



Ocean Exploration
and Research

Key Operational Partnerships

Operational Partners

OER depends on external partners for virtually all of its activities in operations, research, technology development, education, and more. Key partners include:

- *Ocean Exploration Trust (OET)*
- *Global Foundation for Ocean Exploration (GFOE)*
- *University of Rhode Island – Graduate School of Oceanography (URI/GSO)*
- *University of New Hampshire – Center for Coastal and Ocean Mapping and Joint Hydrographic Center (UNH/CCOM-JHC)*
- *Cooperative Institute for Ocean Exploration, Research & Technology (CIOERT)*
- *NOAA/OAR Pacific Marine Environmental Lab (PMEL)*

How Do We Collaborate?

- *OET* – Operates the EV Nautilus under the telepresence-enabled expedition model through a Joint Project Agreement with OER
- *GFOE* – Designs, builds, tests, and operates undersea systems for NOAA Ship Okeanos Explorer through an education and mentorship program as part of the telepresence-enabled expedition model
- *URI/GSO* – Operates the Inner Space Center in support of telepresence-enabled expeditions

How Do We Collaborate?

- *UNH/CCOM-JHC* – This joint NOAA/UNH facility is responsible for sonar data acquisition and analysis in support of the interagency ECS effort, and supports end-to-end mapping operations for telepresence-enabled expeditions on NOAA Ship Okeanos Explorer – three OER survey staff work at the facility
- *CIOERT* – Works with OER and other NOAA programs to explore frontier areas of the ocean using innovative technologies
- *PMEL* – Works with OER and other NOAA programs to explore remote regions of the Pacific and Arctic using innovative technologies and investigates poorly known oceanographic phenomena

Why Do We Collaborate?

Operational partnerships allow a small program to have great impact. Partners allow us to:

- *Leverage* other sources of funding – each key operational partner contributes
- *Design, develop, test and evaluate*, and to transition new technologies
- *Develop new methods* for processing and archiving data, and developing and disseminating new data products

All to increase the pace and efficiency of ocean exploration

What We Achieve Together

- High-resolution maps and GIS products of previously unmapped areas
- High-resolution maps and GIS products characterizing the water column
- Reports and other products that characterize deepwater benthic communities
- Reports and other products that characterize oceanographic phenomena
- Reports and other products that characterize submerged cultural resources
- New undersea sensors, tools and technologies
- New tools and technologies for real-time communication
- New tools and technologies for increasing the ability to archive and deliver data and data products
- New methods for using existing technologies in innovative ways

What Are Our Challenges?

- *Administrative* – Managing a complex set of MOAs, JPAs, implementing agreements, grants, and contracts among the partners involved in telepresence-enabled expeditions, all functioning on different time-frames
- *Funding* – Each partner, including OER, is vulnerable to externalities that undermine projected and required budgets to support operations and make advancements in technology, forcing the parties to constantly adjust and reprioritize plans
- *Coordination* — Effective partnerships demand substantial investments in relationship development and maintenance

What's Next?

- *OET* – Telepresence-enabled expeditions in the Pacific on the EV *Nautilus*
- *GFOE* – Continued support of undersea mission system operations on NOAA Ship *Okeanos Explorer* during the CAPSTONE Campaign, and the develop of new techniques for 'virtual' sampling
- *URI/GSO* – Continue to function as the hub for telepresence-enabled expeditions
- *UNH/CCOM-JHC* – Continue sonar data acquisition and analysis in support of the interagency ECS and support of survey operations for telepresence-enabled expeditions
- *CIOERT* – Expand on the success of the Pulley Ridge mesophotic coral investigation into new areas in the Gulf of Mexico and Caribbean
- *PMEL* – Continue to explore the “Ring-of-Fire,” the Arctic, and oceanographic phenomena using and testing new technologies



Ocean Exploration
and Research

Interagency Partnerships

Interagency Partnerships: What We Do

Award-winning interagency partnership among NOAA-BOEM-USGS

- Over a decade of successful missions throughout the Gulf of Mexico and in the Atlantic
- Partnership expanded beyond environmental studies



Interagency Partnerships: Why We Do It

Leverage capabilities and extend limited budgets, enhancing scientific knowledge and conservation goals of all agencies



- Explore unknown and poorly known ocean regions
- Baseline habitat characterization
- Understand and manage implications for ecosystem management



- Evaluate the health of ecosystems
- Inform resource management
- Understand natural hazards



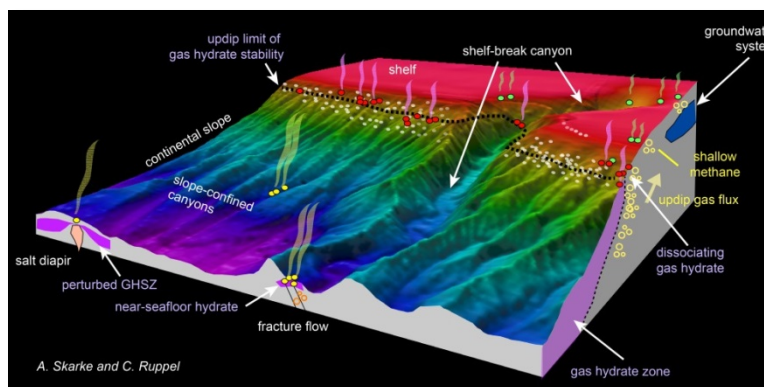
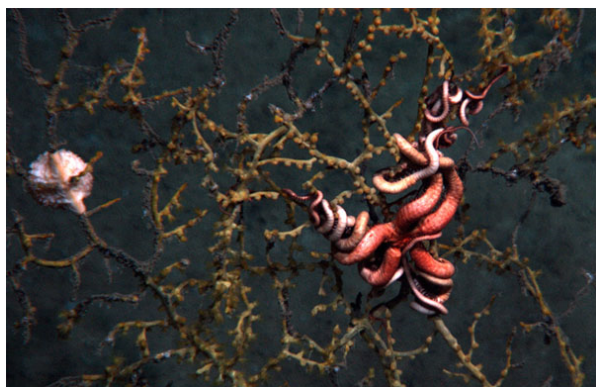
- Adaptive management
- Discovery of sensitive resources
- Evaluation of impacting resources and refinement of policy



Interagency Partnerships: Our Results

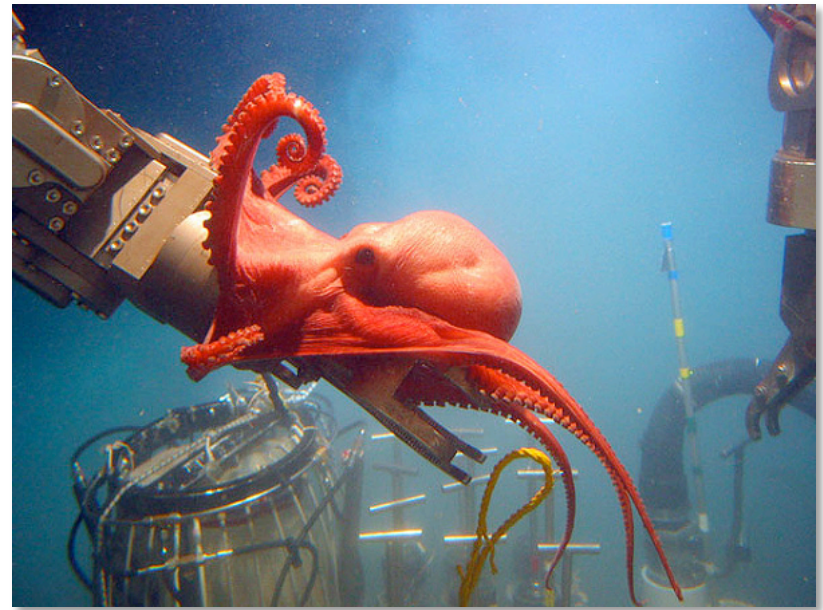
High impact, far reaching results

- First post-Deepwater Horizon documentation of impacts to deep-sea benthic habitats
- Discovery of over 570 new methane plumes along US East Coast
- Discovery and characterization of over a dozen submerged cultural resources
- Results have lead to regulatory changes and increased protection



Interagency Partnerships: Challenges

- Generating necessary internal NOAA support
- Availability of appropriate ship and submersible time
- Managing expectations/ establishing roles and responsibilities of expedition participants and partners



Interagency Partnerships: What's Next

- Completion of Mid-Atlantic Canyons project (2015)
- Additional work/continuation in the Gulf of Mexico and Atlantic
- Extend this model to work in Alaska and Arctic
- Adapt this model to work with other agencies
- Continue engagement through *Okeanos Explorer* missions

