

The aloha

Experts: Native Hawaiians will adapt,

► Terrie Henderson

It would take a lot more than three feet of water to drown the Hawaiian spirit.

But that much water rise, which is expected to happen around the end of the century, will likely do much harm to the island's hawksbill turtle population, said Will Seitz, Hawai'i Island Hawksbill Turtle Recovery Project coordinator.

Life's a beach for the turtles

On Hawai'i Island, there are five to 15 nesting hawksbills annually. There have been 89 since 1991 that the project is aware of, Seitz said.

"They are very illusive," Seitz said, adding a favorite nesting beach for hawksbills is Kamehame Beach, three miles east of Punalu'u.

Already, Seitz said, high tides and south swells result in the loss of nests, because the beaches have limited space for turtles. The Big Island has miles and miles of cliffs and rocky shoreline. Beaches, for animals seeking rest, relaxation and places to start families, can be few and far between.

Nesting hawksbill turtles have not been seen at Punalu'u for about five years, he said, adding as the water rises, these endangered turtles will have fewer beach nesting spots available.

Also at risk when the waters rise are the green

BIW investigates

This is the third of a three-part series on Big Island sea level rise over the next 100 years.

April 22 — Big Island's beaches threatened by sea level rise

April 29 — Big Island agriculture along the coasts will be hard hit.

Related story

A Marshallese language interpreter, now living on the Big Island, talks about the islands and some of issues facing the Marshallese people on page 5.

sea turtles, Seitz said. He said these turtles, the ones commonly seen basking around the Big Island, rarely nest in this island chain, although they have nested, at times on Maui and Kauai. The green sea turtles nest in the French Frigate Shoals, or the northwestern Hawaiian Islands. Green sea turtles, which are threatened, nest on islands that are barely above water now, Seitz said, adding their nesting grounds will become harder and harder to find as the waters rise.

But just as threatening for the hawksbill as sea level rise, Seitz said, will be trying to find food once the waters rise.

"Their primary food source are sponges in the coral reef," Seitz said, adding the rising water would likely cause destruction and degradation to the reefs.

"That would be a real serious blow to the hawksbill," Seitz said.

Seitz said Hawaiian monk

seals would also likely be threatened by rising sea levels, because they, like the turtles, use beaches to rest and give birth.

Elsewhere in the Pacific

While Hawai'i Island will suffer, people living in Micronesia, where the majority of the land is very flat and usually not more than five feet above sea level, will face the possibility that their homelands will all but completely disappear under the vast, blue ocean.

Keola Downing, a Marshallese interpreter living on the Big Island, said if the waters rise, groups of people from Micronesia may need to move to Hawai'i and elsewhere in the United States.

"I do think that there will be migrations from the Marshall Islands. I believe that there will be in excess of 40,000 Marshallese to the United States and most will come here," Downing said. "If the sea rise is three to five feet, there won't be much left to live on in the Marshall Islands. I have so much concern in that regard, that I will likely be spending my sunset years trying to address this real problem."

Downing said he does not want to see the culture of the Marshall Islands disappear.

"The only way to cause that to not happen is to introduce a special way of preserving their culture, language, and history into the largest remaining cluster of Marshallese people away

spirit can't

but turtles and residents of smaller

from their homeland," Downing said. "It will almost surely be Hawai'i, and most likely be the Big Island itself."

The spirit of Hawaii

Some say the spirit of Hawaii will live on and thrive, although some parts of what is considered uniquely Hawaii today may become entombed in watery graves and remembered only with stories from the elders, photos and historic accounts.

George Applegate, executive director of the Hawai'i Island Visitor's Bureau, said he doesn't have the answer to how sea level rise will affect tourism 100 years from now, even though he acknowledged some popular beach areas

will likely be at least partially under water.

"We will always promote what we have," Applegate said. "I don't think that is

going to change."

Applegate said what really draws visitors to the Big Island is the aloha spirit.

"That's our No. 1 selling point," Applegate said, adding keeping mind and spirits positive and caring for the aina is of utmost importance.

He said the tourism industry needs to also encourage hotels to be environmentally friendly. Keeping Hawaii green will be an important factor to keep tourism, and the island, alive and well.

Kimo Pihana, Hawaiian



At left: Hawksbill turtle hatchlings head to the waters of the Big Island after taking their first steps in their new world. At right: A hawksbill turtle swims near some coral off the Big Island in this photo from NOAA.

PHOTO BY WILL SEITZ
AND NOAA

be drowned

Pacific islands may flock to the Big Island

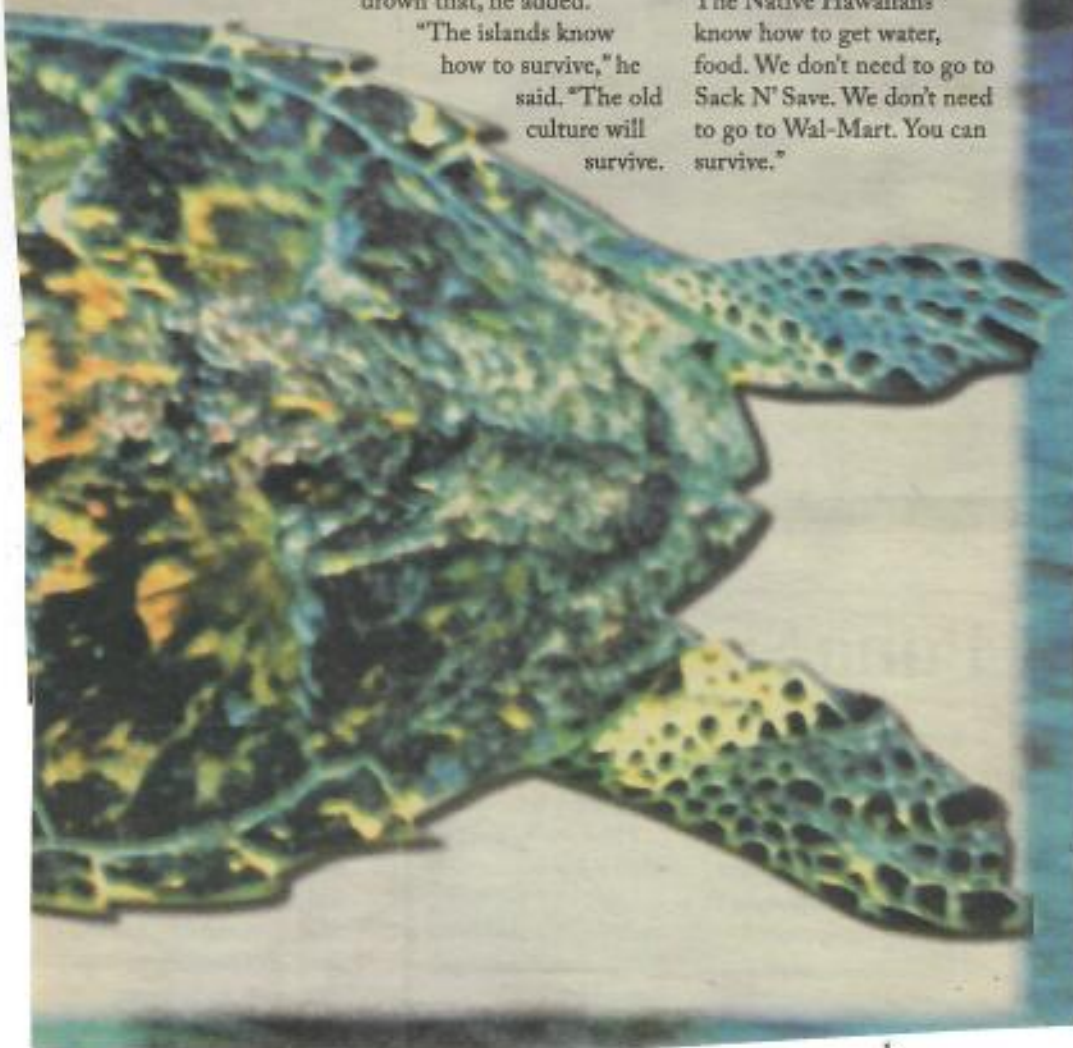
cultural practitioner who many know for his work as a Mauna Kea Park Ranger, said he knows the sea level rise is undoubtedly a result of what people have done. But he said Native Hawaiians know how to rebuild and recover, and this water rise will not stop the Hawaiian spirit or culture from living on. He said Hawaiians have a way of praying, dancing, celebrating, singing and working very hard, which contributes to



their survival as a people. Three feet of water won't drown that, he added.

"The islands know how to survive," he said. "The old culture will survive."

The Native Hawaiians know how to get water, food. We don't need to go to Sack N' Save. We don't need to go to Wal-Mart. You can survive."



[6] Big Island Weekly | NOVEMBER 18, 2009

2009



Baby Hawksbill turtles emerge from the black sands of Punalu'u Beach on Nov. 11. Officials said 42 of the squirmy little turtles hatched and are now part of sea life.

INDIA YOUNG

Hawksbill turtles chart course to recovery

Two decades of protection efforts appear to be paying off

By DAVE SMITH
Associated Press

HILO — A surge in new nesting Hawaiian hawksbill turtles over the past several years indicate that a 20-year-old protection effort is finally producing new baby turtles.

An intensive program has been underway since 1989 to protect the nests of the endangered turtles on more than a dozen remote Big Island beaches.

The local population of the species was seriously in need of help, said Larry Katahira, a Hawaii Volcanoes National Park resource management specialist who ran the program until retiring three years ago. Katahira said fishermen who frequented the coast told him that before the program started, very few hatchlings made it to the ocean.

Several dozen volunteers now work each year to improve those chances. From June to December, a crew of mostly college students treks along the windy coast of southern Puna and Ka'u. Camping at known nesting beaches, they train

turtles, and then eight each in 2006, 2007 and 2008.

When they reach sexual maturity, hawksbill turtles usually return to the beach of their birth to lay eggs. Although it's not known for sure how long it takes for a hawksbill,

newly tagged honouea is a hopeful indication. "A lot of the newly tagged turtles have shells that are not damaged," Seitz said, adding that would likely indicate those turtles are younger, as many of the ones



honouea, to mature, it's believed to be at around 20 years.

Will Seitz, who took over from Katahira as head of the Hawaii Island Hawksbill Turtle Recovery Project, said there's no way to know for sure whether the turtle

previously tagged have shells showing damage and wear.

The time period seems about right when compared to other sea turtles

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Several dozen volunteers now work each year to improve those chances. From June to December, a crew of mostly college students treks along the windy coast of southern Puna and Ka'u. Camping at known nesting beaches, they trap and kill mongooses, rats and feral cats that prey on the defenseless hatchlings as they leave the nest.

The volunteers also stay up many nights watching for females to crawl up from the ocean. A turtle drags itself up above the high-tide mark, digs a nest into which it lays about 150 eggs and then covers it with sand.

But before the turtle returns to the sea, she is intercepted by the waiting volunteers, who check her flippers for a numbered metal tag that shows she

honnea. to mature, it's believed to be at around 20 years.

Will Seitz, who took over from Katahira as head of the Hawaii Island Hawksbill Turtle Recovery Project, said there's no way to know for sure whether the jump in numbers of newly tagged females is the result of hatchlings

previously tagged have shells showing damage and wear.

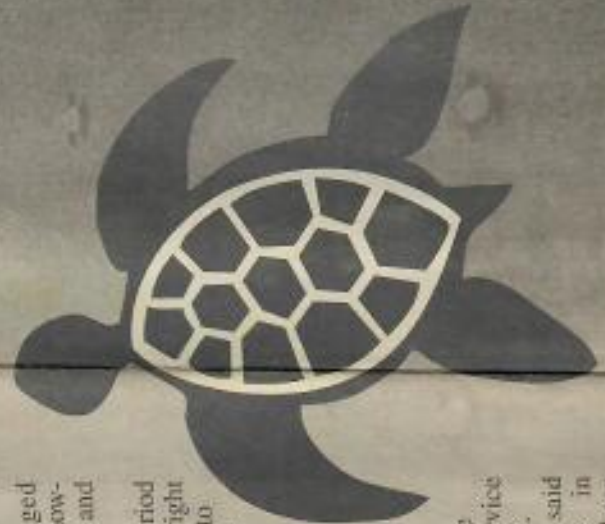
The time period seems about right when compared to the green sea turtle, which also is believed to take about 20 years to reach sexual maturity, said veteran researcher George Balazs, a sea turtle biologist with the National Marine Fisheries Service in Honolulu.

Balazs said hawksbills in Hawaii have always been difficult to study because of their low numbers. He credited the efforts of Katahira, Seitz, the volunteers and others for their efforts to reverse that.

"They were the right people to come

helped by the program returning to nest at the beach of their birth.

"We'd like to think that,"



Hawksbill turtle hatchlings head for the sea at Hawaii Volcanoes National Park, Hawaii. These baby turtles were spotted in a rare daytime exodus during a teacher's workshop held at Pohue Bay in nearby Kau on the Big Island. The photo was provided by the Hawaii Island Hawksbill Turtle Recovery Project.



was found nesting in the past. If one is present, they record the number. If not, she receives a new tag.

The tagging began in 1991 as a way of keeping track of which turtle was nesting and where. Over the next 15 years, the number of newly nesting turtles tagged each year averaged about four.

Four years ago, that number began to grow. In 2005, there were six newly tagged

The condition of the

along for the right species," he said. The program was honored in 2007 with a Living Reef Award by the Coral Reef Outreach Network.

Hawksbills, which are found in both the Atlantic and Pacific oceans, are protected in U.S. waters under the Endangered Species Act of 1973, and under a variety of international treaties elsewhere. Worldwide, hawksbill populations have dropped by 80 percent over the past century and continue to decline. Threats include man, who harvests both the turtle and their eggs, degradation of coral reefs that provide food and habitat, and man-made lighting at night that can deter females from nesting and disorient hatchlings. They have also long suffered from commercial exploitation, such as combs made from their shell, which has been incorrectly called "tortoise shell" and also described as "the first plastic."

Very little was known about hawksbills in Hawaii prior to the tagging program's start in 1991. So far 89 have been tagged on Big Island beaches, although three of those are known to have died. That leaves about 100 known nesting females in the state, with the remainder tagged on beaches on Maui, Molokai and Oahu.

Satellite tracking has shown that when they're not nesting along the Big

Island's southeastern coast, hawksbills spend most of their time foraging on sponges off the island's Hamakua coast. For example, while females often nest every three, or four years, they can go eight years between nesting. And, the number of nests laid by a turtle during a season varies from one to five or more. Hence the number of known nesting turtles any given year ranges from four to 17, and the numbers of nests from less than 20 to more than 60.

The other sea turtle frequently seen in Hawaii, the green sea turtle, is considered threatened but is far more numerous, and is sometimes found basking on Big Island beaches. However, they do not reproduce in the main Hawaiian Islands but make the long journey to French Frigate Shoals in the Northwestern Hawaiian Islands to nest.

Seitz said intensive monitoring needs to continue in order to better understand Hawaiian hawksbills.

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But scientifically, we don't have proof," he said. He said there are other possible explanations for the increase in untagged turtles, including the chance that the volunteers missed some new nesters. However, the volunteers are now covering more beaches and have more knowledge about potential nesting sites than ever before.

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KAWA'AI'ANA

Shopper

A Weekly Publication by the Hawaii Trust Fund

April 15, 2009

Two decades
of protection
efforts appear
to be paying off

See "Hawksbill turtles chart course to recovery" on inside page

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Hawksbill hatchlings put on a show

► India Young

Turtle enthusiasts sporting big smiles and buzzing with excitement crowded around a hawksbill sea turtle nest located on the now closed Punalu'u beach road last week.

Clad with cameras, adults and children were there to witness the excavation of a nest laid by an endangered hawksbill known as "Turtle 99" on Wednesday, Nov. 11. Hosting the event was Hawaii Volcanoes National Parks' Hawksbill Turtle Recovery Project.

"While most people are familiar with the 'hono' or green sea turtle that is commonly seen basking on Punalu'u beach, very few people have ever seen or even heard of the 'honu' or hawksbill turtle which nests on Hawaii Island," said project manager Will Seitz.

The hawksbill is the rarest turtle in the Pacific Ocean, and this year marks the project's 20th anniversary. From May to

December, volunteers

come together and donate 10 or more weeks "to monitor nesting activity, beaches for protecting mama turtles and their hatchlings and educating beach users," said Seitz. Loss of nesting habitat, predators and poaching of hawksbill shells, have reduced turtle populations to critically low levels.

The Punalu'u turtle was the 99th female hawksbill tagged by the project since its inception in 1989.

"It's been the most successful year in project history... we have never seen this many nests at Punalu'u," Seitz said. Turtle 99 has laid a total of five nests on Punalu'u beach and although volunteers observed tracks in previous seasons, this is the first documented nest at Punalu'u since 2003.

"On average, hawksbills lay about three nests and up to six,

individuals

typically come back every three years to nest," he said.

Nesting is a challenge for female hawksbills with Hawaii Island's rocky shorelines,

and nests can be found several hundred feet from the shore. Females will often false nest or prospect many times before finding a suitable site to deposit on average, 178 eggs.

The eggs incubate for about two months before the hatchlings work together to move sand from the roof of the nest to the floor, in order to climb closer to the surface. After nesting for the sand's coolness, hatchlings determine if it's dark outside and safe to emerge.

"Fortunately for the hatchlings at Punalu'u, volunteers are there to guide them to the ocean," Seitz said.

John Lindelow, president

Web video alert!
To see video of the Hawksbill hatchlings, go to www.bigislandweekly.com.

of the non-profit organization World Turtle Trust (<http://World-Turtle-Trust.org>), said that the closure of the beach road in 2005, "has had several beneficial effects... turtles won't get run over by vehicles, their eggs won't get crushed by the weight of vehicles going over their nests, and there will be less light sources to disorient newly emerged hatchlings."

Problems occur when artificial lights mislead hatchlings away from the ocean, where they become stranded and die.

"In addition, the road closure has provided better nesting habitat available for the turtles. Formerly, hawksbills nested mostly under the coconut palms where hatchlings had to struggle to dig themselves out from under roots," Seitz said.

"Now they have a much



greater habitat area for nestings" Lindelow added.

County councilman for the Ka'u district and Pahala native Guy Enriquez was present at the event. He there are locals and beach residents who want the road opened again.

"I would be happy to keep the road like it is... I just don't want to lose this beach," he said. Enriquez said over the years he's seen a great change in the beach profile with the retreat of sand into the naupaka vegetation lining the beach. He said that reopening the road would keep

the sand accumulated near the ocean and out of people's private property.

Turtle 99, however, doesn't recognize a road as off-limits, and the migration of sand naupaka offers a suitable habitat for her to deposit eggs. The Department of Land and Natural Resources reports that, "turtles require 2 to 2 1/2 feet of deep dry loose sand for nesting."

Turtle 99 would know about hospitable beaches around Hawaii Island, having been first flipper tagged as "Y-254" in 1989

Turtles

▶ 6

at Kiholo Bay by Marine Turtle Researcher George Balazs.

"She was a juvenile, no bigger than the palms of my hands put together, when we first found her," he explained.

She was seen again in 1990 and 1992 by Balazs and team at Kiholo Bay, but later thought for dead.

"We honestly and sadly thought she was dead, caught and killed in gill nets at Kiholo, common back then, but not now," said Balazs after she reappeared this summer to dig at

Kamehame beach and ultimately nest at Punalu'u.

Balazs said the scientific significance of Turtle 99 is exciting.

"This turtle is no longer an adolescent," he said. "She grew up in under 25 years and is now laying eggs. Previously, we didn't know how long it would take hawksbills to reach maturity in Hawai'i. In some parts of the world it takes 30-40 years to reach maturity."

Balazs congratulated the people of Ka'u for their efforts in protecting the turtles.

Volunteers detected that the hatchling emergence was

starting on Monday, Nov. 9, when a depression formed and 42 turtles trickled out toward the ocean. With a depression already formed and after a natural hatchling emergence, Seitz decided to make the excavation public so residents, especially children could participate.

"A large part of the project is public outreach and education," Seitz said. Most Hawai'i Island nesting sites are located on isolated beaches in the Ka'u

district away from the public eye. "Punalu'u provides a tremendous learning opportunity for residents to experience these rare and magnificent hawksbills,"

Seitz said.

"Forty-three live turtles were excavated on Wednesday, totaling 85 from the nest, and a 58.4 percent success rate," said volunteer Meghan Jerolaman. Children set the hatchlings in the sand affronting the ocean and enthusiastically watched as

they raced on an impromptu sand track toward their new home. The hatchlings will face even bigger obstacles once they are at sea searching for food

trying to hide from predators.

"Although it's not well known, there is a one and 1,000 chance they will survive to adulthood, they need all the help they can get. It will be interesting to see if Turtle 99 comes back for a sixth nest," Seitz added.

The Hawksbill Turtle

Recovery Project needs at least 16 volunteers at a time who enjoy camping, strenuous hikes and interacting with public, and can handle four-wheel driving.

nightly turtle monitoring, flipper tagging, data collection and authorization of predators. Seitz credited turtle volunteers for their dedication to hawksbill conservation, "even though they receive little financial return, the rewards are immeasurable and life-changing."

More information or to volunteer <http://www.waps.gov/havo/naturescience/turtles.htm> or contact Will Seitz at: Will_Seitz@contractor.nps.gov