

I see in such a great way... returning for more.

2002

Turtle 5690 returns

By HARRY EAGAR
Staff Writer

LAHAINA — After a two-year absence, Turtle 5690 has returned to a quiet but warm welcome. Four times this summer, she crawled out of the ocean near Lahaina Shores, laboriously dug a deep hole in the sand, and deposited scores of eggs.

On the last occasion, the night of Wednesday-Thursday, researchers fitted a satellite transmitter to her shell, so now they may be able to figure out where she goes.

Ursula Keuper-Bennett, who assisted with the three-hour tagging, said the experience was "incredible." But she tried to describe it:

"Female turtles dig in the sand with their front flippers and then hurl that sand past their carapaces to the rear where the nest is. The flipper hurl is so forceful there's a WHAACK! sound as each flipper strikes the shell!"

Only the highlights of Turtle 5690's life are known, but she's famous already. In 2000, she became the first confirmed green sea turtle to nest on Maui in modern times.

Following the urge of her kind for millions of years, she returned again and again to the same little patch of beach, to excavate a hole — usually after several false starts — for her eggs.

This May, she returned to almost exactly the same spot, and then every 14-16 days, "like clockwork" in the words of George Balazs, came again.

Balazs, leader of the Turtle Research Program of the National Marine Fisheries Service in Hawaii, does not expect she will make a fifth nest. The first hatchlings from the first nest can be expected to start emerging late this month.

That adds hope for the future of the threatened turtles, who do almost all their nesting on French Frigate Shoals, where 5690 got her start.

In 1980, Balazs collected scores of baby turtles, who were reared on fish and squid at Sea Life Park until they were dinner-plate size.

They were tagged, and then the "headstarted" turtles were released around the state. Turtle 5690 was set loose on Sept. 11, 1981, at

Richardson Ocean Center at Hilo. She weighed 2.7 kilograms (6 pounds) and measured 22 centimeters (9 inches) in straight carapace length.

Not one of those turtles was seen again until summer 2000, when 5690 was identified by a confirmed tag resighting while nesting right next to a high-rise tourist hotel in Lahaina. (She probably was the turtle who nested earlier that year in Kihei, but nobody saw her then.)

The nest at Kihei contained 94 eggs, of which only 14 percent resulted in hatchlings, possibly due to very dry sand conditions, according to a report by Balazs and others.

The three nests at Lahaina contained 76, 76 and 88 eggs, respectively, of which 63 percent, 57 percent and 55 percent resulted in live hatchlings.

Mary Jane Grady, who spotted the tag, estimated then that 5690 weighed 200 pounds and had a carapace length of 85-90 cm.

If so, her rate of growth had exceeded that of naturally occurring green turtles tagged and recaptured

to Lahaina to nest

throughout the Hawaiian Islands.

It could have been an underestimate, because Wednesday night the friends of 5690 got an exact measurement of 99 cm. (3 feet, 3 1/2 inches).

Turtle 5690 returned to Lahaina on May 25, June 10 and June 26.

Word got around, but her visits were not publicized. Lights and other activity could interfere with nesting, although last week, after her work was done, 5690 proved "very mellow" when she was corralled in a carpet-lined plywood cage for tagging.

Balazs says he is not concerned, now that she has probably finished coming ashore, that humans will interfere with the rest of the process.

For one thing, the babies come out irregularly, at 55 to 70 days from laying, depending where they are in the nest, and they are hard to catch.

For another, everybody around has been "totally understanding, totally protective" of their home.

"I'm really impressed, with the tourists and with the local people," says Balazs.

After 5690 finished her work last week, she was herded into the plywood pen, where a team of seven people first put rubber on her back.

A one-pound transmitter with a little antenna was stuck to that, and the whole arrangement was secured with layers of fiberglass.

This should allow Balazs to follow 5690 on her journey, be it great or little, now that she no longer needs to be near land for a long time.

The transmitters often work for six to seven months, sometimes longer. Eventually, as the shell grows and sloughs off its surface, the fiberglass loses contact and the transmitter falls off.

Putting a transmitter on even a tolerant turtle is a job, and everyone was tired after working all day, so they told stories to keep themselves awake.

Glynnis Nakai of the Kealia Pond National Wildlife Reserve and Skippy Hau of the Department of Land and Natural Resources will keep an eye on the four nests. When all activity has ceased, they will carefully dig them out.

They will expect to find a few stragglers, caught in roots or otherwise not quite making it on their own. They will help them into the ocean and then collect eggshell samples for genetic analysis.

Two decades ago, 5690 was released as part of a test to see if headstarting could help rebuild turtle populations.

In their report, Balazs and the team wrote, "It should be noted that the amazing part of this story is not that a headstarted green turtle successfully nested in the wild.

"There's no reason to believe one wouldn't, if it survived to grow to maturity and eventually mated. What is amazing is that a single flipper tag applied to such a small turtle stayed on for so many years making it possible for the success of 5690 to become known."

And maybe that the development of Lahaina over the past two decades didn't seem to make much of an impression on 5690. But then, green sea turtles are accustomed to taking the long view.



OCEAN WATCH

Susan Scott

Fertile turtle astounds local researchers

Some call her Maui Girl, but a more appropriate name might be Fertile Myrtle. She's a 22-year-old green sea turtle that in 2000 crawled onto a Lahaina area beach, dug a hole and laid eggs. She did this not once, but three, maybe four times that summer.

This was big news then because "5690," Maui Girl's official number, was the first green turtle to nest on Maui in half a century.

This turtle had an official number because in 1980 she'd been enrolled in a tagging study. At that time, researchers attached metal tags to young turtles' flippers. These tags, however, often fell off over the years, and workers lost valuable information about turtles' lives.

To try a more permanent type of tagging that worked with lizards, National Marine Fisheries Service biologists George Balazs and Bill Gilmartin brought 175 hatchling turtles from French Frigate Shoals (where most greens nest) to Honolulu. There, researcher John Hendrickson swapped a small plug of light shell from a turtles' underside with a dark plug from its back.

To compare the progress of grafted turtles to nongrafted turtles, some hatchlings received only a metal tag.

For a year, under contract, Sea Life Park workers fed, monitored and cared for the study babies. In 1981, when the turtles had reached the size of dinner plates and weighed about 7 pounds, biologists released them at various sites throughout the state. No. 5690 began life on her own in Hilo Bay.

So far, this turtle is the only one of that batch, grafted or not, ever seen again. It's possible, however, that others are around but have lost their metal tags.

Besides having her 20-year-old tag still intact, Maui Girl has marveled researchers with the production this year of an exceptionally large number of offspring.

After taking a year off from egg laying, which is typical for green turtles, Maui Girl returned to Lahaina in May of 2002. There she dug her first nest of the year and laid a clutch of eggs. By mid-July this industrious female had laid a total of four egg clutches.

During her fourth, and researchers believed her last, nesting night, workers attached a one-pound tracking device to the turtle's back. This instrument signaled a satellite once a day, enabling Balazs to track her course.

The turtle stuck around the Maui area and on July 24 laid her fifth clutch of eggs.

"What a marvelous turtle," Balazs wrote in an e-mail. "But in ways, they all are, with so many mysteries of their lives yet to be unlocked."

And this turtle held even more mysteries. She proceeded to lay a sixth and seventh clutch of eggs on that Lahaina Beach. Seven is the most ever laid by Hawaiian green turtles in one season; one to three is more common.

All of Maui Girl's nests have hatched now, but Lahaina lights confused some little turtles, and they headed for town instead of the ocean. State and federal biologists, plus helpful citizens in the area, redirected the hatchlings when they went astray, and most made it to the ocean.

Balazs and state aquatic biologist Skippy Hau estimate that 5690 produced about 400 living, swimming offspring this year.

Balazs writes that this supermom is currently living in Napili Bay, "enjoying the grand Hawaiian life she has chosen for herself in Maui's coastal waters."



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De Merini Coming to Hutton's Mid December

Hutton's is happy celebrate Valentine's Day 2003 with a special showing of De Merini on February 13th and 14th. If you have not had a chance to view these elegant hand crafted pieces we highly recommend stopping by. The Guarded Heart designed by Louise Damiano is a beautiful heart of gold or platinum, and set with diamonds (it comes in a variety of metal and gem stone combinations). Louise says, "It is a symbol of how a woman can buy something meaningful for herself, and not wait for someone to purchase it for her." In creating it, Louise says she wanted to express "an experienced heart, not jaded, but wise. Many hearts I see don't show strength. This is both feminine and strong and I wanted to

give that to women." The whole collection, which is handmade in New York City, is of 18k white and yellow gold embellished with such fine gem stones as diamonds, sapphires, tourmalines, spinels, mandarin garnets and aquamarines. It is sold to approximately 30 high-end jewelry stores throughout the country. Intelligently priced for the modern woman of today, De Merini designs are wearable, beautiful and ageless.



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Louis Glick is world renowned for his rare and extraordinary fancy yellow diamonds. Since the moment he first laid eyes on the alluring stones, the legendary diamantaire was mesmerized. While the world focused its attention on white diamonds, Louis Glick pioneered new cutting techniques to unleash the exceptional color and brilliance of yellow diamonds, which today represent the height of glamour, luxury and elegance.

The Return of Turtle 5690

Over 20 years ago Turtle 5690 was released at the Richardson Ocean Center at Hilo, where she had hatched and been fed until she reached the size of a dinner plate. To the joy of researchers she showed up on the shores of Lahaina in the summer of 2000. 5690 was the first confirmed green sea turtle to nest on Maui in modern times. The green sea turtle is a threatened species often drowning in fishing nets or a more recent threat of giant tumors.

This May however Maui residents were all a buzz about 5690. Making headlines in the Maui News, Turtle 5690 returned to Lahaina an amazing 5 times to nest. George Balazs of the National Marine Fisheries Service was kind enough to share a picture of Turtle 5690 with us. A transmitter has been attached to the shell of 5690 to help collect data on the travel patterns of 5690. Next time you are snorkeling keep your eyes out for Turtle 5690, she is a local celebrity!

"Photobygbalazs@honlab.nmfs.hawaii.edu"



The Maui News

Turtles part of marine mysteries

It seems that green sea turtles are no more predictable than the stock market. Or at least one green, tagged in 1981 as "5690," is not.

Turtle 5690 is the only one of her kind known to be nesting on Maui. In 2000, she came ashore three or four times. When she had nested a further four times this year, researchers figured she was through for the season.

But Turtle 5690 has a strong work ethic to go with a strong desire to reproduce — digging those nests with flippers is not easy. She returned this week to bury a fifth clutch of eggs in the sand of a Lahaina beach.

Now, the question is, will she come back again?

Events this year remind us how little we understand about the creatures that live in the ocean that surrounds us.

In January, a California man was bitten by a shark at Olowalu, leading to a proposal, still under development, for permanent shark-warning signs in that area. It would be a first for Hawaii when they go up.

Then in March, sharks attacked and killed a newborn humpback whale with tourists looking on from Kaanapali Beach, a reminder that sharks can go anywhere.

Over the past month or so, there has been a lively debate about whether it is better to have maximum or minimum size limits on caught fish, if the goal is to get good reproduction.

And last week, Turtle 5690 proved that turtles cannot be taken for granted either.

Among the things we still don't know: What happened to 5690's classmates? How far does she go from her nesting beach when she is not breeding? How has she escaped infection with fibropapilloma virus, a disease that cannot be proved to have existed in Hawaii before the mid-1950s but which now attacks a large fraction of Hawaii's green sea turtles?

Assuming she avoids viruses and sharks, Turtle 5690 may have many lessons yet to teach.

Turtle 5690 nests for fifth time, surprises observers

Whether she's done for year, will remain nearby are unknown

By **HARRY EGAR**
Staff Writer

LAHAINA — Turtle 5690 surprised her human network by returning to Lahaina to nest a fifth time Wednesday night.

The latest nest is almost on top of her first nest of this season, whose eggs have all hatched.

Turtle 5690 is regular as a clock, returning to a beach just south of Lahaina Shores every two weeks to dig a hole and lay eggs. On July 10-11, researchers put a satellite tracker on her back and were quite sure that four nestings would be her full program for this year.

Glynnis Nakai of Kealia Pond National Wildlife Refuge and Skippy Hau of the state Department of Land and Natural Resources visited the first nest Wednesday. Most of the eggs laid in May had hatched. Nakai and Hau excavated the nest to help stragglers out and collect eggshells for study.

But they did not stick around to see if she would come back again. Neighbors found her tracks, made later that night.

George Balazs of the National Marine Fisheries Service, the leader of the Hawaii turtle recovery force, said he was "delighted" to be proved wrong about 5690's nesting program.

Balazs was on Molokai, so he would have missed the latest nesting anyway, but he said that "if we knew everything there was to know about green sea turtles, we could close the book."

He added, "This is one of the major reasons why we continue our research and put satellite transmitters on sea turtles — to learn more about their movement and behavior. We learn

something different each time."

Since greens are a threatened species in Hawaii (and in many other places as well), knowledge of their behavior is useful in trying to protect the population.

In fact, 5690 was part of an experiment begun in 1980 to see if "head-starting" baby turtles by rearing them in ponds would increase their chance of getting big enough to reproduce. Turtle 5690 is the only one of the group known to have reproduced.

She nested three or probably four times on Maui in 2000, leading researchers to expect her to stop after four landings this year. Now they are not sure whether to expect a sixth visit.

"She's very site-specific," says Nakai. Although no green was known to nest on Maui for the past half-century, Nakai says it is understandable why she picks the spot she does, though it is very close to a tall building. Her nest sites are dug in front of a private house, and while lights can bother turtles, "it's very dark" just there.

One of the questions to be answered by the tracker is where the turtle goes when she is not breeding.

The first two weeks of tracking showed her sticking close to Lahaina. But it turns out that was just foraging while preparing for another nesting. Only later will the tracker show what part of the ocean she calls "home."

The tracker showed that between her fourth and fifth nestings, she traveled a total of 37 miles. The farthest she got from her nests was 12 miles to the north, near Oneloa Bay, the isolated beach area between Kapalua Bay and Honokahua Bay.

It took her eight days to reach Oneloa but only 13 hours to return to Lahaina once she decided to nest. During that dash, she was motoring at 1 mph.

Tagged turtle has stuck to West Maui

Radio transmitter shows creature keeping nearby

By HARRY EGAR
Staff Writer

LAHAINA — So far, Turtle 5690 is looking like "truly a 'Maui Girl,'" according to researcher George Balazs, who attached a satellite tracker to the female green sea turtle on July 11.

Turtle 5690 is the only confirmed green to have nested on Maui in half a century. She has now nested in two seasons, but it is a mystery where she went in between.

The satellite tracker shows she hung around Lahaina town for a few days after completing her fourth and final nest of this season.

But on July 16, she started moving. On that day, she swam north for a while, then changed course and was located later that same day off Manawapua Gulch, on the east side of Papalaua County Beach Park but not quite to the pali tunnel area.

By the next day, she was as far north as the Kapalua area, where she has stayed since. Her northern limit has been roughly Honokahua.

She has not ventured far offshore, presumably staying near the algae she feeds on.

Turtles are unpredictable as to ranges. Balazs said earlier he could not predict whether she would take off on a "great journey" or a little one.

Recently, it has been a little one, although in her lifetime Turtle 5690 has gotten around.

Balazs collected her as a baby at French Frigate Shoals. She was "head-started" at Sea Life Park on Oahu until she and more than 100 classmates were released at various points around the islands.

See TURTLE on Page A5

Tracking A Green Sea Turtle



Green sea turtle 5690 nested the night of July 10-11 just south of Lahaina Shoals, where a satellite tracker was attached to her back. Since then, when she surfaces a geographical positioning system signal tells researchers her location. For two weeks, the tracking showed her moving along the West Maui coastline as far north as Honokahua and as far south as Manawapua Gulch. The map data was provided by George Balazs of the National Marine Fisheries Service.



NMFS/Cheryl King photo
National Marine Fisheries Service marine biologist George Balazs inspects Turtle 5690 in Lahaina earlier this month.

Turtle

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Turtle 5690 was set loose two decades ago at Hilo. She was then about the size of a dinner plate.

The experiment was intended to determine whether pen-raised turtles would give individuals of the threatened species a better chance of maturing and reproducing.

Baby turtles are favorite foods of marine and bird predators.

How much advantage head-starting offered is unclear. Of all the photo-size youngsters set loose, only 5690 has ever been identified again, from a tag that amazingly was still attached after all these years. It was spotted in 2000 when 5690 came ashore to dig a nest near Lahaina Shoals Beach Resort.

By the time 5690 was nesting

again this season, Maui's turtle trackers were ready. They missed a couple of chances, but fortunately, she came ashore four times.

On the last trip, a team of researchers was ready with a one-pound satellite tracker, a holding pen and fiberglass resin and cloth to attach the tracker to her shell. The device that sends a signal to an overhead satellite when the turtle surfaces should be good for six to seven months, and may be signaling for as long as a year.

Balazs was pretty sure the July 11 nest would be the last, and since two weeks have passed without another attempt, he is now certain that she is through laying eggs for this year.

It is too early to say for sure, but it may "turn out she lives year-round in Maui coastal waters," he says.

Pass on the peas, please. Help protect Hawaii's reef ecosystems: don't feed our reef fish.

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▲ Mother turtle '5680' hard at work covering up her egg-nest, which being watched over by federal sea turtle biologist George Balazs.

Photo © A. Peas



Photos above © Henry Platt

Protecting **OUR HONU**

Maui's first documented nesting green sea turtle is back... again!

discover One night, on a beach in Maui's bustling harbor town of Lahaina, a 200-pound female green turtle pulled herself up on to the sand. Away from the water's edge, she sculpted a smooth hole - a nest - into which she carefully laid 76 leathery golf-ball sized eggs.

On that summer night in 2000, the nesting turtle made history, becoming the first documented green turtle in modern times known to nest on Maui.

Her historic effort was reported to the Hawaii Marine Turtle Research Program of the National Marine Fisheries Service (NMFS). Led by zoologist and acclaimed turtle researcher George Balazs, the Marine Turtle Research Program encourages citizens, vacationers and county, state and federal agencies to help serve as its eyes and ears around Hawaii's shoreline. Specifically, the turtle program asks that people report all cases of turtles that are nesting - or that are stranded, injured or entangled with fishing line.

Green, hawksbill and leatherback sea turtles are all found in Hawaii, but green turtles - called *honu* in Hawaiian - are the most common. Once hunted throughout Hawaii, the green turtles are making a steady comeback since 1978, when they were protected under the U.S. Endangered Species Act. It is now illegal to harass, harm, pursue, hunt, shoot, wound, trap, kill, capture or collect sea turtles in Hawaii.

Green turtles weigh up to 500 pounds. They are named for their green body fat, tinted by the marine plants they eat. The turtles grow slowly, usually

taking 25 years to reach sexual maturity. Their shells are dark brown, with dappled and radiating streaks of green, gold and tan, which help the turtles camouflage themselves against undersea corals and rock.

Long distance wayfarers

About 90 percent of Hawaii's green turtles migrate to the largely unpopulated Northwestern Hawaiian Islands (NWHI) to mate and nest. Males make the trip every year or two; females every two to three years. The journey is about 1,200 miles roundtrip. The majority of the nesting takes place on a cluster of tiny islets within the NWHI known as French Frigate Shoals.

The hatchlings that emerge from the nests crawl towards the ocean, attempting to avoid becoming prey to crabs and sometimes birds. In the sea, they drift on the currents, dining on fish eggs and soft invertebrates like jellyfish and barnacles attached to floating objects. After several years, they settle into nearshore "pastures" of algae and *limu*, and reef areas. Upon reaching sexual maturity, the cycle begins anew, with the turtles returning to their natal beaches - their places of birth - to nest.

Clearly, Maui's first nesting green turtle did not fit the typical migratory patterns when she dug her nest in Lahaina. She returned to the same Lahaina beach three other times in 2000 to nest. Naturalist Mary Jane Grady examined her during her second nesting attempt, and noted that a small metal tag with the number "5690" was attached to the turtle's front flipper.

• To report a nesting, stranded or injured sea turtle on Maui from Maalaea to Makena (Kihei), call: 278-3775 (pager). For all other areas of Maui, call 893-3172 and 893-3050 (both are pagers).

• For suspected law enforcement violations, such as killing, harming, or harassing a turtle please call the Law Enforcement Branch of National Marine Fisheries Service: at 984-8110 or 800-853-1964.

• Learn more! Visit www.turtles.org. Pick up a free turtle fact sheet at Pacific Whale Foundation's Stores and Marine Resource Centers at 143 Dickerson St., Lahaina, and at the Harbor Shops of Maalaea or at www.pacificwhale.org.

A special history

During the course of 30 years, Balazs has tagged and identified more than 6,000 turtles in Hawaii. By reviewing his database, which contains identification numbers, life histories, measurements, and other data on each turtle, he made an exciting discovery about "5690."

He learned that she was one of 235 green turtle hatchlings that had been raised at the Honolulu Laboratory of NMFS some twenty years ago, as part of an experiment to test a permanent and safe method of identifying turtles from hatching stage into adulthood. In 1981, "5690" was released in excellent health in Hilo Bay, on the Big Island of Hawaii.

And nineteen years later, she was nesting on Maui.

It was encouraging to note that she appeared robust and healthy, free of tumors. In some areas of Hawaii (including Maui), 60 percent of the turtles are afflicted with tumors, caused by a disease known as fibropapilloma. The tumors, which appear on the turtles' eyes, necks, flippers, mouths and internal organs, interfere with the animals' ability to see, swim and feed, often causing a slow death. These warty outgrowths also make the turtles more susceptible to becoming entangled in fishing line.

Late breaking news

It's exciting to note that "5690" has returned again this summer, to the same Lahaina beach. Balazs watched her on the night of June 11, 2002, from 12:45 a.m. to 4:05 a.m., as "she did her motherly duties and did them exceedingly well."

Most green turtles nest every two to three years, but the fact that this turtle is nesting more frequently may indicate that she has less distance to travel from her feeding areas to her nesting site. "Because

less energy is expended, she may be able to nest more frequently than other green turtles who make the longer migration to French Frigate Shoals," he theorizes.

"To me, the site she chose is not necessarily ideal turtle habitat, but what matters is what the turtle thinks," he said. "We just need to nurture whatever site they choose."

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Radio transmitter shows
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The

Tracking A Green Sea Turtle



MaryCherry King photo
National Marine Fisheries
Service marine biologist
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This is such a great story... especially for kids.

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It could have been an underestimate, because Wednesday night the friends of 5690 got an exact measurement of 99 cm. (3 feet, 3 1/2 inches).

Turtle 5690 returned to Lahaina on May 25, June 10 and June 26.

Word got around, but her visits were not publicized. Lights and other activity could interfere with nesting, although last week, after her work was done, 5690 proved "very mellow" when she was corralled in a carpet-lined plywood cage for tagging.

Balazs says he is not concerned, now that she has probably finished coming ashore, that humans will interfere with the rest of the process.

For one thing, the babies come out irregularly, at 55 to 70 days from laying, depending where they are in the nest, and they are hard to catch.

For another, everybody around has been "totally understanding, totally protective" of their honu.

"I'm really impressed, with the tourists and with the local people," says Balazs.

After 5690 finished her work last week, she was herded into the plywood pen, where a team of seven people first put rubber on her back.

A one-pound transmitter with a little antenna was stuck to that, and the whole arrangement was secured with layers of fiberglass.

This should allow Balazs to follow 5690 on her journey, be it great or little, now that she no longer needs to be near land for a long time.

The transmitters often work for six to seven months, sometimes longer. Eventually, as the shell grows and sloughs off its surface, the fiberglass loses contact and the transmitter falls off.

Putting a transmitter on even a tolerant turtle is a job, and everyone was tired after working all day, so they told stories to keep themselves awake.

Glynnis Nakai of the Kealia Pond National Wildlife Reserve and Skippy Hau of the Department of Land and Natural Resources will keep an eye on the four nests. When all activity has ceased, they will carefully dig them out.

They will expect to find a few stragglers, caught in roots or otherwise not quite making it on their own. They will help them into the ocean and then collect eggshell samples for genetic analysis.

Two decades ago, 5690 was released as part of a test to see if headstarting could help rebuild turtle populations.

In their report, Balazs and the team wrote, "It should be noted that the amazing part of this story is not that a headstarted green turtle successfully nested in the wild.

"There's no reason to believe one wouldn't, if it survived to grow to maturity and eventually mated. What is amazing is that a single flipper tag applied to such a small turtle stayed on for so many years making it possible for the success of 5690 to become known."

And maybe that the development of Lahaina over the past two decades didn't seem to make much of an impression on 5690. But then, green sea turtles are accustomed to taking the long view.

Turtle 5690 nests for fifth time, surprises observers

Whether she's done for year, will remain nearby are unknown

By **HARRY EAGAR**

Staff Writer

LAHAINA — Turtle 5690 surprised her human network by returning to Lahaina to nest a fifth time Wednesday night.

The latest nest is almost on top of her first nest of this season, whose eggs have all hatched.

Turtle 5690 is regular as a clock, returning to a beach just south of Lahaina Shores every two weeks to dig a hole and lay eggs. On July 10-11, researchers put a satellite tracker on her back and were quite sure that four nestings would be her full program for this year.

Glynnis Nakai of Kealia Pond National Wildlife Refuge and Skippy Hau of the state Department of Land and Natural Resources visited the first nest Wednesday. Most of the eggs laid in May had hatched. Nakai and Hau excavated the nest to help stragglers out and collect eggshells for study.

But they did not stick around to see if she would come back again. Neighbors found her tracks, made later that night.

George Balazs of the National Marine Fisheries Service, the leader of the Hawaii turtle recovery force, said he was "delighted" to be proved wrong about 5690's nesting program.

Balazs was on Molokai, so he would have missed the latest nesting anyway, but he said that "if we knew everything there was to know about green sea turtles, we could close the book."

He added, "This is one of the major reasons why we continue our research and put satellite transmitters on sea turtles — to learn more about their movement and behavior. We learn

something different each time."

Since greens are a threatened species in Hawaii (and in many other places as well), knowledge of their behavior is useful in trying to protect the population.

In fact, 5690 was part of an experiment begun in 1980 to see if "head-starting" baby turtles by rearing them in ponds would increase their chance of getting big enough to reproduce. Turtle 5690 is the only one of the group known to have reproduced.

She nested three or probably four times on Maui in 2000, leading researchers to expect her to stop after four landings this year. Now they are not sure whether to expect a sixth visit.

"She's very site-specific," says Nakai. Although no green was known to nest on Maui for the past half-century, Nakai says it is understandable why she picks the spot she does, though it is very close to a tall building. Her nest sites are dug in front of a private house, and while lights can bother turtles, "it's very dark" just there.

One of the questions to be answered by the tracker is where the turtle goes when she is not breeding.

The first two weeks of tracking showed her sticking close to Lahaina. But it turns out that was just foraging while preparing for another nesting. Only later will the tracker show what part of the ocean she calls "home."

The tracker showed that between her fourth and fifth nestings, she traveled a total of 37 miles. The farthest she got from her nests was 12 miles to the north, near Oneloa Bay, the isolated beach area between Kapalua Bay and Honokahua Bay.

It took her eight days to reach Oneloa but only 13 hours to return to Lahaina once she decided to nest. During that dash, she was motoring at 1 mph.

The Maui News

Turtles part of marine mysteries

It seems that green sea turtles are no more predictable than the stock market. Or at least one green, tagged in 1981 as "5690," is not.

Turtle 5690 is the only one of her kind known to be nesting on Maui. In 2000, she came ashore three or four times. When she had nested a further four times this year, researchers figured she was through for the season.

But Turtle 5690 has a strong work ethic to go with a strong desire to reproduce — digging those nests with flippers is not easy. She returned this week to bury a fifth clutch of eggs in the sand of a Lahaina beach.

Now, the question is, will she come back again?

Events this year remind us how little we understand about the creatures that live in the ocean that surrounds us.

In January, a California man was bitten by a shark at Olowalu, leading to a proposal, still under development, for permanent shark-warning signs in that area. It would be a first for Hawaii when they go up.

Then in March, sharks attacked and killed a newborn humpback whale with tourists looking on from Kaanapali Beach, a reminder that sharks can go anywhere.

Over the past month or so, there has been a lively debate about whether it is better to have maximum or minimum size limits on caught fish, if the goal is to get good reproduction.

And last week, Turtle 5690 proved that turtles cannot be taken for granted either.

Among the things we still don't know: What happened to 5690's classmates? How far does she go from her nesting beach when she is not breeding? How has she escaped infection with fibropapilloma virus, a disease that cannot be proved to have existed in Hawaii before the mid-1950s but which now attacks a large fraction of Hawaii's green sea turtles?

Assuming she avoids viruses and sharks, Turtle 5690 may have many lessons yet to teach.

Mau's first documented nesting green sea turtle is back... again!

discover One night, on a beach in Maui's bustling harbor town of Lahaina, a 200-pound female green turtle pulled herself up on to the sand. Away from the water's edge, she sculpted a smooth hole – a nest – into which she carefully laid 76 leathery golf-ball sized eggs.

On that summer night in 2000, the nesting turtle made history, becoming the first documented green turtle in modern times known to nest on Maui.

Her historic effort was reported to the Hawaii Marine Turtle Research Program of the National Marine Fisheries Service (NMFS). Led by zoologist and acclaimed turtle researcher George Balazs, the Marine Turtle Research Program encourages citizens, vacationers and county, state and federal agencies to help serve as its eyes and ears around Hawaii's shoreline. Specifically, the turtle program asks that people report all cases of turtles that are nesting – or that are stranded, injured or entangled with fishing line.

Green, hawksbill and leatherback sea turtles are all found in Hawaii, but green turtles – called *hono* in Hawaiian – are the most common. Once hunted throughout Hawaii, the green turtles are making a steady comeback since 1978, when they were protected under the U.S. Endangered Species Act. It is now illegal to harass, harm, pursue, hunt, shoot, wound, trap, kill, capture or collect sea turtles in Hawaii.

Green turtles weigh up to 500 pounds. They are named for their green body fat, tinted by the marine plants they eat. The turtles grow slowly, usually

taking 25 years to reach sexual maturity. Their shells are dark brown, with dappled and radiating streaks of green, gold and tan, which help the turtles camouflage themselves against undersea corals and rock.

Long distance wayfarers

About 90 percent of Hawaii's green turtles migrate to the largely unpopulated Northwestern Hawaiian Islands (NWHI) to mate and nest. Males make the trip every year or two; females every two to three years. The journey is about 1,200 miles roundtrip. The majority of the nesting takes place on a cluster of tiny islets within the NWHI known as French Frigate Shoals.

The hatchlings that emerge from the nests crawl towards the ocean, attempting to avoid becoming prey to crabs and sometimes birds. In the sea, they drift on the currents, dining on fish eggs and soft invertebrates like jellyfish and barnacles attached to floating objects. After several years, they settle into nearshore "pastures" of algae and *limu*, and reef areas. Upon reaching sexual maturity, the cycle begins anew, with the turtles returning to their natal beaches – their places of birth – to nest.

Clearly, Maui's first nesting green turtle did not fit the typical migratory patterns when she dug her nest in Lahaina. She returned to the same Lahaina beach three other times in 2000 to nest. Naturalist Mary Jane Grady examined her during her second nesting attempt, and noted that a small metal tag with the number "5690" was attached to the turtle's front flipper.

- To report a nesting, stranded or injured sea turtle on Maui from Maalaea to Makana (Kihei), call: 278-3775 (pager). For all other areas of Maui, call 893-3172 and 893-3050 (both are pagers).
- For suspected law enforcement violations, such as killing, harming, or harassing a turtle please call the Law Enforcement Branch of National Marine Fisheries Service: at 984-8110 or 800-663-1964.
- Learn more! Visit www.turtles.org. Pick up a free turtle fact sheet at Pacific Whale Foundation's Stores and Marine Resource Centers at 143 Dickenson St., Lahaina, and at the Harbor Shops of Maalaea or at www.pacificwhale.org.

Pass on the peas, please. Help protect Hawaii's reef ecosystems: don't feed our reef fish.



Photo © G. Peas

▲ Mother turtle "8880" laid at work covering up her egg-nest, with being watched over by leeward sea turtle biologist George Balazs.



Photos above © Kerry Photo

Protecting **OUR HONU**

Fertile

Group helps guide hatchlings to the sea

By **HARRY EAGAR**

Staff Writer

LAHAINA — About 30 people were gathered in the canoe hale at Kamehameha Iki Park two weeks ago for an informal discussion of Hawaiian culture.

Just after it got fully dark on Aug. 21, the sand on the beach started erupting baby green sea turtles, who, misguided by the light, started heading inland.



McCarty

Fortunately, one of the participants, Richard McCarty of Kaanapali, who is a Maui representative to the advisory council of the Hawaiian Islands Humpback Whale National Marine Sanctuary, knew who to call.

Then he and his friends cleared away beach morning glory for the little turtles, shooed them into the ocean and helped out a few who had gotten themselves entangled.

Skippy Hau of the Aquatic Resources Division of the Department of Land and Natural Resources and Glynnis Nakai of the Kealia Pond National Wildlife Sanctuary arrived to excavate the nest, boost out stragglers and collect information.

This is getting to be a busy summer for Hau and Nakai. The nest that hatched Aug. 21 was the third that Turtle 5690 laid. She is up to seven now and gives every sign of being ready to dig an eighth nest somewhere in Lahaina this week.

"Nothing surprises me anymore with this turtle," says George Balazs, who released 5690 back to the wild as a yearling more than two decades ago.

Balazs says it was symbolically appropriate for nest No. 3 to interrupt a meeting on Hawaiian culture. Sea turtles are as old as any aspect of Hawaii. "They were here when the first migrants arrived."

Green sea turtles have been around a lot longer than any of these islands, and

turtle continues to nest



The Maui News / AMANDA COWAN photo

When green sea turtle hatchlings began to pop out of the sand on the beach at one end of the Lahaina Shores condominium complex, General Manager Carol Koepke agreed to redirect the security lighting that could attract young turtles

toward the light and away from the ocean. The beach has been established as a nesting grounds for Turtle 5690, released to the wild 20 years ago after being raised at Sea Life Park on Oahu.

Maui News

Maui's Newspaper Since 1900

Sunday September 1, 2002

genetic studies indicate that they have been isolated from other green turtle populations for a long time.

Although they were hunted to low numbers up to the 1970s, their numbers have rebounded since gaining protection. Snorkelers and divers often see them in the water.

But until two years ago, encounters between turtles and people on the land were almost unheard of on Maui. It was then that Turtle 5690 dug a nest next to a hotel in Lahaina.

This year, she has dug seven along a

See TURTLE
on Page A5



The last of 60 baby green sea turtles to be helped from a nest on a Lahaina beach makes its way to the ocean after being rescued by wildlife specialists Skippy Hau and Glynnis Nakai.

State Aquatic
Resource Division
photo

Time

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It might be a good idea in Samoa or Tahiti, where turtle populations have crashed, he says.

Head-starting a turtle is difficult. "It's an expensive thing to do. It takes a lot of labor, a lot of food."

The turtles nip each other, they share skin infections. Sometimes turtle nurseries can become "a death camp."

"Raising turtles is a bear," says Balazs.

That's why some specialists think it causes too much wastage of a threatened species. "It's a highly controversial idea."

However, 5690 is a powerful turtle-making machine.

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Fifty-nine did it with help from McCarty and his friends. Nakai and Hau found one laggard in the nest.

Hau notes that he and Nakai have permits to handle turtles. Otherwise, people are supposed to leave them alone.

But that's not to say that people cannot be helpful, and ever since 5690 started visiting Lahaina, a lot of people have gone out of their way to help her.

Balazs cites, for example, Carol Koepke, general manager at Lahaina Shores, who redirected security lighting so it would not interfere with either 5690 or her hatchlings.

"We're happy and delighted to help," she says.

Balazs and Hau are now trying to arrange to get lighting toned down or switched off during the early part of October, when two of 5690's nests, Nos. 6 and 7, are due to hatch out.

Floyd Miyazono, county parks director, said Thursday that he would check a spotlight at Kamehameha Iki, the one that worries Balazs the most, and would cooperate.

And there is one more immediate concern. It looks as if 5690 is heading back to nest an eighth time.

Seven nestings in one season is the most observed in the Hawaiian Islands.

The satellite tracking shows that after each nesting, 5690 swims up to the Honolulu-Kapalua area. Once she swam halfway to Lanai, but for the most part she sticks close to shore.

The latest report Thursday showed her swimming south past Napili, which is the kind of behavior that preceded earlier nestings. Whether she nests again this season, the eggs she has laid and will likely lay in years to come could lead to more green sea turtle nestings in the main Hawaiian Islands.

"Fast forward 20 years, when the turtles those young people helped come back to nest themselves," Balazs says.



State Aquatic Resources Division photo

The last of 60 baby green sea turtles to be helped from a Lahaina beach makes its way to the ocean with an assist from federal wildlife specialist Glynnis Nakai (second from right) and an audience of volunteers who kept watch over the nests in the sand this summer. The volunteers kept the nests safe, but only specialists with permits, like Nakai, are allowed to handle animals protected by the Endangered Species Act.

Turtle

Continued from Page A1

stretch of beach from Kamehameha Iki Park to just beyond Lahaina Shores.

Although nesting turtles normally seek out darkness, 5690 has sometimes ignored electric lights. In one case, she unconcernedly went about her business despite Samoan fire knife dancers performing a few yards away.

But then, 5690 spent her first year with humans. Balazs says perhaps that has something to do with how easily she fits in on a highly developed tourist beach.

Her presence on Maui is the result of an experiment in identification.

John Hendrickson, a researcher at the University of Arizona, and his wife, Lupe, had developed a biotag for lizards. Called autografting, it involved transplanting a piece of light skin into a dark area of the animal.

Hawaii turtle researchers wondered if it would work with turtles. Balazs was asked to supply a couple of hundred newly hatched turtles, which he collected at French Frigate Shoals, where almost all green sea turtle nesting in the Hawaiian Islands happens nowadays.

Hendrickson then swapped plugs of light bottom shell and dark upper shell. Different patterns were used to differentiate between individuals.

A control group was left unmarked, to see whether the operation had any effect on mortality in the altered turtles. Turtle 5690 was a control, she was not grafted, but when released she did get a metal tag.

The turtles were raised for a year at Sea Life Park, and then Balazs was given the task of getting them back into the ocean.

The experiment was not intended to see whether raising one-ounce babies to dinner-plate size would improve their chances of reaching maturity and reproducing.

That was an unexpected bonus when 5690 showed up on Maui.

Not one of the other 175 turtles has been identified since release, though Balazs feels sure some probably returned to French Frigate Shoals. It was extraordinary that 5690's tag stayed attached for two decades.

It is gone now, beaten off by her flailing flippers as she digs her nests. But today, she has permanent electronic tags implanted in her legs and a temporary radio transmitter glued to her back.

Although it was never intended to see whether head-starting would be a good management tool, 5690 has opened the question. Among turtle biologists, it is a controversial topic.

Balazs tends to think that, done right, it can be a good idea. Whether it is also an economic proposition remains an open question.

9/1/02 THE MAUI NEWS

Fertile turtle continues to nest

Group helps guide hatchlings to the sea

By HARRY ENGAR
 Staff Writer

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Just after it got fully dark on Aug. 21, the sand on the beach started erupting baby green sea turtles, who, misguided by the light, started heading inland.

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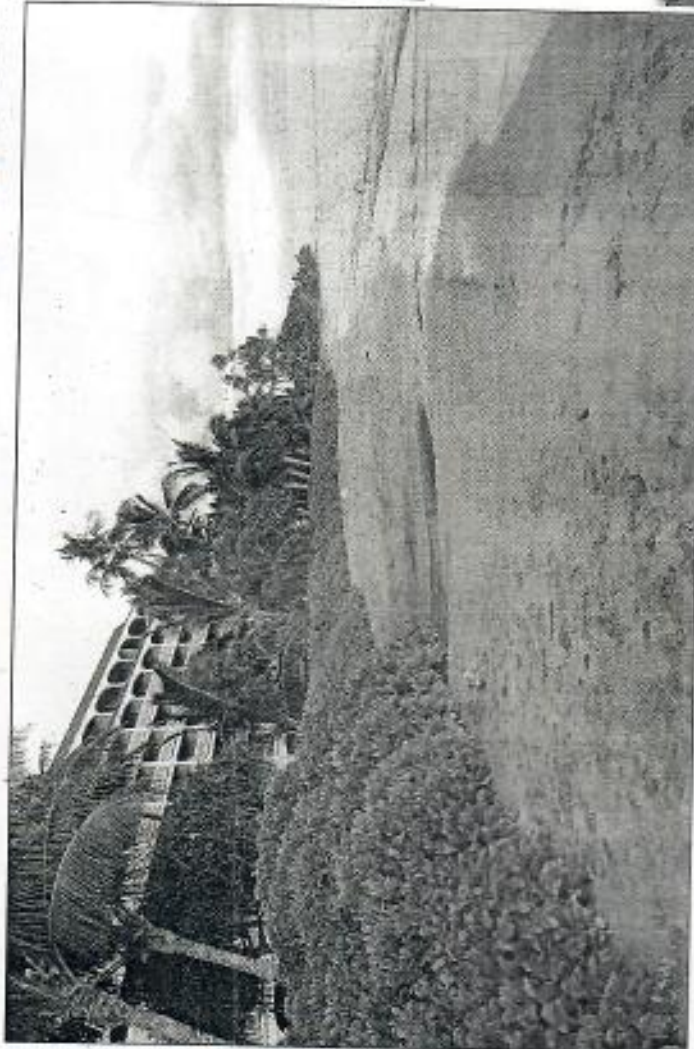
Skippy Has of the Aquatic Resources Division of the Department of Land and Natural Resources and Glynnis Nakai of the Kealia Pond National Wildlife Sanctuary arrived to excavate the nest, boost out stragglers and collect information.

This is getting to be a busy summer for Han and Nakai. The nest that hatched Aug. 21 was the third that Turtle 5690 laid. She is up to seven now and gives every sign of being ready to dig an eighth nest somewhere in Lahaina this week.

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The Maui News / AMANDA CORWAN photo

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State Aquatic Resources Division photo

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9/1/02 THE MAUI NEWS

Turtle 5690 may be done

HARRY EAGAR

Staff Writer

NAPIILI — It begins to look as if Maui's turtle, 5690, is not going to break the record by nesting an eighth time.

George Balazs, the federal biologist who heads the green sea turtle recovery program in the islands, said Tuesday, "It's been 18 days since 5690 came ashore at Ika and laid her seventh clutch this summer."

Green sea turtles space their nests almost exactly two weeks apart. Although 5690 appears to be done for this season, babies from her later nests will be hatching until sometime around Nov. 1.

Balazs walked the beach last Thursday night "without the pleasure of her company."

In seven previous nestings, as well as in nestings two years ago, 5690 came ashore at various points between Kamehameha Iki

Park and a spot north of Lahaina Shores.

Though not nesting anymore, 5690 does appear to be the "Maui girl" that Balazs guessed after she laid her fourth nest this year. She had dug the first one back in May.

On her fourth landing, Balazs and his turtle team were able to attach a one-pound satellite tracker to her back. It was a mystery where she goes when she is not crawling ashore on Lahaina beaches.

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The tracking device found she was staying close to Lahaina, traveling down toward Olowalu and later up around Napili. That suggested she was a permanent West Maui resident.

But she kept nesting, which meant her regular swims up to Honokohau and Kapalua might be just resting periods. That left open the possibility that after completing the nesting, she might travel far away — most green sea turtles in

Hawaii are from the French Frigate Shoals.

Last Friday, Balazs set out to look for 5690, with tips from turtle fans and divers Ursula and Peter Keuper-Bennett of Napili, who have been keeping an eye out all summer; the latest satellite reports; and a hand-held geographic-positioning system.

"At about 2 p.m., I spotted her feeding close to shore in the surf, along with about 20 other large turtles. Indeed, an amazing, im-

pressive sight to see," he says.

Balazs says it now seems likely that 5690's nesting is over for this year, but also that her home foraging and living area is in the Napili/Kapalua coastal area.

However, 5690 has surprised him before, so he says he will wait a few more days before drawing any firm conclusions.

Turtle 5690 is 22 years old and could have many more breeding years ahead of her.

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"She's very site-specific," says Nakai. Although no green was known to nest on Maui for the past half-century, Nakai says it is understandable why she picks the spot she does, though it is very close to a tall building. Her nest sites are dug in front of a private house, and while lights can bother turtles, "it's very dark" just there.

One of the questions to be answered by the tracker is where the turtle goes when she is not breeding.

The first two weeks of tracking showed her sticking close to Lahaina. But it turns out that was just foraging while preparing for another nesting. Only later will the tracker show what part of the ocean she calls "home."

The tracker showed that between her fourth and fifth nestings, she traveled a total of 37 miles. The farthest she got from her nests was 12 miles to the north, near Oneloa Bay, the isolated beach area between Kapalua Bay and Honokahua Bay.

It took her eight days to reach Oneloa but only 13 hours to return to Lahaina once she decided to nest. During that dash, she

Tagged turtle has stuck to West Maui

Radio transmitter shows creature keeping nearby

By HARRY EGAR
Staff Writer

LAHAINA — So far, Turtle 5690 is looking like "truly a 'Maui Girl,'" according to researcher George Balazs, who attached a satellite tracker to the female green sea turtle on July 11.

Turtle 5690 is the only confirmed green to have nested on Maui in half a century. She has now nested in two seasons, but it is a mystery where she went in between.

The satellite tracker shows she hung around Lahaina town for a few days after completing her fourth and final nest of this season.

But on July 16, she started moving. On that day, she swam north for a while, then changed course and was located later that same day off Manawaipueo Gulch, on the east side of Papalaia County Beach Park but not quite to the pull tunnel area.

By the next day, she was as far north as the Kapalua area, where she has stayed since. Her northern limit has been roughly Honokahua.

She has not ventured far offshore, presumably staying near the algae she feeds on.

Turtles are unpredictable as to ranges. Balazs said earlier he could not predict whether she would take off on a "great journey" or a little one.

Recently, it has been a little one, although in her lifetime Turtle 5690 has gotten around.

Balazs collected her as a baby at French Frigate Shoals. She was "head-started" at Sea Life Park on Oahu until she and more than 100 classmates were released at various points around the islands.

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Tracking A Green Sea Turtle



Green sea turtle 5690 nested the night of July 10-11 just south of Lahaina Shores, where a satellite tracker was attached to her back. Since then, when she surfaces a geographical positioning system signal tells researchers her location. For two weeks, the tracking showed her moving along the West Maui coastline as far north as Honokahua and as far south as Manawaipueo Gulch. The map data was provided by George Balazs of the National Marine Fisheries Service.



HMP's Cheryl Kiep photo
National Marine Fisheries Service marine biologist George Balazs inspects Turtle 5690 in Lahaina earlier this month.

Turtle

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Turtle 5690 was set loose two decades ago at Hilo. She was then about the size of a dinner plate.

The experiment was intended to determine whether pen-raised turtles would give individuals of the threatened species a better chance of maturing and reproducing.

Baby turtles are favorite foods of marine and bird predators.

How much advantage head-starting offered is unclear. Of all the plate-size youngsters set loose, only 5690 has ever been identified again, from a tag that amazingly was still attached after all these years. It was spotted in 2000 when 5690 came ashore to dig a nest near Lahaina Shores Beach Resort.

By the time 5690 was nesting

again this season, Maui's turtle trackers were ready. They missed a couple of chances, but fortunately, she came ashore four times.

On the last trip, a team of researchers was ready with a one-pound satellite tracker, a holding pen and fiberglass resin and cloth to attach the tracker to her shell. The device that sends a signal to an overhead satellite when the turtle surfaces should be good for six to seven months, and may be signaling for as long as a year.

Balazs was pretty sure the July 11 nest would be the last, and since two weeks have passed without another attempt, he is now certain that she is through laying eggs for this year.

It is too early to say for sure, but it may "turn out she lives year-round in Maui coastal waters," he says.