

HAWAIIAN MARINE TURTLES -
newspaper articles

1973

1973-1974

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G. H. BALAZS
HIMB FILES

PHOTOGRAPHS OF ROSE ATOLL

by
George H. Balazs

November 1980

1. *Porolithon*, a pink coralline alga that grows abundantly on the fringing reef of Rose Atoll.
2. Rose Island, as viewed from the fringing reef at low tide.
3. Rose Island, as viewed from Sand Island. A breeding colony of noddy terns (*Anous stolidus*) utilizes this small sand bar.
4. Captain Wally Thompson and crew members of the vessel LEILANI that was chartered for the 150 mile voyage between Pago Pago and Rose Atoll.
5. Rose Island, as viewed from within the shallow lagoon waters of the atoll. A native forest of predominately buka trees (*Pisonia grandis*) rises up to 85 feet above the island's surface.
6. One of the tall buka trees that comprise the native forest on Rose Island.
7. An immature red-footed boobie (*Sula sula*) roosting in a buka tree.
8. Europi, a 72 year old Tokelauan crew member of the LEILANI, who had last visited Rose Atoll 20 years ago.
9. Green sea turtle nesting at night on Rose Island.
10. Green sea turtle stranded at sunrise during low tide while returning from nesting on Rose Island. William Pedro, a biologist with the Office of Marine Resources, American Samoa, poses with the turtle shortly after it was tagged.
11. *Grapus grapus*, one of several species of colorful crabs that inhabit Rose Atoll.

| <u>SLIDE NO.</u> | <u>DESCRIPTION</u> |
|------------------|--|
| 1 | Green turtles copulating underwater. |
| 2 | Male green turtle attempting to displace male engaged in copulation. |
| 3 | Green turtle emerged for nesting purposes before sunset (a rare occurrence). |
| 4 | Green turtle excavating chamber that will receive eggs. Painted number on shell is used for short term identification. |
| 5 | Nesting green turtle along side newly emerged hatchling. Note permanent identification tag attached to front limb of adult. |
| 6 | Green turtle during final cover-up stages of nesting. Sun has already started to rise. |
| 7 | Same as No. 6. |
| 8 | Nesting completed and turtle returning to sea. |
| 9 | Same as No. 8. |
| 10 | Group of newly emerged hatchling green turtles. |
| 11 | Hatchling swimming out to sea on the start of life's journey. |
| 12 | Female green turtles basking on the beach - social interaction evident. |
| 13 | Close-up of female basker taken with Micro Nikkon lens. |
| 14 | Female basker with noddy tern perched on shell. Note copulation scars on skin. |
| 15 | Male basker showing right front limb that has recently been amputated by a large shark. |
| 16 | Large tiger shark captured during sampling study. Pieces of green turtle were found in stomach. Note severed head of whole gray reef shark that was used for bait. |
| 17 | Basking monk seal and green turtle. A similar but not identical picture in this same series appeared in the December, 1975 issue of Defenders. |
| 18 | Two turtles and weaned monk seal pup basking on the beach. |

| <u>SLIDE NO.</u> | <u>DESCRIPTION</u> |
|------------------|--|
| 19 | Adult monk seal and green turtle basking on the beach. |
| 20 | Weaned monk seal pup. |
| 21-24 | Fledgling Laysan albatross learning how to fly. Weaned monk seal pup wishes he could do the same! |
| 25-26 | Feeding behavior of fledgling Laysan albatross and parent. |
| 27 | Red-tailed tropic bird in flight. |
| 28 | Feeding behavior of white tern chick and parent. Birds are perched on a piece of fire fighting equipment at Tern Island LORAN station. |
| 29 | Young black-footed albatross. |

cf

no gunsmoke

By BRUCE BENSON

Advertiser Science Writer

The government has dispatched Marshall Dillon to Honolulu.

He arrived in December to make sure that travelers bring only legal fish and wildlife items into the country.



Advertiser Photo by Roy Ho

Dillon and some of the illegal wildlife items.

for Marshall Dillon--just

Dillon doesn't operate in a haze of gun smoke. Instead he is a law-enforcement officer with the U.S. Bureau of Sport Fisheries and Wildlife. His assignment is to watch for travelers who return with animals or the products from animals that are on the list of rare and endangered species.

In May, Honolulu became one of eight official ports of entry in the United States, reflecting its status as a growing reentry point for travelers from abroad.

THE DESIGNATION also reflected the growing determination to discourage trade in endangered wildlife.

Dillon, who has become inured to comparisons with the fellow of the same name on television, said that most travelers who return with illegal items do so unknowingly.

"One of the problems in Honolulu is that we're still finding a lot of people who are unaware that all of the big spotted cats and tigers are prohibited," he said.

"We had a gal just recently come through here with a \$700 leopard-skin coat she bought in Hong Kong. She made her wildlife declaration, and then found out it was on the rare and endangered species list.

"As a result, the coat was seized. She was mad and un-

happy and you can't blame her. On top of that, she may be fined."

DILLON SAID travelers aren't allowed to return items to the seller, "because the seller will just turn around and sell it to somebody else."

The wildlife list on endangered species under trade regulations is a growing one. Within the past few weeks Congress has been asked to ratify an international treaty to prohibit trade in 178 species of mammals, 113 birds, 44 reptiles, 26 mollusks, eight fishes and six amphibians.

If approved, kangaroo items from Australia will be among prohibited items. Dillon said kangaroo is made into coats, little koala bears, gloves, moccasins and handbags.

Given the proximity of Hawaii to Australia, he expects to see customs agents here turn up many of the products. Although some people believe the kangaroo is as plentiful as ever, experts from the United States have consulted with Australian experts and concluded that 17 species of the 'roo should be protected, he said.

ONE OF THE big problem items in the United States is

Kangaroo

sperm-whale ivory, carved into decorative articles known as scrimshaw. One dealer who received several pounds of the ivory recently was penalized with a \$200 cash assessment. The ivory was seized, he reported.

The traveler must know the kind of animal and species, and he must know where the animal was caught, Dillon said. Some items may not appear on the official list, but still be taken illegally from their country of origin. He cited New Guinea's bird of paradise as an example.

Other animals or animal products that are disallowed include the hides of seals, polar bears, whales, porpoises and other marine mammals. Jewelry made from the hawksbill turtle is prohibited, as are many items made from birds or bird feathers.

Persons who knowingly bring prohibited articles into the United States face a \$10,000 fine and a year in prison. Persons who are simply uninformed face seizure of their articles and the possibility of a fine.

"If people have any questions, they should call or write before they leave," Dillon said. His address is the Bureau of Sport Fisheries and Wildlife, 337 Ulanu St., Kailua, HI 96734.

turtle-hunting rules offered

8-15-73

LIHUE — The State Board of Land and Natural Resources yesterday authorized a public hearing on a proposal to ban the sale and indiscriminate hunting of green sea turtles.

The hearing, to be held at 7:30 p.m. Sept 21 in the fourth floor conference room of the Bishop Museum, will deal with proposed regulation 36 of the Division of Fish and Game.

Among provisions of the regulation are:

- Prohibiting the sale of green sea turtles or parts.
- Permitting the taking of the turtles only if they have an upper shell length of 36 inches or more.
- Requiring permits issued by the Board of Land and Natural Resources for taking of the green sea turtles.
- Prohibiting the use of nets in taking green sea turtles.

Fishing Fleets Star Bulletin and Sea Turtles 8/16/73

SIR: Just who does Dave McClung think he is, inviting the Japanese fishing fleets in to "harvest" our green sea turtles. This is already an endangered species, threatened with extinction. Hawaiian fishermen need no help in exterminating this tasty turtle. Along with foolish and capricious remarks ridiculing Honolulu's need for fixed rail mass transit, these irresponsible statements by McClung make me certain that the green sea turtles will not be alone in voting against Dave McClung in 1976, no matter what office he seeks.

I'm with Patsy Mink, we need more than a 12-mile limit around our Islands. In addition, I think the Islands would be better off if McClung would stay out beyond that limit.

S. LINDER

XEROX COPY MADE OF
8/16/73

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- Requiring permits issued by the Board of Land and Natural Resources for taking of the green sea turtles.
- Prohibiting the use of nets in taking green sea turtles.

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S. LINDER

Hearing Set *9/13/73* on Sea Turtle *S-Bull.* Regulations

The Division of Fish and Game will hold a public hearing next week to consider the proposed adoption of a regulation aimed at protecting marine turtles.

The hearing is scheduled for 7:30 p.m. Friday, Sept. 21, on the fourth floor conference room of the Bishop Museum.

The regulation would:

- prohibit the sale of green sea turtles or parts of them
- prohibit the use of nets in catching them.
- require a permit issued by the Board of Land and Natural Resources for taking of the turtles.
- permit the taking only of turtles with an upper shell length of 36 inches or more from waters under the jurisdiction of the State.

Adopted this 11th day of April, 1974 by the Board of Land and Natural Resources.

Put on small cards

/s/ Sunao Kido
Chairman and Member
Board of Land and Natural Resources

/s/ Moses W. Kealoha
Member
Board of Land and Natural Resources

Approved this 17th day of May, 1974

/s/ George R. Ariyoshi
Acting Governor of Hawaii

Approved as to Form:

/s/ Russell N. Fukumoto
Deputy Attorney General

Date May 2, 1974

Alan - I need page numbers for each of these 10 references when you have time. Also, if they are all in the same format, please serop one (1) that is representative
Mahalo - Geryl Balys

PUBLICATION OF NOTICE OF PUBLIC HEARINGS

- 1 ~~_____~~ ~~X~~ The Maui News - August 18, 1973 C-4
- 2 ~~_____~~ ~~X~~ The Maui News - November 10, 1973 B-9
- 3 ~~_____~~ ~~X~~ The Maui News - February 5, 1974 NA
- 4 ~~_____~~ ~~X~~ Garden Island - August 20, 1973 page 11
- 5 ~~_____~~ ~~X~~ Garden Island - November 12, 1973 page 10
- 6 ~~_____~~ ~~X~~ Hawaii Tribune-Herald - August 20, 1973 page 7.
- 7 ~~_____~~ ~~X~~ Hawaii Tribune-Herald - November 9, 1973 page 3
- 8 ~~_____~~ ~~X~~ Honolulu Star-Bulletin/Advertiser - August 19, 1973 A-18
- 9 ~~_____~~ ~~X~~ Honolulu Star-Bulletin - November 9, 1973 D-8
- 10 ~~_____~~ ~~X~~ Honolulu Star-Bulletin - February 5, 1974 D-6

C E R T I F I C A T E

I hereby certify that the foregoing copy of Regulation 36, Division of Fish and Game, Department of Land and Natural Resources, is a full, true, and correct copy of the original which is on file in the office of the Division of Fish and Game of the Department of Land and Natural Resources.

/s/ Sunao Kido
Chairman and Member
BOARD OF LAND AND NATURAL RESOURCES

*The Maui News
1900 - Dec 30, 1964
Jan 1, 1964 - Jan 30, 1962*

ROCKETT and
ROCKETT
Attorneys for Adminis-
tration with Will
dated

(MN: Aug. 18, 25, 1973)

Aug. 18, 25; Sept. 1,

CIRCUIT COURT,
SECOND CIRCUIT
HAWAII

In Matter of the Estate
SOLOMON K. KALEI-
CHA, JR., Deceased.
Probate No. 6045

Filed a document pur-
porting to be the Last Will
and Testament of the
deceased named decedent,
together with a Petition
for probate there-
of and issuance of Letters
Testamentary to ANNE
KALEIALOHA.

On Monday, the 10th day
of September, 1973, at 8:30
o'clock A. M., before the
Judge presiding in Pro-
bate in his Court Room at
Maui, Maui, Hawaii, is
appointed the time and
place for proving said
will and hearing said
petition and all persons
interested.

Dated: Aug. 13, 1973.

BY THE COURT:
Ellen M. Nakamoto
Clerk

ROCKETT and
ROCKETT
Attorneys for Petitioner

Aug. 18, 25; Sept. 1,

CARD OF THANKS

The family of the late
ANTONE P. PERREIRA

of Haiku

wishes to thank its many friends, relatives and
various organizations for the kindnesses shown,
beautiful floral offerings and donations received
during its recent bereavement.

- Minnie P. Perreira
- Mr. and Mrs. Tony Perreira
- Mr. and Mrs. Ernest Perreira
- Mr. and Mrs. Walter Perreira
- Mr. and Mrs. Manuel Perreira
- Mr. and Mrs. Joseph P. Pico
- Mr. and Mrs. William Pico
- Mr. and Mrs. Edward Perreira

CARD OF THANKS

The family of the late
NINA KAALAKEA

of Wailuku

acknowledges with grateful appreciation
your kind expressions of sympathy received
during their recent bereavement.

Special thanks to the staff of
Maui Memorial Hospital.

- David Kaalakea Sr.
- Mr. and Mrs. David Kaalakea Jr.
- Mr. and Mrs. Adrian Kaalakea
- Mr. and Mrs. Jordan (Mary Ann) Puahala
- Mr. and Mrs. Mariano (Geraldine) Edlao
- Mr. and Mrs. Richard (Lorna Lei) Garcia
- Mr. and Mrs. Abraham (Earlyne) Kenolio

(Seal)

C-4 Aug 18, 1973

The Maui News

(MN: Aug. 11, 18, 25, 1973)

NOTICE OF PUBLIC HEARING

Pursuant to the provi-
sions of Chapter 91, Ha-
waii Revised Statutes, and
all other laws applicable
thereto, a public hearing
will be held by the Board
of Land and Natural Re-
sources, Division of Fish
and Game, on Friday, Sep-
tember 21, 1973 at 7:30
p.m. in the Fourth Floor
Conference Room (use en-
trance to Pauahi Hall Re-
search Area) of the Bishop
Museum, 1355 Kalihi
Street, Honolulu, Hawaii.
This hearing is being held
to afford all interested
persons opportunity to
submit data, views, or
arguments, orally or in
writing, in connection with
the proposed adoption of:

REGULATION 36 RE- LATING TO THE PRO- TECTION OF MARINE TURTLES.

The major provisions of
the proposed regulation
include:

1. prohibiting the sale
of green sea turtles
or parts thereof.
2. permitting the taking
only of green sea
turtles having upper
shell length meas-
urement of 36 inches
or more from or
within waters under
the jurisdiction of
the State surround-
ing the eight major
islands.

EVEN
Small Space
Ads
ARE SEEN



CARD OF THANKS

The family of the late
MRS. ALICE YOSHIKO DUPONTE
(wife of Harold L. Duponte)

wishes to thank its many friends, relatives and various organizations for the kindnesses shown, beautiful floral offerings and donations received during its recent bereavement.

- Harold L. Duponte
- Mr. and Mrs. Ronald (Janice) S. Vea
- Ronald M. Duponte
- Mrs. Setsu Taniguchi
- Mrs. Mary Aiko Haimoto
- Mr. and Mrs. James K. Taniguchi
- Mr. and Mrs. Harry Hiroshi Taniguchi
- Mr. and Mrs. Kenji Yatsushiro
- Mr. and Mrs. Robert Miyashiro
- Mr. and Mrs. Paul H. Taniguchi

142 Real Estate For Sale

**Sandwich Islands
Realty**

658 Front St. Lahaina 661-4478

UP COUNTRY LAND

5 acres of beautiful rolling land with huge trees, a gulch with a sometimes stream and a bamboo forest. Kaupakalua. \$50,000. Cash or best terms.

LOVELY KULA KAI

3 bedrooms, 2 1/2 baths, new redwood home. Smashing view, all appliances, carpeting and drapes. \$73,900.

658 Front St. Lahaina 661-4478

3. requiring a permit issued by the Board of Land and Natural Resources for the taking of green sea turtles.
4. prohibiting the use of nets for the taking of green sea turtles.

For further particulars contact the Division of Fish and Game by telephoning 548-5920 or writing to 1179 Punchbowl Street, Honolulu, Hawaii 96813. Limited quantities of the draft of the proposed regulation are available and any person may obtain, in advance of the hearing, a copy thereof by calling for it in person or by writing to the aforementioned office or any office of the Division of Fish and Game within the State.

All interested persons are urged to be present at the hearing on the date, time and place specified above. Those unable to attend may submit written statements prior to October 5, 1973 to the Chairman of the Board of Land and Natural Resources, P. O. Box 621, Honolulu, Hawaii 96809.

BOARD OF LAND
AND NATURAL
RESOURCES

(MN: Aug 18, 1973)

(S) Sunao Kido
Sunao Kido
Chairman and member

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.

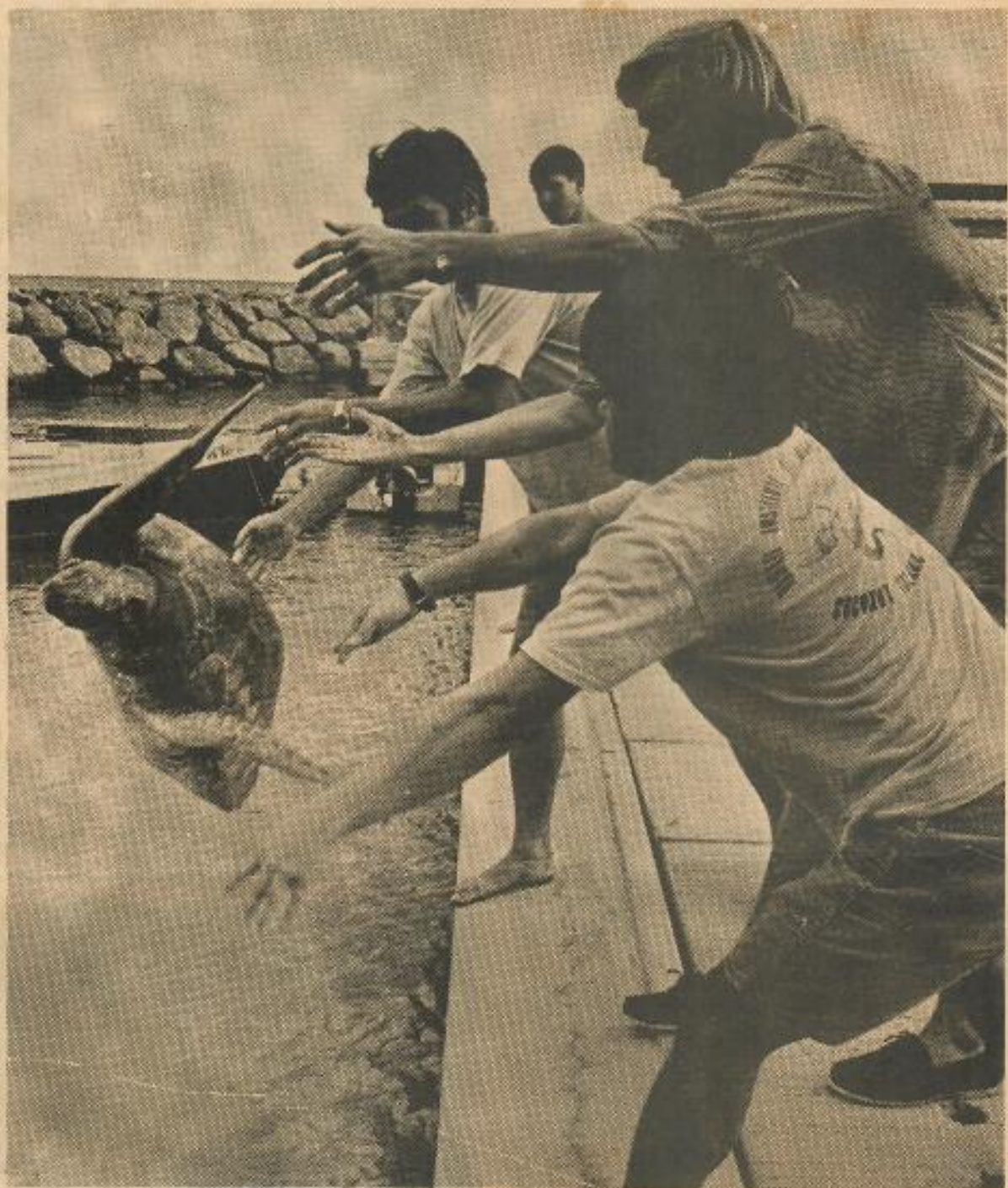
Persons capturing any of the tagged green giants should notify the Coconut Island facility. Complete information is printed on each tag.



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 Mendocino Sun Press

Dec 19 - Dec 25, 1973



A Particular Point of View

Protecting Hawaiian Sea Turtles

By George H. Balazs
Hawaii Institute of Marine Biology

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 an uncertain time 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 (480 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 come ashore to lay eggs during the 1930s. 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.

Funds for reprinting derived from the sale of sea turtle T-shirts and from private contributions donated by concerned residents of Hawaii. Please share this material with friends. For additional information contact George H. Balazs P.O. Box 1346, Kaneohe, Hawaii 96744. Telephone (808) 247-6631.

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Hawaii Institute of Marine Biology

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

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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-

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.

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.

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.

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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 (480 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.

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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.

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.

Protection of sea turtles

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 restau-

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.

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 of the taking of turtles until such guidelines are established," he said.

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.

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It's Up to You

A WEEKLY LISTING OF PUBLIC
HEARINGS AND OPEN MEETINGS

*"As citizens of this democracy, you are the
rulers and the ruled."—Adlai Stevenson*

PROTECTION OF MARINE TURTLES—Public hearings on three islands this week will seek reaction to the Division of Fish and Game's proposed regulation to protect the marine turtle population.

Principally, the regulation would:

—Prohibit the taking of leatherback and hawksbill turtles.

—Prohibit the sale of green sea turtles or parts of them if taken from State waters.

—Prohibit the use of nets in catching green sea turtles.

—Require a permit from the Board of Land and Natural Resources to take green sea turtles with an upper shell length of at least 36 inches from State waters for home consumption.

Further information may be obtained by calling the Division of Fish and Game.

The hearings will begin at 7 p.m. in:

—Lihue, Kauai, Wednesday, State Office Building conference room.

—Hilo, Hawaii, Thursday, Hawaii County Council Room.

—Wailuku, Maui, Wednesday, State Office Building conference room.

Written testimony on the proposal must be filed with the Board of Land and Natural Resources before Dec. 21.

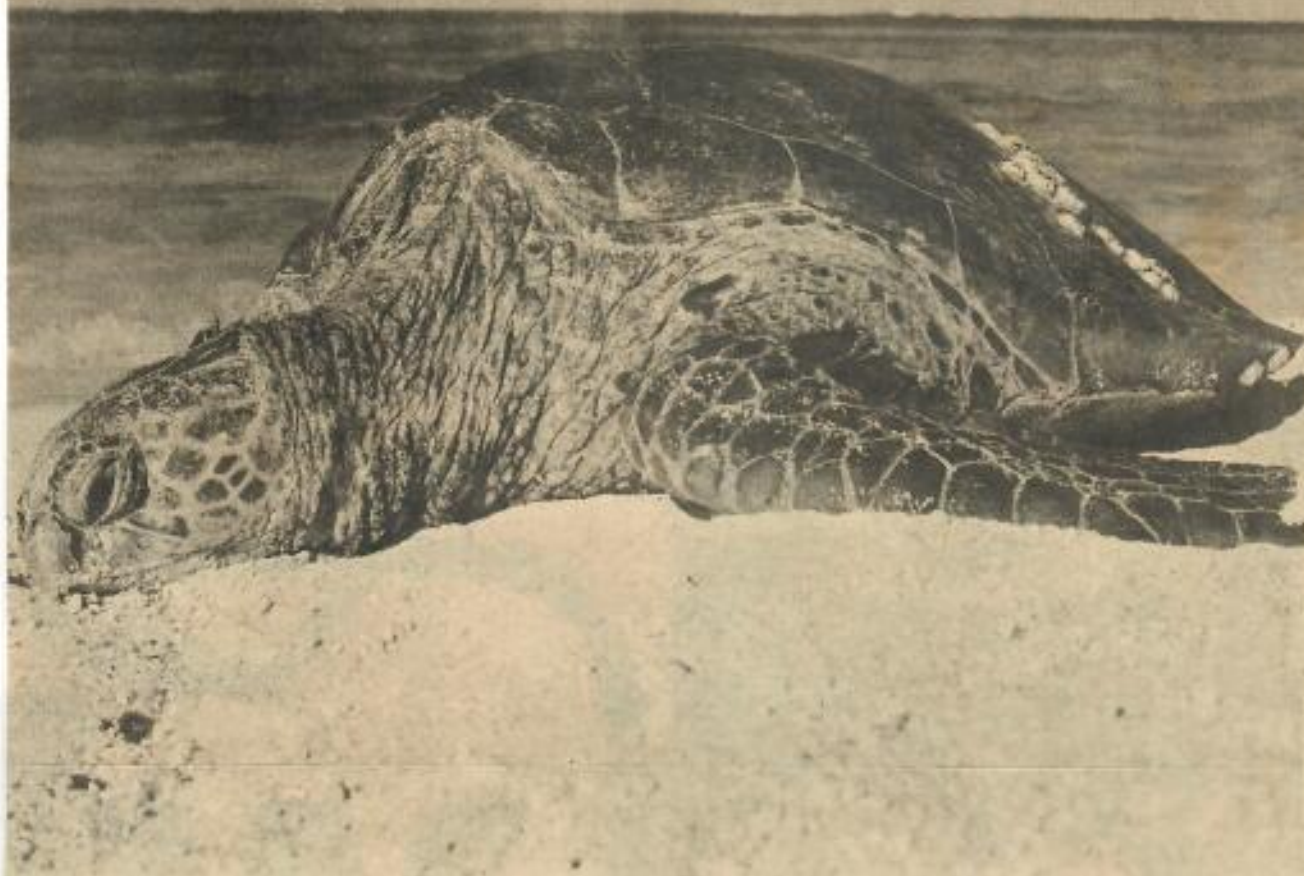


Photo by George H. Balazs

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 Walluku.

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 2,600 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.

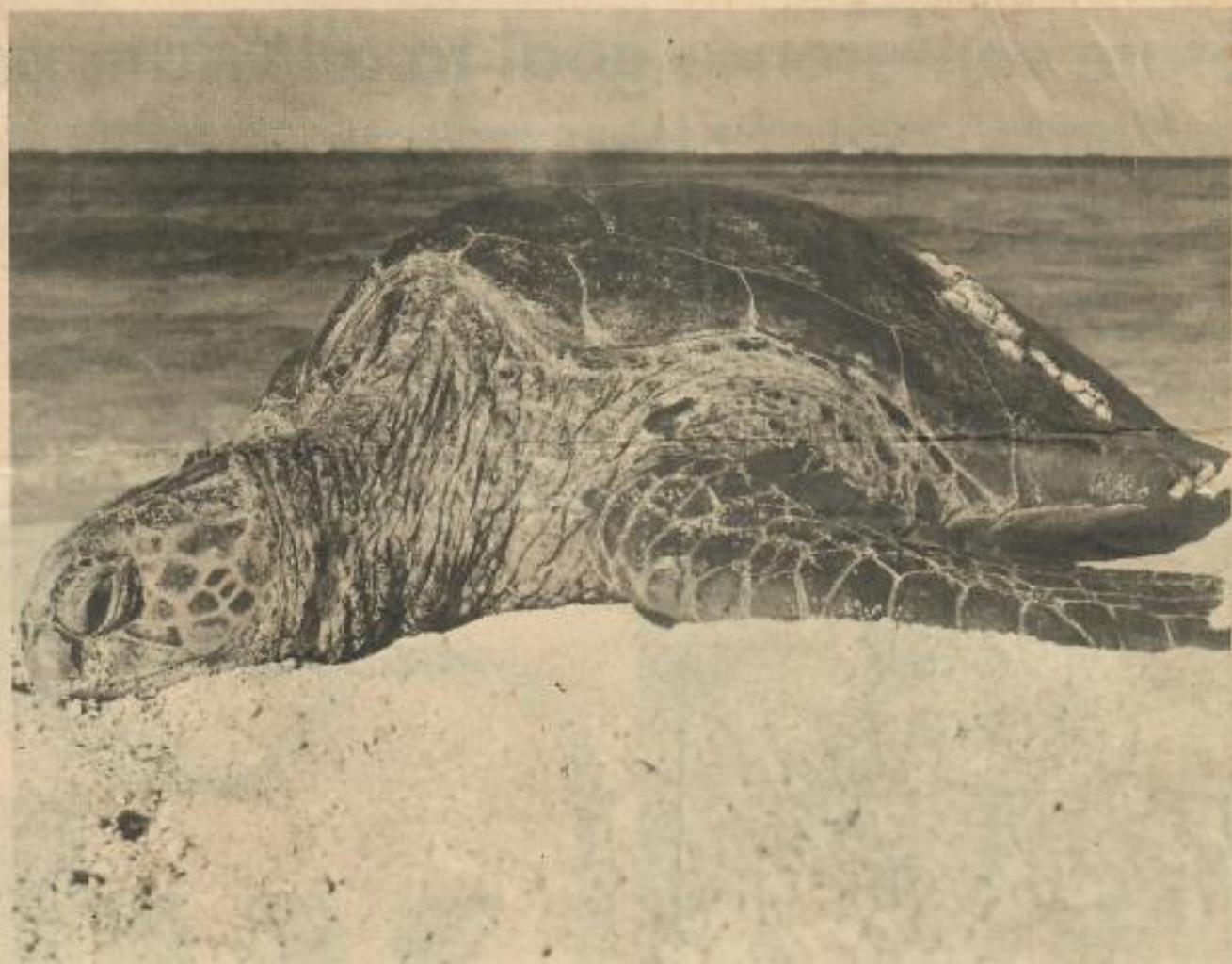


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Green turtle colony faces extinction

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.

In studies of the nesting area, he has found the green turtle population is 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.

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"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 1953 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.

"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."

2-G—THE DETROIT NEWS—Thursday, Nov. 22, 1973

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.

turtles hearings

Public hearings on new regulations to protect marine turtles, especially the green sea turtle of Hawaii, will be held next month on Kauai, Maui and the Big Island.

The new regulations were proposed by the State Division of Fish and Game after recent studies showed that increased harvests since the early 1960s have depleted turtle populations.

Marine researchers warned that the green sea turtle could be threatened with extinction if hunting pressure — aimed largely at supplying restaurants and hotels — continues.

of them in Hawaiian waters.

• Allowing green sea turtle catches only for home consumption, on the condition that the turtles shall measure 36 inches or more in shell length.

• Banning the use of nets in catching green sea turtles.

• Allowing the sale of farm-raised marine turtles or their parts.

The proposals won general support at a public hearing on Oahu. They carry the backing of the Animal Species Advisory Commission.

THE NEIGHBOR Island hearing schedules are Lihue, Dec. 5, State Office Building Conference Room, 7 p.m.; Hilo, Dec. 6, Hawaii County Council Room, 7 p.m.; and Wailuku, Dec. 5, State Office Building Conference Room, 7 p.m.

MAJOR provisions of the proposed regulations include:

• Prohibiting the taking of leatherback and hawksbill turtles.

• Prohibiting the sale of green sea turtles or parts

Advertisement NOV 10, 73

NOTICE OF PUBLIC HEARING

Pursuant to the provisions of Chapter 91, Hawaii Revised Statutes, and all other laws applicable thereto, public hearings will be held by the Board of Land and Natural Resources, Division of Fish and Game, for the counties of Kauai, Maui and Hawaii at the following locations:

1. Lihue, Kauai — December 5, 1973, State Office Building Conference Room, 7:00 p.m.
2. Hilo, Hawaii — December 6, 1973, Hawaii County Council Room, 7:00 p.m.
3. Wailuku, Maui — December 5, 1973, State Office Building Conference Room, 7:00 p.m.

These hearings are being held to afford all interested persons opportunities to submit data, views, or arguments, orally or in writing, in connection with the proposed adoption of:

REGULATION 36. RELATING TO THE PROTECTION OF MARINE TURTLES.

The major provisions of the proposed regulation include:

1. prohibiting the taking of leatherback and hawksbill turtles.
2. prohibiting the sale of green sea turtles or parts thereof taken in waters under the jurisdiction of the State of Hawaii.
3. requiring a permit issued by the Board of Land and Natural Resources for the taking only of green sea turtles having upper shell length measurement of 36 inches or more from or within waters under the jurisdiction of the State surrounding the eight major islands for home consumption.
4. prohibiting the use of nets for the taking of green sea turtles.
5. providing for the sale of farm raised marine turtles or parts thereof.

For further particulars contact the Division of Fish and Game by telephoning 548-5920 or writing to 1179 Punchbowl Street, Honolulu, Hawaii 96813. Drafts of the proposed regulation are available and any person may obtain, in advance of the hearings listed above, a copy thereof by calling for it in person or by writing to the aforementioned office or any office of the Division of Fish and Game within the State.

All interested persons are urged to be present at any of the hearings on the dates, time and places specified above. Those unable to attend may submit written statements prior to December 21, 1973 to the Chairman of the Board of Land and Natural Resources, P.O. Box 621, Honolulu, Hawaii 96809.

BOARD OF LAND AND NATURAL RESOURCES

SUNAO KIDO, Chairman and Member

(S.B.: Nov. 9, 1973)

(SB-1502)

S-B FRIDAY NOV 9 73

Nov 11, 73

a whale of a turtle catch

Agence France-Presse

TANANARIVE, Malagasy — A giant turtle with vital statistics of about 7 feet by 5 feet has been fished out of the sea off the northwest Malagasy coast, the Daily Madagascar Martin reported.

SUN AFS-B

~~The Honolulu Advertiser~~
August 11, 1973

A:12
The Honolulu Advertiser

turtle-hunting rules offered

v 8-15-73

LIHUE — The State Board of Land and Natural Resources yesterday authorized a public hearing on a proposal to ban the sale and indiscriminate hunting of green sea turtles.

The hearing, to be held at 7:30 p.m. Sept 21 in the fourth floor conference room of the Bishop Museum, will deal with proposed regulation 36 of the Division of Fish and Game.

Among provisions of the regulation are:

- Prohibiting the sale of green sea turtles or parts.
- Permitting the taking of the turtles only if they have an upper shell length of 33 inches or more.
- Requiring permits issued by the Board of Land and Natural Resources for taking of the green sea turtles.
- Prohibiting the use of nets in taking green sea turtles.

Fishing Fleets Stay Out and Sea Turtles 8/14/73

SIR: Just who does Dave McClung think he is, inviting the Japanese fishing fleets in to "harvest" our green sea turtles. This is already an endangered species, threatened with extinction. Hawaiian fishermen need no help in exterminating this tasty turtle. Along with foolish and capricious remarks ridiculing Honolulu's need for fixed rail mass transit, these irresponsible statements by McClung make me certain that the green sea turtles will not be alone in voting against Dave McClung in 1976, no matter what office he seeks.

I'm with Patsy Mink, we need more than a 12-mile limit around our Islands. In addition, I think the Islands would be better off if McClung would stay out beyond that limit.

S. LINDER

Halifax Chronicle
NOV 1-10th 73

Tourists' appetites

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 430 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."

Sea Turtle Issue to Get Further Airing

By Helen Altonn

Star-Bulletin Writer

The State Board of Land and Natural resources has postponed action on a proposed regulation to protect marine turtles in Hawaiian waters so more public hearings can be held.

"However meritorious . . . we shouldn't rush into it," Board Chairman Sun-ao Kido said at a meeting yesterday, asking that the item be withdrawn from the agenda. "I want to make sure the regulation has the widest exposure possible."

He suggested that public hearings be scheduled in all counties, except the City-County of Honolulu where hearings already have been held.

The board was expected to approve the regulation yesterday. It is recommended by the Land Department's Fish and Game Division and the State Animal Species Advisory Commission. Most of those who testified at the Oahu hearing also favored the measure.

KIDO'S CONCERN for wider exposure of the regulation is believed to stem from State Agriculture Chairman Frederick Erskine's recent troubles over baby eels.

The Agriculture Board (on which Kido sits) was highly criticized for a decision to allow eel importations for a new fish-farming business without holding public hearings, although they are not required by law for board decisions.

The turtle regulation would prohibit taking of leatherback and hawksbill turtles; prohibit sale of green sea turtles (or parts) taken from Hawaiian waters; require a permit from the Land Board for taking of green sea turtles and permit taking of green sea turtles only with an upper shell length measurement of 36 inches or more. Use of nets for taking the turtles would be prohibited.

541 Oct 27, 75
5-8

Here in Hawaii 10-3-73

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 \$5,003.)

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 edible 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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Here in Hawaii

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By Helen Altonn
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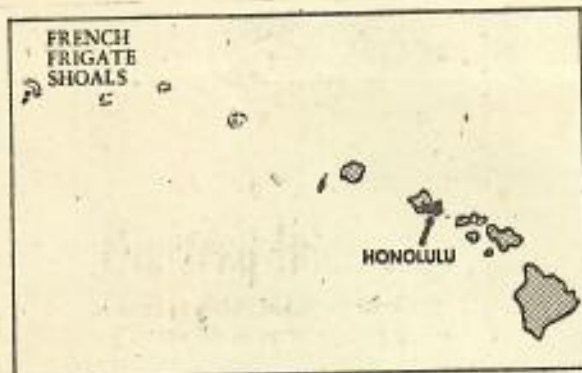
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Proposal to save our turtles

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.

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.

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 trinket 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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is to save dwindling turtles

HONOLULU ADVERTISER Friday, September 21, 1973 A



A Day on C.I. by Mary Phillips Sept 13, 1973 San Jose Museum

Jr. Marine Biologist George Balazs Shows Off Turtles



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

Protein From the Sea

The domestication of plants and animals (agriculture) has had far reaching effects on man's development. But this practice has been limited to the land.

In the past it has been too difficult to domesticate marine plants and animals. But some beginnings are now being made.

These attempts at aquaculture promise a breakthrough in food production that could help solve the protein needs of the world. At a time when it is urgently needed.

Aquaculture is the rearing and tending of aquatic animals in all type of water. Mariculture refers specifically to the use of sea water.

Many kinds of sea creatures have a great potential of becoming aquaculture stock. But problems exist in the domestication of any aquatic organism.

First, it must be determined if it is possible to raise a particular plant or animal under controlled conditions. Then work must be done on each phase of the life cycle in a laboratory.

Only after such problems have been solved can the economic feasibility of commercial production be determined.

Food editors attending the National Pineapple Cooking Classic had an opportunity of visiting a marine laboratory on Coconut Island in Hawaii. It is operated jointly by the University of Hawaii and University of California.

Production of the Malaysian prawn is the most important of the projects being carried out at the present time. These animals create particular difficulty because they require both salt and fresh water at different stages of their life cycle.

Other problems in raising the prawns include preparing a food that is attractive as well as nutritious. Further it must hold together in the water long enough for the animals to find and manipulate it while feeding.

Raising sea turtles is another of the projects being carried out on the island. Two of the five species — Hawksbill and Green — are being grown.

In addition to being able to raise the turtles from eggs, marine biologists hope to learn more about these valuable and endangered species. Once accomplished, they hope to raise the animals for food, shell, etc.

The growing of octopi is also being accomplished at the laboratory. Although uncommon in the U.S., octopus is a high protein, low fat and carbohydrate food. Virtually the entire beast is edible.

The octopus converts its food with far greater efficiency than any other animal known to man. It accumulates a pound of flesh for about two pound of what it consumes.

With proper feeding an octopus of about three to four pounds can be produced in six months. They can be raised in a limited amount of space.

According to Dr. John E. Bardach, Director of the Hawaii Institute of Marine Biology, aquaculture may not be a prime solution to man's food problems. But it could help.

The annual fish catch is not increasing — the sea has natural limitations — it is virtually impossible to economically harvest plankton for human consumption.

Dr. Bardach sees cultivating aquatic animals as an important protein source for the increasing dietary needs of the world.

Sea Turtles

By Janet Blair

The State Board of Land & Natural Resources, Division of Fish and Game, held a public hearing, September 21, 1973 at the Bishop Museum to discuss proposed regulations which if adopted would ban the sale and indiscriminate hunting of sea turtles. Although it is too late to give oral testimony relating to this very important matter, written testimony can be submitted through September 28th.

The proposed regulations would affect the three turtle genera that inhabit Hawaiian waters: the leatherback (*Dermochelys*, sp.), the hawksbill (*Eretmochelys*, sp) and the green turtle (*Chelonia* sp.). The International Union for the Conservation of Nature (ICUN) has listed the leatherback and hawksbill turtles as endangered species: facing extinction if present trends continue. Federal conservation laws and regulations deal only with international transportation of these turtles or their parts. Presently, there is no Hawaii State law to protect these animals from being killed. The green sea turtle, while still relatively abundant, is considered a depleted species with numbers declining at a rate which gives cause for serious concern. The largest nesting colony of green sea turtles in the US. is found in Hawaii.

In Hawaii the commercial take of sea turtles in the past decade has risen sharply, from 380 pounds in 1963 to more than 14,982 pounds in the first 6 months of

The Leeward Community
1973. More alarming than the increase in pounds is the decrease in the mean weight of captured animals: a drop of 7 to 43 pounds under the 1972 mean weights. This indicates that more and more immature animals are being killed. These figures reflect only those turtles that were sold commercially and do not take into account animals taken for home consumption, or those not reported.

Since many restaurants offer turtle as a "Hawaiian dish" the growth of the tourist industry in Hawaii has led to an increased popularity and demand for turtle meat. Modernization and intensification of fishing methods including the use of scuba and swift boats have increased the pressure of exploitation.

At present no State regulations relating to sea turtles exist (other than the outlawing of firearms for harvesting and the prohibition of the sale of speared marine animals). The proposed regulations would make it unlawful to take sea turtles without a permit, and then only for scientific propagation, home consumption or other purposes approved by the Board of Natural Resources--commercial exploitation would end. Scientific follow up on the data received from the permits would give extra information on turtles in local waters.

Under the proposed regulations it would become unlawful to take a sea turtle with an upper shell length of less than 36". Through many years of research it has been established that the majority of green sea

Face Extinction

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turtles reach sexual maturity at a shell length of between 33 and 36". By prohibiting the harvesting of turtles under the 36" limit the animals will be provided at least one season to mate and produce fertile eggs; thus helping to insure survival of the species.

A third area covered in the proposed regulations involves the methods used in capturing sea turtles. At present, nets are often employed in the taking of these animals. Since turtles are air breathing, once they become entangled in a net, they cannot surface to breathe, and thus drown. Nets cannot distinguish a immature individual from a sexually mature adult, and therefore their use will be banned.

Hawaii has the responsibility of safeguarding the largest remaining colony of green turtles left in the United States. Marine turtles nesting at the French Frigate Shoals represent approximately 95% of that occurring within the entire Hawaiian Archipelago. Since Hawaii possesses the largest remaining green turtle colony in the U.S. which can be studied and managed under a single government's jurisdiction both at the nesting and feeding ground, it is of major importance that the proposed regulations be implemented. This proposal represents positive action to ensure the continued viable existence of our green turtle colony, as well as protection for Hawaii's endangered loggerheads and hawksbills.

Please give your support

to this vital proposal by X
sending in your written tes- U
timony. It need be long or I
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imony now, while there is O
still time to protect the N
sea turtle. Don't let it O
join the over 230 vertebrate P
species which have become A
extinct since the coming of G
man. E

Mail testimony to: 7

Mr. Michio Takata
Director, Hawaii State Fish
and Game Division
1170 Punchbowl Street
Honolulu, Hi. 96813

Secret Base Lets Turtle Out of Bag

By Helen Altonn
Star-Bulletin Writer

A highly secret U.S. Air Force missile base on Canton Island has lifted its clamp on visitors for a Hawaii resident interested, not in missile operations, but in marine turtles.

George H. Balazs, marine biologist at the University of Hawaii's Institute of Marine Biology, spent eight days on the remote island in February with special permission from the Air Force Space and Missile Test Center (SAMTEC).

Canton is the largest of the Phoenix Islands in the Central Pacific, about 1,900 miles southwest of Hawaii. It is closed to the press.

"All that can be said about what Canton is used for is that it is a terminal area for Department of Defense research and development of missile launchers," Balazs said, noting that this was the official description given to him.

HE IS MORE concerned with the use of the island as a turtle nesting site — a fact which he said has been known by the military but not by the scientific community.

He said he found evidence of "a fairly large number of animals" at Canton and concluded:

"The size of the total nesting population in the Phoenix

Islands could well constitute the largest found in any Central or South Pacific island group due to exploitation of the resource in the inhabited locations."

Balazs said he learned of the Canton turtles last year in a roundabout way.

He received a telephone call from a man on Canton following a Star-Bulletin article about his work with



green sea turtles at Coconut Island in Kaneohe Bay.

The man explained that someone had sent him the newspaper. He said he had some baby turtles and one was sick and he wanted to know what to do about it.

BALAZS SAID he started to tell the man what he might try and then "all of a sudden I realized if he's got baby turtles, there's got to be some nesting."

He began questioning the man who told him turtles nest on the island and he saw hundreds go ashore on

some of the beaches last November.

"I was in a state of shock," Balazs said. "I kind of pride myself on my knowledge of where turtles are in the Pacific."

He said he started digging through library files. "After doing an extensive review of the literature, it seemed clear that the scientific 'turtle' community had no data or information or was even aware of the presence of these turtles," he said.

"OF COURSE, it's very important to study all existing sea turtle colonies because of their generally endangered state throughout the world," he emphasized.

He drafted a research proposal stressing the importance of his going to Canton to survey the turtle population and after about two months of correspondence received permission.

His trip was funded by the University but he said "the personnel on Canton greatly assisted me wherever possible."

In fact, he said he was amazed at the military interest in conservation and the environment on Canton after the Air Force destruction on Eniwetok.

"They lecture people (contractors going there) on how to act — not to touch the turtles and not to fool around with the birds. If they break any regulations, they get booted out immediately," he said.

"EVERY SECOND week they show a 30-minute ecology movie made for that area about preserving the turtles and the birds."

Balazs was intrigued with Canton, which he said he knew practically nothing about when he got the call from there. "I ran to a map and looked it up."

And he was surprised and impressed with the amount of turtle nesting activity at four locations which he spotted.

He said it appears that seasonal nesting occurs, probably during October and November. "But it takes



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 600 yards wide around a shallow, triangular lagoon.

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.

Buy Goods, Not Land, McClung Urges Japan

By Richard Borreca

Star-Bulletin Writer

Japanese investors were politely asked today to buy Hawaiian products and not Hawaiian real estate, by

Related Story on Page E-7

Sen. David C. McClung at the Marketing in Japan Conference.

McClung, who is considering running for Governor next year, urged Japanese to buy Hawaii's technological expertise in ocean research.

"We would like Japan to buy Hawaiian—not buy Hawaii," McClung said.

"What Japan should buy from Hawaii, we are now giving away free."

HE ALSO urged tour operators to lower the cost of tours of Japan to the same

price range as tours of Hawaii.

"Certainly a visit to Japan is a cultural experience, one which most of us in Hawaii would like. But, most of us simply can't afford it," McClung said.

"We hope that some day a reverse tourism trend may be developed so that at a realistic price, we can see the blue skies and white peaks of Fujiyama. If it's products Japan wants, here is a ready made supply: the people of Hawaii," he said.

McClung warned Japanese businessmen interested in the rich manganese deposits around Hawaii that territorial limits must be respected.

"It is clear that . . . we will respect Japan's jurisdiction over the resources of its archipelago as we shall expect our resources to be respected.

"IF YOU want to help us in the balance of payments, don't bring boats—buy our products," McClung said.

Some of the products Japanese should be interested in, include the many fruits grown in Hawaii.

"Fresh fruit is in short supply because of the artificial barriers created by the Japanese government," McClung said.

"We have found the need, and we can fill it—with fresh pineapple and

papaya, guava and lilikoi and mango. You name it, we can export it."

And sea life farmed from Hawaiian waters could become another import for Japan, McClung said.

"The green sea turtle, the opakapaka, the mahi-mahi and marlin are commodities highly treasured by the Japanese people.

"A reasonable harvest, carefully controlled, could be mutually beneficial," McClung said.

HON. ADVERTISER JULY 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, heftier 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.

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.

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.

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*

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 months' 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 ma-mane 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 ma-mane forest for its food.

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



SEA GRANT NEWSLETTER

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September, 1973

"Fantastic" Coral Found Here

A new and reportedly very beautiful variety of salmon-pink coral has been discovered in the Makapuu bed off Oahu. Maui Divers brought up specimens of the new coral last Wednesday, August 29.

UH Sea Grant researcher Richard Grigg calls the deep-pink coral "fantastic" in terms of its potential for jewelry.

Recently Maui Divers acquired the lease for the submersible STAR II, the mother ship HOLOKAI which tows it to dive sites, the catamaran on which the STAR II is towed, and a portion of the Oceanic Institute pier which is their base of operation. The diving operation

(Continued on page 6.)

Bretschneider Addresses Iceland Conference

Charles L. Bretschneider, UH ocean engineering professor, offered the welcoming speech at opening ceremonies of the Second International Conference on Port and Ocean Engineering Under Arctic Conditions in Reykjavik, Iceland, in August. Bretschneider also chaired one session of the international meet and presented an invited paper, "The determination of Manning's n for flood problems over a horizontal initial dry bed". The University of Iceland, the Technical University of Norway, and the University of Alaska were sponsors of the conference.

"Turtle, Turtle, Come Up to Breathe"*

The State Board of Land and Natural Resources, Division of Fish and Game, will hold a public hearing in September to discuss proposed regulations to ban the sale and indiscriminate hunting of sea turtles. The meeting will take place at the Bishop Museum on September 21 at 30 p.m.

The regulations deal with the three turtle genera that inhabit the Hawaiian waters: the leatherback (*Dermochelys* sp.), the hawksbill turtles (*Eretmochelys* sp.), and the green sea turtles (*Chelonia* sp.). The leatherback and hawksbill turtles are listed by the IUCN as endangered species. The importation of the animals or any part is prohibited by the Department of Interior. However, these animals may be captured in the state at present. The green sea turtle, although still relatively abundant, is a depleted species, or a species that is known to be over-exploited but whose exact status is still undetermined.

As the tourist industry in Hawaii expands, so does the demand for turtle meat. Many restaurants offer turtle meat as a "Hawaiian dish". This turtle meat consists almost entirely of the chest pectoral muscles of the turtle -- the steak area; the rest of the turtle is discarded. The commercial take in the past decade has risen at an alarming rate, from 380 pounds in 1963 to more than 12,000 pounds in the first three

(Continued on page 4.)



PEACESAT Carries PASGAP Project

Marine extension and resource management specialists in several Central Pacific locations "met" twice during August via the communications satellite PEACESAT, and developed a list of high-priority programs for cooperative work. John Ball, Jr., who directs the UH Sea Grant Advisory Service program and represents the Pacific Sea Grant Advisory Program (PASGAP) here, arranged the two conferences via satellite.

According to Ball, the problems which were identified as most urgent include aquaculture programs; acoustic methods of fisheries stock assessment; small-boat fisheries; and promotion and management of marine extension programs.

With the permission and cooperation of PEACESAT administrators, Sea Grant here will undertake two information-sharing programs soon, involving use of the communications satellite: one will concern fisheries stock assessment by acoustic methods, and the other will relate to management and programming for public aquariums.

The future of the PEACESAT program is uncertain. Each terminal in the system is locally owned and operated. The prime terminal is located here and because of severe budgetary restrictions, UH administrators have not yet made any commitment to support the program during the coming year.

If the availability of PEACESAT for Pacific communications does continue, Sea Grant advisory specialists hope to use it to work closely with personnel in areas currently having terminals, such as Fiji, American Samoa, Saipan, Tonga, and New Zealand, to develop needed programs.

Ball said the initial response of the participants in the meetings of August 6 and August 23 was enthusiastic. He told the Newsletter reporter, "We will also be using other methods to extend marine information to areas that are not now serviced by the PEACESAT system."

Hydrofoil Service Planned

Pacific Sea Transportation held a public meeting August 27 in Honolulu, to present their proposed program of inter-island hydrofoil transportation service.

F.T. Cooper, president of Pacific Sea Transportation, opened the meeting with general informational comments concerning the jetfoil equipment and the service to be offered. Ronald Darby and R.W. Dickieson spoke on the acoustics and environmental impact; Jim Peterson presented information concerning the economic and political aspects; and Bill Henderson described the vessels themselves.

At the end of the discussion, the meeting was opened to questions from the audience. Questions were asked about ride quality, suitability of the jetfoils to Hawaiian waters, the environment, especially the reefs, and special consideration in rates to local residents.

Cooper described the reaction of the audience as very favorable. He told the Newsletter reporter that he was pleased with the number of people who attended the meeting.

The company plans to begin operation in October of 1974 with one craft. Within one year they plan to have three hydrofoils operating on a daily basis between the islands. Numerous round trips will be offered daily between Oahu, Maui, and Kauai; one trip will be made from Maui to Kailua-Kona, Hawaii.

UH LOSES HART

UH Assistant Professor Jayne Hart (pharmacology and physiology) will be leaving the University at the end of September. For the past two years Dr. Hart has conducted hyperbaric pharmacology research which constituted one phase of the Sea Grant project, Human Performance in the Sea. She will be moving with her husband to Washington, D.C.

NEW BASS DISCOVERED

Two specimens of a newly discovered reef fish species have been collected in Hawaiian waters. The small, striped sea bass, *Liopropoma*, is now being studied by Leighton Taylor of the Cooperative Fishery Unit and John Randall of Bishop Museum. Taylor collected a gravid 3-inch female specimen while surveying reef fish fauna around islands at the western end of the Hawaiian chain: Lisianski, Laysan, French Frigate Shoals, Necker, and Nihoa. The other specimen, a mature male, was collected by UH zoology students in Kaneohe Bay during a field trip of an advanced ichthyology class.

The survey party in the Leeward Islands this summer included Taylor, Tom Telfer of the State Fish and Game Division, and two staff members of the Hawaiian Islands National Wildlife Refuge: Dave Olsen and John Sincock. One purpose of the trip was to assess the status of populations of endangered species of birds: the Laysan teal...a duck found only on that island...the Nihoa finch, the Nihoa miller bird, and the Necker Island finch. The party also assessed the numbers of sea birds nesting in these islands, the numbers of Hawaiian monk seals, and green sea turtles.

The U.S. Coast Guard's buoy tender BUTTONWOOD picked up the survey party at Midway Island in mid-July for the survey through the group of shoals and atolls which are governmentally a western addendum or "post script" to the City and County of Honolulu. The BUTTONWOOD crew assisted extensively in the survey.

The Hawaiian Islands National Wildlife Refuge Research Laboratory is located on French Frigate Shoals in the Leeward chain.

The newly discovered Hawaiian bass species has one close relative, found in California coral reef habitats. Both species have tails which resemble the tail of a wrasse. The California fish is popularly known as the wrass'ass bass.

Pacific Areas Send Agents Here for Workshop

Information specialists and extension agents from ten Pacific regions participated in an August 24 workshop session on aquaculture, fisheries, and aspects of the Sea Grant Program. The session was part of a five-week Pacific Islands Agricultural Information and Communication Workshop coordinated by East-West Center personnel.

Robert C. May, who is an assistant marine biologist at the HIMB Coconut Island facility, discussed aquaculture. Garth Murphy, UH oceanography professor, talked on Pacific fisheries.

John Ball, Jr., explained the UH Sea Grant Program and PASGAP (Pacific Sea Grant Advisory Program). He outlined PASGAP plans for a Pacific-wide marine extension network. Ball told the information and extension agents that with their help "...we will be able to reach many Pacific areas in a short time."

American Samoa, the Cook Islands, Fiji, Indonesia, Malaysia, Niue, Papua (New Guinea), Tonga, the Trust Territory of the Pacific Islands, and Western Samoa have sent representatives to the workshop. R. Lyle Webster is coordinator for the program and Mrs. Margaret White is program officer.

HIMB Hosts Food Specialists

On August 9 the Hawaii Institute of Marine Biology was host to 62 food columnists and TV food editors, brought here under the auspices of the Pineapple Growers Association of Hawaii. As part of a two-day program, "The Protein Crisis", HIMB Director John Bardach conducted a symposium on marine protein sources and aquaculture.

One outcome of this symposium was a total of 5 hours of taped TV interviews involving all the major national networks. The taped interviews will be shown on TV channels in cities throughout America.

Turtle, Turtle (continued)

months of 1973. These statistics represent the catch that was reported for commercial use. They underestimate the real catch because turtles caught for home consumption have not been reported and also because some unknown number of turtles caught and sold commercially each year are not reported.

The proposed regulations call for anyone who is taking turtles to have a permit. Turtles could be taken for scientific, propagation, home consumption, or other purposes approved by the Board of Land and Natural Resources with a permit. This permit would define legal size as 36 inches.

Scientific follow-up on the data received from the permits would give extra information concerning the turtles in local waters. The 36-inch limit is based on the finding that 36 inches is the lower limit on sexual maturity of the female.

George Balazs, Sea Grant junior researcher, recently spent a number of weeks in the French Frigate Shoals doing research on the green sea turtle. The French Frigate Shoals are the only known breeding area in the entire Hawaiian Archipelago for the green sea turtle. Balazs camped out on the East Island which is used by most females to lay eggs. He recorded the turtles that came ashore and laid their eggs, then tagged them. These females ranged from 33 inches to 44 inches. It is assumed that those hatchlings which mature return for breeding to the area of their nest and that the females repeatedly lay their eggs in the same general area. As the local turtles feed in the Hawaiian waters, then migrate to the French Frigate Shoals to nest, Balazs will be able to collect data.

The turtles are believed to return every 2 to 4 years to nest. Most sea turtles migrate hundreds of miles to their breeding grounds. They do not feed while in the open ocean, and therefore must store body weight during long periods of feeding before each migration. This limits the frequency of breeding.

Because of this limiting factor and the over-exploitation of the turtles, Balazs is developing a turtle aquaculture program at HIMB which would substitute commercially grown animals for wild specimens at Hawaii's dinner tables.

Last year, with the assistance and cooperation of the Bureau of Sports Fishing and Wildlife, Balazs tried transporting eggs from the French Frigate Shoals and allowing them to hatch at Coconut Island. However, only 6 hatchlings were obtained out of approximately 100 eggs. Balazs still has these 6 turtles at HIMB. Because it is difficult to transplant the eggs or the entire nest, the Bureau of Sports Fishing and Wildlife helped in bringing about 100 day-old hatchlings to Balazs at HIMB.

Balazs's main concern is to determine the nutritional requirements of the turtles, so that an inexpensive food source can be used to grow them commercially. Knowledge of what takes place during the first year of the sea turtle's life is scant. This first year is known as the "lost year". Filling in the knowledge gap at this time in the turtle's life will help in providing necessary information for effective turtle aquaculture. The studies at HIMB are successfully progressing to provide this vital information about the sea turtles.

In the meantime, Balazs believes that the proposed regulations, if passed, will help preserve these endangered species and put Hawaii in line with the rest of the world in the protection of sea turtles. "The opportunity to manage and protect an entire colony of Green Turtles at both their nesting and their feeding grounds is still available in Hawaii. Nowhere else in the world does such a possibility now exist."

*e honu, e honu, e puha -- a special turtle hula, chanted by ancient Hawaiians.

Black Coral Supply Waning, Grigg Finds

UH Sea Grant researcher Richard Grigg has completed four of 12 scheduled dives to assess known coral beds and look for new ones in Hawaiian waters. Working from a submersible, Grigg has determined that the lower depth limit of black coral off Maui is 350 feet.

Grigg also determined that the rate of growth of black coral off Maui is not sufficient to replenish the amount currently being harvested. He told the Newsletter reporter that some means of conservation of the resource will be required, in order to prevent further depletion.

Two small pink coral beds were discovered during Grigg's program of dives in the STAR II. Unfortunately neither bed produces precious coral judged to be sufficient in quality and quantity for commercial exploitation. One of the new beds is located off the northeastern tip of Molokai and the other is off the western end of Kahoolawe.

The STAR II dive program is not restricted to coral research. Its broad purpose is to look for any and all marine resources, living and nonliving, in Hawaiian waters. During the recent Molokai dive extensive manganese crusts and nodules were observed at 1200 feet, which is the shallowest recorded occurrence in the Hawaiian archipelago.

The dive program will continue with four dives off Penguin Banks, two off Kauai, and two off Oahu: one near Koko Head and one near Kaena Point.

HIG Scientists Invited to Peru

Several scientists from the Hawaii Institute of Geophysics presented papers at a meeting of the International Association on the Seismology and Physics of the Earth's Interior, held during August in Lima, Peru. They included Associate HIG Director George Sutton, Visiting Professor Eduard Berg, and geophysicists Donald Hussong, John Rose, and Glenn Shepherd.

Live Eel Permit Requested

The State of Hawaii Department of Agriculture is considering a request for a permit to introduce freshwater eels of the anguillidae family for aquaculture. Such eels do not now exist in Hawaii and are known to be voracious predators on stream animals...and even birds. The taxonomy and biologies of Pacific species are not well known, but *Anguilla* species in both North and South Pacific Island locations are known to reach a length of 5 feet or more.

These eels not only inhabit streams, but can cross land for considerable distances to populate reservoirs and other standing waters. Apparently they would represent a threat to native and established freshwater and estuarian fauna here if they escaped. They are very hard to contain because of their ability to travel overland when the ground is wet.

Anyone interested in discussing the problem or providing information may phone Department of Agriculture Director Frederick Erskine at 941-3071, or write to him at the department office, 1428 S. King Street, Honolulu 96814, Hawaii.

Andrews

New Oceanography Chairman

James E. Andrews, associate professor of oceanography, has returned to Hawaii and will assume his duties as department chairman in September.

Andrews spent some time last summer at Scripps Institution of Oceanography editing and preparing reports on Leg 30 of the NSF-funded deep-sea drilling project. The papers will present some new theories on the origin of the marginal basins of the Southwest Pacific. The September issue of *Geotimes* will carry an article on the project by Andrews, Loren Kroenke (HIG), and 9 geoscientists from other institutions.

New Ecopush Meeting Set

Quality vs quantity, or both? How will Hawaii choose to grow? What about a "no-growth" option? A public conference on this subject is scheduled for Thursday and Friday, September 20 and 21 at the Princess Kaiulani Hotel.

The September meet marks the resumption of the conference series known as ECOPUSH -- Environmental Conference on the Public Understanding of Science in Hawaii. The conference chairman is Don C.W. Dumlao of the American Institute of Architects (AIA).

Pete Tagalog of Ota Camp is one of the speakers scheduled to represent the viewpoints of Hawaii's citizens. Councilwoman Mary George will chair one session. Mayors of Oahu, Maui, Kauai, and Hawaii or their alternates will appear. Newspaper and TV editors will speak for media viewpoints.

ECOPUSH conferences are arranged by the UH Center for Engineering Research. Public participation is invited. Information may be obtained from Billie Jean Paschal or David Harada at 948-8788.

Graces Back From Down Under

Former UH Sea Grant researcher Jean McKean Grace returned in August with her family from Australia and New Zealand. Her husband, Robert Grace, an associate professor of civil engineering at the University of Hawaii, has been on a year's sabbatical leave.

During the 1972-73 school year the Graces lived first in Melbourne, where he was employed by the Australian government on specialized ocean research. Later, in Christ Church, he taught an ocean-related engineering course at the University of Canterbury.

Mrs. Grace will return to her studies on the UH Manoa campus and he will resume his duties in the Department of Civil Engineering.

BARDACH RETURNS

In the course of fulfilling professional marine science responsibilities, HIMB Director John Bardach travelled several thousand miles this summer. His itinerary began at Ponapé, where he observed the Oregon State University Sea Grant Program's dory project. In Guam he represented the U.S. National Academy of Sciences at the Pacific Science Association Intercongress. Bardach is the NAS council member of that body. The congress considered coastal and natural science aspects of Pacific problems.

In the Philippine Islands Bardach officially followed up the results of several fisheries and oceanography workshops which had been sponsored by the National Academy of Sciences. He spent some time in Indonesia looking at aquaculture programs before leaving for the International Symposium on Coral Reefs, held aboard the MARCO POLO.

Bardach flew to Italy to chair a long-range planning meeting on aquaculture resources in developing countries, held under the auspices of the World Bank and FAO. He then spent some time in U.S. east coast cities conferring with personnel of the National Science Foundation, other governmental funding agencies, and several private foundations concerning possible support for HIMB programs.

"Fantastic" Coral (continued)

is now commercially profitable and the diving schedule calls for three dives per week.

Grigg, who has been chief investigator throughout the Sea Grant coral research project here, is now concerned with ecological and conservation phases of the work. To prevent over-exploitation or depletion of Hawaii's valuable coral, he directs investigations on growth rates of the various species, surveys quantities in known beds, and continues the search for new coral beds in the Hawaiian waters.

Fishery Groups to Convene Here Next Year

The International Association of Game Fish and Conservation Commissioners and the American Fisheries Society will hold their annual meetings and joint sessions at Disney World, Florida, this month.

Michio Takata, Director of the State of Hawaii Fish and Game Division, is Hawaii's official representative to both organizations. Takata is planning to attend the meetings, which will be held the week of September 10.

Next year the two fishery groups will hold their annual meetings in Honolulu. The State Department of Land and Natural Resources will be the official host and Takata has been designated as general chairman overseeing arrangements. Next year's official dates are: American Fisheries Society annual meeting, September 9 and 10, 1974; International Association of Game Fish and Conservation Commissioners, September 11 and 12, 1974. Beltz Travel Incorporated will handle transportation and hotel reservations.

UH Zoology Student Dies

The marine science community was saddened by the loss of UH graduate student Edward L. Brecknock. The young doctoral candidate disappeared August 11 along with his wife's cousin, Walter Amundsen, while diving off Oahu's leeward coast. The bodies have not been recovered.

Brecknock was completing research on symbiosis involving a fish that lives in the body cavity of the large "pillow" starfish. He had investigated nutritional aspects of the fish's life to learn whether the species is parasitic on the starfish. His advisor, UH zoology professor Sidney J. Townsley, said that he and Brecknock had developed evidence that the relationship is truly parasitic. Brecknock had also done his master's work at the University of Hawaii, under William A. Gosline.

THE KEEL ROW

The DAVID STARR JORDAN

...San Diego-based NOAA fishery research vessel, departed Honolulu for the Leeward Islands of the Hawaiian Archipelago in mid-August to survey the skipjack bait and bottom-fish resources of the area.

The JORDAN's fishery scientists hope to determine which species of fish in the Leeward Islands area are most suitable for tuna bait fishing, and the abundance of these baitfish. To accomplish this, field party chief Paul Struhsaker plans to use visual underwater surveys during the day and light-attracting techniques at night.

Time permitting, a study will be made of the relations of larval and juvenile skipjack tuna to major oceanographic features of the area. JORDAN scientists also hope to make echo-sounding surveys over outer-shelf and upper-slope ocean depths in search of the pelagic armorhead, *Pentaceros richardsoni*, a fish actively sought over seamounts by Japanese trawlers.

With the deactivation of the Honolulu Laboratory's TOWNSEND CROMWELL in May of this year, DAVID STARR JORDAN remains the only fishery research vessel of NMFS's Southwest Fisheries Center. She presently divides her time between Honolulu and La Jolla, and at the completion of this cruise on September 9 will return to San Diego.

The TERITU

...is scheduled for local cruises under Donald Hussong and Tom Clarke during September.

The KANA KEOKI

...will depart September 8 for a ten-day cruise under Chief Scientist Mark Odegard (HIG).

SEA GRANT PUBLICATIONS

IN PRODUCTION:

*Environmental Factors Affecting Stress and Mortality of the Hawaiian Anchovy (*Stolephorus purpurus*) in Captivity.* Jeannette W. Struhsaker, Wayne J. Baldwin, and Garth I. Murphy. (Technical Report)

Marine and Freshwater Aquarium Systems for Tropical Animals. E.H. Chave and P.S. Lobel. (Advisory Report)

IN PRESS:

Ala Kahakai: Alternatives for Administering a Coastal Trail System (UNIHI-SEAGRANT-AR-73-05). Susan S. Rutka. 38 pp.

The Feasibility of Brine Shrimp Production on Christmas Island (UNIHI-SEAGRANT-TR-73-02). Philip Helfrich et al.

IN PRINT:

First Biennial Report: Marine Option Program (UNIHI-SEAGRANT-MS-73-02). 64 pp.

Development of a Submarine Sand Recovery System for Hawaii (UNIHI-SEAGRANT-AR-73-04). Frederick M. Casciano. 14 pp.

The Effects of a Hawaiian Power Plant on the Distribution and Abundance of Reef Fishes (UNIHI-SEAGRANT-AR-73-03). John C. McCain and James M. Peck, Jr. 16 pp.

Behavioral Effectiveness at 16 ATA (UNIHI-SEAGRANT-TR-73-01). Joseph P. O'Reilly. 75 pp.

IN PRINT (continued):

Impact of Recreational Fishing Expenditures on the State and Local Economies of Hawaii (UNIHI-SEAGRANT-AR-72-02). Robert G. Hoffman and Hiroshi Yamauchi. 28 pp.

Eucheuma Farming for Carrageenan (UNIHI-SEAGRANT-AR-73-02). Maxwell S. Doty. 21 pp.

Atlas of Kaneohe Bay: A Reef Ecosystem Under Stress (UNIHI-SEAGRANT-TR-72-01). Stephen V. Smith, Keith E. Chave, and Dennis T.O. Kam. 128 pp.

Spheres of Influence in Hawaii's Coastal Zone, Volume 1: Federal Agency Involvement (UNIHI-SEAGRANT-AR-72-03). Justin Rutka and Chennat Gopalakrishnan. 89 pp.

Hawaii Fish 'n Facts Information Sheets Number 164, *Plastic Liners for Fish-Holds*; 165, *Cleaning and Sanitizing Fish-Holds*; 166, *Why Fish Spoil*; 167, *Coming - The Wholesome Fish Act*; 168, *Fish Smoking and Drying by the Sportsman*; 169, *Sportsman's Guide to Holding and Freezing Fish*; 170, *Bacteria and You*; 171, *Handling Frozen Sea Food in the Retail Store*; 172, *Checklist for Retail Handling of Fish*; 173, *The Cleaner the Boat, the Better the Fish*; 174, *Fish with a Thermometer*; 175, *Why Eat Fish*; 176, *Fish Temperature and Icing*; and 177, *Come Clean*. Kirby Hayes, William Schumacher, and Curtis Wilder.



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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 Editorial

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 there 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.

Honolulu Advertiser 11-22-74

Consul General's Wife Fined-- Business Fraud

Honolulu

Soledad Alconcel, wife of the Philippine consul general in San Francisco, has been fined \$1500 by the state of Hawaii on a charge of fraudulent business practices.

The fine was part of a consent agreement Thursday between Mrs. Alconcel, the president of Philippine Handicrafts and the state Office of Consumer Protection.

Mrs. Alconcel's husband, Trinidad, previously served as consul general in Honolulu.

She and the store were charged with falsely representing to several customers that some of the store's bracelets were turtle shell. Officials of the U.S. Fish and Wildlife Service tested items seized by federal agents and found they were plastic.

United Press

SAN FRANCISCO
CHRONICLE
11-23-74

Woman is fined in fraud case

Mrs. Soledad A. Alconcel, the wife of the former Philippines consul general in Honolulu, was fined \$1,500 by the State on a charge of fraudulent business practices.

The fine was part of a consent agreement yesterday between Mrs. Alconcel, the president of Philippine Handicrafts at Ala Moana Center, and the State Office of Consumer Protection.

Mrs. Alconcel's husband, Trinidad, is now the Philippine consul general in San Francisco.

She and the store were

charged with representing to several customers that some of the store's plastic bracelets were made of turtle shell.

Following up on complaints, Federal agents eventually seized 322 items of alleged turtle shell jewelry in September. Officials of the U.S. Fish and Wildlife Service tested the items and found they were plastic.

Henry M. Nitta, attorney for the consumer's office, said in the complaint that the defendants had "duped residents of the State . . . as well as transients out of an undetermined amount of money over an undetermined period of time through the use of false statements, misrepresentation or fraud."

With the settlement, the case will not go to trial.

Federal and State law makes it illegal to turn certain kinds of turtle shells into jewelry.

aquaculture

THE AQUACULTURE NEWSLETTER / 1810 SEVENTH AVENUE, SEATTLE, WASHINGTON 98101

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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 Korringa, noted mariculture expert and Director of the Netherlands Institute for Fishery Investigations. Dr. Korringa 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

TWO SIDES TO THE TURTLE QUESTION

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.

OPEN-SEA RANCHING PUSHED BY SALMON GROWERS

The American Salmon Growers Association, new organization recently formed in Seattle, Washington, is pushing local legislation for open-sea ranching, the more popular name of a release-and-return program involving salmon. Ranching of this style is legal in Oregon, but only available in Washington and Alaska via special permit.

The salmon aquaculturists initially were looking to the Washington State Department of Fisheries for assistance towards the legality of sea ranching, but the agency balked. The answer for the potential sea rancher now is in the hands of the Washington State legislature. By the time this issue reaches press, a seminar will be held in Seattle detailing the American Salmon Growers Association position. A position paper has been prepared by the group that says "as an organization and as individual growers, the ASGA is interested in Ocean Ranching of salmon stocks in the state of Washington. Second, since it is currently illegal in Washington State, we would like to see the law changed to permit this type of industry. Third, therefore, we will help draft, sponsor and lobby for the successful passage of legislation to legalize Ocean Ranching in 1975."

The benefit that sea ranching will provide is obvious: more fish. The fish is reared in a private hatchery, released to the open sea, and upon his return is harvested. A return of one-half percent is supposedly a break-even figure for the rancher. Returns of one-percent to five-percent are anticipated. The rancher is not the only beneficiary. While at sea, the fish is free to be caught by anyone, sport fishery or commercial.

Principal firms hoping for the legislation include the Weyerhaeuser Company, already committed to a heavy research and development program in aquaculture. Others include Bay Center Mariculture, Domsea Farms, Mariculture Northwest, and several others. An Oregon company, OreAqua Foods, headed by Dr. Jack Donaldson, is also keeping close tabs on the Washington situation. OreAqua is already in the open sea ranching at Newport, Oregon. However, principal funding partner of OreAqua is Seattle-based Fisher Companies.

In the meantime, Secretary of State of Washington, Lud Kramer, has publicly announced he is going to leave politics and will enter the aquaculture field. What role he may or may not play in all of this remains to be seen.

potpourri

☆ The State of Maine can now boast three salmon farms. Latest development underway sees a farm being constructed off an island 20 miles from the coast of Maine. One of the first Maine farms is Maine Salmon Farms headed by Gerry Towle. Now in their third year of operation, Maine Farms has ordered 200,000 coho salmon eggs from the west coast for their operation this fall. Towle is selling salmon from his current harvest at \$2 per pound to restaurants in New York and Boston.

☆ Dr. John A. Knauss of the University of Rhode Island, an internationally known oceanographer, was the recipient of the National Sea Grant Award, presented to him in Seattle at the 7th annual Sea Grant Association conference. Leatha Miloy, director of educational information services and assistant director of the Center for Marine Services at Texas A & M, is new President of the Association.

☆ Fin-fish, farm-raised were bringing these wholesale prices recently in Seattle: Trout from Idaho, \$1.65 boned, \$1.45 dressed. Pan-sized salmon: \$2.05 boned, \$1.65 dressed.

☆ One of the largest trout farms in the world—Clear Springs Trout Company and Clear Lakes Trout Company—sustained a catastrophe this Fall when a flume broke and 600,000 pounds of trout died. Most had to be buried, although a mass-harvesting/processing effort with cooperation from other nearby growers allowed a good percentage to be salvaged for market. Ted Eastman, president of the U.S. Trout Farmers Association is the key man in the Clear Springs operation.

☆ Aquaculture around the World: Top ten nations in the world in production of farm-reared fin fish are 1. China, 2. India, 3. USSR, 4. Indonesia, 5. Phillipines, 6. Thailand, 7. Japan, 8. Taiwan, 9. USA, and 10. Pakistan and Bangladesh. USA and Japan lead in production of oysters; Spain leads in mussels.

☆ THE COMMERCIAL FISH FARMER is the magazine title of the "new" merged publications comprising The Catfish Farmer, Fish Farming Industries, and The American Fish Farmer. Although it has been announced that the U.S. Trout News was also merged in COMMERCIAL FISH FARMER, we are told this is not yet approved by the board of the U.S. Trout Association. The latter may continue to be an independent publication representing the U.S. Trout Farmers.

POTPOURRI

The Department of Horticulture at Clemson University was recently awarded a grant from the Department of Commerce's Economic Development Administration to conduct a one-year study on the commercial potential of seaweed. The study will investigate the use of seaweed as 1) a substitute for some forms of commercial fertilizer; 2) a substitute for some pesticides used to control soil-borne insects; and 3) soil conditioners.

A long-term study of 206 patients with coronary artery disease was recently published in *Geriatrics*. Of interest to the seafood devotee is that diets including seafoods were termed "of considerable value in the treatment of patients with existing coronary problems."

☆ Topper Floats, N.W. (David Martinson, president; 4403—47th Ave. N.E., Marysville, Wa. 98270) have become significant factors in the construction of salmon farms in Puget Sound. The company recently completed constructing float systems for the pen-rearing of salmon for Domsea Farms and Pacific Ocean Farms. Advocates of Styrofoam-pumped tire casings, the company is also building tire breakwaters for both firms as well. The company will soon be embarking on their third salmon farm project with the client this time being the Washington State Department of Fisheries.

☆ Two abacore tagged and released by Japanese biologists in June 1974 in the central Pacific were recovered four months later off Astoria, Oregon, by U.S. pole-and-line fishermen. They were a part of the 128 abacore tagged and released on June 5 in the central Pacific northwest of Midway Island. U.S. tagged abacore have been recovered off Japan several times in the past, but this is the first time that fish bearing Japanese tags have been recaptured off the United States.

☆ A Chicago concern has been awarded a \$63,000 contract by the National Oceanic and Atmospheric Administration (NOAA) to analyze, plan and recommend methods of developing an effective identification system to clarify and standardize market names and fish species and products. A NOAA spokesman said that although many species of fish are known worldwide by their scientific names, differing common names used in labeling for marketing can be confusing to the seafood consumer.

☆ An underutilized protein source is receiving fresh attention from the Japanese fishery. The Japanese government-sponsored Marine Resources Research Center is dispatching a chartered trawler to the Antarctic Ocean on a third krill industrialization cruise. Previous expeditions were sent in 1972 and 1973. The Japanese have developed from the krill various kinds of new food products which they are now actively promoting, such as krill-mixed dumplings, meat balls, tempura, and frozen cooked drill blocks. What is krill? It is a little red crustacean, *Euphausia superba*, that looks like a small shrimp. Costs for fishing krill are high. One company will spend 350 million yen (US\$1.17 million) for a three-month fishing trip.

We are all too familiar with rising costs and materials shortages. While we want to expand THE AQUACULTURE NEWSLETTER, we do not want to increase the subscription price to cover the costs of expansion. Our solution is in our new type-style. We can now offer 25% more material, while staying in our four-page format. We hope you like our new look, at no extra cost!

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coming next month...

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A-20

Thursday, April 4, 1974

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
+ keep us posted
E. St

WSJ
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 480 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

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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.

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.

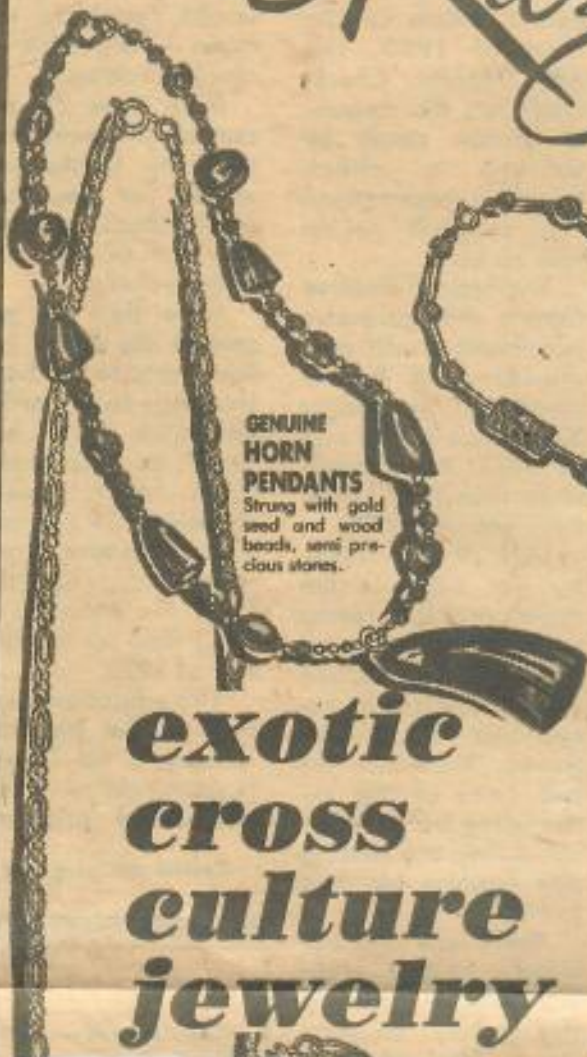
HB 1635, introduced by Rep. Anson Chong, would release up to \$35,000 for research and management studies on the turtle.

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

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Editorial Page

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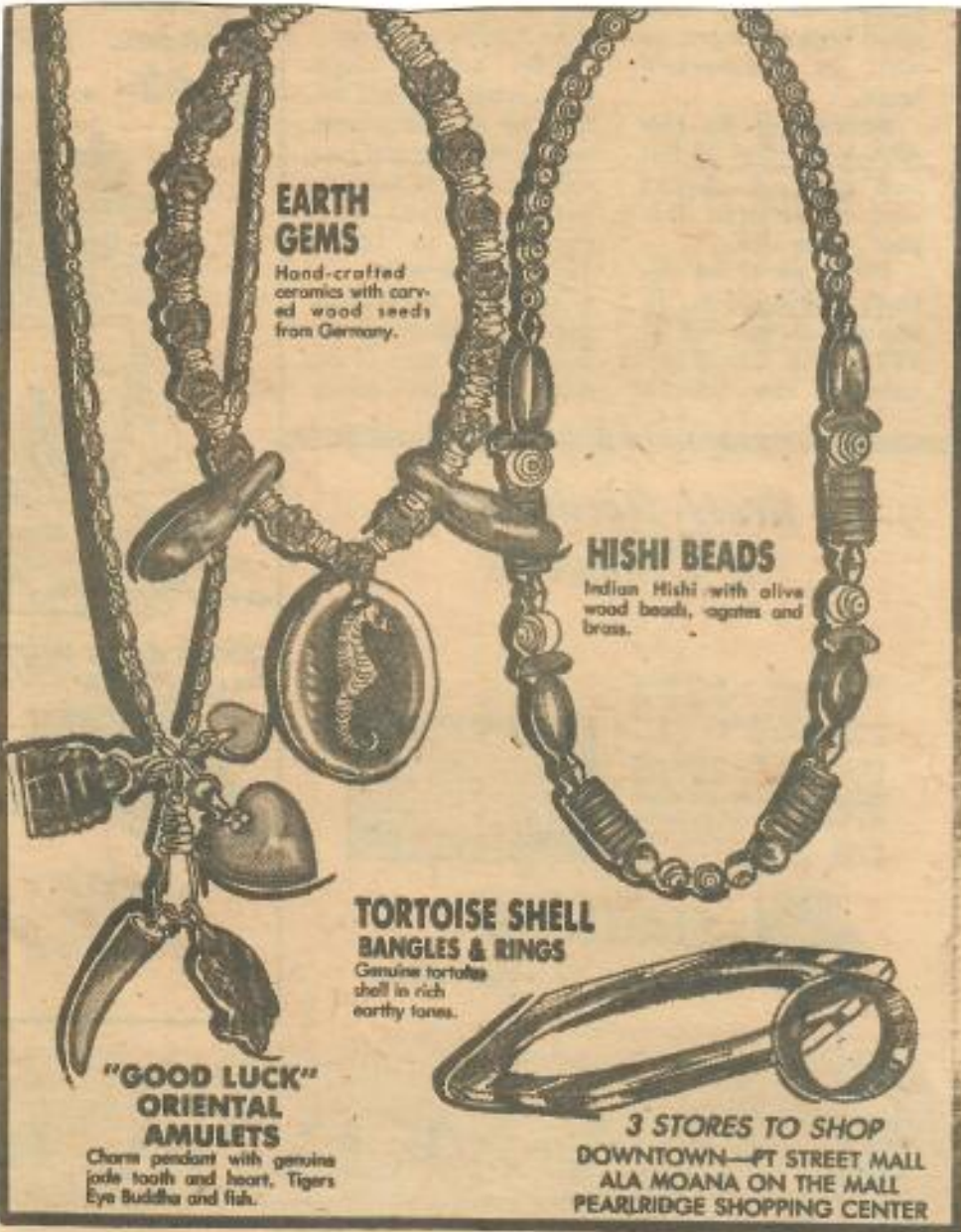
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*Advertiser-
Star Bulletin*

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Fraud Case Settled by State, Philippine Store

By Harriet Gee
Star-Bulletin Writer

The office of Consumer Protection and Mrs. Soledad A. Alconcel, wife of the Philippine consul general in San Francisco, yesterday entered into a consent judgment involving fraudulent business practices.

Mrs. Alconcel, also

known as Solita, is the wife of Trinidad Alconcel, former Philippine consul general in Honolulu and now in charge of the consulate in San Francisco.

Under the consent judgment, Mrs. Alconcel made no admission of unfair or deceptive business practices.

But she agreed to pay a \$1,500 fine and, along with her agents, not make any false representations in selling her products at her Ala Moana Center store, Philippine Handicrafts.

The consumer protection office had received complaints in recent months from store cus-

tomers who said that they thought they were buying bracelets made of genuine turtle shells but discovered later that they were made of plastic.

Federal customs agents seized 322 items from the store and upon examination found they were made of plastic and not turtle shell.

By agreeing to the consent judgment, the case will not have to go to trial.

Henry M. Nitta, attorney for the consumer protector, said in the judgment it may not be used by Mrs. Alconcel to represent that any of her business practices are legal.

Mrs. Alconcel is a resident of California but commutes regularly to Honolulu to run her business.

She is president and treasurer of Philippine Handicrafts Inc.

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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."

Looking Through...

By Murry Engle, Star-Bulletin Writer

Inflation. That's not what this story's about. Sundays, at least, you'd probably just as soon not think about it.

You can forget it and fight it at the same time by spending the whole afternoon (noon until 5 p.m.) at the Honolulu Aquarium, more commonly known as the Waikiki Aquarium at Queen's Beach in Kapiolani Park.

It may be hard to believe, but admission for adults is only 25 cents and children under 16 years of age pay nothing.

This funky, fascinating little aquarium, often referred to as Hawaii's "window on the sea," is the fourth oldest in the United States. More than \$100,000 has been made available by the Legislature to give a general facelift through the next few months. The 70-year-old aquarium is run by the University of Hawaii.

IN THE MEANTIME, this isn't the fanciest marine institution, but it reflects Hawaii's unique place in the world. Our State marks the eastern boundary of the vast Indo-Pacific warm water faunal area. To put it more simply, you'll see things here you won't see anywhere else.

In the museum room, for instance, are some of the best collections of coral and shells anywhere in the world, according to Charles R. DeLuca, acting director and curator.

A Hawaiian monk seal named Friday, is the only one in captivity anywhere. His species and a Hawaiian bat are the Islands' only indigenous mammals. The few remaining of his kind live endangered lives in our waters. That leaves Friday to star at the aquarium. He's a ham, but a delightful one.

At feeding time at 2:30 Sunday afternoons, Friday streaks up out of the water in a silver splash, growling, barking, waving his flippers and occasionally

turning his 350 pounds in a slow hula. He consumes from 10 to 14 pounds of fish a day.

Friday also bosses his cousins, all harbor seals from the Pacific Northwest. He has seniority, having lived at the aquarium so many years that no one knows why he was named Friday except that it's better than one considered at first: Camille.

SHARING THE 70,000 gallons of water in pool with the seals are the mammoth ocean turtles. They are fenced off in the opposite end of the pool because they like to nip at the seal's fins.

If you've always considered turtles as clumsy slow movers, you'll marvel at their swift, graceful passage through the water.

Among the turtles in the pool, is the gentle green sea turtle, (or honu), which also is facing extinction. He's almost fished out of the ocean to satisfy demands which sometimes is catered to in Hawaii. Not only is this animal good to eat, but his shell is used to make tourist items. Worse, the loss of sand beaches leaves few places for the green sea turtle to lay their eggs and some oceanographers believe that the lights of civilization on our Islands may affect their delicate reproductive patterns.

Museum officials hope to remedy the problem by building a \$100,000 new pool with sand bar, or crawl, where the turtles can lay their eggs.

BUT YOU WANT to know what else you'll see. There are hundreds of different worlds in the aquarium's four galleries, each of which contains ten 300-gallon tanks.

Unlike most aquariums the tanks are not artificially lighted, but bathed in sunlight that streams in through skylights, illuminating the natural arrangements of

Turn to Next Page



... Our 'Window on the Sea'

Continued from C-4

sea plants, and shells.

Some of the marine animals you'll see are the short-nosed gar-pike fish (whose nose looks very long) which is one of 10 remaining fossil fish from millions of years ago; the silver dollar fish from the Amazon basin; spotted butterfly; the intelligent octopus or tae (this one shakes hands with a little girl volunteer); the African electric catfish, who in the Nile and tropical African waters stings the fish he wants to eat with electricity; and the beautiful, dainty little blue-green and small blue and white damselfish and hundreds more.

You can almost hear drums of danger as you stand before the a tank where the sharks slash through the water. On the tank's floor are more sea plants and triton's trumpet shells, used still in some parts of Polynesia as a signal horn. When people hear "shark" they say 'what a terrible ani-

mal,' but they have an important place in the scheme of things," says oceanographer DeLuca.

"They help clean up the ocean's pollution."

DeLuca is helping assemble a collection of stuffed sharks. On the foyer wall is a mounted white shark. Nearby is Timothy Tiger Shark, trophy of a 12-foot shark caught off Pearl Harbor.

which is wired for sound to make lecturers about sharks more interesting for children.

BUT TIMOTHY didn't impress one little boy at all. "Bet you can't lick a great white shark," he said after all the others in his group had moved on.

Outside there's another pond for smaller terrapin, another for carp and a

small garden of lauhala trees, date palms, pineapple, sugar cane, bird of paradise, ti and jade.

People who have salt water tanks at home can get free purified sea water at the aquarium. The water is pumped (400 gallons a minute or 500,000 a day) up through coral. It might comfort the financially harried to learn that the aquarium's

electric bill is about \$3,600 a year and the annual food bill (mostly aku, bering, squid and smelt) is \$10,000. If you're lucky this afternoon, you may

get a send-off by Pretty Boy, the talking hill mynah mascot in the lobby. He says "a-looooo-HA" and smartly whistles the "Col. Bogie March," theme from the movie, Bridge on the River Kwai.



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

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.

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

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



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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 Ilkai 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.

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 others still sell both turtle steak and turtle soup and there is no way of determining where the turtle is coming from.

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

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 others still sell both turtle steaks and turtle soup and there is no way of determining where the turtle is coming from.

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

May 29, 1979 (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, 1979 - HONO STAFF - BUNETAH



EXPLORE EARTH OF BAL "SENSUA

Smoldering sh sand, earth ru coral...ocean ...and cloud v a subtle wind or delicate en florals on she

Left, natural-cup bra in 32-36 A-B-C, 5.50, and matching brief, 5.00.

Right, natural-cup bra with

HECO defends

V. J. ...



SEA GRANT NEWSLETTER

in this issue:

MAKAHIKI KAI SPECIAL
SUPPLEMENT

MAKAHIKI KAI
HIC EXHIBITION HALL
MAY 14-17
1:00-9:00 pm

Sea Grant Newsletter

Volume 4, Number 5

May 1974

Mahalo, Members of 7th State Legislature

The University of Hawaii's Sea Grant College Program salutes and acknowledges with deep appreciation the abiding concern and commitment of the 7th Session of the State Legislature to programs and research relative to the vast ocean that surrounds the state. In honoring the five legislators, we honor all members of the State Legislature.

Sea Grant's very special mahalo is extended to Rep. Jack Suwa, Chairman of the House Committee on Finance, for his solid support; Rep. Akira Sakima, Chairman of the House Committee on Higher Education, who introduced and supported the Sea Grant bill in the House; Sen. Francis Wong, Chairman of the Senate Committee on Higher Education, who gave a resounding support to the Sea Grant College Program; Sen. Donald Nishimura, Chairman of the Senate Committee on Economic Development, who included supportive language for Sea Grant programs in the Marine Affairs Coordinator's bill; and Sen. Robert Taira, Majority Floor Leader and Chairman of the Senate Committee on Public Utilities, who introduced the Sea Grant bill in the Senate.

Nishimura



Suwa



Wong



Sakima



Taira



legislative wrapup

State Legislature Appropriates SG Matching Funds

The second session of the 7th State Legislature put their money where their mouths are. The high praise voiced in describing the University of Hawaii's Sea Grant College Program was translated into a line item appropriation of \$120,000 under the general category, ECONOMIC DEVELOPMENT, to "fund the Hawaii Sea Grant Program."

The support that Sea Grant obtained during the session which adjourned on April 11 was the result of strong concern in the Senate and House Committees on Higher Education, and House Finance and Senate Ways and Means and Economic Development Committees.

• SEA GRANT MATCHING FUNDS

A line item appropriation of \$120,000 earmarked to "fund the Hawaii Sea Grant Program" was included in the state's supplemental
(Continued on page 5)

Sea Grant Newsletter

published monthly by
SEA GRANT COLLEGE PROGRAM

Room 253, Spalding Hall
University of Hawaii Honolulu, Hawaii 96822

Jack R. Davidson
Director

Rose Pfund
Information Specialist

hawkins, secondary marine science teacher, wins outstanding biology teacher of the year award

"The high school students in Hawaii are curious and concerned about what is going on in the sea. This curiosity and concern should be tapped and used in a constructive manner," is the opinion of John Hawkins, marine biology teacher at McKinley High School and recipient of the Outstanding Biology Teacher of the Year Award. Together with the award, Mr. Hawkins also received a microscope from the American Optical Corp.

The outstanding teacher is chosen from the nominees made by each high school in the state by a se-

lection committee appointed by the National Association of Biology Teachers. A similar award is presented in every state.

Mr. Hawkins has lived in Hawaii for the past eleven years and received the Masters in Science Education degree from the University of Hawaii after completing his undergraduate work at the University of Illinois. The Hawaii Science Teacher journal has published two of Mr. Hawkins' articles: "Construction of a Homemade Plankton Net and Techniques in Counting Plankton," and "Cytological Techniques Used in Tissue Culturing."

At present the outstanding biology teacher is continuing to modify and develop the marine biology curriculum at McKinley to make use of an eighteen-foot inboard motor launch donated to the high school by the Coast Guard via the State government. With the use of the boat, Mr. Hawkins hopes to collect offshore samples of plankton to compare the plankton populations found next to shore.

The students of Mr. Hawkins now spend one laboratory period of every three in the field collecting samples. The lab period prior to the field lab is used for planning, to decide what will be done during the field period and what procedures and equipment will be used. This "pre-lab" allows the most efficient use to be made of the field period. The next lab after the field period is used to analyze, classify, and make conclusions about the samples taken and the work done during the previous period.

The collection of data is primarily done at Kewalo Basin and in the Ala Wai Canal. The teacher hopes to collect data over a long enough period of time to be able to define trends in the plankton populations of these areas.

Marine Meets

A National Marine Education Conference will be held at the University of Rhode Island, Kingston and Narragansett, on August 26-30.

At the March 29-31 meeting of the Geological Society of America held at the Hilton Las Vegas, Powfoong Fan, Hawaii Institute of Geophysics, presented two papers: "Mineralogical Investigations of Deep Borings in the Ewa Plain, Oahu, Hawaii" and "Dispersal Patterns of Some Hawaiian Watershed and Coastal Sediments."

The latter paper analyzed the mineral composition of two of Oahu's largest bays, Pearl Harbor and Kaneohe Bay.

John Craven, Dean of Marine Programs at the University of Hawaii, discussed "Floating Exposition Sites" at the Offshore Concrete Structures Symposium held at the Princess Kaiulani Hotel on March 28-29.

The symposium was sponsored by the American Concrete Institute and the Cement and Concrete Products Industry of Hawaii. The program included local speakers as well as from Japan, Norway, and the mainland.

UH Sea Grant Information Specialist, Rose Pfund, will be attending the Marine Communications Workshop in Madison, Wisconsin, May 29-June 2. The workshop is being co-hosted by Texas A&M and University of Wisconsin Sea Grant Programs and the National Sea Grant Association.

The workshop will not only be concerned with the exchange of information, but plans to initiate several nationally-oriented public service projects. To plan for these projects, participants will be divided into three groups:

1. workshops, conferences, exhibits, awards
2. print media, publications
3. electronic media.

Speakers at the general sessions include Robert Abel and Ernie Greenwald from the National Sea Grant Office and Roland Paine from NOAA's Public Information Office.

BAYS AND HARBORS ATLAS PUBLISHED

The *Marine Atlas of Hawaii: Bays and Harbors*, will be ready for distribution through the University of Hawaii Press.

The publication of the atlases is in response to a recommendation in *Hawaii and the Sea* and was given specific direction in Act 137, which created the Office of Marine Affairs Coordinator in 1970. Because the UH Sea Grant College Programs encompassed and directed much of the marine research which addressed specific needs of the state and was in possession of much of the information needed to compile and publish the atlas, the task for compiling and publishing was given to the UH Sea Grant College Programs.

The atlas provides in one volume what is currently known about bays and harbors of Hawaii and provides basic information, extant prior to August 1972. Data heretofore needed by government, scientists, and industry for planning, research and development, but not readily available, can now be found in a single volume.

The atlas is priced at \$18.50.

uh sea grant program reviewed: april 10-11



Site team members listen intently to presentation being made. From bottom right hand corner, Alton Lennon, James Wakelin, Bernard LeMeaute, Burr Steinbach, Richard Shomura, Sanford Atwood, and Hal Goodwin.



Seated site visitors are, left to right, Sanford Atwood, Hal Goodwin, David Attaway, Dan Panshin, and Don Beaumariage. Against the wall, waiting to present their programs: Doug Pendleton and Barbara Lee--Blue Water Marine Laboratory, Barbara Klemm--Secondary Marine Science Curriculum, John Ball--Marine Advisory Program, Frank Pottenger--Curriculum Research and Development, Justin Rutka--Sea Grant Staff, Len Knowles--Facilities Coordinator, Marine Programs, and Barry Hill--Sea Grant Staff.

trout aquaculture

Rainbow trout in the streams of Hawaii? Well, not quite.

Dr. Lauren Donaldson, Professor Emeritus of Fisheries at the University of Washington, spent a few days, April 15-19, touring the major islands to consider the possibility of intensive trout aquaculture.

According to John Ball, Jr., coordinator of UH Sea Grant Advisory Program, there are two major problems with the aquaculture of trout, temperature and food. The optimum temperature for trout is 60°F ± 5. The low elevation surface water temperature in Hawaii is considerably higher than the optimum. Consequently, the aquaculture would have to be done at high altitudes in large bodies of water. These fish would have to be fed a high protein diet which may cause the cost of raising trout to be impractical.

sen. magnuson holds oil and fisheries hearings in may

Senator Warren G. Magnuson (D. Wash.), Chairman of the Committee on Commerce, has announced continuation of hearings on May 2 as part of the National Ocean Policy investigation of the oil and gas potential of the Outer Continental Shelf and the impact of such developments on the coastal zone. The senator also announced the scheduling of two days' hearings to be held April 26 and May 3 on bills that would extend the fisheries contiguous zone of the United States to 200 nautical miles.

Senator John V. Tunney (D. Cal.) chaired hearings on the fisheries zone question held April 18 in San Diego and April 19 in San Francisco.

For further information please contact James P. Walsh at (202) 225-9345.

marine projects win top prizes at 17th annual science fair

The students of Miss Iris Shin-eki, biology teacher at Aiea High School, walked away with the four top awards in the 17th Hawaiian Science Fair held at the H.I.C. Exhibition Hall, April 4, 5, 6. The Fair was sponsored by the Hawaiian Academy of Science.

Two of the top research projects were concerned with marine subjects: one of the two first place winners, Wade Y. Nishimoto, grade ten, "Acoustical Involvement in the Circadian Oscillation of the Sandcrab, *O. Laevis*, (Dana);" and second alternate, Mark M. Maeda, grade ten, "Mechanisms Controlling the Glucose Levels of the Crayfish." The two first place winners will take their projects to the Twenty-fifth International Science and Engineering Fair at the University of Notre Dame, South Bend, Indiana.

Besides winning the top award, Wade Nishimoto also won a \$10.00 cash award from the Hawaii Science Teachers Association; \$25.00 plus certificate and a warship cruise from the Honolulu Council, Navy League of the United States; and a certificate from the U. S. Air Force.

Another marine research project that won several awards was the "Comparison of Marine Organisms Contributing to the Antibacterial Properties of Hawaiian Ocean Water" by Virginia Gee from Kaiser High School. This exhibit won a \$25.00 savings bond for the Best in School award from the Grand Pacific Life Insurance Company; the Best Project in Marine Science trophy from the Oceanic Foundation; a set of microbiology books for the best microbiology project from the American Society of Microbiology; a \$10.00 cash award from the Hawaii Science Teachers Association; and an Honorable Mention Certificate and warship cruise from the Honolulu Council, Navy League of the United States.

The "Recovery of Manganese Nodules," a research project conducted by Kyle Watanabe, also won several awards: a \$50.00 savings bond from the Society of Naval Architects and Marine Engineers, Hawaii Section; an Honorable Mention certificate and warship cruise from the Honolulu Council, Navy League of the United States; a book award from the Rock and Mineral Society; and a certificate from the U.S. Air Force.

today we dedicate a ship to a man

R/V MOANA WAVE DEDICATED AT DOCKSIDE CEREMONIES

Deep water marine research at the University of Hawaii continues to grow with the acquisition of the new research vessel, R/V MOANA WAVE, which arrived in Honolulu, pier 18, on May 14. According to Dr. George Woollard, Director of the Hawaii Institute of Geophysics, the University now ranks fourth in deep water marine research behind Woods Hole Oceanographic Institution, Scripps Institution of Oceanography, and the Lamont-Doherty Geological Observatory at Columbia University.

On January 16 of this year, in a brief ceremony at the Halter Marine Services Yard, East New Orleans, where the ship was built, the University of Hawaii accepted delivery of the R/V MOANA WAVE from the Department of the Navy. Earlier, on June 3 of last year, the vessel was dedicated by Mrs. Hiram Fong as the ship was being launched at the Halter shipyard. The \$3 million research vessel was given to the University as part of a Navy program to replace older vessels in the University research fleet. As part of this program the R/V GYRE, the sister ship of the MOANA WAVE, was given to Texas A&M University.

The R/V MOANA WAVE is 176 feet long with a 36-foot beam, and has a cruising range of 9,600 miles without resupply. The captain of the new vessel is Charles Billings; there are nine crew members and permanent accommodations for twelve scientists.

She is the latest in a series of new research vessels built by the Navy to support a wide range of oceanographic research by allowing the use of modular vans that can be put aboard for a specific cruise instead of having to re-equip a stationary laboratory. The University has laboratory vans for chemistry, geophysics, manganese research, and biology. Any number of these van laboratories can be used on any cruise. UH also has a dormitory van (sleeps eight), a general utility science facility van, and two that are unassigned.

The Lamont-Doherty Geological Observatory will be using the R/V MOANA WAVE for a baseline study of the environment around manganese nodule areas to be able to assess any environmental damage done by nodule mining. This project began in mid-April and will continue for a month.

The major project of the MOANA WAVE for this year will be an inter-university, IDOE (International Decade of Ocean Exploration) sponsored research project to assess the quality of manganese nodules. Other universities involved in this project are Lamont-Doherty Geological Observatory, Syracuse University, University of Michigan, and the University of Wisconsin. The cruise is scheduled to begin on July 8.

The arrival of the R/V MOANA WAVE was timely, according to Woollard, as the R/V KANA KEOKI, the University's only other research vessel, was being driven too hard. A research vessel usually stays at sea for 220 to 240 days a year. The KANA KEOKI was being used for more than 300 days, which is too much to be properly maintained. The MOANA WAVE will relieve some of the burden from the older vessel.

The new ship will cost \$2,256 per day to operate at sea. This cost will be born by the various projects that use the vessel. However, there is the added cost of maintaining the ship while she is docked. Ten percent of the total NSF (National Science Foundation) research funds related to use of the ship can be used for dock expenses. According to Woollard, this will not cover the total expense. The remainder must come from NOAA (National Oceanographic and Atmospheric Administration) and the projects using the ship, and the state of Hawaii will have to pick up whatever balance remains.

The dedication ceremonies for the University of Hawaii's new research vessel, R/V MOANA WAVE, held at Pier 18 Wednesday April 3, boasted a VIP-studded program. Master of Ceremonies John P. Craven, Dean of Marine Programs, opened the program with welcoming remarks. Further remarks were made by Harold Halter, President of Halter Marine Services, New Orleans (where the ship was built); Vice Admiral William T. Rapp, Commander of the Third Fleet; and Harlan Cleveland, President of the University of Hawaii.

Following this auspicious array came what has come to be a tradition at all UH marine dedications; George Woollard read a poem dedicated to Max Silverman. It reads in part:

"Today we dedicate a ship to a



*man/ A man who was a deep-sea fan/
He devoted his life/ Including his
wife/ To the sea where all life
began.*

*You wanted her to be wholly
Hawaiian/ And not Yankee, Greek or
Swabian/ But the Navy said,
"No!" "All Hawaiian's no go."/
"Half her name's got to be in Na-
vonian."*

*So we came up with the MOANA
WAVE..."*

The dedication address was delivered by the Honorable George R. Ariyoshi, Acting Governor of the State of Hawaii. Reverend Abraham K. Akaka, Pastor of the Kawaiahao Church, performed the dedication and blessing.

Keel Row

R/V KANA KEOKI

...left Callao, Peru 11 April en-route to Easter Island, ETA 8 May; ETD 10 May for Valparaiso, Chile, ETA 22 May. J.F. Campbell is the chief scientist for this leg of the cruise. Ralph Moberly will take over as chief scientist in Valparaiso and begin the next leg, ETD 25 May, to Panama, ETA 15 June.

R/V MOANA WAVE

...departed from Honolulu 16 April on a NOAA cruise with Dr. Roels from Lamont-Doherty Geological Observatory as chief scientist, ETA Honolulu 1 June.

ECONOMIC STUDY OF LOCAL BOAT OWNERS AVAILABLE

A Department of Agricultural and Resource Economics publication, *Marine Fuel Consumption and Tax Payments by Hawaii Boat Owners*, by C. Gopalakrishnan, G.R. Vieth, and T.D. Hodgkinson is now available. Requests for the publication should be addressed to the College of Tropical Agriculture, University of Hawaii.

LEGISLATURE APPROPRIATES FUNDS (Continued From page 1)

appropriations bill by the Seventh Session of the State Legislature which adjourned April 11. The original request of \$260,000 was reduced because the Marine Affairs Coordinators budget of \$460,000 includes \$100,000 for manganese research, \$20,000 for the blue water marine laboratory, and \$10,000 for marine technician training support.

The Sea Grant bills (SB 1528-74 and HB 2285-74) allotted \$65,000 for manganese research, \$40,000 for marine education (Blue Water Marine Lab), and \$20,000 for marine technician training program. Of the three items \$10,000 for marine technician training is the only one that remains in the \$120,000 designated as Sea Grant matching funds.

The breakdown for the Sea Grant matching fund appropriation is \$30,000 for aquaculture (disease, engineering, and nutrition), \$20,000 for fish eggs and larvae research, \$20,000 for program management, \$10,000 for marine technician training, and \$40,000 for two positions: information specialist and marine resources specialist.

• WAIKIKI AQUARIUM

In the dying moments of the 1974 session of the Seventh Legislature of the State of Hawaii, a toughly worded senate resolution, SR 303, introduced by Senator Francis Wong, Chairman of the Senate Committee on Higher Education, was unanimously adopted by the State Senate in an attempt to take the first positive steps to alleviate fiscal and exhibit problems faced by the Waikiki Aquarium.

Calling the aquarium a "budgetary bastard," the resolution points out that the facility has received little attention from the University in terms of program support and budget allocations. Because no legislative action was taken during the 1974 session to transfer the aquarium to another state or county agency, the Waikiki Aquarium has thus been condemned "to another year under the negligent aegis of the University of Hawaii," according to the resolution.

SR 303 calls on the Board of Regents of the University to give "sufficient budgetary emphasis to the operations of the... facility to achieve its potential as a tourist attraction and as a research and educational facility" during the 1974-75 fiscal year. It also

requests the Marine Affairs Coordinator to "provide funds and assistance on a priority basis to the Waikiki Aquarium to enable the Aquarium to solve its immediate problems of exhibit mortality, and to up-grade the quality of the exhibits of both live fishes and other marine life, and specimen exhibits."

Further, the resolution calls for a determination by the Board of Regents of the University "once and for all [of] its future plans for the Waikiki Aquarium." The Board of Regents is requested to report its plans for upgrading the support of the facility within the University system, including a budget for the 1975-77 biennium or a proposal to relocate the facility to another state agency or to the city.

Included in the supplemental appropriation for fiscal year 1974-75 is a CIP allocation of \$100,000 to upgrade and maintain and to make needed repairs to the equipment at the Waikiki Aquarium.

Other bills which considered returning admission fees to the aquarium and turning the entire facility to the city died in committee.

• GREEN SEA TURTLE

Both HB 1635 and SB 1530 to fund research and management of green sea turtles died in committee. However, the publicity and conservation efforts mounted by some University faculty resulted in the removal of turtle steak from local restaurant menus.

Still to be adopted are rules governing catching green sea turtles by the Department of Land and Natural Resources. The proposed ruling would allow only home use consumption and ban the taking of all animals under 36 inches.

• MARINE AFFAIRS COORDINATOR

The Marine Affairs Coordinator's bill to obtain funds for fiscal year 1974-75 passed both houses as HB 2263. The bill was amended to include the statement that "in particular, special attention should be given to matching funds of the federal sea grant program." A total of \$460,000 was appropriated. Included in the total are \$100,000 for manganese research and \$10,000 and \$20,000 for ship support for the marine technician training program and the blue water marine

lab, respectively. These were projects either totally or partially deleted from the matching fund request for Sea Grant because they were included in HB 2263.

• GEOTHERMAL ENERGY

Appropriations of \$500,000 for a geothermal energy source project, \$50,000 for the creation of an energy resources coordinator in the Office of the Governor, \$50,000 for the creation of a state natural energy laboratory to be located at Keauhole Airport in Kona with \$50,000 in matching funds from the County of Hawaii, and \$55,000 for a natural energy institute under the aegis of the University of Hawaii indicate the high priority the Legislature has placed on the development of alternatives to fossil fuel.

Also adopted by both houses was SCR no. 1 which requests the President of the United States to release federal funds for use in conducting geothermal research.

• SHORELINE SETBACK

After much debate on the floors of both houses of the State Legislature and in the local media, HB 2276, which will allow experimental sand mining was passed.

Stringent laws related to shoreline setbacks have made it impossible for the submarine sand recovery system, developed with Sea Grant funds, to be tested because no mining could be done in areas "1,000 or more feet from the shoreline or in ocean water of 30 or more feet in depth." HB 2276 (as amended) allows the University's Ocean Engineering Department to mine sand "for experimental purposes... in the offshore waters, one-half mile north of Keauhou Bay ... [to] be completed on or before April 30, 1977."

Environmental impact statements are required for the experimental mining operation, however.

• STATEWIDE TRAIL SYSTEM

Recognizing the piecemeal approach that has been used in planning and managing historic sites and the need to plan for a comprehensive system of trails which lead to these historic sites, SB 878 with an appropriation of \$100,000 was passed instead of the companion House bill 1189. Since so

(Continued on page 6)

LEGISLATURE APPROPRIATES FUNDS (Continued from page 5)

much of the activities and rituals conducted by the ancient Hawaiians were closely bound with the ocean, many of the historic trails are found along the coastline.

RESEARCH AND DEVELOPMENT COORDINATOR

Recognizing the benefits of research and development as an industry, the State Legislature passed SB 1408 to establish the position of a research and development industry coordinator in the Office of the Governor. The coordinator will be charged with the task of coordinating research and development efforts not only among governmental agencies, but also with private industry.

An appropriation of \$50,000 is included to implement the intent of SB 1408.

AERIAL SPOTTING FOR TUNA

HB 465, which appropriates \$17,220 for a project to determine the feasibility of a purse-seining fishery for Hawaii, was passed. The project is attempting to use aerial spotting to locate schools of skipjack tuna. The Department of Land and Natural Resources will oversee this project.

IN SUMMARY. The Seventh Session of the State Legislature has clearly established marine-related activities as an area of significance to the state of Hawaii. The total appropriation can only be labelled an indication of vigorous and strong support. An itemized tabulation of the funding follows.

University of Hawaii
Sea Grant Publications
2540 Maile Way
Room 253, Spalding Hall
Honolulu, Hawaii 96822

LIST OF MAJOR MARINE-RELATED APPROPRIATIONS passed by the Seventh Session of the State Legislature

| Item | Amount |
|--|--------------------|
| Sea Grant Program | \$ 120,000 |
| Geothermal energy source project | 500,000 |
| Intra-island marine mass transit | 1,400,000 |
| Statewide vehicular ferry system (construction of prototype system) | 490,000 |
| Purchase of R/V KANA KEOKI | 500,000 |
| Waikiki Aquarium | 100,000 |
| Marine exposition (Bicentennial) | 20,000 |
| Malaysian prawn | 60,000 |
| Development of immunological tests for ciguatoxin fish poisoning | 10,000 |
| Paiko Lagoon wild life refuge (Oahu) | 400,000 |
| Statewide trail and access system | 100,000 |
| Research and development coordinator | 50,000 |
| Marine Affairs coordinator (funds for Projects) | 460,000 |
| Energy resources coordinator | 50,000 |
| Natural energy institute | 55,000 |
| Natural energy laboratory | 50,000 |
| Coastal zone: state policy and development of management for beneficial use, protection, and development of land and water resources | 200,000 |
| Aerial spotting of skipjack tuna | 17,222 |
| Total appropriation | \$4,582,222 |

SAN DIEGO PROJECT TESTS SHARK REPELLANT

What is the best way to greet a tiger shark while skindiving? That is just the question that Rhett McNair, temporary manager of the UH marine laboratory on Eniwetok and director in charge of research and development of Sea-Way Corp. of Hawaii, was trying to answer for the Navy Undersea Center, San Diego.

McNair spent two weeks, February 27-March 13, being filmed by the Navy while testing various types of shark repellents and defensive weapons, including his own invention, the McNair Fast-Load Powerhead to be marketed as the Sea-Way Fast-Load Powerhead. Ac-

cording to McNair, the details of the tests are not available but his invention was the only one that was effective.

Being in water with large quantities of blended fish, human blood and several sharks is not really dangerous, if you know what you are doing, according to McNair. The Navy chose him for just this reason: he is an expert on shark weapons.

Also involved in this project were cameraman Chuck Peterson; Dr. James Fish, civilian employee of the Navy; and Dr. C. Scott Johnson, in charge of Navy shark repellent research.

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Land Board Action May Be Challenged

State Faces Lawsuit on

By Helen Altonn
Star-Bulletin Writer

WAIMEA, Hawaii — A lawsuit is expected to be filed against the State by Avis Rent-A-Car as a result of action taken here yesterday by the State Board of Land and Natural Resources to allow two more rent-a-car concessions at Honolulu Airport.

After deferring the matter at two previous meetings because of legal questions, the Land Board approved requests from the State Department of Transportation to advertise for sealed bids for the two concessions.

The board vote was unanimous with Maui member Manuel Moniz Jr. of Hawaiian Airlines abstaining.

Dollar Rent-A-Car Systems is applying for one of the concessions. No one at the meeting — including the DOT representative — could say who wants the second rental car operation.

THE SMALL District Court of South Kohala was crammed with spectators and persons testifying on various items in the Land Board's thick agenda, as well as four Big Island matters considered at a public hearing at 1 p.m.

Among other business, the Land Board approved a regulation for protection of marine turtles in Hawaiian waters — an issue pending since last fall.

The board also approved a proposed 65-year license agreement with the Lanikai Corp., subject to review by the State Attorney General's Office, for public use of beach frontage at Honokohau and Aimakapa Fish Pond in North Kona, on the Big Island.

That action was opposed by the Honokohau Study Advisory Commission and the Kona Conservation Group because they said it would interfere with their attempt to obtain a more extensive

national shoreline park in the Honokohau area.

ALAN TYLER read a letter from the Kona Conservation Group to the U.S. Secretary of Interior protesting the State action for a Honokohau park.

He added a postscript saying the group charges Land Chairman Sunao Kido with withholding information concerning the national historic landmark of Honokohau and asks for his removal as the State liaison officer for historic sites.

The Land Board took under advisement four requests for use permits in conservation districts which were discussed at the public hearing. They included requests from:

—The Bishop Estate and the State of Hawaii for the Kamehameha Development Corp. and the State Transportation Department for public recreational facilities at Keahou Bay on the Big Island.

—Canada-France-Hawaii Telescope Corp. for a 141.2-inch telescope and observatory on Mauna Kea.

—Canada-France-Hawaii Telescope Corp. for construction of a base camp at Hale Pohaku to serve 12 to 36 construction workers involved in the telescope projects at the summit of Mauna Kea.

—THE STATE Transportation Department for a road to Mauna Kea summit from Hale Pohaku. The segment at the summit between observatories would be paved; the rest would be a gravel road.

Mrs. Mae E. Mull, Big Island representative of the Hawaii Audubon Society, urged the board to postpone action on the Mauna Kea applications and develop a long-range plan for use of the mountain.

She asked, "How many more observatories will this board approve to permanently scar Mauna

Kea?"

"We urge that this board not be taken in by the arrogant and superior attitude of these scientists . . . who want to come here and rape our mountain."

She noted plans for eight additional astronomical facilities on Mauna Kea and asked, "When is it going to end? . . . This is a proposal to destroy a piece of Hawaii to learn something about outer space," she said.

JIM PEDERSEN of Neighbor Island Consultants, local coordinators for the Canada-France-Hawaii telescope group, said meetings were held in Honolulu this week with State agencies and the Of-

fice of Environmental Protection to discuss "how many people want to do things up there (on Mauna Kea.)"

Several persons traveled a considerable distance to attend the Land Board meeting at Waimea, including Stanley Bregman with the McCormack and Bregman law firm of Washington, D.C., representing Avis Rent-A-Car, and Henry Caruso, president of the Dollar Rent-A-Car Systems from California.

William Swope, attorney for Hertz Rent-A-Car, with Cade, Schutte, Fleming and Wright, Honolulu,



The rental car lineup at Honolulu Airport.

U-Drive Concessions

and Bregman testified separately but had similar messages for the Land Board.

They said it would be a breach of the State's contracts with Avis and Hertz to allow two more rent-a-car concessions at Honolulu Airport. There are now four operators. Besides Avis and Hertz are the National Car Rental System and Budget Rent-A-Car.

THE DISCUSSIONS yesterday centered around two points:

—The minimum annual guaranty for one year for the two new concessions — amended by DOT official Paul Arizumi from not less than \$176,268 in the original department proposal to \$60,000.

—Whether it is in the "best public interest" to allow two more concessions.

Board members questioned Arizumi concerning the legal implications of his department's proposal and asked about the criteria used to determine the need for two additional car rental firms.

Arizumi, DOT property management officer, said he had no data to substantiate that the concessions would be in the public interest — that he was merely acting at the direction of his director (E. Alvey Wright.)

BOTH BREGMAN and Swope urged the board to hold a public hearing before deciding on the DOT

request. They said their firms had no complaints about their service and there were no facts presented at the meeting yesterday to support the claim that public interest would be served with two more concessions.

Bregman said his firm would have no choice but to go to court if the Land Board approved the DOT request because the action would "go against every rule of law."

He said, "No government agency can act in an arbitrary and capricious manner — act without facts."

Land Board members said they felt they had to abide by the opinion of their deputy attorney general — Russell Fukumoto — who said it

was legal for them to approve the DOT request on the basis that public interest would be served.

THEY SUGGESTED that the competition would lead to reduced rates which would benefit the public.

Henry Caruso, Dollar Rent-A-Car Systems president, said, "It's a common cry of Hertz, Avis and National that they serve all needs..."

But he said, "They can't serve our customers that want service at the airport... Our customers should have the same type of services offered by other operators to be picked up at the airport."

He said additional operators would not reduce the business of the existing rent-a-car firms.

Panel Agrees on Turtle Rule

By Helen Altom
Star-Bulletin Writer

After months of hearings, arguments and amended drafts, a proposed regulation to protect Hawaii's marine turtle population appears on its way to State approval.

The Animal Species Advisory Commission unanimously agreed on the regulation with a last-minute change Thursday to appease members of that body representing fishing interests.

The final version of the regulation is a compromise hammered out in lengthy debate in many meetings of the commission. Both scientists and fishermen reportedly are happy with it.

THE REGULATION now goes to the State Board of Land and Natural Resources for consideration, probably at a meeting Thursday at Waimea, on the Big Island.

The regulation was proposed by the Land Department's Division of Fish and Game and has been pending since last fall.

It would prohibit all turtle fishing except for

green sea turtles for home consumption. They could be taken only with a State permit and if the upper shell length was 36 inches or more.

The commission Thursday changed a section of the regulation requiring fishermen to keep the head and meat attached to the upper shell while transporting a turtle to their homes.

PHILIP YAMAGATA, chairman of the Kauai County Fish and Wildlife Commission, had vehemently opposed that restriction, arguing that it was unreasonable and unenforceable.

The regulation was changed to allow the turtle to be gutted or cut up into not more than five parts, with one part being the whole upper shell with the head attached. All parts must be kept together until the fisherman leaves the shore area for his home.

Michio Takata, Fish and Game Division chief, said, "If we don't catch violators before they leave the dock or shore area, there is no way to enforce that (provision). So, this language is satisfactory to everybody."



SEA GRANT NEWSLETTER

in this issue:

FUJI, HAWAII'S PRAWN EXPERT,
RETURNS FROM FAO ASSIGNMENT
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Sea Grant Newsletter

Volume 4, Number 4

April 1974

LEGISLATIVE ISSUES



Capitol, State of Hawaii

SEVERAL KEY MARINE-RELATED BILLS CONSIDERED BY STATE LEGISLATURE

Perhaps no other coastal state can claim a State Legislature more attuned to the marine environment than here in Hawaii. The 1974 Session of the Hawaii State Legislature has considered and is considering dozens of bills directly related to the ocean that surrounds the island State. These bills are concerned with major issues, such as the fate of the Waikiki Aquarium to issues which support one segment of the State's people, such as the banning of the nehu (*Stolephorus purpurus*) fishery to all but commercial fishermen.

Featured in this issue of the "Sea Grant Newsletter" are several of the more major concerns in which the University of Hawaii Sea Grant College Program has had a particular interest because it has been directly involved in supporting a related research project simply because the marine-oriented issue was of widespread interest.

sg matching fund

The Sea Grant College Program which currently administers about \$1.1 million in federal funds requires matching state funds or other non-federal funds in order to obtain federal dollars. To

fulfill this requirement, two companion bills, House Bill 2285-74 and Senate Bill 1528-74, have been introduced in the State Legislature which is presently in session.

The bills request \$260,000 in state matching funds to support program management, marine technician training program, Malaysian prawn culture and engineering, manganese resources, fish eggs and larvae, and the marine advisory program.

In reporting out SB 1528-74, the Senate Committee on Higher Education states in part, "Sea Grant

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Room 253, Spalding Hall
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Jack R. Davidson
Director

Rose Pfund
Information Specialist

KEY MARINE BILLS (Continued from page 1)



has responded to urgent problems in the State, such as environmental problems in our coastal waters, it has provided the research to spawn new industries, such as intensified aquaculture and fish and prawn "farming;" and it has assisted in the expansion of existing industries, such as the three-year precious coral program, which has provided the basis of expansion for the coral jewelry business from a \$2.5 million business annually to \$8 million, resulting in an expansion in employment and an increase in tax revenues of approximately \$1.5 million annually."

The three-page report further states, "[the Committee on Higher Education] has been a strong advocate of the creation of "selective excellence" for the University of Hawaii system, and has recognized that our marine programs are so critical to the State that they must necessarily fall within this category singled out for emphasis. [The] Committee sees the benefits of the Sea Grant College designation of the University of Hawaii to be key to the development of excellence in this area, and... recognizes that this is one area in which Hawaii cannot afford to settle for second best. The matching funds which are required to maintain our existing Sea Grant

status are an investment in the future of our island State, and are especially well spent in that for each State dollar expended in our behalf."

SB 1528-74 is in the Senate Committee on Ways and Means at the time of this writing.

The companion bill, HB 2285-74, has not as yet been reported out of the House Committee on Higher Education although a hearing has been held.

mac appropriation

The Marine Affairs Coordinator's (MAC) bills, Senate Bill 1748-74 and House Bill 2263-74, essentially request \$460,000 to be expended by the Marine Affairs Coordinator's office for the purpose of marine research, participation and support of relevant events, information and promotion, and support of State marine facilities.

HB 2263-74 has been reported out of the House Committee on Water, Land Use and Development and has also been heard in the House Committee on Finance.

In the Senate, SB 1748 has not been reported out of the Committee on Economic Development as yet, although a hearing has been held.

(Continued on page 3)

Keel Row

M OANA WAVE

...arrived in Honolulu at 3:00 p.m. March 14 and is docked at Pier 18 being prepared for a short two-day cruise, ETD 28 March. She will then leave on a NOAA cruise, ETD 12 April, ETA Honolulu, 11 May.

K ANA KEOKI

...continues her investigation of the Nazca Plate off the coast of South America, she left Callao, Peru, 16 March for Valparaiso, Chile, ETA 2 April; from there, ETD 6 April, the R/V KANA KEOKI will cruise to Easter Island, ETA 3 May.

marine meets

A Financial Assistance Seminar for Hawaii's commercial fishermen will be held April 24 at the Pagoda Hotel. John Craven, Dean of the UH Marine Programs, will chair the seminar. Other participants will be Richard Shomura, Director of the Hawaii National Marine Fisheries Service; Senator Donald Nishimura; Mike Grable and Jim Murdock, chiefs of the NMFS divisions of Financial Assistance and Extension Services respectively.

The Floating Breakwaters Conference sponsored by the University of Rhode Island and University of Washington Sea Grant Programs will be held at the Sheraton-Islander Inn, Newport, Rhode Island on April 23-25. Registration will be held on April 22, the fee is \$55 in advance or \$60 on arrival. Deadline for registration is Friday, April 12.

A workshop on the control of the Seas will be held at the Honolulu Community College on Saturday, April 13 from 1:00 p.m. to 5:00 p.m. Sponsored by the Coordinating Council for World Peace-Hawaii in cooperation with the Social Science Department of the college, the workshop will feature John Craven, Dean of UH Marine Programs, and Dr. Chennat Gopalakrishnan as speakers.

KEY MARINE BILLS (Continued from page 2)

waikiki aquarium

No less than nine bills have been introduced into the Seventh Legislature of the State of Hawaii, six Senate bills and three House bills, all attempting to solve the problem of what to do with the Waikiki Aquarium.

Senate Bills 1712-74 and 2048-74 and House Bills 3031-74 and 663-74 seek to transfer the aquarium from the University of Hawaii to the City and County of Honolulu. The two Senate bills are in the Ecology, Environment and Recreation Committee and are not scheduled for hearings as yet. Both House bills are in the House Higher Education Committee: HB 663-74 has been heard but not reported out as yet and HB 3031-74 will not be heard as enough testimony on the subject has been heard already so only a decision needs to be made, according to Chairman Akira Sakima's office.

The bills that would establish a state aquarium system, SB 563-74 and its companion bill in the House, HB 2265-74, have both been heard. The Senate bill has been reported out of the Ecology, Environment and Recreation Committee and into the Ways and Means Committee. No decision has been made on the House bill at this time.

A capital improvement appropriation bill, SB 1899-74, is seeking \$203,400 out of the general state revenues for construction projects at the aquarium. This bill is awaiting a hearing schedule in the Senate Committee on Ecology, Environment and Recreation.

Another Senate bill, 636-74, raises the general admission price from 25¢ to 50¢ for adults and from free to 10¢ for children. The bill also establishes a revolving fund to enable the aquarium to use the admission receipts. A hearing was held for this bill in the Higher Education Committee on February 11 but, at this time, the bill has not been reported out of the committee.

Perhaps the most unusual proposal, SB 2208-74, introduced by Stanley Hara, would transfer the aquarium to the Department of Accounting and General Services. That department would then lease the facilities at a public auction to be operated as a private enterprise. No hearing has been set for this bill, which is in the Ecology, Environment and Recreation Committee.

Senator Donald Nishimura, who introduced SB 2098-74 to transfer the aquarium to the City and County of Honolulu, feels that the University has not been the best aquarium administrator. The senator thinks that the City and County has done a very good job with the zoo and would be a better administrator for the aquarium. He feels that instead of putting \$200,000 into the renovation of the old building, a new facility should be built, perhaps within the zoo.

"Won't somebody bail me out?"



Reproduced with permission: Honolulu Advertiser, March 8, 1974.

The author of the unusual bill to lease the aquarium to a private concern, Senator Hara, feels that private enterprise would be able to do a good job with the aquarium--much better than the University. According to the senator, there are private concerns who are willing to operate the aquarium. However, the details still need to be worked out. The senator also said that he was not interested in the other aquarium bills. If profit is the motivation then the management would necessarily do a good job and the state would be able to realize some revenues. "We just need money, that's all," he said.

At the higher levels of the University administration there does not seem to be an overwhelming desire to keep the aquarium under the University umbrella. However, according to John Craven, dean of UH Marine Programs, there is a strong desire, since the Uni-

versity does have a strong marine program, that whoever administers the aquarium, it should be heavily affiliated with the University.

It is the University's position according to Wytze Gorter's testimony at the Senate Committee on Ecology, Environment and Recreation hearing on the state aquarium proposal and an aquarium transfer to the City bill, that the Waikiki Aquarium should be kept by the University until an independent state aquarium system can be established or some other state department assumes control of the facilities. This position was supported by the Board of Regents at their February 28 meeting: "The committee agreed with the position that the Aquarium remain a part of the University and that this is a short-term solution. The director, when appointed, would attempt to plan a long-range program for the Aquarium."

haw'n sea turtle

When was the last time you had turtle steak? It may well have been the last, if State Senator Mason Altiery's feeling that the Hawaiian green sea turtle (chelonina species) is an endangered species that should be protected from being taken prevails.

At present, there are two bills before the State Senate concerning green sea turtles. Senator Altiery's Senate Bill 1530-74, if passed, would make it unlawful for green sea turtles to be taken from Hawaiian waters.

The other bill, House Bill 1635-73, introduced during the last session by Representative Anson Chong, calls for an appropriation of \$25,000 for a research management study of the Hawaiian green sea turtle population. The bill also appropriates \$5,000 for a preliminary feasibility study to increase the size of the turtle population and would appropriate another \$5,000 for a preliminary feasibility study to encourage commercial turtle mariculture.

Besides interest in the State Legislature, the Department of Land and Natural Resources is also considering the implementation of regulations for catching green sea turtles. These regulations, if passed, would limit the taking of turtles for home consumption only and prohibit the taking of turtles under 36 inches.

(Continued on page 4)

KEY MARINE BILLS (Continued from page 3)

According to Senator Altiery, the Department of Land and Natural Resources has taken much too long to pass these regulations and that a more stringent regulation, preventing any capture of green sea turtles, is needed. The senator bases his opinion on a recent study done by George Balazs of the Hawaii Institute of Marine Biology estimating the total breeding population of Hawaiian green sea turtles to be about 1100.

Senator Altiery is also opposed to the appropriation of \$5,000 for the study of commercial turtle mariculture in Anson Chong's bill. The senator, however, does support the remainder of the bill.

According to Anson Chong, since his bill has been passed by the House, to further amend the bill would necessitate more hearings in the House, causing added delay. He supports the bill as it stands, leaving it to the discretion of the Department of Land and Natural Resources to use the funds for turtle mariculture or not. It is Representative Chong's opinion that in the face of overwhelming professional evidence that commercial turtle mariculture is premature at this time and only puts greater strain on the natural population, the Department of Land and Natural Resources will choose to ignore commercial mariculture for now.

Representative Chong also supports the proposal to ban green turtle capture, however, he does not feel that pressure should be taken off the Department of Land and Natural Resources to pass their proposed regulations.

William Thompson of the Department of Land and Natural Resources supports the bill for further study of the turtle situation including the controversial \$5,000 appropriation. If the bill is passed, the department will use the appropriated funds to study the possibility of commercial turtle mariculture. Thompson is opposed to the total banning of the turtles as he feels there are no accurate figures to support such an action at this time. "The objective of Anson Chong's bill," said Thompson, "is to provide accurate figures on which to base further action. It would be easier to enforce a total ban but the department does not feel that such a strict measure is necessary at this time." According to Mr. Thompson, the regulations will be passed by the department by the end of April.

Currently, the two green sea turtle bills have been reported out of the Senate Committee on Ecology, Environment and Recreation with the following changes: Senator Altiery's bill to establish a complete ban on taking turtles was amended to allow for the catching of turtles over 36 inches in length for home consumption only. Anson Chong's bill for the appropriation of funds to study the turtle population was amended to make commercial taking of turtles unlawful and the appropriations for the feasibility study of commercial turtle mariculture was deleted. Both bills have been referred to the Senate Ways and Means Committee.

geothermal energy

Two bills concerning geothermal energy have been introduced, one in the Senate, SB 1392-74; and the other in the House, HB 2197-74.

SB 1392-74, introduced by David McClung, would appropriate an unspecified sum to conduct geothermal energy research. This sum is to be expended by the Department of Land and Natural Resources.

The House bill, an administration bill, would define all geothermal resources in, on, or under any land, fast or submerged, as a mineral resource to be regulated in the same manner as other minerals such as coal, gold, sulphur, etc.

The purpose of this act is to "establish in law the definition and ownership of geothermal resources to encourage their development, and to provide for their administration and management in the public interest."

state trail system

A bill to establish a statewide trail and access system, House Bill 1189-73, was introduced last year. The bill was reported out of the no longer existent House Committee on Parks, Fish and Game Management into the House Finance Committee where it remained until the session closed. This year the same bill has been re-referred to the new House Committee on Water, Land Use and Development where it will remain until a hearing is scheduled.

If passed, this bill would "(1) supply a wide range of recreation-

al needs for major user groups including fishermen, snorkelers, hikers, campers, and photographers; (2) provide a showcase for Hawaii's unique natural and cultural treasures for environmental education and for the appreciation of nature and history by both residents and visitors; (3) help to develop the economic potential of a region by a method compatible with maintenance of natural and cultural resource values."

This bill incorporates the essence of another house bill, HB 1766-73, as it would appropriate \$50,000 to initiate a demonstration project and trail system to be known as the Ala Kahakai Project on the Big Island.

According to Justin Rutka, advisory specialist on Coastal Zone Management for UH Sea Grant, the one bill appropriating funds for the Ala Kahakai Project only, has little chance of passing as it involves just the island of Hawaii. "The statewide trail project bill, which includes an appropriation for Ala Kahakai, has a much greater chance of being passed," Rutka said.

JAPAN OCEAN EXPO POSTPONED

Due to the energy crisis in Japan, EXPO '75 has been postponed for four months. The revised dates are July 20, 1975 through January 18, 1976.

UH SEA GRANT SUPPORTS STUDY IN ENIWETOK

On February 27, Leighton Taylor, UH Zoology Department, returned from a two-week stay on Eniwetok. While on the island, Dr. Taylor and Ronald Nolan of Scripps Institute of Oceanography conducted a preliminary study on the comparative ecology of reef fishes. The study is being funded by UH Sea Grant College.

Dr. Taylor returned with several specimens of reef fishes for display at the Waikiki Aquarium. The specimens include four lemon peel angel fish, two dozen blue-green chromis, 6 to 8 close relatives of the saddleback wrasse, a small grouper, and several species of damsel fish.

ciguatera poisoning affects 75 islanders

Within the last month there have been at least seven outbreaks of ciguatera poisoning reported on all the major Hawaiian islands. The total number of people that have been stricken, according to Dr. Albert Banner, chief ciguatera researcher and professor of zoology at UH, is listed at about 75. One or two people on Maui have been hospitalized because of the poison.

Dr. Banner stated that the toxin has been traced to the Kahala fish (*seriola dumerilii*), an important food fish in the islands. The toxic fish seem to be all over

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PEACESAT USED TO DISCUSS MARINE - RELATED TOPICS

Held on Wednesday, March 6, was the first session in a series of informal conversations on issues of ocean administration with others throughout the Pacific region interested in this subject. These sessions are to be conducted on the first Wednesday of each month via PEACESAT, a satellite communication system allowing multilateral voice communication among Hawaii, Fiji, Alaska, New Zealand, Rarotonga, the Trust Territory, and several other points throughout the Pacific. The conversations are planned for 4:30-6:00 p.m. Hawaii time in Room 317 of the Physical Sciences building on the UH Manoa campus.

The first session was devoted primarily to introductions, orientation, and planning. It is proposed that each terminal take a turn chairing one of the monthly sessions, round-robin fashion.

The second session to be held on April 3 will have as its topic "The Archipelago Principle" chaired by Robin Nair of the Crown Law Office, Fiji. On May 1 Burt Brun of the New Zealand Ministry of Agriculture and Fisheries will chair the session on "Fisheries Management."

Those who have suggestions, comments, or are interested in participating in this program should come to the scheduled sessions or contact George Kent, Department of Political Science, UH Manoa campus.

TURTLE MARICULTURE: boon or bane?

Sea turtles are an animal with a complex life cycle. They feed in one place and lay their eggs in another, sometimes hundreds of miles away. As hatchlings they seem to be carnivorous; as adults they graze on algae and various types of shallow-water marine grasses in the tropics. Because the turtles do graze these marine grass pastures, they are potentially an important source of protein for man because of their position in the food chain. However, when maricultured, the turtles are fed primarily a carnivorous diet which removes them from their natural position in the food chain as well as making them expensive to feed.

Another problem is that sea turtles do not readily reproduce in captivity so the eggs of hatchlings must be harvested from wild stock. This puts a strain on the natural population when tens of thousands of eggs are collected each year from their natural beaches. Theoretically this could be compensated for by returning yearling turtles to the sea. However, it seems unlikely that these turtles would reproduce, because turtles seem to nest where they were hatched. Where these released turtles might go to nest is as yet unknown. Much research needs to be done on this

aspect of the turtles' life cycle.

In an article in the *American Scientist*, "Conserving the Edible Sea Turtle: Can Mariculture Help?", David W. Ehrenfeld, Associate Professor of Biological Sciences at Columbia University, takes a close look at the effect of commercial mariculture, especially Mariculture Ltd. of Grand Cayman in the Caribbean, on the wild turtle population.

From a sociological standpoint, collecting thousands of eggs from nesting grounds where the local population is not allowed to harvest turtle eggs does not cause a favorable impression on the natives. For example, the eggs taken from Tortuguero Beach would provide the entire population of the two beach villages with two eggs a day for over a month.

As a sensible business practice, Mariculture Ltd. has opened new markets for turtle products causing an increased demand. Consequently the price for these products is increasing, making it even more attractive for fishermen to catch more wild turtles and further decrease the natural population.

According to George Balazs, HIMB, until these major problems can be solved, any attempt at commercial turtle mariculture is premature.



It was standing room only at the Senate Committee on Higher Education hearing on the Sea Grant matching fund request bill, SB 1528-74. Program leaders who are specifically affected testified as did several students in support of the Blue Water Marine Laboratory.

Fujimura Returns from 6-Week FAO Assignment in Rome and Mauritius

"The demand for freshwater prawns far exceeds the supply," remarked Takuji Fujimura, aquatic biologist for the division of Fish and Game of the department of Land and Natural Resources of the state of Hawaii. Mr. Fujimura, who was the principle investigator in the development of the technique of mass aquaculture of freshwater prawns, returned recently from a six-week assignment for the UN Food and Agriculture Organization (FAO). The first stop of the assignment was FAO headquarters in Rome for briefing. From there the biologist continued on to Mauritius in the Indian Ocean to do follow-up work on prawn aquaculture that he had set up two years before.

The work in Mauritius is being carried on with the help of two Mauritians who received their training in 1972 at the University of Hawaii aquaculture training program sponsored by Sea Grant, East West Center, HIMB, Department of Land and Natural Resources, Oceanic Institute, and Fishfarms Hawaii. At present the Mauritians have a prawn hatchery and seventeen acres of one-half acre pilot ponds.

The prawns, a South East Asian species which were originally imported from Malaysia, are now being mass-produced on a small scale in Hawaii. The larvae are reared



Takuji Fujimura

in brackish water at the division of Fish and Game hatchery on Sand Island until they have metamorphosed into juveniles, at which time they are planted in the several privately owned and operated pilot freshwater ponds on Oahu and Kauai. When the prawns reach the size of seven prawns per pound (they can grow up to one pound apiece), they are harvested and sold to Tamashiro's Fish Market in Palama. Everyone involved is optimistic that freshwater prawn aquaculture can develop into a major new industry for the state.

CIGUATERA (Continued from page 5) twenty pounds.

A meeting was held by the State Board of Health attended by state health officials, Department of Fish and Game, U.S. Public Health Service, and Dr. Banner. It was decided at the meeting to temporarily halt commercial sales of kahala over twenty pounds on a voluntary basis.

The House of Representatives of the State of Hawaii has submitted a House Resolution supporting a step up in ciguatera research at the University and Dr. Banner in particular. Dr. Banner has submitted proposals for ciguatera research grants to Sea Grant, the Rockefeller Foundation, and the South Pacific Commission. The zoologist has also submitted a proposal to the Atomic Energy Commission for ciguatera research on Eniwetok.

Other active ciguatera researchers at the UH are Dr. Paul Scheuer, chemistry; Dr. Leslie Berger, microbiology; Dr. Yoshitsugi Hokama, bio-med, and Martin Rayner, physiology.

Dr. L. R. Berger, Microbiology, will spend two weeks, April 6-22, at the Institut de Recherches Medicales Louis Malarde, Papeete, Tahiti to help the staff with new methods in isolating microorganisms. This project is supported by the South Pacific Commission and is part of the Ciguatera fish toxin project directed by Dr. Albert H. Banner, zoology and HIMB.

University of Hawaii
Sea Grant Publications
2540 Maile Way
Room 253, Spalding Hall
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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 36 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 Altom
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."

Public Hearing *2/21/74*
Ka Molokai

Another reminder that there will be
a public hearing held on the Subject of
proposed changes in the regulations per-
taining to sea turtles on Thursday,
February 28, at 7:00 p.m. at the court-
house in Kaunakakai.

Turtle Protection Is Delayed

The State Land Board again has delayed action on a proposed regulation for protection of Hawaii's marine turtles, this time to allow Molokai residents to be heard.

The Board of Land and Natural Resources deferred action on the regulation in October so more public hearings could be held. Up to then, hearings had only been on Oahu.

Hearings subsequently were held in the other counties, including Maui County of which Molokai is a part. But Molokai residents have requested hearings on their own island, land officials said.

THE MOLOKAI hearing will be at 7 p.m. Feb. 28 in the district court in Kaunakakai.

The regulation was modified slightly and approved by the State Animal Species Advisory Commission after the other hearings.

It would outlaw fishing for sale of leatherback, hawksbill or green sea turtles in Hawaiian waters; allow taking of green sea turtles for home consumption with a State permit if the upper shell length is 36 inches or more, and ban use of nets.

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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 Kapa'a 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

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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."

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.

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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.

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.

ENSMINGER SAID that alligators had become so numerous in Florida that the Seminole Indians there are establishing an alligator ranch to raise them commercially. The Indians expect to sell hides and food from the reptiles, he said.

"The tail, the legs and the throat are good eating," he said.

Louisiana has opened a small, tightly controlled hunting season on alligators the last two years. The Audubon Society protested at first, saying there was no evidence that the alligator population had regained enough health to permit hunting.

The society has changed its position and now acknowledged that the health of the population is beyond question in certain sections.

"There is no doubt that it is making a comeback," the Audubon spokesman said. "But we are still concerned with the over-all status of the alligator."

THE SOCIETY fears that a resumption of legal hunting might lead to a new round of illegal hunting, in spite of a new law that makes it a federal offense to carry an illegally-taken alligator hide across a state line.

"We'd rather wait a little longer until we got a good healthy population throughout the range," the spokesman said.

Several northeastern states now prohibit the buying or selling of alligator products, such as shoes, purses and belts.

Premature hunting and widespread poaching could cause the repeal of those state laws and lead to alligator products becoming fashionable again, he said.

A treaty written last spring lists the alligator as an endangered species and would remove it from international trade. The treaty has been ratified by several nations. Ratification by the U.S. government is pending.

Also pending is a bill in Congress that would permit the government to remove the alligator's "endangered" label in areas where it has become plentiful again.

Wild life authorities believe the alligator was once seriously threatened by irresponsible hunting and that only a tightening of state and federal laws in the 1950s and 1960s, saved it from extinction.

Keep Turtles
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To The Forum:

We stopped into the
Green Garden Once, saw
turtle on the menu and
walked out.

And please, no more
high rise. One is one too
many. Kauai, as it is at-
tracts people. Awini -
Waikiki sure would not.

Aloha nui.
Steve Tusler

The Garden Island
1/7/74

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HONOLULU ADVERTISER
6/22/74

Turtle rescues woman at sea

Agence France-Press

MANILA — A giant sea turtle has saved the life of a 52-year-old woman lost at sea for two days after a shipwreck in southern Philippines.

She rode on the turtle's back.

The Manila newspaper "Bulletin Today" identified the woman as Mrs. Candelaria Villanueva, a passenger on the Philippine inter-island vessel "Aloha" which burned and sank off Zamboanga del Norte province June 2. Four of the vessel's 271 passengers died in the disaster.

MRS. VILLANUEVA had been adrift for 48 hours when she was sighted by a navy ship on June 4 — riding on the back of the giant turtle. She looked haggard and hysterical.

Navy Lt. Cesario Mana was quoted by the newspaper "I would not have believed it if I had merely heard about it. But I was an eyewitness myself, along with my shipmates."

Mana said he and his mates initially thought that the woman was riding a "huge oil drum."

THE MEN DID NOT realize it was a turtle until they started hauling up the woman.

After the woman was pulled up into the ship, the turtle "even circled the area twice before disappearing into the sea, as if to reassure itself that its former passenger was already in good hands," said the officer.

The newspaper said the unusual true-to-life rescue story was disclosed at a recent sea-safety seminar held by the coast guard and local shipping associations.

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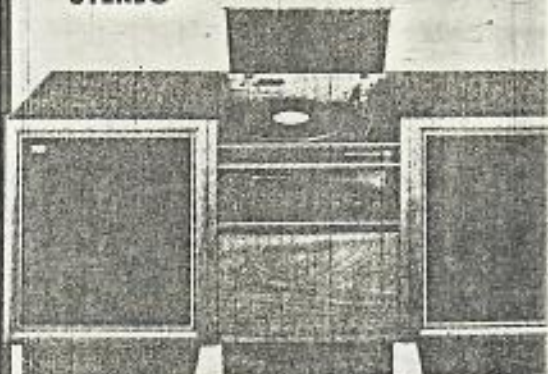
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creases the concentration of carbon dioxide.

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.

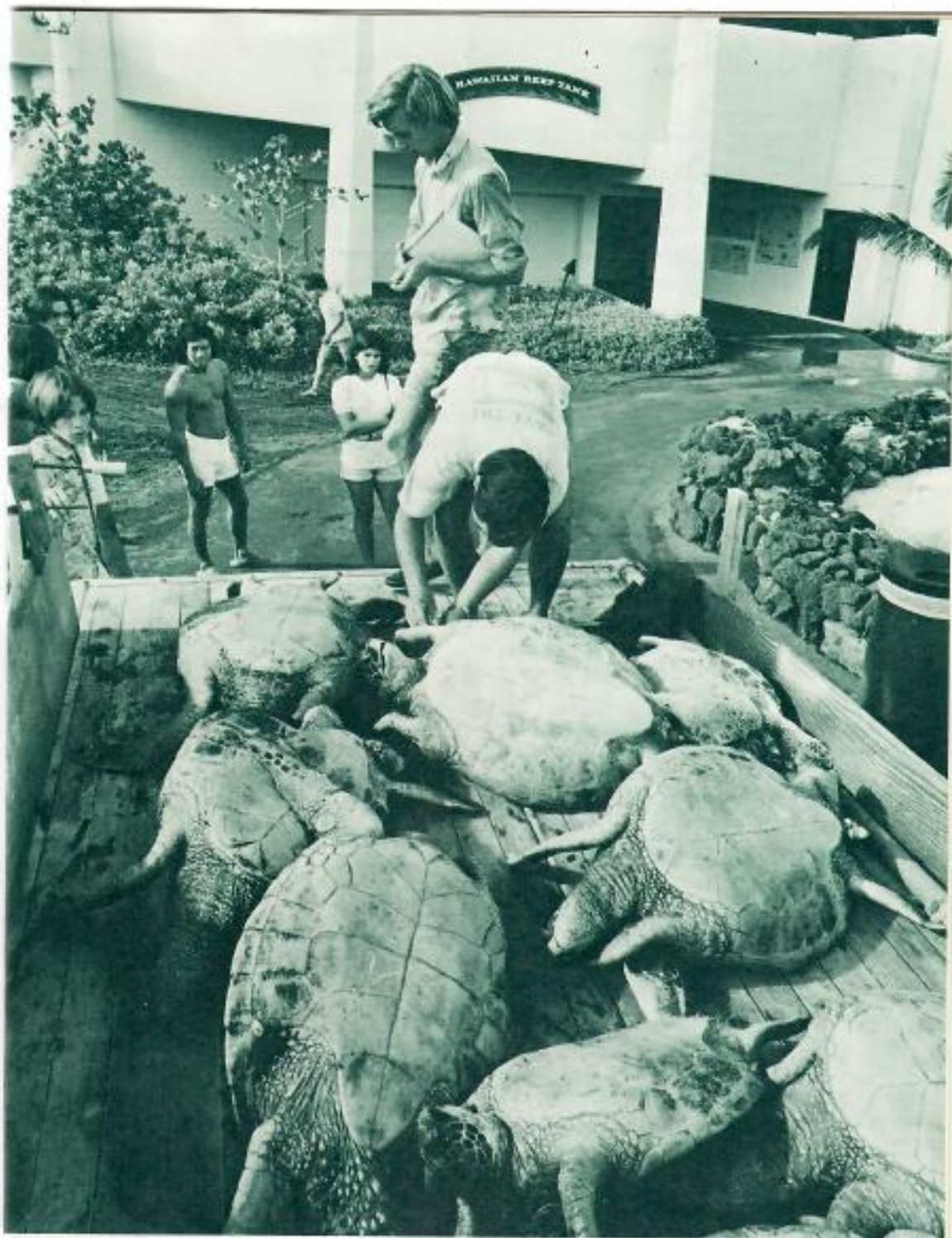
Balazs has also been encouraging the release of captive green turtles where excessive numbers are present. In 1973, 21 turtles were tagged and set free from the Waikiki Aquarium and 9 from Sea Life Park. Of this number, three have thus far been reported as captured. One was caught by a conservation-minded 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

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