Appendix 2
NOAA Ship *Okeanos Explorer*
Target Identification and Scheduling Process

This document describes an open and participatory process for identifying targets for the new NOAA Ship *Okeanos Explorer* to systematically explore using its dedicated mission equipment: hull-mounted multibeam mapping system; 6,000m dual-body remotely operated vehicle (ROV); and broadband satellite communications and data transmission system. The selection of targets will provide the foundation for establishing the schedule and annual operating plan for the vessel.

Background

Commissioned in August 2008, the NOAA Ship *Okeanos Explorer* (*EX*) is the first NOAA ship designed specifically to carry out a global program of systematic ocean exploration. The mission of the *EX* is to investigate unknown and poorly known ocean areas and phenomena while engaging interdisciplinary teams of scientists to provide a comprehensive characterization of the areas being explored. The *EX* will be the first ship to operate under a new paradigm allowing multiple teams of scientists to lead expeditions from shore-based Exploration Command Centers, much like NASA executes expeditions to other planets. Using "telepresence" technology and a dedicated broadband satellite communications and data transmission system, data and information will be made widely available through Internet2 and Internet1 to scientists, educators, the media, and the general public. The mission is to "establish a sense of place," energizing participants to create follow-up projects and investigations that build on the results of initial exploration.

Guiding Principles

- The mission is exploration—not hypothesis driven research.
- The ship will operate as a node on a shore-based network, providing data and information including high-definition video in real-time to a wide variety of users.
- The ship will undertake three primary modes of operation:
  - site characterization—focused on a specific target with high discovery potential;
  - water column characterization—designed to: (1) improve ability to characterize water mass properties at sites; (2) improve ability to search for anomalies; (3) maximize operations during transits through poorly known deep water areas; and
  - reconnaissance—defined as searching an unknown area for an interesting anomaly and initiating site characterization.
- The ship and shore-based teams will provide data, information, and preliminary characterization products in a systematic, consistent manner.
- The data and information will be made accessible and widely distributed as soon as practical once an expedition has been concluded—no individual or institution will have proprietary ownership of the data.
- New equipment and capabilities will be periodically tested and evaluated in-terms of augmenting the mission of the ship.
- The expeditions will not be project driven—the results of exploration are intended to be used by a variety of users and to support multiple projects and programs.

Process

The following process for identifying targets and developing the annual schedule for the *EX* is designed to provide a forum for expert scientists from a variety of institutions, representatives from NOAA programs, and ship and mission equipment operators and technicians to reach consensus on priority targets and to develop a series of cruises to accomplish exploration objectives in an effective and efficient manner. The process is similar to and builds on the workshop process developed by the NOAA Ocean Exploration Advisory Working Group (OEAWG) that was held at the National Geographic Society in May 2007 to identify exploration targets in the Pacific Ocean for the inaugural field season for the *EX*.

1. OER and the OEAWG develop a solicitation for 2-page descriptions of potential targets within an ocean or major ocean sub-region. The solicitation is made to the science community, including NOAA programs. The solicitation requests detailed information, including the following elements:
   - name of geographic region;
   - target name if any (i.e., Mendocino Ridge);
   - bounding coordinates of operating area;
   - target description:
     - what is known about the target – geology, biology, oceanography, etc.;
     - discovery potential;
     - institutional need for information about the target area; and
     - reference information;
   - rationale for using the dedicated systems on the EX; and
   - institutions and programs that have a vested interest in the target area.

2. OER and the OEAWG review the descriptions and develop logical groupings as well as summary materials and tools to be used in the workshop. Workshop participants are identified who have expertise and interest in specific target areas. This includes experts in the science community and representatives of NOAA programs.

3. OER and the OEAWG host and facilitate the workshop, which has two primary objectives: (1) reach consensus on a priority set of targets; and (2) to develop a draft schedule and series of cruises. This includes the identification of contingency cruises.

4. OER prepares and submits the workshop report, the draft schedule, and a NOAA form 77-65 for each cruise to the NOAA Fleet Working Group. Note: the schedule will already represent the agreed upon priorities and will not exceed the ship days available. Therefore, there will be no need to provide "High, Medium, Low" priority rankings for each cruise. Furthermore, the schedule will already reflect operational feasibility given the involvement of OMAO, ship, and mission system operators in the workshop.

5. Piggyback efforts that do not interfere with the primary exploration mission of the *EX* can be considered. However, personnel involved in piggyback efforts must be able to work with the teams of shore-based scientists that will be managing the expeditions from the Exploration Command Centers.

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