

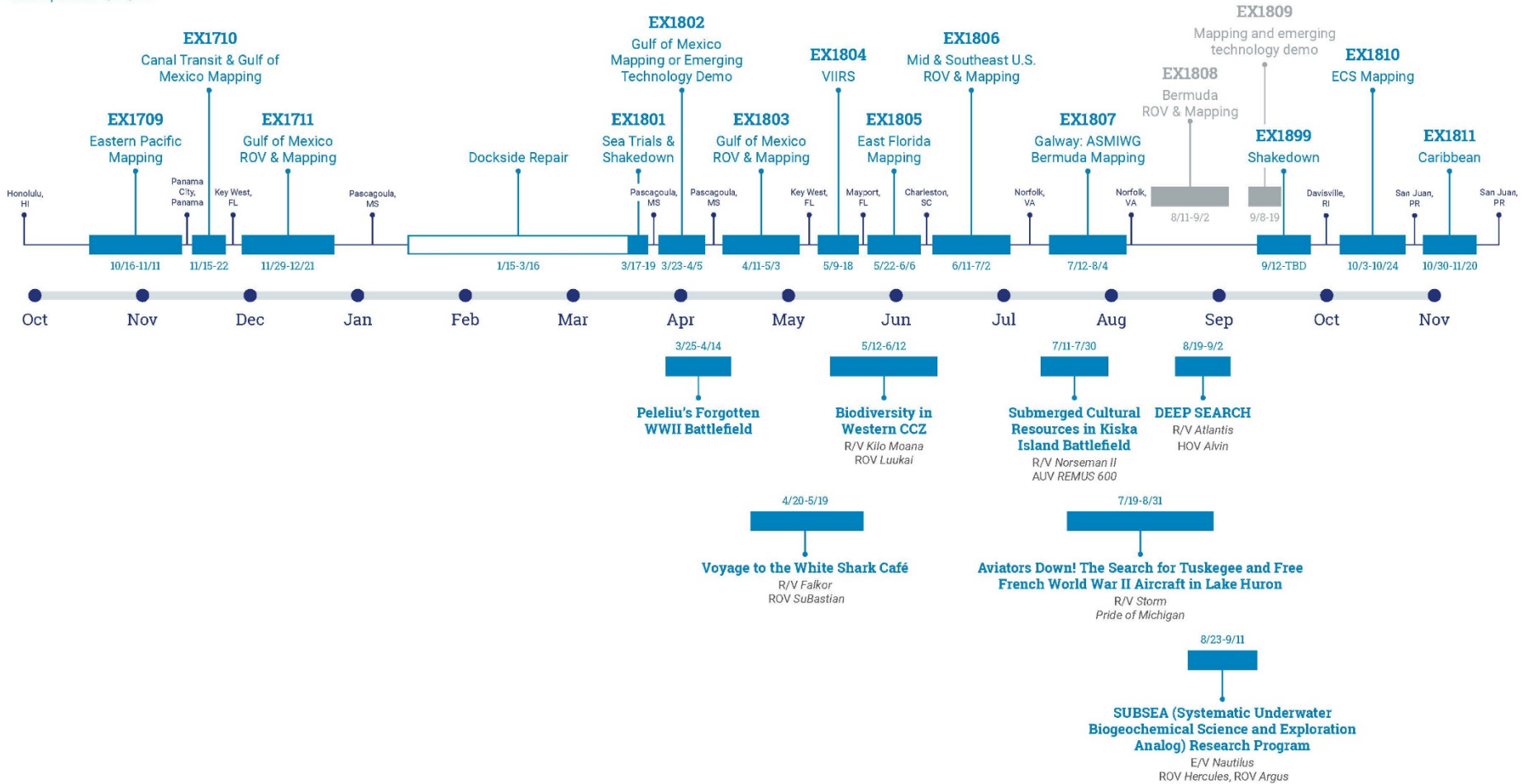
# Office of Ocean Exploration and Research Update

CDR William Mowitt, Deputy Director  
Eleventh Meeting  
Ocean Exploration Advisory Board  
Woods Hole, MA  
September 25-26, 2018



# 2017-2018 Expeditions

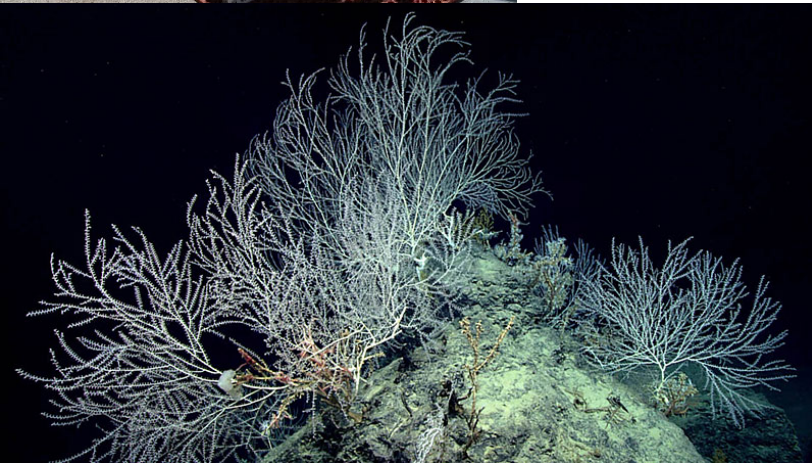
Last Updated: 9/20/18



# Ocean Exploration in 2018



- **GOM Tech Demo (EX1802):** First technology demonstration expedition for NOAA Ship *Okeanos Explorer*. Worked with new technology partnerships in academia and the Navy to allow for new discoveries in the future. Hope to do more technology demonstrations on future expeditions.

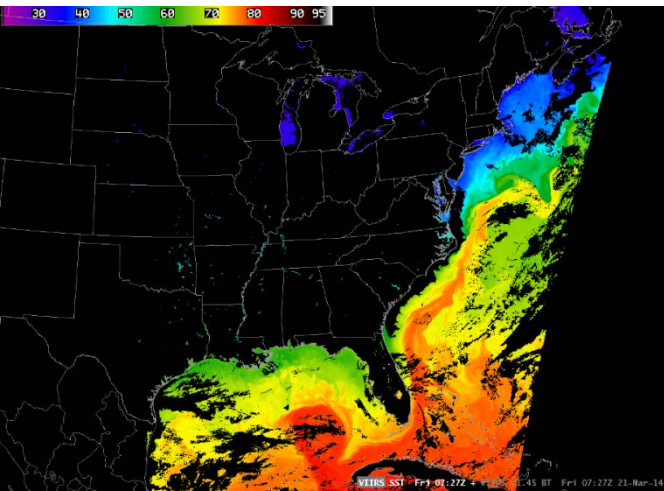


- **GOM 2018 (EX1803):** Found the deepest high-density communities of coral (2,600 meters) known from the Gulf of Mexico.

# Ocean Exploration in 2018

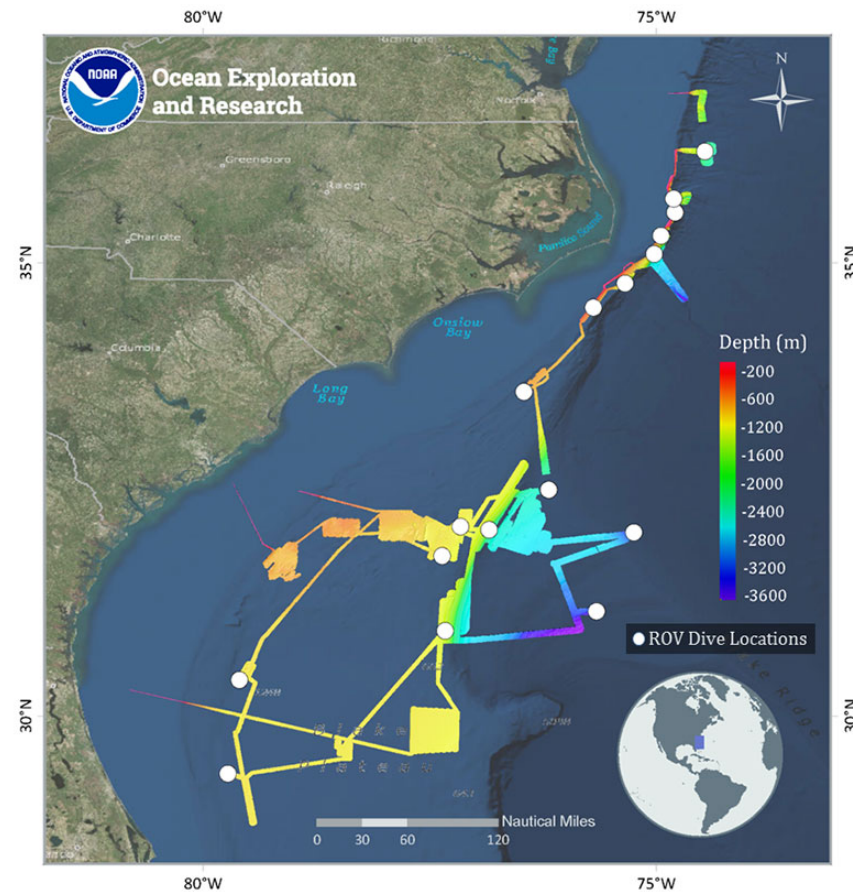


- **DeepCCZ (FFO):** Found two confirmed new species, including this worm, and potentially more in an area targeted for deep sea mining.
- **VIIRS (EX1804):** Ground-truthed JPSS Visible Infrared Imaging Radiometer Suite (VIIRS) satellites ocean color radiometry and derived products - validating an important tool for the ocean exploration community.



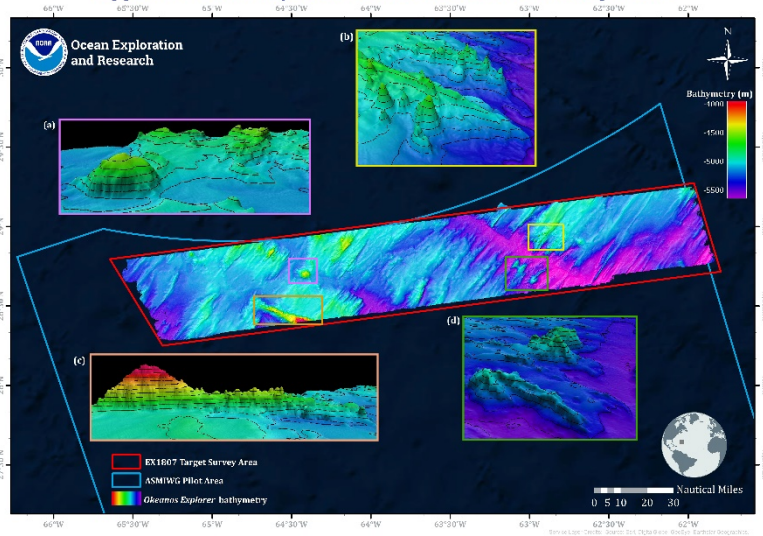
# Ocean Exploration in 2018

- **Windows to the Deep 2018 Mapping (EX1805):** First *Okeanos Explorer* expedition contributing to ASPIRE and mapping data led to the discovery of deep-sea coral and sponge habitat (EX1806 and DEEP SEARCH 2018 discoveries).
- **Windows to the Deep 2018 ROV (EX1806):** Revealed one of the largest areas of deep-sea coral habitat that has been discovered in U.S. waters to date along the numerous mounds on the Stetson Mesa offshore of Florida and Georgia.



# Ocean Exploration in 2018

EX1807 Mapping Deepwater Areas Southeast of Bermuda in Support of the Galway Statement on Atlantic Ocean Cooperation



- **Mapping Deepwater Areas Southeast of Bermuda (EX1807):** First expedition contributing to Galway and leveraged international partnerships to conduct coordinated exploration and mapping of priority high-seas areas of the North Atlantic and hosted two international visiting scientists on NOAA Ship *Okeanos Explorer*.



- **DEEP SEARCH 2018:** Discovered approximately 85 linear miles of discontinuous Lophelia coral reef approx. 160 miles off the coast of Charleston, SC.
- **SUBSEA:** Successful NASA-NOAA-OET partnership expedition.

# WWII Marine Archaeology From FY17 FFO

- **March 25 – April 14: Storming the beaches of Peleliu**  
For the first time the amphibious landing approaches were explored to locate crafts lost in the bloodiest first day of battle of the entire WWII Pacific campaign.
- **July 11 – 30: Kiska: Alaska's underwater battlefield**  
Discovery of WWII Allied and Japanese war casualties including the Stern of the American destroyer USS *Abner Read*. Conducted by Scripps and Project Recover using Office of Naval Research mine hunting technology.
- **July 19 – August 31: Aviators Down**  
Supporting Thunder Bay National Marine Sanctuary to discover aircrafts lost during advanced combat training over Lake Huron in WWII by pilots from the African-American Army Air Corps (Tuskegee airmen) and pilots of the Free French Air Force.



*Nearly intact bulldozer off Peleliu's Orange beach*



*5-inch gun turret on the USS Abner Read.*



*The P-40F Warhawk, built by Curtiss-Wright Corporation, was the first fighter aircraft flown by Tuskegee airmen training in Michigan.*

# Major Findings, Major Media Coverage

- Strong communications partnerships contributed to extensive media coverage on recent discoveries.





# Major Findings, Major Media Coverage

- **Kiska: Alaska's Underwater Battlefield**
  - On July 17, 2018: Discovered the missing 75- foot stern section of USS Abner Read off the Aleutian island of Kiska.
  - Worked with communications partners from University of Delaware, Scripps Institution of Oceanography, and Naval History and Heritage Command to coordinate a joint press release.
  - Result was media coverage by Washington Post, CNN, CBS, Business Insider, Gizmodo, Daily Mail, and more.



# Major Findings, Major Media Coverage

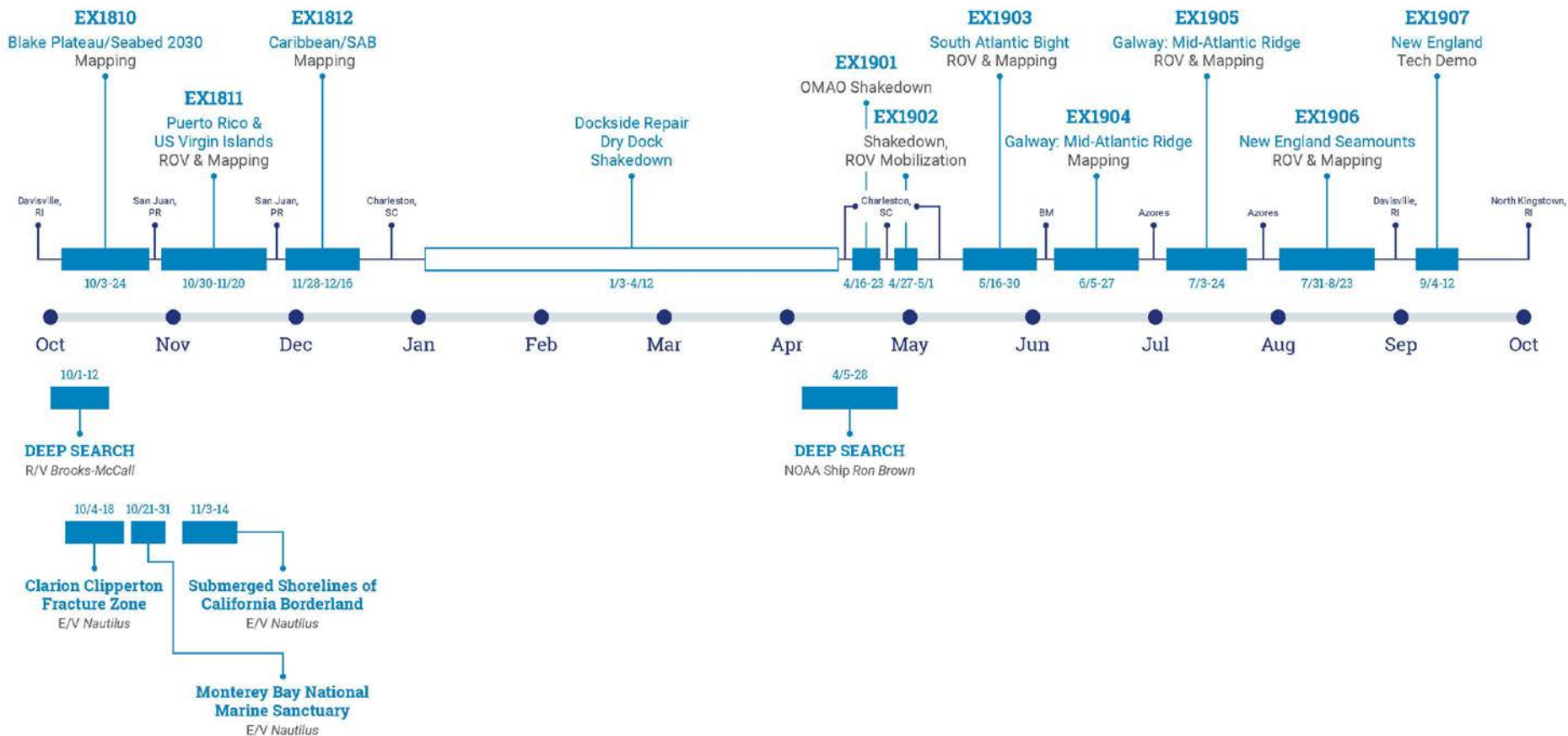
- **DEEP SEARCH 2018**

- August 23 and 24, 2018: Discovered approximately 85 linear miles of discontinuous *Lophelia* coral reef approx. 160 miles off the coast of Charleston, SC.
- Worked with BOEM and USGS communications/media partners to respond to influx of media requests and developed web content for use by media outlets.
- Result was media coverage by Washington Post, CNN, NBC, Huffington Post, Live Science, Forbes, Coastal Living, and more.



# Technology Demonstrations aboard the EX

- **EX1802**
  - Silixa and Navy partnership: tested new temperature profiling and acoustic array acquisition methods using fiber optic sensing
  - CIOERT and Harbor Branch Oceanographic Institute, Florida Atlantic University partnership: testing of a midwater profiler system
- **EX1809 (Rescheduled)**
  - National Geographic partnership: planned tests of low light drop cameras
  - URI and Harvard partnership: planned dives of low light midwater platform with unique sampling technology
  - Naval Oceanography Mine Warfare Center and Kraken partnership/CRADA: planned to conduct AUV ops with a Kraken 3 cm resolution Synthetic Aperture Sonar (SAS) on a Navy REMUS 100
- **FY19:** Signed CRADA with Open Water Power (L3) to demonstrate their aluminum fuel cell technology on a future expedition.



Last Updated: 9/13/18

# FY18 FFO Update: Ten FY18 Projects

- Paleolandscapes and the ca. 8,000 BP shoreline, Gulf of Mexico, outer continental shelf  
Amanda Evans - Coastal Environments, Inc.  
Budget: \$596,424
- Microbial stowaways: Exploring shipwreck microbiomes in the deep Gulf of Mexico  
Leila. J. Hamdan - University of Southern Mississippi  
Budget: \$637,469
- Advances in deep sea sampling with soft robotics  
Stephen Licht - University of Rhode Island  
Budget: \$91,021
- Development of innovative techniques for exploring novel submarine springs on the Florida OCS  
Emily R. Hall - Mote Marine Laboratory  
Budget: \$257,442
- Optical sensing of ocean gases using photothermal interferometry  
Anna Michel - Woods Hole Oceanographic Institution  
Budget: \$397,948

# FY18 FFO Update: Ten Projects (cont.)

- Exploration of the deep ocean with teams of long-endurance ocean robots  
Michael V. Jakuba - Woods Hole Oceanographic Institution  
Budget: \$597,212
- From aggregations to individuals: Exploring migrating deep sea scattering layers through multiscale-multimode technologies in the Gulf of Mexico  
Kevin M. Boswell - Florida International University  
Budget: \$590,110
- Combining habitat suitability and physical oceanographic models for targeted discovery of new benthic communities on the west Florida slope  
Sandra Brooke - Florida State University  
Budget: \$426,316
- Exploration and characterization of fine-scale physical-biogeochemical environment over deep coral reefs on the west Florida slope using integrated ROV-lander-sensor systems  
Zhaohui Aleck Wang - Woods Hole Oceanographic Institution  
Budget: \$469,003
- Advancing eDNA as a tool for exploration in deep water environments  
Jill McDermott - Lehigh University  
Budget: \$596,424

**Total amount: \$4.66 million**

# FY19 FFO Update

- Internal review of blue economy-focused FFO pre-proposals complete
- 75 pre-proposals submitted
- The internal review of FY19 pre-proposals is complete. Decision to encourage 35 full proposals
- PIs received “encourage” notification letters on 24 September; discourage letters to be sent in early October

# Other OER Updates

- Cooperative Institute on Ocean Exploration: applications due in October; expect award in 2019
- ASPIRE Priorities Workshop 15-16 November
- Executive Order 13817: OER continues to be actively involved in NOAA's response to Executive Order 13817. Expect role a for NOAA in implementing.
- Education review – implementation phase to begin following OEAB review of report



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**Ocean Exploration  
and Research**