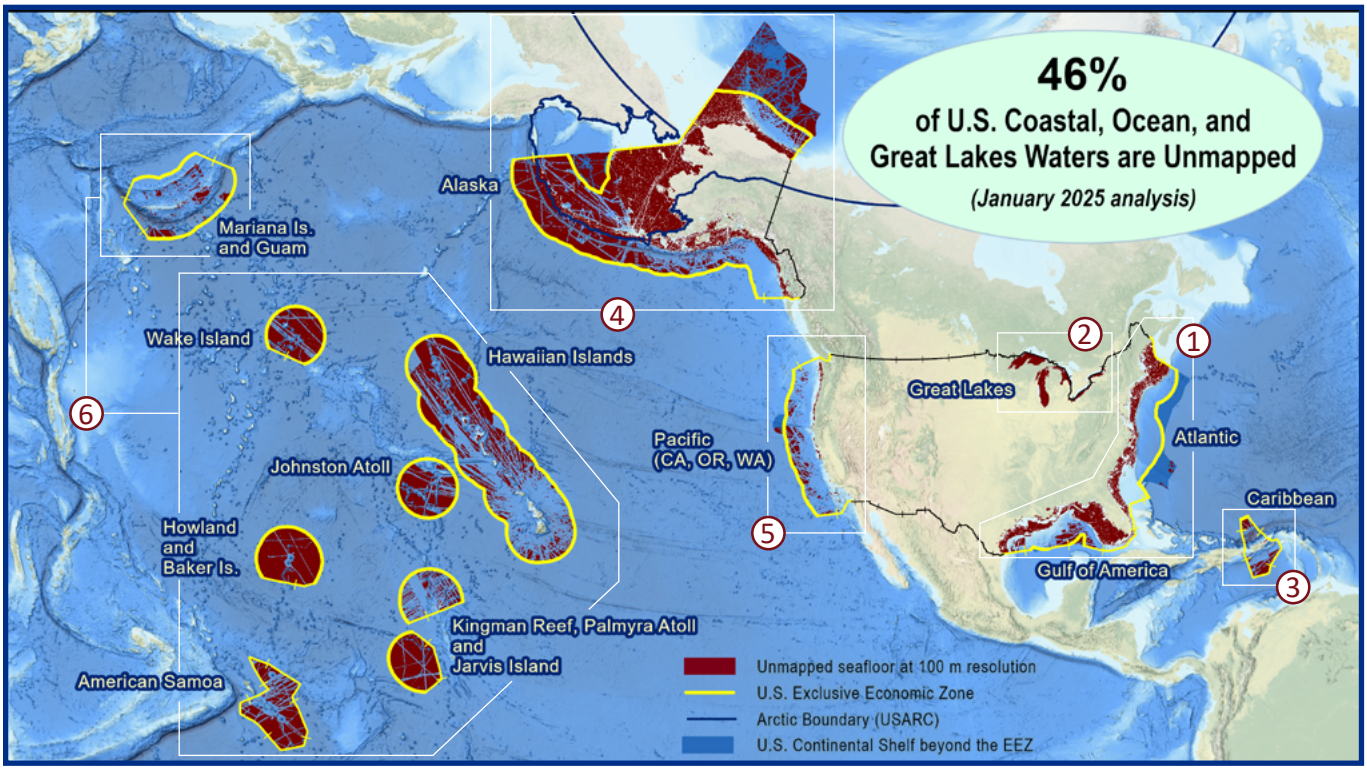
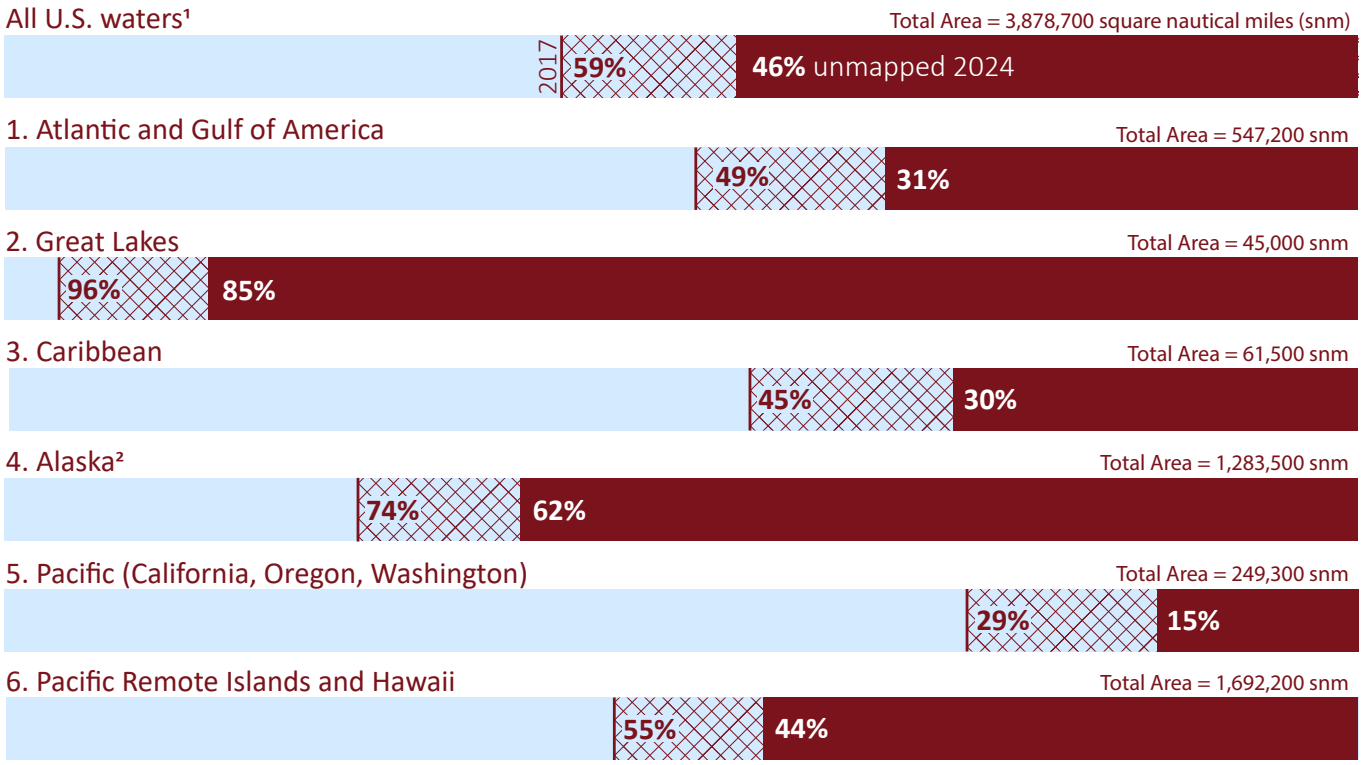
2025 PROGRESS REPORT: Unmapped U.S. Waters

To safeguard our national security and economic prosperity, ocean mapping, exploration, and characterization is foundational to maritime commerce, domestic energy and seafood production, tourism and recreation, and understanding of our natural resources, among other interests. The 2020 National Strategy for Ocean Mapping, Exploring, and Characterizing the United States Exclusive Economic Zone and the global Nippon Foundation-GEBCO Seabed 2030 Project make comprehensive ocean mapping a priority for the coming decade. Derived from the U.S. Bathymetry Gap Analysis first conducted in October 2017, this sixth annual report tracks our progress toward mapping the U.S. Exclusive Economic Zone.



Percent of U.S. unmapped seafloor at 100-meter resolution in 2024



¹ Areas include the full extent of the U.S. Continental Shelf, as declared in 88 FR 88470.

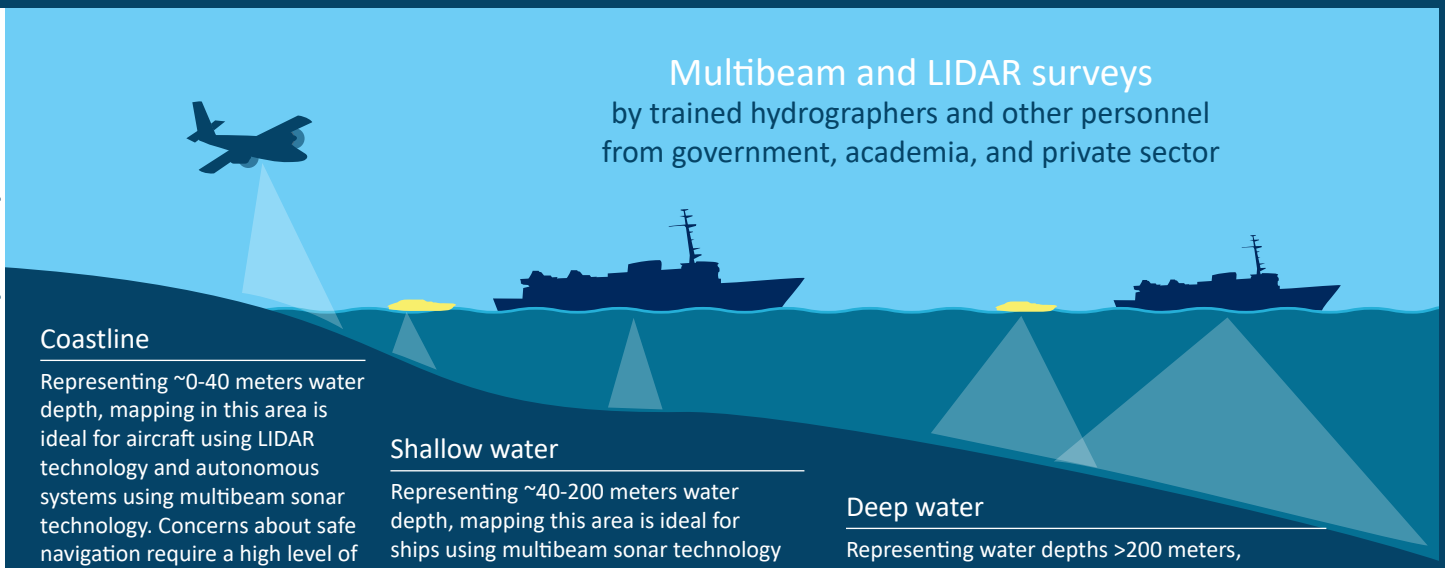
² The Arctic portion of all U.S. waters in the Alaska region is 787,000 snm and 69% unmapped at the end of 2024.

Mapping the Seafloor

primary sources of bathymetry

Multibeam and LIDAR surveys

by trained hydrographers and other personnel from government, academia, and private sector



Coastline

Representing ~0-40 meters water depth, mapping in this area is ideal for aircraft using LIDAR technology and autonomous systems using multibeam sonar technology. Concerns about safe navigation require a high level of data accuracy.

uncrewed

Shallow water

Representing ~40-200 meters water depth, mapping this area is ideal for ships using multibeam sonar technology alongside autonomous systems as a force multiplier. Conditions are not usually suitable for aerial survey methods. Concerns about safe navigation require a high level of data accuracy.

Deep water

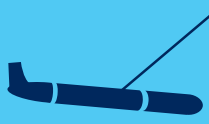
Representing water depths >200 meters, mapping this area is ideal for ships using multibeam sonar technology and deepwater capable autonomous systems. Conditions are not suitable for aerial survey methods and navigation safety is not a primary concern in this area.

other sources

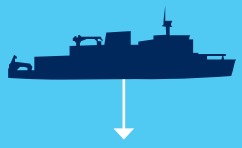
Uncrewed aerial vehicles

Satellite-derived bathymetry

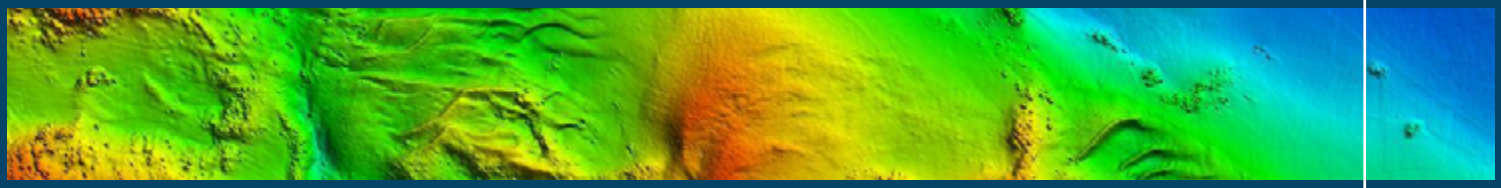
Sidescan sonar



Single beam bathymetry



Crowdsourced bathymetry



Crowdsourced bathymetry is the collection and sharing of depth measurements from vessels with standard navigation instruments during routine maritime operations. It can be a powerful source of seafloor information in areas where more comprehensive surveys are not likely to occur in the near future. For more information, visit: https://www.ncei.noaa.gov/iho-data-centre-digital-bathymetry.

Strategies for Filling Gaps

Bathymetric data obtained from governments, industry, research institutions, and citizen scientists are archived at NOAA and then used for many applications by those same institutions and much more.

Partnerships, data sharing, and innovations in both data acquisition and processing continue to be critical elements for accomplishing U.S. seafloor mapping goals. Also, the coordination of new data collections promotes the integrated ocean and coastal mapping goal to “map once, use many times.”

Current progress is a reflection of two primary ways to contribute:

1. Participate in U.S. mapping coordination activities, and
2. Share your data.

Want more details and to run statistics for a different U.S. area of interest?
Visit https://gis.charttools.noaa.gov/bathy-coverage-report/.

Track our progress

https://iocm.noaa.gov/seabed-2030-status.html