



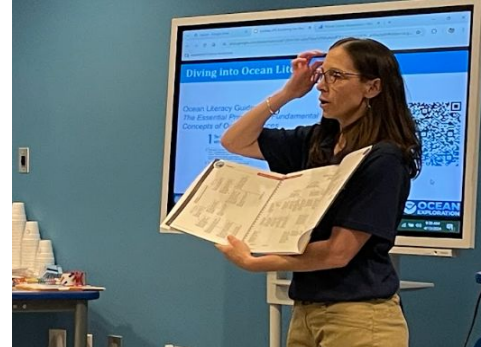
Professional Development Opportunities

For educators grades 6-12

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Professional Development Opportunities

Increasing educator confidence and intention to incorporate ocean exploration education into the classroom.

Train The Trainer Model:

Focusing training opportunities on teachers to amplify the reach of education content and maximize the number of students engaged in learning about ocean exploration.

Create Content

Develop education content that connect deep-sea phenomena to modern classroom standards, pedagogy, and needs.



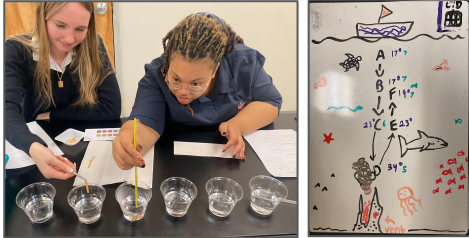
Train Educators

Offer professional development workshops to educators to increase confidence and intention to incorporate content in their classrooms.



Support Student Learning

Educators implement workshop content in their classroom engaging 100+ students each in ocean exploration education.



Professional Development Opportunities

What is a workshop and how do we implement over 20-30 per year?

General Workshop Structure:

- Introduction to NOAA Ocean Exploration
- Background information and materials on key science concepts
- Introduction and hands-on demonstration of 4-5 lessons
- Discussion time focused on how to implement in the classroom
- Exposure to additional, free ocean exploration education resources available on the web

It takes a team to implement a national PD program:



Education Alliance Partners



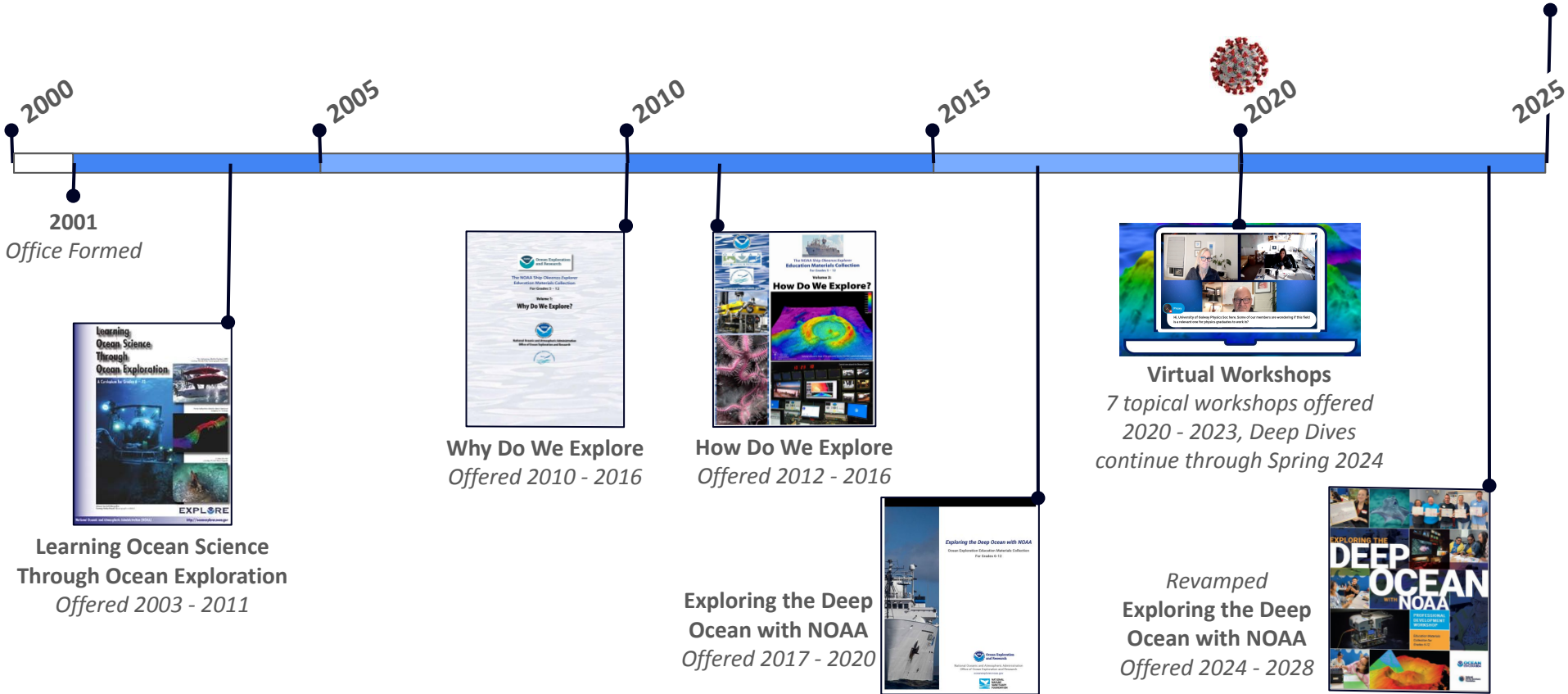
Workshop Facilitators



Professional Development Opportunities

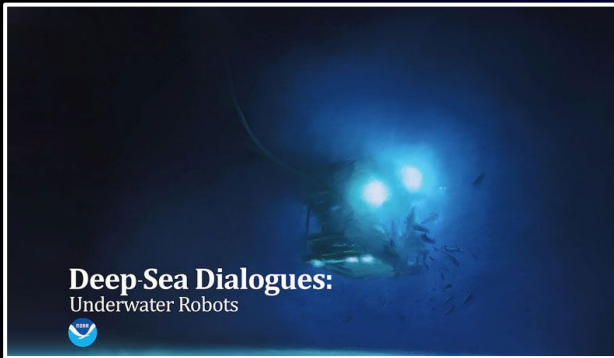
Continually adapting with the times

*Topical workshops
scheduled to begin
in Spring 2025*



Virtual Offerings

Part 1:
Deep-Sea Dialogues
(asynchronous)



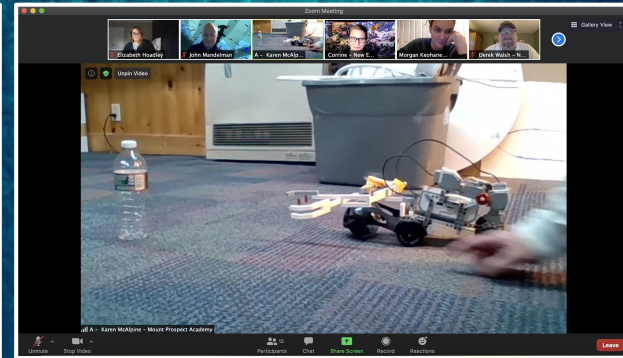
A ~10 minute video featuring an expert in the field for participants to watch prior to the workshops to introduce the topic, associated vocabulary, and visuals.

Part 2:
Live Event
(Synchronous)



A 90 minute, virtual PD hosted by NOAA Ocean Exploration featuring a topical lesson demonstration, Q&A with an expert, and sharing of additional NOAA resources.

Part 3:
Follow-up Event
(Synchronous)

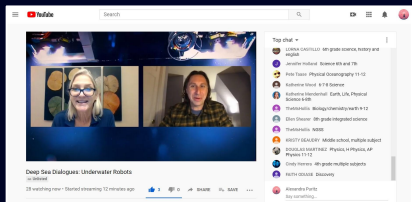


A 90 minute, virtual PD hosted by Education Alliance Partner, featuring additional topical lessons, resources and discussions led by a NOAA Ocean Exploration Facilitator.

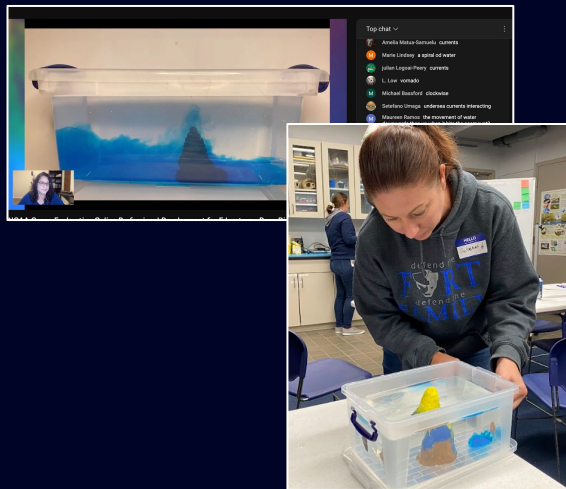
Post-Pandemic Professional Development

Slowly transitioning back to in-person workshops

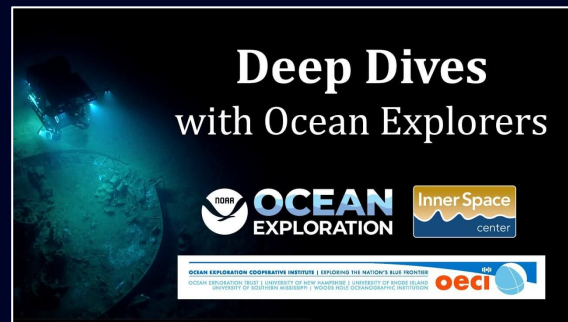
Continually updating virtual opportunities



Piloting hybrid and half-day in-person workshops:



Decoupling *Deep Dives* from Alliance Partner hosted events



Looking ahead: Fall workshops from 2024 - 2028

Exploring the Deep Ocean with NOAA

Workshop Agenda:

Introduction to NOAA Ocean Exploration

Educational resources (lessons, fact sheets, and videos) on the following topics:

- *Why Do We Explore*
- *How Do We Explore: Seafloor Mapping*
- *How Do We Explore: Water Column Exploration*
- *How Do We Explore: Underwater Robots*

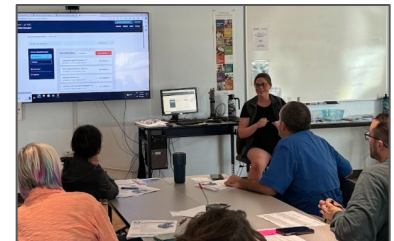
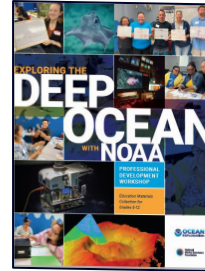
Reflection and discussion on how to implement materials in the classroom

Additional resources

oceanexplorer.noaa.gov

Deep Ocean Education Project website

Alliance Partner resources



Looking ahead: Spring Workshops from 2025 - 2028

Topical workshops featuring deep-sea phenomena

General Workshop Agenda:

Introduction to NOAA Ocean Exploration

Educational resources (lessons, fact sheets, and videos) on 1-2 topics per thematic workshop

Examples from past expeditions, highlighting tools and technology used and related ocean careers

Reflection and discussion on how to implement materials in the classroom

Additional resources

oceanexplorer.noaa.gov

Deep Ocean Education Project website

Alliance Partner resources

Future Workshop Topics:

Spring 2025:

Life Beyond Light: Chemosynthetic Communities of the Deep Ocean

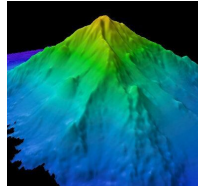
Hydrothermal vents and cold seeps



Spring 2026:

Deep-Sea Hotspots for Biodiversity

Seamounts and deep-sea corals



Spring 2027: TBD

Spring 2028: TBD



Looking ahead:

Focusing on growth

Growth goal #1:

Increasing our reach - engaging more educators in our workshops (leading to increased integration of ocean exploration into the classroom)

Strategies:

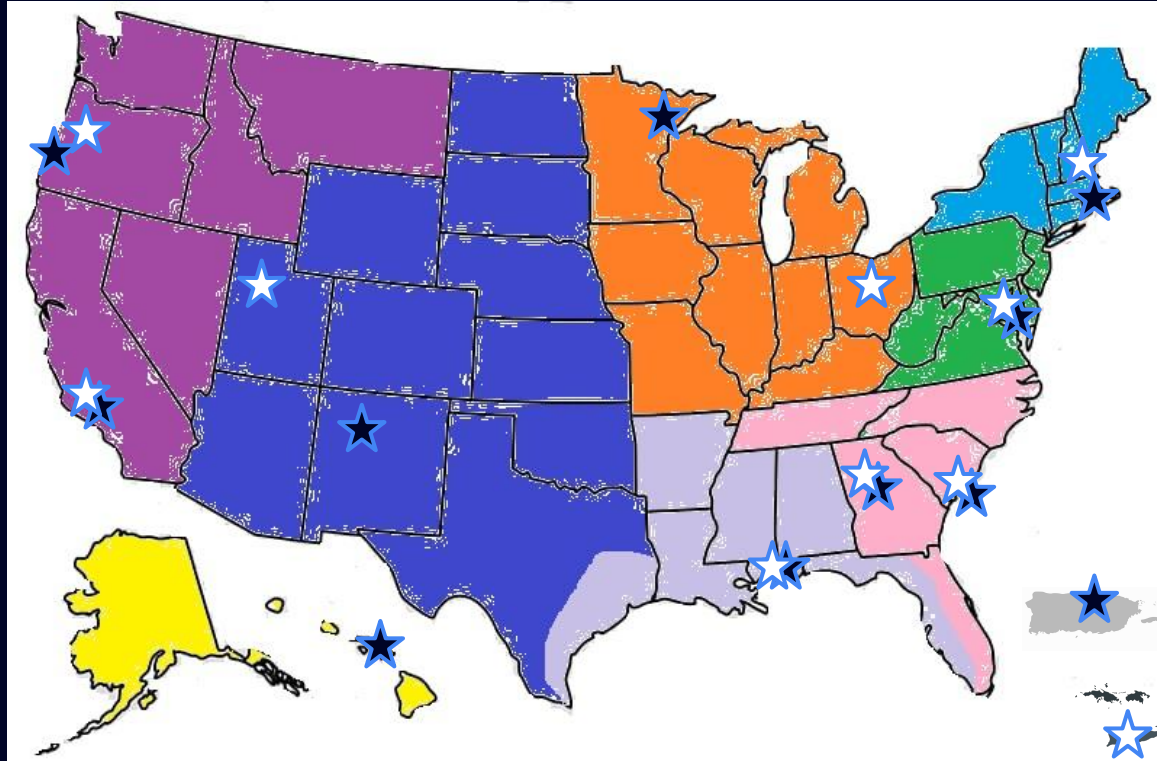
- Expand Alliance Partner network
- Strategically engage novel Alliance Partners

Challenges:

- *Alliance Partner staffing*
- *Funding - currently level funded for the next 5 years*
- *Unique needs of new or novel partners*

Fall 2024 and Spring 2025

Anticipated reach



Key:



Confirmed Fall 2024 workshops



Anticipated Spring 2025 workshops

Looking ahead:

Increasing Ocean Literacy

Growth goal #2:

Increasing educator (and student) understanding of the ocean.

Strategies:

- Demonstrate the relevance of our work by making direct connections between ocean exploration and classroom science instructions.
- Increase regional/place-based connections.
- Increase career and technology connections

Challenges:

- *Most science curriculum heavily focuses on terrestrial or shallow-water examples.*

2024 Example of Success:

Exploring the Deep Waters of American Samoa

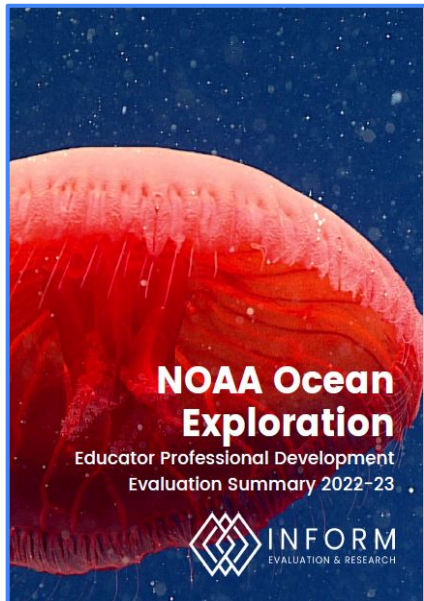
A custom, 2-day workshop that engaged 45 educators from American Samoa in ocean exploration education via NOAA Ocean Exploration lessons, a ship tour and educational posters from Ocean Exploration Trust, and local connections provided by on the ground partners at the National Marine Sanctuary of American Samoa and the American Samoa Department of Education.

The co-creation of this workshop allowed all partners to contribute and maximized the impact of workshop activities on educator and student ocean literacy.




Looking ahead:


Evaluating, Reflecting, and Adapting



KEY TAKEAWAYS
NOAA Ocean Exploration 2022-23 PD Evaluation

Participants continue to rate the PD highly, citing overall quality and utility. 


Similar to previous years, both PD offerings in 2022-23 received high Net Promoter Scores. Participants highlighted the informative nature of the PD, resources provided, and overall utility.

Student Investigations are seen as valuable resources and are easy to implement. 

One year on, 81% of 2021-22 PD participants said the student investigations highlighted in the Bioluminescence and Deep Sea Corals PDs were either very or extremely useful. Respondents typically reported that the student investigations worked as designed or with minor modifications for their learning context.

Both in-person and online PD formats continue to have utility for educators. 

There was no clear preference for the format of future PDs. Some educators preferred the accessibility of online PD, while others appreciated the depth and collegiality offered by in-person PD. This suggests that a mix of PD formats may be best moving forward.

Shift to monitoring, rather than evaluating, future PD. 

We recommend shifting to monitoring future PD offerings with a pared-down survey format that focuses on overall satisfaction and intended resource usage. If there is interest in more in-depth evaluation, we recommend pursuing a cohort-model evaluation.



INFORM
EVALUATION & RESEARCH

Evaluation Summary: NOAA Ocean Exploration Educator PD 2022-23 Page: 2

Table 7: Reasons educators found student investigations to be useful resources (n=80).

Utility	Representative Quotes
Overall quality and design	<p>“The materials were well designed and the images were clear and useful. The objectives tied directly to standards in the courses. The students were engaged in learning about some new phenomenon they were previously unsure about.”</p> <p>“There are a lot of great resources. I sometimes wish I had more class time to be able to use more of them.”</p>
Ease	<p>“Everything was ready to go. We even had time in the PD to talk about challenges and overcoming those challenges.”</p> <p>“They were easy to use and modify to fit my students.”</p>
Hands-on	<p>“The lessons were phenomena-based. Students had the opportunity to figure things out and we used the free materials given to us.”</p> <p>“Student investigations are the best way to teach inquiry-based science.”</p>