Logic Model: NOAA Ocean Exploration Professional Development Offerings

NOAA OER Vision: A society that understands the importance of a healthy ocean to all life on Earth and is informed and inspired by discoveries that reveal the wonders, mysteries, and workings of the ocean.

NOAA OER Mission: Support National and NOAA objectives by exploring the Earth's largely unknown ocean in all its dimensions for the purpose of discovery and the advancement of knowledge, using state-of-the-art technologies in evolutionary and revolutionary ways.

NOAA OER Education Mission: Develop and sustain high-quality, effective collaborations between ocean explorers and America's educators in an effort to reach out in new ways to the public to enhance the literacy of learners with respect to ocean issues.

NOAA OE Professional Development Offering (PDO) Goal: The goal of OE Professional Development Offerings*, both onsite and online, is to increase professional educator understanding of and appreciation for deep-sea exploration and NOAA's discoveries, and improve their teaching about ocean science, exploration and discoveries.
    * PDOs include onsite and online *Okeanos Explorer* workshops, *Why Do We Explore?, How Do We Explore?* and *Exploring the Deep Ocean with NOAA (combined WDWE and HDWE).*

NOAA OE Professional Development Offering Objectives:
1. As a result of providing PDOs, OER will provide effective professional development in support of participants' professional development goals using lessons that are expressly tied to OER's ocean exploration missions, in an effort to bring ocean science and technology into classrooms.

2. As a result of participating in OER PDOs, participants will be introduced to cutting-edge exploration expeditions carried out by expert ocean explorers and technology that will engage them in creative and exciting ways to use the science and technology associated with exploring the world's ocean in their classrooms.

3. As a result of participating in OER PDOs, participants will exhibit an increased awareness of the importance of, and NOAA's role in, ocean exploration.

4. As a result of participating in OER PDOs, participants will exhibit greater confidence in their ability to teach ocean science and deep ocean exploration content to their students.

5. As a result of participating in OER PDOs, participants will become aware of the resources available on the Ocean Explorer Web site.

6. As a result of participating in OER PDOs, participates will be able to effectively use the OER professional development curricula, the OE Web site and other supporting resources in their instruction.

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Inputs	Outputs		Outcomes		
Resources *What we invest*	**Activities** *What we do*	**Participation** *Who we reach*	**Short-term** *KASA* (Acquire Knowledge, Attitudes, Skills, Aspirations)	**Intermediate** *Practice*	**Long-term** *SEE Conditions* (Social, Economic, Environmental)
Program Management Staff **Onsite:** **Funds** to Host Sites (Alliance partners) to provide staff time for WS preparation and mgmt, meals, presentation materials storage, equipment/resources, and to recruit participants, set-up room and materials for WSs, and to pay stipends for WS facilitators, speakers and teachers **Online:** **Funds** to support online host site and management **Ocean Explorers** – Scientists engaged in cutting edge exploration activities **Workshop materials, and curricula** **Ocean Explorer Web site** **Trained Facilitators w/instructional kits** **Onsite: Workshop presentation slide sets (content and lessons)** **Online: video presentations on key topics and lessons.**	Host two onsite workshops per year at 15 Alliance sites. Host one online PDO/yr During onsite and online workshops Facilitators will: • Introduce content related to ocean exploration and related discoveries. • Lead participants in trying out standards-based activities related to presented content. (onsite) • Introduce participants to NOAA OER's role in deep ocean discovery. • Discuss the value of ocean exploration. • Familiarize participants to Ocean Literacy Essential Participants and Fundamental Concepts (OLEPs and	Onsite: Alliance Partners Grade 6-12 teachers Informal educators Some elementary and pre-service teachers Online: TCOE Grades 6-12 teachers Informal educators Some elementary and pre-service teachers Some general public	Knowledge: PDO participants are introduced to new ocean science and technology content. PDO participants are introduced to lessons that support current national education standards. PDO participants are introduced to lessons that aligned with OLEPs and FCs. PDO participants are introduced to the OLEP and FCs. PDO participants become aware that the ocean is largely unexplored (OLEP 7). PDO participants increase their awareness of Ocean Explorer tools and resources (*Okeanos Explorer*, OER curricula/lessons, OE Web Site, Digital Atlas, RSS feeds, OceanAGE Careers). Participants increase their awareness of technologies required to explore the deep ocean. PDO participants increase their awareness of the value of ocean exploration. PDO participants increase their awareness of NOAA's role, and capabilities and assets to conduct ocean exploration. PDO participants are introduced (by OE) to premier	OER has developed and sustains high quality educator professional development workshops (onsite/online). Workshop participants incorporate materials into classroom instruction. During OE PDOs, participants practice doing ocean science and technology activities. Online: Participants are introduced to ocean science and technology activities. Participants identify how the lessons, materials and resources presented during workshops meet their local and national standards. Participants identify where OE materials fit into their teaching and how they will use OE resources to benefit their students. Participants identify ways to connect students to the work and lives of ocean scientists working with the *Okeanos Explorer* on the OE Web site Participants discuss and reflect about how presented content and materials can be adapted to fit the specific needs of their students.	Enhanced environmental literacy of the American citizenry. Sustained use of NOAA OE education materials in participant's classroom instruction.

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	FCs). • Demonstrate and discuss that the ocean is largely unexplored (OLEP 7). • Introduce and discuss the technologies employed to explore the deep ocean. • Introduce and explore ways to follow ocean exploration expeditions and discoveries, and access existing, new, or improved OE resources. • Guide reflections with participants about the ways OE tools, materials and resources can fit their curriculum, national and local standards, and address the needs of their students. • Introduce educators to premier ocean scientists/explorers and their research and exploration. • Increase Participant's ability to connect students to the work and lives of ocean		ocean scientists and explorers and their scientific endeavors. PDO participants indicate having acquired adequate knowledge to teach ocean science content to their students using OE education resources (OE Curricula, OE Website, RSS feeds, Tweets). Attitudes: PDO participants indicate greater confidence in their ability to teach ocean science content to their students using OE education resources (*Okeanos Explorer*, OER curricula/lessons, OE Website, RSS feeds, Tweets, OceanAGE Careers). PDO participants indicate the PDOs met their professional development goals. Skills: PDO participants report that they intend to use OE education tools and resources (*Okeanos Explorer*, OER curriculum/lessons, OE Website, OceanAge Careers) in their classrooms. Aspirations: PDO participants are motivated to continue professional development through OE PD offerings (workshops, online courses). PDO participants are motivated to incorporate more ocean science and technology into their classroom teaching.	OER staff facilitate development of, and sustain, effective interactions between educators and ocean explorers (via listserv notice re: expeditions, PDs, Ask an Explorer, Daily Logs, etc) Educators use OE resources to support and enhance student learning of ocean science, exploration and technology and related careers. (Tier 3 eval) After using OE materials, resources, and tools, PDO participants report student excitement about, engagement and interest in OE science, discoveries, technologies, tools, and careers. (Tier 3 eval) Educators implement OER PDO lessons with their students. (Tier 3 eval) Students demonstrate their learning about ocean science and ocean exploration. (Tier 3 eval) PDO participants intend to continue professional development through additional OE PD offerings. PDO participants intend to share their OE PDO experiences with colleagues. PDO participants indicate the PDOs enabled them to improve their students' learning about ocean science. PDO participants indicate they plan to integrate workshop materials into their	

	scientists through use of OE Web site. • Address different teaching and learning preferences and needs by providing a variety of options to engage with the content • Provide PD credit for participation via certificate. • Provide a venue through which educators from around the world can meet, view keynote addresses given by ocean explorers and interact with one another and with keynote speakers. (online only)			instruction.

Internal/External factors that may interact with and influence the project: Funding, Host, facilitator and Ocean Explorer availability, teacher/educator interest.