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**Project Instructions**

**Date Submitted:**

**Platform:** NOAA Ship *Okeanos Explorer*

**Project Number:** EX-15-02 Leg III

**Project Title:** Caribbean TBD

**Project Dates:**  **Leg III** (ROV, Mapping, CTD) April 9 – April 30, 2015

Prepared by: Brian Kennedy, NOAA

Expedition Coordinator

Office of Ocean Exploration & Research

Approved by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Dated: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

John Mcdonough

Deputy Director

Office of Ocean Exploration & Research

Approved by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Dated: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Captain Anne K. Lynch, NOAA

Commanding Officer

Marine Operations Center - Atlantic

1. **OVERVIEW**

**A. Brief Summary and Project Period**

NOAA’s *Okeanos Explorer* systematically explores the ocean every day of every cruise to maximize public benefit from the ship’s unique capabilities. With 95% of the ocean unexplored, we pursue every opportunity to map, sample, explore, and survey at planned destinations as well as during transits; “Always Exploring” is a guiding principle. An integral element of *Okeanos Explorer*’s “Always Exploring” model is the ship’s seafloor and water column mapping capabilities. All three mapping sonars (EM 302, EK 60, Knudsen sub-bottom) are operational on all transit cruises for 24-hour seabed, water column, and sub-bottom data collection and selected processing.

This document contains project instructions for EX-15-02 Leg III, which is a telepresence-enabled ROV and mapping exploration cruises. Operations for Leg III are expected to commence on April 9, 2015 in San Juan, Puerto Rico and conclude on April 30 in San Juan, Puerto Rico. ROV dives will mostly be conducted during the day, while CTD casts, and multibeam, singlebeam, and sub-bottom acoustic mapping will occur when the ROV is on deck. This will be the first cruise to plan on conducting ROV operations 12 hours a day. Exploration operations will focus in the US EEZ surrounding Puerto Rico and the US Virgin Islands.

Requests for information on priority exploration areas in 2013 at the Caribbean Basin Workshop resulted in general interest for exploration of the Puerto Rico Trench and nearby areas. At the time of writing of this draft (January 21, 2015), identification of discrete ROV exploration targets was still in development; however, operations will focus in the areas highlighted in figure 1.

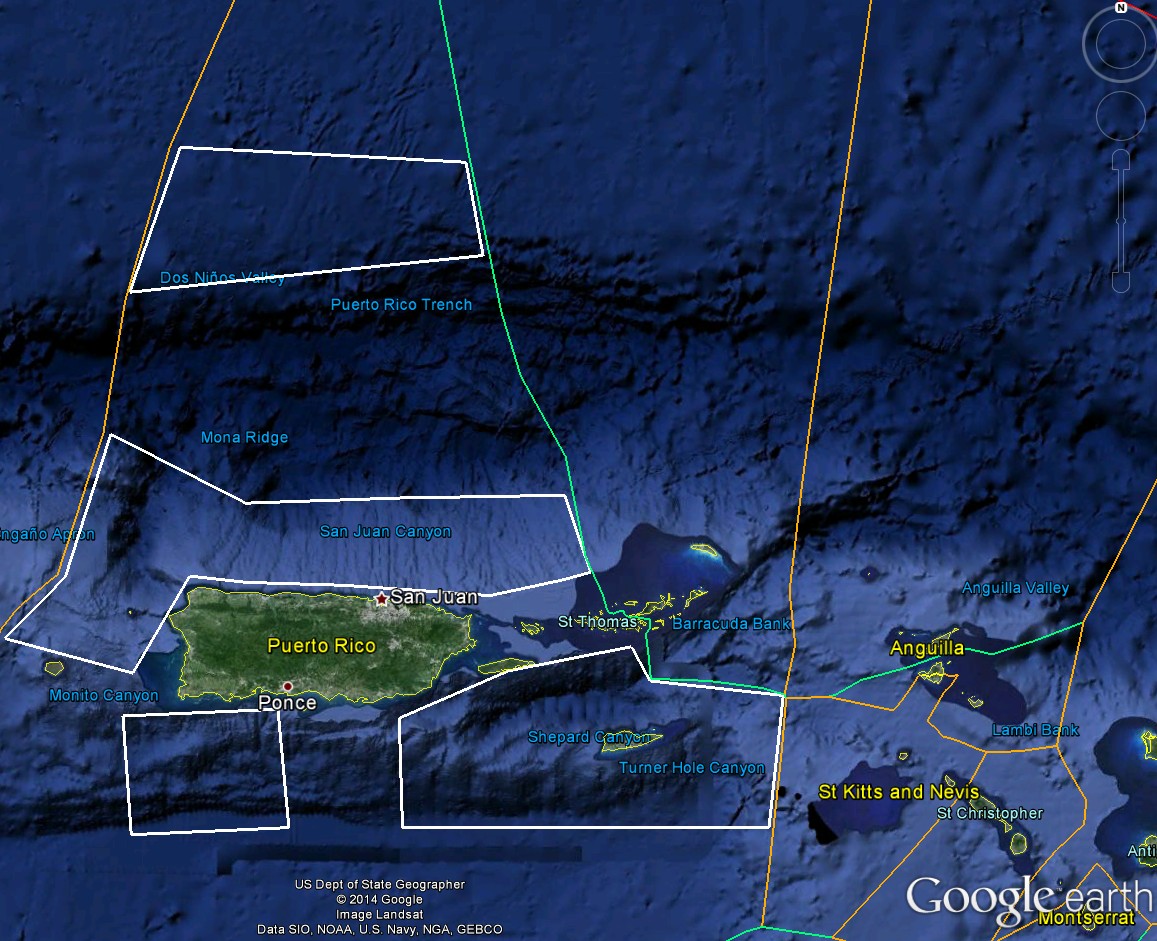
**B. Days at Sea (DAS)**

Leg III:

Of the 22 DAS scheduled for this project, 22 DAS are funded by an OMAO allocation for FY15, 0 DAS are funded by a Line Office Allocation, 0 DAS are Program Funded, and 0 DAS are Other Agency funded. This project is estimated to exhibit a High Operational Tempo due to daily ROV operations, nighttime mapping, and possible evening CTD work.

**C. Operating Area**

The 2015 “Caribbean” Expedition will focus on the Puerto Rico Trench and nearby areas. The daily schedule for the cruise cruises will usually be split between daytime ROV operations and nighttime CTD and mapping operations. ROV operations will focus in depths >500m and will include high-resolution visual surveys. Mapping operations will include overnight sub-bottom data collection over key features, multibeam data collection, and water column backscatter data.

  
Figure 1: Approximate operating area of *Okeanos Explorer* for EX-14-02-Leg III. The white polygons are the possible operations area for Leg III. The multi colored lines denote the approximate locations of the EEZ boundaries. Figure produced in Google Earth Pro.

**D. Summary of Objectives**

**Leg III: April 9-30 (San Juan to San Juan, RR) Telepresence-enabled ROV cruise with mapping and CTD operations**

EX-15-02 Leg III operations will focus on the Puerto Rico Trench and nearby areas. The primary goals for this cruise include collecting baseline-characterization data of poorly known areas in the US EEZ in and around Puerto Rico and the US Virgin Islands. This will be the first cruise to plan on 12hour a day ROV operations.

Mission objectives for EX-15-02 Legs III include a combination of operational, science, education, outreach, and data management objectives:

1. Science
   1. Identify and explore the diversity and distribution of benthic habitats and features in the region (e.g., deep corals and related benthic ecosystems, canyons, and seamounts)
   2. Ground-truth acoustic data using video imagery and characterize associated habitat
   3. Collect baseline data for the areas visited
   4. Create and provide input into standard science products
2. Remote Science/Exploration Command Centers
   1. Test and refine ship-to-shore communications and operations procedures that engage multiple ECCs and other remote participants
   2. Test and refine operating procedures and products
   3. Engage a broad spectrum of the scientific community and public in telepresence-based exploration
3. ROV
   1. Integrate ROV into ship systems
      1. Connect .68 cable to ROVs
      2. Test all ROV systems while alongside
      3. Possibly conduct alongside ROV dive
      4. Conduct ROV launch and recovery training for new crew members
      5. Test USBL alongside
   2. Daytime ROV dives on exploration targets
   3. Ongoing training of pilots
   4. Ongoing system familiarization, documentation, and training.
   5. Test new ROV sub systems
   6. Assess the feasibility of daily 12 hour ROV dives
4. Telepresence (VSAT 20 mb/sec ship-to-shore; 2 mb/sec shore-to-ship)
   1. Turn on and test terrestrial and high-speed satellite links
   2. Support telepresence-enabled ROV expedition
   3. Collect/create all standard video products
   4. Evaluate newly purchased video encoders
   5. Facilitate live outreach events between ship and shore
   6. Test new WOWZA servers at the Inner Space Center
   7. Take new B-roll shots of the ship from a small boat
   8. Assess the feasibility of daily 12 hour ROV dives
   9. Configure VES03 to assist with video compression as needed
   10. Modify SOPs to use VES 02 and VES03 in parallel to handle increased video data from extended dives.
5. Mapping
   1. Collect high resolution mapping data from all three sonars
   2. Support ROV operations with mapping products and expertise
   3. Conduct mapping operations during transit, with possible further development of exploration targets
   4. Collect XBT cast at regular intervals no longer than 3-4 hours, as data quality requires, during mapping operations
   5. Create daily standard mapping products
   6. Collection sun photometer measurement as part survey for opportunity
6. CTD operations
   1. Conduct CTD cast for comparison to ROV CTDs if needed
   2. Conduct CTDs with water sample collection as requested after ROV dives
7. Data Management
   1. Train new data engineer/intern
   2. Provide a foundation of publicly accessible data and information products to spur further exploration, research, and management activities, as detailed in the 2013 post-cruise product list
   3. Provide daily products to shore for operational decision making purposes, as detailed in the 2013 field products list
   4. Continue to test the ability to record high definition video footage of a dive onboard the ship
8. Outreach
   1. Engage the general public in ocean exploration through live video and timely content posted on the Ocean Explorer website
   2. Host live events with information science centers
   3. Host live events with VIPs

**E. Participating Institutions**

National Oceanic and Atmospheric Administration (NOAA), Office of Ocean Exploration and Research (OER)–1315 East-West Hwy, Silver Spring, MD 20910 USA

NOAA, National Oceanographic Data Center, National Coastal Data Development Center, Stennis Space Center MS, 39529

NOAA, Office of Coast Survey, Hydrographic Surveys Division, Atlantic Hydrographic Branch, 439 W. York St., Bldg 2, Norfolk, VA 23510

University Corporation for Atmospheric Research Joint Office for Science Support (JOSS), PO Box 3000 Boulder, CO 80307 USA

University of New Hampshire (UNH) Center for Coastal and Ocean Mapping (CCOM) Jere A. Chase Ocean Engineering Lab, 24 Colovos Road, Durham, NH 03824 USA

The University of Texas at Austin, John A. and Katherine G. Jackson School of Geosciences, Institute for Geophysics, J.J. Pickle Research Campus, Building 196 (ROC), 10100 Burnet Road (R2200), Austin, TX 78758-0999 USA

University of Rhode Island, Graduate School of Oceanography’s Inner Space Center, 215 South Ferry Rd. Narragansett, RI 02882 USA

**F. Personnel (Mission Party)**

Partial mapping teams are necessary for Leg II. Leg III will have a normal ROV cruise mapping staff. Required mission personnel for Leg II include a mapping lead and full ROV team. Required mission personnel for Leg III include a mapping lead and one qualified watchstander and full ROV team.

**Table 1: Leg III—Full list of the mission party members and their affiliations**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Name**  **(Last, First)** | **Title** | **Date Aboard** | **Date Disembark** | **Gender** | **Affiliation** | **Nationality** |
| Kennedy, Brian | Expedition Coordinator |  |  | M | NOAA OER | USA |
| Sowers, Derek | Mapping Team Lead |  |  | M | NOAA OER  (ERT Inc) | USA |
| Reser, Brendan | Data Lead |  |  | M | NOAA NCDDC (DGIT) | USA |
| Drewniak, Jared | Video Lead |  |  | M | NOAA OER  (ERT Inc) | USA |
| TBD Scientist |  |  |  |  |  |  |
| TBD Scientist |  |  |  |  |  |  |
| Bingham, Brian | Dive Supervisor |  |  | M | UCAR | USA |
| Wright, Dave | ROV Engineer |  |  | M | UCAR | USA |
| Williams, Jeff | ROV Engineer |  |  | M | UCAR | USA |
| Mohr, Bobby | ROV Engineer |  |  | M | UCAR | USA |
| Lanning, Jeff | ROV Engineer |  |  | M | UCAR | USA |
| McLetchie, Karl | ROV Engineer |  |  | M | UCAR | USA |
| Gregory, Todd | Assistant Dive Supervisor |  |  | M | UCAR | USA |
| Ritter, Chris | ROV Engineer |  |  | M | UCAR | USA |
| Carlson, Joshua | ROV Engineer |  |  | M | UCAR | USA |
| Rogers, Dan | ROV Engineer |  |  | M | UCAR | USA |
| Howard, Art | ROV Engineer |  |  | M | UCAR | USA |
| Brian, Roland | ROV Engineer |  |  | M | UCAR | USA |
| TBD Data intern | ROV Engineer |  |  |  | UCAR | USA |
| Weller, Erin | Mapping Watch Lead |  |  | F | AHB | USA |

**Table 2: Leg III—Shore-based participants**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Last Name** | **First Name** | **Organization** | **Area of interest or expertise.** | **Location** |
| Martinez | Catalina | NOAA OER | Shore-side Ops | ISC |
| Cantwell | Kasey | NOAA OER (20/20) | Web Coordinator | SS ECC |
| Graddy | Sarah | NOAA OER (20/20) | PR specialist | SS ECC |
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**G. Administrative**

## Points of Contact:

*Ship Operations*

|  |  |
| --- | --- |
| Marine Operations Center, Atlantic (MOA)  439 West York Street  Norfolk, VA 23510-1145 Telephone: (757) 441-6776  Fax: (757) 441-6495 | Chief, Operations Division, Atlantic (MOA)  LT Laura Gibson, NOAA  Telephone: (757) 441-6842  E-mail: Chiefops.MOA@noaa.gov |
|  |  |

### *Mission Operations*

|  |  |
| --- | --- |
| LT Brian Kennedy  Expedition Coordinator  NOAA Office of Ocean Exploration  and Research  Phone : (401) 874-6150/ (706) 540-2664  E-mail : [Brian.Kennedy@noaa.gov](mailto:Brian.Kennedy@noaa.gov)  Derek Sowers  Mapping Lead  NOAA Office of Ocean Exploration  and Research (ERT)  Phone :  E-mail : [Lindsay.Mckenna@noaa.gov](mailto:Lindsay.Mckenna@noaa.gov)  Jared Drewniak,  Telepresence Lead  NOAA Office of Ocean Exploration & Research (ERT)  Phone: (401) 874-6250 (o) / (401) 330-9662 (c)  Email: [jared.drewniak@noaa.gov](mailto:jared.drewniak@noaa.gov) | CDR Mark Wetzler, NOAA  Commanding Officer  NOAA Ship *Okeanos Explorer*  Phone: (401) 378-8284  Email: [CO.Explorer@noaa.gov](mailto:CO.Explorer@noaa.gov)  LT Emily Rose, NOAA  Operations Officer  NOAA Ship *Okeanos Explorer*  Phone: (808) 659-9197 (Ship’s Iridium)  E-mail: [Ops.Explorer@noaa.gov](mailto:Ops.Explorer@noaa.gov)  Dave Lovalvo  Engineering Group Lead  NOAA Office of Ocean Exploration  and Research (ERT)  Phone : (401) 874-6150/ (706) 540-2664  E-mail :[david.lovalvo@noaa.gov](mailto:david.lovalvo@noaa.gov) |

***Other Mission Contacts***

|  |  |
| --- | --- |
| John McDonough, Acting Director  NOAA Ocean Exploration & Research  Phone: (301) 734-1023 / (240) 676-5206  E-mail: John.McDonough@noaa.gov | Jeremy Potter, Expeditions Director  NOAA Ocean Exploration and Research  Phone: (301) 734-1145 / (240) 215-7101  Jeremy.Potter@noaa.gov |
|  |  |

Vessel shipping address:

*Shipments:*

Send an email to the *Okeanos Explorer* Operations Officer at [OPS.Explorer@noaa.gov](mailto:OPS.Explorer@noaa.gov) indicating the size and number of items being shipped.

Items sent to Rhode Island should arrive at the below address prior to **COB February 16, 2015**.

NOAA Ship *Okeanos Explorer*  
2578 Davisville Rd.   
North Kingstown, RI 02852

Items sent to San Juan should arrive at the below address prior to **COB April 7, 2015**. Please note items send to Puerto Rico may be subject to customs inspection which will delay delivery.

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1. Diplomatic Clearances  
     
   None Required.
2. Licenses and Permits  
     
   See Appendix C for categorical exclusion documentation.
3. **OPERATIONS**

The Expedition Coordinator is responsible for ensuring the scientific staff are trained in planned operations and are knowledgeable of project objectives and priorities. The Commanding Officer is responsible for ensuring all operations conform to the ship’s accepted practices and procedures.

1. **Project Itinerary** *(All times and dates are subject to prevailing conditions and the discretion of the Commanding Officer)*

**Table 3: Leg III Detailed Itinerary**

|  |  |  |
| --- | --- | --- |
| **Date** | **Activity** | **Notes and Requirements** |
| 4/3/15 | ROV Team Arrives | The ROV team will start to arrive and move on to the ship as soon as leg 2 personnel depart. Crane and deck depart support required. |
| 4/4/15 | ROV mobilization | The ROV team will start to un pack ROV equipment and testing equipment |
| 4/5/15 | ROV set up and testing | ROV team will set up equipment and test systems |
| 4/6/15 | ROV set up and testing and additional mission personal start arriving | ROV team will set up equipment and test systems |
| 4/7/10 | Possible Outreach event day | TBD but we would like to do some tours with school groups VIPs and Media |
| 4/8/15 | Final preparations for departure | Train new mission personnel and possibly conduct a pier side practice launch and recovery. |
| 4/9/15 | Depart San Juan | Depart and transit. Possibly conduct a half day engineering dive |
| 4/10/15 | Dive 1 | Normal ROV Operations followed by CTD and mapping operations. |
| 4/11/15 | Dive 2 | Normal ROV Operations followed by CTD and mapping operations. |
| 4/12/15 | Dive 3 | Normal ROV Operations followed by CTD and mapping operations. |
| 4/13/15 | Dive 4 | Normal ROV Operations followed by CTD and mapping operations. |
| 4/14/15 | Dive 5 | Normal ROV Operations followed by CTD and mapping operations. |
| 4/15/15 | Dive 6 | Normal ROV Operations followed by CTD and mapping operations. |
| 4/16/15 | Dive 7 | Normal ROV Operations followed by CTD and mapping operations. |
| 4/17/15 | Dive 8 | Normal ROV Operations followed by CTD and mapping operations. |
| 4/18/15 | Dive 9 | Normal ROV Operations followed by CTD and mapping operations. |
| 4/19/15 | Dive 10 | Normal ROV Operations followed by CTD and mapping operations. |
| 4/20/15 | Dive 11 | Normal ROV Operations followed by CTD and mapping operations. |
| 4/21/15 | Dive 12 | Normal ROV Operations followed by CTD and mapping operations. |
| 4/22/15 | Dive 13 | Normal ROV operations followed by transit mapping. |
| 4/23/15 | Dive 14 | Normal ROV operations followed by transit mapping. |
| 4/24/15 | Dive 15 | Normal ROV operations followed by transit mapping. |
| 4/25/15 | Dive 16 | Normal ROV operations followed by transit mapping. |
| 4/26/15 | Dive 17 | Normal ROV operations followed by transit mapping. |
| 4/27/15 | Dive 18 | Normal ROV operations followed by transit mapping. |
| 4/28/15 | Dive 19 | Normal ROV operations followed by transit mapping. |
| 4/29/15 | Dive 20 | Normal ROV operations followed by transit mapping. |
| 4/30/15 | Arrival San Juan | Arrival |
| 4/31/15 | Arrival San Juan | Secure ROVs for transit to the Pacific |

1. **Telepresence Events**
   1. TBD
2. **In-Port Events**
   1. TBD- the goal is to have a day for tours either before or after the cruise
3. **Staging and De-staging**
   1. The majority of the mobilization will take place before the ship leaves Rhode Island
   2. The ROV team will secure the ROV for transit to the pacific before leaving the ship
4. **Dive Plan**

All dives are to be conducted in accordance with the requirements and regulations of the NOAA Diving Program (<http://www.ndc.noaa.gov/dr.html>) and require the approval of the ship’s Commanding Officer. No SCUBA dives are currently planned for this cruise.

1. **Sonar Operations**

EM 302, EK 60, and sub-bottom profiler data acquisition is planned for this cruise. All data acquisition will be conducted in accordance with established standard operating procedures under the direction of the mapping team lead. The final decision to operate and collect 24-hour sub-bottom profiler data will be at the discretion of the Commanding Officer.

1. **Applicable Restrictions**

*NOT APPLICABLE TO THIS CRUISE*

1. **EQUIPMENT**
2. **Equipment and capabilities provided by the ship**

* Kongsberg Simrad EM302 MultibeamEchosounder (MBES)
* Kongsberg Simrad EK60DeepwaterEchosounder
* Knudsen Chirp 3260 Sub-bottom profiler (SBP)
* LHM Sippican XBT (Deep Blue probes)
* Seabird SBE 911Plus CTD
* Seabird SBE 32 Carousel and 24 2.5 L Niskin Bottles
* Light Scattering Sensor (LSS)
* Oxidation – Reduction Potential (ORP)
* Dissolved Oxygen (DO) sensor
* Altimeter Sensor and battery pack
* CNAV GPS
* POS/MV
* Seabird SBE-45 (Micro TSG)
* Kongsberg Dynamic Positioning-1 System
* NetApps mapping storage system
* CARIS HIPS Software
* IVS Fledermaus Software
* SIS Software
* Hypack Software
* Scientific Computing System (SCS)
* ECDIS
* Met/Wx Sensor Package
* Telepresence System
* VSAT High-Speed link (Comtech 20Mbps ship to shore; 1.54 Mbps shore to ship)
* Cruise Information Management System (CIMS)
* Two VoIP telephone lines

1. **Equipment and capabilities provided by the scientists**

* Microtops II Ozone Monitor Sunphotometer and handheld GPS required for NASA Marine Aerosols Network supplementary project.

1. **HAZARDOUS MATERIALS**
2. Policy and Compliance
3. Inventory
4. Chemical safety and spill response procedures
5. Radioactive Materials

*NOT APPLICABLE TO THIS CRUISE*

1. **ADDITIONAL PROJECTS**
2. **Supplementary Projects**

*NASA Maritime Aerosol Network*

During the cruise the marine aerosol layer observations will be collected for the NASA Maritime Aerosol Network (MAN). Observations will be made by mission personnel (mapping interns) with a sun photometer instrument provided by the NASA MAN program. Resulting data will be delivered to the NASA MAN primary investigator Alexander Smirnov by the expedition coordinator. All collected data will be archived and publically available at: <http://aeronet.gsfc.nasa.gov/new_web/maritime_aerosol_network.html>

Equipment resides on the ship and is stewarded by the Expedition Coordinator.

See Appendix D for full Survey of Opportunity Form.

1. **NOAA Fleet Ancillary Projects**

*NOT APPLICABLE TO THIS CRUISE*

1. **DISPOSITION OF DATA AND REPORTS**
2. **Data Responsibilities**

All data acquired on *Okeanos Explorer* will be provided to the public archives without proprietary rights.**All data management activities shall be executed in accordance with NAO 212-15, Management of Environmental and Geospatial Data and Information**

[<http://www.corporateservices.noaa.gov/ames/administrative_orders/chapter_212/212-15.html>].

##### Ship Responsibilities

The Commanding Officer is responsible for all data collected for missions until those data have been transferred to mission party designees. Data transfers will be documented on NOAA Form 61-29. Reporting and sending copies of project data to NESDIS (ROSCOP form) is the responsibility of OER.

##### NOAA OER Responsibilities

#### The Expedition Coordinator will work with the *Okeanos Explorer* Operations Officer to ensure data pipeline protocols are followed for final archive of all data acquired on *Okeanos Explorer*without proprietary rights. See Appendix B for detailed data management plans.

#### *Deliverables*

* 1. At sea
     + - Daily plans of the Day (POD)
       - Daily situation reports (SITREPS)
       - Daily summary bathymetry data files
       - Summary forms for each ROV dive
       - Summary forms for each CTD rosette casts
  2. Post cruise
     + - Refined SOPs for all pertinent operational activities
       - Assessments of all activities
  3. Science
* Multibeam and XBT raw and processed data (see appendix B for the formal cruise data management plan)
* EK 60 raw data
* Knudsen 3260 sub-bottom profiler raw data
* Mapping data report
* Cruise Report

#### *Archive*

* The Program and ship will work together to ensure documentation and stewardship of acquired data sets in accordance with NAO 212-15. The Cruise Information Management System is the primary tool used to accomplish this activity.

1. **Meetings, Vessel Familiarization, and Project Evaluations**
   1. **Shipboard Meetings**

Daily Operations Briefing meetings will be held at 1430 in the forward lounge to review the current day, and define operations, associated requirements, and staffing needs for the following day. A Plan of the Day (POD) will be posted each evening for the next day in specified locations throughout the ship. A safety brief and overview of POD will occur on the Bridge each morning at 0800. Daily Situation Reports (SITREPS) will be posted as well and shared daily through e-mail and/or the EX FTP site.

Pre-Project Meeting: The Expedition Coordinator and Commanding Officer will conduct a meeting of pertinent members of the scientific party and ship’s crew to discuss required equipment, planned operations, concerns, and establish mitigation strategies for all concerns. This meeting shall be conducted before the beginning of the project with sufficient time to allow for preparation of the ship and project personnel. The ship’s Operations Officer usually is delegated to assist the Expedition Coordinator in arranging this meeting.

Vessel Familiarization Meeting: The Commanding Officer is responsible for ensuring scientific personnel are familiarized with applicable sections of the standing orders and vessel protocols, e.g., meals, watches, etiquette, drills, etc. A vessel familiarization meeting shall be conducted in the first 24 hours of the project’s start and is normally presented by the ship’s Operations Officer.

Post-Project Meeting: The Commanding Officer is responsible for conducting a meeting no earlier than 24 hrs before or seven days after the completion of a project to discuss the overall success and short comings of the project. Concerns regarding safety, efficiency, and suggestions for future improvements shall be discussed and mitigations for future projects will be documented for future use. This meeting shall be attended by the ship’s officers, applicable crew, the Expedition Coordinator, and members of the scientific party and is normally arranged by the Operations Officer and Expedition Coordinator.

* 1. **Project Evaluation Report:**

Within seven days of the completion of the project, a Customer Satisfaction Survey is to be completed by the Expedition Coordinator. The form is available at <http://www.omao.noaa.gov/fleeteval.html> and provides a “Submit” button at the end of the form. Submitted form data is deposited into a spreadsheet used by OMAO management to analyze the information. Though the complete form is not shared with the ships, specific concerns and praises are followed up on while not divulging the identity of the evaluator.

1. **MISCELLANEOUS**
2. **Meals and Berthing**

Meals and berthing are required for twenty scientists. Meals will be served times times daily, beginning one hour before scheduled departure, extending throughout the cruise, and ending two hours after the termination of the cruise. Since the watch schedule is split between day and night, the night watch may often miss daytime meals and will require adequate food and beverages (for example a variety of sandwich items, cheeses, fruit, milk, juices) during what are not typically meal hours. Special dietary requirements for scientific participants will be made available to the ship’s command at least twenty-one days prior to the survey (e.g., Expedition Coordinator is allergic to fin fish). Berthing requirements, including number and gender of the scientific party, will be provided to the ship by the Expedition Coordinator. The Expedition Coordinator and Operations Officer will work together on a detailed berthing plan to accommodate the gender mix of the scientific party taking into consideration the current make-up of the ship’s complement. The Expedition Coordinator is responsible for ensuring the scientific berthing spaces are left in the condition in which they were received; for stripping bedding and linen return; and for the return of any room keys which were issued. The Expedition Coordinator is also responsible for the cleanliness of the laboratory spaces and the storage areas utilized by the scientific party, both during the cruise and at its conclusion prior to departing the ship.

All NOAA scientists will have proper travel orders when assigned to any NOAA ship. The Expedition Coordinator will ensure that all non-NOAA or non-Federal scientists aboard also have proper orders. It is the responsibility of the Expedition Coordinator to ensure that the entire scientific party has a mechanism in place to provide lodging and food and to be reimbursed for these costs in the event that the ship becomes uninhabitable and/or the galley is closed during any part of the scheduled project.

All persons boarding NOAA vessels give implied consent to comply with all safety and security policies and regulations which are administered by the Commanding Officer. All spaces and equipment on the vessel are subject to inspection or search at any time. All personnel must comply with OMAO's Drug and Alcohol Policy dated May 7, 1999 which forbids the possession and/or use of illegal drugs and alcohol aboard NOAA Vessels.

1. **Medical Forms and Emergency Contacts**

The NOAA Health Services Questionnaire (NHSQ, NF 57-10-01 (3-14)) must be completed in advance by each participating scientist. The NHSQ can be obtained from the Expedition Coordinator or the NOAA website <http://www.corporateservices.noaa.gov/noaaforms/eforms/nf57-10-01.pdf>.

All NHSQs submitted after March 1, 2014 must be accompanied by NOAA Form (NF) 57-10-02 - Tuberculosis Screening Document in compliance with OMAO Policy 1008 (Tuberculosis Protection Program).

The completed forms should be sent to the Regional Director of Health Services at the applicable Marine Operations Center. The NHSQ and Tuberculosis Screening Document should reach the Health Services Office no later than four weeks prior to the start of the project to allow time for the participant to obtain and submit additional information should health services require it, before clearance to sail can be granted. Please contact MOC Health Services with any questions regarding eligibility or completion of either form. Ensure to fully complete each form and indicate the ship or ships the participant will be sailing on. The participant will receive an email notice when medically cleared to sail if a legible email address is provided on the NHSQ.

The participant can mail, fax, or email the forms to the contact information below. Participants should take precautions to protect their Personally Identifiable Information (PII) and medical information and ensure all correspondence adheres to DOC guidance (<http://ocio.os.doc.gov/ITPolicyandPrograms/IT_Privacy/PROD01_008240>).

The only secure email process approved by NOAA is Accellion Secure File Transfer which requires the sender to setup an account. Accellion’s Web Users Guide is a valuable aid in using this service, however to reduce cost the DOC contract doesn’t provide for automatically issuing full functioning accounts. To receive access to a “Send Tab,” after your Accellion account has been established send an email from the associated email account to accellionAlerts@doc.gov requesting access to the “Send Tab” function. They will notify you via email, usually within one business day of your approval. The “Send Tab” function will be accessible for 30 days. Contact information:

Regional Director of Health Services  
Marine Operations Center – Atlantic  
439 W. York Street  
Norfolk, VA 23510  
Telephone (757) 441.6320  
Fax (757) 441.3760  
E-mail: [MOA.Health.Services@noaa.gov](mailto:MOA.Health.Services@noaa.gov)

Please make sure the [medical.explorer@noaa.gov](mailto:medical.explorer@noaa.gov) email address is cc’d on all medical correspondence.

Prior to departure, the Expedition Coordinator must provide a listing of emergency contacts to the Operations Officer for all members of the scientific party, with the following information: name, address, relationship to member, and telephone number.

Emergency contact form is included as Appendix A.

1. **Shipboard Safety**

Hard hats are required when working with suspended loads. Work vests are required when working near open railings and during small boat launch and recovery operations. Hard hats and work vests will be provided by the ship when required.

Wearing open-toed footwear or shoes that do not completely enclose the foot (such as sandals or clogs) outside of private berthing areas is not permitted. Steel-toed shoes are required to participate in any work dealing with suspended loads, including CTD deployments and recovery. The ship does not provide steel-toed boots. Hard hats are also required when working with suspended loads. Work vests are required when working near open railings and during small boat launch and recovery operations. Hard hats and work vests will be provided by the ship when required.

Operational Risk Management: For every operation to be conducted aboard the ship (NOAA-wide initiative), risk management procedures will be followed. For each operation, risks will be identified and assessed for probability and severity. Risk mitigation strategies/measures will be investigated and implemented where possible. After mitigation, the residual risk will have to be assessed to make Go-No Go decisions for the operations. Particularly with new operations, risk assessment will be ongoing and updated as necessary. This does not only apply to over-the-side operations, but to everyday tasks aboard the vessel that pose risk to personnel and property.

* CTD, ROV (and other pertinent) ORM documents will be followed by all personnel working onboard *Okeanos Explorer*.
* All personnel onboard are in the position of calling a halt to operations/activities in the event of a safety concern.

1. **Communications**

A daily situation report (SITREP) on operations prepared by the Expedition Coordinator will be relayed to the program office. Sometimes it is necessary for the Expedition Coordinator to communicate with another vessel, aircraft, or shore facility. Through various modes of communication, the ship is able to maintain contact with the Marine Operations Center on an as needed basis. These methods will be made available to the Expedition Coordinator upon request, in order to conduct official business. The ship’s primary means of communication with the Marine Operations Center is via e-mail and the Very Small Aperture Terminal (VSAT) link. Standard VSAT bandwidth at 5Mbps is shared by all vessels staff and the science team at no charge. Increased bandwidth in 30-day increments is available on the VSAT systems at increased cost to the scientific party. If increased bandwidth is being considered, program accounting is required it must be arranged at least 30 days in advance.

Specific information on how to contact NOAA Ship *Okeanos Explorer* and all other fleet vessels can be found at<http://www.moc.noaa.gov/MOC/phone.html#EX>

Important Telephone and Facsimile Numbers and E-mail Addresses

#### Ocean Exploration and Research (OER):

OER Program Administration:

Phone: (301) 734-1010

Fax: (301) 713-4252

E-mail: Firstname.Lastname@noaa.gov

#### University of New Hampshire, Center for Coastal and Ocean Mapping

Phone: (603) 862-3438

Fax: (603) 862-0839

#### NOAA Ship *Okeanos Explorer* - Telephone methods listed in order of increasing expense:

*Okeanos Explorer* Cellular: (401) 713-4114

*Okeanos Explorer* Iridium:(808) 659-9179

OER Mission Iridium (dry lab): (808) 851-3827

EX INMARSAT B

Line 1: 011-870-764-852-328

Line 2: 011-870-764-852-329

Voice Over IP (VoIP) Phone:

(301) 713-7785

(301) 713-7791

(301) 713-7792

E-Mail: [Ops.Explorer@noaa.gov](mailto:Ops.Explorer@noaa.gov) - (mention the person’s name in SUBJECT field)

[expeditioncoordinator.explorer@noaa.gov](mailto:expeditioncoordinator.explorer@noaa.gov) For dissemination of all hands emails by Expedition Coordinator while onboard. See ET for password.

1. **IT Security**

Any computer that will be hooked into the ship's network must comply with the NMAO Fleet IT Security Policy prior to establishing a direct connection to the NOAA WAN. Requirements include, but are not limited to:

1. Installation of the latest virus definition (.DAT) file on all systems and performance of a virus scan on each system.
2. Installation of the latest critical operating system security patches.
3. No external public Internet Service Provider (ISP) connections.

Completion of these requirements prior to boarding the ship is required.

Non-NOAA personnel using the ship's computers or connecting their own computers to the ship's network must complete NOAA’s IT Security Awareness Course within three days of embarking.

1. **Foreign National Guests Access to OMAO Facilities and Platforms**
2. Foreign National access to the NOAA ship or Federal Facilities is not required for this project.

**Appendix A**

**EMERGENCY DATA SHEET**

#### NOAA OKEANOS EXPLORER

#### Scientists sailing aboard the *Okeanos Explorer* should fill out the form found at the following link location: <https://docs.google.com/a/noaa.gov/forms/d/1pcoSgPluUVxaY64CM1hJ75l1iIYirTk48G-lv37Am_k/viewform>with their emergency contact information

**Appendix B:**

**Data Management Plan**

**Appendix C:Categorical Exclusion**

**Appendix D. NASA Maritime Aerosols Network Survey of Opportunity**

**Survey or Project Name**

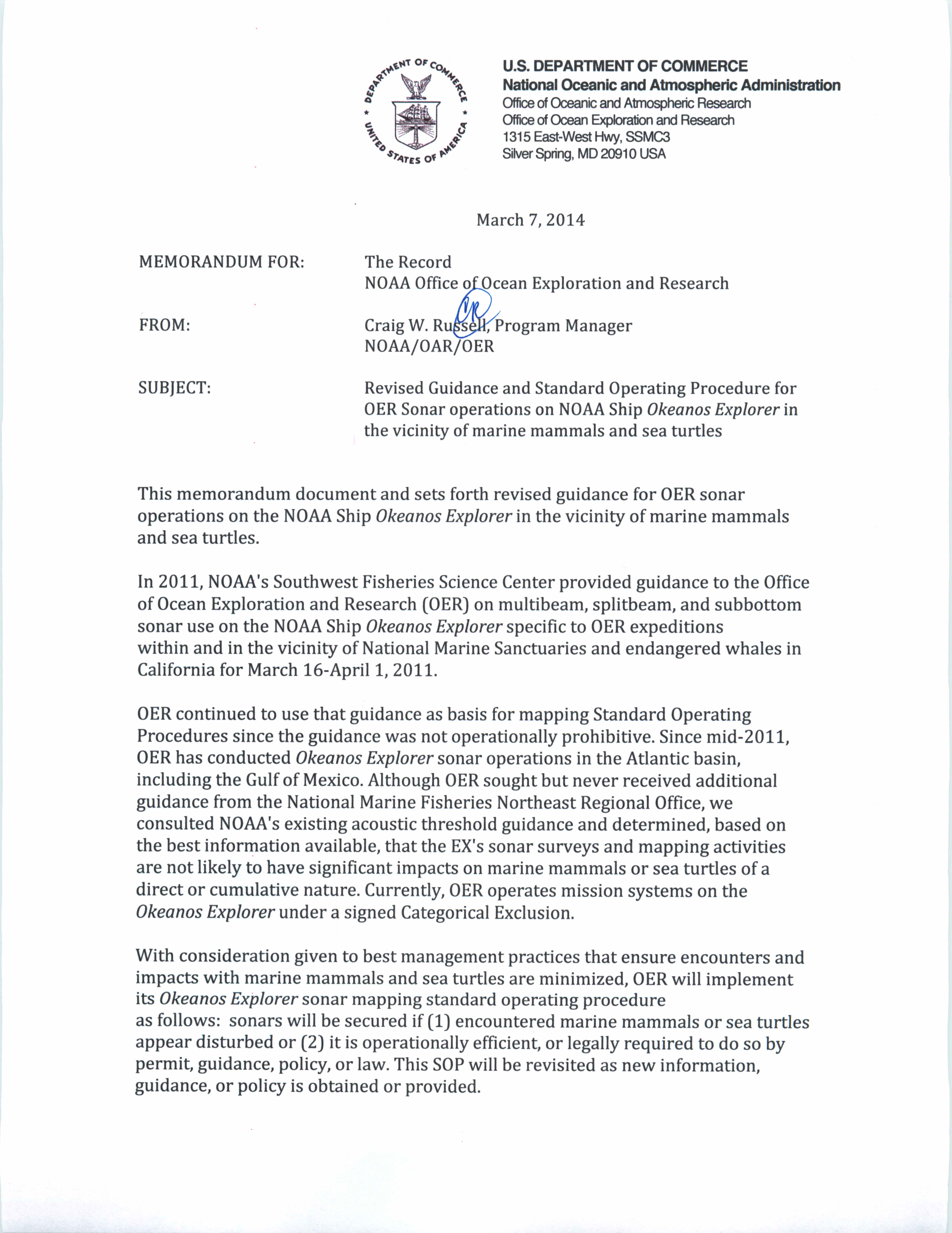
|  |
| --- |
| **Maritime Aerosol Network** |

**Points of Contact (POC)**

|  |  |
| --- | --- |
| *Lead POC or Principle Investigator (PI & Affiliation)* | *Supporting Team Members ashore* |
| **POC: Dr. Alexander Smirnov** | *Supporting Team Members aboard (if required)* |

**Activities Description(s)***(Include goals, objectives and tasks)*

|  |
| --- |
| **The Maritime Aerosol Network (MAN) component of AERONET provides ship-borne aerosol optical depth measurements from the Microtops II sun photometers. These data provide an alternative to observations from islands as well as establish validation points for satellite and aerosol transport models. Since 2004, these instruments have been deployed periodically on ships of opportunity and research vessels to monitor aerosol properties over the World Oceans.** |

**Appendix E: Memo for the Record on Sonars **