

DISCUSSION PRE-READ

Strengthening the U.S. ocean exploration toolkit—innovation needs, development pathways, and opportunities for commercialization

- NOAA supports ocean technology innovation, with both academic and private partners. For example:
 - [Saildrone Surveyor support via NOPP](#)
 - FY 23 [AUV Sentry R&D to “sniff” methane seeps](#) (OMAO/NASA/NOFO)
 - 2025 testing of [Orpheus Ocean AUV](#); this built on prior ship time support during Orpheus’ development by WHOI prior to commercialization
 - [CRADA with Fugro](#) (Deep Sea Mining (DSM) survey & analysis; remote unmanned surface vessel (USV) and unmanned underwater vehicle (UUV) deployment and operations; multi-platform acoustic survey incorporating multibeam echosounder (MBE), side-scan sonar (SSS), synthetic aperture sonar (SAS); remote ecology/eDNA)
 - Prior Year funding via the Ocean Exploration competitive grant process (NOFO)
 - <https://oceanexplorer.noaa.gov/expedition/24autonomous-acoustics/>
 - <https://oceanexplorer.noaa.gov/expedition/25deployable-ai/>
 - <https://oceanexplorer.noaa.gov/expedition/21sonar-cloud-data/>
 - <https://oceanexplorer.noaa.gov/expedition/25robot-teams/>
 - <https://oceanexplorer.noaa.gov/expedition/23low-cost-robot/>
- Current innovation needs:
 - Technologies to enable multiple platform operations and to allow low-cost USVs to provide command and control and positioning support to AUVs so they can operate independently of ships, and with reduced on-board staff/bunk requirements
 - Combine high speed at-sea internet, cloud storage and AI to dramatically reduce processing time for bathymetry and other exploration variables (e.g. video annotation).
 - Power for autonomous assets
 - Edge processing for autonomous assets and ship-based mapping and water column characterization
 - Data driven platform decision making for autonomous assets - same mission as the Navy “seabed object detection” mission but with different inputs
 - “Hardening” and operationalizing full ocean depth capable autonomous surface mapping platforms; that can operate independently of ships
- Current available development pathways:
 - Small Business Innovation Research ([SBIR](#)) Phase 1 and Phase 2 topics, pending Congressional programmatic reauthorization

- [National Oceanographic Partnership Program \(NOPP\)](#) - annual Office of Naval Research Broad Agency Announcements and NOAA-NOPP funding support to leverage other NOAA resources
- [CRADA](#) - multi-year partnership agreement that protects intellectual property and facilitates a mutually collaborative engagement with a defined statement of work
- Private sector/university technology [Incubators/accelerators](#)
- OMAO UxS Operations Center bi-annual uncrewed systems development RFP
- Funding development work through [Cooperative Institutes](#), such as the Ocean Exploration Cooperative Institute
- Development of innovative projects through competitive grants (Notice of Funding Opportunity)
- Other Transactional Authorities (OTA) - but just beginning to explore these authorities
- Opportunities for commercialization to support private sector partner growth:
 - SBIR Phase 3 - commercialization phase; awardees of any SBIR Phase I or Phase II from any agency are eligible for sole-source contracts; contract is non-competitive and must be a logical extension of their SBIR funded work
 - University licensure consistent with cooperative agreement awards
 - NOAA licensure from NOAA-owned IP
 - [NOAA Ocean Enterprise Accelerator program](#), in conjunction with StartBlue and VentureWell; private sector small businesses can join cohorts to accelerate development and commercialization

For awareness:

- [NOAA Science and Technology for Exploration](#)
- [NOAA Standard Ocean Mapping Protocol](#)
- [NOAA State of the Science Factsheets](#)