

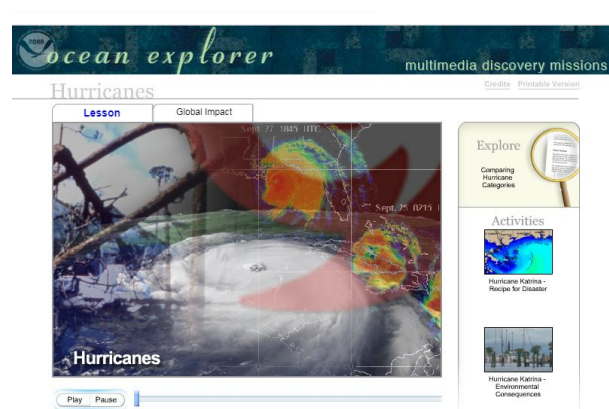


## Ocean Exploration Education Highlights

October 2017

Welcome to the NOAA Ocean Explorer Education Highlights newsletter. This monthly newsletter provides 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 for Your Classroom?



#### Hurricanes - A Multimedia Discovery Mission

Seen from above the Earth, a hurricane has a soft, serene beauty. But experienced from within, hurricanes display a relentless and terrifying violence.

The [Ocean Explorer Multimedia Discovery Missions](#) are a series of 13 interactive multimedia presentations and learning activities that address a wide range of ocean topics.

Hurricanes are severe storms forming over the tropical ocean between 5 and 20 degrees latitude, defined by high velocity winds that rotate around a central, low-pressure core. Named after Huraican, a Caribbean god of evil, these are the largest storms on Earth. Churning across the ocean and sweeping over continents, hurricanes combine the energies of wind and water into a destructive and potentially deadly force.

The [Hurricanes Multimedia Discovery Mission](#) is an interactive multimedia presentation and learning tool that includes a short video lesson, a second video on global impact, and online interactive student activities.

You can find more background information on hurricanes [here](#) and stay up to date by following the National Hurricane Center website [here](#).

### NOAA in Your Backyard!



Get connected to NOAA guest speakers, field trips, and professional development in your area.

NOAA has hundreds of facilities and professional communicators across the nation. Below are links to resources in various regions of the country that would be of interest to educators: [here](#).

### Image of the Month

#### Mysteries in the Deep Sea

On September 8, 2017, this [bright-red sea toad or coffinfish](#) (*Chaunacops* species) was seen at a depth of 3,148 meters (about 1.96 miles) during a remotely operated vehicle (ROV) dive at a seamount ridge, dubbed "Beach Ridge," in the Musicians Seamount group northeast of O'ahu, Hawaiian Islands.



This sea toad or coffinfish (*Chaunacops* species) was seen at a depth of about 3,148 meters (1.96 miles) in the Musicians Seamount group northeast of O'ahu, Hawaiian Islands. Image courtesy of the NOAA Office of Ocean Exploration and Research, *Deep-Sea Symphony: Exploring the Musicians Seamounts*.

Its identity is a mystery!

Sea toads, or coffinfish (Chaunacidae), are among the more unusual fish occasionally observed during the NOAA Ship *Okeanos Explorer's* ROV expeditions in the central Pacific Ocean. They are deepwater relatives of the frogfish seen by attentive divers in tropical waters and of the goosefish or monkfish of the North Atlantic Ocean.

Read about the identity of this mysterious sea toad [here](#). And watch it in this [video](#) along with footage from the first ROV dive ever conducted in the Musicians Seamounts.

### Join the Upcoming Expedition!

For the past three years, the NOAA Ship *Okeanos Explorer* has conducted expeditions in the central and western Pacific Ocean as part of a multi-year effort called the ['Campaign to Address Pacific monument Science, Technology, and Ocean NEeds \(CAPSTONE\)'](#). During the [2017 DISCOVERING DEEP-SEA CORALS OF THE PHOENIX ISLANDS EXPEDITION](#) running from October 5 - November 1, [Schmidt Ocean Institute](#) will explore new areas of the [Phoenix Island Protected Area](#) (PIPA), expanding on the work that NOAA did during this Campaign.



Precious corals, like this species of *Hemicorallium*, were common during 2017 exploration of Carondelet Reef within the [Phoenix Islands Protected Area](#) on NOAA Ship *Okeanos Explorer*. Image courtesy of the NOAA Office of Ocean Exploration and Research, *Discovering the Deep: Exploring Remote Pacific MPAs*.

PIPA lies about halfway between Hawaii and Fiji and is the largest and deepest UNESCO World Heritage Site on Earth. It also was the first Marine Protected Area (MPA) of its kind. This region includes huge tracts of deep ocean pierced with underwater volcanoes, seamounts, atolls and submerged reefs, creating an isolated, virtually untouched coral archipelago ecosystem. The shallows host hundreds of ocean species, but PIPA is also the first Pacific protected area where depths exceed 5,000 meters, and entirely unknown species are found to live at those depths. Questions for this expedition include: Why does this biodiversity exist in the deep sea and what sort of connections are there between shallow water environments and the deep sea?

Aboard the [R/V Falkor](#), scientists will explore PIPA using multibeam sonar, SOI's remotely operated vehicle, [SuBastian](#), and other tools and sensors. ROV dives will be streamed live [here](#).



CDR Eric Johnson oversees deployment of the CTD rosette during a shakedown cruise on NOAA Ship *Okeanos Explorer*. Image courtesy of the NOAA Office of Ocean Exploration and Research, 2017 Laulima O Ka Moana.

#### Meet *Okeanos Explorer's* New Captain!

Eric Johnson is the brand new Commanding Officer of NOAA Ship *Okeanos Explorer* and just embarked on his first expedition as her Captain, heading to the Johnston Atoll Unit of the Pacific Remote Islands Marine National Monument.

Commandeering a ship of this size and ensuring successful exploration of the deep sea is no small task! Read [here](#) about his journey to becoming the ship's captain and what it takes to successfully command a NOAA vessel.



Professional development workshop materials during a classroom activity simulating multibeam sonar technology.

#### Exploring the Deep Ocean with NOAA: Educator Professional Development

NOAA OER's free full-day professional development workshops provide opportunities for educators to engage in learning more about ocean exploration. These workshops are designed to introduce participants to exemplary tools and resources for the classroom to enhance the teaching and learning of ocean science and NOAA endeavors in ocean exploration.

Onsite professional development workshops are offered around the country in cooperation with our [Ocean Explorer Education Alliance Partners](#). If you would like to learn why and how we explore the deep ocean, please attend one of our workshops at an aquarium or science center near you. Upcoming workshops are listed on our [website](#).

**Note:** This workshop is a combination of the previously offered *Why Do We Explore?* and *How Do We Explore?* workshops.

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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