**Smithsonian Science How: Tracking the Health of Coral Reefs**

**Program Resources:** <https://naturalhistory.si.edu/education/distance-learning/tracking-health-coral-reefs-live-belize>

Visit the link above to access resources aimed at supplementing your students’ viewing of the recorded webcast, “Tracking the Health of Coral Reefs.” Resources include brief video introductions to the scientists featured in the video and a short video-tour of the Carrie Bow Cay Field Station in Belize, where the where the coral reef research happens, and resources to teach your students about coral reef habitats and coral health.

**Start a conversation:** We suggest using these resources to start a conversation with your students about who does science and how they do it.

* **Before reviewing resources:**
  + What do you think marine scientists study?
  + Can you think of an example of a marine habitat?
  + How do you think scientists study marine habitats?
  + What kind of tools do you think they can use to study underwater habitats?
* **After reviewing resources and “Tracking the Health of Coral Reefs” video:**
  + Do you have new ideas about what a marine scientist is?
  + What are they?
  + What is something you might have in common with a marine scientist?
  + What kind of tools do these marine scientists use for their research?
  + What's one way you can observe the world around you, like a scientist?

**Submit your students’ questions:** Do your students have questions about being a marine biologist or the kind of work scientists do to track the health of coral reefs? Send students’ question s to [ScienceHow@si.edu](mailto:ScienceHow@si.edu). Each week we’ll select one question for our scientists to answer, and we’ll send a response via direct email.

**Definitions (from the Ocean Portal,** [**ocean.si.edu**](https://ocean.si.edu/ocean-life/invertebrates/corals-and-coral-reefs)**)**

Coral

Corals are related to sea anemones, and they all share the same simple structure, the polyp. The polyp is like a tin can open at just one end: the open end has a mouth surrounded by a ring of tentacles. The tentacles have stinging cells, called nematocysts, that allow the coral polyp to capture small organisms that swim too close. Inside the body of the polyp are digestive and reproductive tissues.

Corals differ from sea anemones in their production of a mineral skeleton. Shallow water corals that live in warm water often have another source of food, the zooxanthellae (pronounced zo-o-zan-THELL-ee). These single-celled algae photosynthesize and pass some of the food they make from the sun’s energy to their hosts, and in exchange the coral animal gives nutrients to the algae.

Coral Reefs

Coral reefs are the most diverse of all marine ecosystems. They teem with life, with perhaps one-quarter of all ocean species depending on reefs for food and shelter. This is a remarkable statistic when you consider that reefs cover just a tiny fraction (less than one percent) of the Earth’s surface and less than two percent of the ocean bottom. Because they are so diverse, coral reefs are often called the rainforests of the sea.

Coral reefs are also very important to people. The value of coral reefs has been estimated at 30 billion U.S. dollars and perhaps as much as 172 billion U.S. dollars each year, providing food, protection of shorelines, jobs based on tourism, and even medicines.

Unfortunately, people also pose the greatest threat to coral reefs. Overfishing and destructive fishing, pollution, warming, changing ocean chemistry, and invasive species are all taking a huge toll. In some places, reefs have been entirely destroyed, and in many places, reefs today are a pale shadow of what they once were.

Carrie Bow Cay Field Station, Belize

The Carrie Bow Cay Field Station is located on a small island on the Meso-American Barrier Reef, 15 miles offshore. Smithsonian scientists and their collaborators travel there to conduct research on the biology, ecology, and geology of coral reef ecosystems.

The location of Carrie Bow Cay allows immediate access to reef environments, seagrass habitats, and mangrove islands. Visitors have access to vessels, diving facilities, seawater tables, and laboratory space along with housing and meals

Video Resource Quick Links

* [View brief videos of the scientists featured in this video](https://naturalhistory.si.edu/education/distance-learning/tracking-health-coral-reefs-live-belize/meet-scientists)
* [A Look at the Carrie Bow Cay Field Station, Belize](https://learninglab.si.edu/collections/smithsonian-science-how-exploring-the-coral-reefs-of-belize/dsEabUVaiWaPjcRg#r/641420)

**STUDENT WORKSHEET (REFERENCE BELOW,** [**DOWNLOAD WORKSHEET HERE**](https://naturalhistory.si.edu/sites/default/files/media/file/ssh-oct8-belize-student-worksheet-final.docx)**)**

*Before you watch the webcast*

* Draw a scientist studying a coral reef.
* What is your scientist doing?

*After you watch the webcast*

* Look at the drawing you made of a scientist.
  + How is your drawing similar to the scientists you met today?
  + How is your drawing different?
* Why are coral reefs important? List one idea.
* Why do you think coral reefs are changing? List one idea.
* Do you have any more questions for our Smithsonian scientists about coral reefs?