

Connecting Students with Corals & Climate Change: Innovative Web & Classroom Materials

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How do we tap into the natural curiosity students possess? How do we illustrate their connections to coastal ecosystems? How do we get them to relate to climate change? Such hefty questions require expert knowledge from scientists, community leaders, educators, and science communicators. Thus, the Integration and Application Network at the University of Maryland Center for Environmental Science and the National Park Service Pacific Island Network Inventory and Monitoring Program partnered to create innovative web-based materials that communicate the importance of coral reefs through inquiry and observation.

The corals and climate change module developed by this partnership differs from other web educational materials in a variety of ways: a) our materials are based on data, b) the classroom activities in our module were designed by formal and informal educators in collaboration with scientists, c) throughout the module, cultural connections and traditional practices are used to engage Pacific islanders, and d) all of the web and classroom materials are vetted by teachers and reviewed by scientists. Thus, our materials are based on sound science and designed to coordinate with the science standards middle school teachers in the Pacific islands are required to use in the classroom.

Careful web design and interactive elements allow middle school students to explore the incredible biodiversity of coral reefs, collect data about coral cover with the same methods used by scientists in the National Parks, see into the future as unchecked carbon emissions increase ocean acidification and erode corals, and imagine how their daily lives would be different without coral reefs. Specifically designed to allow students to choose their experience and observe the topics that are most interesting to them, this web module uses games, videos, and animations to help students observe corals and inspire them to develop their own questions.

In addition to the resources we have developed for students, we have also created an *Access Classroom Resource* page where teachers can download the materials they need to implement the module activities. Here teachers can access the state and national teaching standards, learning objectives, and time requirements related to each activity. Providing this information enables teachers to easily incorporate some or all of the activities into their lesson plans.

Preliminary evaluation data from a focus group of science educators in the Pacific islands indicates that the content of the module is age appropriate, the classroom and outdoor activities are effectively integrated with the web pages, and teachers believe that the module can be easily implemented in the classroom. After the website goes live, and as more teachers have the opportunity to use the module, we will evaluate teachers' attitudes about the effectiveness of the module and what impact it had on their students' ability to learn about corals and climate change.

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