



Marc Rice, Director of Science Outreach and Information Technology

The study of science has long been considered an appendage to the “Three Rs.” Today, as a discipline and a process, science is being accepted as an integral part of our everyday life and the “Three Rs” are the tools required to “do science.” Every child needs to understand and be able to apply basic scientific principles every day of his/her life. From health-related issues to environmental concerns to alternative energy sources, scientific knowledge is needed to understand the world and to make informed, scientifically-based decisions. A second, equally important aspect of science education—and education in general—is that we learn best by doing something that has relevance to our experiences and our everyday life.

In March, five members of the HPA faculty and administration (Deighton Emmons, Cathy Grant, Laura Jim, Hope Soo, and I) and a community representative (Rob Pacheco of Hawaii Forest and Trails) attended the National Leadership and Assistance for Science Education Reform (LASER) K-8 Strategic Planning Institute in Washington, D.C. hosted by the National Science Resources Center of the Smithsonian

Institution and the National Academies. Our goal was to come out of the week-long institute with a strategic plan for K-8 science education at HPA that will strengthen our current curriculum and include the five critical elements of science education: research-based, inquiry-centered curriculum; professional development materials support; appropriate assessment strategies; and community and administrative support.

By week’s end, the HPA team produced the first draft of a strategic K-8 science initiative that incorporates the five elements above. Our mission statement for science, “HPA will implement an articulated, interdisciplinary K-8 science program using a hands-on, inquiry-based model,” allows us to build on our current programs by molding the curriculum to better fit the research-based models evaluated at the institute.

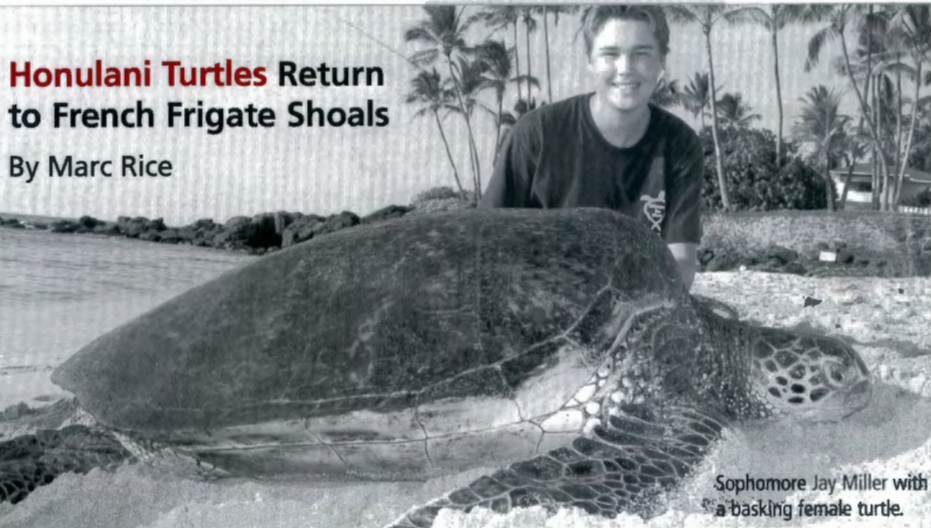
All members of the LASER team are very excited about the possibilities that this strategic initiative provides. It will take several years to effectively implement our programs, and we currently are working on the one-, three-, and five-year plans for science education at HPA.

I will provide science education updates in this column and share information about some of our many special science projects (from robotics, to reforestation, to turtle tagging). Keep in mind, HPA already has a dynamic and comprehensive science curriculum. The current initiative is meant to make it even stronger!

If you have any questions, or comments, please contact me at mrice@hpa.edu. ■

Honulani Turtles Return to French Frigate Shoals

By Marc Rice



Sophomore Jay Miller with a basking female turtle.

Honulani, on Oahu’s North Shore, is a beautiful white sand beach and a favorite visitor site. As you walk out onto the beach you will often be astounded to see large green sea turtles basking right on the beach. They often are surrounded by curious visitors and locals who marvel at their size—often in excess of 200 lbs.—and peacefulness. Surprisingly, the turtles rarely are disturbed by human presence and as long as people don’t physically disturb them, they will remain on the beach for hours.

As part of our ongoing research into the daily behavior of green sea turtles, I traveled to Honulani with a team of HPA students (Alima Catellacci, Sky Feuer, Lydia Jennings, Jay Miller, Ashley Sutton, Carlyn Unger, and Kulia Wooddell) and joined George Balazs,

leader of the Marine Turtle Research Program, National Marine Fisheries Service, Pacific Islands Fisheries Center, to study these unique creatures.

We installed a remote-controlled Web camera to observe their basking behavior and selected four animals, two adult males and two adults females (designated L1, L4, L7, and L15), to carry time-depth-temperature recorders (TDR). These archival “tags” record and store data “on-board” so we can retrieve the tags, download the data, and study the turtles’ diving, resting, basking, and foraging behavior over time.

Over the course of several months, we retrieved data from the turtles several times and were very pleased with the results. In early March, however, we noted that three of

our “regulars” at the beach had disappeared. We were a bit puzzled and concerned because they each were carrying a \$1,300 TDR tag and had a lot of data we wanted to retrieve.

Finally, it dawned on us that perhaps our missing turtles had “felt the call of nature” to return to the French Frigate Shoals where they were almost undoubtedly hatched some 25 to 50 years before. We were excited about this possibility because no one had ever been able to study the diving habits of migrating turtles before and we, by pure accident, had three of them possibly traveling the more than 500 miles to their natal beach. All we had to do was hope it was true, hope they



George Balazs (center, back) with HPA turtle taggers at Honulani.

made the journey safely, and hope their tags remained on and functioning.

While Balazs and I were in Nagoya, Japan, putting out satellite tags on young loggerhead turtles (see story in *Ma Ke Kula*, Spring 2004), Balazs received an e-mail from

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From Auntie June's Kitchen...



Andy Mancao came to Auntie June's Kitchen in January and is enjoying his work as a dinner cook. Cooking runs in the Mancao family—his sister was a cook at the Waikoloa Marriott and his mother is a baker at the Hilton Waikoloa.

Mancao has more than 10 years food service experience in resort environments and has worked at the New Otani Kaimana Beach Hotel's Hau Tree Lanai, Roy's Bar & Grill (Poipu and Waikoloa), and at Royal Steak & Seafood in the Royal Hawaiian Shopping Center.

He enjoys working at HPA because "it's more relaxing and not as stressful [as in a restaurant] because you know what you're cooking in advance."

He prepares a range of foods for the HPA ohana and enjoys the challenge of trying to please everyone. The most popular HPA dinners are barbecue ribs, teriyaki steak, and fried chicken. Mancao's own favorite food is oriental.

When he's not cooking, Mancao enjoys working on his car and playing golf.

The recipe below is for a dish that Mancao has cooked several times at the school. Enjoy!

Kim Chee Chicken

- 5 lbs. chicken wings
- 1 package Noh's kim chee mix
- 1 egg
- 1 c. flour
- 3/4 c. water
- 1 T. salt
- 1 tsp. black pepper

Mix ingredients and marinate chicken for at least four hours. Fry until done. ■

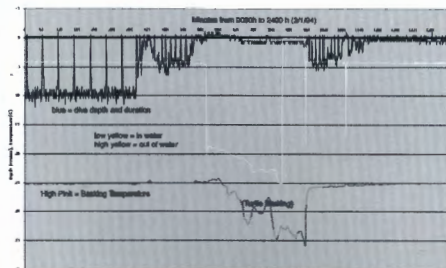
[on campus]

	Lower School	Middle School	Upper School
Aug. 8			Football camp begins
Aug. 9			Varsity Girls Volleyball practice begins
Aug. 18-19			Boarding prefects arrive
Aug. 22		New boarders arrive, noon on	New boarders arrive, 1-4 p.m.
Aug. 22	Experience HPA, 4-7 p.m., Taylor Commons, Upper Campus		
Aug. 23	Open House, 8-10 a.m.	Open House, 8-10 a.m. Returning boarders arrive, noon on	New student orientation, 8:30-11 a.m. Swim test for new students, 1-2 p.m. Returning boarders arrive, noon-4 p.m.
Aug. 24	Classes begin, 7:55 a.m.	Classes begin, 7:50 a.m.	Student orientation, 8:30 a.m., GPAC Half-day of classes with sports to follow
Sept. 2	Parents Night, 7-8 p.m.	Parents Night, 6 p.m.	
Sept. 6	Labor Day Holiday		
Sept. 7-10	Parent/Teacher Conferences		
Sept. 9-10	Early release days for conferences		
Sept. 13	Ohana Association Meeting, Castle Lecture Hall, 6:30-8:30 p.m.		
Sept. 24		Middle School Retreat	
Oct. 7-9		Parent/Teacher Conferences	
Oct. 7-10			Parents Weekend
Oct. 8			Parents Weekend Showcase, 7 p.m., GPAC
Oct. 9-10			Parent/Teacher Conferences
Oct. 11	Holiday		
Oct. 11	Ohana Association Meeting, Castle Lecture Hall, 6:30-8:30 p.m.		
Oct. 22	Grades 4 & 5 Performance, GPAC		
Oct. 24	Pumpkin Patch, Upper School Soccer Field, 10 a.m. to 2 p.m.		
Nov. 8	Ohana Association Meeting, Castle Lecture Hall, 6:30-8:30 p.m.		
Nov. 24	Thanksgiving break, begins at 12:15 p.m. No after school program	Thanksgiving break, begins at noon	Thanksgiving break, begins at noon
Nov. 26-28			33rd Annual Soccer Tournament
Nov. 28		Boarders return	Boarders return
Nov. 29	Classes Resume	Classes Resume	Classes Resume

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one of the Fish and Wildlife personnel on Tern Island (French Frigate Shoals); they had seen L4 basking on the beach at Tern and had been able to retrieve the tag. Needless to say, we were excited and anxious to return home and find out what secrets the TDR held. Others at French Frigate Shoals have seen one of the other missing turtles (male L1) swimming in the waters around Tern Island, obviously looking for females. So, as it turns



A Day in the Life of Turtle L4. Graphs indicate diving, feeding, and basking behaviors on March 1, 2004.

out, two of our three missing turtles are accounted for and, most likely, the third one also is there.

In the next few months, we expect to see our missing Honulani turtles back on the beach where we will be able to retrieve the TDR tags and find out more about the behavior of these fascinating creatures during their travels. Our students will continue to work with the data and try to interpret more than one million data points from over six plus months of deployment. ■