

The Turtle Question

By Mike Markrich



Federal law lists green sea turtles as “threatened” and prohibits their capture. But now some native Hawaiians would like to change that

“It wasn’t the bomb that finished the turtles,” claims Maui fisherman Rene Sylva, “it was us.”

Sylva is referring to the atomic tests at the Bikini atoll which took place in the 1950s and the decline of the Hawaiian green sea turtle. At the time of the bombing, when scientists and environmentalists were concerned about the effects of radioactive fallout on wildlife, Sylva noticed that the

green sea turtle was disappearing. No longer was it possible to spot 30 to 40 turtles at a time in the waters off Kahului, nor could a fisherman catch a turtle within 100 yards of shore as before.

Turtles were becoming scarce and Sylva thought he knew why: not because of radioactivity from the Bikini bombing, but because more were being caught. The new hotels

were serving turtle steaks and fishermen were supplying them using better equipment. With nylon nets instead of cotton ones and outboard motors instead of canoes, fishermen could go farther and catch more.

Sylva urged his friends to let the turtles go. To set an example, he burned his nets. He decided that the only way to save the turtles was to stop taking them.

Since then, it seems, the federal government has come to agree with Rene Sylva's assessment of the green sea turtle's situation. Under federal law, since September 1978, it has been illegal to catch green sea turtles anywhere in the United States. (Before the federal ban, Hawaii's fishing regulations outlawed the spearing and taking of turtles under 36 inches in length. State law now also protects green sea turtles as well.)

The federal government's decision to list Hawaiian green sea turtles as a threatened species and forbid their capture has created a controversy between those who feel that the turtle population is strong enough to be selectively harvested and those who feel they should be protected at all costs. (The Hawaiian green sea turtle, *Chelonia mydas*, is one of three species of turtles that live in the Hawaiian Islands. The hawksbill and the leatherback turtles are also protected, but they have never been considered a desirable food species like the green sea turtle.)

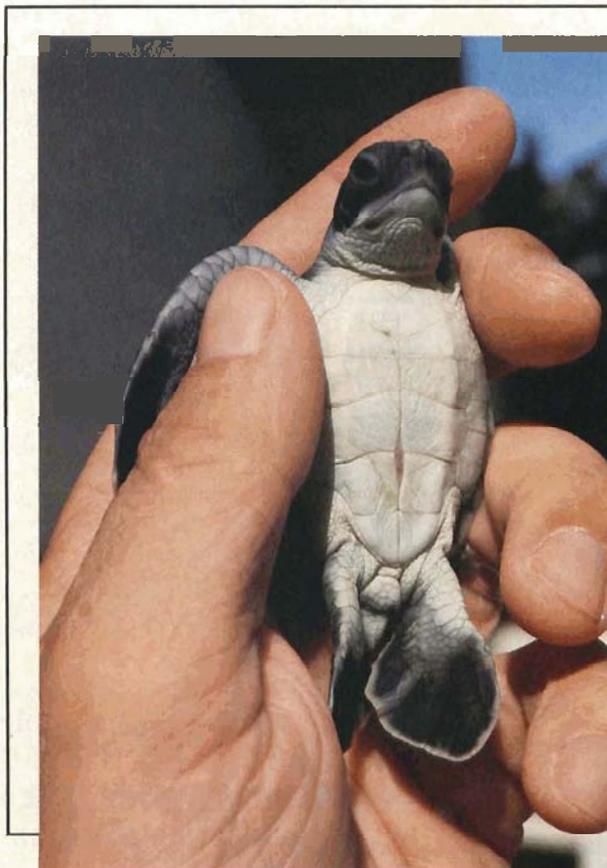
Green sea turtles are found throughout the Hawaiian archipelago and Hawaiian history. Capt. Cook recorded their use as a food during his 1778 voyage and it is believed that they were an important source of protein to Polynesians as early as 600 A.D.

Green sea turtles apparently were prized by ancient Hawaiians. The Hawaiians composed turtle hulas, and, according to historian David Malo, considered the *honu* or green sea turtle "excellent eating." Malo also recorded that under the kapu system they were reserved for men and forbidden to women. Other Hawaiians who did not eat turtles were those whose *aumakua* (or personal family god) was the turtle.

Biologist George Balazs, who wrote the government report on green sea turtles, believes that the kapus allowed only alii and priests to eat them. Balazs bases his conclusion on comments by American minister to Hawaii R.M. Daggett in the introduction to King Kalakaua's *The Legends and Myths of Hawaii*. Also, Balazs points out that the turtle was restricted to royalty in other Pacific islands such as the Tuamotus.

University of Hawaii Hawaiian

Mike Markrich is a free-lance writer. His "From the Sea" column appears regularly in The Honolulu Advertiser.



Opposite page: Hawaiian green sea turtle caught in a synthetic-mesh tangle net.

Left: A newly hatched turtle weighs about 1 ounce.

studies director Abraham Piianaia disagrees. He thinks that turtle was a common food in Hawaii. He views the introduction to Kalakaua's book with "caution" because it was written by an outsider who was documenting Hawaiian customs that had disappeared almost two generations before he came to Hawaii.

Says Piianaia: "I feel very strongly that a lot of these things are taken out of context and become more and more kapu all the time. You will find that there are structures like fishponds for the holding of turtles on all the Islands, and what they did was capture them and then make them available when they were needed.

"Once a turtle was held for a chief, that was it, nobody else could eat it. But outside of that, anyone could catch turtle. I know of no edict, except perhaps for seasonal ones, that stopped people from taking turtles."

(There were, however, wide-ranging kapus on the *e-a* or hawksbill turtle which was considered poisonous and whose shell was prized for the making of jewelry.)

The shell of the green sea turtle was not prized for ornament, and Malo wrote of its use in scraping off the bark of the olona tree. Piianaia

suggests that an item with such common usage would not have been considered an exclusive food for Hawaiian royalty.

Piianaia acknowledges, however, that the biggest and best turtles were often reserved for alii. Places like the Waimanalo turtle pond or Pahonu, which means "home of the turtle," stretched almost a football field in length and served as turtle ponds for Oahu alii and later for Iolani Palace.

John Miner, a longtime Waimanalo resident, remembers that riders from the palace would make the 14-mile journey to the pond on fast horses. A turtle would be tied in a sack, given to the rider and then be taken at full gallop back to the palace kitchens where it would be prepared for dinner.

Corinne Chun, assistant curator of Iolani Palace, says that turtle was a palace staple. Among 10 menus from the Kalakaua period which she examined, half offered turtle dishes.

There was no shortage of turtles during the Kalakaua period and Hawaiians caught them with spears, special hooks and nets made from the bark of the olona tree. Turtles could be seen swimming and feeding on sea grasses throughout the Islands. Genesis Lilo of the Big Island recalls

the sight of turtle harpooners waiting patiently on rocky ledges above turtle feeding areas. When 93-year-old Evelyn Woods Low was a young boy, there were so many turtles living in the waters off the Kona Coast that he grew accustomed to swimming with them. Low remembers that turtle was a popular food and was a basic source of protein for many fishing families.

Since those days of plenty, a number of factors have contributed to the decline of the green sea turtle population. Ships on their way to the whaling grounds off Japan would stop in Hawaii and collect turtles because of their ability to survive long periods in captivity and provide fresh meat. As the ship-provisioning business in Honolulu grew, more turtles were collected and sold.

Dredging and harbor construction destroyed sea grass areas where turtles fed. New buildings and roads were constructed in turtle nesting grounds. As increasing numbers of people came to the Islands, the turtles were pushed farther from their nesting and foraging areas. New equipment in the form of nylon nets, scuba gear and light, inexpensive boats made turtles easier to collect and harvest.

There were no restrictions on the taking of turtles before 1974. The increase in the number of green sea turtles that were caught brought down prices, and turtle dishes soon became popular in Hawaii's new and growing visitor industry. Demand became so great that private aircraft made regular trips to turtle nesting areas. The turtles were taken from their nests, flipped on their backs and flown to Honolulu for sale.

Although proponents and opponents of the law agree that the past harvesting of green sea turtles significantly reduced their numbers and eliminated many of their nesting areas, disagreement persists as to the extent of the damage and the species' present condition.

Big Island fisherman Alika Cooper believes that the green sea turtle population has come back enough during the five years since the ban's enactment to permit turtle harvesting on a limited basis.

Cooper, who admits to having taken about 3,500 turtles between 1947 and 1953 for commercial use, thinks that selective fishing would not endanger the green sea turtle

population.

Cooper is concerned that federal statutes are denying him something that is part of his cultural heritage. "They [National Marine Fisheries Service] say there is a substitute for turtles but they can't tell us what it is. Is it hot dogs? Coke? Apple pie? There is no substitute—Hawaiians always ate turtle; it's part of our culture."

His family had always eaten turtle several days a week, he says, and they never took more than they needed. He never purposely took an egg-bearing female and never a turtle that weighed less than 200 pounds.

Cooper has not eaten turtle for more than five years. "Most of the people who grew up eating turtle are

"... A fisherman hooks a turtle, releases the pole and then ties off the gaff line to the stake. He then waits until the turtle exhausts itself ..."

dead," he says. "The NMFS wants to stop Hawaiians from eating turtles for five more years so they can extend it indefinitely and say, 'Look, the Hawaiians haven't eaten it for 10 years.'"

Cooper also objects to the law because it prohibits him from taking baby turtles and raising them to maturity the way he once did and prevents him from taking turtles for use in his fishponds. Traditionally, he says, Hawaiians have used turtles to keep ponds free from grasses and algae that would otherwise clog them and suffocate the fish. Another benefit provided by the turtles in ponds is that they make more food available to the fish by stirring up the sediment in the water.

He thinks that it was unfair that an exemption was granted to people in Micronesia and Samoa but no provision was made for Hawaiian fishermen.

Cooper has been at the forefront of a movement to get the Hawaiian green sea turtle exempted from the list of threatened species comes up for review sometime this year. He has found support for his campaign from Gov. Ariyoshi and the state Department of Land and Natural Resources,

Division of Aquatic Resources.

The division's director, Henry Sakuda, believes there are "plenty of turtles." Fishermen throughout the state tell him that the turtle population is doing well. As a biologist, he says he cannot accept the NMFA estimates: "We still miss a good turtle estimate; it's just counts on the beach."

Sakuda attributes the decline in the turtles' estimated numbers to less-accessible beaches. "We have more people on land," he says. "The turtles don't have a place to land. They swim around and then go back to sea." Sakuda thinks a new estimate of the population is needed.

George Balazs, who conducted the surveys, says that such estimates, while imperfect, are better than no estimates at all. Balazs has been studying green sea turtles in Hawaii since 1973, and has done most of his tag-and-recovery field studies in French Frigate Shoals where almost all of the turtle breeding takes place. The survey involves placing non-corrosive flipper tags on resting turtles, turning them loose and then recovering them at different points throughout the Hawaiian chain. By recording the number and movement of the turtles as they make their way to French Frigate Shoals and back, Balazs gets an idea of turtle migration patterns and an estimate of the total population.

Balazs stresses that the beach counts are especially important in reaching an estimate because the nesting females are the breeders that determine how many new hatchlings will be added to the population each year. In the 10 years that he has been doing his research, he has found that the number of turtles that come north to breed has varied from as low as 95 in a poor year to as many as 250 in a good one. He estimates that 26,500 turtles hatch each year but only a fraction of that number grow into sexually mature turtles. The hatchlings disperse when they enter the water and many are eaten by crabs, sharks and other large fish such as ulua.

In view of the high mortality rate of the young hatchlings, Balazs says, "We don't know what the minimum number is that is needed to support the population. All we can do is work backwards from a population model and try to get a number that gives us some kind of idea of how many are needed to give the turtle population



Hawaiian green sea turtles sleeping with a young Hawaiian monk seal. Both species are listed under the U.S. Endangered Species Act and protected by the wildlife laws of the state of Hawaii.

some kind of stability so they can survive."

Part of the problem is that it takes Hawaiian turtles many years to reach maturity and if too many of the young turtles are taken, an insufficient number will survive to breed and maintain a stable population. Balazs estimates that it takes anywhere from 11 to 59 years for a green sea turtle to mature sexually. The small sandy-colored juveniles grow into large 35-centimeter adults with heavy black shells covered with yellow, olive and gold patterns.

The adults are preyed upon by tiger sharks that use their jagged teeth to cut through the shell with sawing motions. They also suffer from parasites and disease. Alike Cooper says he had never seen a green sea turtle with cancerous tumors until 15 years ago and thinks that pollution in Hawaiian waters is taking its toll on the turtle population.

George Balazs believes that the females that make their way up to French Frigate Shoals are the last of a once-large population that bred on all the Islands. He thinks that the turtles that have survived are those with migratory patterns that have allowed them to reproduce in relative safety.

Although approximately 90 percent of all the breeding takes place in French Frigate Shoals, turtles can be

found laying eggs on beaches throughout the Islands. Nesting begins in mid-May, reaches its peak at the end of June and continues until early August. The females dig holes in the sand at night and lay approximately 100 golf ball-sized eggs at a time. Balazs has found that more than half the turtles lay two times per season and some lay as many as six egg clutches in a single season.

The eggs are covered with sand and hatch in two to three months. Once hatched, the young turtles find their way down the beach and vigorously swim away until they are swept away by the tide. Then they disperse, swimming and drifting in the open ocean currents. No one yet understands where they go or how they survive.

The young turtles are not seen again until they are juveniles, probably 2 to 4 years old. By the time they reach this stage they are able to swim independently of the ocean currents. Some have been known to travel to French Frigate Shoals from the Big Island and back, a round trip of approximately 1,500 miles.

It is not known for sure how they make their way across the open sea to a selected destination. The Navy studied turtle guidance systems during the 1960s, but was unable to come up with definite conclusions.

There are several theories. One suggests that there are chemical clues

or secretions from each of the Islands that turtles identify as they swim north against the current. Another suggests that in the latitude of the main Islands, the sun reaches its highest point in late May as it moves north and then reaches it again as it moves south. Balazs thinks that turtles departing from French Frigate Shoals to return to their feeding grounds off the main Islands could be setting a course directly into the rising sun.

No one knows how many green sea turtles are taken illegally, but according to Bill Streeter, an agent of the National Marine Fisheries Service, the number is considerable. Streeter says that on several trips to the Big Island's Punaluu and South Point areas, he found turtle remains along the shore that had been left behind after the turtles had been caught and cleaned.

Streeter has also seen wooden stakes that had been driven into the ground above rocky ledges and used to tie off the turtles hooked with a flying gaff. (The flying gaff is a detachable boat gaff or hook at the end of a long pole. A fisherman hooks a turtle, releases the pole and then ties off the gaff line to the stake. He then waits until the turtle exhausts itself before he brings it up.)

Speared turtles turn up regularly

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Turtles

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on Oahu's beaches. NMFS biologist John Naughton, who grew up in Hawaii, explains why: "Amateur divers will put a spear in a turtle, and the turtle, being a powerful animal, just takes off with it."

Other turtles are caught by divers who spear them while they rest or feed and others drown inadvertently in fishermen's nets.

It is illegal to take them in any form.

Naughton acknowledges that many people find it difficult to accept a federal or a state law that prohibits them from doing something that they have done all their lives.

"A lot of people think it's an unjust law. They have been using turtles for so long, and so have their fathers and their fathers' fathers. But in recent times they were taking and selling them to restaurants, and with modern equipment they were taking too many."

NMFS scientist Bill Gilmartin concedes the Hawaiians' traditional uses of the turtles but questions whether there is a "true human need"

"... George Balazs asks why the turtle has become an issue for native Hawaiians when other protected species such as porpoises and sea birds which were also eaten by Hawaiians are not an issue..."

to harvest them at this time with so little known about the population.

"Our counts are not perfect," says Gilmartin, "but there is nothing else to go on. When someone says, 'There are plenty of turtles,' we don't know what that means." He is not yet confident that the turtle population is stable enough to survive and objects to any harvesting of green sea turtles until he is sure the species is safe. The problem with baby turtles, he says, is that it is questionable whether the ones that grow up in captivity are able to follow the migration and breeding patterns necessary for survival of the species.

George Balazs asks why the turtle has become an issue for native

Hawaiians when other protected species such as porpoises and sea birds which were also eaten by Hawaiians are not at issue. He also questions how commercial fishermen who favor repeal of the ban can be considered "subsistence fishermen." Supporters of the law, like Balazs, say that the taking of turtles on even a small scale could lead to an increased demand for turtle and eventually to a serious depletion of the population.

U.S. Rep. Cec Heftel has come out in favor of keeping the green sea turtle on the threatened species list. "The green sea turtle was listed as a 'threatened species,'" he says, "because population and conservation

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analyses show that the continued existence of this species is, indeed, threatened." Among the problems he foresees in loosening the present ban: difficulty in limiting those allowed to take the turtles; difficulty in enforcement; risk of destruction of the species.

The people in charge of enforcing federal policy are special agents Bill Streeter and Gene Witham. They and officers from the Department of the Interior's Fish & Wildlife Service are responsible for all turtle violations

"... Aluli points out that it was the white man who destroyed the turtles' nesting places..."

that take place in Pacific islands under American jurisdiction, an area of approximately 1 million square miles.

Although there have been only six successfully prosecuted cases involving the illegal taking of green sea turtles since the law went into effect, Streeter's office is working hard on more. The average fine to date for possession of turtle shells and meat is more than \$1,000. He says that effective compliance with the law will come only when people realize that leaving the turtles alone is in everyone's best interest.

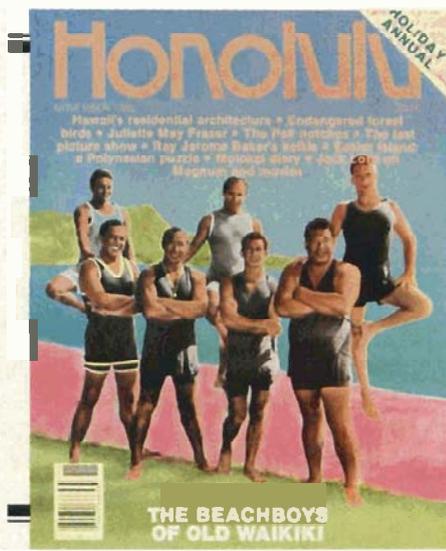
Such compliance will not come easily. Alika Cooper and Dr. Emmett Aluli have been active in efforts to secure greater recognition for the rights of native Hawaiians. They believe that Hawaiians should be granted aboriginal rights, including rights to the turtle, such as those granted Alaskan Indians to fish for bowhead whales.

Aluli points out that it was the white man, and not the Hawaiians, who destroyed the turtles' nesting and dwelling places, thereby making it difficult for them to survive. Although he does not want to see the extinction of the turtles, he is unwilling to compromise on Hawaiians' aboriginal rights to the creatures: "If we give way on this, we will be forced to compromise on other things that affect us as well."

Abraham Piianāia disagrees: "Aboriginal rights is beside the point; the main thing is that the animal survives." PCV

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