



Ocean Exploration  
and Research

*Dive In!*

## Ocean Exploration Education Highlights February 2016

*Welcome to the NOAA Ocean Explorer education updates email newsletter. These monthly emails will provide you with quick access to ocean exploration-focused, standards-based tips and tools to bring the excitement and science of ocean exploration into your classroom!*



### What's the Latest from NOAA Ocean Exploration for Your Classroom?

Check out our summer 2015 expedition to the Gulf of Mexico, [Bioluminescence and Vision on the Deep Seafloor 2015](#), when scientists took a close-up look at the little known world of deep-sea benthic bioluminescence and examined interactions between vision and bioluminescence.



*Many deep-sea organisms are able to emit "living light" through a chemical reaction, bringing light to the otherwise total darkness of the deep ocean. Image courtesy of Islands in the Sea 2002, NOAA/OER.*

Read this [background essay](#) on the mysteries and chemistry of bioluminescence and explore our [Bioluminescence Theme Page](#) complete with standards-based lessons, content essays, photos and videos.



### Standards-based Lesson

## [How To Use the Ocean Explorer](#)

### [Digital Atlas](#) (Grades 9-12)

NGSS: HS-PS 4-5



NOAA Ocean Explorer missions are always full of discoveries, because they often occur in places where literally no one has gone before. To help share the excitement of ocean exploration, NOAA's National Coastal Data Development Center (NCDDC) provides a [map-based atlas](#) that links to information about Ocean Explorer expeditions.

This Supplemental activity, *How To Use the Ocean Explorer Digital Atlas*, guides students in the use of free downloadable Fledermaus software to explore selected interactive 3D files of deep sea features mapped during NOAA Ship *Okeanos Explorer* expeditions.

Note: All lessons are written to support the [NGSS](#) and the [Ocean Literacy Essential Principles and Fundamental Concepts](#).



## Upcoming Expeditions!



Image courtesy of the NOAA Office of Ocean Exploration and Research, 2015 Hohonu Moana.

### NOAA Ship *Okeanos Explorer* CAPSTONE 2016 Expeditions

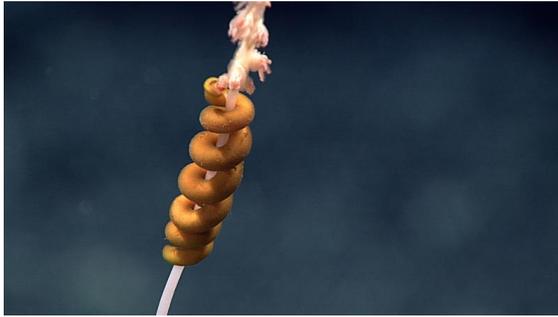
2016 will mark the second of a three year Campaign to Address the Pacific monument Science, Technology, and Ocean NEeds (CAPSTONE). Beginning February

23, the NOAA Ship *Okeanos Explorer* will explore within and just outside of the Papahānaumokuākea ([learn how to pronounce it](#)) Marine National Monument ([PMNM](#)) and then move to the western Pacific to explore deep waters surrounding the Commonwealth of the Northern Marianas Islands and the [Marianas Trench Marine National Monument](#). It is sure to be an exciting year of discoveries!

Look for more information coming soon!



## Image of the Month



A rare observation of [an aplacophoran \(shell-less mollusk\)](#) [feeding](#) on a bamboo coral.

*Image courtesy of the NOAA Office of Ocean Exploration and Research, 2015 Hohonu Moana.*





Meet Edie Widder, a former senior scientist at Harbor Branch Oceanographic Institution on the east coast of Florida.

Meet Dr. Edith (Edie) A. Widder, a former senior scientist at Harbor Branch Oceanographic Institution and co-founder of the Ocean Research and Conservation Association. Click on the photos above to hear Edie talk about her job, using submersibles to study marine life, and trials and tribulations of life at sea. Read the full text of Edie's interview below to learn more about her job.

About the Job Job Duties About Edie Timeline More Info

Meet Dr. Edith (Edie) Widder, marine biologist specializing in bioluminescence.



Educators learn to make a model of a methane hydrate.

## Featured Education Resources

[Interview with bioluminescence specialist, Dr. Edith Widder](#), on the NOAA Ocean Exploration Careers pages, [Ocean Careers to Inspire Another Generation of Explorers \(OceanAGE\)](#)

The OceanAGE web pages invite students to learn about the talented people who explore our ocean planet. From underwater pilots to research scientists, these marine explorers provide students with first-hand knowledge of exciting careers through live interviews, profiles, and mission logs.

## Upcoming Education Professional Development

All spring 2016 [professional development opportunities](#) are now listed on our website. Join us for full-day onsite professional development at an Aquarium or Science Center near you!



***We hope that these Exploration Education Highlights will help you focus more of your classroom teaching and learning on the amazing discoveries taking place right here, right now, on our own Planet Ocean! Onward and downward!***

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