# NOAA HSRP FAC Public Meeting: Draft Standard Ocean Mapping Protocol (SOMP)

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# Overview & Outline:

**National Ocean Mapping, Exploration and Characterization (NOMEC)**

- NOMEC Council
- Interagency Working Group on Ocean and Coastal Mapping (IWG-OCM)
- NOMEC Strategy

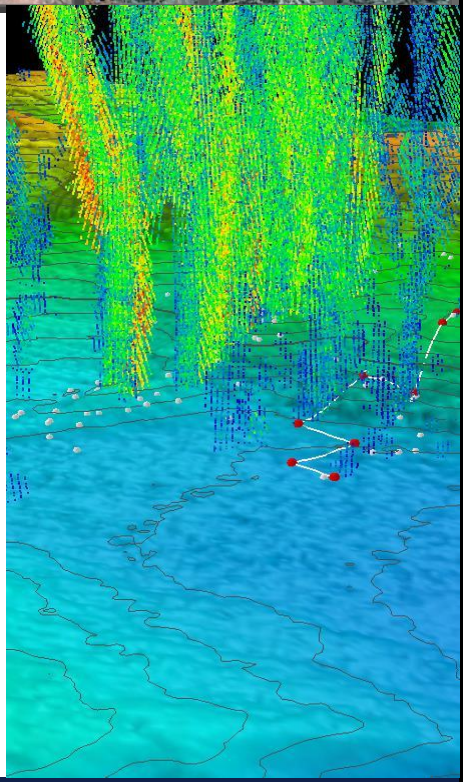
**Standard Ocean Mapping Protocol (SOMP) Summary & Goals**

- Overall Goals
- National Data Standards and Best Practices
- SOMP Writing Team

**SOMP Primary Chapters**

- Data Management, Bathymetry, Seabed and Lakebed Backscatter, Water Column, Side Scan Sonar, Sub-bottom Profiler, and Magnetometer

**SOMP Status and Next Steps**



# National Ocean Mapping, Exploration, and Characterization Council

- **Background about the NOMEC Council –** Established to coordinate federal agency policy and actions needed to advance ocean mapping, exploration, and characterization, and to support collaboration with both non-federal and non-governmental partners and stakeholders.

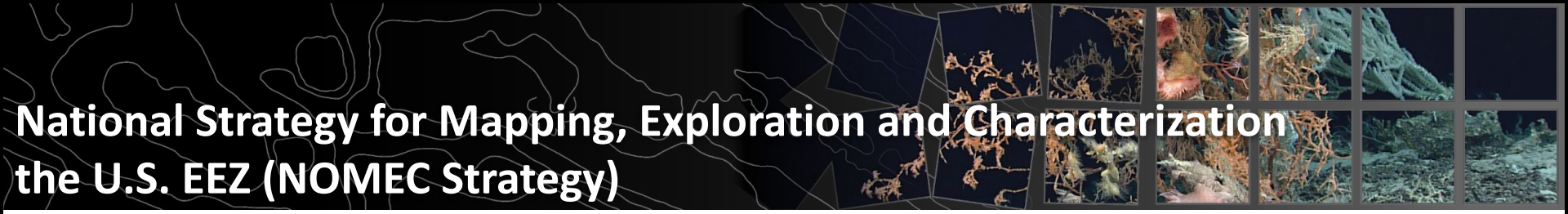
- **NOMEC Council** reports to the Ocean Science and Technology Subcommittee (OST), which provides support and guidance for the NOMEC Council's work as appropriate.

- **Interagency Working Group on Ocean and Coastal Mapping (IWG-OCM)** interagency working group who reports to OST with NOMEC Council representation. The IWG-OCM was established in 2006 to facilitate the coordination of ocean and coastal mapping activities and avoid duplicating mapping activities across the federal sector, State, industry, academic, and non-governmental mapping interests.

  *Please visit the following link for more information: IWG-OCM*

Interagency Working Group on Ocean and Coastal Mapping Members

# National Strategy for Mapping, Exploration and Characterization the U.S. EEZ (NOMEC Strategy)



**The NOMEC Strategy** sets forth a national strategy for mapping, exploring, and characterizing the U.S. EEZ and for enhancing opportunities for collaboration among interagency and non-United States Government entities with respect to those activities. The Strategy advances five goals, each supported by strategic objectives:

Goal 1: Coordinate Interagency Efforts and Resources to Map, Explore, and Characterize the United States EEZ

Goal 2: Map the United States EEZ: ***2.1 Establish a Standard Ocean Mapping Protocol (SOMP)***

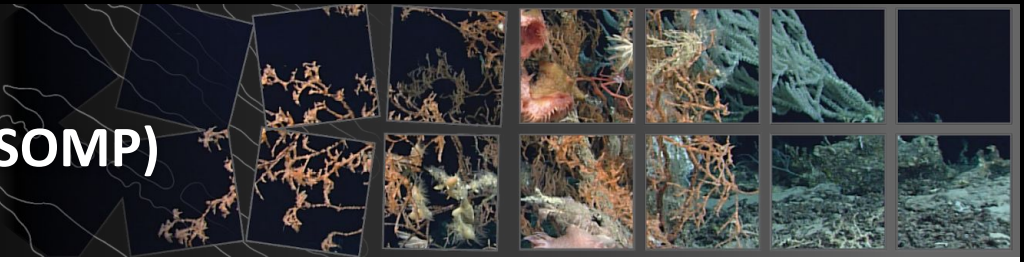
Goal 3: Explore and Characterize Priority Areas of the United States EEZ

Goal 4: Develop and Mature New and Emerging Science and Technologies to Map, Explore, and Characterize the United States EEZ

Goal 5: Build Public and Private Partnerships to Map, Explore, and Characterize the United States EEZ

*Please visit the following link for more information: NOMEC Strategy*

# Standard Ocean Mapping Protocol (SOMP) Summary & Goals



**Summary:**
The SOMP was developed in support of the NOMEC Strategy sub goal 2.1 Establish a Standard Ocean Mapping Protocol. The SOMP is a standardized technical protocol for ocean and coastal mapping data that provides national standards and best practices to guide all ocean mappers in data acquisition, processing, and archiving.

This protocol leverages expertise in the field of ocean and coastal mapping across sectors including government, industry, and academia, as well as existing mapping standard documents and procedures and endorses National data standards and best practices following the Geospatial Data Act of 2018: https://www.fgdc.gov/gda/geospatial-data-act-of-2018.pdf

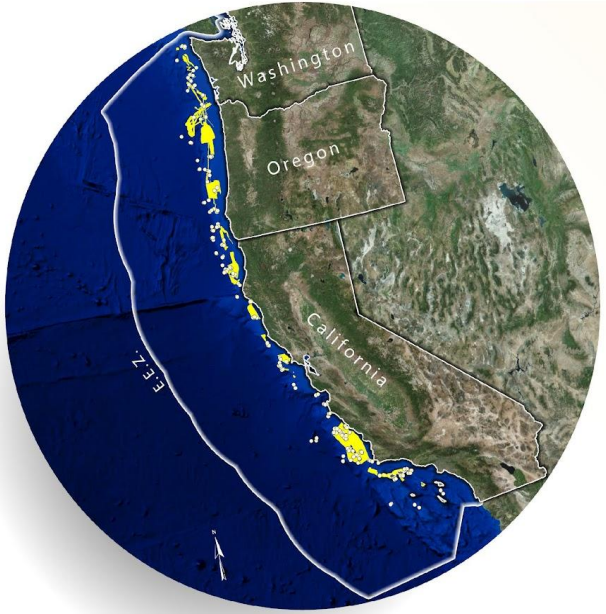
**Primary Goals:**
The main goals of the SOMP are to facilitate the widest access to, use of, and integration of data; minimize duplication of effort; and maximize the efficient collection, processing, publishing, preserving, and stewardship of as much ocean and coastal mapping data as possible into publicly-accessible archives, repositories, and databases.

**SOMP Writing Team:**
The SOMP writing team was largely made-up of IWG-OCM members and contributing SME's from the partnering Federal Agencies on the IWG-OCM. This document will be updated by the IWG-OCM every five years to stay current with technological advancements.

# Standard Ocean Mapping Protocol Chapters

**The Standard Ocean Mapping Protocol (SOMP) is organized into the following seven chapters:**

- **Data Management**
- **Bathymetry**
- **Seabed and Lakebed Backscatter**
- **Water Column Data**
- **Side Scan Sonar**
- **Sub-bottom**
- **Magnetometer**



# Standard Ocean Mapping Protocol Chapters: Data Management, Bathymetry, Backscatter

**Data Management** - methods for effective data management and stewardship, metadata records, and archive techniques, all with the intent of promoting data accessibility and utility by a broad spectrum of users, including the public.

**Bathymetry** - procedures for the collection, processing, and delivery of bathymetric data, such as that acquired by sonar systems (multibeam, single beam, phase-discriminating) and light detection and ranging (lidar) systems. This chapter summarizes best practices for topics including system setup, calibration, and maintenance; data resolution, range, and survey coverage; positioning and spatial reference; sound speed correction; tides and water levels; Quality Assurance / Quality Control (QA/QC) techniques, accuracy, and uncertainty; data processing and handling, and general gridded data specifications.

**Seabed and Lakebed Backscatter** - backscatter existing challenges in data usage, protocols to apply, and information that should be documented during surveying and processing. The chapter advocates for following the GeoHab Backscatter Working Group publication “Backscatter Measurements by Seafloor-Mapping Sonar: Guidelines and Recommendations” (Lurton,X.;Lamarche,G.(Eds)(2015)) as best practices.

# Standard Ocean Mapping Protocol Chapters: Water Column, Side Scan, Sub-bottom, Magnetometer

**Water Column Sonar** - system configuration and calibration, operating frequencies and depth ranges, QA/QC techniques, analysis and interpretation of backscatter and derived products, and file formats.

**Side Scan Sonar** - system configuration and calibration; general data acquisition parameters (e.g. range scales, frequencies, ping rates, survey speed); data resolution and survey coverage; positioning and spatial reference; target detection; QA/QC techniques, accuracy, and uncertainty; data processing, mosaic generation and derivation of products.

**Sub-bottom Profiling** - common system types and describes the standard operating procedure for the use of single-channel acoustic systems that commonly operate in the 0.2 to 24 kilohertz (kHz) frequency range to remotely image seafloor surface morphology and near-surface stratigraphy. Topics include practical survey design, conventional acquisition procedures and parameters, data resolution, QA/QC techniques, processing protocols, data formats, and publication of sub-surface imaging data.

**Magnetometer** - general magnetic theory as it relates to anomaly detectability, factors that influence data quality, instrument selection, configuration, testing, and calibration; data sensitivity and coverage specifications; resolution/line spacing based on survey objectives; and data validation.

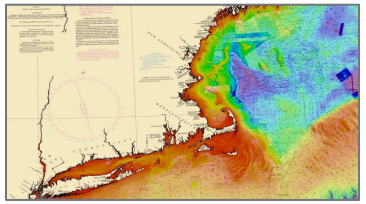
# SOMP Status and Next Steps

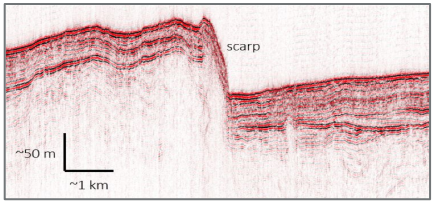
The Science and Technology Policy Institute (STPI) will provide an editorial and formatting structural review during October 2022.

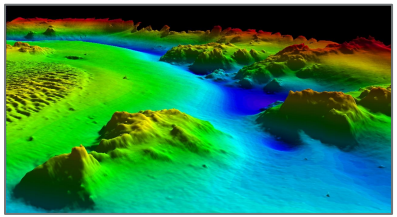
Following the STPI revision, the SOMP will be reviewed by the NOMEC Council and Office of Science & Technology Policy (OSTP).

A Federal Registry Notice (FRN) for open public comment period of 60 - 90 days will be released following approval and clearance of the NOMEC Council and OSTP.

Request for formal comments from the HSRP: HSRP will be asked for their input, review and feedback on the SOMP when it is released. This will be a discussion topic during the Winter 2023 meeting.





# Standard Ocean Mapping Protocol (SOMP)

Thank you for your time!

Please contact me with any follow-on Questions:

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