

## A historic site to be seen

Eighty-year-old cottage gives high school students the chance to work alongside top scientists and learn about global warming's effects.

By Tom Ragan

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More than a dozen Costa Mesa High School students Tuesday operated high-power microscopes, checked the levels of acidity in samples of ocean water, then got their first gander at sea urchin eggs. It all took place inside an 80-year-old historic cottage that now serves as one of the premier state marine research facilities in Orange County.

The students were the latest in a wave of high school marine classrooms to hit Crystal Cove State Park's Marine Research Facility to learn about global warming's detrimental effects on ocean life and water.

Too much carbon dioxide in the air is trickling down into the sea, acidifying the saltwater and causing all sorts of problems. One example is that sea shells are becoming less durable and more brittle with each passing year.

Although it may not seem like a big deal, the sea shell is symbolic of what kind of havoc the acid could wreak on living things, if this is what it's doing to inanimate objects like sea shells.

"The effects are obvious," said Natalie Argueta, a 17-year-old senior at Costa Mesa High School, referring to the acidification of the ocean water. "You can tell that the shells are weaker, that they're more broken down, that they're eventually going to dissolve. It's just a matter of time."



Xavier Faeldan, 17, left, points down the beach while determining the tide level at the Park and Marine Research Facility at Crystal Cove State Park on Tuesday. Students from Costa Mesa High School were doing research at the facility to determine how increasingly acidic ocean water will affect local marine organisms.

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That was just one nugget of information to be gleaned from the 2 1/2 -hour lab class, which came courtesy of the Crystal Cove Alliance, whose mission these days is to teach nearly 500 students countywide about the particulars of marine science, with an emphasis on global warming.

Normally, the research facility is reserved for top-notch researchers and marine biologists from prestigious universities like Stanford, UC Berkeley and UC Irvine.

Biologists often make cameo appearances and lend the students a helping hand.

But on Tuesday, Costa Mesa's high school marine class was guided by Harry Helling, the president and chief executive of Crystal Cove Alliance, which helped to restore the cottages inside the state park, then use some of them for educational purposes.

"These students are the environmental stewards of the future," Helling said. "They're our future scientists, our future researchers."

Cristen Rasmussen, marine science teacher at Costa Mesa High School, said the research facility is invaluable because it gives students the opportunity to work in a real research lab and, on occasion, study alongside great researchers — something the high school would be "Some of the equipment is worth tens of thousands of dollars," Rasmussen said. "It makes you feel like a real professional when you're in there."

In the 1990s, the cottages were scheduled to be torn down, and a resort was to be built in their stead.

But by 2001, the cottages, just feet from the sand and surf, were saved, and they are now listed on the National Register of Historic Places.