NOAA OE PDO Evaluation Plan

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 interactions 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.

> **Goal:** The **goal** of OE Professional Development Offerings* is to increase professional educator understanding of and appreciation for deep-sea exploration and NOAA's discoveries, and improve participating educator's instruction about ocean science, exploration and discoveries.
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> ** 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).

Objective 1: By supporting PDOs, OER will provide effective professional development to educators to encourage use of ocean exploration-based education materials and connections to authentic ocean science, technology and engineering in classrooms throughout the country.

Project Activities	Expected Outcomes	Indicators	Data Collection Methods (what)	Implementation of Assessment (when and who)
PDOs are hosted by Alliance Partners or online via a partnership with the College of Exploration.	OER has developed and sustains high quality, educator professional development workshops (onsite and online).	Each of 15 Alliance Partners hosts two PDOs annually Host one online workshop per year, budget dependent Workshops designed consistent with PD best practices	OE Management records PD best practices checklist	Annually; OE Staff Annually; Evaluators
	Participants indicate the PDOs met their professional development goals.	Positive responses on PDO assessments	Survey/questionnaire responses	Post PDOs; Participants
	PDO participants are motivated to incorporate more ocean science and technology into their classroom teaching.	Positive responses on PDO assessments	Survey/questionnaire responses	Post PDOs; Participants
	Educators incorporate/ implement materials into classroom instruction. **	Direct observation of instruction and implementation ** ID implemented lesson plans **	Classroom observations ** Review of lesson plans used **	Observations of randomly selected educators; Evaluators **
	Participants report that they intend to use OE education tools and resources (*Okeanos Explorer*, OER curricula/lessons, OE Website, OceanAGE Careers) in their classrooms.	Positive responses to PDO assessments	Survey/questionnaire responses	Post each WDWE and HDWE PDO; Participants

	Participants indicate the PDOs enabled them to improve their students' learning about ocean science.	Positive responses to PDO assessments	Survey/questionnaire responses	Post each Follow-up and during each HDWE PDO; Participants
	PDO participants are motivated to continue professional development through OE PD offerings (workshops, online courses).	Positive responses to PDO assessments	Survey/questionnaire responses	Post each PDO; Participants
	PDO participants intend to continue professional development through additional OE PD offerings	Positive responses to PDO assessments	Survey/questionnaire responses	Post each PDO; Participants
Facilitators introduce content related to ocean exploration and related discoveries.	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).	Positive responses to PDO assessments	Survey/questionnaire responses	Pre and post each PDO; Participants Online workshop post survey
	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).	Positive responses to PDO assessments	Survey/questionnaire responses	Pre and post each PDO; Participants Online workshop post survey
Facilitators lead participants in trying out standards-based activities related to presented content.	During OE PDOs, participants practice doing ocean science and technology activities. Online: Participants are	PDO Agenda content	Analysis of agenda content and onsite PDO summary forms	Annually; Evaluators and facilitators/OE staff

	introduced to ocean science and technology activities.			
Facilitators familiarize participants to Ocean Literacy Essential Principles and Fundamental Concepts (OLEPs and FCs).	Each presented lesson is aligned with OLEPs and FCs.	Presentation content Online workshop content	Analysis of Presentation content and PDO summary forms (onsite) Analysis of workshop content (online)	Annually; Evaluators and facilitators/OE staff
Facilitators discuss current national education standards.	Presented lessons support current national education standards.	PPT content Online workshop content	Analysis of PPT content and PDO summary forms (onsite) Analysis of workshop content (online)	Annually; Evaluators and facilitators/OE staff
Facilitators introduce and explore ways to follow ocean exploration expeditions and discoveries, and access existing, new, or improved OE resources	During OE PDOs, participants increase their awareness of Ocean Explorer tools and resources (*Okeanos Explorer*, OER curricula/lessons, OE Web site, Digital Atlas, RSS feeds, OceanAGE Careers).	PDO Agenda content Positive responses to PDO assessments	Analysis of agenda content and PDO summary forms Survey/questionnaire responses	Annually; Evaluators and facilitators/OE staff Post PDOs; participants
Facilitators guide reflections with participants about the ways OE tools, materials and resources address national and local standards	During OE PDOs, participants identify how the lessons, materials and resources presented during workshops meet their local and national standards.	Responses during guided reflections	Responses to onsite facilitator recorded on PDO summary form Review online discussion room and survey comments.	During each onsite PDO; participants responses summarized by facilitators Post online offering: evaluators
Facilitators guide reflections with participants about the ways OE materials and resources can fit their	During OE PDOs participants discuss and reflect about how presented content and materials can be adapted to fit the specific needs of their	Responses during guided reflections	Responses to facilitator recorded on PDO onsite summary form Review online discussion	During each PDO; participants responses summarized by facilitators Post online offering: evaluators

instruction and address the needs of their students	students.		room and survey comments.	
	During OE PDOs, participants identify where OE materials fit into their teaching and how they will use OE resources to benefit their students.	Responses during guided reflections	Responses to facilitator recorded on PDO summary form	During each PDO; participants responses summarized by facilitators

Objective 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 incorporate the science and technology associated with exploring the world's ocean in their classrooms.

Project Activities	Expected Outcomes	Indicators	Data Collection Methods	Implementation of Assessment
PDOs are hosted by Alliance Partners Or online via technology partners (TCOE)	OER has developed and sustains high quality educator professional development workshops (onsite/online).	Each of 15 Alliance Partners hosts an two PDOs annually Host one online workshop per year, budget dependent Workshops designed consistent with PD best practices	OE Management records PD best practices checklist	Annually; OE Staff Annually; Evaluators
	PDOs participants are introduced to ocean science and technology content.	Responses to PDO assessments PDO Agenda content	Survey/questionnaire responses Analysis of agenda content	Post PDOs; Participants Annually; Evaluators
Facilitators introduce and explore ways to follow ocean exploration expeditions and discoveries, and access existing, new, or improved OE resources	During OE PDOs, participants increase their awareness of Ocean Explorer tools and resources (*Okeanos Explorer*, OER curricula/lessons, OE Web site, Digital Atlas, RSS feeds, OceanAGE Careers).	PDO Agenda content Responses to PDO assessments	Analysis of agenda content and onsite PDO summary forms Survey/questionnaire responses	Annually; Evaluators and facilitators/OE staff Post PDOs; participants
Facilitators lead participants in trying out standards-based activities related to presented content	During OE PDOs, participants practice doing ocean science and technology activities. Online: Participants are	PDO Agenda content	Analysis of agenda content and PDO summary forms	Annually; Evaluators and facilitators/OE staff

	introduced to ocean science and technology activities.			
	After using OE materials, resources, and tools, PDO participants report student excitement about, engagement and interest in OE science, discoveries, technologies, tools, and careers.	Responses during guided reflections	Responses to facilitator recorded on onsite PDO summary form	During each Follow-up and HDWE PDO; participants responses summarized by facilitators
Facilitators introduce and discuss the technologies employed to explore the deep ocean	Participants increase their awareness of technologies required to explore the deep ocean.	Responses to PDO assessments	Survey/questionnaire responses Post online workshop survey	Pre/Post each onsite PDO; Participants Evaluators
Facilitators/OER staff introduce educators to premier ocean scientists and their research and exploration.	PDO participants are introduced (by OE) to premier ocean scientists and explorers and their scientific endeavors.	Listserv notifications of expeditions, PDs, Ask an Explorer, Daily Logs, etc.	Review listserv notification records, counts	Annually; OER Staff
Facilitators guide reflections with participants about the ways OE materials and resources can fit their instruction and address the needs of their students	During OE PDOs, participants discuss and reflect about how presented content and materials can be adapted to fit the specific needs of their students.	Responses during guided reflections	Responses to facilitator recorded on onsite PDO summary form	During each PDO; participants responses summarized by facilitators
	During OE PDOs, participants identify where OE materials fit into their instruction and how they will use OE resources to benefit their students.	Responses during guided reflections	Responses to facilitator recorded on PDO summary form	During each PDO; participants responses summarized by facilitators

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

Project Activities	Expected Outcomes	Indicators	Data Collection Methods	Implementation of Assessment
PDOs are hosted by Alliance Partners Or online via technology partners (TCOE)	OER has developed and sustains high quality educator professional development workshops (onsite/online).	Each of 15 Alliance Partners hosts two PDOs annually Host one online workshop per year, budget dependent Workshops designed consistent with PD best practices	OE Management records PD best practices checklist	Annually; OE Staff Annually; Evaluators
Facilitators demonstrate and discuss that the ocean is largely unexplored (OELP 7)	Participants become aware that the ocean is largely unexplored (OLEP 7).	Responses to PDO assessments	Survey/questionnaire responses	Pre/Post PDOs; Participants
Facilitators discuss the value of deep ocean exploration	Participants increase their awareness of the value of ocean exploration.	Responses to PDO assessments	Survey/questionnaire responses	Pre/Post PDOs; Participants
Facilitators introduce participants to NOAA OER's role in, and capabilities and assets to conduct deep ocean discovery	Participants increase their awareness of NOAA's role in, and capabilities and assets to conduct ocean exploration.	Responses to PDO assessments	Survey/questionnaire responses	Pre/Post PDOs; Participants

Objective 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.

Project Activities	Expected Outcomes	Indicators	Data Collection Methods	Implementation of Assessment
PDOs are hosted by Alliance Partners Or online via technology partners (TCOE)	OER has developed and sustains high quality, educator professional development workshops (onsite/online)	Each of 15 Alliance Partners hosts two PDOs annually Host one online workshop per year, budget dependent Workshops designed consistent with PD best practices	OE Management records PD best practices checklist	Annually; OE Staff Annually; Evaluators
	PDO participants are motivated to incorporate more ocean science and technology into their classroom teaching.	Responses to PDO assessments	Survey/questionnaire responses	Post PDOs; Participants
	Educators incorporate/ implement materials into classroom instruction. **	Direct observation of instruction and implementation ** ID implemented lesson plans **	Classroom observations ** Review of lesson plans used **	Observations of randomly selected educators; evaluators **
Facilitators introduce content related to ocean exploration and related discoveries	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,	Positive responses to PDO assessments	Survey/questionnaire responses	Pre and post PDOs; Participants

	Tweets, OceanAGE Careers).			
	Participants indicate having acquired adequate knowledge to teach ocean science content to their students.	Positive responses to PDO assessments	Survey/questionnaire responses Post online workshop survey	Pre and post PDOs; Participants Evaluators
Facilitators lead participants in trying out standards-based activities related to presented content	During OE PDOs, participants practice doing ocean science and technology activities. Online: Participants are introduced to ocean science and technology activities.	PDO Agenda content	Analysis of agenda content and PDO summary forms	Annually; Evaluators and facilitators/OE staff
Facilitators familiarize participants to Ocean Literacy Essential Principles and Fundamental Concepts (OLEPs and FCs)	Each presented lesson is aligned with OLEPs and FCs	Presentation content Online content	Analysis of Presentation content and PDO summary forms Analysis of online PD content	Annually; Evaluators and facilitators/OE staff
Facilitators introduce and explore ways to follow ocean exploration expeditions and discoveries, and access existing, new, or improved OE resources	Participants increase their awareness of Ocean Explorer tools and resources (*Okeanos Explorer*, OER curricula/lessons, OE Web site, Digital Atlas, RSS feeds, OceanAGE Careers).	PDO Agenda content Responses to PDO assessments	Analysis of agenda content and onsite PDO summary forms Survey/questionnaire responses	Annually; Evaluators and facilitators/OE staff Pre and post PDOs; participants
Facilitators demonstrate and discuss that the ocean is largely unexplored	Participants become aware that the ocean is largely unexplored (OLEP 7).	Responses to PDO assessments	Survey/questionnaire responses	Pre and post PDOs; Participants

(OELP 7)				
Facilitators discuss the value of deep ocean exploration	During OE PDOs, participants increase their awareness of the value of ocean exploration	Responses to PDO assessments	Survey/questionnaire responses	Pre and post PDOs; Participants
Facilitators introduce and discuss the technologies employed to explore the deep ocean	During OE PDOs, participants increase their awareness of technologies required to explore the deep ocean.	Responses to PDO assessments	Survey/questionnaire responses	Pre and post PDOs; Participants
Facilitators/OER staff introduce educators to premier ocean scientists/explorers and their research and exploration	PDO participants are introduced (by OE) to premier ocean scientists and explorers and their scientific endeavors.	Listserv notifications of expeditions, PDs, Ask an Explorer, Daily Logs, etc.	Review listserv notification records, counts	Annually; OER Staff
Facilitators guide reflections with participants about the ways OE tools, materials and resources address national and local standards	During OE PDOs, participants identify how the lessons, materials and resources presented during workshops meet their local and national standards.	Responses during guided reflections	Responses to facilitator recorded on PDO summary form	During each PDO; participants responses summarized by facilitators
Facilitators guide reflections with participants about the ways OE materials and resources can fit their instruction and address the needs of their students	During OE PDOs, participants discuss and reflect about how presented content and materials can be adapted to fit the specific needs of their students.	Responses during guided reflections	Responses to facilitator recorded on onsite PDO summary form Post online workshop survey	During each PDO; participants responses summarized by facilitators Evaluators
	Participants identify where OE materials fit into their instruction and how they	Responses during guided reflections	Responses to facilitator recorded on onsite PDO summary form	During each PDOs; participants responses summarized by facilitators

	will use OE resources to benefit their students.		Post online workshop survey Evaluators
	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).	Responses to PDO assessments	Survey/questionnaire responses Post online workshop survey	Pre and post PDOs; Participants Evaluators

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

Project Activities	Expected Outcomes	Indicators	Data Collection Methods	Implementation of Assessment
PDOs are hosted by Alliance Partners Or online via technology partners (TCOE)	OER has developed and sustains high quality, educator professional development workshops (onsite/online).	Each of 15 Alliance Partners hosts two PDOs annually Host one online workshop per year, budget dependent Workshops designed consistent with PD best practices	OE Management records PD best practices checklist	Annually; OE Staff Annually; Evaluators
Facilitators introduce and explore ways to follow ocean exploration expeditions and discoveries, and access existing, new, or improved OE resources	During OE PDOs, participants increase their awareness of Ocean Explorer tools and resources (*Okeanos Explorer*, OER curricula/lessons, OE Web site, Digital Atlas, RSS feeds, OceanAGE Careers).	PDO Agenda content Positive responses to PDO assessments	Analysis of agenda content and PDO summary forms Survey/questionnaire responses	Annually; Evaluators and facilitators/OE staff Post PDOs; participants
Facilitators introduce educators to ways to connect students to the work and lives of ocean scientists working with the *Okeanos Explorer* through use of the OE Web site	During OE PDOs, participants identify ways to connect students to the work and lives of ocean scientists working with the *Okeanos Explorer* on the OE Web site.	Responses to PDO assessments Responses during guided reflections	Survey/questionnaire responses Responses to facilitator recorded on onsite PDO summary form	Post each PDO; participants During each PDO; participants responses summarized by facilitators

Facilitators guide reflections with participants about the ways OE materials and resources can fit their instruction and address the needs of their students	During OE PDOs, participants discuss and reflect about how presented content and materials can be adapted to fit the specific needs of their students.	Responses during guided reflections	Responses to facilitator recorded on onsite PDO summary form	During each PDO; participants responses summarized by facilitators
	During OE PDOs, participants identify where OE materials fit into their instruction and how they will use OE resources to benefit their students.	Responses during guided reflections	Responses to facilitator recorded on onsite PDO summary form	During each PDO; participants responses summarized by facilitators
	During OE PDOs, participants discuss and reflect about how presented content and materials can be adapted to fit the specific needs of their students.	Responses during guided reflections	Responses to facilitator recorded on PDO summary form	During each PDOs; participants responses summarized by facilitators

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

Project Activities	Expected Outcomes	Indicators	Data Collection Methods	Implementation of Assessment
PDOs are hosted by Alliance Partners or online via technology partners (TCOE)	OER has developed and sustains high quality, educator professional development workshops (onsite/online).	Each of 15 Alliance Partners hosts two PDOs annually Host one online workshop per year, budget dependent Workshops designed consistent with PD best practices	OE Management records PD best practices checklist	Annually; OE Staff Annually; Evaluators
	Participants report that they intend to use OE education tools and resources (*Okeanos Explorer*, OER curricula/lessons, OE Website, OceanAGE Careers) in their classroom.	Positive responses to PDO assessments	Survey/questionnaire responses	Post each WDWE and HDWE PDO; Participants
	PDO participants are motivated to incorporate more ocean science and technology into their classroom teaching.	Responses to PDO assessments	Survey/questionnaire responses	Post each PDO; Participants
	Educators incorporate/ implement materials into classroom instruction Educators implement OER	Direct observation of instruction and implementation ** ID implemented lesson	Classroom observations ** Review of lesson plans	Observations of randomly selected educators; evaluators **

	PDO lessons with their students **	plans **	used **	
	Students demonstrate their learning about ocean science and ocean exploration **	Direct observation of student products (reports, presentations, tests, etc.) **	Classroom observations ** Review of student products **	Observations of randomly selected educators; evaluators **
	During OE PDOs, participants increase their awareness of Ocean Explorer tools and resources (*Okeanos Explorer*, OER curricula/ lessons, OE Web Site, Digital Atlas, RSS feeds, OceanAGE Careers)	Responses to PDO assessments	Survey/questionnaire responses	Post each PDO; Participants
	During OE PDOs, participants identify how the lessons, materials and resources presented during workshops meet their local and national standards.	Responses during guided reflections	Responses to facilitator recorded on onsite PDO summary form	During each PDO; participants responses summarized by facilitators
Facilitators/OER staff introduce educators to premier ocean scientists/explorers and their research and exploration.	PDO participants are introduced (by OE) to premier ocean scientists and explorers and their scientific endeavors.	Listserv notifications of expeditions, PDs, Ask an Explorer, Daily Logs, etc.	Review listserv notification records, counts	Annually; OER Staff
Facilitators introduce and explore ways to follow ocean exploration expeditions and discoveries, and access existing, new, or improved OE resources	During OE PDOs, participants identify where OE materials fit into their instruction and how they will use OE resources to benefit their students.	Responses during guided reflections	Responses to facilitator recorded on onsite PDO summary form	During each PDO; participants responses summarized by facilitators

Facilitators guide reflections with participants about the ways OE tools, materials and resources address national and local standards	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).	Responses to PDO assessments	Survey/questionnaire responses	Pre/Post PDOs; Participants
Facilitators guide reflections with participants about the ways OE materials and resources can fit their instruction and address the needs of their students	During OE PDOs, participants discuss and reflect about how presented content and materials can be adapted to fit the specific needs of their students.	Responses during guided reflections	Responses to facilitator recorded on onsite PDO summary form	During each PDO; participants responses summarized by facilitators
	During OE PDOs, participants identify where OE materials fit into their teaching and how they will use OE resources to benefit their students.	Responses during guided reflections	Responses to facilitator recorded on onsite PDO summary form	During each PDO; participants responses summarized by facilitators

** Tier 3 Evaluation

Intermediate Outcomes <u>not</u> assessed in this plan
- Educators use OE resources to support and enhance student understanding of ocean science, exploration, engineering and technology and related careers.
- PDO participants share their OE PDO experiences with colleagues.

These were identified in earlier efforts and evaluator didn't want to lose them. They are not covered in this plan as they can only be verified via Tier 3 eval.

Long-term Outcomes <u>not</u> assessed in this plan
- Enhanced environmental literacy of the American citizenry.
- Increased excitement about and valuing of ocean discovery.