Healthy Coral Reefs

Episode One

This ten-part series is the result of a partnership between the Smithsonian Institution's Conservation Commons Earth Optimism Initiative, the Ministry of Education and Culture of the Republic of Indonesia, and the U.S. Embassy in Jakarta.

Episode One Summary:

See how scientists are coming up with new ways to study coral reefs, monitor their health, and help them become more resilient.

Videos:

Coral Restoration Spawning Hope

Coral biologists are concerned about the genetic health of many endangered coral. Follow a team of scientists as they attempt to introduce DNA to new populations of elkhorn coral. If this technique works, it could help protect and restore endangered coral species.

Go Deeper: https://nationalzoo.si.edu/news/spawning-hope

How to Measure the Health of the Ocean

Counting marine species is hard. See how new tools and approaches allow researchers to get a better picture of marine environments and compare species over time and space. The Autonomous Reef Monitoring Structures (ARMS) global partners are taking the pulse of the ocean.

Go Deeper: https://naturalhistory.si.edu/research/global-arms-program

Healthy Reefs For Healthy People

The Mesoamerican Reef covers more than 1,000 km along the coasts of Belize, Mexico, Guatemala, and Honduras. Almost 2 million people depend on the reefs for their livelihoods. See how more than 60 partners are working together to maintain and improve the health of coral reefs.

Go Deeper: https://global.si.edu/projects/healthy-reefs-healthy-people

Questions for Discussion:

Why are coral reefs important?
What would the loss of coral reefs mean for our planet?
What are things that damage coral reefs?
How can you take action to help coral reefs?

Episode 1 Vocabulary:

Polyps
Acidification
Plankton
Biodiversity

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Students Ask a Scientist about Coral Reefs

Dr. David I. Kline, staff scientist at the Smithsonian Tropical Research Institute in Panama. David is a coral reef ecologist who studies the fate of coral reefs in a rapidly changing world. He studies the ecology of corals and reef communities, and how reefs will change under the many stresses they face. He regularly collaborates with engineers, computer scientists, chemists, and physiologists to find new and ingenious ways to protect the future of coral reefs by developing innovative conservation technologies.

Key Facts

- Coral reefs are hubs of biodiversity. They are home to more than a quarter of all ocean life.
- Yet, they cover less than 0.1% of the entire ocean.
- Tens of millions of people depend on coral ecosystems for their food and livelihoods.
- Corals are animals! They begin their lives as plankton. As they mature, each individual coral polyp will anchor to a fixed point, where it will stay for the rest of its life.
- Coral reefs are made up of millions of individual coral polyps that grow over thousands of years, building up the reef structure.
- Coal Reefs are under threat from pollution, rising ocean temperature, acidification and disease.

Educational Resources

Smithsonian Ocean Portal:
https://ocean.si.edu/ocean-life/invertebrates/corals-and-coral-reefsAll

About Coral Reefs:
https://nationalzoo.si.edu/education/earthoptimism-conservation-success-stories

Elkhorn Coral (Acropora palmata):
https://learninglab.si.edu/resources/view/768043

Coral Tutorial:
https://oceanservice.noaa.gov/education/tutorial_corals/

Biodiversity Life in One Cubic Foot:
https://learninglab.si.edu/resources/view/998108

Find out more About Earth Optimism and how you can get involved at https://earthoptimism.si.edu

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Earth Optimism is an initiative led by the Smithsonian Institution's Conservation Commons, including Movement of Life and Working Land and Seascapes Actions Areas, including The Smithsonian Conservation Biology Institute, Smithsonian Environmental Research Center, Smithsonian Tropical Research Institute, Smithsonian National Museum of Natural History, Smithsonian Office of International Relations, Smithsonian National Zoological Park, Smithsonian Marine Station, Smithsonian Enterprises, Smithsonian Center for Folklife and Cultural Heritage, Smithsonian Science Education Center, Cooper Hewitt, Smithsonian Design Museum, and The Smithsonian Channel