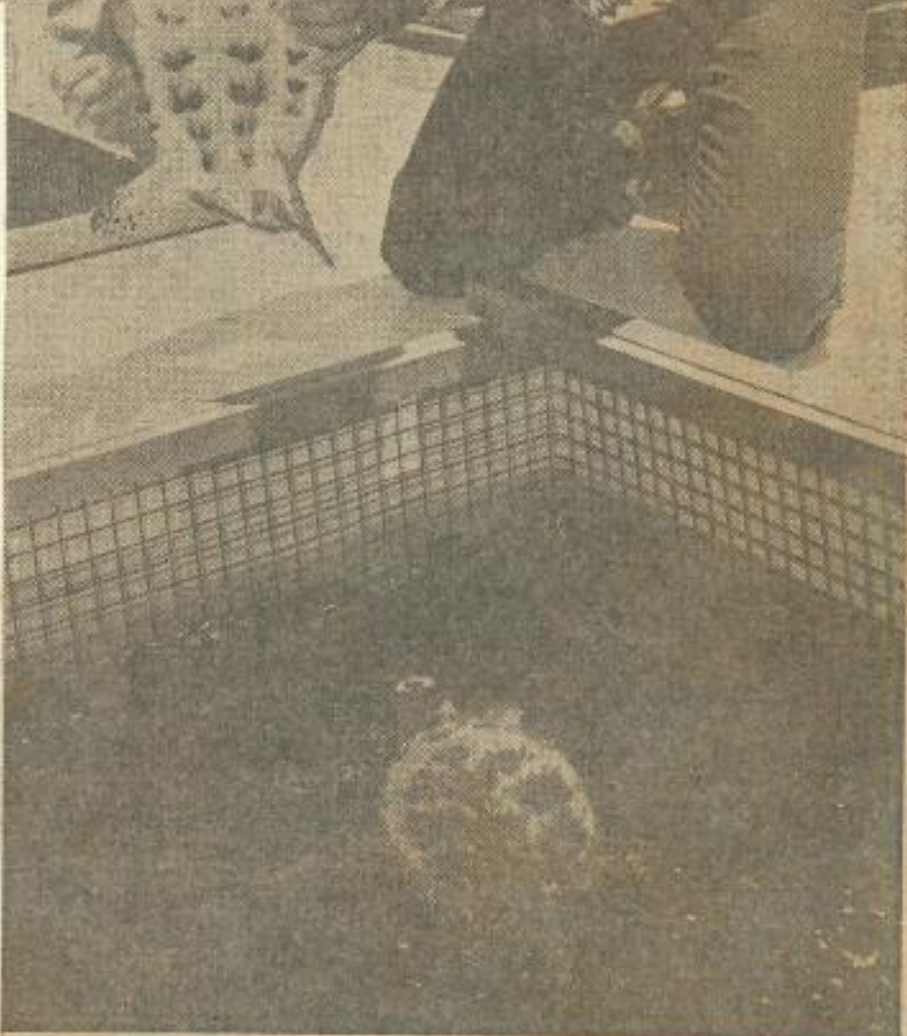




A marine biologist holds one species of sea turtle being raised at the Hawaiian laboratory. It is now thirteen months of age.



A Day on C.I. by Mary Skillops
Sept 13, 1973
San Jose Mercury

Jr. Marine Biologist George Balazs Shows Off Turtles

First Step Taken to

The State Animal Species Advisory Commission took the first step yesterday toward a regulation to prohibit commercial fishing of green sea turtles in Hawaiian waters.

The commission approved

a nine-point regulation to protect the turtles, proposed by George H. Balazs, University marine biologist, and Frank J. Radovsky, a commission member.

Michio Takata, head of the State Fish and Game Division

which would administer the regulation, said he will review the language with the State attorney general.

Public hearings must then be held and the regulation adopted by the State Board of Land and Natural Resources before it becomes final.

Protect Sea Turtles

taking the animals.

The regulation also would make it unlawful for anyone to import any marine turtle or part of a turtle into the State for resale.

Limited turtle fishing would be allowed for home consumption under the regulation if the animals are more than 34 inches, tagged and taken under permit from the Fish and Game Division.

Any person convicted of violating the regulation would be subject to a fine of up to \$500 or six month's imprisonment or both.

IN OTHER business yesterday, the commission decided to set up a committee to examine the problems of the feral sheep population and the decline of the mamane forest in the Mauna Kea Game Management Area on the Big Island.

State wildlife biologist Ernest Kosaka recently reported that the sheep have seriously disrupted the flora in the mountain area.

He said they have endangered the food source for themselves and threatened

the survival of the Palila, a rare and endangered bird which depends on the mamane forest for its food.

Kosaka will be invited to the commission's next meeting to explore the problems and possible solutions.

MEMBERS OF the Animal Species Commission disagreed only about the commercial aspects of the regulation, with some arguing that it isn't necessary to restrict the fishing for the turtles' conservation.

Others pointed out, however, that turtle fishing has increased vastly in the past 10 years to provide turtle steaks for restaurants and shells as curio items for tourists.

They said the only effective control is to eliminate the commercial incentive for

Star Bulletin
Sat Jan 13, 1973

turtles, sheep and deer in advisory panel's vote

The State Animal Species Advisory Commission yesterday voted to support a plan to rid the Mauna Kea treeline of wild sheep and to confine black-tailed deer on Kauai.

The commission also voted to support a \$50,000 study of green sea turtles.

IT PASSED a motion recommending that the Fish and Game Division take action to confine the black-tailed deer to the Puu Ka Pele Game Management Area on Kauai.

The motion's sponsor, Commissioner Alan C. Ziegler said the deer had been seen off the game range and could enter the Alakai Wilderness Preserve and destroy the area's ecological balance.

Michio Takata, head of the Fish and Game Division, told the commissioners his staff will investigate the wilderness area and take steps to free it of any deer there.

Fish and Game Division staff also reported that new hunting regulations will be recommended to keep wild sheep on the Big Island away from the mamane forests on Mauna Kea and to replant the destroyed areas.

UNDER THE proposals, sheep hunting would be allowed 24 days throughout

the year, replacing the present 16-day hunting season.

Hunters now are allowed on the range for weekends in the months of August and September. Under the proposed rules, they would be allowed one week-end during all 12 months.

On green sea turtles, the commission voted to urge Legislative approval of a bill introduced by Rep. John S. Carroll. The bill calls for a \$50,000 appropriation to document the turtles' population in Hawaiian waters and to develop a program to preserve them.

The commission approved a letter to legislators which lists four arguments supporting the study.

- The sea turtle is an endangered species.

- The turtle should be managed now for its potential use as a protein source in the future.

- The turtle in Hawaiian waters can be managed without international agreements.

- Data indicates the turtle is being over-exploited in Hawaii.

During discussion on regulations proposed by the State Fish and Game Division, its spokesmen said the Attorney General's Office has yet to rule on the divi-

sion's authority to regulate turtles or accompanying questions of whether the division can restrict the turtles' importation and sale.

Under the proposed regulations, the division would be able to prohibit all commercial fishing of green turtles. However, turtles more than 36 inches long—could be caught legally for home consumption.

HON. ADVERTISER. SAO 31, 1973 P. A-14



UPI Photos

Big greenbacks at the aquarium: going home to the ocean.

crowding problem solved: turtles returned to the sea

There are fewer turtles at the Waikiki Aquarium these days, but it's no cause for alarm.

Acting director Charles De Luca decided that the large pool was becoming overcrowded with the "greenbacks," many of which have been used by the University of Hawaii in research projects.

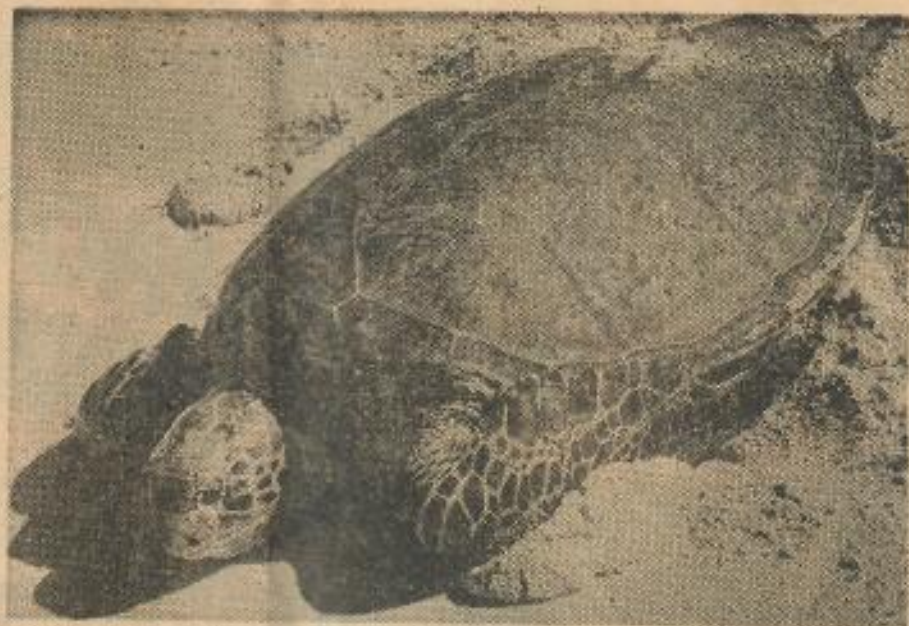
De Luca ordered many of the older, heavier turtles to be tagged and then returned to their natural sea habitat. The

tags will help researchers trace the turtles in their migration.

De Luca said anyone who catches a tagged turtle should notify the agency, whose address is printed on the tag.

The aquarium director said 10 turtles were released Monday and more are being released during the week.

Several of the turtles have spent eight or nine years in the aquarium and aren't aware that man is an enemy to be feared, he said.



RARE SIGHT — A colony of nesting sea turtles such as this one — previously unknown to scientists — has been located on Canton Island.

place all year around on a low key level."

Balazs said he did a lot of night work on Canton because it was so hot during the day.

ONE NIGHT when he was on the beach, two turtles joined him to nest.

"It was a sight to see a

350-pound mama turtle coming up there and digging a hole — kind of depressing to see her struggling across land when she is used to flying through water with all sorts of gracefulness," he said.

Balazs cited two possible reasons for the previous absence of information on the

turtles: "The place is extremely remote and it's not suitable for habitation by man."

He said Canton is a barren, sandy atoll with sparse vegetation. There's a nearly continuous ribbon of land from 60 to 800 yards wide around a shallow, triangular lagoon.

Sea Turtle Protection Code Ready

By Helen Altonn
Star-Bulletin Writer

The State Animal Species Advisory Commission has approved a "more reasonable" regulation for protection of marine turtles and will forward it to the State Board of Land and Natural Resources for approval.

The regulation, proposed by the State Division of Fish and Game, was amended slightly by the advisory commission after a round of Neighbor Island hearings.

Michio Takata, fish and game chief and commission member, said the regulation is "more reasonable but not weaker" as a result of the changes.

Philip Yamagata, Kaula commissioner, voted against the regulation after an unsuccessful attempt at a meeting Friday to have it deferred for further discussion.

IF APPROVED by the Land Board, the regulation would outlaw fishing for sale of leatherback, hawksbill or green sea turtles in Hawaiian waters.

Green sea turtles could be taken for home consumption with a permit from the State Land Department if the upper shell length is 36 inches or more. Use of nets would be banned.

Permits could be obtained from the land agency to take turtles for scientific or educational purposes and to sell turtles raised in turtle farms. Restaurants and curio shops could possess and sell marine turtle products in stock before the regulation becomes effective.

Commissioners amended a requirement — which caused opposition at the hearings — to keep marine turtles "whole or unbutchered" in transit from the fishing area to the permittee's home.

THEY CHANGED THE section to require that "the head and meat remain attached to the upper shell" while in transit, allowing the fisherman to dispose of the intestines.

They said the head should be retained to determine if the fishermen illegally used a powerhead to kill the turtle.

HONO 5-B
Dec 25, 73

Alligators No Longer 'Endangered'

By Roy Reed
N. Y. Times Service

NEW ORLEANS — The alligator, which was considered an endangered species a few years ago, has made so strong a comeback in this region that Louisiana is offering to give some of the reptiles away.

The National Audubon Society plans to accept the offer this spring.

It will haul about 1,000 alligators from the coastal marshes of Louisiana to the wetlands of South Carolina and northeastern Georgia, where the repopulation of the reptile has been slower.

An Audubon spokesman in New York said that the alligator also seems to be making a strong comeback in parts of Florida as well as in certain sections of Louisiana.

Allan B. Ensminger, chief of the Refuse Division of the Louisiana Wild Life and Fisheries Commission, said that a census earlier this year turned up an estimated 250,000 alligators in this state's coastal marshes.

He estimated that 100,000 more could be found in river bottoms and low-lying areas elsewhere in the state. Florida reportedly has about the same total number, he said.

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Adm 5-B JAN 8 74

Rules Should Protect Both Turtles

By Paul Stoffel

What will the future be for Kauai's turtles and the Kauai fishermen who add to their family food supply with an occasional lucky catch?

This question is bothering a good many Kauai wild life conservationists, fishermen and game wardens concerned with the problem. At issue is protection for a threatened species of turtles without cutting off a local meat supply.

An official state policy is to be set Friday at a meeting of the State Board of Land and Natural Resources scheduled for Friday in Hilo. The Board is to act -- or defer action -- on a proposed new turtle protection regulation, which has had several statewide hearings.

Philip Yamagata, of Kapaa who is a Kauai member of the State Animal Species Advisory Commis-

sion, is concerned that the proposed regulation will go too far. It is not a well planned regulation, he feels, and should be deferred until more evidence is available.

Mr. Yamagata argued in vain at the recent commission discussion that a freshly caught turtle must be hauled to the fisherman's home with the shell and meat attached. At first the regulation would have forbidden removal of even the intestines. However, the advisory commission was able to get this part of the regulation deleted.

But Mr. Yamagata argues that it is almost physically impossible for a man or even two men to lug a 200 pound turtle up the beach and up a cliff with its shell and flippers and other meat all in one piece.

Important part of the regulation is a rule against

THE GARDEN ISLAND -- JANUARY 23, 1974 -- A -- PAGE 9

and Fishermen, Says Yamagata

commercial sale of turtle meat and shells. This, Mr. Yamagata and most everyone else feels, is a good rule, and will go a long way to cut down the slaughter of turtles in Hawaii.

But, at issue is a proviso that no turtle smaller than 36 inches shall be taken or used for meat. This, Commissioner Yamagata feels, is an unsound rule and should be deferred until more evidence is available about the reproduction habits of turtles.

He feels it is unreasonable to set a 36-inch minimum on turtles, since that is the size that is actively reproducing. He feels that smaller animals between 24 and 33 inches would be more eligible for the home provider, along with a rule that the 36 inch ones should be released if caught. It's a matter of what type of conservation is used, he said.

Commissioner Yamagata argued that if a 24 to 33 inch turtle is hooked, it is inhumane to release it with the likelihood it will die of the wound.

Kauai defenders of the endangered species are concerned that none of the Advisory group will be able to appear at the Board's hearing Friday on the Big Island. "There is no money for travel expenses," said Mr. Yamagata.

The burden of resource information will be taken by Michio Takata, fish and game chief, but Commissioner Yamagata feels the game official wrote the regulation and wants to cut out all turtle fishing. He's against that.

"I hope they defer a decision," he said, "until we can assess the impact of non-commercial taking of turtles, because they are a prime source of high protein meat for family use in these difficult times."

hearing tonight on regulatio

By BRUCE BENSON

Advertiser Science Writer

By watching what you eat and by exercising a little restraint when buying jewelry, you can become a conservationist.

What you will have to sacrifice is the urge to eat turtle steaks or turtle soup when dining out, or acquire jewelry made of turtle shell when you shop.

Three of the world's five genera of marine turtles live in Hawaiian waters, and all three kinds are in trouble.

The Leatherback and the Hawksbill turtles are already on the U.S. Endangered Species List. The Pacific Green Turtle's ranks are depleted, and they continue to decline at a rate that is worrisome.

THE SAD STATUS of Pacific marine turtles will be spelled out tonight in a public hearing on proposed new regulations to try and ease harvesting pressures on the sea creatures.

The hearing is sponsored by the State Division of Fish and Game, and will start at 7:30 p.m. in the fourth floor conference room of the Bishop Museum.

The proposed regulations would:

- Ban the sale of turtles or parts of turtles.
- Allow fishermen to capture green sea turtles for home consumption, but only if the upper shell of the turtle measures 36 inches or more, and only if the turtle is caught in wa-



Advertiser Photo by David Yamada

A stuffed Pacific Green turtle for sale in Waikiki.

ters around the eight major islands of Hawaii.

• Require fishermen to get permits before getting the Green Turtles.

• Ban capturing Green Turtles with nets.

Interest in the steady trend toward extinction of marine turtles in the Pacific was kindled earlier this year when George H. Balazs of the Hawaii Institute of Marine Biology published a paper on their status in *The Elepaio*, the journal of the Hawaii Audubon Society.

Balazs also spent several weeks in field research on the nesting habits of the Green Turtle this summer at French Frigate Shoals, part of the Hawaiian archipelago to the northwest of Oahu that falls within the Hawaiian Islands National Wildlife Refuge.

PRACTICALLY all of the fewer than 1,100 Green Turtles that account for its breeding population in the Pacific return to nesting sites at French Frigate Shoals.

In addition, Frank Radovsky and Alan Ziegler of

the Bishop Museum's professional staff have taken steps to make known the plight of the turtles.

And State Rep. Anson Chong has started issuing a newsletter on steps under way to help protect the Green Turtle. Chong's bill to release money for the accumulation of hard data on the Green Turtle awaits one more reading in the State Senate before passage.

The problems of the turtles are related directly to their commercial exploitation, according to Balazs. The Green and the Hawksbill both make for good eating, and the shell of the latter is highly prized for jewelry making.

THE LEATHERBACK is reportedly unpalatable, but there is a limited market for its eggs and extracted oils, Balazs said. The Leatherback's nesting beaches are largely exploited by man.

Balazs said the Leatherback may be the world's largest living reptile, with some individuals measuring seven feet long and

weighing up to one thousand pounds.

Efforts to ease hunting pressure on the turtles have so far included bans on commercial sales and exportation in other countries and in other States on the U.S. Mainland.

He said the proposed new regulations up for discussion tonight are largely a step toward bringing Hawaii in line with international conservation efforts.

DESPITE covenants already in effect against the commercialization of the marine turtles, they still

are showing up in jewelry shops and trunket stalls in Waikiki.

A morning's survey yesterday by a reporter found one stuffed Green Turtle, for example, for sale at \$62.50. The turtle was about 20 inches long, too young to have propagated before it was taken.

And there seemed to be little awareness among shopkeepers about the fragile status of the turtles. One pleasant young woman said, "Oh yes, we get them from time to time, often from the South Pacific and sometimes from here. I guess there's lots of them around Hawaii."



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CAPO | E

ns to save dwindling turtles

HONOLULU ADVERTISER Friday, September 21, 1973 A

HONOLULU ADVERTISER
9/22/73
SAT.

rise in tourism seen as peril to Isle turtles

By **BRUCE BENSON**
Advertiser Science Writer

Green sea turtles in Hawaiian waters are destined to become a rare and possibly extinct species if they continue disappearing from the ocean and into the bellies of tourists, a scientist said in a public hearing at the Bishop Museum last night.

George H. Balazs of the Hawaii Institute of Marine Biology said turtle catch statistics revealed that "extremely large increases" have occurred in the turtle catches of recent years, linked closely to the rise in tourism.

"IT IS interesting to note that the pounds of turtles taken since 1963 follows the increasing trends of tourism, and that much of the incentive to exploit turtles is provided by restaurants and hotels that depend on tourism for a large portion of their business," Balazs said.

"If this is the case, it then logically follows that a few fishermen are eroding a unique Hawaiian resource to provide an exotic luxury food for short-term Mainland visitors. It is unfortunate that those to suffer the most from this practice will be the low-income, less fortunate residents of Hawaii.

"The turtle that could have been captured for home use to provide additional meat will now be all the more difficult to find."

BALAZS PROVIDED the key prepared testimony in a public hearing called by the State Division of Fish and Game to consider new regulations that would ban the capture of sea turtles around the eight major Islands of the State for commercial purposes.

The proposed regulations would still allow turtles to be taken for home use, provided that the turtles are 36 inches or more in length, that the taker first gets a free permit,

and that the taker doesn't use nets.

It became apparent shortly after Fish and Game chief Michio Takata called the hearing to order that several of the 75 persons in the audience were turtle catchers.

THEY ISSUED a volley of questions about how the proposed new regulations would affect their ability to catch turtles or buy them in the marketplace.

Balazs said the annual

turtle catch has risen from a low of 380-pounds in 1963 to 25,583 pounds in 1972. The first six months of this year placed the reported catch at more than 14,900 pounds, he said.

He also said that adoption of the new guidelines would have a negligible effect on the livelihood of commercial turtle catchers. Only six persons in the State were known to hunt turtles for profit in 1972, and the most earned by any single person was \$5,003, he said.

Proposal to save our turtles

by Linda Evans

The atmosphere was tense and hushed. Many people stood at the back of the room as if afraid to come forward to take a seat, yet all were there to witness or voice opinions at the public hearing on Regulation 36 which is aimed at protecting the marine turtles in Hawaii.

The regulation would prohibit the sale of turtles or turtle products taken in Hawaiian waters. It would permit the taking of turtles for home consumption but a free permit would be required and nets would not be allowed because of the possibility of drowning turtles under the allowed 36 inch carapace (shell) length.

The meeting took place Friday, Sept. 21, 7:30pm, at the Bishop Museum with some 100 people attending.

Prepared testimony was given by many scientists and concerned persons, among them was George H. Balazs, Jr. Marine Biologist at Hawaii Institute of Marine Biology at Coconut Island. Balazs has been studying population, breeding and nesting habits, and nutritional aspects of marine turtles in Hawaii for the past two years. He recently conducted a two month turtle study at French Frigate Shoals in the Hawaiian Islands National Wildlife Refuge 480 miles northwest of Oahu.

Balazs stated that of the three types of marine turtle found in Hawaii, two are on the endangered species list (hawksbill and leatherback) and one (green) is officially listed as "depleted". He further stated that Hawaii has the largest remaining green turtle colony

in the U.S. but no laws presently exist here to protect or perpetuate marine turtles in the major islands. Hawaii's turtles seem destined to become rare or extinct if the present trends continue.

According to Balazs, there is a direct correlation between the rise in tourism and pounds of turtle taken commercially in the past 10 years. A low of 380 lbs. was reported in 1963, but this figure rose to 25,583 lbs. in 1972 and is already reported at 14,900 lbs. for the first six months of this year.

Many divers testified in favor of the regulation because of the declining numbers of turtles they have seen in recent years. Others in favor were zoologists, marine biologists, oceanographers, and a former turtle hunter from Maui who sent a sympathetic testimony to be read at the hearing.

Many people otherwise favoring the regulation wanted the section prohibiting nets to be changed. They stated that this would make the taking of turtle for home consumption too restrictive.

Several people felt that the size restriction on turtles for personal consumption should be lower than the proposed 36 inch upper shell length. However, it was pointed out that this length was selected because all available information indicates that green turtles become sexually mature at a shell length of between 33 to 36 inches. The proposed size would therefore allow individuals the opportunity to reproduce at least once before being subjected to hunting by man.

According to Michio Takata, Fish and Game director, written testimony on Regulation 36 will be accepted until Oct. 6. He urged however, that this be received by Friday, Oct. 5 because the sixth falls on a Saturday. Persons interested in expressing pros, cons, or possible changes in the regulation may write to Michio Takata, Director Hawaii State Fish and Game Division, 1170 Punchbowl St., Hono., Hi. 96813.



The turtle being marked is part of an experiment to study their nesting habits.

Here in Hawaii

Last Outpost for the Green Turtle

By Helen Altonn

Star-Bulletin Writer

Hawaii has the largest and last remaining colony of green sea turtles in the United States — and the responsibility of safeguarding it, says George H. Balazs, University of Hawaii marine biologist.

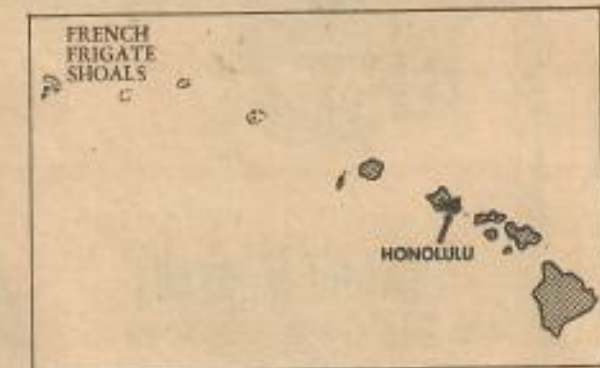
It's the only green sea turtle colony in the world that can be protected and managed under a single government's jurisdiction at both the feeding and breeding grounds, he points out.

Balazs, of the Hawaii Institute of Marine Biology, has done extensive research on turtles and has led a movement to save them from commercial exploitation.

THE STATE Division of Fish and Game now proposes such a regulation. Public hearings were held Sept. 21 and the division is accepting testimony concerning the measure through Saturday.

Michio Takata, division chief, said he has already received a "mountainous amount" of testimony, mostly favoring the regulation.

The opponents primarily



are the commercial turtle harvesters. (Only six persons in the State hunted turtles for profit last year, according to Balazs. The most anyone earned was \$5,000.)

Takata said the regulation will be presented to the Animal Species Advisory Commission at a meeting Oct. 12 on Kauai. Then it must go to the State Board of Land and Natural Resources for approval.

THE REGULATION will be ready for board consideration either at its Oct. 26 or Nov. 9 meeting, Takata said.

The regulation would prohibit the sale of any

leatherback, hawksbill or green sea turtles or any parts of them — thus abolishing turtle steaks from restaurant menus and use of turtles for curio and jewelry items.

Green sea turtles could be taken for home consumption if their upper shell length was 36 inches or more. But use of nets to capture turtles would be unlawful.

Violations would be punishable with a fine of \$100 or imprisonment of up to 30 days.



TURTLE TRANSPLANT — George Balazs displays a batch of turtle hatchlings brought from French Frigate Shoals for rearing at Coconut Island. — Staff photo by Warren R. Roll.

BALAZS explains in his testimony on the regulation that the hawksbill and leatherback turtles are on the endangered species list and the green turtle is listed as "depleted" throughout the world.

He says the only nesting site left for Hawaii's green sea turtles is at French Frigate Shoals, about 480 miles west-northwest of Honolulu.

In recent studies of the nesting areas, he found the green turtle population to be under 1,100. He said this is a drastic drop from a 1968 estimate which placed the population between 2,600 to 5,200.

U.S. Fish and Wildlife personnel have shown by tagging turtles that they migrate from French Frigate Shoals to the major Hawaiian Islands.

"IT CAN therefore be concluded that French Frigate Shoals is the only remaining breeding grounds for the feeding population which inhabits Hawaii's major Islands," Balazs said.

The breeding grounds are federally protected as the National Wildlife Refuge. But there is no protection for the feeding areas in the main Hawaiian Islands, Balazs said, adding:

"Any turtle colony with a total breeding population of only slightly less than 1,100 that is being subjected to increasing commer-



HAWAIIAN WILDLIFE — Green sea turtles bask peacefully in the sun with Hawaiian monk seals and birds at French Frigate Shoals in the northwestern islands of the Hawaiian archipelago. Note the large albatross "chick" in the water. It had just taken off — learning to fly. That's as far as it got. — Photo by George Balazs.

cial exploitation is most definitely in an insecure position."

He attributed "extremely large" increases in pounds of turtle caught over the past 10 years to the increase in tourism, with the incentive coming from restaurants and hotels.

"IF THIS is the case, it then logically follows that a few fishermen are erod-

ing a unique Hawaiian resource to provide an exotic luxury food for short-term Mainland visitors," Balazs said.

"It is unfortunate that those to suffer the most from this practice will be the low-income, less fortunate residents of Hawaii. The turtle that could have been captured for home use to provide additional meat will now be all the more difficult to find."

Balazs appeals to restaurants to support the ban on sale of turtle meat.

"Replace the turtle on your menu with other equally attractive and exotic luxury foods, such as our locally grown Malaysian prawns," he suggested.

"HELP SUPPORT our studies so that one day you may again serve turtle steak — steak that is ob-

tained from domestically raised animals specifically for this purpose."

Balazs said Archie Carr, the world's foremost authority on marine turtles, told him he would like to see a moratorium on taking of all sea turtles from Hawaiian waters until a careful survey of breeding, feeding and basking populations can be made.

The State House of Representatives has passed a

bill sponsored by Rep. Anson Chong which would provide funds to conduct such research. The measure is pending in the Senate, Balazs said.

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HONOLULU (UPI) — The largest and last remaining colony of green sea turtles in the United States is being threatened by tourists' appetites.

Hawaii has the only green sea turtle colony in the world that can be protected and managed under a single government's jurisdiction at both the feeding and breeding grounds.

But a scientist leading a movement to save the gentle creatures warns they may face extinction if their commercial exploitation isn't halted.

Halifax Chronicle
NOV 1-10 73

Tourists' appetites

George H. Balazs, university of Hawaii marine biologist, frequently visits the nesting site at French frigate shoals, about 400 miles west-northwest of Honolulu.

In studies of the nesting area, he has found the green turtle population to be under 1,100, a drastic drop from a 1963 estimate which placed the population between 2,600 and 5,200.

"Any turtle colony with a breeding population of only

slightly less than 1,100 that is being subjected to increasing commercial exploitation is most definitely in an insecure position," Balazs said.

The turtles bask peacefully in the sun and breed in the Northwestern islands of the Hawaiian archipelago with only the Hawaiian monk seals and birds for company.

From the middle of May until the first week of August each year, the turtles are safe, breeding on the

sandbars which are federally protected as a national wildlife refuge.

But Balazs said tagging shows that these same turtles then migrate from French frigate shoals to their feeding grounds, the major Hawaiian islands, filled with tourists seeking exotic foods and novelty souvenirs, such as turtle shells and jewelry.

There is no protection for the feeding areas in the main Hawaiian islands, Balazs

threat to turtles

said. The huge turtles, which have been known to reach 50 years in age and 325 pounds if not eaten first, feed on algae and marine plants.

"Since they are gentle and will not attack unless disturbed at their breeding grounds, they are easily caught," Balazs said.

"The pounds of turtles taken since 1963 follow the increasing trends of tourism," he said. "A unique Hawaiian resource is being eroded to

provide an exotic luxury food for short-term visitors."

Balazs favors regulations prohibiting the sale of any of the major types of turtles, thus abolishing turtle steaks from restaurant menus and the use of turtles for curio and jewelry items.

The state board of land and natural resources is considering these regulations with a stipulation that green sea turtles could be taken for home consumption if their up-

per shell length was 36 inches or more.

Balazs is optimistic that turtle as a source of food can one day be obtained from domestically raised animals especially for this purpose, not by depleting the decreasing numbers in the sea.

"The green sea turtles are likeable and interesting to work with," Balazs said. "They have been over-exploited in many areas of the world.

"It would be a shame if Hawaii, with the breeding and feeding grounds under one government jurisdiction, could not ensure the turtle's survival."

Green turtle colony faces extinction

HONOLULU — (UPI) — The last remaining colony of green sea turtles in the United States is being threatened by tourists' appetites.

Hawaii has the only green sea turtle colony in the world that can be protected and managed under a single government's jurisdiction at both the feeding and breeding grounds.

But a scientist leading a movement to save the gentle creatures warns they may face extinction if their commercial exploitation isn't halted.

George H. Balazs, University of Hawaii marine biologist, frequently visits the nesting site at French Frigate Shoals, about 480 miles west-northwest of Honolulu.

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"Any turtle colony with a breeding population of only slightly less than 1,100 that is being subjected to increasing commercial exploitation is most definitely in an insecure position," Balazs said.

The turtles bask peacefully in the sun and breed in the northwestern islands of the Hawaiian Archipelago with only the Hawaiian monk seals and birds for company.

Director of FDR library is dead

WASHINGTON — (AP) — Josef C. James, director of the Franklin D. Roosevelt Library at Hyde Park, N.Y., died this week of cancer in Washington. He was 57.

Appointed to the post in 1971, Mr. James was the first black director in the presidential library system run by the National Archives.

A graduate of Talladega College in Alabama, Mr. James was a professor at Tennessee A & I University and later served as associate director of admissions at Howard University in Washington D.C.

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"Since they are gentle and will not attack unless disturbed at their breeding grounds, they are easily caught," Balazs said.

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BALAZS FAVORS regulations prohibiting the sale of any of the major types of turtles, thus abolishing turtle steaks from restaurant menus and the use of turtles for carvings and jewelry items.

The State Board of Land and Natural Resources is considering these regulations with a stipulation that green sea turtles could be taken for home consumption if their upper shell length was 36 inches or more.

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"The green sea turtles are likable and interesting to work with," Balazs said. "They have been overexploited in many areas of the world."

"It would be a shame if Hawaii, with the breeding and feeding grounds under one government jurisdiction, could not insure the turtle's survival."

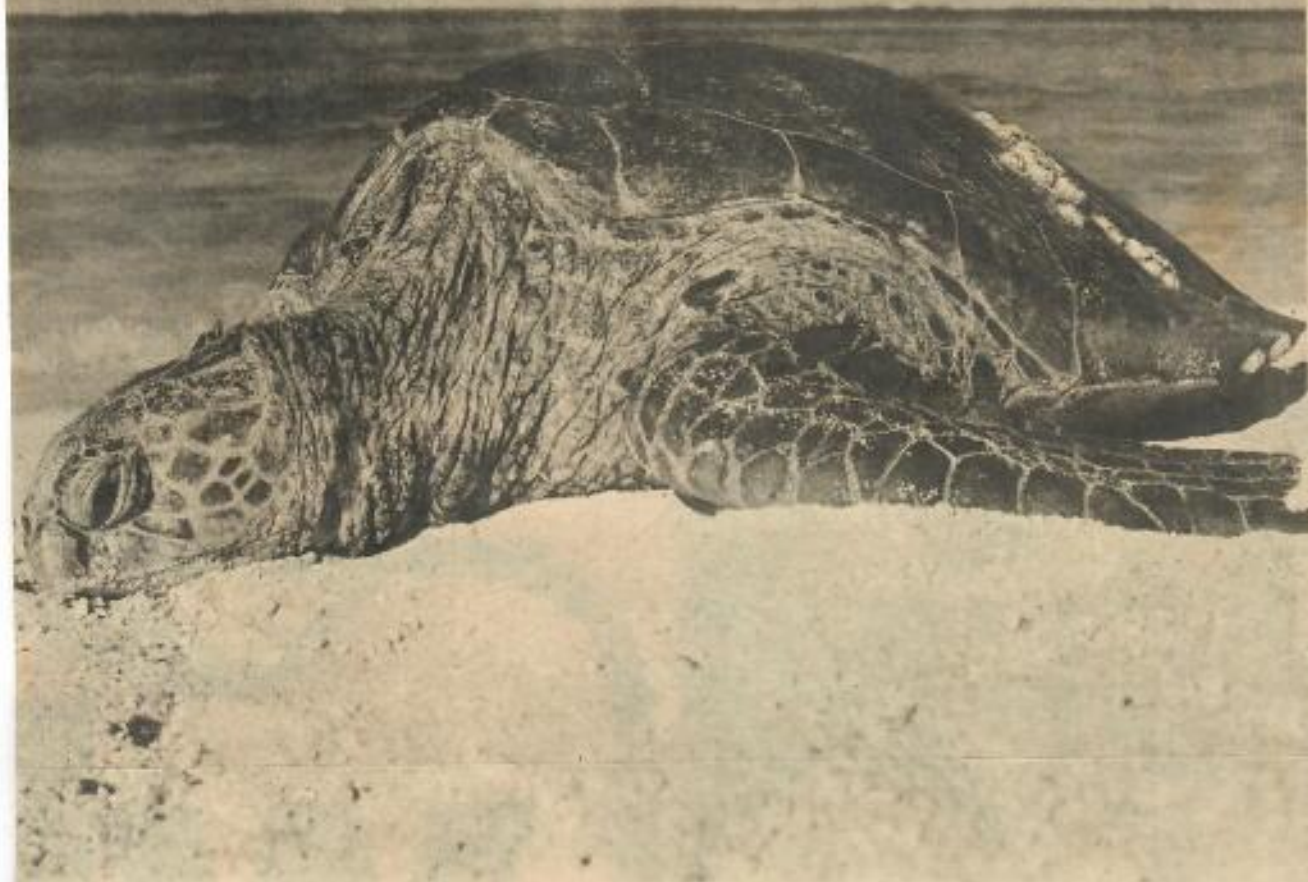


Photo by George H. Balazs

Green sea turtle in its breeding grounds, the French Frigate Shoals

Hearing Dec. 5

Turtle regs proposed

By **BILL MOAKE**
(Staff Reporter)

A public hearing will be held next week on a proposed regulation aimed at protecting three species of sea turtle from extinction.

The hearing is scheduled for Wednesday, December 5, at 7 p.m. in the conference room of the State Building in Wailuku.

The proposed regulation would prohibit the taking of leatherback and hawksbill turtles, which are on the federal Endangered Species List, from waters within the jurisdiction of the State.

These turtles are rarely seen in Hawaiian waters, according to Kenji Ego, chief of the fisheries branch of the Division of Fish and Game, State Department of Land and Natural Resources.

The regulation would also restrict the taking of green sea turtles, whose population has declined drastically within the past few years. Specifically, it would:

- Prohibit the commercial sale of green sea turtles taken from Hawaiian waters.
- Allow for home consumption the taking of green sea turtles with an upper shell measurement of 36 inches or more, but only with a permit from the Board of Land and Natural Resources.
- Prohibit the use of nets for taking green sea turtles.

The regulation would carry a maximum fine of \$500 for violation of its provisions. Sale of speared turtles is already outlawed under State regulations.

At a recent public hearing in Honolulu, George H. Balazs of the Hawaii Institute of Marine Biology testified that "Hawaiian turtles will continue to be subjected

to . . . exploitation during the coming years unless the personal gain incentive is removed."

Balazs said a recent survey in the French Frigate Shoals, where the green sea turtles spawn, indicated "the total breeding population to be less than 1,100. An earlier estimate made in 1968 placed the size at between 2,000 and 5,200 animals."

He noted that many of the turtles are caught before they reach the breeding age, the biggest catch being taken from the waters between Maui, Molokai and Lanai.

"It is highly unlikely that Hawaii's green turtle colony can remain viable if the present exploitative pressures are allowed to continue," Balazs commented.

Ego reported that the total catch in Hawaiian waters increased from 12,506

(Please turn to page B-10)

From page B-8:

Turtle regs proposed

(Continued)

pounds in 1970 to 25,583 pounds last year.

Balazs urged restaurant owners to stop serving turtle until a domestic, farm-raised source is developed. The regulation would permit such turtle farms.

The Board of Land and Natural Resources had planned to pass the regulation after the Honolulu hearing, but postponed the action because Chairman Sunao Kido said he "wants to make sure it has the widest exposure possible."

Hearings are also scheduled for next week in Hilo and Lihue.

Copies of the proposed regulation are available at the Wailuku offices of the Department of Land and Natural Resources. Those unable to attend the December 5 hearing may submit written testimony prior to December 21 to Chairman Sunao Kido, Board of Land and Natural Resources, P. O. Box 621, Honolulu, Hawaii 96809.

In T-Shirt Campaign

Flat Out for Turtles

Public hearings will be held this week on the Neighbor Islands on a proposed State regulation for protection of Hawaii's dwindling turtle populations.

And scientists who have been battling to save the turtles have stepped up a campaign to enlist support for the measure.

They are having a small

supply of T-shirts made with a "Save Sea Turtles" design by Bill Watson, graduate student at the Hawaii Institute of Marine Biology at Coconut Island.

Proceeds from the shirt sales will be used for sea turtle information, said George Balazs, HIMB marine biologist who has led the effort to save the turtles.

Public hearings were held on Oahu on the regulation proposed by the State Fish and Game Division and it was sent to the Board of Land and Natural Resources with a strong recommendation for approval.



BUT LAND Board Chairman Sunao Kido said he felt the matter should have greater exposure before the board takes action.

Hearings are scheduled Wednesday at 7 p.m. in the State Office Buildings in

Wailuku, Maui, and Lihue, Kauai, and at 7 p.m. Thursday in the Hawaii County Council Room in Hilo.

The regulation would prohibit taking of leatherback and hawksbill turtles and the sale of green sea turtles.

It would allow persons to capture green turtles with shells greater than 36 inches for home consumption but would prohibit use of nets.

The regulation is considered necessary because there is no protection now for Hawaiian sea turtles and the populations are rapidly declining with increased turtle fishing.

Divided Viewpoints on Marine Turtle Controls

By Harold Ching and Robert McCabe

Star-Bulletin Writers

Officials of the State Department of Land and Natural Resources heard divergent views last night on its proposals to protect marine turtles in Hawaiian waters.

At its Maui public hearing, they heard several speakers advocate the controls. Some said they favored even stronger restrictions.

But on Kauai, they also heard charges that the current turtle population situation is not as precarious as the State and conservationists indicate.

THE PROPOSED regulations are aimed at protecting the leatherback and hawksbill turtles, which are on the U.S. list of endangered species, and the Hawaiian green sea turtle.

Kauai fisherman William Fleming, who said he had caught 200 green sea turtles the past year, said the reason less turtles are seen is that they "get smarter. They do not come where the people are."

Don Moses, who said he took 100 turtles last year and had seen 200 which were taken, echoed the same opinion.

"Are there no turtles, or are they not coming where the people are?" Moses said.

"Commercial fishermen find plenty of turtles at sea. They do not come close to shore.

"YOU SAY THE TURTLES ARE DEPLETED? But you do not know. You should make more study before turning to legislation."

Others favored some controls.

Hans W. Hansen recalled that 30 years or more ago he saw dozens of turtles laying eggs in the sand along the

Na Pali coast "and turtles by the hundreds at Polihale.

"But you do not see them any more," he said.

Philip Yamagata presented a statement for his Kauai County Fish and Game Advisory Committee. The five members advocated the rules be changed to allow taking of green sea turtles with an upper back length of 30 inches or more.

The proposed regulation specified a minimum of 36 inches.

THE COMMITTEE SUGGESTED a bag limit of one turtle a week.

On Maui, six of 14 persons who attended the hearing spoke on the regulation and each advocated that controls covered by the proposed regulation be given more muscle.

Ronald Lau, a Kahului teacher, asked that a minimum, instead of maximum, fine be imposed to "prevent too low fines."

He asked also that a two-year moratorium be considered first before the regulation goes into effect.

Peter J. Connally, testifying on behalf of the Conservation Council of Hawaii's Maui chapter, strongly supported the proposed regulation which he said would "serve to halt the much publicized demise of our marine turtles."

BUT HE ALSO URGED that permits for taking turtles for home consumption be administered under stronger guidelines that would guarantee population growth of the turtles.

"Consideration should be given to a moratorium on the taking of turtles until such guidelines are established," he said.

Protection of sea turtle

BY BILL MOAKE
(Staff Reporter)

Testifying at a public hearing last week, six persons spoke in favor of a proposed regulation that would outlaw the taking of two endangered species of sea turtle and restrict the taking of a third species from Hawaiian waters.

The two endangered species are leatherneck and hawksbill turtles.

One veteran turtle fisherman recommended that a two-year moratorium on the taking of green sea turtle be added to the proposed regulation.

And most of the other speakers urged a more severe penalty for violators than is provided in the regulation.

Rene Sylva, of Paia, said he has been a turtle fisherman on Maui for more than 30 years "and I know for a fact that the turtle population is decreasing at an alarming rate."

Noting that turtle fishing "is getting to be increasingly unsportsmanlike,"

Sylva suggested a moratorium of at least two years "until we are absolutely sure the turtle population has stabilized and is on the increase.

"Without the moratorium," he added, "I do not think the regulation will work."

Proposes hatchery

Sylva also proposed that the State establish a turtle hatchery to improve the survival rate of young sea turtles. He said only one of every 100 turtles born in the ocean survives to reach maturity.

Michio Takata, director of the Fish and Game Division of the State Department of Land and Natural Resources, conducted the public hearing. He said past attempts to transplant sea turtle eggs have failed. However, he said the Fish and Game Division will ask the legislature for an appropriation next year to further study the hatchery idea.

The regulation would prohibit the sale of green sea turtles taken from waters within the jurisdiction of the State. It would allow the taking of green sea

turtles having an upper shell measurement of 36 inches or more—but only for home consumption, and only with a permit from the Board of Land and Natural Resources. Use of nets would also be prohibited.

Violation of the regulation would carry a maximum penalty of \$500 fine.

Representing the Conservation Council of Hawaii, Peter Connally of Haiku recommended that two more fish and wildlife enforcement officers be added to the Maui staff "since regulations are only as good as the enforcement behind them."

Says fine too low

Connally, like others in the audience, felt the penalty for violation should be raised to a minimum fine of \$500 and a maximum of \$1,000.

Takata explained that the Fish and Game Division is limited to a fine of \$500 to enforce its regulations. He said the enabling act would have to be amended by the legislature to increase the penalty

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avored by speakers

ceiling.

The division could have made the penalty a maximum of \$200 and/or 60 days in jail, but chose the higher fine "because the courts have never sentenced anyone to jail for violation of a fish and game regulation."

Ronald Lau, of Kahului, testified that the "few profiteers who are slaughtering the wild sea turtles for restaurants ought to be considered as resource people for cultivating turtle farms."

He also said: "Exploitation of turtles for the tourist industry should never have been allowed to happen, much less continue. The proposed regulation is long overdue. I only hope it is not too late."

Lau wanted the 36-inch size restriction extended to cover even those turtles that would be permitted to be taken for scientific or educational purposes.

Takata said green sea turtles reach the reproducing age when their shells are 33 to 36 inches long. Thus, the 36-inch

restriction would allow them "to spawn at least once, if not twice."

Betsy Harrison read the written testimony of Russ Cahill, Haleakala National Park superintendent, who said turtle meat does not represent "an important industry. It's simply an exotic menu item that will not be missed.

"I believe this regulation can do a good job of preserving the turtles if the State is given the manpower and funds to enforce it," Cahill wrote.

Al Gaddis said the use of snares, as well as nets, should be outlawed since they are the most common means of catching turtles.

18 attend hearing

A total of 18 persons attended the public hearing in the conference room of the State Building in Wailuku. Several thought that the wording of the regulation should be "tightened up" so as to eliminate any possible loopholes.

For instance, one man said the regulation should make it illegal for restaur-

rants to purchase turtle meat.

As to how a fisherman can distinguish between the three species of sea turtle covered by the regulation, Takata said the hawksbill and leatherback species "are very scarce and your chances of encountering them are very small.

"Most people are familiar with the green sea turtle," he added. "If you see any other turtle that is not a green sea turtle, you'd be wise to leave it alone."

However, Takata added that either photographs or pamphlets with sketches of the three species will be available in the fish and game offices to aid fishermen in identifying the turtles.

Written testimony on the proposed regulation may be submitted prior to December 21 to Chairman Sunao Kido, Board of Land and Natural Resources, P. O. Box 621, Honolulu, Hawaii 96809.

A public hearing was held previously on Oahu. The board will vote on the regulation after assessing the public comments from the neighbor islands.

Tourist Trade Perils Green Sea Turtles

HONOLULU (UPI) — The largest and last remaining colony of green sea turtles in the United States is being threatened by tourists' appetites.

Hawaii has the only green sea turtle colony in the world that can be protected and managed under a single government's jurisdiction at both the feeding and breeding grounds.

But a scientist leading a movement to save the gentle creatures warns they may face extinction if their commercial exploitation isn't halted.

George H. Balazs, University of Hawaii marine biologist, frequently visits the nesting site at French Frigate Shoals, about 480 miles west-northwest of Honolulu.

In studies of the nesting area, he has found the green turtle population to be under 1,100, a drastic drop from a 1968 estimate which placed the population between 2,600 and 5,200.

"Any turtle colony with a breeding population of only slightly less than 1,100 that is being subjected to increasing commercial ex-

ploitation is most definitely in an insecure position," Balazs said.

The turtles bask peacefully in the sun and breed in the northwestern islands of the Hawaiian archipelago with only the Hawaiian monk seals and birds for company.

From the middle of May until the first week of August each year, the turtles are safe, breeding on the sandbars which are federally protected as a national wildlife refuge.

But Balazs said tagging shows that these same turtles then migrate from French Frigate Shoals to their feeding grounds, the major Hawaiian islands, filled with tourists seeking exotic foods and novelty souvenirs, such as turtle shells and jewelry.

There is no protection for the feeding areas in the main Hawaiian islands, Balazs said. The huge turtles, which have been known to reach 50 years in age and 325 pounds, feed on algae and marine plants.

"Since they are gentle and will not attack unless disturbed at their breeding grounds, they are easily caught," Balazs said.

"The pounds of turtles taken since 1963 follow the increasing trends of tourism," he said. "a unique Hawaiian resource is being eroded to provide an exotic luxury food for short-term visitors."

Balazs favors regulations prohibiting the sale of any of the major types of turtles, thus abolishing turtle steaks from restaurant menus and the use of turtles for curio and jewelry items.

The state Board of Land and Natural Resources is considering these regulations with a stipulation that green sea turtles could be taken for home consumption if their upper shell length was 36 inches or more.

Balazs is optimistic that turtle as a source of food can one day be obtained from animals raised domestically for this purpose, not by depleting the decreasing numbers in the sea.

A Particular Point of View

MSB 12-18-1973

Protecting Hawaiian Sea Turtles



Measuring a Green Sea Turtle

THE STATE of Hawaii, Department of Land and Natural Resources is presently considering a regulation which will provide partial protection for sea turtles found in the waters surrounding our major inhabited islands. As no laws have ever existed to ensure the continued survival of these unique salt water reptiles (other than outlawing firearms for hunting and prohibiting the sale of speared animals) the proposed regulation represents a sound move which should be carried out with all due haste.

Although the plight of sea turtles has been widely recognized in other areas of the world, a concern for these animals in Hawaiian waters has been very slow in coming. Of the five major types of sea turtles which exist today, three are officially listed as endangered species (hawksbill, leatherback and Atlantic ridley) and their continued survival is questionable.

The only sea turtle of any consequence to the Hawaiian Archipelago is the green turtle. Because large declines continue to occur in green turtle colonies throughout the world, this turtle is officially listed as being depleted.

FOR CENTURIES green turtles have been a valuable source of protein for native peoples at numerous locations in both the Atlantic and Pacific Oceans. As with other once abundant wildlife, pressures from man have reduced numbers. This has been brought about, for the most part, by the creation of new markets which have provided the incentive for relentless commercial exploitation.

Although the green turtle is not yet considered endangered, the outlook does not seem encouraging. Increasing commerce and the accompanying popularization of turtle products (steak, soup, jewelry, leather and cosmetics) can only mean further decimation. It is unfortunate that a philosophy exists which tends to allow serious concern about the future of a species only after drastic declines have occurred and the animal qualifies as being endangered.

If the criteria for giving protection is to prove in no uncertain terms that a population is overexploited with numbers and habitat seriously reduced, it will then be next to impossible to save many commercially sought after species in their natural environment. In the case of a long range migrant animal with a complex life cycle such as our Hawaiian green turtle, it may be impossible to save them at all, even under captive conditions in zoos.

PROTECTIVE measures such as those now under consideration by the Department of Land and Natural Resources should have been initiated and strictly enforced many years ago. Although substantial data were not previously available, the trends of increasing exploitation, both com-

mercial and private, should have been apparent. Hawaii's rapidly growing resident and tourist population has long been predicted.

Increasing interests in water activities with accompanying use of SCUBA, fast boats, and efficient spear guns and nets have all acted to place man in a position closer to the green turtle. As more tourists visited our Islands, a greater demand was created for exotic foods not normally obtained in their own home towns. Green turtle steak filled the menu nicely and was psychologically acceptable because of it being described as tasting like veal. It may have been too much to expect the average tourist to be aware of the sea turtle's plight and refuse to order this dish. It may have also been unrealistic to expect the part-time fisherman to resist the high prices offered by restaurants for sea turtle.

Even if the increasing demand with accompanying incentive for greater exploitation were not easily recognized, the fate of other similar green turtle colonies which have been overexploited at other locations should have been readily seen. It is unfortunate that man is not yet wise enough to learn from the mistakes of others. It is even more unfortunate, in our own particular case, for the Hawaiian green turtle.

ALL EVIDENCE presently available, and it is considerable, tells us that our green turtle colony has been overexploited. Consider a few of the facts brought out at recent public hearings:

1. State Fish and Game records show that the reported commercial turtle catch has risen over the past 10 years from 380 pounds in 1963 to a record 25,583 pounds in 1972. For the first six months of 1973, 14,486 pounds were reported.

It should be stressed that this only represents the reported commercial catch and that the actual commercial catch has long been thought to be many times larger.

Suspicious were confirmed at the Kauai public hearing (Dec. 6) where individuals stated, in a feeble attempt to show that turtles are still abundant, that they had taken hundreds of turtles during the past few years. Fish and Game records show that absolutely no reports were filed from Kauai from 1957 through 1969 and that for the years 1970, 1971 and 1972 only several hundred pounds were reported for each year. No reports have been submitted for the first six months of 1973.

IT WOULD BE extremely naive to think that these hundreds of turtles which probably averaged close to 100 pounds each were taken for home consumption only. Many restaurants on Kauai serve turtle steak and it is strongly suspected that shipments of meat are sent to Honolulu establishments as well.

Dr. Archie Carr, an authority on the green turtle, adequately summed up the situation when he stated: "If things are left as they are the commercial sea turtle industry seems certain to go on cynically mining to exhaustion its sources of supply."

2. In the entire Hawaiian Archipelago only one congregated green turtle nesting area still exists. Several small sand islets at French Frigate Shoals (490 miles northwest of Honolulu) account for 95 per cent of all nesting activity now taking place throughout the chain.

In years past turtles were known to reproduce at several locations on each major island. On the Islands of Lanai and Kauai evidence strongly suggests that large numbers still came ashore to lay eggs during the 1920s. Today a report of even a single nesting turtle on any of the inhabited islands would be a rare occurrence.

3. During June and July an intensive study of the French Frigate Shoals breeding population revealed some very sobering facts. Only 149 nesting females were found to be using the entire area. With this value as a base and assuming an equal sex ratio, a three-year breeding cycle and a liberal 20 per cent addition for missed animals, a total breeding population of less than 1,100 individuals was calculated. So few animals are present at French Frigate Shoals that one wonders if we have not already fallen below the minimum level needed for survival.

4. The U.S. Fish and Wildlife Service which administers the federally protected French Frigate Shoals has periodically conducted green turtle research at this location since 1966. Results of their work have conclusively shown that members of the breeding population are the very same animals that occur around our major inhabited islands where they are unprotected and overexploited for the greater portion of their life.

FORTUNATELY there now appears to be much support for protecting Hawaiian sea turtle. Perhaps all that was needed was a public awareness of the animal's plight.

Perhaps all that was needed was a public awareness of how small special interest groups can overexploit, for their own personal gain, a unique resource that rightfully belongs to all of the people in common.

Hopefully the partial protection that will be given to our colony will be adequate and soon enough in coming to permit regrowth. Biologically speaking, it makes good sense to call a complete moratorium on the taking of all turtles. Politically speaking, such a moratorium would probably be very difficult to accomplish.

In the meantime each of us can aid all sea turtle colonies wherever they occur by refusing to buy products derived from these animals and urging friends to do the same.

Sea Turtles tagged, released off WW shore

Nine large green sea turtles were tagged and released on the Windward shore last week by the University of Hawaii and Sea Life Park, as part of a joint study of the animals' breeding and migratory habits.

Details of the study were worked out this week between Dr. Edward Shallenberger, vice president of Sea Life Park and George Balazs, Junior Marine Biologist at the

Hawaii Institute of Marine Biology at Coconut Island.

Approximately fifteen turtles remain at Sea Life Park, five at the feeding pool, three in the Hawaiian Reef Tank and another seven in the turtle pond nearby.

Green sea turtles have been found in excess of 400 pounds and can lay up to 200 eggs per year. The University of Hawaii and Sea Life Park are using recently developed

incubation techniques to attempt to produce live offspring. Normally, the animals bury their eggs in about 30 inches of sand and hatchlings appear in 45 to 65 days, depending upon temperatures of the sand.

In the five years the turtles have been exhibited at Sea Life Park, all have survived captivity in good health; however, no live young have ever been produced at the park.

Protective legislation is now under consideration by the state Department of Land and Natural Resources which would place stronger controls on the capturing of green sea turtles, as their number is being rapidly depleted.

Persons capturing any of the tagged green giants should notify the Coconut Island facility. Complete information is printed on each tag.



OVER SHE GOES — One of the nine large green sea turtles that were tagged and freed this week by the University of Hawaii and Sea Life Park flops into the water. On exhibit at the park for five years, they have not reproduced, although they are healthy. George Balazs is coordinating a study of their breeding and migratory habits.

The Henderson Sun Press

Dec 19 - Dec 25, 1973



STAR-BULLETIN

May 31, 1974

Endangered Turtles

It's a pleasure to note one victory in the efforts, often frustrating, to save animals whose survival is endangered.

This is the adoption by the State Board of Land and Natural Resources of regulations to protect sea turtles, seen sometimes but not as often as formerly, in Hawaiian waters. The turtle population has declined drastically because of the demand for turtle meat in restaurants, for turtle shells in curio shops.

The new regulations should be of particular gratification to George H. Balazs, of the University of Hawaii Institute of Marine Biology, who sounded the alarm and led the campaign to protect the turtles.

Under the regulations, adopted after a year of public hearings and discussions, the taking of leatherbacks, hawksbill and green sea turtles is prohibited, with certain exceptions.

Actually, the green turtle is the only one of consequence in the Hawaiian Islands; it's officially listed as depleted although its numbers have declined so much that many scientists think it should be listed as an endangered species.

Two bills affecting turtles failed to make it through the last session of the Legislature. One would have imposed a moratorium on taking turtles and the other would have released up to \$35,000 for research and management studies.

While conservationists may regret failure of the bills to pass, the new regulations should help give turtles a chance to replenish their numbers.

Honolulu Star-Bulletin Ed:TOPIAL

Green sea turtles may breathe bit easier in Hawaiian waters

By Helen Shiras Baldwin

The green sea turtles who poke their heads above water to take in air may breathe a bit easier in Hawaiian waters now. On May 17 Acting Gov. George Ariyoshi signed Regulation 36 of the Department of Land and Natural Resources' Division of Fish and Game which provides among other things:-

"Section 1. It shall be unlawful to mutilate, injure, take, kill, possess, disturb, sell or offer to sell Leatherback turtles (*Dermochelys* sp.), Hawksbill turtles (*Eretmochelys* sp.) and green sea turtles (*Chelonia* sp.) or any parts thereof from or within the State of Hawaii and waters subject to its jurisdiction, except as provided in Sections 2 and 4 of this regulation."

Section 3 prohibits the use of nets to catch green sea turtles.

Sections 2 and 4 provide that persons must obtain a permit to take green turtles or their eggs for scientific purposes, or for

propagating them, or for home consumption provided only turtles in excess of 36 inches straightline measurement of shell are taken. These sections also provide that persons with turtle meat or other products already on hand for sale may, with a permit, continue to sell these products for a time but not buy and sell new ones.

So don't hesitate to buy turtle meat or turtle steak at restaurants for the next few weeks while stores and restaurants unload their stocks on hand. These turtles are already dead and people have a grace period in which to dispose of them.

Nor need you be alarmed about any turtle-shell heirlooms or other objects you have in your home now. If you feel in doubt about them, contact the Division of Fish and Game at their Hilo office, in the State Building, 75 Aupuni St. Hilo and ask the authorities there about your treasures.

The reason for all this is that sea turtles have decreased so much that several, such as the hawksbill and leather-back, are already on the endangered species list. Green sea turtles' along the waters by the Atlantic and Pacific coast states are already considered endangered. It is unlawful to import turtle meat or other turtle products into the United States from foreign countries.

Hawaii's green sea turtles are all "native Hawaiians". They migrate northwest and southeast along our island chain but do not travel to continental areas. This makes it easier for government authorities to monitor them and to keep them protected through law enforcement.

Female Hawaiian green sea turtles lay their eggs on sandy beaches far to the northwest, then gradually migrate back to the seas around the bigger islands till the mating urge sends them and their mates northwest again. There the females go ashore to lay their eggs in holes dug in the sand, cover the eggs and swim away, eventually wandering in seas off shore of Hawaiian inhabited islands.

There the turtles, both male and female, live and play, feeding off of aquatic vegetation and small sea creatures till the mating urge comes to them when they wander northwest again. But females lay only every two or three years and are not mature enough to lay eggs till they reach a size of thirty inches or more in shell length.

According to an article about green turtles in waters off Nicaragua, in the current issue of Natural History Magazine, "only three or four out of 1,000 green turtle hatchlings survive to adulthood" in the wild. The rest are eaten by predators or otherwise meet a premature death.

But there is a bright spot in the picture. Sea turtle eggs can be gathered by men and hatched in special protected environments in captivity and the young raised to considerable size thus avoiding heavy predation. More research is being done on the feasibility of raising green sea turtles to maturity on turtle farms. This explains the provisions in Regulation 36 for permits to take turtles for scientific and propagation purposes.

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A-20

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Hawaii's Green Turtle

Members of the human race, if they like something, have a tendency to love it to death — especially if they can eat it or make money out of it.

The fate of being loved to death threatens the sea turtles, for centuries a valuable source of protein food for peoples in many areas of the world and also a source of shells used for many purposes.

The only sea turtle of consequence in the Hawaiian Islands is the green turtle, officially listed as depleted although Interior Secretary Rogers Morton and others have proposed including it on the list of endangered species.

Its breeding population is so far down that there is danger it has already fallen below the minimum level needed for survival, according to George H. Balazs, marine biologist at the University of Hawaii Institute of Marine Biology.

Only known nesting areas of the green turtle now in the Hawaiian Archipelago are in French Frigate Shoals, although the turtles used to nest on Lanai and Kauai beaches.

What's being done to stop the decline in the green turtle population?

Well, for one thing, a major seafoods restaurant, Fisherman's Wharf, took turtle steak and soup off its menu back in November. This was done to help conserve the species, says Eric Weyenberg, the manager.

Balazs wrote letters to 20 restaurants in February asking them to remove the turtles from their menus. He hasn't been able to ascertain the response, but knows some of them still serve turtle steaks—the main cause of depletion.

The State Division of Fish and Game is still working on regulations that would prohibit all turtle fishing in Island waters except for turtles to be consumed at home.

Two bills affecting turtles are now before the Legislature.

They are:

SB 1530, introduced by Sen. Mason Altiery, would impose a moratorium on taking turtles.

HB 1635, introduced by Rep. Anson Chong, would release up to \$35,000 for research and management studies on the turtle.

Both bills deserve passage as a means of protecting a diminishing species before it gets eaten up.

Many thanks for your cooperation
+ kept in posted
E.S.F.

USJ
3-13 74

Turtleless Soup

By Jeff Stansbury
And Edward Flattau

Los Angeles Times Syndicate

Hawaiians may shortly have to forego such traditional delicacies as turtle steak and turtle soup.

One person who would be delighted at this hopefully temporary ban is University of Hawaii marine biologist George H. Balazs. He contends that the largest and only major green sea turtle colony under United States jurisdiction is in danger of being wiped out by man's exploitation. Balazs is referring to the nesting sites at French Frigate Shoals, small islands in the Hawaiian Archipelago some 400 miles northwest of Honolulu. While that area is protected as a national wildlife refuge, the turtle's feeding grounds in waters off the major Hawaiian islands are not. Turtles have been slaughtered there indiscriminately by Hawaiians and tourists who value the reptiles for their meat and shells.

Consequently, Balazs has found that the breeding population at French Frigate Shoals has dropped from approximately 3,900 in 1968 to less than 1,100 today, a number which might already be low enough to doom the colony.

Some readers might ask why Hawaiian gourmets shouldn't enjoy turtle delicacies until the supply of animals runs out.

First of all, turtles convert microscopic plant life (on which they feed) into edible protein in the form of their flesh. In abundant supply, they can provide an important part of the diet of poor islanders who catch them in numbers which would not ordinarily cause significant population decline. Turtles are also part of the oceanic food chain, and their excrement is a source of nourishment for other marine life.

Finally, there is safety and stability in nature's diversity. The more species there are, the more chance that some of them are resistant to highly contagious diseases which could rage unchecked through a single species of animal.

Those who wish to continue deprecation of the green sea turtle defend their position with arguments typical of hunters selfishly reluctant to surrender the chase, however depleted their quarry is. They point out that the catch of turtles in Hawaiian waters has increased over the past few years. But they neglect to say the average age of the turtles being seized is now below that of sexual maturity. No one mentions that extinction of previous marine species has typically been preceded by increased catches due to a final flurry of intensive fishing.

Others argue that we don't have to worry about extinction of the wild sea turtle because man can raise the animal domestically. Depending on "farms" to save wild creatures from destruction has proven unreliable because of the difficulties experienced in re-creating natural habitats.

Balazs would like to see a moratorium imposed on the taking of these giant green sea turtles until their world population is restored to a healthy, stabilized level. Their numbers have declined from more than a million to less than 400,000 over the past century.

He considers the moratorium politically unrealistic for the Hawaiian State Legislature, but the ban will probably be imposed anyway. The Interior Department is proposing to place the green sea turtle on the endangered species list under a new tough federal law that would essentially bar the killing or sale of the creatures in the United States for any reason. Hawaiian officials had been considering a weaker measure which would forbid the commercial capture of sea turtles but allow the taking of the animals above a certain size for nonbusiness purposes. This regulation would be superseded by the federal ban, and Hawaiian officials are expected to fight for modification of Interior's proposed action.

EDWARD FLATTAU

1330 NEW HAMPSHIRE AVE., N.W.
WASHINGTON, D. C. 20036

Dr. David W. Ehrenfeld, professor of biological sciences at Columbia University, points out that wild turtles — each of which can weigh 250 lbs. at maturity — need an enormous amount of room, which would create severe space problems for any facility. Crowding the turtles together in great numbers would precipitate disease and force the farmers to substitute fish feed for marine vegetation. This latter action would nullify for man the nutritional advantage he receives from the turtle's conversion of water plants to edible protein.

Ehrenfeld says raising wild turtles away from their nesting beaches could contribute to their demise, since scientists doubt the animals could find their way back to breed if they did not hatch at their natural site.

He believes that man's best chance to replenish the turtle population through farming is to establish nonprofit ranches at nesting beaches which already support colonies of the creatures.

In the short run for Hawaii, however, the surest way to save the green turtle is to adopt U.N. fishing consultant Dr. Harold Hirth's 1971 recommendation that the sale of stuffed marine turtles, turtle meat and soup be prohibited.

The Interior Department's final regulation at the end of May will hopefully do just that.

Pearl Bailey 5/8/74

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Words "out of context"

Turtle farming not favored

By BRUCE BENSON
Advertiser Science Writer

An eminent Florida authority on sea turtles, portrayed by two importers of green sea turtle meat in Hawaii as one who supports turtle farming, says in fact that he is opposed to the venture.

Dr. Archie Carr of the University of Florida

made his opposition known in response to an Advertiser query for his position on turtle farming and sales.

The turtle farm debate has escalated in Hawaii in recent months since Henry Bush and Gary Gerberg began importing frozen turtle steaks to Hawaii restaurants.

BUSH APPROACHED

State Deputy Atty. Gen. Russell Fukumoto and State Fish and Game Department chief Michio Takata and got a permit to bring the steaks in, despite a recent ban on commercial turtle sales in the Islands.

The turtle population is depleted here.

Fukumoto said Bush got the permit because of a clause in the turtle regulation allowing the sale of turtles caught before it took effect.

Bush argued that turtles raised at Mariculture Ltd's turtle farm in the Caribbean were in captivity before the effective regulation date in Hawaii. Fukumoto agreed.

FUKUMOTO SAID
Thursday his office is

looking into the situation again to decide whether the regulation means that turtle steaks cannot be imported into the State.

Said Dr. Carr, "The comments of mine quoted Sept. 24 are grossly out of context. They represent an old view of mine on the general subject of turtle farming and do not, as the juxtaposition is clearly intended to suggest, endorse or even refer to Mariculture Ltd.

"Further neglect of the context of the quoted remark is failure to refer to my often-published opinion that international commerce is the most important factor in the present alarming decline of the green turtle."

CARR CONTINUED,

"Heavily capitalized, monopolistic turtle farms and world trade exacerbate the survival predicament of the green turtle by stimulating markets, raising demand and increasing hunting and poaching pressure everywhere."

A local turtle expert, George Balazs, has complained that one problem in allowing the Bush-Gerberg business to continue is that restaurants can stock Mariculture steaks, then supplement their

inventory with locally caught turtles, claiming the over-all supply came from Mariculture Ltd.

One restaurant on Maui, Balazs said, has reported a frozen turtle steak inventory of nearly 4,000 pounds. Balazs has questioned whether such an inventory exists.

A STATE FISH and Game official in Honolulu said his office is looking into the matter.

Carr also sent a letter he wrote late last year to Irvin S. Naylor, president of Mariculture Ltd., in which Carr said he would have to be "dull-witted" to encourage Naylor's kind of turtle farming.

Naylor had written Carr to ask his support in Mariculture's efforts to have California import its frozen turtle steaks, an effort that failed.

Carr said, "I believe that if you will take another look at a recent advertising leaflet of yours urging people to hang your prepared green turtle shells on their walls, you will see why Mariculture's expanding program makes me uneasy and will perhaps agree that I would be dull-witted to encourage California to help the spread of a disastrous vogue by opening its borders to the importation of green turtle products."

Explains His Side

use of the turtles generally bans the sale of such turtles, there is an exception allowing that the offspring of captive green turtles may be used for commercial purposes.

And it is the origin of turtles being sold here that seems to muddy the water.

MARICULTURE, which operates a farm in the Cayman Islands in the British West Indies, is raising more than 300,000 green sea turtles for sale throughout the world.

According to Bush, these turtles were all hatched at the farm.

Although some were hatched from eggs laid in captivity, others came from eggs collected from the wild.

Some scientists and conservationists say this has a detrimental effect on survival of the species in the wild.

But Bush said the eggs taken from the wild were "endangered" eggs — taken from areas where they would have been washed out by high tides, eaten by predators or on volcanic beaches where they had little or no chance of ever hatching.

He said Mariculture has the proper government permits whenever such a harvesting of eggs from the wild is done.

Eventually, he said, the company hopes to raise all its turtles from eggs laid in captivity.

BUSH NOW sells to six restaurants in Honolulu and is negotiating with more than two dozen others. He said he is trying to establish a market here, even though he can't supply too much at present.

He started supplying Island restaurants last November, he said, and is air freighting the high-protein meat to Hawaii in 500-pound lots.

One customer, a Waikiki restaurant, buys the choice turtle meat cutlets in 100-pound lots — a supply that lasts about a month, Bush said.

Gary Gerberg, a marine biologist working with Bush, said the company eventually hopes to set up a farming operation here in Hawaii.

He said it would be a "natural" industry for the Islands and would be done with the full awareness and cooperation of local government.

GERBERG also believes that it is a good way to help reduce the killing of turtles in the wild.

He said one acre of water, five feet deep, can produce 200,000 pounds of

turtle meat per year in a farming operation.

This compares with only 800 pounds of beef that can be produced on an acre of land in a ranching operation.

Both Bush and Gerberg are quick to point out that the percentage of protein is much higher in turtle meat than in either beef or chicken and that the fat content and calories are considerably lower.

Saves Wild Animals, He Says Turtle 'Farmer'

By Keith Haugen
Star-Bulletin Writer

Henry Bush believes that if farmers were not raising fowl domestically as a food supply, wild game birds would soon become extinct.

And it is this logic that he applies to the controversy over selling turtle meat.

If enough turtle meat is made available from

"farms," there will be no reason for anyone to kill turtles in the wild, he says.

Bush, who has come under fire for selling the meat of an endangered species — the green sea turtle — here in the Islands, said the activities of the firm he represents actually offer "new hope for the green sea turtle."

Bush quotes at great length from leading conservationists and scien-

tists who advocate farming as a way to preserve the wild sea turtle.

"IF THE sea turtle is to survive, it must be farmed," said Jacques Yves-Cousteau, in one of his famous sea exploration films.

And Archie Carr, another authority, is quoted by the International Union for Conservation of Nature and Natural Resources as saying there is no reason why the turtle should not become a semi-domesticated meat animal.

"Successful evolution of such culture would not only extend the means of taking food from the sea, but would quickly take the pressure off the wild sea turtle populations, and thus help save the species for the distant future," Carr said.

GEORGE H. Balazs, a marine biologist at the University of Hawaii who championed the cause for conservation of the green sea turtle in Hawaii, does not agree.

He said there is little scientific data to support the claims of Bush and Mariculture Ltd., the company Bush represents.

Balazs feels that allowing Mariculture to sell turtle meat to Hawaii stores and restaurants is compromising and exploiting the State's conservation measures.

Although the State's

The Honolulu Advertiser
Hawaii

Loophole puts sea turtle into the frying pan

By **BRUCE BENSON**
Advertiser Science Writer

On May 30 of this year Hawaii adopted a rule to save the green sea turtle by banning all sales of turtle products . . . with one little exception.

From that little exception, two men have started selling frozen green turtle steaks to restaurants throughout the State. A memo from the Attorney General's Office says they are acting in a perfectly legal way.

Their legal standing aside, conservationists and scientists have started complaining that the two men are circumventing the intention of the new turtle regulation.

THEY SAY the green sea turtle will wind up in as much, and probably more, danger than it was before the regulation was adopted.

The argument becomes thicker than turtle soup because the importers of the steaks say they are actually helping to save the turtle, not hasten its extinction.

A little background:

The Board of Land and Natural Resources, after a year of hearings, adopted the turtle rule in order to take hunting pressure off the green sea turtle.

The intention of the rule was to outlaw commercial use of turtle products, giving the green sea turtle some time to replenish its numbers in the wild.

The rule says, however, that you may "possess or sell the eggs or offspring of captive green sea turtles" and you may sell marine turtles or their products if you owned them before May 30 of this year.

THE REASONING behind the clause was to ensure that turtle farming could stay in business, according to Russell Fukumoto, Hawaii deputy attorney general.

There is only one large commercial turtle farm in existence at the moment. It is operated by Mariculture Ltd., a predominantly British-staffed firm, on Grand Cayman Island in the Bahamas.

The two turtle steak importers in Hawaii are getting their steaks from Mariculture, Ltd.

NOW ENTER the conflicting claims:

Mariculture Ltd. promotes its business heavily by claiming that its operation, an investment it places more than \$3 million, is going to save the green sea turtle from extinction.

Mariculture Ltd. says it will save the creature by raising it domestically, supplying the world with significant amounts of additional protein. The great supply of turtles will at the same time guarantee that the species will survive.

There are problems with these claims, according to George Balazs, turtle scientist at the Hawaii Institute of Marine

Report



★★ Wednesday, September 18, 1974 A-3



Advertiser photo

The green sea turtle—loophole may threaten existence.

biology. Other authorities back Balazs' position.

For one, they note that Mariculture Ltd. is not able at this time to breed the turtles in captivity on the scale necessary for commercial operations.

In fact, they said employees at Grand Canyon have to go out into the wild and take eggs from nature—more than 50,000 eggs per year.

BALAZS IS contradicted by Gary Gerberg, 31, a North Shore resident who said he is a marine biologist. Gerberg is a younger colleague of Henry Bush, a

resident at the Ilikai Hotel who said he is a lifelong explorer, conservationist and aviation expert.

Bush and Gerberg have imported about 1,200 pounds of green turtle steaks into Hawaii, and anticipate bringing in another couple thousand pounds this year, Bush said.

Gerberg said Mariculture Ltd. is not dependent on wild eggs to stay in business. "Chelonia mydas (scientific name of the green turtle) is being farmed successfully and the species replenished as well. We need many more farms all over the world," he said.

Green Turtle 'loophole'

Several points in Bruce Benson's article "Loophole Puts Sea Turtle Into The Frying Pan" (9/18) seem to need clarification if the general public is not to become further confused with what is already a complex issue.

Division of Fish and Game Regulation 36 (relating to the protection of marine turtles), which became law on May 30, 1974, provides full protection for the Hawksbill and the Leatherback sea turtle. Both of these animals are already designated as "endangered species" by the U.S. Department of the Interior.

The Green, which is considered to be "depleted", is the only other kind of sea turtle found in Hawaiian waters. Under the new regulation it is illegal for products from this animal to be used for commercial purposes. Green turtles may be captured for home consumption but only if they measure 36 inches or more in shell length and a permit has first been obtained. The law provides for two exceptions to the ban on selling and herein lies the loophole which has seriously weakened if not completely destroyed the protective value.

In order to prevent economic hardship, a provision was included that allows restaurants and fishermen to



The photograph that accompanied Benson's article did not show a Green sea turtle. This is a picture of a Green.

sell any existing supply of Green turtle meat that was acquired prior to the regulation's effective date. This supply can only be sold under permit and monthly reports must be filed indicating the amount of turtle remaining in stock. Over a period of time the supply on hand would, theoretically, become exhausted and sales would cease.

Unfortunately, representatives of the foreign commercial turtle farm, Mariculture, Ltd., have seen fit to use this provision for their own personal gain. The State Attorney General's Office has been informed that turtle products now being marketed by Mariculture, Ltd. are the result of eggs that were removed from natural nesting beaches prior to the regulation's effective date and, therefore, should be considered as legal for sale. Incredibly enough, the Attorney General has gone along with this interpretation which runs counter to the primary intent and purpose of the law.

The second exception provided in the regulation is that the offspring of captive Green turtles may be used for commercial purposes. The products of Mariculture Ltd. do not qualify under this provision and, in fact, it will be a number of years before even a small portion of their animals can meet this provision. The vast majority of the farm's stock is derived from the wild and the only successes in captive breeding have involved a small number of animals that were removed from natural breeding grounds as mature adults. The company has conducted an extensive promotional campaign emphasizing the conservation value of their ac-

clarified

tivities; however, little if any scientific data has been offered to support their claims.

Presently, a good deal of information has been compiled by sea turtle biologists which suggests that the operation represents an adverse factor to the survival of the Green turtle. Several attempts have been made by the company to legally market their products in California and Illinois; however, both of these states continue to ban all Green turtle products.

In Bruce Benson's article, Hawaii Deputy Attorney General Russell Fukumoto is attributed with saying that the reasoning behind the provision that allows the sale of offspring of captive turtles was "to ensure that turtle farming could stay in business." This statement is not only incorrect but it serves to demonstrate that the Attorney General's Office is completely unaware of the true status of turtle farming. The provision was included so that possible future turtle farms that are founded on a sound biological basis would be able to market their products.

I can see little reason why one of our State's hard won conservation measures should be compromised and exploited. It would seem to be in the best interests of both the people of Hawaii and the world's vanishing sea turtles if the Attorney General's Office would cooperate with the Division of Fish and Game in fulfilling the intent and spirit of our newly enacted regulation.

GEORGE H. BALAZS
Junior Marine Biologist, UH

After Learning It's Illegal

Store Pulls Turtle Jewelry

By Keith Haugen
Star-Bulletin Writer

J. C. Penney Co. Inc., after learning that importing hawksbill turtle shell is against the law, has removed its stock of turtle shell jewelry from the sales shelves at the Ala Moana store and sent it back to the vendor.

Lewis Perkins, store manager, said only a few pieces of the jewelry had been sold and the store did not have a big supply.

"We had no knowledge that it was illegal," Perkins said. "We were unaware of the law."

Perkins said the shell jewelry items were off the shelves "within 30 minutes" after he learned it was illegal.

"In no way do we want to do anything illegal," he said.

THE ILLEGALITY of the situation was brought to the store's attention by George H. Balazs, marine biologist at the University of Hawaii's Institute of Marine Biology and a champion of the cause to keep the sea turtles from extinction.

Balazs wrote to Perkins, pointing out that it was illegal to market products derived from an endangered species.

"It is my understanding that your hawksbill jewelry was imported from

Canada and that you have only started to sell it as of several weeks ago," Balazs wrote.

"As a demonstration of good faith on the part of Penney, I believe you should immediately withdraw these items from sale."

Perkins did just that. Balazs also provided Perkins with a news item from the Audubon Leader, published by the National Audubon Society, which told of federal authorities confiscating illegal hawksbill turtle shell jewelry valued at \$250,000 from some of New York's most fashionable stores.

The jewelry had been openly advertised, indicating that stores there also did not realize that the importing of the shell of this endangered species is against the law.

THE FEDERAL action came after the National Audubon Society brought it to the attention of two of the New York stores.

Nathaniel P. Reed, assistant secretary of the interior, said a consent agreement had been reached with the stores involved under which they agreed to forfeit the expensive jewelry and to follow a prescribed program to keep their employees informed of all products covered by the Endangered Species Act, not just turtles.

"If they fail to do so, and offer such products for sale again, they will face prosecution," Reed said.

He said he hoped the New York case would help "educate" merchants in other cities to the law.

Balazs earlier this year had sent letters to more than 20 restaurants in Hawaii that serve turtle steak, urging them to remove that delicacy from their menus.

He pointed out that the green sea turtle, once common in Hawaiian waters, is fast being depleted and has been proposed for the endangered species list.

Balazs' campaign to protect the turtles led to adoption by the State Board of Land and Natural Resources of regulations to protect the hard-shelled creatures.

The new regulations generally prohibited the taking of leatherbacks,

hawksbill and green sea turtles.

TWO BILLS, introduced during the last session of the State Legislature, would have done much to protect the turtles. But the measures failed to pass.

And Balazs says the new regulations are "working out terribly."

A Honolulu businessman reportedly is importing turtle meat from the Caribbean and selling it to the restaurants, he said.

"How can people tell whether the turtle steak in the freezer is imported or local?" Balazs asked.

In response to Balazs letters of last February, some local restaurants removed the turtles from their menus. But other still sell both turtle steak and turtle soup and there is no way of determining where the turtle is coming from.

Balazs said this point up a loophole in the regulations, seriously hindering enforcement.

3/1/74

Turtle Rule Crawls Forward

By Helen Altonn
Star-Bulletin Writer

The eighth draft of a proposed regulation for protection of marine turtles in Hawaiian waters was approved by the State Animal Species Advisory Commission yesterday, although records of the meeting may be muddled.

Lengthy debate and parliamentary confusion necessitated repeated replays of a tape recording of the proceedings to keep track of the motions.

At one point, chairman Ronald J. Endrizal had to call a recess to "think about" the status of the original motion.

A minor amendment to permit collection of eggs for scientific purposes was approved and the regulation now goes to the State Board of Land and Natural Resources for consideration, probably at a meeting early next month.

ALAN ZEIGLER, Bishop Museum zoologist, pressed for action on the measure, charging Philip Yamagata, Kauai commissioner, with a "deliberate attempt to further delay the regulation."

the Kauai County Fish and Wildlife Commission, told the commission he has fought the regulation because he feels it has an unreasonable and unenforceable provision.

HE PROTESTED a section requiring fishermen to keep the head and meat attached to the upper shell while transporting a turtle to their homes.

He advocated changing the wording to allow fishermen to butcher the turtle in four parts for easier transportation over land.

"I would encourage people to catch turtles because I don't see how this regulation can be acceptable to the public," Yamagata told the commission.

"We are forcing a regulation on people that can be more livable."

Addressing Zeigler, he said, "If you want a strong regulation, why not completely prohibit taking turtles?"

"I second that ... Is that a motion?" Zeigler replied.

Yamagata, seeking a change of wording in one provision, charged Zeigler with "railroading it through."

The regulation was proposed by the State Division of Fish and Game and has been pending since last fall. It would prohibit all turtle fishing with the exception of green sea turtles for home consumption. They could be taken only with a State permit if the upper shell length was 38 inches or more.

Yamagata, chairman of

FRANK J. Radovsky, Bishop Museum entomology chairman, said; "This regulation has been dragging on a long time now and the longer it drags on, the more turtles are killed for commercial use."

He said he wouldn't object to an amendment to the regulation to satisfy Yamagata but he would not favor any further delay. "This has carried on a ridiculous amount of time," he said.

Michio Takata, State fish and game chief, proposed an amendment to allow butchering of turtles in transit over land "provided the butchered portions of the turtle be recognizable as a whole."

Yamagata proposed more specific wording, which Takata said was too long and too detailed.

A VOTE OF 5 to 4 finally was taken on Takata's proposed amendment.

Zeigler then asked Endrizal what the status was of his original motion to approve the regulation and send it to the Land Board.

"I don't know. I'm thinking about it. Let's have a short recess to consider it. We're talking about a procedural point here," the chairman said.

Endrizal ruled after the recess that a simple majority vote was all that was required for the amendment — the same as if the commission was voting to adjourn.

But members argued that approval of the regulation constitutes official action and requires 6 votes to carry.

Takata noted that 6 votes are necessary for official commission action, according to an Attorney General's opinion. And on this basis Endrizal decided the amendment failed.

The original motion to approve the regulation — the eighth draft — passed on a 6-3 vote.

Turtle Steak Not His Dish

By Helen Altonn
Star-Bulletin Writer

More than 20 restaurants in Hawaii that serve turtle steak have received letters urging them to remove that delicacy from their menus.

George H. Balazs, marine biologist at the University of Hawaii Institute of Marine Biology, sent the letters as part of a continuing campaign seeking preservation of the Island turtle population.

He pointed out that the green sea turtle recently was proposed by the U.S. Interior Department for the federal endangered species list.

"Habitat destruction, as well as overexploitation due to commercial demand for turtle products, have acted in unison to deplete remaining populations of green turtles in many areas of the world," he wrote.

The Legislature is considering several bills concerning studies and protection of sea turtles.

The State Department of Land and Natural Resources also has proposed a regulation to ban the sale of turtles.

"At this time, restaurant owners and managers are in a position of being able to make a positive contribution to the survival of the Hawaiian green turtle," Balazs said.

"By voluntarily removing this item from their menu at an early date, before either the State or federal laws have passed, they will in effect be aiding in the survival of the species.

"Entrepreneurs who make known their position for rational conservation in this matter will surely receive the support of the general public and be commended for their actions."

creases the concentration of carbon dioxide.

If carbon dioxide is inhaled in excessive amounts, such as in the non-ventilated enclosed hold of a vessel, it will pass quickly to a control center in the brain and cause breathing to be affected adversely which, of course, leads to other problems. Some suggested means of preventing these tragedies are the use of readily available belts with ropes and snaphooks to rescue persons overcome in the hold, and the use of mechanical ventilators during the unloading of fish from the vessel and in fish meal factories.

HAWAII'S CONCERN FOR ITS TURTLES

Most tagging studies of turtles have taken place at nesting beaches, where females conveniently come ashore at specific sites. Few tagging programs have been conducted in turtle feeding areas because much effort must be expended in their capture. George Balazs of the University of Hawaii at Manoa is presently directing a program of tagging green sea turtles in the latter areas, and the work is providing information on migrations, growth rates, and the survival of this species.

Balazs has also been encouraging the release of captive green turtles where excessive numbers are present. In 1973, 21 turtles were tagged and set free from the Waikiki Aquarium and 9 from Sea Life Park. Of this number, three have thus far been reported as captured. One was caught by a conservation-minded diver off the south coast of Lanai. Since it had been originally released off Kauai, this large adult turtle had traveled over 200

miles. After close examination, it was again set free. It was seen, however, that large sections of laminae on its carapace were peeling off with healthy new shell located underneath. Balazs speculates that the time the turtle spent in captivity with subsequent release to the wild where differing temperatures and pressures exist may have stimulated the shell molting.

For centuries, green sea turtles have been a valuable source of protein for many people. The greatest pressure from man, however, on the populations of these turtles has resulted from commercial exploitation, such as in the marketing of turtle jewelry, leather and cosmetics, and in the inclusion of turtle soup and steak on restaurant menus.

Today, in the entire Hawaiian Archipelago, only one congregated green turtle nesting area still exists. The small sand islets at French Frigate Shoals, 480 miles northwest of Honolulu, are the site of 95 percent of all the nesting activity taking place in the region. Although the shoals have been declared a protected area, studies have shown that the turtles breeding at these islets are the same animals that occur around the Hawaiian Islands, where they are unprotected and over-exploited.

Fortunately, the Hawaiian State Department of Land and Natural Resources now has under consideration protective legislation that would place stronger controls on the capturing of green sea turtles, and Balazs hopes these controls will become effective before drastic declines of the turtles occur and they actually qualify as being endangered.



NINE HEALTHY CAPTIVE green sea turtles were recently tagged and released into the wild by workers at Sea Life Park, as part of a University of Hawaii study of the migrations, growth rates, and the survival of the dwindling population of these turtles.

Please see page 12-13

Sea Secrets

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January-February, 1974
(Fourth Series)

TWO SIDES TO THE TURTLE QUESTION

1974

On May 30 of this year Hawaii adopted a rule to save the green sea turtle by banning all sales of turtle products...with one little exception. From that little exception, two men have started selling frozen green turtle steaks to restaurants throughout Hawaii. A memo from the Attorney General's office says they are acting in a perfectly legal way.

Their legal standing aside, conservationists and scientists have started complaining that the two men are circumventing the intention of the new turtle regulation in Hawaii. They say green sea turtle will wind up in as much, and probably more, danger than it was before the regulation was adopted. The importers counter by saying they are actually helping to save the turtle, not hasten its extinction.

The legal hassle in Hawaii may or may not be repeated elsewhere. Meantime, the company that is providing the turtles to the Hawaiian importers is Mariculture, Ltd., a predominately British-staffed firm, on Grand Cayman Island in the Bahamas. Mariculture, Ltd., founded in 1968, has recently achieved a major goal: raising green turtle from egg to marketable meat. This unprecedented step makes the men of Mariculture pioneers twice over, for not only have they ventured far into the field of aquaculture but they also have introduced into the fray a species of marine life never before dealt with aquaculturally.

Green sea turtles by the tens of thousands are being raised on the small Caribbean island, only a one hour trip by jet from Miami. The company has developed a turtle farm on 6½ acres of land at Goat Rock. The present farm has a total stock of more than 100,000 turtles on feed, ranging from hatchlings to three year olds, being raised in salt water tanks. The main feature of the farm is the million gallon breeding pond with a nesting beach. There, turtles began laying eggs this year for the first time in captivity. More than 11,000 eggs were laid.

Mariculture, Ltd., processes the turtles when they reach a weight of approximately 100 pounds. That takes three years. A 100 pound turtle normally yields about 31 pounds of steak and other meat, 11 pounds of fat and oil, 15 pounds of offal, 16 pounds of shell and 8 pounds waste. Besides being nutritious, turtle steak is quite tender and resembles veal in flavor. Flesh of turtles raised in captivity is more tender than flesh of wild turtles.

Wild turtles no longer exist in the Cayman Islands and Mariculture's farm is said to hold more adult turtles than the rest of the Caribbean combined. The 100,000 strong herd at Goat Rock has been built up by the Mariculture egg collecting teams. They, with the agreement of the local government, have gathered up an abundance of eggs on the beaches of such places as Costa Rica and Ascension Island in the South Atlantic. The major portion of eggs laid on those beaches in the wild are doomed because they are laid in volcanic sand or on eroding beach. To conserve the natural population of green sea turtles, a percentage of the hatchlings are released on the beaches where the eggs were collected. In that manner the numbers of wild turtles can be maintained and even increased, according to Mariculture, Ltd. In addition, research is being conducted on mating and egg production of mature turtles at Mariculture's farm. Mating, nesting and egg production have been successful in captivity and problems in fertility are being investigated.

The eggs are flown to Grand Cayman in Styrofoam boxes and are sandwiched between sand and Dacron. They are stacked on metal racks in the company's hatchery. Mariculture then begins its long involved task of keeping records, dating each chest with markings on when and where the eggs were collected. Styrofoam boxes serve as incubators.

Meanwhile, back in Hawaii, George Balazs, turtle scientist at the Hawaii Institute of Marine Biology, disagrees with Mariculture's claims regarding their saving the creature by raising it domestically. There are problems with these claims according to Balazs. Most of the argument centers around whether or not Mariculture Ltd., can breed the turtles in captivity on the scale necessary for commercial operations (reportedly Mariculture, Ltd., represents a \$3-million investment at this time). No conclusions will be reached herein except to report that you needn't bother ordering turtle soup when you're in Hawaii.

☆ Investment Opportunity: We are aware of several excellent aquaculture investment opportunities. If you as an individual or institution are looking for an entry into this field, we would be happy to put you in touch with the principals.

☆ Salmon & Trout Farming in Norway: The Norwegian Fisheries Department states that breeding in Norway in 1971 produced 104 tons of salmon and 445 tons of trout. In 1972, breeding in enclosures produced 155 tons salmon and 460 tons trout, and last year the yield increased to 269 tons of salmon and 1,265 tons of trout. Production has developed to such a level that a law was adopted in Norway last year, issuing concessions to fish farmers. Production takes place in enclosures in the fjords from the coast. In each enclosure it is possible to produce 100 to 200 tons of salmon and trout a year.

aquaculture

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Publisher - Gerald B. Dennon

ABALONE FARMING: CALIFORNIA MARINE ASSOCIATES

CALIFORNIA MARINE ASSOCIATES (P.O. Box 136, Cayucos, Ca. 93430) began operation in 1968. The principals include David Leighton, John Perkins and Hugh Staton. Leighton is a Ph.D. and formerly was associated with the National Marine Fisheries Service. Perkins and Staton have business backgrounds. The trio formed their partnership in '68 and subsequently brought in 20 investing individuals as limited partners.

Since so little was known regarding culture of California abalones at the time of their start, the trio essentially had to develop technology and a hatchery-seawater system simultaneously. Not until 1970 was California Marine producing significant numbers of juvenile abalone.

Innovations in tank design and in several other areas have allowed improvement of culture environments and although survival of post-larvae has been a continuing problem area, they now can boast a success rate of five percent (i.e., the number of three-month old juveniles succeeding from a given starting number of healthy veliger larvae). Research has occupied nearly half the partners time. Presently they are able to produce approximately 100,000 juveniles per year and anticipate crops of about 1,000,000 within three years. Growth rate has been one inch (shell length) per year, but with completion of special concrete raceway tanks (in their expansion program) they expect to approach a doubling of that rate.

Sales have been largely of "seed" abalone for introduction to areas in Japan, Mexico and the California coast (California Department of Fish and Game purchased 2,000 of their second field plant off Palos Verdes this last June; a follow-up to a very successful plant off central California last year). Others have gone to research and private aquaculture programs in this country.

Future markets for California Marine abalone will include as well the fresh or live gourmet shellfish markets in the Orient and eventually the local restaurant trade. In the latter case abalone will be reared to a size of about 5 or 6 inches, large enough for two steaks each. A price of \$1.00 each to Cal Marine is anticipated.

Cal Marine is one of a hand-full of abalone growers, mostly found in the Monterey region of California (see May, 1974 issue Abalone Farming). They are the pioneers. And they are also tough to contact. They don't have any phones at the Farm.

WORLD MARICULTURE SOCIETY MEETS IN SEATTLE JANUARY 27

The 6th annual meeting of the World Mariculture Society will convene in Seattle, Washington, from January 27 through 31, with registration beginning on Monday, the 27th, at 10 a.m. Keynote address for the meeting will be delivered at 9 a.m. on Tuesday, the 28th, by Dr. Peter Korrington, noted mariculture expert and Director of the Netherlands Institute for Fishery Investigations. Dr. Korrington is well known for research in aquaculture and fishery biology and is the author of a recent book *Farming the Sea*. His topic will be: "From Fishing to Farming the Sea." Papers on fish, crabs, mollusks, shrimp, lobsters, freshwater prawns, turtles, mariculture engineering, and other topics will be given during the meetings. Registration fee is \$25 per person. Contact Harvey L. Moon, National Marine Fisheries Service, 1700 Westlake Avenue North, Seattle, Wa. 98109. Make checks payable to World Mariculture Society.

COMPLIMENTARY COPY

May 29, 1974 (Wed.)

Turtle-steak ban begins tomorrow

By BRUCE BENSON
Advertiser Staff Writer

Turtle steaks in Hawaii's restaurants and stores will become an extinct offering beginning tomorrow in order to prevent the same fate from befalling the turtles themselves.

A regulation passed recently by the State Board of Land and Natural Resources will make it illegal to possess or sell the green sea, the leatherback and the hawksbill turtles.

WHILE THE TURTLE-STEAK ban will start tomorrow, a grace period will be allowed for restaurants to serve up any turtles they may buy before the regulation takes effect.

It is expected that in the weeks ahead, turtle offerings will gradually wither away to nothing, which is what had been happening to the turtles.

Passage of the new turtle rules came after a full year of discussions and public hearings throughout the State.

The rules carry the endorsement of the State Animal Species Advisory Commission, which helped get them formulated. The rules state that:

- You can't take turtles from waters within the jurisdiction of the State, nor can you possess or sell such turtles, unless:
- You have a permit from the board of Land and Natural Resources to take turtles for scientific, educational or propagational purposes.
- You have a permit to take green sea turtles with upper shell lengths of 36 inches or more from waters around the eight major islands of Hawaii for home consumption only.

You also will need a permit if you are a restaurateur who wishes to sell turtles after tomorrow that were acquired before tomorrow.

Other parts of the rules state that you cannot use nets to take green sea turtles for any reason, and that you can eat a turtle at home — without a permit — if you caught it before tomorrow.

There is only one little loophole in the regulations, whose purpose and function remains to be seen. It is a clause stating that you can legally possess or sell the eggs or offspring of captive green sea turtles, or products from those turtles, if you have a lawful permit issued by the Board of Land and Natural Resources.

APPLICATIONS for turtle permits can be obtained by applying in person at any Division of Fish and Game office. Applications for scientific collecting permits, however, must be made in writing to the Honolulu office of the Division of Fish and Game.

The purpose of the regulations is to give marine turtles — particularly the green sea species — some time to replenish their numbers. Hunting pressure has increased dramatically in recent years because of a demand in tourist restaurants.

Marine Turtle Regulations Begin Soon

New regulations on the protection of marine turtles will become effective Thursday, the State Fish and Game Division announced.

The taking of leatherback, hawksbill and green sea turtles will be prohibited with certain exceptions.

Under the new regulations, the Board of Land and Natural Resources will issue permits to allow:

- Taking marine turtles and their eggs for scientific, educational or propagational purposes.
- Taking green sea turtles having upper shell lengths of 36 inches or more from waters surrounding the eight major Islands for home consumption only.
- Selling offspring of captive green sea turtles or products.
- Selling marine turtles or products acquired before the effective date of the new regulations.

The new regulations will prohibit the use of nets for catching green sea turtles.

But possession for home use of marine turtles acquired before the effective date of the regulations is lawful without a permit.

All permits, except scientific collecting permits, may be obtained by applying for them in person at any Fish and Game Division office.

Applications for scientific collecting permits must be in writing and should be sent to the Fish and Game's Honolulu office.

MAY 28, 1974 HONOLOULU STAR-BULLETIN



EXPLORE EARTH OF BAL "SENSUA

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Right, natural-cup bra with
European front-closure

HECO defends Kahe fuel supply

Transplanted Turtles Go Home to

By Helen Altonn
Star-Bulletin Writer

George H. Balazs, Hawaii marine biologist, was expected to arrive at French Frigate Shoals today with 30 juveniles he

has raised for the past 2 1/2 years at Coconut Island.

They are green sea turtles which he captured at the Shoals as one-day-old hatchlings and brought here for research dealing with their dietary require-

ments and growth.

The turtles, now ranging from 20 to 30 pounds in weight, were gathered from the Shoals and returned under arrangements made by the U.S. Fish and Wildlife Service.

Balazs, with the University of Hawaii Institute of Marine Biology, conducted the growth studies to determine the suitability of raising green sea turtles commercially.

HE SAID THE results of his work, combined with information from other researchers, "necessitated a rejection of the animal for such purposes at the present time."

He cited three major reasons for the decision:

—Relatively high levels of protein are needed in artificial diets to produce good growth (resulting in an expensive diet).

—Inability of large numbers of young to be produced in captivity.

—Problems relating to the effects of commercial

sea turtle husbandry on conservation of the world's declining natural populations.

HE ROUNDED up the turtles from Coconut Island ponds Tuesday, crated them and loaded them on a U.S. Coast Guard buoy tender for the return home.

The only remaining green turtle nesting site in the Hawaiian Archipelago is the Shoals, 480 miles northwest of Honolulu.

Balazs planned to release his juveniles at sites frequented by turtles of the same size.

The animals have numbered and addressed tags on each flipper and are experimentally marked by "a harmless internal antibody that can be detected at a later date through laboratory analysis," Balazs told the Star-Bulletin before departure.

HE POINTED out the green sea turtle "has a complex and little

understood life cycle."

He said it isn't known if animals raised in captivity from hatchlings have the ability to mature successfully and eventually enter the breeding population after being returned to the wild.

"Releasing captive-reared juveniles is therefore an unproven procedure with respect to conservation and should be regarded with caution until sufficient supportive information becomes available," he said.

"It's hoped that future recoveries of the tagged turtles by the Institute will add to the knowledge of their adjustment to the wild, their growth and development."



ENDANGERED SPECIES—An adult Hawaiian green sea turtle nests at French Frigate Shoals, the only remaining green turtle nesting site in the Hawaiian Archipelago.—Photo by George H. Balazs.

French Frigate Shoals

Balazs planned to conduct studies on this year's wild nesting population at

the Shoals.

His research there in 1973 and 1974 revealed

fewer than 200 adult females present during each season.

The Editor's Mailbag

EGYPTIAN-POLYNESIANS

With regard to your comment (PIM, Jan, p 13) "Was grandad a mummy" I guess our society has to do a little public relations work on your side of the Pacific.

Let me assure you that the hieroglyphs not only exist, but can be read, and on the basis of what they said the attention of American archaeologists was directed to points on the west American coast where similar inscriptions, probably dated either 15th or 16th year of the reign of Ptolemy III, ought to be found.

Within eight days of the publication of the find (Nov 21, 1974) Professor George F. Carter of Texas A & M University successfully located the first inscription, carrying the predicted date of Ptolemy regnal year 16 (BC 231).

Since then five more related inscriptions have been found on the west coast of the Americas.

The Polynesian Epigraphic Society has a membership comprising qualified graduates and professors, representing the fields of archaeology, astronomy, physics, geography and linguistics, all of them fields which relate to the highly-technical nature of the ancient inscriptions and calculations.

The West Irian caves contain the oldest-known account of Eratosthenes' calculation of the circumference of the world, as well as much else that has aroused the interest of leading astronomers, here and overseas.

BARRY FELL
(President, Polynesian
Epigraphic Society)

Arlington,
Mass, USA.

MISFITS AND BUMS

It is pleasing to note that the nations of the South Pacific are making a concerted effort to tackle the labour problems in the islands (PIM, Jan, p 77). However, one is a little perturbed by the fact that some Island nations continue to play hosts to a group of misfits from other societies.

It is difficult to gauge the authorities' decision allowing derelict expatriates as well as beach bums to

remain in the Islands. I cannot, for the life of me, imagine any developed nation welcoming misfits from the Islands. In fact, the ones that want to get out have to stow away and, more often than not, find a cold reception in the quarantine station of the first port of call, followed by deportation and embarrassment to the culprits and relatives in the Islands.

A few have found unofficial economic asylum in the two developed economies of the South Pacific—New Zealand and Australia. The 'economic demonstration effect' and the sheer lack of things to do (whether employed in the modern or the traditional sense) are the main causes why people migrate today, as the South Pacific Commission, the South Pacific Forum, ILO or whatever body charged with the responsibility of undertaking the recommended research will find.

It seems the leaders of the Island nations—for whatever reasons—have agreed or rather been convinced that training in one's own environment is better than training in a foreign environment. Again research is needed to determine the effectiveness (in terms of time and the degree of applicability) of the locational factor in training. The donor nations would undoubtedly favour the least cost approach.

The effectiveness of the Peace Corps and the like should also be questioned. Are these fresh university and college graduates (working within movements instigated by leaders of super-powers primarily for personal glorification) making any positive contribution to the development of the Islands? Are the Island authorities making full use of the trained indigenes, who are more familiar with the problems of the Islands, and making sure that the trained personnel are engaged in areas they were trained for?

The money spent sending out 'raw' human resources to the Islands, could be better spent training indigenes to serve their own communities.

VILIAM M. KAIHAU HOLANI,
Haberfield, NSW.

GREEN SEA TURTLES

Perhaps PIM readers can be of assistance in solving a mystery which has arisen during the course of my studies on green sea turtles at French Frigate Shoals (23°45'N 165°10'W), the only remaining nesting site in the Hawaiian Archipelago.

During 1974, a number of adult male and female green sea turtles were observed that had distinct "U" and "V"-shaped notches cut into the marginal plates of their upper shell. These notches, which ranged between one and two centimetres in width, appeared to be quite old and had apparently been placed there for identification purposes. Unfortunately, no knowledge on the history of these notches exists with the US Fish and Wildlife Service, the Hawaii State Division of Fish and Game or anyone else I have contacted.

Although tagging studies conducted in recent years strongly suggested that turtles nesting at French Frigate Shoals only travel within the confines of the archipelago, there is still the possibility of international migrations occurring in at least a portion of the population.

I would therefore greatly appreciate receiving from your readers any information on green sea turtle research in the Pacific that involved shell notching, regardless of how long ago it may have been conducted. No reliable information exists on the longevity of sea turtles in the wild, and any clues to the origin of these notches could provide valuable information on the biology of the species.

I might add that I am familiar with the October, 1969 PIM article by Dr H. R. Bustard which describes the clipping of turtle shells for identification purposes on the Great Barrier Reef. After examining photographs, Dr Bustard has assured me that my turtles in question are not those marked during his previous experiments.

GEORGE H. BALAZS,
Jr Marine Biologist.

Hawaii Inst of
Marine Biology,
PO Box 1346,
Kaneohe, Hawaii 96744.

More to Green Sea Turtle Than Shell

If scientists learn enough about the habits of the green sea turtle, a threatened species native to Hawaiian waters, the turtle population may increase to the point where the animals could supply a valuable source of supplementary protein.

This is the opinion of George H. Balazs, of the Hawaii Institute of Marine Biology.

In remarks prepared for a State Senate hearing this week on a bill to provide \$50,000 for a three-year resource management study on green sea turtles, Balazs stressed the importance of the animals.

HE SAID that at a recent international meeting of marine turtle biologists in Miami, it was concluded that most of the green turtles in the world are either extinct, threatened with extinction or rapidly declining.

In Hawaii, he said, the killing of green turtles—called honu in Hawaiian—has been proceeding "at a record rate."

"Not only was the honu being openly sold down the final road to extinction in the name of exotic dishes for tourists, but in a more subtle manner a large portion of essential nesting habitat has been disrupted or modified, thereby rendering it useless," Balazs said.

He said reports from the State Division of Fish and Game showed that turtles laid eggs only at French Frigate Shoals, as opposed to a number of

key nesting sites throughout the Islands 30 years ago.

"ALTHOUGH our green turtle has suffered significant declines over the years, I am nevertheless convinced that the remaining wild population has the potential for providing a renewable source of supplemental food to the people of Hawaii," he said.

He added, however, that sufficient basic biological information must be available for management purposes.

Balazs pointed out that local funds have been limited for turtle research, and federal funds for fish and wildlife restoration projects cannot be applied to turtles, which are classified as neither fish nor wildlife.

GARDEN Island

UNCLASSIFIED ZOUU (C) ... airport.
First case in Hawaii

1/20/75

Kauai court fines turtle poacher and restaurant

The first fines in Hawaii for illegally killing and selling sea turtles were levied on Robert Peltier of Kapala and the Kauai Surf Hotel in Kauai District Court on Friday.

Mr. Peltier was charged with illegally taking and unlawfully selling 180 lbs. of turtle meat in late August and the Kauai Surf hotel, represented by Food and Beverage Manager, Alfredo Kabakunga, was charged with illegally buying and reselling the turtle

meat.

Both parties changed "not guilty" to "guilty" pleas at the trial. Peltier was fined \$50 and the Kauai Surf \$100. Under the new law, passed last May, guilty parties may be fined not more than \$500.

The new law states that turtles may be taken for home use only. A permit, good for one year, must be obtained from the Department of Land and Natural Resources office on the second floor in the State

Building in Lihue, and each time a turtle is taken, a full report to that office is required.

Nets and explosives are not permitted in hunting the sea turtle and their shells must be a minimum of 36 inches in length. Snaring, harpooning, spearing and wrestling are permitted with a permit.

The reasons for the reduction of the turtle population on Kauai, and the enactment of the new law are: continuous overfishing of their shallow underwater grazing pastures, and capture of the mothers, eggs and hatchlings on and near their beach nesting sites, that occurred until the 1930's in Hawaii. Sea turtles have not nested on the inhabited Hawaiian Islands for over 40 years.

As a result, the Hawksbill turtle, has been placed on the U.S. Endangered Species List and the population of the more common Pacific Green Turtle is dwindling.

a mini-editorial —

on the subject of turtles

"Soup of the evening, beautiful soup!" as Lewis Carroll described it in Alice's Adventures in Wonderland, just shouldn't be the cause of arguments. But through misunderstandings and misapprehension, turtle soup and turtle steak have become the subject of a controversy that really needs to be cleared up. Like another quotation from "Alice," it has almost become a matter of "Sentence first — verdict afterwards."

To set the record straight, I have been in contact with both the Hawaii State Division of Fish and Game, and with the U.S. Fish and Wildlife Service which is the Federal regulatory agency on the subject of marine turtles. I'd like to share my findings with you.

Turtle broth and turtle meat served in local restaurants are imported, either in the can or frozen, from France and other European sources where the Mediterranean turtle is not one of the endangered species. And although they are not classified as endangered in those foreign waters, the green sea turtle, the hawksbill and the leatherbacks cannot be legally imported here in any form according to the State and/or Federal regulatory agencies, because they are among the endangered species in this part of the world.

The regulations are very specific, the penalties high, and documented proof is required by the agencies before any turtle product can be brought in for sale.

What it all comes down to is that the turtle meat and turtle soup that you eat in Hawaii's restaurants have been legally taken, legally imported, and are plentiful. None of the turtles in Hawaiian or adjacent waters can be used in a restaurant under the State regulation.

Even for a person to take a "local" turtle for his own use, for scientific study, for educational or propagational purposes, he must first secure a permit issued by the State Board of Land and Natural Resources. Nor can turtles be netted, molested in any way, sold, or bought within the law.—Francee.

An HRA advertising supplement to the Sunday Star-Bulletin & Advertiser

January 18
Footnote
from Francee

Who Far is first with the celebration of the approaching Year of the Dragon. More events will be detailed in next week's issue. Today we explore three new and different members of the Dining Out family: the two House of Happiness restaurants, Shiro's Hula Hula, and La Fondo. All this plus a couple of

features, a mini-editorial, and Pupu Pleasure — and that's what it's all about this week, dear readers.

Francee K

The Honolulu Advertiser

Hawaii Report



© ** Wednesday, November 10, 1976 A-3

4 giant turtles seasoned

By JOHN GIVEN
Advertiser Staff Writer

What do you do with 4 400-pound green sea turtles? Some people might eat them. But not the folks out at Sea Life Park. Having brought the threat of such a situation on themselves, they recently have been taking the only honorable course: letting the creatures go.

Actually, only a few of the total turtle population at the park fit the 400-pound category. For this reason — and because they are mature, able to fend for themselves, and reproduce their diminishing numbers — staffers at the park yesterday let four of them loose in the sea.

Park officials have no fear of running out of their turtle supply, however. For one thing, as public relations manager Jane Martin explains, "the turtle population here keeps expanding as people pick them up and bring them in."

But more than this, the park's inordinate number of the creatures — at least until recently — was due to a unique situation: the first success of a three-year-old effort to breed green sea turtles in captivity.

Working together with University of Hawaii marine biologist George Balasz, "the park built a turtle lagoon with a nice warm sandy beach where they're supposed to crawl out and lay their eggs," said Martin.

Unfortunately, though, the mama turtles didn't (or wouldn't) get the hang of it for several years.

"Sometimes they'd lay their eggs — we'd find 110 of them floating around in the water. So all the trainers would dive in, net the she said, and then bury them in the sand," noting, at the same time, that the eggs "look exactly like Ping-pong balls."

Efforts to incubate the eggs this way never worked, however, so an artificial incubator was custom made. And this time, the park hit the jackpot.

Not only did the incubator bring forth about 100 baby green sea turtles, but also, at the same time roughly 40 more hatched in the sand. In all, the 140 or so were "the first green sea turtle eggs ever hatched at Sea Life Park," Martin said.

And, she added, "they're adorable."

Although not an endangered species, green sea turtles are protected by State laws, which restrict the conditions under which they can be captured.

Hoping to increase the local green sea turtle population, the park has saved a few and released most of the other babies at night so predators, such as birds and big fish would have a harder time catching them.

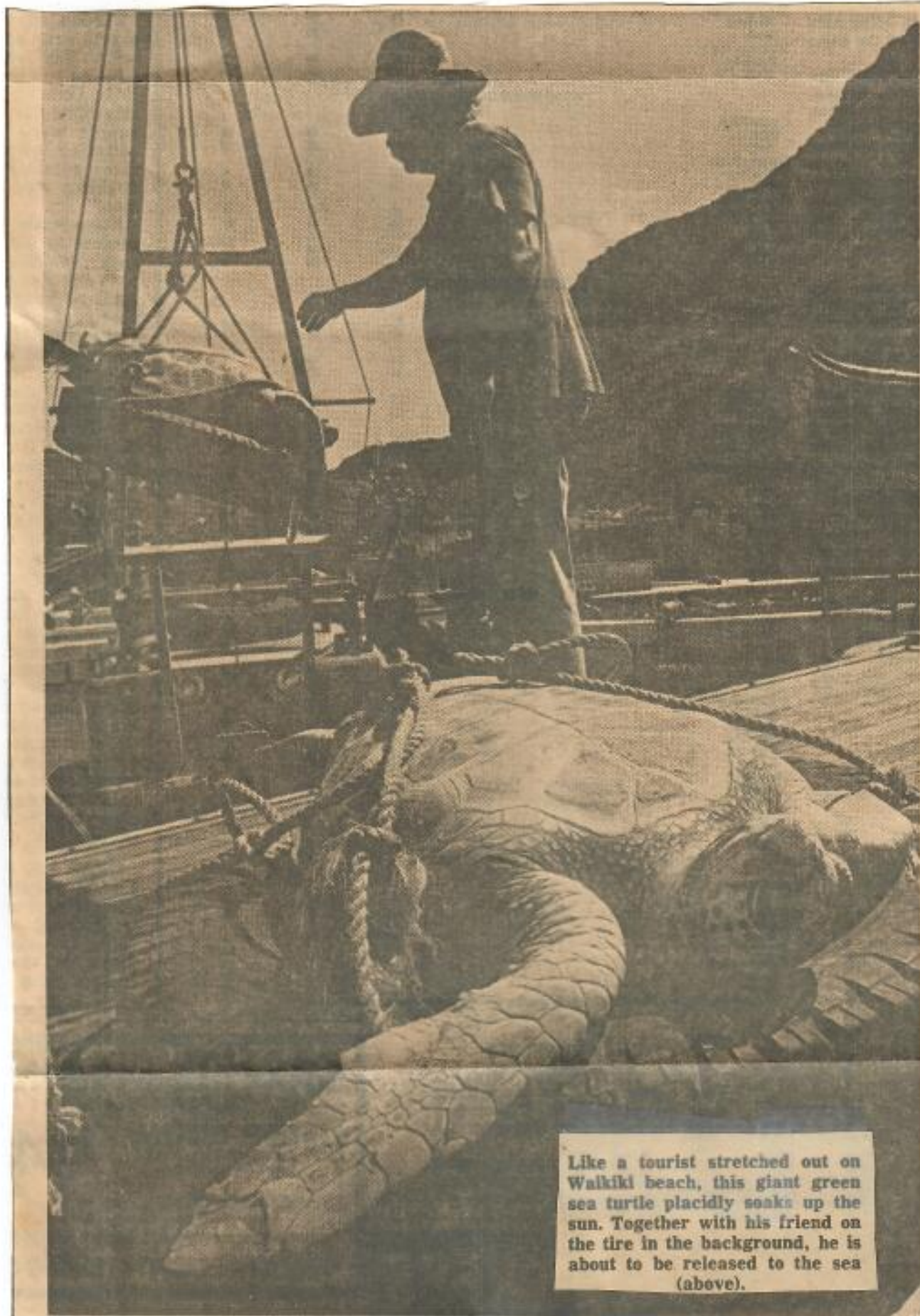
Martin observed that in leaving, the tiny creatures have also abandoned a steady, dependable diet of "chopped squid, brine shrimp, chopped fish and frozen plankton — but no wine."

But a quick introduction to the open sea was necessary, she said. Otherwise, their instincts "to find food and protect themselves would soon be destroyed by living in captivity."



Advertiser photos by Ron Jeff

With a mighty heave-ho, staffers from Sea Life park send this green sea turtle into the water, for his first taste of freedom in about 10 years (right).



Like a tourist stretched out on Waikiki beach, this giant green sea turtle placidly soaks up the sun. Together with his friend on the tire in the background, he is about to be released to the sea (above).

The Facts on Turtle Farms

By George H. Balazs

Biologist, Hawaii Institute of Marine Biology

DURING THE PAST year and a half readers of Honolulu's two daily newspapers have been exposed to no less than five articles dealing with the controversial subject of commercial sea turtle farming. Conflicting information has often been presented; therefore it's not hard to understand why many people are confused over the whole issue.

To add substantially to this confusion, on May 7 KGMB-TV news presented a glowing report on turtle farming which neglected to even mention that the subject is controversial. Before anyone in Hawaii runs out and starts investing hard-earned dollars in such a scheme, I want to briefly summarize the existing situation and put it into proper perspective.

Many may recall the numerous claims made by promoters of the world's only sea turtle "farm", Mariculture, Ltd., located in the Caribbean on Cayman Island. In essence, the claims stated that such an operation is (1) beneficial to the conservation of the world's declining sea turtle populations; (2) biologically feasible; and (3) economically successful.

Along with Dr. Archie Carr and other knowledgeable sea turtle scientists, I have disputed these claims as being unfounded, unsubstantiated and, for the most part, just plain hogwash. Let us see how the claims hold up against the evidence.



George Balazs

WITH RESPECT to conservation merits, in November of 1974 the respected International Union for Conservation of Nature (IUCN-Switzerland) sent a task force of turtle specialists to Cayman Island to examine critically the company's contentions. Investigations found that Mariculture, Ltd., was guilty of making claims and statements that were misleading and demonstrably incorrect. The conclusion was reached that the company's operation cannot be regarded as being in the conservation interests of sea turtles.

With respect to biological feasibility, that is, the actual capability of successfully farming turtles, the same international task force found

that the viability of the company's turtle culture operation has yet to be proved, as indeed has that of turtle farming in general.

Large numbers of eggs must now be removed from natural nesting beaches, and the outlook seems poor for achieving self-sufficiency in the production of young. Furthermore, disease and mortality problems are considerable, and the type of high protein feed that turtles will accept is incredibly expensive and inefficient.

WITH RESPECT to economic success, the evidence is even more damaging. In May of 1975 Mariculture, Ltd., went bankrupt. This came after seven years of efforts, millions of dollars in expenditures, and numerous promises and predictions that did not prove true. Just two months ago a German corporation purchased Mariculture, Ltd., from the bankruptcy trustees.

All total, the stockholders of Mariculture, Ltd., ended up with absolutely nothing—a loss amounting to \$3.5 million. Unfortunately, many of these investors were American citizens who had believed the company's promotional literature and other glowing "success" stories heard about turtle farming.

The lesson seems clear to me. Perhaps at some date in the distant future sufficient scientific information and expertise may be developed to make turtle farming a realistic and acceptable proposition. However, for the present time it's just another pie-in-the-sky scheme that doesn't make good sense.

Extinction threatened

I was astonished to read the "mini-editorial on the subject of turtles" which appeared in the Dining Out advertising supplement of the Sunday Star-Bulletin and Advertiser (1/18).

The author, Mrs. Francee King, claimed to have "set the record straight" on the ethics of restaurants in Hawaii selling imported sea turtle soup and meat. What she actually did was to spread erroneous information that is damaging to responsible efforts to conserve these vanishing creatures.

In essence, Mrs. King told her readers that it is perfectly all right to order sea turtle dishes. Her rationale for this stamp of approval was that such products are not obtained from our locally depleted turtle population, but rather from European sources where Mediterranean turtles are "plentiful" and "not endangered". Let's see if the facts can support her claims.

1. Nearly all sea turtle products coming from Europe are derived from animals that were killed at widely separated areas around the world. The Caribbean is presently one of the principal areas of exploitation. At this location, company ships are efficiently exterminating turtles in their shallow water feeding pastures. On the nesting beaches, adult females are slaughtered when they crawl out of the ocean — often even before having a chance to lay their eggs.

Also not uncommon is the practice of killing turtles solely for the few pounds of cartilage that can be cut from their belly plates. Such dried cartilage brings a



letters

high price from the European processing plants where it is turned into what Mrs. King alludes to as "soup of the evening, beautiful soup!" In short, companies in Europe are literally ransacking the earth to supply the international luxury market with sea turtle products.

2. The International Union for Conservation of Nature (IUCN), one of the most highly respected conservation organizations in the world, has examined the global survival status of sea turtles.

Its findings revealed that the majority of the populations are either extinct, threatened with extinction, or rapidly declining. A major factor found to be responsible for this dismal situation is the international trade in sea turtle products (meat, soup, hides and shell). Further, all species of sea turtles, including those found in the Mediterranean, now have the dubious distinction of appearing on the IUCN's "endangered" list.

To quote the words of Dr. Archie Carr, the foremost authority on sea turtles, what we need is "more sanctuaries, more research, and a concerted effort by all impractical, visionary, starry-eyed and antiprogressive organizations, all little old ladies in tennis shoes, and all persons able to see beyond the ends of their noses, to control the international commerce in sea turtle products." I might add that this certainly also applies to existing commercial turtle "farms", as their present practices are not in the conservation interests of sea turtles.

I really can't see why some restaurants in Hawaii (and their advertising agents) feel insecure if they aren't selling genuine sea turtle dishes. Alternate or imitation products of equal taste and exotic appeal are readily available. Their use would not place the persons involved in the unethical position of helping to drive a species to the brink of extinction.

GEORGE H. BALAZS
Hawaii Institute of Marine Biology

Honolulu Advertiser Jan 16, 1976 A-15

Old law a new threat to turtles

By BRUCE BENSON
Advertiser Science Writer

When marine biologist George Balazs noticed turtle-skin purses on sale in Shirokiya's at Ala Moana Center, he notified management that selling turtle products is endangering the species.

Balazs, a researcher at the Hawaii Institute of Marine Biology, is an active voice in an international movement to protect all species of marine turtles. He has produced excellent results in his notices to some retail outlets.

Store managers at J. C. Penney's and Liberty House, for example, listened to his arguments and promptly removed all turtle-product items from the shelves.

Shirokiya's, however, went to Federal and State officials and wound up with a State-issued license giving them permission to continue selling their purses — thanks to an old Hawaii law.

For Balazs, the turtle-products license is galling. "I think that requiring a license for the import of these products gives their sale a degree of false legitimacy, a false facade of it being okay to sell the stuff," he said yesterday.

BALAZS AND OTHER pro-turtle forces thought they had achieved success in relieving the hunting pressure on the creatures when the State Division of Fish and Game adopted Regulation 38 to prohibit further commercial exploitation.

While that may be the rule for Hawaiian waters, it now turns out that the division has an earlier rule known as Regulation 11 that allows the licensing of imported marine products that are illegal to take locally. Adopted before Statehood, the old rule apparently intended to ensure the delivery of fish products to the Islands from elsewhere when those products were out of season locally, hence illegal to take here.

The problem of "endangered species" has become more critical in the years since Rule 11 was written. But a division official said yesterday that he must still follow it and issue permits to those who seek to import marine products that are banned within Hawaii.

"If the product cannot be taken legally from the imported areas, then such provisions would be taken care

of there by people who would be concerned. Our concern is to protect it here," said the official, who wished to remain anonymous.

BALAZS WROTE in a recent issue of 'Elepaio, the journal of the Hawaii Audubon Society: "It is regrettable that we have not yet become responsible enough to protect the world's other declining turtle populations from our commerce here in Hawaii."

There is an attempt, meanwhile, by the U.S. Fish and Wildlife Service to restrict turtle trade within states and importation into the United States.

But one problem, according to Kimberly Wright, special agent for the service in Honolulu, is that once a product gets to the retail shelf the burden of proof that it came from an officially endangered species shifts to the Federal Government.

"A lot of times, by the time a product is made into a commercial article it is almost impossible to identify the species," she said.

That difficulty may turn out to work to the advantage of local conservationists, since Regulation 11 says the seller must identify the species of the goods being sold before the State grants a license.

MEANWHILE, Elsie Shimabuku, head of import and export here for Shirokiya's, assured a reporter yesterday that the sale of the turtle purses is entirely within the law.

And the Pocketbook Man, another Ala Moana shop spotted selling turtle products by Balazs, said yesterday that are selling none of the wares. (Balazs claims he saw them on the store's shelves Monday.)

Still others to catch his eye include Betty Ford, who served turtle soup at the White House last spring, according to Vogue magazine.

Balazs sent notification to the First Lady — but, as he reported in the 'Elepaio journal "short letter from social secretary—to my knowledge, no corrective action taken."

HONOLULU ADVERTISER Friday, January 16, 1976 A-15

WANTED!

FOR
STEAKS, SOUPS,
PURSES,
SHOES,
ETC.
ETC.

Extinction threatened

I was astonished to read the "mini-editorial on the subject of turtles" which appeared in the Dining Out advertising supplement of the Sunday Star-Bulletin and Advertiser (1/18).

The author, Mrs. Francee King, claimed to have "set the record straight" on the ethics of restaurants in Hawaii selling imported sea turtle soup and meat. What she actually did was to spread erroneous information that is damaging to responsible efforts to conserve these vanishing creatures.

In essence, Mrs. King told her readers that it is perfectly all right to order sea turtle dishes. Her rationale for this stamp of approval was that such products are not obtained from our locally depleted turtle population, but rather from European sources where Mediterranean turtles are "plentiful" and "not endangered". Let's see if the facts can support her claims.

1. Nearly all sea turtle products coming from Europe are derived from animals that were killed at widely separated areas around the world. The Caribbean is presently one of the principal areas of exploitation. At this location, company ships are efficiently exterminating turtles in their shallow water feeding pastures. On the nesting beaches, adult females are slaughtered when they crawl out of the ocean — often even before having a chance to lay their eggs.

Also not uncommon is the practice of killing turtles solely for the few pounds of cartilage that can be cut from their belly plates. Such dried cartilage brings a



high price from the European processing plants where it is turned into what Mrs. King alludes to as "soup of the evening, beautiful soup!" In short, companies in Europe are literally ransacking the earth to supply the international luxury market with sea turtle products.

2. The International Union for Conservation of Nature (IUCN), one of the most highly respected conservation organizations in the world, has examined the global survival status of sea turtles.

Its findings revealed that the majority of the populations are either extinct, threatened with extinction, or rapidly declining. A major factor found to be responsible for this dismal situation is the international trade in sea turtle products (meat, soup, hides and shell). Further, all species of sea turtles, including those found in the Mediterranean, now have the dubious distinction of appearing on the IUCN's "endangered" list.

To quote the words of Dr. Archie Carr, the foremost authority on sea turtles, what we need is "more sanctuaries, more research, and a concerted effort by all impractical, visionary, starry-eyed and antiprogressive organizations, all little old ladies in tennis shoes, and all persons able to see beyond the ends of their noses, to control the international commerce in sea turtle products." I might add that this certainly also applies to existing commercial turtle "farms", as their present practices are not in the conservation interests of sea turtles.

I really can't see why some restaurants in Hawaii (and their advertising agents) feel insecure if they aren't selling genuine sea turtle dishes. Alternate or imitation products of equal taste and exotic appeal are readily available. Their use would not place the persons involved in the unethical position of helping to drive a species to the brink of extinction.

GEORGE H. BALAZS
Hawaii Institute of Marine Biology

letters



Hawaiian green sea turtles with a seal.

Green Sea Turtle Study Will Begin This Month

A three-year management study that begins this month will pinpoint concentrations of the Hawaiian Green Sea Turtle in State waters and in the more remote areas of the Leeward chain.

The study in the Leeward Islands beyond Kauai will complement a joint State-federal resource assessment survey of the area scheduled to begin later this year.

Other survey objectives include determining the distribution and abundance of algae used as food by the Hawaiian green sea turtle.

The purpose of the study is to insure that adequate numbers of the Hawaiian green sea turtle, a popular ocean delicacy, will continue to survive.

George H. Balazs of the Hawaii Institute of Marine

Biology will conduct the State-funded study.

He will attempt to determine the rate of growth and age of this turtle at sexual maturity under natural conditions.

This type of information on the green turtle is virtually nonexistent, he said.

The study also will cover the reproductive potential, as well as mortality factors limiting the population.

These turtles are known to travel 500 miles or more to French Frigate Shoals in the Leeward chain for mating.

Many of the adults spend most of their lives feeding on algae or limu in Hawaiian waters.

SEPT 27, 76
STAR-BULLETIN



Our Environment

By
Harry Whitten

Sea Turtles

CONSERVATION GROUPS think endangered sea turtles should be protected but they also think common sense should be used in making rules.

The U.S. Fish and Wildlife Service is considering a proposal to treat three non-endangered species of sea turtles as endangered because they closely resemble three species listed as endangered. The three non-endangered "look alikes" are the loggerhead, Pacific ridley and green sea turtles. The endangered species are the hawksbill, Atlantic ridley and leatherback.

The Island conservation groups oppose commercial taking of the green sea turtle but point out people in Hawaii have long taken this turtle for home consumption.

IN LETTERS sent to Lynn A. Greenwalt, director of the Fish and Wildlife Service, four Island groups have proposed that exemptions be allowed to permit taking the green sea turtle for home consumption.

The letters were sent by John W. Beardsley, chairman, Animal Species Advisory Commission; Frank J. Radovsky, acting director, Bishop Museum; Robert W. Nemechek, president, Hawaii Chapter, Sierra Club; and Sheila Conant, president, Hawaii Audubon Society.



POPULATION EXPLOSION—Deb Wong, a swimmer at Sea Life Park, with some new residents at the Waimanalo park. Scientists at Sea Life Park are proud of the 34 newborn green sea turtles, which are an endangered species and rarely hatched in captivity. They were two inches long

and weighed three grams each when they hatched. They could grow to four feet and 450 pounds at maturity. The turtle breeding project is jointly sponsored by the University of Hawaii and Sea Life Park. —Star-Bulletin Photo by Ken Sakamoto.

Aquarium Green Turtle Now Living Free in Natural Habitat

By Helen Alhorn
Star-Bulletin Writer

One of two green sea turtles returned to the ocean last October after years of tenancy at the Waikiki Aquarium recently was seen happily basking with other turtles at East Island in French Frigate Shoals.

That is a major nesting area for Hawaiian green sea turtles. George Balazs, turtle authority at the Hawaii Institute of Marine Biology, saw the aquarium turtle hauled out on the beach at the end of East Island last month.

He didn't recognize the tag number and checked it with Leighton Taylor, aquarium director, who identified it as one of the released aquarium turtles.

"IT'S REALLY neat that an animal that lived here 10 years made it back (to the nesting ground)," Taylor said.

He said the former female resident of the aquarium also was observed to nest and produce live hatchlings.

He said a number of turtles had been on display at the aquarium for more than 10 years. "But they had outgrown the facility and I didn't feel the facility was proper for them."

In a recent aquarium newsletter, Taylor noted: "In the final analysis, the only justification for placing animals in captivity is to assure the well being of wild populations through increased human knowledge and understanding

"BECAUSE OUR green sea turtles, hawksbills and loggerheads had to share space with three large seals to the disadvantage of all the animals, we felt that we were unable to meet the dual responsibility of exhibit standards and therefore had to consider several alternatives."

One was to improve the facilities and a new sea turtle pool was planned with a nesting and basking beach to encourage the turtles to nest.

The 1978 Legislature appropriated \$100,000 for the project; the state designed plans, and Gov. George R. Ariyoshi participated in a groundbreaking ceremony.

But the funds were never released. CONSEQUENTLY, Taylor said the

aquarium's hawkbill and loggerhead turtles were given to Sea Life Park and eight adult green sea turtles were set free.

He said the hawkbill was retained because it is an endangered species "and it's unlikely that we would be able to obtain specimens again."

The Atlantic loggerheads weren't released because it was believed they couldn't survive in Pacific waters.

Although they won't see any turtles, members and guests of the Friends of the Waikiki Aquarium are invited to view the facilities and other exhibits at a special event from 5 to 9 p.m. Friday.

Mayor Frank F. Fasi will proclaim it "Friends of Waikiki Aquarium Day."



'BORN FREE'—Two green sea turtles, longtime residents of the Waikiki Aquarium, are returned to native waters. —Photo by George Balazs.

Crown of Thorns

Necker Island

GEORGE BALAZS of the Hawaii Institute of Marine Biology has been tireless in his efforts to save sea turtles and the Hawaiian monk seal.

He recently did research on Necker, one of the Northwestern Hawaiian Islands. He'll discuss and show pictures of the seals, turtles, birds and Polynesian archeology of Necker at a lecture at 7:30 p.m. Friday in the Waikiki Aquarium foyer.

The lecture, open to the public, is sponsored by the Friends of the Waikiki Aquarium.

THE CROWN of thorns starfish, considered a menace a few years ago to reefs off east Molokai and especially to the Great Barrier Reef off Australia, has been out of the news lately.

Word now comes that this coral-eating echinoderm has been causing severe damage to reefs off American Samoa, after first being sighted there in 1976.

The American Samoan government has become so concerned that it is offering a bounty of 15 cents on each dead starfish. The offer, announced last month by Manager Henry Sesapasara of the Office of Marine Resources, applies only to the crown of thorns; other forms of starfish aren't wanted.

The crown of thorns starfish was first noted in 1976 on a reef near the entrance to Pago Pago Harbor and the infestation has spread to reefs on both sides of the harbor entrance.

One official in the Office of Marine



Harry Whitten

Kenji Ego, Fisheries Branch chief, mobilized divers who used hypodermic needles and syringes to inject ammonium hydroxide (aqua ammonia) into the starfish.

Three expeditions were conducted, in 1970, 1972, and 1975, to the main starfish colony, a three-mile reef off Kawela, Molokai, five miles east of Kaunakakai. Thousands of starfish were poisoned.

EGO SAYS Fish and Game hasn't done anything lately about the Molokai colony and has no plans for any further action in the immediate future. He says the starfish are still there but doesn't know to what extent.

Albert H. Banner, University of Hawaii professor of zoology, says the excitement concerning the crown of thorns starfish has died down. He thinks the whole matter was much overblown eight years ago.

He is interested, however, in what develops concerning the crown of thorns starfish infestation in American Samoa.

The crown of thorns starfish has been causing severe damage to reefs off American Samoa.

Resources thinks there are millions of the starfish eating away and moving into more live coral.

There is some disagreement in scientific circles as to exactly how much of a menace the crown of thorns starfish is. Some scientists, led by Robert Endean of the University of Queensland, think the starfish will destroy vast stretches of reef, especially the Great Barrier Reef but also other reefs in the Pacific and Indian oceans.

OTHER SCIENTISTS think the starfish infestations are natural developments that come in cycles. Edward Frankel, professor of geology at the University of Sydney, made drillings that showed evidence of starfish spines buried deep in the Great Barrier Reef, which would indicate starfish infestations are no recent thing.

The starfish are believed normally present on coral reefs in small numbers; concern has been aroused only when they were found in great numbers.

A big starfish plague was reported off Okinawa in the late 1960s, and then at other places in the Pacific and Indian oceans, including Guam and the Cook Islands.

The crown of thorns was first noted in Hawaii in 1969. The State Fish and Game Division, led by

Soil Erosion

LEGUMES, SUCH AS BEANS, peas, clover and alfalfa, have long been prized by farmers. Aside from their obvious virtues, they have the ability to take nitrogen from the air and convert it into forms of nitrogen that can be used by plants.

Mainland farmers try to rotate legumes with other crops. Here in Hawaii the U. S. Soil Conservation Service and the Hawaiian Sugar Planters Association Experiment Station are interested in legumes to prevent soil erosion, with an added benefit of savings in cost of fertilizer, plus less energy and less labor needed to apply the fertilizer.

Sugarcane fields erode after harvesting and during the first four to six months of the planting cycle, until the young cane gets bigger. The erosion takes away valuable soil

and also washes sediments into streams and coastal waters.

Some new harvesting methods leave a crop residue on fields for soil protection after harvest. Researchers think a ground cover plant could do the job better.

Researchers at the Soil Conservation Services Hawaii Plant Materials Center at Hoolehua, Molokai, started the search for a good ground cover plant two years ago and decided that low-growing legumes would be best.

SEVENTY VARIETIES of legumes were evaluated; two have emerged as most promising for Hawaiian conditions.

"It looks as if our search is drawing to a close," says Robert J. Joy, plant materials specialist and center director.

The two most promising plants are the bur clover and the narrow-leaf trefoil; they will undergo final field observations.

The plant that researchers were looking for must germinate and cover the ground rapidly, be low-growing and not climb the cane. It should not compete for nutrients and should die out as the cane overtopped it. It should reseed itself and should not harm other agriculture if it were to migrate from the cane-fields.

Both bur clover and trefoil will be planted within the next few weeks on Oahu and Big Island plantations under supervision of Robert D. Wiemer, HSPA sub-station manager and project leader.

These trials are to find out how adaptable the two legumes are to varying field conditions.

The prospective energy conservation results from the legumes' ability to convert atmospheric nitrogen into nitrogen for the soil. Initial testing indicated as much as 500 pounds per acre of nitrogen was fixed in the soil by the legume plantings, which would significantly reduce the amount of nitrogen fertilizer that would ordinarily be applied to the cane fields.

Research has done wonders for American agriculture. The experiments now being conducted with the two legumes shows how research can continue helping to solve problems, including such ones as soil erosion and water sedimentation.

Elephant Seal, Eagle Come from Far Away

Unique Visitors

By Helen Altom
Star-Bulletin Writer

Two unique creatures recently turned up in the Hawaiian Island chain — one traveling at least 3,500 miles by sea and another arriving by air, possibly from the Siberia region.

They are an elephant seal, discovered on Midway, and a sea eagle which apparently was blown onto Kure Atoll by a storm.

Hawaii has native monk seals but the elephant seal is the first identified in the Hawaiian Islands since 1825, said George H. Balazs, University of Hawaii research biologist.

A golden eagle was spotted flying over Kauai in 1967 and was reported still soaring there in 1976. But no sea eagles have been sighted in Hawaii until now.

BALAZS IS AN authority on turtles and has been conducting a three-year survey of the turtle population in Hawaiian waters, including the remote Leeward chain.

He happened to be on Midway last month for his research project and was told a seal had come up on the beach.

He said it's very rare to see any seal on the Navy-occupied island, but this one stayed 10 days.

It was thought at first to be a monk seal, but Balazs saw that it was an immigrant elephant seal when Gary Means, honorary game warden on Midway, took him to look at it.

Balazs said an early sailing explorer reported seeing "sea elephants and sea leopards" at Pearl and Hermes Reef and Kure Island in the last century "but most people thought it was a mistake or misidentification . . .

"WITH THIS report (of the Midway seal) I wonder if he did make a mistake?" Balazs said.

He said elephant seals don't get their name because of their size, although males can get up to a couple tons. The name comes from their upper nose, which gets very long and curls over, he explained.

"But the female doesn't get near that big and doesn't have that nose," Balazs said.

The Midway seal was a northern species, which breed in the Channel Islands off California and at Guada-

lupe off Baja, Calif.

She was a young female and appeared in good shape, although she had some superficial wounds, Balazs said. "She was sleeping on the beach most of the time there. She seemed to be exhausted and was getting a long sleep."

HE SAID THE seal had a tag with numbers on it and he called John Naughton, biologist with the National Marine Fisheries Service in Honolulu, in hopes of finding out where it had originated.

Naughton checked with the Northwest Fisheries Center in Seattle and learned the seal had been tagged by the center's biologists at San Miguel Island in February 1977.

Their reaction was, "Oh, wow!" Naughton said.

"The only strays they have gotten from tag returns have been off the Aleutians . . . But this was a young female (on Midway) — maybe they are more adventuresome," he said.

He said elephant seals at one time may have ranged throughout the Pacific. "They were very docile and could have been exterminated rapidly."

ELEPHANT SEALS were slaughtered for oil in the 1800s and their population fell to as few as 20 animals.

But Naughton said the population has been growing under federal protection and the animals may be ranging to their original islands.

"It would be extremely interesting if it (the Midway seal) gets back to its rookery (at San Miguel). It would be an indication she knew what she was doing, and wasn't just lost," he said.

Just before leaving for Midway, Balazs received a call from the commander of the Coast Guard Loran Station on Kure with the startling information that "an eagle took up residency there in early February."

So he went on to Kure from Midway to get a look at it and continue his work on turtles.

HE CAME HOME and went to the books to try and identify the eagle. He believes it's an immature Steller's sea eagle, which breeds on the coastal area of the Bering and Okhotsk Seas and in Kamchatka in Siberia, and is distinguished by a yellow bill.

Arrive by Air, by Sea

He said the Kure visitor has a prominent yellow beak and yellow, featherless legs.

He said it was probably blown off track during a storm because Coast Guard officials said it was soggy and beat up when it landed on Kure.

But he said it appears to have recovered nicely from its harrowing journey — and is feasting on gooney birds (black-footed and Laysan albatrosses).

"IT'S ALMOST like an eagle paradise for him," Balazs commented. He said thousands of gooneys are on Kure now breeding and raising their young.

"If the eagle stays alive during the next six months or so, somebody ought to think seriously about what's going on," he said, questioning the effects of the eagle's diet on the gooney bird population.

Kure Atoll is part of the City-County of Honolulu and technically under the jurisdiction of the state Department of Land and Natural Resources.

Balazs reported the eagle to Ron Walker, state wildlife chief, and will provide him with information and photographs so he can try to identify it positively.

Adding to the excitement of the elephant seal and eagle, Balazs cap-

tured six green turtles on Midway and nine on Kure, and in each batch was a turtle which had been tagged in his research to monitor their travels and growth rate.

"I was very fortunate," he said.

His research is funded by the state marine affairs coordinator and the National Sea Grant Program.



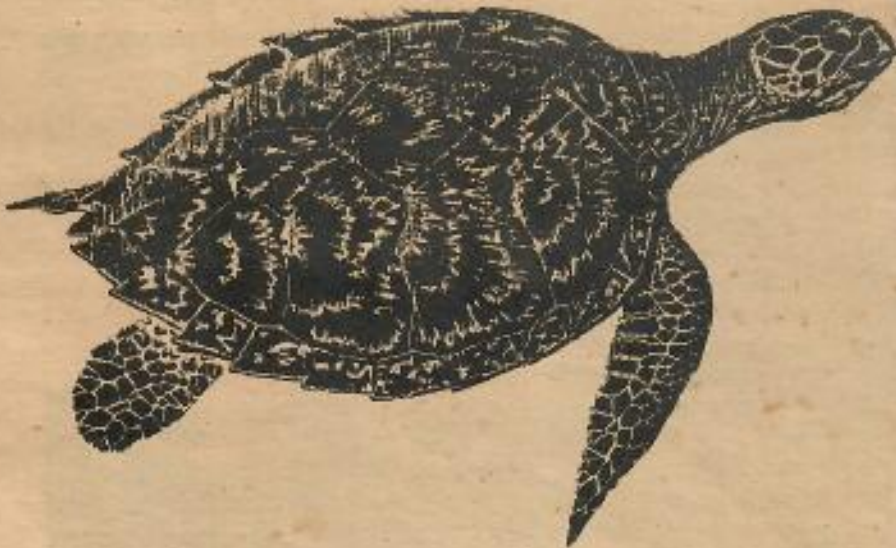
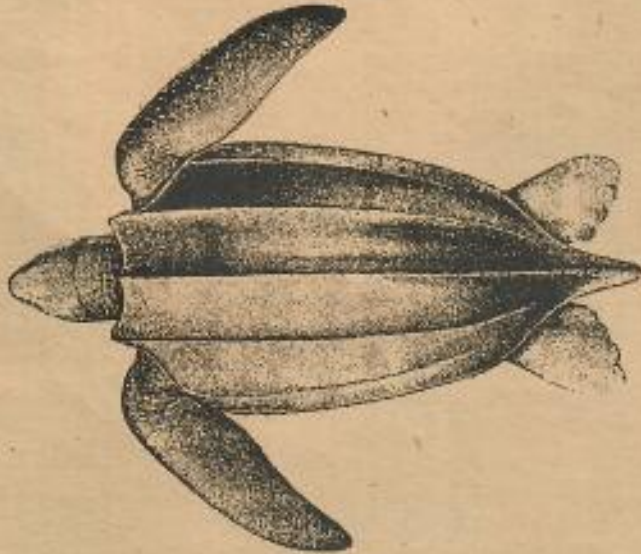
HAWAII'S NEW RESIDENT—A sea eagle has comfortably settled on Kure Atoll, dining on the gooney birds. —Photos by George Balazs.



VISITOR FROM AFAR—An elephant seal snoozes on the beach at Midway after wandering from its colony at San Miguel Island off California.

Marine life lecture

Biologist speaking



Star-Bulletin

Section

C

Honolulu

Wednesday, March 15, 1978

tomorrow on Leeward Islands

George Balazs, biologist with the Hawaii Institute of Marine Biology, will lecture on "Wildlife and Geology of the Hawaiian Leeward Islands" tomorrow, Saturday, at 7 p.m. in the Kona Surf.

The lecture by Balazs is the fourth in a series of marine lectures sponsored by the University of Hawaii Sea Grant Marine Advisory Program, the Waikiki Aquarium, Office of Marine Affairs, and the Hawaii Academy of Science.

Admission is free and the public is invited to attend the lecture in the Kamehameha Room of the Kona Surf, according to Pete Hendricks, UH Marine Advisor in Kona.

The marine life of the

LEATHERBACK TURTLE—Among the turtles found in Hawaiian Leeward Islands are the Leatherback variety, shown at left. Drawing by biologist George Balazs.

HAWKSBILL TURTLE—Here Balazs has drawn the Hawksbill Turtle, another variety found in the Leeward Islands of Hawaii. Tomorrow night at the Kona Surf, he will lecture on "Wildlife and Geology of the Hawaiian Leeward Islands." It is the fourth series of Marine Lectures sponsored by the University of Hawaii Sea Grant Marine Advisory Program, and other marine life oriented organizations. Both drawings courtesy of George H. Balazs and the Hawaii Institute of Marine Biology.

Hawaiian Leeward Islands is widely known for its diversity and plenty.

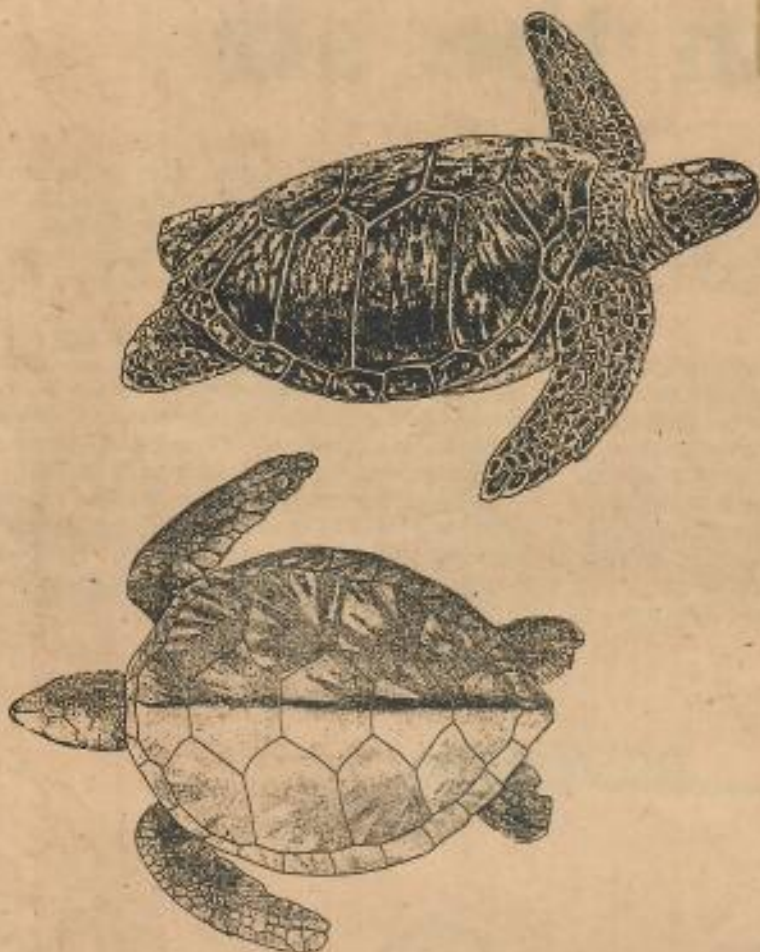
Balazs is also an artist of marine life, and the turtle pictures accompanying this article were drawn by him.

Other lectures in the series given in Kona this year were, "Hawaiian Coral Reefs: How They Grow, What Lives There," by Professor Arthur Reed, given on April 1; "Fish, Sharks and Other Friendly Forms of Reef Life," by Leighton Taylor, Waikiki Aquarium director, April 29; and "Ocean Currents and Waves and How They Affect Hawaii," by Professor Edward Stroup,

May 27.

The final lecture in the series will be given on July 29 by Professor Alison Kay on "Opihi."

For further information, call Pete Hendricks in Kona at 322-2577.



GREEN TURTLE — *Chelonia Mydas*

Wildlife and geology of the Hawaiian leeward island chain

George H. Balazs, assistant marine biologist at the Hawaii Institute of Marine Biology, Coconut Island, will present a slide lecture on "Wildlife and Geology of the Hawaiian Leeward Island Chain" on Friday, at 7 p.m. at the Hawaii Community College, Building 394, Room 1.

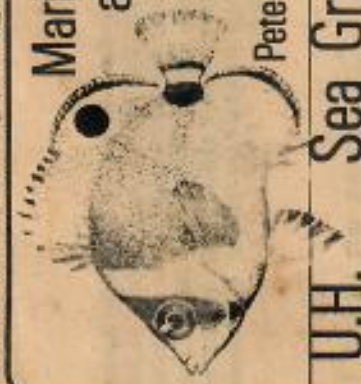
Balazs is a research biologist with the endangered Hawaiian green turtle being his special interest. He received B.S. and M.S. degrees from the University of Hawaii and has studied the green turtle at French Frigate Shoals in the Hawaiian Islands National Wildlife Refuge.

He was recently appointed a member of the marine turtle specialist group of the International Union for Conservation of Nature. His research has included studying the movements, growth, and eating habits of the green turtle and he has published a number of scientific and popular articles dealing with the ecology and conservation of these endangered turtles.

Marine advisor

Pete Hendricks

U.H. Sea Grant



Turtle sightings, fish catch reports helpful to studies

Last week we discussed the Hawaiian Leeward Islands and their marine natural resources, including commercial potential. One of the marine animals of that area with former, and perhaps future, economic importance is the green sea turtle.

Sea turtles are animals about which virtually nothing is known from the time they leave the beach as one ounce

hatchlings until they are first seen as juveniles (about 10 pounds or larger). The juvenile turtles are usually first seen in shallow waters close to shore. Juvenile and larger turtles are found in the main Hawaiian Islands, and occasionally adults nest and lay eggs here. A few hatch on our beaches and go to sea.

Smaller size turtles apparently live for a period of time in the open ocean away from land where they feed on squids, crustaceans and jellyfish. Their growth rate is about ¾ inch per year. Commercial fishing for green sea turtles is currently prohibited due to stress on the stocks of animals. George H. Balazs of the Hawaiian Sea Turtle Research Program is seeking biological and ecological information on young sea turtles (under 10 pounds). One method for gaining information involves the indirect sampling of the turtles from the stomachs of pelagic fishes such as tuna, mahimahi, marlin, sharks and others. These fishes may periodically eat small turtles. The information gathered in this project will be valuable in improving management of Hawaiian sea turtle stocks. Any fisherman finding a fish with turtle contents in the stomach can call George Balazs direct at 247-6631 (Oahu). Neighbor islanders may call collect.

An ongoing program helpful to marine research is the sea turtle sighting program. This is a volunteer program in which persons sighting sea turtles report information on standard forms designed for this purpose (see illustration at bottom of page). For either of the above programs, you can contact George H. Balazs, Hawaii Institute of Marine Biology, P.O. Box 1346, Kaneohe, HI, 96744.

A marine research project very visible to Kona fishermen is the National Marine Fisheries Service Fish Aggregation Buoy system. There are six in the state. The two buoys off Kona, 4 miles out from Kaiwi Point and 8 miles up from Ke-ahole Point are drawing fish for commercial, charter and recreational boats. An experimental project of this type requires voluntary information from fishermen to be successful. The main problem, according to fisheries personnel, is not lack of fish, but lack of information about the catches. The statistics are necessary to justify maintaining (and perhaps adding) buoys. The illustration at the left is a sample Fish Catch Record for reporting catches within 3 miles of the buoys. Visits to the buoys with no catches should also be recorded. Some volunteer fishermen have been reporting already, but more data is needed. Some Kona Charter Skippers Association, Kona Activities Center, Kona Mauka Trollers and Kona Mi Trollers members have been reporting. If you are interested you can also contact our office, P.O. Box 659, Kealahou, HI, 96750, Phone 322-2577.

SEA TURTLE SIGHTING REPORT

Observation made by: _____

Address & Tel. No. (optional): _____

Date: _____ Time: _____ Location (indicate on chart): _____

Observation made from: _____ shore; _____ boat; or while _____ skin _____ SCUBA diving.

Estimated size (shell length): _____

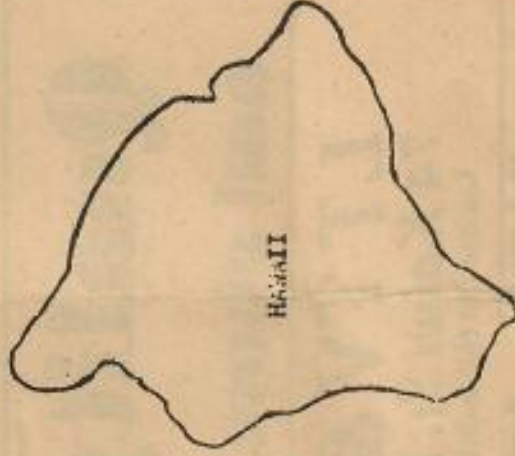
Turtle seen on: _____ surface; or at depth of approx. _____ ft. Distinguishing

characteristics (species I.D. if known, long

tail, shell color, tags, injuries, etc.): _____

Other comments: _____

(Please return to: George H. Balazs,
Hawaii Institute of Marine Biology;
P. O. Box 1346; Kaneohe, HI 96744;
Tel. 247-6631)



THANK YOU FOR YOUR COOPERATION

Hawaii's Leeward Islands

Leeward Island

There has been increased interest lately in the potential fishery and natural resources of the Leeward (northwestern) Hawaiian Islands. These islands stretch out 1500 miles from the main inhabited Hawaiian Islands to Kure Atoll, also a part of the state. In between, very little land shows above the water, but extensive shoals and reefs and nearshore waters are rich in marine life and birds.

Several bills were passed in the 1978 State legislative session relating to the Leewards, mainly for planning the future commercial fisheries. Some of the natural resources in the area include, groundfish and precious corals (often on the seamounts in the U.S. 200 mile fishery zone); tuna; billfish; ono; mahimahi; bottomfish (snappers and groupers); lobsters; and turtles. The fish called Opehu Kala (*Naso Hexacanthus*) may be found in schools large enough for commercial boats, but no research has been done on this species in the area. Other fishes important in Hawaii, such as the reef fish menpachi, are abundant also. The offshore nehu (*Stolephorus Buccanieri*) may be important as a baitfish for aku.

A difference of opinion exists over who should actually control parts of this vast area. A 1909 executive order signed by President Theodore Roosevelt designated the Leewards as a wildlife refuge, mainly to protect the

research plan approved



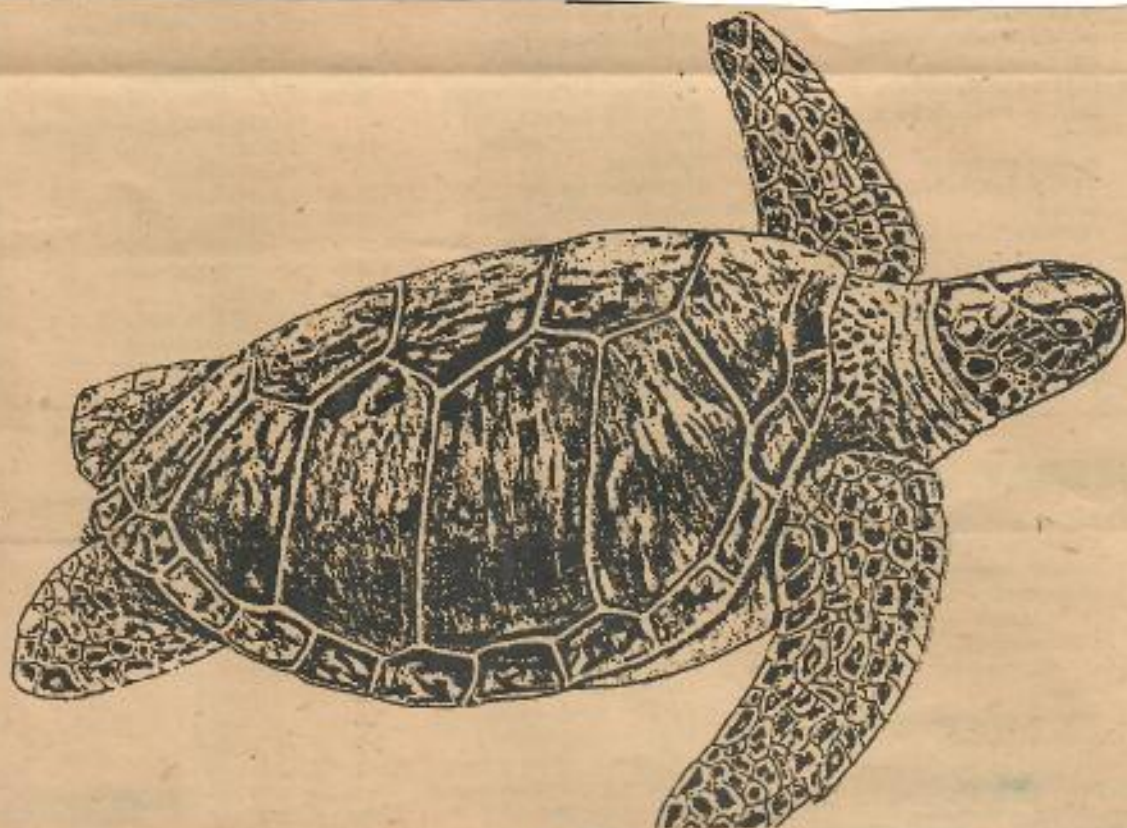
Marine
advisor

Pete Hendricks

U.H.

Sea Grant

For information
about a lecture
tomorrow in Kona
about the Leeward Islands,
please see page 7



birdlife from plumage and egg hunters. Other animals have become important also, such as the Hawaiian Monk Seal, now protected by the Endangered Species Act of 1973.

The 'emergent lands' (above the water) in the Leewards total about 1700 acres. There is a proposal in Congress to designate the Leewards a "Wildlife Area" which would bring even tighter restrictions regarding access and use of the area. Under one plan, about 303,000 acres of land and water would fall under federal control. The State of Hawaii considers the ocean out to three miles as state water. The federal government would take control of all nearshore waters in the area as part of the wildlife management - protection program. The state wants to participate in the management of nearshore waters, which contain some of the most important commercial species of marine life.

A 'Tripartite Agreement' has been reached for initial resource research work in the Leewards. The parties are National Marine Fisheries Service (federal), U.S. Bureau of Fish and Wildlife, and the Hawaii State Division of Fish and Game. U.S. Fish and Wildlife will handle the land zone (including avian resources and dependence on nearshore small fish), Hawaii Fish and Game will handle the nearshore zone from land out to 20 meters deep, and NMFS will handle the pelagic ocean area from 20 to 200 meters deep. Obviously, some species overlap several

zones.

One marine animal which disregards man's boundaries is the sea turtle. In fact, sea turtles use all three of the designated research zones in their travels: the land phase, in which baby turtles emerge from eggs buried in the sand by their mothers; the oceanic phase which can include migrations of many hundreds of miles; and a nearshore phase, in which the turtles graze for periods on shallow 'pastures' of algae in the ocean. The illustrations with this column depict Green sea turtles found in the Hawaiian Islands, along with Hawksbill and Leatherback turtles. Many of these turtles visit our shores, and a few are known to nest and lay eggs, but the main nesting grounds are in the Leeward Islands. Hawksbill and Leatherback turtles are protected by federal law. Green sea turtles are no longer a commercial fishery in the state, due to excessive pressure on the stocks. They may be taken for home consumption only by permit from Hawaii Fish and Game Division, and then the animal must have a straight-line shell length of at least 36 inches.

Voluntary information on turtle sightings is helpful to researchers determining population and migration statistics. If you are interested in more information on this program, call or write our office (322-2577; Box 859, Kealahou, HI 96750).

NOTE: The free Marine Lecture Series tomorrow Saturday, July 1, will feature George Balazs, Hawaii Institute for Marine Biology, speaking on wildlife of the Hawaiian Leeward Islands. Balazs is an authority on sea turtles of the Pacific, and has done field work in the Leeward Islands. The lecture (with slides) will be at 7 p.m. in the Kamehameha Room of the Kona Surf Hotel.

AFOOT & AFIELD IN HAWAII

Turtle Man

By Helen Shiras Baldwin

All of us who filled to overflowing a room at Hilo Community College recently enjoyed a real treat when the "Turtle Man" spoke to us about the leeward islands of the Hawaiian island chain and also about the sea turtles and other life there. He had also a truly magnificent set of photographic slides of all the little islands and their wildlife, especially the turtles which he is studying.

So we had pictures of sea turtles from the time they come to their ancestral breeding grounds and waters, the digging of the nest, the eggs laid there and covered with sand, then the hatching and instinctive rush of the hatchlings to the sea where they are safe from land predators.

But here they meet other predators and different hazards. So comparatively few of the turtles hatched each year survive to adulthood and still fewer to old age. Little as yet is known about the life of young turtles in the sea and why so many die. That is one of the things the Turtle Man is studying to find out. Young turtles can be caught and raised in captivity but that is very different from growing up in the wild.

To study any one form of life, it is necessary to study the environment in which it lives. So we were given a detailed tour of the little islands which were once noble volcanic peaks that have gradually eroded and sunk to mere fragments of their former selves on their long journey riding their Pacific crustal plate northward toward Taiwan and Japan.

and a peek into

This gives us a preview of the fate of our own islands tens of millions of years from now. By then our own islands will be submarine foundations for coral reefs and atolls and in the case of our own island of Hawaii, a curving rocky islet flanked by two little islands once the tops of Kilauea and Kohala. Meanwhile new volcanoes will be building new islands as the sea floor of the big crustal plate glides over the mid Pacific hot spot.

This is the foundation upon which life has built its variety and abundance, and would continue to do so if man did not interfere. But man's record in the mid Pacific has been a strange mixture of appreciation and concern on one hand and ruthless destruction on the other. So it is no wonder that some species have become extinct while others like the monk seals and the sea turtles are now on the endangered species list.

Theodore Roosevelt visited these islands during the summer nesting season when thousands of sea birds of various species were nesting on the sand, the rugged cliffs, in and under shrubbery. He was so much impressed that he joined with conservation forces of seventy years ago and succeeded in getting the island chain made a wild bird sanctuary. This has been expanded to include other life as well and the curious archeological remains on Necker and a few other tiny islands.

During the guano mining episode when tons of bird droppings were hauled off for fertilizer, rabbits were liberated on two well vegetated islands to provide

our future

additional meat for the workers. When the guano operations closed down, the rabbits were left behind without predators or disease to keep down their numbers. The rabbits increased to the limit of their food supply then slowly diminished through starvation as the vegetation was used up. Unfortunately two rare native land birds also perished as food and water supplies disappeared.

Much later the government sent out men to exterminate the remaining rabbits. Then vegetation was transplanted from other islets to rehabilitate the bare ones. This operation has proven successful and birdlife is returning slowly as are the seals and turtles.

The greatest havoc of all was done by our Armed Forces during and after World War II. Many islets were practice-bombed as training exercises, ruining many bird nesting sites. The top of Necker island was blasted off to make a landing place for helicopters regardless of any archeological remains that may have been there.

The crowning injustice came with the permit to destroy thousands of sea birds during the breeding season to keep them off of certain airfields. The birds fouled the jet engines, wings and tails of aircraft making it hazardous to land or take off from these fields. Ironically after the island with one airfield was cleared of birds the airfield was abandoned as the runway was too short for the new planes. Yet in other ways the military were very careful not to harm the birds. Now the survivors are slowly increasing since the slaughter is over.

Turtles and Seals

By Helen Altorn
Star-Bulletin Writer

To most people, it's just "a damn old rock."

But, after seven days and nights on Necker Island, George H. Balazs says, "To me, it's like a great cathedral."

Balazs shared the precipitous islet with Hawaiian monk seals, green turtles, hundreds of thousands of native seabirds and shrines of ancient Polynesians.

"It was a beautiful experience," he said, describing his adventure.

BALAZS IS A research biologist at the University of Hawaii's Institute of Marine Biology and the endangered Hawaiian green turtle is his special interest. He recently was appointed a member of the Marine Turtle Specialist Group of the International Union for Conservation of Nature.

He is in his second year of a three-year study to survey the turtle population in Hawaiian waters, including remote areas of the Leeward chain. He also hopes to learn more about their movements, growth and eating habits.

His research is funded by the State Marine Affairs Coordinator and the National Sea Grant Program.

Gary Naftel, captain of the Easy Rider, was doing fisheries research in the Necker area and dropped Balazs there with a week's supplies on Aug. 19.

NECKER, A narrow fishhook of volcanic rock, is 393 miles northwest of Hawaii in the Hawaiian Islands National Wildlife Refuge. Technically, it is part of the City and County of Honolulu. The rocky island comprises 41 acres and the highest spot there is 275 feet.

The islet is protected from human contact by hazardous landing conditions, and by the U.S. Fish and Wildlife Service, which gave Balazs a permit to work there.

Balazs spent three days in a cave shelter on a bluff but changed camp after puncturing his mattress.

"It was rough sleeping on the lava rock," he said.

He made three trips along the peak of the island, setting up observation stations, but said, "It's pretty precipitous. There are not many places to hike. I wore out a pair of boots."

HE SAID THAT, wherever he went on the island, he saw turtles

coming in to feed on the seaweed.

"I never saw such lush stands of limu," he said.

Balazs saw "a fair number" of Hawaiian monk seals with young pups born on the island.

"This was new information for Necker," he said. "We hadn't thought of it as a pupping area."

The seals and turtles "team up" on Necker, snoozing together on the ledges, Balazs said. "I'm really amazed at how they are able to live in harmony in a limited area on the rock ledge."

HE ALSO WAS surprised to see the turtles "hauling out on the lava rock and sleeping." On other islands, they bask on coral sand, or crawl under ledges underwater, Balazs said.

The turtles arrived at about 10 or 11 at night and left about 7 or 8 in the morning, he said.

He caught six small turtles with a scoop net to tag and measure them to follow their movements—"if they're moving"—and monitor their growth. He also used a probe sampler to obtain stomach contents to find out what they're feeding on.

There was a "definite change-over" of turtles, Balazs said. "I never caught the same small turtle twice." And, based on his observations, he estimates a minimum of 50 turtles using the nearshore waters.

NECKER SITS on a 650-square-mile bank, with the greatest depth 125 feet, Balazs said.

"It's conceivable the turtles are using the entire bank and the island itself as part of their total cycle," he said.

Necker is about 75 miles from the turtle breeding grounds at French Frigate Shoals so Balazs believes it is an important island for them.

"I feel the adults are probably fairly resident to the island," he said.

He found the birds and animals far tamer at Necker than at other islands where they have acquired fear of man.

KENNETH P. EMORY, senior archaeologist at the Bishop Museum, was "shocked" when he saw a slide show of Balazs' trip to Necker.

Emory spent five days on Necker in 1924 and recorded 34 marae (shrines) built by ancient Polynesians. He thought they were still there, undisturbed, but Balazs' pictures showed a number of the reli-

Find a Home



gious structures had been destroyed by bombs.

Emory said he learned the Navy was bombing the island during World War II and advised the naval command at Pearl Harbor that the island was covered with ancient ruins.

Balazs found a 250-pound bomb on one section of the island and two more bombs on the northwest cape

with birds perched on them.

Balazs would like to go to Lisianski, which he believes may be another important island for turtles, and to other remote islands in the leeward area.

But, he said, there is no transportation into the eight units of the wildlife refuge except for French Frigate Shoals where a Coast Guard navigation station is located.

Star-Bulletin

Section

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Wednesday,

October 12, 1977.

Seabirds flock around a marae (shrine) built on Necker Island by ancient Polynesian travelers while George Balazs, left, keeps watch from an observation post on a steep cliff.-Photos by George Balazs.





FORUM

the Readers' Page

Turtle Steaks

I was disappointed to see that Francee King has once again inappropriately used her Dining Out advertising supplement of the Sunday Star-Bulletin & Advertiser to encourage readers to buy and eat products derived from sea turtles.

In a recent issue King stated that turtle steaks are being brought into Hawaii "from the Grand Cayman Turtle Farm, where turtles are propagated for the express purpose of supplying turtle meat without in any way endangering the species."

This is unfortunately reminiscent of King's erroneous statements of three years ago when she attempted to stimulate Hawaii's restaurant trade in turtle soup.

The fact of the matter is that due to serious population declines, sea turtles are now federally protected under the Endangered Species Act.

Furthermore, based on a lengthy and careful consideration of the facts, officials of the National Marine Fisheries Service and the Fish and Wildlife Service have ruled that the commercial activities of the foreign-based Cayman turtle "farm" are not in the best conservation interests of sea turtles.

Consequently, the recently passed final regulations on the subject will prohibit importation of all "farmed" (as well as wild) sea turtle products into the United States. Interestingly enough, in California these same products have been banned by state law since late 1977.

I certainly have no objection to King saying nice things about restaurants. However, it is not proper for her to use this advertising space to promote commerce in threatened species of wildlife. The Hawaii Newspaper Agency has a responsibility to see that this does not take place.

George H. Balazs

Sea creatures around us

Value of our Aquarium

More attention should be paid to our Waikiki Aquarium, since it could easily die of neglect, composed as it is of many living organisms.

Only through donations, special grants, Friends of the Aquarium, and donated services by students and senior citizens has the Aquarium miraculously managed to survive.

Under the inspired leadership of Dr. Leighton Taylor and the educational leadership of Les Matsuura and Ms. Pat Raines, a program has been evolved which services the schools and children of Hawaii. Taylor believes that it is essential that people remember the close association Hawaiians had with the ocean, that their culture was greatly influenced and depended upon the surrounding waters.

The Aquarium's educational program works hand in glove with the schools, graded in approximate age levels, always emphasizing the importance of the marine world which surrounds us. Last year over 20,000 children were conducted through the aquarium, instructed through "touch" baskets, lectures, slides, and films, before being personally conducted through the galleries. This year the same number is expected and an additional service marine life, slides, and lecturers are being transported to outlying schools which find it difficult to be bused in.

I understand that there is a project now in the planning stages which will utilize the wasted dock space once necessary for the numerous ships, and that this will include a new aquarium to be built on the water front. Since it is estimated there are only 18 ship days a year now in Honolulu the plan to make this property available to the people seems most admirable.

Seattle is a city which cannot hope to compete with Honolulu as a tourist attraction, yet the new modern aquarium there has attracted an attendance of over 750,000, which proves that the aquarium not only pays for itself but also adds profits to the city coffers.

Marine Land in California and Shedd Aquarium in Chicago are musts for tourists, so surely Hawaii, which lives on the water, can come up with something comparable.

JOHN R. MOORE

Protecting turtles

I was disappointed to see that Francee King has once again inappropriately used the Hawaii Newspaper Agency's Dining Out advertising supplement to the Sunday Star-Bulletin and Advertiser to encourage readers to buy and eat products derived from sea turtles. In a recent issue (2-18) King stated that turtle steaks are being brought into Hawaii "from the Grand Cayman Turtle Farm, where turtles are propagated for the express purpose of supplying turtle meat without in any way endangering the species." This is unfortunately reminiscent of Mrs. King's erroneous statements of three years ago (1-18-76) when she attempted to stimulate Hawaii's restaurant trade in turtle soup.

Due to serious population declines, sea turtles are now federally protected under the U.S. Endangered Species Act. Furthermore, based on a lengthy and careful consideration of the facts, officials of the National Marine Fisheries Service and the Fish and Wildlife Service have ruled that the commercial activities of the foreign-based Cayman turtle "farm" are not in the best conservation interests of sea turtles. Consequently, the recently passed final regulations on the subject will prohibit importation of all "farmed" (as well as wild) sea turtle products into the United States. Interestingly enough, in California these same products have been banned by state law since late 1977.

I certainly have no objection to King saying nice things about restaurants in Hawaii that advertise in the promotional section she produces. However, it is not proper for her to use this advertising space to promote commerce in threatened species of wildlife. The Hawaii Newspaper Agency has a responsibility to see that this does not take place.

GEORGE H. BALAZS

FORUM

the Readers' Page



French Frigate Shoals

This letter is in regards to a most lovely, pristine part of your Hawaiian Islands that needs so much the understanding and help of all of you. Nowhere on earth is there such an impressive example of nature's unspoiled harmony and balance as at French Frigate Shoals, 500 miles northwest of Honolulu.

I had the good fortune to be stationed at French Frigate Shoals with the U.S. Coast Guard in the years 1945 and 1946, and during those years spent hundreds of hours, day and nighttime, observing the fish, birds, and turtles that depend so much upon the naturalness of the shoals and islets for their very existence.

In 1976, I was happily able to return for a visit to French Frigate Shoals and once again rejoice in seeing the loveliness and beauty of the atoll and the wildlife, untouched and

unexploited by man.

The impressions left upon me by the experiences at the shoals, and prior to that on the other islands of the Hawaiian chain, did much to build a love for nature and all that is so typical of the beauty of your Hawaiian Islands. French Frigate Shoals is a precious Hawaiian heritage that deserves to be protected and appreciated for what it is.

Proudly I can say that I was one of the few that served my fellow man on French Frigate Shoals; and now hopefully I can once again serve by pleading for the preservation of the atoll and for God's little creatures who make French Frigate Shoals their home—and who deserve to be undisturbed and unexploited, as God meant it all to be.

H. Emmett Finch
Malibu, Calif.

Month in prison for turtle killing

A federal magistrate yesterday sentenced a Big Island man to a month in prison for capturing and later killing a green sea turtle, which is protected under the Endangered Species Act.

Anthony Barro, 35, of Naalehu had pleaded guilty to pulling the turtle from water near the Big Island's Punaluu Beach Park in March 1992.

A witness reported that Barro and a co-defendant, Clyde Agres Jr., carried the turtle to a pavilion at the park. Another co-defendant, John Quintal, admitting taking it away from the park in a pickup truck.

Although the turtle was never found, Barro admitted in court that he later killed it.



Photo by Bob Fawell

Turtles go free

Don Dickens, general manager of the Mauna Lanai Bay Hotel, and Los Angeles Rams center Bern Brostek, right, celebrated the Fourth of July by giving independence to two of 10 Hawaiian green sea turtles. The hotel provides a temporary home for the young sea turtles. Every July 4, selected turtles are released into the ocean.

Buffalo Keaulana tells of turtle hunt

MAKAHA — Trade winds first brought a strong "limu (seaweed) smell" of turtle from outside Kaena Point.

Buffalo Keaulana, then 35, looked north from his Boston Whaler, following his sense of smell. The algae-covered back of a 300-pound turtle bobbed on the ocean surface some 100 yards away. These days in the mid-1960s was when turtle could be sought openly, and Keaulana was one of several Leeward fishermen who caught them to share with other residents.

As he approached, the turtle dived and Keaulana quickly donned his diving mask to check under what reef crack the turtle would hide. Mentally marking its position, he put on fins and a scuba tank before heading down some 80 feet.

When the turtle was cornered in a dark reef cave, Keaulana blocked the entrance. As it attempted to elude him, he grabbed both sides of its shell when it tried to escape, holding tight to each edge. Spinning wildly, the turtle took off so fast, Keaulana had to press his face mask against its back lest water pressure tear it off.

"I had to hold on until he got tired," said Keaulana. "Then, I placed my knee near the back of his shell, pushed down and steered him to the surface. Once we got to the surface, I held the turtle down under so it couldn't catch its breath. No breath and the turtle gets weaker."

His fishing partner, the late Homer Barrett, brought the boat around while Keaulana held the turtle upside-down on the ocean's surface. "Once you let the turtle turn right side up, you're in for another ride," he said.

The two men hoisted the turtle onto the boat and returned to Makaha Beach, where Keaulana lived with his family.

On the beach, he killed and cleaned the turtle.

"One upper flipper shoulder weighed about 75 pounds. That's a lot of turtle steaks. This is how I'd feed my family and friends. The meat is delicious, a delicacy," Keaulana said. "And my freezer was always full."

Keaulana is now 64 years old, and hopes to some day teach his grandchildren how to harvest turtle.

— Bunky Bakutis

REPORTER'S CORNER



TIMOTHY HURLEY

Oh, those poor Hawaiian sea turtles.

Every time you turn around it seems someone's pointing a finger at those benevolent doe-eyed reptiles, implicating them as unwitting accomplices in a shark attack.

Kihei's Don Bloom, the victim in the June 13 shark encounter off Wailua, was the latest to make the connection in a

letter to The Maui News last week. He suggested that the shark that bit him in murky water had mistaken him for a sea turtle.

It's a cry heard over and over. In recent years the Hawaiian sea turtle has taken a lot of heat — from all quarters.

Many have suggested that the gradually increasing population of sea turtles is to blame, or at least partially responsible, for the reportedly higher numbers of tiger sharks that roam our waters.

Those who raise the issue point out that the sea turtle — a mainstay on the tiger shark diet — has been legally protected by federal and state laws in Hawaii since the mid-'70s. During that time, the tiger shark population has seemingly mushroomed as well.

And the theory goes that since there are more sea turtles swimming in and around our islands, the tigers are increasingly going after them — and sometimes mistaking humans for the turtles.

Think about it from a shark's point of view: From the murky depths you spot what looks like a tasty turtle skimming the water's surface. OK, so maybe a closer examination would have revealed a fiberglass bodyboard with dangling arms and legs. But, hey, when you're hungry . . .

It's all that kind of talk that really rankles George Balazs, zoologist and leader of marine turtle research for the National Marine Fisheries Service in Honolulu.

Perhaps Hawaii's top turtle expert, Balazs says there is no evidence to suggest that a growing turtle population is the cause of increased shark sightings and attacks.

While there are indeed more turtles in our waters,

THE MAUI NEWS 27 JUNE 1995

there aren't as many out there as people think, he says. Sea turtles are simply high-profile animals and so they get the blame.

Balazs, who is also known for compiling and maintaining a list of Hawaii shark attacks, says it is true that the turtle is on the tiger shark diet. But he believes its importance on the shark's daily menu has been overestimated. Also eaten by tiger sharks are fish, crabs, lobsters, birds, other sharks, rays, squid, octopus, crabs, snails, jellyfish and even garbage.

The reason turtles are overrated as shark food, he says, is because they are found in the stomach of sharks more often. That's due to the fact they can't be broken down by stomach acids as well. Many other things a tiger shark eats digest faster.

As for the mistaken identity theory, Balazs says he doesn't buy it.

"If you're in California, the shark thinks you're a seal. If you're in Hawaii, the sharks think you're a turtle," he says. "Which one is it?"

There is no credible data to support the mistaken identity theory, Balazs insists.

"Taking things at the surface is a natural part of the tiger shark's known feeding strategy," he says.

"Jean-Michel Cousteau said some sharks are more fussy than others about what they eat. Tiger sharks are

known to eat almost anything and everything, and are more likely to attack anything on the surface whether it's a piece of wood, a surfboard, a boat or a bird."

A number of recent attacks in Hawaii on surfers have taken place during daylight hours in reasonably clean, clear water. It's hard to imagine that the sharks involved in those incidents mistook their victims for anything other than a potentially edible object at the surface, he says.

Balazs points to an incident in East Maui waters a couple of years ago. The passengers on a charter fishing boat witnessed — and even took photos — of a 2,000-pound bull that had fallen off a cliff into the ocean and was being mercilessly attacked by sharks.

"Did the sharks mistake that bull for a sea turtle? Perhaps, but only if they had been staring at inkblots for too long!"

Balazs says surfers and swimmers should still consider the sea turtle a friend.

"If turtles weren't out there making themselves available as a food item, the tiger shark population would simply turn to something else to eat.

"And that something else could be surfers or swimmers."

Staff writer Timothy Hurley covers the environment for The Maui News.

June 27, 1995

Norton Chan, a biologist at the Waikiki Aquarium, shows a green sea turtle on loan from Sea Life Park. Some Native Hawaiians want to resume cultural uses of the turtles.

Cory Lum /
The Honolulu
Advertiser



Hawaiians want turtles back on cultural menus

By **Bunky Bakutis**

Advertiser Leeward Oahu Bureau

WAIANAE — For 20 years, native islanders reluctantly lived with federal protection for the green sea turtle. But now, as numbers of the honu improve throughout the Pacific, islanders want to resume harvesting the turtle, restoring

its multi-faceted role in local culture.

"Over the past five years, I've seen turtles everywhere around Oahu," said Native Hawaiian fisherman William Aila. "It's time to take a look for establishing a protocol for bringing turtles back into our culture."

"I can remember my uncles catching turtles

and my aunties preparing them. But that has been lost over several generations."

Currently there is no comprehensive count of turtle populations. But tagging programs and nesting studies indicate dramatic rises in green sea turtle populations of

See **Turtles**, Page A2

all ages since they were placed on the federal threatened species list in 1978.

The Endangered Species Act of 1973 bans killing certain wildlife listed either as "endangered" (those on the verge of extinction) or "threatened."

According to state aquatic biologist Bill Puleloa of Molokai, "the green sea turtle is not in imminent danger of extinction." A Molokai tagging program that began in 1981 has placed plastic identification tags on the flippers of 2,000 turtles of all sizes "with no end in sight," Puleloa said.

Tagging not only allows marine biologists to establish rough estimates of stock, but also tracks migratory patterns and growth rates of turtles.

A 25-year survey of nesting female turtles at French Frigate Shoals (about 20 acres of sand beaches northwest of Hawaii's main islands) has shown an increase from 50 to 500. Northern shoal turtles migrate to the main Hawaiian islands and are said to make up the majority of Hawaii's breeding stock. However, there are no total nesting counts at main Hawaiian islands.

George Balazs, who heads the Marine Turtle Research Program for the National Marine Fishery Service at its Honolulu laboratory, said the increase in nesting females is "extremely promising. This is the first time we've seen numbers like this since 1969. There are very few places in the world where stocks have regenerated like this."

Although increases may be highest among juvenile turtles, Balazs said adult numbers also have gone up, which "is a clear indication that survival is good." Green sea turtles are estimated to begin reproducing when they reach between 25 and 30 years of age.

Off menus in 1974

In 1974, state officials took the first action to curb over-harvesting by banning commercial sales. However, family consumption was permitted. The action effectively took turtle off menus at restaurants such as the former Tiki Top in Kaneohe or Old Sally's in Pokai Bay.

In 1978, federal officials put green sea turtles on the "threatened" list following the documented depletion of stock from Florida to Polynesia. The ban removed the prized, lean meat from Hawaii family dinner tables or luau.

One of the main causes cited for protection was that beach-front development had adversely affected turtle nest-

Turtles: Tradition limited fishermen to harvest for family



Hawaiian green sea turtle

Chelonia mydas
Hawaiian name: Honu

A migratory reptile that becomes sexually mature at an average of 25 years old. Although individual breeding does not occur every year, a female may produce 100 eggs up to six times per season. A record weight was recorded in Kaunakakai at 410 pounds. Mature turtles are herbivores feeding on algae and sea grasses.

Michael Bergen/The Honolulu Advertiser

ing sites.

Green turtles have had a prominent position in Hawaiian culture since islanders first migrated here. Turtle was not only a rich source of protein, but also was used for medicine, functional tools and adornment.

According to Bishop Museum officials, use of decorative turtle shell was reserved only for *ali'i*. Polished shell was used to ring the staff of *kahili* (markers of *ali'i* presence), and Kamehameha I drank medicine from a round, two-quart turtle shell container, said Dr. Roger Rose, head of the museum collection department.

Bracelets — and more functional items such as fish hooks — were made from turtle shell. Tough upper carapace was used as a scraping tool in making cordage from plant fiber, Rose said.

From the late 1800s up until the 1970s, decorative hair combs, pendants, earrings, fishing lures and even buttons

were commonly used by all Hawaiians.

Hawaiians consider turtles a demigod, because it linked the land and sea. Honu is one of numerous animals that Hawaiians traditionally honor as *'aumakua* (a family guardian). That status does not bar others from hunting the turtle. But tradition holds hunters to taking only what an individual may need to feed his *ohang*, and in that way protect the resource.

Turtle meat was prepared in numerous ways: steaks were cut from flipper connecting muscle and either grilled or dried; also meat was chopped for stews or soups. The green fat, for which the turtle got its name, was boiled and the remaining oil used as a healing salve for burns or wounds.

Marianas seek new policy

Recently, the U.S. commonwealth of the Northern Marianas has taken the lead in efforts to restore a limited cultural take of turtles.

Under the auspices of an educational exemption, one of five such categories in the Endangered Species Act, a report was completed in December detailing cultural use of turtles by two indigenous groups, the Chamorros and Salpan Carolinians.

The National Marine Fisheries Service and U.S. Fish and Wildlife Service has scheduled a workshop early this fall on their exemption request. Many Hawaiians are watching developments closely.

Limited turtle take also has become an increasingly hot topic among other Pacific islanders under U.S. jurisdiction, said Don Schug, a staff member for the Native and Indigenous Rights committee of the Western Pacific Regional Fishery Management Council.

"The council will want to do studies in Hawaii and American Samoa to look at the cul-

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Turtles: Recovery of species sparks

FROM PAGE A2

tural importance of turtles and possible legal exemptions to the law," Schug said.

Rights committee chief Isaac Harp of Maui said the 17-member panel will keep up pressure for a possible exemption, especially in the light of limited take allowed for long-line fishing vessels.

"I've talked to a lot of kupuna (Hawaiian elders) who want turtle returned as a food source before they pass away," Harp said. "And why are long-line fishermen allowed to kill so many, and we can't take any?"

One of the five exemptions to the ban is "incidental" turtles caught by long-line fleets. Boats operating northwest of the main Hawaiian Islands are allowed an annual take of 18 green turtles out of 129 total caught, according to Schug. When turtles are pulled up dead on hooks, fishermen must throw them back.

The Navy also receives a limited exemption at a bomb-target island in the Northern Marianas.

Children 'brainwashed'

Waianae fisherman and Native rights committee member William Aila said traditional Hawaiian culture is losing an understanding of what the turtle represents.

"There are generations who have lost the knowledge of how to catch, clean and prepare turtle," Aila said. "And I resent the singular 'warm and fuzzy' representation of turtles being made in some educational efforts. Our children are being brainwashed. Turtle primarily was a respected and required part of our menu."

Turtle numbers now demand analysis of how to control the population, Aila said. But Gene Nitta of the National Marine Fisheries Service disagrees.

"By no means have turtle populations recovered enough to be taken off the threatened species list," he said. A limited-take program would only heighten enforcement and



The Honolulu Advertiser Sunday, June 7, 1998 A3

debate over protection

Advertiser library photo

Maui motorists are warned they may encounter green sea turtles on this coastal highway. The once-threatened species has recovered significantly since being protected by federal law in 1978.

poaching problems, which, in turn, would slow turtle recovery, Nitta said.

Declining to speculate on what size population might allow a limited take, Nitta referred to the federal recovery plan. Among a number of requirements, the plan states that area turtle stocks must average 5,000 females estimated to nest annually over six years before it qualifies to come off the protected list.

Another problem cited by federal officials is a virus, fibropapilloma, which causes life-threatening tumors to grow on turtles. The disease was

reported to affect 42 percent of turtles captured, examined and released in Kaneohe Bay between 1991 and 1995.

Molokai's Puleloa said that he first discovered a turtle with the disease in 1986. Many juvenile turtles have been found since then with tumors.

"We're looking for it now. Some (turtles with tumors) get worse and some get better. We can't make heads or tails of it," he said. "It's not contagious. We think it's something latent in the turtles that is allowed to surface as tumors because of changes in the environment," Puleloa said.

Balazs said the disease counteracts some of the recent good news.

"Possibly, it could cause a large decline," he said. "It is necessary to manage turtles in a conservative manner, as everything (such as turtle reproductive age) is so protracted."

But there's another reason why turtles have flourished again here, Balazs said.

"There's over 1,000 miles of coastline here with huge fields of benthic algae (which turtles consume). I see the carrying capacity of these fields for turtles as many times greater."

Buffalo Keaulana tells of turtle hunt

MAKAHA — Trade winds first brought a strong "limu (seaweed) smell" of turtle from outside Kaena Point.

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When the turtle was cornered in a dark reef cave, Keaulana blocked the entrance. As it attempted to elude him, he grabbed both sides of its shell when it tried to escape, holding tight to each edge. Spinning wildly, the turtle took off so fast, Keaulana had to press his face mask against its back lest water pressure tear it off.

"I had to hold on until he got tired," said Keaulana. "Then, I placed my knee near the back of his shell, pushed down and steered him to the surface. Once we got to the surface, I held the turtle down under so it couldn't catch its breath. No breath and the turtle gets weaker."

His fishing partner, the late Homer Barrett, brought the boat around while Keaulana held the turtle upside-down on the ocean's surface. "Once you let the turtle turn right side up, you're in for another ride," he said.

The two men hoisted the turtle onto the boat and returned to Makaha Beach, where Keaulana lived with his family.

On the beach, he killed and cleaned the turtle.

"One upper flipper shoulder weighed about 75 pounds. That's a lot of turtle steaks. This is how I'd feed my family and friends. The meat is delicious, a delicacy," Keaulana said. "And my freezer was always full."

Keaulana is now 64 years old, and hopes to some day teach his grandchildren how to harvest turtle.

— Bunky Bakutis

Te u u

HAWAII TRIBUNE HERALD 6-8-98
(HILO)

Hawaii report

Is it time to hunt turtles again?

HONOLULU — Endangered species status has helped boost the population of the green sea turtle, maybe too much for the turtles' own good.

With the number of turtles rising in island waters, people of various Pacific Island cultures say it's again time to start hunting the animals.

Green sea turtles have been under federal protection for 20 years. While there are no comprehensive counts to put an exact number on the turtle population, nesting studies done by biologists at French Frigate Shoals show a dramatic increase in the population.

Most promising is the rise in the number of nesting female turtles, said George Balazs of the National Marine Fisheries Service's marine turtle research program.

"This is the first time we've seen numbers like this since 1969," Balazs said. "There are very few places in the world where stocks regenerated like this."

Hunting turtles and eating them at one time was a big part of Pacific Island culture, and those who remember when that was the case say procedures need to be put in place to allow for some hunting of the turtles.

"I can remember my uncle catching turtles and my aunts preparing them," fisherman William Aila said. "But that has been lost over several generations."

Hawaii Tribune-Herald

76TH YEAR — NO. 50

HILO, HAWAII, SUNDAY, FEBRUARY 28, 1989

7 SECTIONS — 82 PAGES — ONE DOLLAR

BASKING: Turtles enjoy sun and sand

From Page 1

tions where basking occurs, such as on the lava shores off Puako, they aren't as tolerant of human intrusion. Balazs said he has watched turtles there turn and head for the water at the mere approach of humans.

By attaching a monitoring device to a pre-adult turtle's shell, Balazs and other researchers found that the animal spent only a little over 3 percent of its time basking in stretches lasting from seven minutes to 15 hours. Although the basking might last into nighttime, it was never begun after dark.

The rest of the time the turtle spent foraging for seaweed in shallow waters, primarily a type of algae, and resting underwater on dives that can last well over an hour.

There is an ongoing debate as to the effect human contact has on the basking turtles.

The hundreds of tourists who arrive at Punaluu by car or bus must pass a sign asking that they not bother the sleeping turtles, telling them that they are not sick and do not need assistance.

But many visitors, like Luana

Stephens of Nashville, are more interested in getting to the turtles than reading the notice.

"I looked at the sign but I didn't read it," Stephens said.

Vendors at the beach, including Punaluu resident Jeanette Howard who also helps monitor turtle activity, distribute handouts asking that people stay 10 feet from the animals. But they still see people dumping water on the basking turtles, apparently thinking they were drying out, and even trying to carry them back to the ocean. Howard said here have also been instances of people trying to write on their shell.

Hawaiian green sea turtles are a threatened species and it is illegal to disturb them. But Balazs believes that remedying that through enforcement is not the solution.

He said having tour bus drivers inform their passengers would go a long way toward establishing "proper honu behavior," referring to the Hawaiian name for the turtle.

But according to Larry Katahira,

who is overseeing the hawksbill turtle recovery efforts in the nearby Hawaii Volcanoes National Park, that was tried several years ago with only limited success.

Balazs disagrees with those who say additional signs are needed, although the presence of Katahira in his park uniform on the beach near the turtle generated numerous questions about the animal and its behavior — and also appeared to give pause to those about to touch the basking turtle.

Katahira said there is no question that the situation provides a unique experience as well as a chance to educate the public about the turtle and its plight.

Balazs agrees, adding that the turtles don't appear to be bothered by a few humans nearby.

"I don't think touching them for a short time is harmful to the turtles," he said.

But he said being surrounded by a crowd is a different matter, which is why he advocates the 10-foot stand-



T-H photo by William Ing

A visitor from Japan poses for a snapshot beside the bilingual signs at Punaluu Beach.

off.

And of course there is the legal issue. "Images of crowded turtles is not what we want for preservation of turtles," he said.

Turtles basking on isle shores confound scientists

By Dave Smith
Tribune-Herald

PUNALUU — At first glance the grayish mass on the beach just above the wash of the waves appears to be a rock.

It's only when you get close enough to see the head and flippers that its identity is obvious.

But what isn't so easily seen is the change in behavior that occurs when green sea turtles leave the

ocean to bask.

Scientists say they don't know how to explain this "terrestrial emergence," but they do know that it is a new behavior, at least for turtles on the Big Island.

Basking is well known in the Northwestern Hawaiian Islands more than 600 miles away where green sea turtles living off the Big Island go to nest. But it is only in the past five years — and particularly in the last two — that it has

been observed here.

No one knows why the green sea turtle acts so, although some theorize it has something to do with the halting 20 years ago of the rampant taking of the turtles for meat.

George Balazs, a turtle expert with the National Marine Fisheries Service, said basking certainly would have proved fatal in years past.

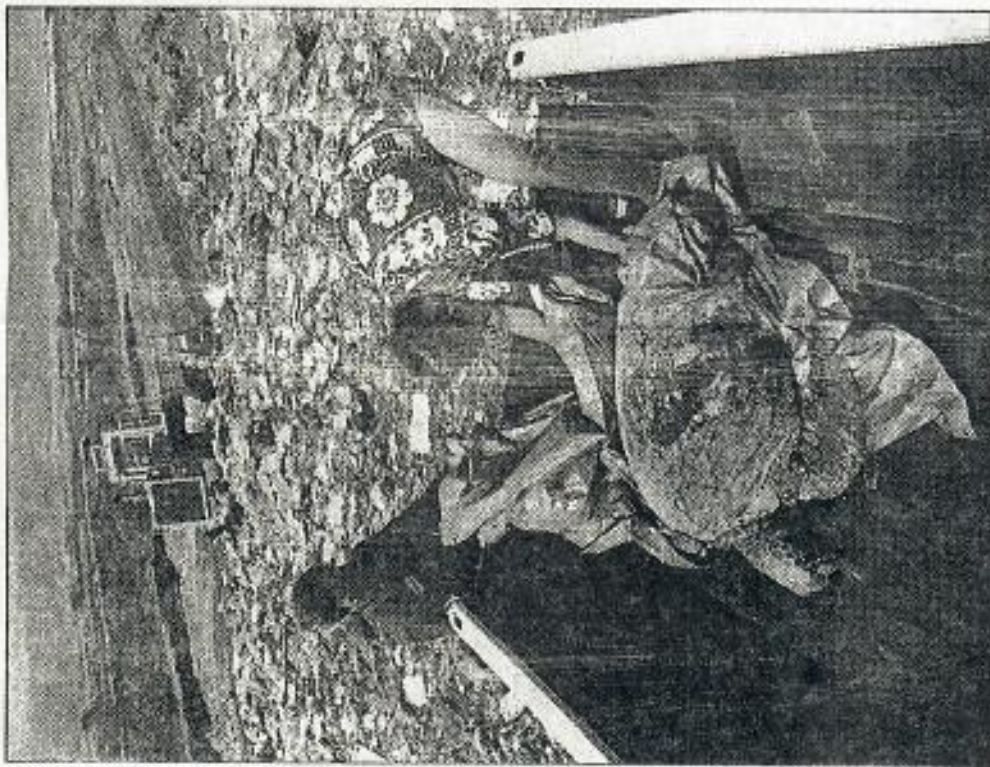
"If they did it in the 1960s they would be gone from the population in 24 hours," he said.

"We don't understand exactly why they are doing it, but it seems to be a learned behavior," Balazs said.

Balazs said the turtles basking at the beach at Punaluu seem to be the tamest, tolerating the stares and occasional touching from tourists visiting the most accessible black sand beach on the Big Island.

But in other Big Island loca-

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Nov. 1, 1995

The Maui News / MATTHEW THAYER photo

Turtle disposal

A dead, tumor-riddled turtle weighing more than 150 pounds was found floating in the shore break off Waihee and was dragged ashore by fishermen Tuesday morning. After inspection by state Aquatic Biologist Skippy Hau, the turtle was taken to the Central Maui Sanitary Landfill, where its shell was crushed by a bulldozer to deter human scavengers. This picture was taken as Hau (right) and landfill equipment operator Thomas Hashimoto pulled the turtle out of Hau's truck.



A tumor-plagued turtle weighing more than 150 pounds was found floating dead in the shore break off Waihee and dragged ashore by fisherman Tuesday. After inspection by a state biologist, the turtle was taken to the Central Maui Sanitary Landfill, where its shell was crushed to discourage scavengers.

Maui News - 11-03-95

Award rewards commitment to turtles, zoo

THE MAUI NEWS — Thursday, May 19, 1994 —

WASHINGTON — A former sea turtle fisherman turned botanist was honored here Wednesday for his contribution to saving the endangered sea turtle and creating the Maui Zoological and Botanical Gardens.

Rene Sylva of Paia is one of 15 winners from across the United States selected to receive the 40th annual Chevron-Times Mirror Magazines Conservation Award recognizing natural resource conservation efforts.



Rene Sylva received the Chevron-Times Mirror Magazines Conservation Award.

The awards are given in three categories: citizen volunteers, professionals and nonprofit organizations. Sylva was honored at a banquet and received \$2,000 and a bronze plaque acknowledging his achievements in the professional division.

A Native Hawaiian commercial sea turtle fisherman, Sylva abandoned his livelihood because of the decline he saw in the turtle population, according to a news release. He destroyed his nets, gave away all his turtle shells and was the only fisherman to testify for a ban on continued turtle fishing. Sylva and others lobbied successfully to include Hawaii's sea turtles on the Endangered Species List.

After quitting his fishing career, Sylva became a groundskeeper at the zoo when it opened in 1976 and persuaded his boss the zoo should have a botanical garden, the news release says. Using his own resources, he took it upon himself to collect, grow and care for more than 200 native Hawaiian species to create the Maui Zoological and Botanical Gardens.

"Rene Sylva represents the very best example of commitment to the principles upon which the awards program was built and we, at Chevron, are very pleased and proud to recognize his achievements," said James Sullivan, vice chairman of the Chevron Corp.

The conservation awards program was created by the late Ed Zern, a nationally recognized sportsman, humorist, author and former columnist for Field & Stream, a Times Mirror magazine.

PIKELOT ISLAND

Turtles on menu to honor Makali'i

Hunt is part sport,
part survival

By Bob Krauss

ADVERTISER STAFF WRITER

PIKELOT, Micronesia

Two giant turtles mated in the clear blue ocean on this glorious morning, their heads and flippers splashing in awkward exuberance.

Sooty terns and boobies wheeled overhead. PikeLOT, an uninhabited grove of coconut palms floating on the ocean, lay a few hundred yards away.

Sea turtles have been going to tiny PikeLOT to lay their eggs as long as anybody can remember.

But today the turtles were not alone. Six crewmen from the FSS Independence edged close, in their inflatable boat, to capture the turtles. The Independence is a Micronesian coast guard boat escorting the Hawaii voyaging canoe Makali'i.

Four men slipped into the water.

I have to admit that I felt sorry for the turtles. They should be entitled to a little privacy. Yet turtle hunting is a traditional sport in these atolls, and a means of survival.

The men grappled with the turtles, then climbed back into the boat. "They lost it," said the boatswain on the boat deck. I can't say that I was dismayed.

The turtles are enormous, 200 pounds or more. The previous night, the inflatable boat had gone in with a half-dozen men to camp on the beach and to capture turtles that crawled up to lay eggs.

PikeLOT is the size of Sand Island, a speck of sand and coral in a vast ocean. It's the classic movie version of a

See PIKELOT, A12

Pikelot: Turtles to provide feast

FROM PAGE ONE

castaway's island, palm trees circled by a pristine beach.

The only building is a Catholic church, with a tin roof and no walls except on the altar side. Turtle hunters pray there after safe arrival. There is no water except for the contents of coconuts.

The crew had caught five turtles. Smoke rose from the beach where Robert Malewalig, the cook, barbecued a turtle while Independence circled the island.

Four live turtles came back in the boat to be winched onto the stern, where they were covered with nets like cargo. They are for the big celebration at Satawal, where we're heading.

The expedition left Puluwat Atoll yesterday morning. Makali'i and its escort, Zip Pur, sailed direct for Satawal with master navigator Mau Pailug. Independence took this side trip to Pikelot.

During our three-day stay, the turtles will provide food for the natives of Satawal, one of the poorest

of the atolls.

Makali'i left the Big Island on Feb. 10. Its crew of 45 is taking Pailug home to Satawal in gratitude for Mau's teaching Hawaiians to sail by the stars and ocean swells 25 years ago.

Satawal is 2,800 miles southwest of Hawaii.

Hospitality for Makali'i during stopovers has been so abundant that few of the food supplies on the canoe have been used. Clay Bertelmann, the expedition leader, said he'll give food to the Satawalese.

There have been feasts and celebrations all along the way.

Makali'i crew member Kainani Kahaaunaale of Hilo, who composes songs and is a professional musician, said the singing and dancing on the atolls is wonderful.

"There's no hesitation from the youngest to the oldest," she said. "The harmony is so sweet. You can see happiness in their faces. My hypothesis is that they can spend more time singing because they don't have many distractions."

At Puluwat Atoll, the men spent one morning making costumes of yellow coconut fronds and husking drinking coconuts for the feast. They performed stick dances that they said originated with an old man who learned them from spirits during the German colonial era after the turn of the century.

"I love the way people come together on the atolls; people of all ages singing the same song, harmonizing together," said Kainalu Bertelmann, 19, the youngest crew member on Makali'i.

Bertelmann, of Waimea on the Big Island, is the son of Shorty Bertelmann, navigator of Makali'i along with Mau.

Kainalu, already an experienced voyager, went to sea on board Makali'i in 1995 sailing from Tahiti to Nukuhiva to Hawaii at age 15.

"It's hard to explain how I feel right now," he said. "Ever since I was growing up, Mau has been saying, 'Come to my island.' I never thought I would. I can't believe it's actually happening."