

## Coastal Classroom

### Konawaena middle schoolers learn science in the field

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Konawaena Middle School eighth-graders got a small taste of field work this week while spending time at Kahaluu Beach testing scientific theories.

From determining the effects of nitrates and nitrites upon sea urchin diversity to discovering how sewage impacts marine life, students used an assortment of tests on collected water samples to see if their hypotheses proved true.

"We've learned a lot about how pollution and development can affect the ocean, and how people can either fix or destroy it," said 13-year-old Nikki Kunitomo.

Kunitomo was one of about 30 Konawaena students at Kahaluu on Thursday morning. Working in teams, the students took turns going into the ocean to collect water samples or record the number of fish or destroyed coral in certain areas. When teams were finished in the water, they headed back under the large pavilion and began testing the samples and recording their data.

Once back at school, students will compile the data and analyze it, write a report of their findings and make a presentation. But several students interviewed claimed they did not want to stop with just a presentation. Most want to take their findings and use that information as a way to educate visitors and residents.

Chase Rodrigues, 13, and his team came up with their project based upon what they experience on a regular basis.

"All of us swim and we always see rubbish floating around in the water and we wanted to see if it hurts the fish, or if the fish don't mind if it's there," Rodrigues said. "I think it hurts them, so we wanted to see exactly how sewage affects marine life."

His team collected water samples and used three different tests to test for sewage levels Thursday. What they noticed while in the water was the deeper they went, the murkier and dirtier the water, he said. Ultimately, Rodrigues said he'd like to take pictures of clean coral and damaged coral and use that information to raise community awareness.



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Shaquan Recolan-Urban, right, hands water samples to Joshua Keohuloa on Thursday at Kahaluu Beach. The eighth-graders got a small



Konawaena Middle School eighth-graders Troy Hope, left, and Sage Ward test the turbidity of water samples from Kahaluu Beach on Thursday. - Laura Shimabuku | Special To West Hawaii Today

Another team wanted to see if the amount of people in a surrounding area affects the count of bacteria in that area. They measured bacteria levels at 20 feet, 40 feet and 60 feet from the shoreline Thursday, but then they have to wait 24 hours for the results. At the same time, the students also counted how many people were within a certain radius of their checkpoints.

"People use sunscreen and those chemicals rub off in the water and create an oil that makes the water murky and dark," said 13-year-old Asia Morris. "If we see that there are higher levels of bacteria where there are a lot of people, then I can help by letting people know how to pick up after themselves, how to use more natural sunscreens."

The projects the students are working on are taking the place of a science fair project, said science teacher Cheryl Cotten, who paired up with English teacher Shari Jumalon. While Cotten focused upon the science

taste of field work this week while spending time at Kahaluu Beach testing scientific theories. - Photo By Laura Shimabuku | Special To West Hawaii Today

aspect -- scientific method, inquiry, data collecting, comparative analysis -- Jumalon worked on the writing component and helping students take the information and compile it into a report.

The project is part of Hawaii Island Meaningful Outdoor Experiences for Students, a program run through The Kohala Center and funded through a NOAA Bay Watershed Education and Training Program grant. In its second year, it is a hands-on, science-based program that focuses on bay and watershed education. The Kohala Center recruits intermediate and high school science teachers in Kona, Kohala, and North and South Hilo at the beginning of each school year, as long as the funding is available.

"The main focus is to get them out of the classroom and doing hands-on science," said program manager Samantha Birch. "Learning by doing, not from a textbook."

And most students agreed -- learning by doing was much more exciting than sitting in a classroom. Not only does it give them real-life experience, it also helps keep their attention focused more when they are able to find the answers to questions they come up with, Kunitomo said.

"I'm more of an active learner," Morris said. "So if I'm reading a book, I don't learn as good as when I'm actually doing it."



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Konawaena Middle School students test water samples. - Photo By Laura Shimabuku | Special To West Hawaii Today



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Makamae Lino, right, and Shaquan Recolan-Urban test water nitrate levels. - Photo By Laura Shimabuku | Special To West Hawaii Today