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"Toward the Sea"

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Learning About Green Turtle's "Lifestyles"

by Rick Klemm

(Editor's note: A shorter version of this article appeared in the September 1984 issue of Manulani, *the inflight magazine of MidPacific Air.)*

Punaluu is a sheltered cove with a black sand beach located on the southeastern shore of the Big Island of Hawaii, roughly halfway between the villages of Naalehu and Pahala. The cove's name means "diving spring," and long ago natives dove into the cove with gourds to obtain water from an underwater spring.

Legend says that during some stormy weather when the natives could not dive for water, a pair of supernatural turtles, a mother and father, came to Punaluu. The mother deposited into the sand an "egg," which looked like a piece of kauila wood. From the egg hatched a daughter turtle named Kauila. In a spring dug earlier by her mother and father, Kauila lived and grew. Out of water she could assume human form and played with the children. The people loved Kauila because she watched after the children as they fished in the spring and because the spring gave them drinking water.

Today, the spring is just a scenic spot behind the black sand beach, and no one dives into the ocean to obtain drinking water from the underwater spring anymore. But the images of diving and turtles have been brought to life in recent years by scientific researchers.

On a late Friday afternoon in February George Balazs, a wildlife biologist with the National Marine Fisheries Service in Honolulu, and a team of students from the Marine Option Program at the University of Hawaii-Hilo set up a weekend turtle research operation at a county park pavilion near the beach.

At the center of the beach an algae-

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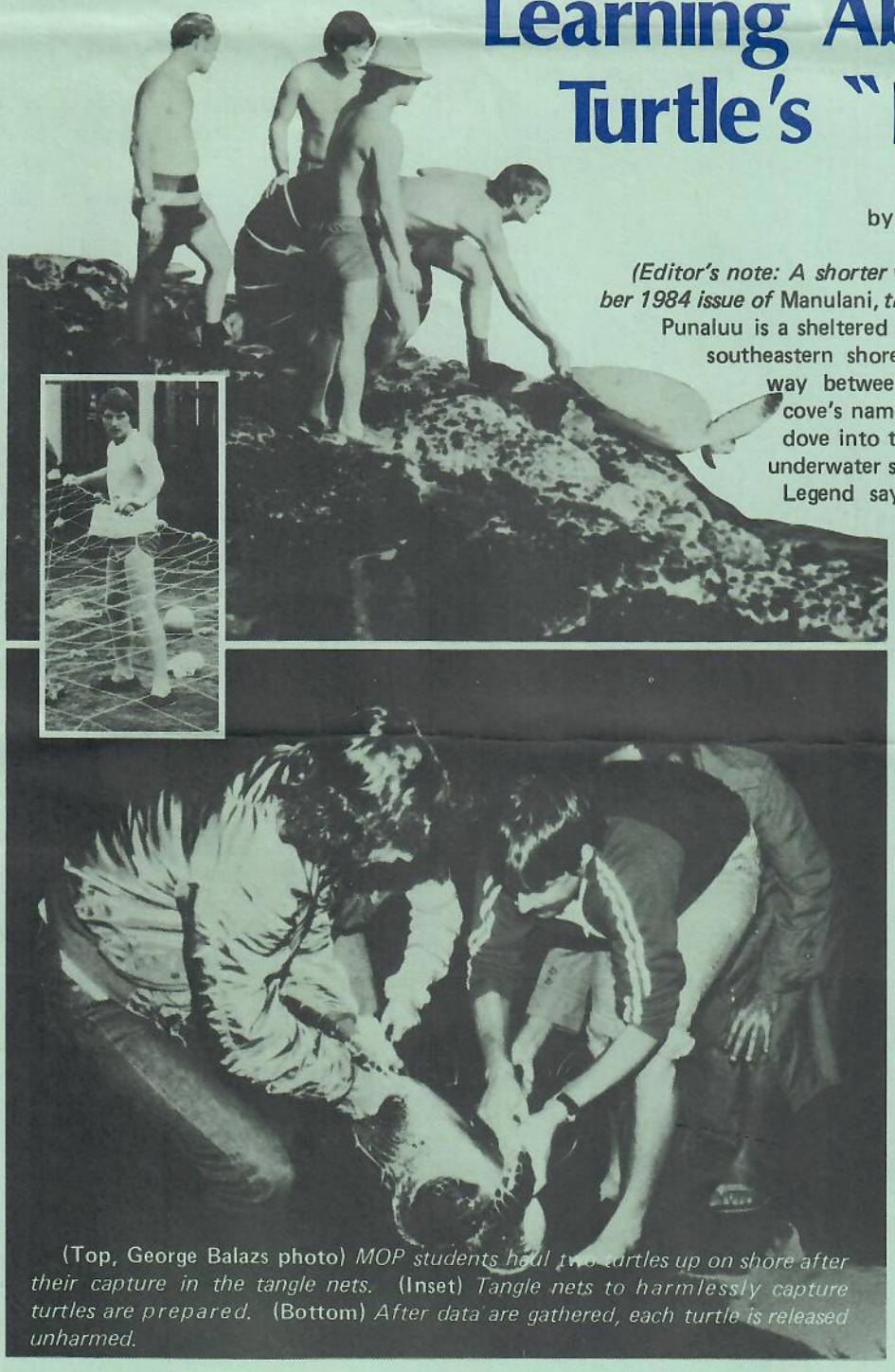

(Top, George Balazs photo) *MOP students haul two turtles up on shore after their capture in the tangle nets.* (Inset) *Tangle nets to harmlessly capture turtles are prepared.* (Bottom) *After data are gathered, each turtle is released unharmed.*

Green Turtle's "Lifestyles" *(Continued from page 1)*

covered lava rock outcropping is rhythmically bathed in the high-tide surf. Out of the corner of one eye I see a green flash, the color of a young coconut in water, off to my right on the oceanside of the outcropping. As my eyes shift for a better look, the flash disappears.

"You probably saw a green turtle," Balazs says. He explains that they come inshore to feed on limu (algae) at high tide, when water covers the rocks. In between high tides the turtles find holes and cracks further offshore in which to sleep and rest.

Balazs uses this knowledge of the Hawaiian green turtles' feeding and resting habits to set traps for their capture. With help from some of the MOP students, two tangle nets are laid across "traffic lanes" within the cove between feeding and resting grounds.

Balazs has been studying Hawaiian green turtles for 12 years. He was attracted to Punaluu in 1974 when a local couple discovered a clutch of turtle eggs on the beach near their concession. The clutch eventually yielded about 125 hawksbill turtles. Balazs found the cove at Punaluu and neighboring coastal waters to be numerously populated with green turtles. Possibly because of the presence of a particular limu and other underwater features, this area along the Kau coast may be one of the best feeding grounds for green turtles in the main Hawaiian islands.

After dark, MOP students Bill Harlan and Chris Doll take the first 2-hour watch to periodically scan the net floats for signs of captured turtles. A short time later, Robert "Punchy" Kim, owner of Scuba Air Fills in Hilo, arrives. Kim is a long time community advisor to the UH-Hilo Marine Option Program.

"It's a long shot tonight for catching turtles," Kim says, pointing to the full moon on the eastern horizon.

With funding from the UH Sea Grant College Program, Balazs has been capturing turtles at Punaluu since late last year to learn more about their feeding habits and growth rates. Growth rates among green turtles along the Kau coast appear to be more rapid than among turtles elsewhere in the main islands. Because of faster growth rates, Balazs thinks the Kau green turtle population may make up a large proportion of the breeding colony at French Frigate Shoals in the Northwestern Hawaiian Islands. It is believed that all Hawaiian green turtles go there to breed.

A couple of young fellows from Pahala waiting for a party to begin down the beach stroll over to find out what the research team is doing. When they find out, one says, "You guys should go to Turtle Bay – choked with turtles. Guys shoot'em with rifles."

Later Balazs says he knows the spot, about 20 minutes walk north up the coast. This is the first he has heard of rifles being used there to kill turtles, an illegal activity under any circumstance. He adds that shooting turtles is not uncommon in other parts of the island chain. Another method he is familiar with involves swinging a bamboo pole with a heavy line and treble hook back and forth until a turtle is snagged in one of its fins. On shore the snagged turtle is slain and dressed on the spot, as evidenced by discarded carcass remains.

Balazs and MOP students inspect a turtle.

Gathering data about the Hawaiian green turtles is essential, Balazs thinks, if they are to survive into the future. They are not an endangered species, but they are threatened, which means that any downward change in their population might put them on the brink of extinction. As a result, they are protected by federal and state laws. He believes that through knowledge and greater understanding the green turtles can be restored and properly managed to their benefit and ours.

At about 10:00 p.m. the research team makes its first "capture." Two Filipino fishermen from Pahala bring a small turtle they captured while fishing with gillnets a short distance down the coast. They had talked about the turtle research with

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Green Turtle's "Lifestyles" *(Continued from page 2)*

Balazs carefully takes a blood sample from neck of a turtle.

MOP student Diane Mazarakis earlier in the evening. The "minnow" is placed on its back in a holding area until morning. Doing this with all the captured turtles prevents their escape and keeps them from injuring themselves and each other.

Thirty minutes later, the research team makes a real capture — a large turtle, weighing about 60 pounds, and another "minnow," about 30 pounds. The biggest capture comes around 2:05 a.m. when Chris Doll and Balazs bring in a third "minnow" and a large turtle, estimated to weigh 150 pounds. At the morning weigh-in, another 52 pounds will be added to that figure.

Five turtles are captured that night in the tangle nets, in addition to the one donated by the fishermen. The last capture is made sometime between 4:00 and 6:00 a.m. by the last watch and goes unnoticed by the rest of the fast asleep research team.

Not much is known about the feeding habits of green turtles, Balazs says, because most research has been carried out at breeding and basking sites where turtles can be more easily studied. He thinks the turtles at Punaluu like to feed on a red limu with the scientific name of *Pterocladia capillacea*. It has no Hawaiian name that he knows of. This limu thrives at Punaluu where freshwater percolates through lava rock into the ocean. Balazs theorizes that the freshwater may be adding nutrients to the ocean water which help the red limu to grow abundantly.

In 1982, 1,300 hatchling green turtles were tagged at French Frigate Shoals. Balazs expects some of these hatchlings to settle down in feeding areas along the Kau coast. If he is lucky he may capture a few during his 12-month study at Punaluu.

After breakfast, Balazs and the students prepare to take measurements and blood samples from the turtles, as well as to tag them. None of the captured turtles bears tags although one has a scar that suggests an earlier tagging.

Soon after they begin, it quickly becomes apparent why it will take them nearly all morning to finish their work: busloads of tourists and several local residents. Once they see the turtle research sign posted in front of the pavilion, they all come to see the turtles, to "talk story," to ask turtle questions, and to get pictures of, with, and amid the creatures.

Balazs and the students graciously accept these interruptions, enriching the sightseers' knowledge of both green turtles and Hawaii.

The first thing Balazs does is to "staple" a corrosion resistant ID tag on the back edge close to the body of each front fin. Large turtles get tags in the rear fins as well. Then he and the students measure the shell and head and weigh the turtle.

Finally, Balazs takes a blood sample from the turtle's neck, its head covered with a towel to keep the turtle calm. The blood sample will be sent to the mainland and analyzed to determine the turtle's sex. This is one operation Balazs tries to avoid doing when visitors are around because they may misunderstand that what is being done is harmless to the animals.

When all data are gathered about each turtle, three or four MOP students carry it in an inner-tube rig to the ocean's edge and release it. As a surge comes in, the turtle rides it to slightly deeper water where it can "fly" away in a burst of speed. Balazs says that turtles can achieve short bursts of up to 25 miles per hour.

As the last turtle, the 202-pounder, swims to freedom, the cycle of capture and data gathering is ended. It will begin, again, later in the afternoon when Balazs and his crew will set a third tangle net for the next night of work.

And, later toward sunset, perhaps someone else will be standing on the beach near the limu-covered lava rock outcropping and see a flash of green, the color of a young coconut in water. Feeding time again. □

Turtle Research Postscript

In a telephone conversation, Balazs related that on his final research trip to Punaluu he witnessed the bloody, illegal capture of a tagged green turtle by three men in daylight on the beach. One of the reasons he originally chose to do field research at Punaluu was the unlikelihood of such poaching occurring in full view of the many tourists and residents who come here each day.

Having confirmed that poaching occurs at Punaluu, Balazs said that he must now treat the data he has gathered in the last year much differently. □

MARINE MISCELLANY

HO'ONANEA I KA EA KAI

Ho'onanea I Ka Ea Kai – Enjoy the Living Sea welcomes users of this brochure to the island of Hawaii, the Big Island, and guides users to selected coastal locations for the abundant ocean and coastal recreational opportunities available at them.

Visitors to the Big Island frequently think of it as an isle of volcanoes and macadamia nut and coffee plantations. The purpose of the brochure is to introduce visitors, including residents from elsewhere in the state, to the wealth of ocean recreational activities they can participate in during their stay on the Big Island. Twelve beach and park areas located along three coastal sections around the island are featured in the guide.

The 24-page color brochure was published by the University of Hawaii Sea Grant College Program and is a product of the Big Island Ocean Recreation and Tourism project. The initial printing was funded by the Hawaii Visitors Bureau and the Hawaii Department of Planning and Economic Development.

Each of the 12 beaches and park areas, such as Kealakekua Bay and Lapakahi State Historical Park, is described in terms of historical and other background information, site features and suitable recreational activities, and facilities such as restrooms, showers, and parking. Color maps and travel instructions are provided, and photographs of sites and recreational activities accompany each narrative.

Additional information is included on geography and climate, water safety, dangerous marine organisms, conservation, and special events.

To obtain a copy send your request to Ocean Guide, University of Hawaii Sea Grant Extension, 1000 Pope Road, Room 213, Honolulu, HI 96822. For more information call **Ray Tabata** at 948-8191.

OCEAN RECREATION CLASSES

The Campus Center Board Outdoor Recreation Program at the University of Hawaii-Manoa offers the following noncredit ocean recreational courses for both students and nonstudents (nonstudents add $10 to fees listed). Register at the Ticket Desk, Room 212, at the Campus Center.

- Basic Sailing: $50; 1 to 6 p.m.; Session II, Saturdays, October 6 to November 3; Session III, Sundays, October 7 to November 4; Session IV, Sundays, November 11 to December 16.
- Advanced Sailing: $55; 1 to 6 p.m.; Saturdays, November 10 to December 15.
- Advanced Scuba: $60; 1 to 5 p.m.; Session II, Sundays, October 7 to October 28; Session III, Sundays, November 4 to December 2.
- Celestial Navigation: $65; 7 to 9:30 p.m.; Wednesdays, October 10 to November 28.

No classes are held on Thanksgiving weekend for courses extending through this holiday period. For more information on these and other recreational courses call **Athline Clark** at 948-6469.

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