2020 Expeditions

NOAA Ship Okeanos Explorer
- 10/5-26
- 10/31-11/21

Greater Farallones NMS
- 10/3-11
- 10/13-18

Cordell Bank NMS

E/V Nautilus
- 10/1-10
- 10/19-10/20

North Pacific

EX1906
- SE US Deep-sea Exploration
- Mapping
- 10/31-11/21

EX1907
- SE US Deep-sea Exploration
- R/V Mapping
- 10/5-26

Dockside Repair
- Pascagoula, MS

Mission Mobilization
- Key West, FL

EX2001
- Mapping and Network Shakedown
- Pascagoula, MS

Key West, FL

EX2002
- ROV Shakedown
- South Florida

EX2003
- US Caribbean Mapping
- USVI

EX2004
- Voyage to the Ridge
- ROV & Mapping
- Horta, Faial, Azores

EX2005
- Voyage to the Ridge
- ROV & Mapping
- St. Johns, Newfoundland

EX2007
- Seamounts/ADFA
- Mapping
- North Kingstown, RI

Bioprosperting for Industrial Enzymes and Drug Lead Compounds in an Ancient Submarine Forest
- AUV Fetch
- August-December
ASPIRE EXPEDITIONS

Northern Neighbors: Transboundary Exploration of Deepwater Communities
June 2017, June 2019
NOAA NMFS/Dalhousie University, NOAA Ship Henry B. Bigelow

Northeast US Tech Demonstration
July 2019
NOAA OER, NOAA Ship Okeanos Explorer

Carolina Canyons
August 2016, August 2017
NOAA NMFS, NOAA Ship Pisces

DEEP SEARCH
2017-2019
BOEM/USGS/NOAA, Multiple Platforms

Blake Plateau Contract Mapping
Fall 2019
NOAA OER contract, Fugro Brasilis

Southeast US ROV and Mapping
Summer 2018, Spring 2019
NOAA OER/NMFS/ONMS, NOAA Ship Okeanos Explorer

US-Canada ROV and Mapping
Summer 2019
NOAA OER/ONMS, NOAA Ship Okeanos Explorer

High Seas Mapping
Summer 2020
NOAA OER, NOAA Ship Okeanos Explorer

Mid-Atlantic Ridge ROV and Mapping
Summer 2020
NOAA OER, NOAA Ship Okeanos Explorer

Mid-Atlantic Ridge Mapping
Summer 2020
NOAA OER, NOAA Ship Okeanos Explorer

Southeast US ROV and Mapping
Fall 2019
NOAA OER/OCS, NOAA Ship Okeanos Explorer

US Southeast and Bahama Ridge Mapping
October 2018
NOAA OER/OCS, NOAA Ship Okeanos Explorer

ASMIWG Pilot Area Mapping
July 2018
NOAA OER, NOAA Ship Okeanos Explorer

US Caribbean ROV and Mapping
Fall 2018
NOAA OER/OCS, NOAA Ship Okeanos Explorer

US Caribbean Mapping
Spring 2020
NOAA OER/OCS, NOAA Ship Okeanos Explorer

Last updated: 1/14/20
Atlantic Seafloor Partnership for Integrated Research and Exploration: Outcomes to Date

• Mapped over 282,000 square kilometers in support of NOAA goal of mapping U.S. EEZ by 2030
• Prioritized areas of interest to key partners and resource managers, including:
  – Southeast Deep Coral Initiative
  – South Atlantic Fishery Management Council
  – Northeast Canyons and Seamounts Marine National Monument
• Began Canadian and European collaborations for 2019-2020 expeditions
• Contracted Fugro to map ~27,000 square kilometers on Blake Plateau
Okeanos Explorer Draft 2020 Schedule

- 195 days at sea (~52% within U.S. EEZ /~47% international waters)
- Ship repairs completed successfully
- EM 304 installed and acceptance tests completed — upgrade sonar system
- Office of Marine and Aviation Operations on 30-day suspension of operations
- Caribbean Exploration Mapping (May)
- Voyage to the Mid-Atlantic Ridge (June-August)
- U.S.-Canada Mapping (September)
Voyage to the Ridge 2020

• Three cruises, ~70 days at sea
• Science objectives represent priorities from U.S., European, and Canadian federal agencies, international collaborators, nongovernmental organizations, and the broader science community
• Exploration will include hydrothermal vents, fracture zones, deep-sea coral and sponge habitats, rift zones, and areas inside International Seabed Authority lease blocks
• Region is of interest to inform understanding of connectivity of sensitive marine habitats across the Atlantic

Expeditions | National Strategy | NOAA Strategies | Grants and Partnerships | Other OER Updates
---|---|---|---|---

Canceled
Ocean Exploration Trust 2020 Expeditions

- Benthic Communities and Biopharmaceutical Potential off Southern California
- West Coast EEZ mapping
- Cascadia Margin
- Gradients of Blue Economic Resources in Methane Seeps
- West Coast EEZ Mapping
- Southern California Mapping
Opportunities in 2020 and Beyond

• 2020/2021 *Okeanos Explorer* priorities include:
  – U.S. Caribbean
  – Mid-Atlantic Ridge
  – U.S. Southeast
  – Corner Rise and New England Seamounts
  – Completing ASPIRE work with *Okeanos Explorer*

• *Okeanos Explorer* to transition from the Atlantic and into the Pacific in 2022
  – West Coast (EXPRESS), Alaska, and Pacific Islands—Campaign to Address Pacific monument Science, Technology, and Ocean Needs (CAPSTONE)

• *E/V Nautilus* and Mobile System
  – West Coast work in 2020 in support of EXPRESS
  – Extend and expand CAPSTONE
EXPRESS/NOPP Critical Minerals Expedition 2020

- September 2020: USGS, BOEM, and NOAA partnership on R/V Roger Revelle with ROV Jason
- Goal: Acquire baseline information on critical minerals within the U.S. Exclusive Economic Zone (EEZ) and their interactions with surrounding ocean environment, including hydrothermal vent and deepwater species
- Responsive to Executive Order 13817 Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals

<table>
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<tr>
<th>Expeditions</th>
<th>National Strategy</th>
<th>NOAA Strategies</th>
<th>Grants and Partnerships</th>
<th>Other OER Updates</th>
</tr>
</thead>
</table>

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Map showing oceanic features such as the Juan de Fuca Ridge and various fracture zones.
Presidential Memorandum on Ocean Mapping of the United States Exclusive Economic Zone and the Shoreline and Nearshore of Alaska

• Develop a strategy to map the U.S. EEZ, to identify priority areas within the U.S. EEZ, and to explore and characterize the priority areas (Section 2)
• Develop a strategy to map the shoreline and nearshore of Alaska (Section 3)
• Identify opportunities/make recommendations to increase the efficiency of the permitting/authorization processes for ocean research, mapping, and characterization (Section 4)
54% of U.S. Coastal, Ocean, and Great Lakes Waters are Unmapped (January 2020 analysis)
NOAA Unmanned Systems Update

• NOAA cross line office team to write Unmanned Systems Strategy implementation plan
• NOAA’s Office of Marine and Aviation Operations received $12M in FY 2020 to stand up unmanned systems operations within NOAA:
  – $4M transferred to OAR to continue unmanned aircraft systems research and development
  – $1.8M for an internal NOAA competition to fund unmanned systems projects
  – Funds for staff, including a GS15/O-6 level director
  – Funds for space leases in Gulfport, Mississippi
CENOTE Actions to Date

- NOAA/Navy senior staff/SES coordination group met three times in 2019 and is producing guidance documents for the new relationship
- NOAA and the Navy are revising memorandum of agreement annexes to allow for joint CENOTE work
- A NOAA Unmanned Systems Executive Oversight Board working group has drafted an initial CENOTE report to Congress
## Competitive Grants for 2020

<table>
<thead>
<tr>
<th>PI—Institution</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daniel L. Distel—Northeastern University</td>
<td>Bioprospecting for Industrial Enzymes and Drug Lead Compounds in an Ancient Submarine Forest</td>
</tr>
<tr>
<td>James D. Spirek—South Carolina Institute of Archaeology and Anthropology, University of South Carolina</td>
<td>Shoals and Shipwrecks: Archaeological Explorations off Port Royal Sound, South Carolina</td>
</tr>
<tr>
<td>Arne R. Diercks—University of Southern Mississippi</td>
<td>The Search for Norlindo—The First World War II Casualty in the Gulf of Mexico</td>
</tr>
<tr>
<td>Lisa A. Levin/Paul Jensen—Scripps Institution of Oceanography/University of California, San Diego</td>
<td>Benthic Communities and Their Biopharmaceutical Potential Across Mineral-rich Biomes off Southern California</td>
</tr>
<tr>
<td>Joe Hoyt—NOAA Office of National Marine Sanctuaries</td>
<td>Wimble Shoals: An Exploration and Characterization of Submerged Cultural and Sediment Resources</td>
</tr>
<tr>
<td>Matthew Lawrence—NOAA Office of National Marine Sanctuaries</td>
<td>Florida Keys National Marine Sanctuary Quicksands Archaeological Survey</td>
</tr>
<tr>
<td>Andrew Thurber—Oregon State University</td>
<td>Gradients of Blue Economic Resources in and Around Deep-sea Methane Seeps</td>
</tr>
<tr>
<td>Amy E. Wright—Harbor Branch Oceanographic Institute, Florida Atlantic University</td>
<td>Exploring the Blue Economy Biotechnology Potential of Deepwater Habitats</td>
</tr>
</tbody>
</table>
Creatures in This Underwater Forest Could Save Your Life One Day

Before this 60,000-year-old submerged forest disappears, scientists recently raced to search for shipworms and other sea life that might conceal medicine of the future.
National Ocean Partnership Program (NOPP)

• The NOAA OAR NOPP line item for FY20 is approximately $5M
• A NOPP Committee (the “NOPP-C”) was established under the NOAA Research Council to coordinate NOAA’s NOPP activities and provide guidance on the allocation of dedicated NOAA NOPP funds
• NOAA is soliciting projects across NOAA with selections to be made in April and funds applied May/June
FY20 NOAA NOPP Process: Focus Areas

• Regaining international leadership in numerical weather prediction
• Increasing American seafood production and competitiveness
• Powering the American blue economy through expanding ocean science partnerships in exploration and technological innovation
  – Through expanded use of transformative technologies such as unmanned systems, artificial intelligence, ‘omics, and cloud computing
<table>
<thead>
<tr>
<th>Field Program</th>
<th>OECI-Funded Portion</th>
<th>Area</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Cruise (Ship TBD)</td>
<td>Woods Hole Oceanographic Institutions (WHOI) Field Equipment/Operations</td>
<td>Gulf of Mexico/Continental Shelf, 134nm NW of Key West/Puerto Rico Trench</td>
<td>Test AUV interface w/ROV system; deploy ichthyoplankton imaging system to image midwater zone</td>
</tr>
<tr>
<td>USM Test Cruise R/V Point Sur</td>
<td>University of Southern Mississippi Field Equipment/Operations</td>
<td>Gulf of Mexico/Flower Garden Banks National Marine Sanctuary</td>
<td>Deploy AUVs to create bathymetric map and conduct series of mosaic maps</td>
</tr>
<tr>
<td>WHOI Test Cruise R/V Point Sur</td>
<td>Shiptime/WHOI Equipment/Operations</td>
<td>Gulf of Mexico/Flower Garden Banks National Marine Sanctuary</td>
<td>Test hybrid AUV visualization and sample collection capabilities</td>
</tr>
<tr>
<td>Ship of Opportunity Test Cruise</td>
<td>ShipTime/University of New Hampshire Field Equipment/Operations</td>
<td>TBD (likely Gulf of Mexico)</td>
<td>Acquire and test transportable, midwater multibeam mapping system (ASV)</td>
</tr>
</tbody>
</table>
New NOAA and OER Partnerships
Two New Oceanographic Vessels Will Join the NOAA Fleet
OER FY20 Budget*

TOTAL: ~ $39.3 million

- Science & Technology: $6,281,584
- Admin & HQ: $4,067,411
- Outreach & Education: $2,884,647
- Expeditions & Exploration: $24,808,650
- Data & Information Management: $1,209,401

*Not final
# OER FY19-21 Budget Summary

<table>
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<tr>
<th>Fiscal Year</th>
<th>Appropriation*</th>
<th>NOAA’s Request*</th>
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<tr>
<td>2021</td>
<td>TBD</td>
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<tr>
<td>2020</td>
<td>$42,000</td>
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<tr>
<td>2019</td>
<td>$42,000</td>
<td>$19,561</td>
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</table>

*Dollar amounts in thousands*
More OER News

• OER hired Frank Cantelas as the Science and Technology Division lead
• OER hired new deputy to begin April 27
• OER released New Frontiers in Ocean Exploration (2019 field season)
• The OER Communications Team produced a 2020 communications strategy
• The OER Web Team is moving the OER website to the cloud
• The OER Education Team continues to respond to recommendations from the review
Questions?

alan.leonardi@noaa.gov