



# A Long-Term Partnership Continues Prosperity for Sea turtles, Students, and Scientists

*December 06, 2019*

NOAA scientists work with students from Hawai'i Preparatory Academy to conduct research on Hawaiian green sea turtles on Hawai'i Island.



The morning air is cool in Waimea at Hawai'i Preparatory Academy (HPA), where we are greeted by sleepy-eyed students. We prepare to head out for the day to conduct sea turtle research. The team is quick to wake up and eager to get started, so we pack our gear in the car and take off down the mountain toward the coast.

The students are participants in the HPA Sea Turtle Research Program, a hands-on research experience program that enables students to conduct scientific research side-by-side with NOAA scientists. While driving to our field site, I get a chance to chat with Marc Rice, the director of the program.

---

“We began working with NOAA in 1987, when we suggested the opportunity to work with HPA high school students,” he recalls. “Our first trip was to Kiholo Bay with George Balazs [leader of NOAA’s Pacific Islands Fisheries Science Center marine turtle program for decades] and we only captured seven turtles in 3 days. Since that time, we’ve done well over 400 trips and captured several thousands of turtles.”

Marc runs the program alongside another HPA teacher, Laura Jim, with the help of NOAA sea turtle researchers. Laura is a very enthusiastic teacher and doesn’t mind getting her hands dirty to show the students how things are done. In the field, she and the team help students capture turtles, record morphometric measurements, insert PIT (passive integrated transponder) tags or microchips, and even learn to collect tissue samples. This work in turn helps NOAA scientists understand, assess, and monitor the green sea turtle population in Hawai'i.

*“The students get the opportunity to work with scientists in the field, experiencing what it’s like to do real science.” –Marc Rice, Director of the Hawaii Preparatory Academy Sea Turtle Research Program*

And there is a lot of work to be done! Down on the coast, the students hustle to get the gear out of the truck and down to the beach. They have to set up an entire field laboratory to process the turtles that they capture. It includes calipers for measuring turtle size, weight scale, tagging tools, and much more.

Once we set up the field laboratory on the beach, we are on the lookout for turtles! Teams split up down both directions of the beach with scoop nets and snorkel gear in hand to capture turtles in the water. Once the students spot a turtle, Marc and Laura help them carefully capture the turtle and bring it back up onto the beach. NOAA researchers [Dr. Camryn Allen](#) and [Shawn Murakawa](#) wait patiently on the beach to begin working up the turtle with the rest of the students.

*HPA Sea Turtle Program Director Marc Rice walks the beach with a student to look for turtles.  
Photo: NOAA Fisheries/Ali Bayless.*

*A student carefully carries a turtle back to the beach to collect tissue samples and measurements.  
Photo: NOAA Fisheries/Ali Bayless.*

They immediately collect blood samples from the turtle as part of a sex determination study that is overseen by Dr. Allen. Three high school students have been working with her since April to determine the sex ratio of green sea turtles on Hawai'i Island as part of their senior projects. Temperature determines the sex ratio of a sea turtle nest, with cooler temperatures producing mostly males and warmer temperatures producing mostly females. With climate change causing rising global temperatures, researchers are finding that [females are beginning to dominate some sea turtle populations](#). In order to monitor the sex ratio and track changes over time, researchers take blood samples to determine the sex of each immature turtle.

*Hawaii preparatory student takes blood from a green sea turtle for sex ratio study. Photo: NOAA Fisheries/Ali Bayless.*

Ivanni is a senior at HPA and is working alongside Dr. Allen on this project. “I read a paper about how [the sex ratio in turtles in Australia](#) is 118 females to 1 male—that’s crazy! I don’t want that to happen here and that’s why I’m interested in doing this and learning more about it.” Researchers take blood by carefully inserting a small needle into the neck of the turtle. They then take blood samples back to the laboratory on the HPA campus, centrifuge them to isolate the plasma, and archive them in a freezer until it is time to analyze the plasma for testosterone concentration. Students participate in each step of the process and will visit the science center early next year to complete the hormone analysis.

*Ivanni and other students working on the project. They are processing sea turtle blood samples in the laboratory at Hawai'i Preparatory Academy. Photo: NOAA Fisheries/Ali Bayless.*

*“I’ve been a part of HPA’s sea turtle program for four years. This is my last year so I’m excited to do this project with everyone from NOAA, Mr. Rice and Ms. Jim... and to teach other students how to take blood samples.” –Ivanni, a senior at Hawaii Preparatory Academy*

And Ivanni has been a huge help to the NOAA researchers involved in the program. “I am impressed by how quickly the students learn, their drive for completing the project, and their flawless execution of difficult research methods!” Dr. Allen tells me. “I now feel superfluous because the three students working on the sex ratio project are incredible and make an amazing team!”

Marc and Laura tell me that many student alumni of the HPA sea turtle program expressed that their experience really helped them to map their personal conservation values, as well as their professional goals. The program brings together experienced scientists and our next generation of researchers through real-world research experience, which encourages the students to think about ways they can solve conservation issues.

*Students prepare a sea turtle for release back into the ocean. Photo: NOAA Fisheries/Ali Bayless.*

*Hawaiian green sea turtle being released off Hawaii Island. NOAA Fisheries/Ali Bayless.  
NOAA scientist and Hawaii Preparatory  
Academy student carry a sea turtle along the  
coast at Maunalani. Photo: NOAA Fisheries/Ali  
Bayless.*

*“None of this program that has run for the last 32 years would have been possible without the cooperation, support, and mentorship of all of the scientists from NOAA. Their willingness to include high school students in their research and really reach out to enable the students to participate fully in this fieldwork is invaluable.” –Marc Rice, Director of the Hawaii Preparatory Academy Sea Turtle Research Program*

And the work continues. The NOAA researchers will return to Hawai‘i Island early next year to conduct more fieldwork with students. They look forward to hosting the students at the Pacific Islands Fisheries Science Center to conduct the molecular laboratory research on the samples they collected together.

---

All research conducted under NMFS permit 21260 and USFWS permit TE-72088A-2.

Last updated by [Pacific Islands Fisheries Science Center](#) on May 06, 2020