

# Hi-Tech Tag

## HPA Students Assist in Historic Deployment of Satellite Tagged Loggerhead Sea Turtles



George Balazs (third from left) and the HPA team pause for a moment at the Port of Nagoya Public Aquarium. Pictured l to r: Marc Rice, Susan Mori (chaperone), Camille Mori, Ashley Sutton, Sandi Watson (chaperone), and Tyler Sakurai.

**3** HPA students recently participated in the largest single deployment of satellite tagged animals anywhere in the world.

At the invitation of George Balazs, leader of the Marine Turtle Research Program for NOAA, National Marine Fisheries Service, Pacific Islands Fisheries Science Center, Camille Mori '06, Ashley Sutton '07, and Tyler Sakurai '08, under the direction of Marc Rice, director of the Sea Turtle Research Program at HPA, worked at the Port of Nagoya Public Aquarium in late April. Dr. Itaru Uchida, aquarium director and Masanori Kurita, who works in the aquarium's sea turtle program, hosted the group.

"Having participated in this program over a period of time, I was very impressed by the aquarium's hospitality and thought this would be a great opportunity for our students to learn about science and Japanese culture at the same time," said Rice. "We're very grateful to George, NOAA, and the Port of Nagoya Public Aquarium for allowing us to participate in this program."

For three days, the students assisted in attaching satellite tags to the dorsal shells of 40 juvenile loggerhead turtles, guided by Balazs and Rice. The turtles were then transported to the Port of Gamagori and—in a first-of-its-kind-event—were welcomed as guest passengers on the *Aichi Maru*, a fisheries training vessel for students 17 to 18 years of age. Hitoshi Nakamura, a turtle care specialist with the Port of Nagoya Public Aquarium, accompanied the turtles.

The *Aichi Maru* left for O'ahu on April 27 after an elaborate farewell ceremony attended by hundreds of younger students from the Miya Fisheries High School and members of the media.

"Once again, I have had the pleasure of

working closely with students from HPA on an important sea turtle research project," said Balazs. "The students were quick learners, dedicated to doing a superior job, and truly enjoyable to be around. We all will remember and treasure this experience for a lifetime."

The latest deployment follows an earlier release of 17 loggerhead turtles last spring off the shores of Japan where the Kuroshio Extension Current sweeps close to the mainland. The new group of 40 loggerheads was released on May 4 into a different part of the Kuroshio Extension Current near the international date line at 32 degrees North, 176 degrees East, an area that has been identified by earlier satellite tracking research as a "hotspot" pelagic nursery.

The *Aichi Maru* arrived in Honolulu on May 10. Sachiko Oya, administrative assistant to Dr. Uchida, Balazs, and staff from the Pacific Island Fisheries Marine Turtle Research Program and Western Pacific Regional Fishery Management Council welcomed the ship, Nakamura, and its crew. Balazs later brought Nakamura and Oya to the Big Island to participate in a turtle-tagging project at the Mauna Lani Bay Hotel with Rice and his students. Cathy Grant's fifth grade class also accompanied the group.

Satellite tracking of the turtles' movements and behavior is expected to last up to 14 months. Transmissions from each of the turtles providing location data are being received every 48 hours over the Argos Global Tracking System. Researchers will use the data to learn how to mitigate the impact of Hawaiian longline fisheries on sea turtle "by-catch" without adversely affecting the fisheries and turtles. At press time, Balazs reported that all 44 transmitters on the 40 turtles were transmitting, an amazing feat



George Balazs (center) welcomes the *Aichi Maru* and crew to O'ahu. Sachiko Oya, administrative assistant to Itaru Uchida, director of the Port of Nagoya Public Aquarium, and Hitoshi Nakamura, also of PNPA, are pictured center front.

considering the high natural predation rate of juvenile turtles in the high seas.

While it is too early to draw conclusions from the tracking data, Balazs notes that some of the turtles have moved a short distance to the west, just over the international date line, while others are moving in localized circular patterns consistent with tracking of the young loggerheads released last spring.

This unique program represents the next step in several years of international collaboration by Balazs, Dr. Jeffrey Polovina, and numerous scientific colleagues in Japan and at the U.S. Pacific Islands and Southwest Fisheries Science Centers, the Joint Institute of Marine and Atmospheric Research at the University of Hawai'i, and the Western Pacific Regional Fishery Management Council.

Since 1987, HPA has had a close working relationship with NOAA, National Marine Fisheries Service, Pacific Islands Fisheries Science Center, in conducting turtle research and conservation activities. Middle and Upper School students assist with the safe capture, measuring, health assessment, and tagging of many hundreds of sea turtles at various Big Island sites supervised by Rice and Balazs. The work has grown over the years in scope, magnitude, and importance to overall species conservation. ■

# [student voices]

## Learning Abroad

By Ashley Sutton '07

When I heard that Mr. Rice was taking a small group of students to Japan for a turtle tagging trip and that I was invited, I was extremely excited. Having lived in Japan, like Camille Mori '06 who also went on the trip, I knew what to expect, but Tyler Sakurai '08 who had never been to Japan, didn't know quite what to expect. All three of us had one thing in common though—we had no idea what it would be like to work with loggerhead turtles at the Port of Nagoya Public Aquarium—the largest in Japan. On the nine-hour flight to Japan Camille and I were very excited. She couldn't wait to see the aquarium and I was looking forward to hearing and speaking Japanese again.

I expected to be working the entire time we were at the aquarium but was pleasantly surprised to find that staff members were kind enough to show us a few things. One of the most memorable events for us was meeting the aquarium's orca—we were about four feet away from it. Tyler described it as “a one-time opportunity that most people never get to do.” We learned from the caretaker that only half of the orca's brain sleeps at a time because if both sides shut down, it can't breathe.

The second day at the aquarium was just as fun as the first because we went on the feeding rounds with two staff members. It was a Monday and the aquarium was closed. We saw some of the turtles that were not on exhibit and even got to feed the baby turtles, which fit in the palm of my hand.

However, it was not all play. Mr. Balazs and Mr. Rice showed us how to attach satellite tags on the turtles. First, we washed the salt water off the turtles and filed down the spikes on the turtles' carapace so that the tag had a flat surface to rest on. We also sanded the carapace so the tags had a firm base. Then we put elastomer on the tags and placed the tags on the turtle. Finally, we applied polyester resin onto the glass cloth on the tag to protect it. We put satellite tags on all 40 turtles in three days using these steps.

In the morning of our third day, we held a videoconference with HPA's fifth graders so



Ashley (left) and Camille feed the turtles at the Port of Nagoya Public Aquarium.



Fifth graders learn about the HPA team's work in Japan during a videoconference.



Marc Rice and Tyler with loggerhead turtles on the *Aichi Maru* prior to departure.

they could see what we were doing. They had a lot of questions for Mr. Rice while Camille, Tyler, and I continued working on the turtles. After lunch, we headed with our chaperones to Expo 2005 in Aichi.

The Expo featured pavilions from all over the world. My favorites were the French, Japanese, Sri Lankan, and British pavilions. I liked the French and British pavilions because they had interactive displays. I liked the Japanese pavilion because of the Earth Room and the Sri Lankan pavilion because I was able to watch live woodcarving. Camille also liked the French pavilion because of its interactive displays and the Central American pavilion because they had a zip line that both of us went on. Tyler thought the pavilions “were all well put together.”

We also went to Nagoya Castle. The two



Hitoshi Nakamura, Marc Rice, Sachiko Oya, and George Balazs gather during a turtle tagging project at the Mauna Lani Bay Hotel.

golden dolphins that usually are on top of the castle were down for cleaning so we were able to touch them. The dolphins—a male and female—are said to ward off fire from the castle.

Tyler returned to the aquarium to see the turtles off. He describes the event as “entertaining.” The entire [Japanese] school turned out to see their fellow students (and the 40 loggerhead turtles) off. The streamers that were being thrown were something of a danger because the sailors would often throw them back into the crowd. Two TV news stations came out and did a small report on the turtles.”

Before we traveled to Izu, we stopped at the Toyota plant where we were given a private tour. My favorite thing was seeing the robots welding different parts for the cars together. The sparks from the welding flew everywhere and it was very exciting to watch. Tyler liked the plant because “it was amazing to see how cars are produced in such a quick and organized manner.”

In Izu, we stayed at Camille's home and went on a couple of hikes. The first, to Yumigahama beach, took us past a few tide pools. Camille normally “walked by the tide pools without a second look,” but with Mr. Rice there, we had a tide pool guide. As Camille describes, “At first glance, it seemed as though [the tide pools] were fully of different types of seaweed. As we looked closer, we found many interesting creatures. Mr. Rice pointed out something in the midst of seaweed, which just looked like yet another type of seaweed, but it was moving. Mr. Rice told us that it was a sea hare; it was like a slug that eats seaweed. It was thrilling to have Mr. Rice show us all of the fascinating creatures in the tide pools; I would have never known they were there.”

We are grateful to Mr. Rice and Mr. Balazs for giving us the opportunity to go on this trip, as it was a great experience. I was able to learn new things and have fun at the same time. Camille had fun and describes our time at the aquarium as “hard work but very exciting.” On the plane ride home I was sad that the trip was over and, like Camille, didn't want to return home to take AP exams. ■