

Turtle - Misc.  
G. H. BALAZS FILE  
1970s - 1990s



GREEN TURTLE REGS TO BE CONSIDERED BY BOARD OF LAND & NATURAL RESOURCES THIS FRIDAY: At 10 a.m., in the Board Room of the Department of Land & Natural Resources, Regulation 36 "Relating to the Protection of Marine Turtles" will be considered for final adoption by the Board of Land & Natural Resources. The final draft (below) remains essentially untouched from the original draft sent to you in our July 20th newsletter with the exception that the fine for violating the regulation was increased to \$500 from \$100.

A note or phone call to Sunao Kido, Chairman of the Board of Land and Natural Resources (548-6550) (address: 465 S. King St., Honolulu, Hi. 96813) would be appreciated.

State of Hawaii  
Department of Land and Natural Resources  
Honolulu

Draft 84  
(9/25/73)

DIVISION OF FISH AND GAME

(This is the final draft submitted to BLNR for action, by Div. Fish & Game, 15 Oct. 1973.)

The Board of Land and Natural Resources, in conformity with and pursuant to Chapters 187 and 190, Hawaii Revised Statutes, and every other law hereunto enabling does hereby adopt the following regulation relating to the protection of marine turtles.

REGULATION 36. RELATING TO THE PROTECTION OF MARINE TURTLES.

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 or the eggs or nests thereof from or within the State of Hawaii and waters subject to its jurisdiction, except as provided in Section 2 of this regulation.

SECTION 2. It shall be lawful with a permit issued by the Board of Land and Natural Resources in accordance with Section 187-4, Hawaii Revised Statutes to take:

- a. Marine turtles for scientific or propagation purposes.
- b. Green sea turtles for home consumption from the waters surrounding the eight major islands (Hawaii, Maui, Kahoolawe, Lanai, Molokai, Oahu, Kauai and Miihau) provided that the upper shell length is 36 inches or more (straight line measurement) and the turtle is kept whole or unbutchered while in transit over sea or land from the fishing area to the permittee's residence.

SECTION 3. It shall be unlawful to use nets for the taking of green sea turtles.

SECTION 4. Any person violating the provisions of this regulation shall be fined not more than \$500 as provided in Section 187-20, Hawaii Revised Statutes.

Adopted this \_\_\_\_\_ day of \_\_\_\_\_, 1973 by the Board of Land and Natural Resources.

**EEL CONTROVERSY:** Background information on this vital issue has been amply reported by the local press and recent clippings are attached. Suffice to say that the battle is not lost. Residents of Laie simply do not want the facility and can block it.

An interesting point brought out by perceptive questioning at recent meetings at Laie, is that Pacific Aquaculture (the firm that wants to import the eels) wanted to ship in North American and European eels (also known as the "mud snake" on the east coast of the mainland) by way of Japan and then market them as Asian unagi. Needless to say, the N. American and European eels are not of the Asian species.

Opponents to eel importation are urging like minded people to call upon Fred Erskin (941-3071), Board Chairman of the Agriculture Board, to reconsider the decision to issue the eel import permit. It should be pointed out that a new 9 member Advisory Committee was appointed on October 5th and did not have the opportunity to make its feelings known to the Agriculture Board about the eel situation.

*Finally, we note a community meeting at the Laie Elementary School scheduled for Wednesday, October 24th at 7:30 p.m. (hope this gets to you on time!!)*

**H.B. 1635, THE GREEN TURTLE BILL:** A reminder: The bill is quite alive and now sits in Senator Ken Brown's committee on the Ecology, Environment & Recreation. Vice Chairperson is Mason Altiery. Members include, Senators Don Ching, John Hulthen, John Ushijima, Percy Mirikitani and Fred Rohlfing. The Bill (mailed to you in previous newsletters) is supportive of REG 36 (over) and has only one more reading to go in the Senate, having passed the House after three separate hearings during the last session. **BE SURE TO REGISTER YOUR SUPPORT OF H.B. 1635 H.D. 1** with the above senators. Phone number is 548-7444 for Senator Brown.

----Mahalo to Alan Zeigler for a very informative briefing on the eel situation and for supplying a complete set of clippings (enclosed) -----

From the Office of  
**ANSON CHONG**  
State Capitol, Suite 305  
Honolulu, Hawaii 96813  
Phone 548-4183



# eels to be marketed here, Fishfarms Laie exec says

# commercial eel venture approved

By BRUCE BENSON  
Advertiser Staff Writer

The State Board of Agriculture overrode strong objections from the scientific community yesterday and approved a request to import 100,000 young eels to be raised commercially on Oahu.

In letters to the board, scientists warned that the eels eventually would escape from captivity and enter the freshwater streams and lakes of Hawaii, where they would prey on fish species that already are established. Biologists of the eel enterprise, however, contended that all eels sold within the State would be dead when delivered to market. They also said extensive precautions would be taken to ensure that the eels remain in captivity while being grown in tanks.

DR. KEN KATO, a zoologist employed by the firm to raise the eels, said the warnings sounded by the other scientists were "unsubstantiated" and based on "emotionalism."  
Kato said the eels will be raised by the Pacific Aquaculture Corp., doing business as Fishfarms Hawaii, in conjunction with Salsuro Arashida of Taketo, Japan.

Kato said the business will employ two persons at a site at Laie on Oahu. He said he didn't know how much will be spent on facilities for growing the eels.  
Kato did not say, nor did the board ask, how much the new eel business will add to Hawaii's economy. At least a portion of the eel crops probably will be exported to Japan, according to Arashida.

THE ENTERPRISE won the approval of Michio Takata, head of the State Division of Fish and Game, who had recommended against it until Arashida amended his application to state that the eels would be dead when marketed within Hawaii.

Takata also said that Arashida "must maintain adequate control and security over the farm to prevent accidental escapes or poaching of live eels (though is the Japanese word for eel). Applicant should be held liable for costs incurred in eradication of eels in the wild should any escapes be attributable to his operations."

The board was ready to take action on the request without holding the business accountable for eradication of escaped eels until Steve Montgomery, a board mem-

ber of the Conservation Council of Hawaii, suggested that a financial liability clause should accompany permission to import.

Secure Chahars, head of the Department of Agriculture's Division of Plant Industry, also approved the request.

ONE LETTER AGAINST eel introductions came from Dr. Colin Nash, director of the Oceanic Foundation at Waikoloa, who said aquarists in Hawaii should deal with the raising of indigenous fish species instead of exotic, or nonnative ones.

Agriculture Board Chairman Fred Erskine took strong exception to Nash's position. Erskine said aquarists in Hawaii would be a losing proposition if only indigenous fishes were raised.

"If that's the case I think we should do away with the Oceanic Foundation," he said.  
Nash said afterwards in a telephone interview with The Advertiser, "I just think he's wrong, that's all. I've said before that I think aquaculture is very limited in Hawaii because we've got a limited number of indigenous fish species."

Nash called the board's decision "foolish," adding, "I've worked with eels in England and seen eeleries so hard to keep control over them but we did find it was impossible."  
KATO, THE fishfarm executive, told The Advertiser that while he feels it is impossible to guarantee that eels will never escape from their tanks and into the wild, there is no evidence to show they automatically will become established as native stream ecosystems as a detriment to other fish species.

He said young eels will be preyed upon by other fish as well as become predators themselves.  
Eels of the family to be raised in Oahu include species that grow to five feet or more in length and weigh 20 pounds or more.

and do the eel operations rather than talk about it," Kato said. "We're looking at it as a crop that can be utilized by man. It's as simple as that."

Kato said he expects to have eel tanks and other facilities built and growing the animals by the end of this year.

One condition imposed on the venture is that the eels must be dead when sold to local markets. Until now, eels have been sold alive at the counter.

The agriculture board, however, gave the new eel business an okay to export eels alive.

"This business will certainly help Hawaii with its large aquaculture industry," Kato said. "The State has talked about getting into diversified agriculture, and this is just one part of that program. In this case we'll be borrowing from Japan instead of the other way around. We're using Japan's technical ability and know-how in raising eels to our benefit."

markets by The Advertiser found that less than a thousand eels a year is sold on Oahu.

Kato said the distribution of 20,000 pounds a year from Fishfarms Laie would not be infeasible since an aquaculture company which he already runs — Fishfarms Hawaii on Maui — has established a distributing system for fish crops grown there.

He added that export of eels wouldn't necessarily be limited to Japan. They could be exported to New York, San Francisco, Los Angeles, wherever you find Japanese restaurants," he said.

Fishfarms Laie is an enterprise of Pacific Aquaculture Corp., whose officers and board of directors are all Hawaii residents, he said. The corporation is undertaking the eel operation in conjunction with a Tokyo eel export, Salsuro Arashida, he said.

KATO said Arashida approached officials in Hawaii about growing eels here. "He approached me, saying he has the technology, that there is a market in Japan, and that this is a culturally (growable) species," Kato said.

"We'd rather get started

"THE EELS do not occur here in nature, and it is next to impossible to cultivate them. Their total confinement in an aquaculture operation, for scientific reasons, is critical to the eel business that centered on the risk that the eel will become pests in the wild. A whispering campaign also has sprung up that the applicants for the new venture were not careful in stating that their principal market will be Japan, thereby risking an upset of Hawaii's fresh waters for the benefit of a foreign market."

Kato has countered the argument about the danger of the eels escaping to the wild by stating that it is difficult to grow them in captivity under controlled conditions, let alone estimate they could propagate on their own in the wild.

Concerning the marketplace, he said: "There should be an outlet for them in our local Japanese markets and restaurants. Many restaurants here don't even consider serving them because it's hard to obtain them from Japan."

A SURVEY of local fish lakes in the islands.

By BRUCE BENSON  
Advertiser Staff Writer

One hundred thousand fresh-water baby eels to be raised as a commercial aquaculture crop on Oahu will be marketed in Hawaii and not Japan, a sponsor of the venture said yesterday.

Dr. Ken Kato, a zoologist for a firm to be known as Fishfarms Laie, said the 100,000 eels should produce 18,000 pounds at \$3 to \$4 a pound for marketing in local Japanese markets and restaurants.

The eels have been served up as a delicacy in Japan for centuries. Part of the controversy surrounding a permit decision by the State Board of Agriculture last week to allow importation of the eels was that they would be raised here for export and sale in Japan.

The agriculture board, made up of laymen, voted for the new eel enterprise despite unanimous opinion from the scientific community that the introduction of eels in Hawaii could lead to disastrous consequences for animal life in fresh-water streams and lakes in the islands.

From the Office of  
**ANSON CHONG**  
State Capitol, Suite 305  
Honolulu, Hawaii 96813  
Phone 548-4197



The Honolulu Advertiser  
Friday, September 25, 1973

# Ag board to ponder eel imports

By BRUCE BENSON  
Agriculture Science Editor

The State Board of Agriculture will take up a slippery issue this morning when its members debate whether to allow the importation of thousands of live eels to Oahu, where they would be raised in a commercial fish-farming operation.

An expert has warned that the eels, almost certainly would escape to the wild and become a pest in the fresh water streams and water reservoirs of Oahu. He said red imported eels would be as dangerous as the importation of thousands of young rattlesnakes.

The staff recommends that the Department of Agriculture, however, favor approval of the import request.

A department spokesman yesterday refused to disclose a copy of the staff report.

The spokesman did say the staff recommended approving the import request on the condition that specific safeguards are taken to prevent the eels from escaping to the wild.

The request was filed by Fukuoka, Hawaii, an enterprise engaged in commercial aquaculture on Nani. Its eel operations would take place at a site near Lani on the Kahuku side of Oahu.

The warning about the hazards of allowing eels on Oahu was registered by Dr. John A. MacIver, dealer of the Hawaiian Cooperative Fishery Unit.

MacIver, an aquaculturist, said in a letter to the Department of Agriculture:



Should Hawaii import this eel?

"I do not see how control and permanent prevention of these young eels in the Hawaii's fishponds is assured. Escape seems inevitable and it would likely lead to the establishment of a breeding population under a delay of many years, that could spread throughout Hawaii's waterways."

The eels are known as unagi in Japanese, and are a popular food with Japanese and Chinese abroad. Tamaheki's Fish Market reported yesterday that some live eels have been imported to Oahu in the past, but said they are not a common food in Hawaii, partly because it is difficult to find a steady supplier of unagi.

MacIver said that, apart from the direct toxicity of a rattlesnake bite, an importation of rattlesnakes would be the "lesser of evils" compared with the importation of eels.

"The likelihood of an eel's escape to the wild is much greater, its chances of successful es-

tablishment are greater, and the damage it could cause to native species is infinitely greater," he said.

MacIver said native animal ecosystems would be "extremely susceptible to Anguilla predation because they evolved in the eel's absence."

THE AUTHORITY, identified in MacIver's letter as roughly, wrote in 1961:

"Actually, to arrive at these watercourses the eels leave the rivers or creeks and wriggle overland during rain or dewy nights when the grass is wet and make uncertainly for the road, advanced here a mile or two away."

"This is just another of the amazing features in the life of the eel. How does the eel know where to go? How does it know in what direction it will away? How does it know? No one can answer these questions, but it does know, and appears never to make a mistake."

MacIver said studies have shown that the blood of the Anguilla eel contains a powerful neurotoxin that causes serious infection if it gets into a cut or wound when being prepared for market.

# Eel Farm Okd Despite Warning by Biologist

The State Board of Agriculture yesterday approved a Pacific Aquaculture Corp. application to import unagi eels for an eel farm in Lani, despite a warning from a biologist that the action would be as dangerous as importing thousands of young rattlesnakes into the islands.

The approval was granted, upon the applicant's ability to provide adequate safeguards against escape, theft or otherwise unauthorized removal of eels from the aquaculture site.

Kenneth Kato of Pacific Aquaculture agreed that if any eels should escape, the eel farm would be responsible for any eradication work that may be required.

HE ASSURED the board of the Japanese and Chinese.

the site would be protected with fences and guards against unauthorized removal of the eels.

Several-stage filtration systems would prevent escape of the creatures, he said.

The unagi eel would be raised primarily for sale to Japan.

Eel meat from the Lani farm will also be marketed locally.

The sale of live unagi for food use in local markets has been permitted for several years, but will be discontinued to reduce the chances of their being purchased or inadvertently released in the wild, the board said.

Unagi is a regular dish of the Japanese and Chinese.

BEFORE THE board took action, John A. MacIver, a marine biologist, warned that the unagi would inevitably escape from the tanks in which they are to be raised.

He said that "escape" is likely that they would infect fresh water streams and reservoirs on Oahu.

He said such eels often die or wriggle overland during heavy rains, and are a mile or two away.

And no one knows how the unagi knows in which direction to wiggle.

MACIVER cautioned that the blood of Anguilla eels (unagi) is a member of that family contains a powerful poison that can cause serious infection if it gets into cuts when eels are being prepared for market.

He said allowing the eels into the islands would be as dangerous as importing thousands of young rattlesnakes.

In another action, the board approved the release of a new insect, a blattid moth, to combat the unagi but paramount weed, which deer extensive damage to agricultural lands.

HONOLULU ADVERTISER Monday, October 15, 1973 A-13

## eel toxin clarified

By original statement against importation of Anguilla eels contained the following quote from Dr. Earl S. Herald, noted fish authority:

"Anguilla blood, surprisingly enough, contains a powerful neurotoxin that causes a serious infection if it gets into a cut or wound when the eel is being prepared for market."

"The word 'infection' is inappropriate — 'reaction' would be more correct." That statement was accurately reported by your science writer, Bruce Benson (12/21).

However, the nature of unagi poison seems to be misunderstood by many people. I would like to better explain this aspect of the unagi controversy in the interests of objectivity.

Anguilla is not venomous. That is, its bite is not poisonous. Ichthyothereon, the powerful poison evidently characteristic of all species of the genus, is well documented in Vol. 2 of Bruce Herald's comprehensive work, "Poisonous and Venomous Marine Animals of the World" (U.S. Govt. Printing Office, 1951).

Among other things, Herald points out that Ichthyothereon probably contains more than one toxic substance, that intoxication may be systemic (as from ingestion of unagi) or local (as from contact with the eyes causing severe inflammation).

That there is no known antidote, and that cooking (as from possibly eliminating in death) or local use from contact with the eyes causing severe inflammation, are not mentioned in Vol. 2 of Bruce Herald's comprehensive work, "Poisonous and Venomous Marine Animals of the World" (U.S. Govt. Printing Office, 1951).

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From the Office of  
**ANSON CHONG**  
State Capitol, Suite 305  
Honolulu, Hawaii 96813  
Phone 548-4183

Department of Zoology, UH  
JOHN MACIWER

# Laie hopes to wiggle out of eel farm

From the Office of ANSON CHONG State Capitol, Suite 305 Honolulu, Hawaii 96813 Phone 648-4183

## By BRUCE BENSON

Advertiser Staff Writer

Residents of Laie turned out last night to listen to a proposal that would bring 100,000 baby eels to their community for a new fish-farming business.

They decided the whole idea was about as much fun as a barrel of snakes.

Some 100 residents listened to a presentation by scientists who argued that the eels, which certainly would escape to the wild, possibly preying on native fresh water fish and voraciously upsetting nature's balance.

**THE MEETING** was called by the Laie Community Association and announced to an attempt by the residents to get background data for an official public meeting to be held in Laie next week by the State Department of Agriculture.

After considerable discussion the association unanimously passed a resolution opposing the eel project.

The agriculture board already has approved the importation of the baby eels at the request of Pacific Aquaculture Corporation. One of the company's chief officers, zoologist Kenneth Kato, was present at the meeting to explain the project, but he met with overwhelming opposition.

Chief concerns of the residents centered on what would happen if the eels escaped from the company's holding tanks at Laie, and how Kato could guarantee that the serpent-like fishes could be removed from streams after they escaped.

KATO persistently declined to explain how his company would eradicate eels from the wild but eventually suggested they would go fishing for them.

The audience listened to Kato's presentation in moods alternating from laughter to despair. There were frequent groans.

The new fish farm hopes to establish itself on 40 acres leased from Zion Securities, the business arm of the Mormon church, which operates Hawaii Church College and the Polynesian Cultural Center at Laie.

One board member of Zion Securities told the audience Kato said nothing about raising eels when the lease was being negotiated. He said the lease granted for diversified agriculture would include aquaculture but said no specific reference to eels was made.

"I'm wondering now if the lease would have been granted if we knew then what we know now," the Zion board member said.

ONE CITIZEN asked Kato, "What would you do if the community veered that it doesn't like the eels?" Kato replied that he hadn't yet heard a sound objection to the project. He said, "I don't know what we would do yet."

Another member of the audience, after failing to elicit from Kato just how his business would eradicate eels if they escape, took the floor and said angrily to the audience, "I want to encourage you folks to vote against this because this man isn't giving us the right answers."

The eels Kato hopes to bring to Laie live in fresh water streams and lakes, can migrate over land without water and go to sea to spawn. They are not found naturally in Hawaii. Kato said the likelihood of the eels becoming established — if they do escape — was quite small.

KATO SAID that toxicity of eel blood would present little if any danger to public health, he said a person would have to consume great quantities of the eel's blood or direct the blood into his own bloodstream before suffering adverse effects.

Kato said that if blood of the eel were to get on an open wound, however, a person could suffer an infection.

Also speaking last night was Dr. Allen Ziegler of the Bishop Museum, a member of the State Animal Special Advisory Commission who has taken a strong stand against Kato and his eel project.

"I DO KNOW two things," Ziegler said. "If eels do come into Hawaii, they're going to get loose, and they aren't natives to these islands."

He said, "If Mr. Fred Erskine (State Agriculture Board chairman) for some God-awful reason has to have eels, he can buy them in a can. Let's make aquaculture go in Hawaii, but let's use our native species. Let's do it in the spirit of Hawaiian mahalo, or cooperation, and not in the spirit of outside shibbi."

## information only

# State bans public hearing on baby eel importation

## By BRUCE BENSON

Advertiser Staff Writer

State Agriculture Board Chairman Fred Erskine yesterday rejected a call from Life of the Land to convene a public hearing on the recent controversial decision to allow the importation of 100,000 baby eels to Oahu.

Erskine said the agriculture board has agreed to conduct a public hearing, but he said: "We're not authorized to conduct a public hearing, our attorneys tell us."

The distinction between a meeting and a hearing is that the first is informational while the latter could reopen the question of whether to import the eels.

The scientific community has opposed the eel enterprise, arguing that eels inevitably will escape to the wild, possibly upsetting nature's balance in the fresh-water streams and lakes of Hawaii.

The agriculture board gave permission to Pacific Aquaculture Corp. to raise the eels in tanks at Laie on the Kahuku side of Oahu. They will be sold as a food product.

Dr. Ken Kato, a zoologist for the firm, pledged that the business would assume financial liability for eradicating eels from the wild if they should escape, but the terms and conditions of the liability were not spelled out.

The eels do not occur in nature in Hawaii, although there are unconfirmed reports that some of the animals already are living in Oahu streams. They grow to more than 5 feet in length, and are serpentine in appearance.

Life of the Land, the ecology group, said in a letter to Erskine asking for a public hearing:

"We fear that the upcoming meeting on Oct. 24, while meant to inform the public, will in fact be only a standard operating procedure to those opposed to your decision of Sept. 26."

The Oct. 24 meeting will be held at Laie Elementary School at 7:30 p.m. It has not yet officially been announced by Erskine's office.

Life of the Land's letter also said: "Too much is at stake here. Such an important and controversial issue should not be treated so lightly. We do, of course, expect and assume that all members of the State Board of Agriculture will be present at the meeting on Oct. 24."

The letter, signed by Sophie Ann Aoki and Fritz Seydler, asked the agriculture board to require the eel firm to post a bond holding it financially responsible for damage to Hawaii's environment from any escaped eels.

Erskine said his department is tending to move away from requiring bonds on potentially damaging projects because past experience has proved bonding to be unworkable for various reasons.

The eel venture met with nearly unanimous disapproval from the State Animal Species Advisory Commission. The only member to give his okay was Michio Takata, head of the State Division of Fish and Game.

Erskine said yesterday that another advisory committee — one that reports directly to the Department of Agriculture — split on its vote on the issue. He said two members were opposed, two in favor, and the fifth was unopposed since he was out of town.

Erskine also discounted negative opinions expressed by scientists, saying he didn't think there is "a single eel expert in town. I'd like you to show me one."



# The Honolulu Advertiser

ANSON CHONG

Vice-Chairman:  
Water/Land Use & DevelopmentMember:  
FinanceNEWSLETTER NO. 6  
January 22, 1974

## GREEN TURTLE NEWSLETTER

The next few months could well be crucial to the survival of the Green Sea Turtle as both the Green Turtle Bill (H.B.1635) and the Green Turtle Regulation (Reg. 36) will be in a critical stage.

## Background

House Bill 1635 provides for the appropriation of funds for research-management studies of the Green Turtle population and for studies of ways to increase this population. The bill is supportive of and complementary to Reg. 36 (see below).

The Green Turtle Bill has been reported out of the committees on Parks, Fish and Game (chairperson Wasai), Water & Land Use (chairperson Kawakami) and Finance (chairperson Suwa).

Simultaneously, the Animal Species Committee has been promoting tough new regulations to protect the Green Sea Turtle. The regulations permit the taking of turtles only for scientific and propagation purposes or for home consumption. A minimum size limit of 36 inches is proposed for turtles to be consumed at home. Furthermore, the use of nets would be completely prohibited.

Regulation 36, relieving immediate pressure on the turtle population, and H.B. 1635, which stresses long-range research and population management, together provide a very balanced program of turtle conservation.

## Current Status

Right now, H.B. 1635 is in Senator Kenneth Brown's committee on Ecology, Environment & Recreation. Chairperson Brown's phone number is 548-7887. His address is State Capitol, Suite 224, 96813. Other members of the committee are:

Donald Ching (548-7506)  
John Hulten (548-3867)  
John Ushijima (548-7855)  
Percy Mirikitani (548-4104)  
Fred Rohlfing (548-4104)

Turning to the status of Regulation 36, the Green Turtle

Regulation, the last public hearing took place December 6, 1973. Regulation 36 will be considered by the Board of Land & Natural Resources at Hilo on Friday, January 25, at 10:00 A.M.. The meeting will take place in the Hawaii Council Chamber room. Phone Sunao Kido (548-6550) and voice your support for the regulations.

To repeat:

- 1) Write or call Senator Brown (548-7887) and members of his committee.
- 2) Write or call Sunao Kido (548-6550, 465 S. King St., Honolulu, Hi. 96813).

Mahalo to George Balazs for the following tip: All Green Turtle People should make an effort to get the next issue of American Scientist and read an article by Dr. David W. Ehrenfeld. The article is entitled "Conserving the Edible Turtle: Can Mariculture Help?"



From the Office of  
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Phone 548-4183



May 14, 1974  
P.O. Box 1346  
Kaneohe, Hawaii 96744

Lt. Gov. George Ariyoshi, Chairman  
Kohala Task Force  
State Capitol  
Honolulu, Hawaii 96813

Dear Lt. Gov. Ariyoshi,

I have noted with great interest the article in HAWAII BUSINESS (Dec 1973) which indicates that the Kohala Task Force has granted \$50,000 in state funds to implement the commercial rearing of green sea turtles in Hawaii. Indication is also given that the Task Force's rationale in this action is, in part, based on the fact that "Such turtles are currently being raised commercially in the Caribbean...." (section of article attached).

In order to better acquaint each Task Force member with the present state of the art of green turtle farming, I have enclosed pertinent reference material which I am sure will be of interest. This background literature consists of:

1. Conserving the Edible Sea Turtle: Can Mariculture Help? by Dr. David W. Ehrenfeld (reproduced from the Jan-Feb 1974 issue of AMERICAN SCIENTIST);
2. Great Reptiles, Great Enigmas by Dr. Archie Carr, the world's foremost authority on sea turtles (reproduced from the March 1972 issue of AUDUBON);
3. Copies of correspondence by Dr. Carr relating to the commercial farming of sea turtles. Please note that two of these letters were directed to the firm Mariculture Ltd., the only commercial sea turtle farm in existence;
4. A copy of correspondence by the Field Director of The Fund for Animals which summarizes some of the relevant points concerning the operations of Mariculture Ltd. No reply was received;
5. A copy of correspondence which I sent to the editors of AMERICAN SCIENTIST in support of Dr. Ehrenfeld's article.

As an individual who has been active in the research and conservation of sea turtles, I appreciate the opportunity to bring this information to your attention.

Sincerely,

George H. Balazs

cc  
Mr. Frederick Erskine  
Mr. John Bellinger  
Dr. Robert Cushing  
Councilman John Farias  
Mr. Sunao Kido  
Mayor Shunichi Kimura

Dr. Shelley Mark  
Mrs. A.Q. McElrath  
Mr. William McPeck  
Mr. Eddie Tangen  
Mr. George Yim



# University of Hawaii at Manoa

Hawaii Institute of Marine Biology  
P.O.Box 1346 • Coconut Island • Kaneohe, Hawaii 96744  
Cable Address: UNIHAW

March 12, 1974

Editorial Staff.  
American Scientist  
345 Whitney Avenue  
New Haven, Connecticut 06511

Dear Sirs:

Dr. Ehrenfeld has presented some very pertinent facts concerning the interrelationship of commercial green turtle culture and conservation of the species. Promotional brochures which have been widely distributed by the proponents of commercial farming (including security brokers offering stock) have imparted a dangerous false sense of security in the general public as to the safety of Chelonia. Commercial turtle farming as it exists today is not founded on a sound biological basis. No control over the life cycle exists, mortality from stress and disease is significant and an understanding of the nutritional requirements is lacking. The one major advantage to turtle farming has been the availability of eggs from certain natural nesting beaches, a point which advocates have seen fit to exploit by removing large numbers for their own personal gain.

Since the writing of Dr. Ehrenfeld's article, 19 captive females have nested on an artificial beach at the Grand Cayman farm. This event has been hailed as the salvation of the green turtle and offered as sufficient reason for allowing "farmed" products to be extensively marketed. Seldom mentioned concerning this success in captive egg production is the fact that all 19 of the animals involved had been captured from the wild as mature adults. No reproductive successes have been experienced with animals reared at the facility.

Commercial culture which is dependent upon endangered natural populations and at the same time seeks to expand markets and popularize products can only act to hasten a species down the road to extinction.

Sincerely,

George H. Balazs  
Jr. Marine Biologist

GHB:md

**ANSON CHONG**

Assistant Majority Floor Leader  
Vice-Chairperson, Water, Land Use  
& Development  
Member, Finance  
Member, Environmental Protection  
Ph. 548-4183

**HOUSE OF REPRESENTATIVES  
THE SEVENTH LEGISLATURE**

STATE OF HAWAII  
STATE CAPITOL  
HONOLULU, HAWAII 96813



GREEN TURTLE & RELATED TYPE NEWS

MAY 16, 1974

HB 1635 DEAD BUT REGULATION 36 MOVES AHEAD

Although H.B. 1635, H.D. 1 did not pass, I am happy to announce that regulation 36 which protects the Green Sea Turtle, did meet with the approval of the Board of Land & Natural Resources on April 12th in Waimea.

*Details of the regulation were sent to you in previous newsletters. The main points of Regulation 36 are: 1. It shall be unlawful within the State of Hawaii to kill, possess, or sell marine turtles without a permit from the Board of Land & Natural Resources; 2. The eggs of marine turtles are given protection (very important point); 3. Turtles having an upper shell measurement of less than 36 inches may not be taken, thus insuring the reproductive cycle of Hawaii's marine turtle population.*

INTERNATIONALLY KNOWN HAWAII SCIENTIST WINS U.S. GRANT TO STUDY THE HAWAIIAN GREEN SEA TURTLE



On May 23rd, Dr. George Balazs of the Hawaii Institute of Marine Biology, will leave for the French Frigate Shoals to conduct a two-month study of Green Turtle nesting, population and fertility.

*This study will be conducted with the cooperation of the U.S. Bureau of Sport Fisheries and Wildlife. Dr. Balazs has spent many long hours devoted to saving the Hawaiian Green Sea Turtle and should be commended for his unselfish work.*

*His wife Linda still has green sea turtle T-shirts. You can get them by writing George and Linda c/o HIMB, P. O. Box 1346, Kaneohe, Oahu, 96744.*

**MAHALO!**

*Your kind efforts on behalf of H.B. 1635 and Regulation 36 have paid off. The continuing fight, of course, is to obtain adequate State funding for needed research. If returned to the legislature this year, I plan to re-introduce the Green Turtle Bill to provide the needed funding. My office continues to work for the conservation of Hawaii's natural resources and environmental protection.*

**EEL NEWS**

*On April 25th, the State Board of Agriculture revoked Fish Farm Hawaii's permit to import unagi, the edible eels from Japan. Our scientific community and many environmental groups vigorously opposed the importation of the eels last summer when the issue first surfaced on the grounds that the slippery pseudo serpents would surely escape and establish themselves as voracious pests in Hawaii's streams and reservoirs.*

As Far as I know this is final copy  
signed by Governor (RB)

Draft #8  
(4/1/74)

State of Hawaii  
Department of Land and Natural Resources  
Honolulu

DIVISION OF FISH AND GAME

\*\*\*\*\*

The Board of Land and Natural Resources, in conformity with and pursuant to Chapters 187 and 190, Hawaii Revised Statutes, and every other law hereunto enabling does hereby adopt the following regulation relating to the protection of marine turtles.

REGULATION 36. RELATING TO THE PROTECTION OF MARINE TURTLES.

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 or the eggs or nests 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 2. It shall be lawful with a permit issued by the Board of Land and Natural Resources to:

- a. take or possess marine turtles or their eggs for scientific, educational or propagational purposes.
- b. take or possess green sea turtles for home consumption from the waters surrounding the eight major islands (Hawaii, Maui, Kahoolawe, Lanai, Molokai, Oahu, Kauai and Niihau) provided that the upper shell length is 36 inches or more (straight line measurement) and provided further that the turtle may be gutted and/or cut up into not more than five parts with one of the parts being the whole upper shell with the entire head attached and all parts shall be kept together until the permittee leaves the shore area for his home.
- c. possess or sell the eggs or offspring of captive green sea turtles or products thereof.
- d. possess with intent to sell or to sell marine turtles or products thereof acquired prior to the effective date of this regulation.

SECTION 3. It shall be unlawful to use nets for the taking of green sea turtles.

SECTION 4. Nothing in Section 1 shall be construed as making it unlawful for any person to possess for purposes other than sale marine turtles or products thereof acquired prior to the effective date of this regulation.

SECTION 5. Any person violating the provisions of this regulation shall be fined not more than \$500 as provided in Section 187-20, Hawaii Revised Statutes.

## Raine Island

Day of 11 Feb & Night of 12-13 Feb. 1979

Raine is a small island on the outer Barrier Reef in its northern Reaches. The island is about 1/4 mile long and about 100 yards wide. The core of the island is coral limestone from which a Tower (navigational aid) was built in the 1850s by convict labor - it still stands, and is the only portion of the island visible from more than 2 miles. The sand beach has a relatively high berm (3-5'). Behind the berm, the beach is lower and about 30-50 m wide before the raised limestone platform (1-3' high). The lime is largely covered with low-lying plants except in two central low-lying areas. These barren flats are a huge rookery for boobies and frigate birds.

This island is a major green turtle nesting grounds. Our exploration during the day showed many recent nest pits and tracks of females. We also found several corpses of females who had failed to make it back to sea. Only one seemed recent (about a week old), but there were many broken up skeletons which had obviously been there for some time. This was the case even in the central depression. It seems the turtles become confused by the odd slopes of the land and move the wrong way after finishing their maternal chores. The island is incredibly hot, even with a 10x7

breeze, and it is easy, although unpleasant, to imagine the turtles cooking to death after failing to make it back to the sea before dawn.

There are reports that as many as 20,000 turtles are on the island on some nights during the peak of the season. The island seems entirely too small for that many nests. On the night we were ashore 119 turtles were counted, and at least two of the turtles I saw were digging up other nests to lay their eggs. We saw turtles nesting from just over the berm to on top of the limestone platform. This latter is dangerous not only from disorientation, but because of the danger of flipping over of the edge of the platform and not being able to right oneself.

It's hard to imagine an animal more ill designed for crawling about on sandy beaches than these green sea turtles. The ones we saw were easily 3-4 feet long and weighed hundreds of pounds. Each little push forward seemed to be an extraordinary effort, with all fins straining and digging into the sand. Frequent rests were required. And the digging of the egg pits seems no less an exertion. In fact, it is truly amazing that the turtles can haul out, cross the beach, dig the nest, lay the eggs, cover them and crawl back to the sea in one night. But, we landed at midnight and some turtles were reentering the water. It was near full moon and falling tide when we landed. The turtles obviously did not

like crossing the reef flat at low tide (coral rubble, tide pools, *Fridachna* shells), and many crawled along the water's edge to a place where they could at least enter the water with a sand bottom.

These great beasts seem so helpless on shore, seem to go through such great strain and pain to do what they need to ~~do~~ in order to continue the species; that it is very easy to feel that man should do all he can to protect them. It's clear now why George Balazs has gotten so involved in turtle conservation. I know few people who could feel otherwise after having been on a nesting island like this. To walk up to a female laying eggs - all she can do is take a brief glance and keep on laying. It almost seems like total trust, but all it is is sheer helplessness. One wonders what must be going on in those dim ponds when a person approaches. The turtles in the water here are much less wary than the Hawaiian ones, obviously they are less bothered by humans here, and I assume there is some protection, but, still there should be some sort of fear, yet the determination to do the job prevails. There is no real effort to run away, even among turtles that are moving back to the water.

The variation in distance from shore for the nest site interested me. There is some trade off, obviously between laying too close to the water and having a storm wash the eggs away (it's cyclone season, and there was evidence of wave erosion at the base of the tower), and being so far from the water

(or a high percentage)

that the hatchlings can't make it across the beach.

The turtle I saw amongst the vegetation on top of the limestone platform digging her nest will probably have few offspring reaching the sea.

Turtles were hatching on the island that night. They are evidently attracted to light. Some of the others sat by the water's edge with a flashlight and had several hatchlings visibly alter course to come to the light. I followed one who expended much energy and time by taking a course  $90^\circ$  away from the shortest to the water across a stretch of beach many times longer than the shortest route. This course led straight to the Lady Basten (our ship) and her many lights. I saw several others head straight onto the exposed reef flat with its coral and holes (the adults had avoided this) to head for the ship rather than following a route across sand. I wondered how much additional mortality we had caused merely by anchoring near by. The trek from nest to beach seems a long one relative to the size of the beast. Once a course is chosen there seems to be no deviation. I saw hatchlings fall into egg pits and struggle up the other side rather than go around which would have saved energy and time. Many birds were around, but this was night, and we saw no attacks. After that long, hard struggle at topspeed, the turtle reaches the sea, and there the problems must really begin. That little turtle must test a good to the birds, and I'm sure those birds must take quite a few during the



Turtle's first few days at sea. And there are lots of sharks around this little island (we saw reef whitetips on both dives, and Rolie who went out further saw much bigger sharks, but didn't hang around to identify them). Also lots of big carangids, ~~sea~~ lutjanids, serranids and scombrids were all around the island. How any hatchlings survive is beyond me - again, they seem so helpless. But, obviously enough are surviving here to keep things going.

Two tagged turtles were seen, and this was to be reported by Dr Cogger of AMs to the appropriate people.

GREEN SEA TURTLE RESEARCH IN THE  
NORTHWESTERN HAWAIIAN ISLANDS  
1985 SUMMARY

BY

George H. Balazs  
September 20, 1985

Comprehensive monitoring and saturation tagging of nesting turtles on East Island occurred from 11 to 29 June. This was the 13th consecutive year of systematic turtle studies at French Frigate Shoals. A total of 131 females were identified, 50 (38%) of which were long-term tag recoveries. Analysis of these data by Dr. Jerry A. Wetherall indicate that the 1985 nesting population at East Island was 252, about the same number as the 1984 season. A gradual, long-term increase, with 3-4 year cyclic depressions, seems to be taking place. An adult tagged in a foraging pasture at Johnston Atoll in 1983 was recovered nesting on East Island. This is the first evidence of a migratory link between the two locations. Signs of recent shark attack were seen on two adult turtles, a male on Tern Island and a female on East Island. An adult female was found dead on Whale-Skate Island, but the cause of death was not determined. A female nesting on East Island was rescued after trapping herself in buried cable.

Only low levels of nesting were again documented at Pearl and Hermes Reef, Lisianski and Laysan Islands. Counts of "nesting pits" suggest that no more than 20 or 30 females in total were involved at these three locations. No nesting was reported at Kure Atoll or Midway.

Twenty-eight turtles were identified basking and/or foraging at Lisianski during a 1-month study period. At least 11 (5 adults, 6 immatures) had been previously tagged here within the past 6 years. Growth rates of recaptured turtles reconfirmed the slow growth measured during previous years (<1 cm per year).

An adult male fatally struck by a boat and buried at Midway during May 1984 was exhumed in January 1985. Limb bones (humeri) were salvaged and sent to Dr. George Zug at the Smithsonian Institution for further cooperative research on skeletochronological age estimates.

An adult female at Kure Atoll was rescued in June after being found tangled in a scrap of trawl webbing. In July an adult female was sighted basking on Sand Island (Kure Atoll) that had been originally tagged nesting on Lisianski Island in August 1982.

At Pearl and Hermes Reef 38 immature turtles were captured with a scoop net while foraging in shallow algal pastures. Eight were recoveries originally tagged here during 1983 and 1984.

UNIVERSITY OF FLORIDA

GAINESVILLE, 32611



DEPARTMENT OF ZOOLOGY  
229 BARTRAM HALL  
904-382-1107

8 February 1986

Dear George:

I am typing this letter to you on our new pride and joy. We finally splurged and bought a computer. I am hoping that it will improve the quantity, if not quality, of my correspondence. In fact, I have just finished writing four letters to various members of the Specialist Group.

I was delighted to hear that you are going to attend the Georgia meetings. I am going to be presenting preliminary results from my growth rate work at Inagua. I have accumulated about 150 growth intervals since 1975 and finally feel that I have enough to begin to show a good picture. I have been surprised to find that when growth rates are compared within 5 or 10 cm size classes, there are fairly similar growth rates throughout the geographic range except your NW islands and Colin Limpus' strange turtles. In Union Creek, green turtles take 20.5 years to grow from 25 to 75 cm, while three loggerheads in the same area took 3 to 4 years to grow from 25 to 75 cm. Quite a difference.

I have enclosed some decals and a copy of the accompanying letter that I thought might be of interest to you.

I read the packet you sent me on the Hawaiian Sea Turtle Recovery Team. It looks like you are making good progress. I think the worksheets are well planned and thorough. I can't contribute any data to any of the worksheets because, as you know, I don't have any information on any of the Hawaiian populations. I have sent you all of the pre-Balazs information that I have come across in Archie's files. If there are any questions, either general or specific, that you think I could help with, please let me know.

Please give my regards to Linda. Hope the family is well. We're all fine here. Looking forward to seeing you.

Best regards

*Karen*

International Air Transport Association

P.O. BOX 100, SUCCURSALE PLACE DE L'AVIATION INTERNATIONALE  
1000 SHEPPARD STREET WEST, MONTREAL, QUEBEC H3A 1M4  
TELEPHONE (514) 944-6311 • TELEK (514) 944-6327 • CABLES: IATA

18th August, 1980

TS-763

Mr. Archie Carr  
Graduate Research Professor  
Chairman, Marine Turtle Specialist  
Group, IUCN/SSC  
Department of Zoology  
University of Florida  
229 Bartram Hall  
GAINESVILLE Fla. 32611

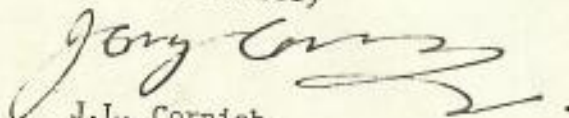
Dear Mr. Carr

Thank you for your letter of 4th August, 1980 on the subject of reducing the worldwide exploitation of endangered sea turtles.

2. We are at present considering the inclusion of additional information in the IATA Live Animals Regulations and/or the issuance of a brochure in conjunction with the Secretary General of the Convention of International Trade in Endangered Species of Wild Fauna and Flora. To this end, please could you provide me with some appropriate text and drawings/photographs or other relevant material for consideration.

3. I will endeavour to keep you informed of progress. In the meantime, if there is anything further I can do, please do not hesitate to ask.

Yours sincerely



J.L. Cornish  
Airport Handling  
Procedures Manager



# University of Hawaii at Manoa

Hawaii Institute of Marine Biology  
P.O.Box 1346 • Coconut Island • Kaneohe, Hawaii 96744  
Cable Address: UNIHAW

December 28, 1982

CONFIDENTIAL

Dr. Robert Scott  
IUCN/SSC  
Avenue du Mont Blanc  
CH-1196  
Gland, Switzerland

Dear Bob:

This letter responds to your request for comments on the "final report" for Project 1822 (Greece sea turtle conservation). On the surface, this is certainly an interesting document that seems to warrant further attention by the Turtle Group. However, key sections are totally unclear to me. Clarification is essential if we are to discuss this conservation "problem" in any meaningful fashion at the Group meeting next year in San Jose.

My questions/comments are as follows:

- 1) What are the three rookeries that were declared "protected" in March of 1980, and exactly what form does this protection take?
- 2) Why were "Konitak 20 Ear Tags" used on the turtles ". . . instead of the planned monel metal tags" (page 7)? What are Konitak 20 Ear Tags? Plastic in composition? What was the number series and wording embossed on both sides? Why was the decision made to tag on the rear flipper, when (with the exception of some leatherbacks) sea turtles have traditionally been tagged successfully on the front flippers?
- 3) It<sup>is</sup> stated on page 8 that "Working conditions were not always perfect due to the presence of another tagging team which was sent to Sekania by the Ministry of Physical Planning, Housing and the Environment." What are the details surrounding this other tagging team? Who funded this project, and what coordination has existed with the present project? Is the "Ministry of Physical Planning, Housing and the Environment" really totally separate from the "National Council for Physical Planning and the Environment"? The two sound so similar.
- 4) The "Public Awareness" section on pages 8-9 is especially confusing to me. How could the "response" be positive, and the "reaction" prove the opposite? In exactly what way did an article about the Zakynthos turtles end up being

CONFIDENTIAL

Dr. Robert Scott  
December 28, 1982  
Page 2

"disastrous" for Gerakas? Why are two citations in this section covering the project's Interim Reports listed as both "anonymous" and "by Penny Marinos and Dimitris Margaritoulis"?

5) Many of the "Recommendations" on pages 9-10 sound to me like what the project should have set out to accomplish in the first place. In the very last paragraph a sentence reads "It is strongly believed that only money can save the turtles." Exactly how?

Bob, it sounds to me like this project would have benefited greatly by having someone experienced in sea turtle conservation and research visit and work for a time with the project at the very onset. I made a similar comment a few months ago about the WWF/IUCN funded project in Pakistan.

I hope that the above is helpful to you in some way. Best wishes for the New Year.

Sincerely,

GEORGE H. BALAZS  
Assistant Marine Biologist

GHB:ec

cc: Archie Carr

UNIVERSITY OF FLORIDA  
GAINESVILLE, 32611

DEPARTMENT OF ZOOLOGY  
223 BARTRAM HALL  
904-392-1107

January 22, 1980

Mr. George Balazs  
Hawaii Institute of Marine Biology  
University of Hawaii at Manoa  
PO Box 1346  
Coconut Island  
Kanaeohē, HI 96744

Dear George:

For your file we are sending the following notes on Turtle Group business discussed, and projects proposed, at our informal meeting in Gainesville last week.

General Objectives of the Group

1. To disseminate information about sea turtle biology and conservation through the Marine Turtle Newsletter and through correspondence with other Group members.
2. To develop a plan and maintain a communication network for crisis intervention.
3. To review grant proposals submitted to IUCN that deal with marine turtles.
4. To provide interested parties with authoritative information on sea turtle conservation and biology.

Group Activities Proposed

1. Revisè list of members, adding Dr. Huang Chu-chien and Sylvia Spring, and deleting Mr. Pong (Change Bjorndal's address).
2. Check Marine Turtle Group's membership list against mailing list for the World Conference Conservation Strategy.
3. Contribute to the mailing list for the Conservation Strategy (Need mailing list of Marine Turtle Newsletter).
4. Send letters, parallel to those from the World Conference committee, urging implementation of the Action Plan.
5. Take steps to implement plan to bring together Kemp's ridleys from aquaria throughout the U.S. and concentrate them in a small number of aquaria where proper breeding facilities are available.

Mr. George Balazs  
January 22, 1980  
Page 2

6. Try to enlist help of airlines in educating tourists about the laws protecting marine turtles and prohibiting commerce in products derived from them.
7. Initiate proposal for commemorative U.S. stamps featuring sea turtles. Enlist support for this through Marine Turtle Newsletter.

Proposed Content of Letter to be Sent to Group Members

1. Notify member of his or her appointment to Group.
2. Provide him or her with a group membership list.
3. Request titles and names of authors of existing and prospective research proposals that deal with marine turtles in the member's region.
4. Request information about special marine turtle conservation problems in the area.
5. Request copies of publications by the member or colleagues.
6. Indicate that the World Conference Conservation Strategy document will be sent as soon as it is available.

Sincerely yours,



Anne Meylan  
Research Assistant to Dr. A. Carr

AM/lw



Dear George:

Sorry I haven't written in so long--I have been crushed between national reviews, quarterly reports, oral presentations, end-of-year spending, new year budget and research plans, etc., etc. for my job. Our year starts 1 November. Alan and I are leaving next Tuesday for a two-week driving trip through New England (see America first!) with his parents to celebrate his father's 75th birthday. Alan's dad is finished with radiation therapy and all is apparently fine.

About Ken Dodd as member, I agree 100%. I haven't talked with Archie about it, have you? Possible problems: he has just moved to Gainesville. Will he then be viewed as another member of the "Gainesville Group"? Also, Jack Woody is head FWS sea turtle person, and Ken plans to work with him. Is it a problem appointing Ken and not Jack? What do you think? I'm now tracking down the best Suriname person (at Nicholas' request) through Schulz. Mrosovsky suggested Ferdie Baal. Have you ever heard of him? Also, I think we should add one of the Pakistan women to the Group. Bob Scott is quite anxious for this; apparently they keep asking him about it. Mort passed through there on her way back from Seychelles last time at the request of WWF for a site visit. She was very impressed with them and their dedication, although they are fairly naive as far as turtle biology she says they more than make up for it in enthusiasm. Sounds good for the Group.

I don't think I'll add a logo to the Bulletin. I really want to play it down and remain informal. I am getting tired of all the accusations of "competition" with the MTN. Seems so silly--the Bulletin has a distribution of about 35 & the MTN about 700-800, what's the problem? It's the old damned if you do and damned if you don't routine--complaints about inactivity and then when you try to do something all you get is complaints about that. Oh well.

Sorry about the Pritchard thing--seems typical enough. I hope the reestablishment of the MTN doesn't bring with it all the same problems and hassles. I am very happy to hear that you don't think that the role of the Group is to go around designing management programs for countries that haven't requested our help. I think the approach that we must begin by compromising with the utilization people is a weak one. Of course, if we are ever called on to really develop a management program for a nation, we will have to "barter" for the turtles. But you don't enter a bartering session by offering the absolute highest price you can afford to pay--you start with a low price and hope that at the end of the session you are at or below that highest level. It is sometimes difficult to answer the people who claim we must be reasonable and look at the people's needs and present "balanced" management plans. Something Wayne King said once when we were talking about this problem made an impression on me. He was complaining about one of the top WWF people in Asia (this was a while ago I don't know if he is still there) always insisting that the needs of the people must be given much consideration. Wayne said that there are many organizations that have just that job--to look after the needs of people--FAO, WHO, national fisheries and agriculture depts, AID, etc., etc. But the animals have very few voices supporting them, so we must give them top consideration, knowing that the needs of the people are being very well tended by the other organizations. That is the way I feel we should approach these management plan problems if we are ever called to the bargaining table. We should think only of the turtles, and if a complete moratorium seems best for them, than that is what we should push for. Of course, in the end we may well not get it, because the other, people-oriented organizations will push for utilization to feed hungry mouths, and we may end up with a 50% protection scheme. But if we enter requesting 50% protection, we may well end up with only 25% protection.

Referring back up to paragraph 2 & Ken Dodd, I think we all have to accept the fact that not all good turtle conservationists can be on the Group. You know this is always a big problem. Perhaps as the number of conservationists

working with turtles continues to grow, we have to work on geographic coverage and willingness to participate in the group as more and more important factors. Frankly, I am disturbed by the number of members who never, ever respond to anything. Of course, language is a big problem and will continue to increase as we try to extend our geographic coverage. I really don't know any way around that. I wish there were a way of making it clear that we're not passing value judgements on the worth of different conservationists when we draw up the membership list. Ed Moll set up his freshwater turtle group in an interesting way. He divided up the world, basically by continents, then appointed a head person for each of these large regions. These are the core people who handle the majority of the work. Then he appointed several people to represent distinct regions within the large regions (for example, I am responsible for the Caribbean island turtles--including the Bahamas). I'm not sure how active the group as a whole is. Ed has referred questions, correspondence & grant proposals dealing with my area to me and I always respond (rapidly! you would be proud of me) to him and the other source, if appropriate. Perhaps I should write to him and ask his assessment of his scheme. Of course, it would be very difficult to impose this system now on our group, because people would be insulted if they were lowered to category 2. It is too bad, but of course only natural, that the group membership is so static--once a member always a member--unless death or murder intervenes. If you have any thoughts on this old problem, please let me know. Once, again thanks for remembering me when new stamps are issued.

→ Has a final decision been made on the question of Native American rights and the taking of green turtles in the Pacific? Mort just returned two days ago from Tortuguero and is now anxious to begin writing up--or so she says. Archie is fine--too busy, as usual. Hope you, Linda, Christian and Hawaiian sea turtles are all doing well.

Best regards,

Karen

Talk about efficiency of the mail system, I just now as I was about to mail this after perusing it found your letter of 7 Aug in my mailbox. The only sign of going astray is that it was stamped in Columbus, Ohio! Anyway that was the letter requesting net info & unfortunately I have already mailed all the Bulletins - I only held yours back so I could add this letter. Several times at Tortuguero, turtles have come ashore w/ nylon monofilament line wrapped around a flipper, sometimes so tight that there was considerable tissue

necrosis, & loss of the limb would probably  
have resulted if the line had not been  
removed. I called Archie, & he says the  
same - no records have ever been  
published \* You know of the Cornelius  
plastic bag note, right. I will try  
to get out another bulletin as soon as I  
get back to send out your request.  
I hadn't heard about the CTF rioting  
nesting - how old was it? I agree that  
empt might be good bearers of your titanium  
tags...

Congratulations on your detective work.  
Has the case gone to trial? Keep me  
posted.

\* I have made a note to ask Anne & Jeanne  
the same questions.

UNIVERSITY OF FLORIDA  
GAINESVILLE, 32611

DEPARTMENT OF ZOOLOGY  
223 BARTRAM HALL  
904-392-1107

February 13, 1980

Mr. William Bolger  
Postmaster General  
Washington, D.C. 20260

Dear Mr. Bolger:

I am writing to ask your committee to consider four species of marine turtles that occur in the United States as themes for a commemorative stamp issue. All of these unique reptiles are experiencing serious survival problems and are all protected under the United States Endangered Species Act.

Under the auspices of the United States State Department and a large number of conservation organizations, the United States was recently host to an International Symposium on Sea Turtle Conservation, attended by delegates from over 40 countries. One of the goals defined by the Scientific Committee of that conference was to increase public awareness of the survival status of, and principal threats to, existing populations of marine turtles. A commemorative stamp issue would contribute significantly to this end.

The names of species nominated, along with brief descriptions, are listed as follows:

1. Green Turtle (*Chelonia mydas*) - Once called the most valuable reptile in the world and formerly abundant in Florida and Texas, green turtle populations have drastically declined there and elsewhere in the world. Very recently the small Florida nesting colony, the only one in mainland U.S., appears to have increased slightly.

2. Loggerhead (*Caretta caretta*) - The loggerhead breeds farther north than any other sea turtle. In the U.S. its nesting shores extend from Florida to North Carolina, and those in Florida, from Jupiter Island to Cape Canaveral, are the most populous in the world.

3. Hawksbill (*Eretmochelys imbricata*) - This is the most tropical of the sea turtles. It nests singly or in little groups over an extensive tropical range. It is fairly numerous in reefs off southeastern Florida and the Keys. The price to which tortoiseshell has risen--up to \$80 a pound or more--threatens the species with extinction.

4. Kemp's Ridley (*Lepidochelys kempi*) - One of the most clearly endangered vertebrate animals still alive. Its breeding colony in Mexico, once numbering up to 40,000, has dwindled to only a few hundred. It was until lately quite abundant in waters of the southern United States. During the past two years, a number of U.S. and Mexican agencies have been engaged in an emergency program to save the ridley.

Mr. William Bolger  
February 13, 1980  
Page 2

During previous years several foreign countries have issued stamps portraying marine turtles. I enclose examples of several of these, and believe you'll agree that attractive artistry can be achieved with such subject matter.

I would be pleased to provide you with any additional information that might be needed in making an evaluation of this for a commemorative stamp featuring sea turtles.

Sincerely yours,

*Archie Carr*

Archie Carr  
Graduate Research Professor  
Chairman, IUCN/SSC Marine Turtle  
Specialist Group

AC:ljw

Enclosures



# University of Hawaii at Manoa

Hawaii Institute of Marine Biology  
P.O.Box 1346 • Coconut Island • Kaneohe, Hawaii 96744  
Cable Address: UNIHAW

Dear

As you will read in the attached correspondence, a proposal has recently been submitted to the US Postmaster General for the issuance of a block of four commemorative stamps displaying sea turtles. I am convinced that this is an extremely worthwhile endeavor with potential for stimulating further conservation and research of sea turtles, both here in the United States and in the numerous foreign countries that receive U. S. mail.

The chances of this stamp proposal being approved can be strengthened considerably if individuals and organizations express their strong support through letters written to the Postmaster General. I am therefore asking if you will take the time from your busy schedule to write such a letter of endorsement. Your letter should be addressed to:

Mr. William Bolger  
Postmaster General  
Washington, D. C. 20260

In order to take full advantage of the publicity and momentum generated by the recent Washington sea turtle conference, I hope you will be able to send off your words of support at the earliest possible date. Also, I would greatly appreciate receiving a blind carbon copy of your letter so that some assessment can be made of the magnitude of our campaign.

Thank you in advance for your valuable assistance in this matter.

Sincerely,

GEORGE H. BALAZS  
Assistant Marine Biologist  
and Deputy Chairman  
IUCN/SSC Marine Turtle Group

GHB:ec



UNITED STATES POSTAL SERVICE

475 L'Enfant Plaza, SW  
Washington, DC 20260

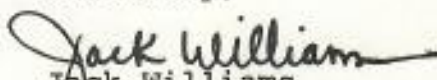
Thank you for sending us your recent suggestion for the subject of a new United States postal issue.

You are one of several thousand persons who suggest stamp subjects each year, and we try to make sure that each understands how our subject selection process works. All suggestions are reviewed by the Citizens' Stamp Advisory Committee, whose members are selected by the Postmaster General according to their specialized knowledge. The Committee is made up of non-postal personnel -- artists, historians, writers, educators, stamp collectors and a representative of the Treasury Department's Bureau of Engraving and Printing, where most U. S. issues are manufactured. The Committee selects, for an average year, 15 subjects to be developed fully and presented for consideration to the Postmaster General. Because of the time required to print and distribute new issues, the Committee makes its recommendations about two years in advance of the proposed date of issuance. The Committee has completed the 1980 program and is now working on 1981 and 1982.

Your proposal is being placed on the Committee's agenda and it will receive serious consideration at a forthcoming meeting. It is not unusual that stamps suggested for a specific year will be considered for programs the Committee is developing for later years. Because we have many thousands of active proposals on hand, we are unable to advise proponents of stamp subjects about changes in their status. We depend upon the persons and the organizations who propose new issues to inquire periodically about them. Please address written inquiries to the Citizens' Stamp Advisory Committee, in care of the Stamps Division, U. S. Postal Service, Washington, D. C. 20260. If you wish to telephone us instead, you may direct such calls to Jack Williams, Dickey Rustin, Fran Feldman or Ann Mills, all at (202) 245-4951.

Our stamp and postal stationery program can be no better than the suggestions we receive for new issues. Please accept our thanks for sharing your idea with us.

Sincerely,

  
Jack Williams  
Coordinator, Citizens'  
Stamp Advisory Committee



# University of Hawaii at Manoa

Hawaii Institute of Marine Biology  
P.O.Box 1346 • Coconut Island • Kaneohe, Hawaii 96744  
Cable Address: UNIHAW

July 15, 1980

Mr. Edward Mallek  
Member  
Citizens' Stamp Advisory Committee  
4999 Kahala Avenue  
Honolulu, Hawaii 96816

Dear Mr. Mallek:

My good friend and colleague, Dr. Leighton Taylor of the Waikiki Aquarium, has told me of your interest in the proposal to issue commemorative stamps displaying sea turtles. As a researcher and conservationist of sea turtles, I have been a strong supporter of this timely idea. Over the past few months, enthusiastic letters of endorsement have been sent to the Postmaster General by numerous individuals and organizations throughout the United States. For your background information, I have made copies of some of the more interesting and informative letters that have come to my attention. I am hopeful that you will have the opportunity to read through this enclosed material before the proposal comes before your committee for appraisal. It is my understanding that the next meeting of the Citizens' Stamp Advisory Committee will take place during early August, and that the sea turtle proposal will very likely be considered at that time. Based on a letter from the Postal Service dated 27 May 1980 (copy attached), Dr. Taylor and I were under the impression that the proposal was on the agenda for discussion at the June meeting.

In addition to constituting a part of the wildlife heritage of the coastal continental United States, sea turtles have historically been an integral part of Hawaiian and other native cultures in the Pacific region. This has encompassed such important and varied aspects as food sources, religion, art, folklore, medicine and the fashioning of useful implements such as fishhooks from the shell of the hawksbill turtle.

The current national and international interest in sea turtles makes it desirable for such a commemorative stamp topic, if approved, to be issued at the earliest possible time. I realize, however, that there are numerous constraints involved in the production and issuance of commemorative stamps.

If you have any additional questions concerning the merits of this stamp proposal, I would be most happy to talk to you by telephone (247-6631 or 395-6409) or meet with you in person at your convenience. I would also appreciate any advice that



Mr. Edward Mallek, Member  
Citizens' Stamp Advisory Committee

July 15, 1980  
Page 2

you can give me on how to further enhance the possibilities of the proposal being adopted. Would it be appropriate and worthwhile for me to send similar dossiers of endorsement letters to other members of the Citizens' Stamp Advisory Committee?

Thank you for your assistance and interest in this matter.

Sincerely,

GEORGE H. BALAZS  
Assistant Marine Biologist

GHB:ec

Enclosures



# University of Hawaii at Manoa

Hawaii Institute of Marine Biology  
P.O.Box 1346 • Coconut Island • Kaneohe, Hawaii 96744  
Cable Address: UNIHAW

August 25, 1980

Mrs. Mary Ann Owens  
Citizens' Stamp Advisory Committee  
P. O. Box 1164  
Brooklyn, N. Y. 11202

Dear Mrs. Owens:

Mr. Edward Mallek, my fellow resident here in Hawaii, has told me of your interest in the sea turtle stamp proposal and requested that I provide you with background information. As a researcher and conservationist of our marine environment, I have been a strong supporter of this proposal, originally set forth by Dr. Archie Carr of the University of Florida, which requests the issuance of a set of four commemorative stamps displaying sea turtles. In addition to constituting a part of the wildlife heritage of the coastal continental United States and Caribbean region, sea turtles have historically been an integral part of Hawaiian and other native cultures here in the Pacific. This has encompassed such important and varied aspects as food sources, religion, art, folklore, medicine and the fashioning of useful implements such as fishhooks from the hawksbill turtle. The current national and international interest in sea turtles makes it desirable for such a stamp topic, if approved, to be issued at the earliest possible time. I realize, however, that there are numerous constraints involved in the production and issuance of commemorative stamps.

Over the past several months, enthusiastic letters of endorsement for the sea turtle proposal have been sent to the Postmaster General by numerous individuals and organizations throughout the United States. I have enclosed copies of some of the more interesting and informative letters that have come to my attention. In addition, I am sending an article on sea turtles authored by Dr. Carr which originally appeared in Audubon Magazine. I am hopeful that you will have the opportunity to read through this material before the proposal comes before your committee for final appraisal. It is my understanding that the next meeting of the Citizens' Stamp Advisory Committee will take place during October, and that the sea turtle proposal will be considered at that time.

Mrs. Mary Ann Owens  
August 25, 1980  
Page 2

Thank you for your assistance and interest in this matter. Please feel free to contact me for any additional information which may be required.

Sincerely,

George H. Balazs  
Assistant Marine Biologist

GHB:md

Enclosures



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE

Duval Building  
9450 Koger Boulevard  
St. Petersburg, FL 33702

May 16, 1980

F/SER64:CAO

TO: F - Terry L. Leitzell  
FROM: F/SER - William H. Stevenson  
SUBJECT: Commemorative Sea Turtle Stamps

Attached is a letter for your signature to William Bolger, Postmaster General, endorsing requests (attached) by Russell Train and Archie Carr to issue commemorative sea turtle stamps and offering NMFS technical assistance in making the stamps accurate in their depiction of sea turtles.

To support our public information efforts to protect and conserve sea turtles, I request you sign the letter or ask F/MM to redraft it for joint signature with Lynn Greenwalt, Director of Fish and Wildlife Service, or Mr. Frank if you believe this approach more appropriate or effective.

I will make regional personnel available for technical assistance as required.

Attachment





**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Washington, DC 20235

F/SER64;CAO

Mr. William Bolger  
Postmaster General  
Washington, DC 20260

Dear Mr. Bolger:

Recently I became aware of requests by Russell Train, World Wildlife Fund, and Archie Carr, International Union for the Conservation of Nature (ICUN), to you regarding commemorative stamps on marine turtles. The species of turtles proposed were the green, loggerhead, hawksbill and Kemp's (Atlantic) ridley.

I would like to strongly endorse the requests and offer the assistance of the National Marine Fisheries Service (NMFS) by providing fisheries biologists knowledgeable about sea turtles that might facilitate accurate depiction of the species.

We are very much interested in the proposed idea because of the joint responsibility NMFS shares with the Fish and Wildlife Service to protect and conserve sea turtles under the Endangered Species Act. Part of our conservation efforts are devoted to informing the public about the status of sea turtles because we believe public awareness of the need to protect sea turtles will promote conservation.

The issuance of commemorative stamps featuring endangered and threatened sea turtles will be an extremely valuable tool in promoting conservation through public awareness.

Please contact me if we can provide any assistance.

Sincerely yours,

Terry L. Leitzell  
Assistant Administrator for Fisheries





ADDRESS ONLY THE DIRECTOR,  
FISH AND WILDLIFE SERVICE

# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
WASHINGTON, D.C. 20240

JUN 3 1980

Mr. William Bolger  
Postmaster General  
Washington, D.C. 20260

Dear Mr. Bolger:

I am in hearty agreement with the proposal to show endangered sea turtles on a block of four commemorative postage stamps.

The U.S. Fish and Wildlife Service is vitally concerned with the preservation and protection of these turtles, and has a strong program to aid their survival.

A major task of our law enforcement section is halting the importation of products made from skins, feathers, and hides of endangered species, including sea turtles. Public awareness of this problem, as offered through your stamps on domestic and foreign mailings, could help to ease this problem.

I know the value of your stamp messages. The Wildlife Conservation Postage Stamp Series, initiated in 1956 by a Fish and Wildlife Service employee, has helped tremendously in maintaining interest in our natural resources.

Because the marine turtles need help, and because the Postal Services are in position to offer such help, I urge you to endorse this proposal. They will certainly make an interesting and beautiful block of stamps.

Thank you for your assistance.

Sincerely,

/s/ /Lynn A. Greenwalt

Director

cc: George H. Balazs  
Univ. of Hawaii at Manoa



# University of Hawaii at Manoa

Hawaii Institute of Marine Biology  
P.O.Box 1346 • Coconut Island • Kaneohe, Hawaii 96744  
Cable Address: UNIHAW

May 20, 1981

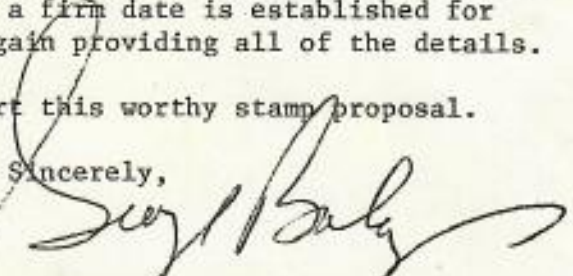
Dear

As you will undoubtedly recall, last year you wrote a letter to the U.S. Postmaster General expressing support for the issuance of commemorative stamps portraying four species of sea turtles. I am pleased to report that your correspondence proved to be a valuable contribution to a file of over 200 letters endorsing this wildlife conservation theme.

I am writing to you at this time to let you know that the sea turtle proposal is still very much alive for use in a future stamp issue. I have been informed that each year the Citizens' Stamp Advisory Committee (appointed by the Postmaster General) receives several thousand suggestions for stamp themes. Obviously the vast majority of these topics have to be rejected and discarded due to the very limited number of commemorative stamps actually issued each year. The fact that the sea turtle proposal has been retained for further serious consideration is therefore a most encouraging sign. During the coming months I will continue to make periodic contact with the Stamps Division of the U. S. Postal Service, as well as one of the members of the Citizens' Stamp Advisory Committee that lives here in Hawaii. The Committee meets once every two months, and further action on the proposal is certainly possible in the near future. If and when a firm date is established for issuing the stamps, I will write to you again providing all of the details.

Thank you again for helping to support this worthy stamp proposal.

Sincerely,



George H. Balazs

GHB:md

NOTE:



LETTER SENT TO NUMEROUS SEA TURTLE RESEARCHERS AND CONSERVATIONIST IN FOREIGN COUNTRIES IN ORDER TO PROMOTE THE ISSUANCE OF STAMPS FEATURING SEA TURTLES. AS THE RESULT, STAMPS WERE ISSUED BY PAKISTAN, PAPUA NUGINI, MAUI TANE, PITCAIRN, FILIPINES, TOKELAU, AND PROBABLY ALSO COSTA RICA.

## University of Hawaii at Manoa

Hawaii Institute of Marine Biology  
P.O.Box 1346 • Coconut Island • Kaneohe, Hawaii 96744  
Cable Address: UNIHAW

1980

Dear

One of the small conservation projects that we have undertaken here in the United States involves a letter writing campaign aimed at persuading our postal service to issue commemorative stamps displaying sea turtles. A copy of the original proposal, as well as a few representative letters of endorsement, have been attached to illustrate how we have thus far proceeded in this matter.

The portrayal of sea turtles on postage stamps provides an excellent means for creating public awareness of the need for both conservation and research. As you are probably aware, the subject material used on postage stamps usually relates to aspects of national heritage. Sea turtles would therefore be well suited as a stamp topic in the case of your own country. I do not know what procedures are followed by your postal service in adopting subject material, but I would like to suggest that you make the appropriate inquiries and give serious consideration to submitting a proposal for sea turtles. Postage stamps constitute important sources of revenue for most countries due to international sales to collectors. Government authorities are consequently continually searching for new and exciting topics. The suggestion of a sea turtle issue could very well be readily received and placed into action.

Sea turtles have already appeared on stamps issued by a number of countries. I have enclosed copies of several of these stamps for reference purposes. If you decide to pursue this matter further, as I hope you will, please do not hesitate to contact me if you think I can somehow be of assistance.

Best regards and Aloha,

George H. Balazs  
Assistant Marine Biologist

mk  
enclosures



# Study Reveals 5 Previously

By Richard Halloran  
© N.Y. Times Service

WASHINGTON — A Pentagon study has disclosed five previously unreported accidents with nuclear weapons, including one incident involving a submarine at sea. In three of the accidents, the nuclear weapons were not recovered.

All but one of the 32 accidents discussed in the report took place from 1950 to 1968 when the Air Force stopped flying bombers armed with nuclear weapons on military alert.

The only accident since 1968 occurred last September in Arkansas when fuel vapors in an intercontinental ballistic missile silo exploded, throwing a Titan II nuclear warhead about 200 yards. One Air Force technician died and 21 others were injured.

The newly disclosed accidents included:

—In the spring of 1968 there was an incident in the Atlantic Ocean. Informed officials said the accident in-

volved a submarine and that details were kept secret to prevent the Soviet Union or others from knowing the location of the submarine's nuclear weapon, which apparently was not recovered.

—In December 1965 an A-4 attack plane with one nuclear weapon aboard rolled off the elevator of an aircraft carrier and fell into the Pacific at an undisclosed location more than 500 miles from shore. The pilot and the plane were lost, and the nuclear weapon was not recovered.

—In November 1963 about 123,000 pounds of non-nuclear highly explosive materials from nuclear weapons blew up in an Atomic Energy Commission storage facility at Medina Base, Tex.

THREE Commission employees were injured, but there was little contamination from radioactive material stored elsewhere in the building. The non-nuclear materials, used to detonate a bomb's radioactive fuel, were from obsolete weapons being disassembled.

—In September 1959 a Navy P-5M antisubmarine aircraft ditched in Puget Sound off Whidbey Island, Wash. The aircraft's unarmed nuclear antisubmarine weapon, containing no radioactive material, was not recovered.

—In November 1960, because of an in-flight emergency, a B-50 bomber, flying at 10,550 feet somewhere over water outside the United States, jettisoned a bomb that did not contain the nuclear material needed to trigger an atomic explosion. The non-nuclear high explosives in the bomb did detonate, apparently on impact with the water.

The report said that "there never has been even a partial inadvertent United States nuclear detonation despite the very severe stresses imposed upon the weapons involved in these accidents."

Honolulu Star-Bulletin

Wednesday, May 27, 1981

Section

C

# Undisclosed Nuclear Mishaps

All the accidents, the report said, involved the Air Force or Navy. The Army has never had a serious accident with nuclear weapons, and the Marine Corps does not have custody of any nuclear weapons in peacetime, the report said.

IN JANUARY 1966, in a much publicized accident, a B-52 bomber and a KC-135 aerial tanker collided during a refueling operation, and the bomber dropped four nuclear bombs near Palomares, Spain.

The non-nuclear high explosives in two of the weapons blew up on impact, causing the release of some radioactive material; the other two bombs were recovered, one on land and the other from the Mediterranean.

A second well-known accident occurred in 1968, when a B-52 crashed near Thule Air Force Base on

Greenland. Four nuclear bombs were destroyed in the ensuing fire, and there was some radioactive contamination of the sea ice.

Because of these and previous accidents, the Air Force stopped flying bombers loaded with nuclear weapons in 1968. Neither alert nor training flights have carried nuclear weapons since then, the report said, citing several other reasons, including the increasing cost of alert flights and the advent of intercontinental ballistic missiles.

Among the lesser known accidents was the loss of a B-47 bomber over the Mediterranean in 1956 when it failed to make contact with an airborne tanker and was lost without a trace. The two capsules with nuclear materials carried in the aircraft were never recovered.

In 1957, a C-124 cargo plane lost

power in two engines while off the East Coast of the United States and, in an effort to stay aloft, jettisoned two unarmed bombs, which were not recovered. The plane landed safely near Atlantic City, N.J.

In some cases, according to the report, efforts by a craft's crew avoided a more serious accident.

In 1961 a B-52 bomber flying near Yuba City, Calif., nearly ran out of fuel because it missed a meeting with an airborne tanker. The aircraft's commander ordered the crew to bail out at 10,000 feet, but he stayed with the plane until it was at 4,000 feet to steer it away from populated areas, then bailed out.

The two nuclear weapons aboard the plane were torn loose when it crashed, but safety devices prevented their detonation or the release of radioactivity, the report said.

# Divided Viewpoints on Marine Turtle Controls

By Harold Ching and Robert McCabe

Star-Bulletin Writers

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

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

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

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

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

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

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

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

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

Others favored some controls.

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

Na Pali coast "and turtles by the hundreds at Polihale. "But you do not see them any more," he said.

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

The proposed regulation specified a minimum of 36 inches.

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

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

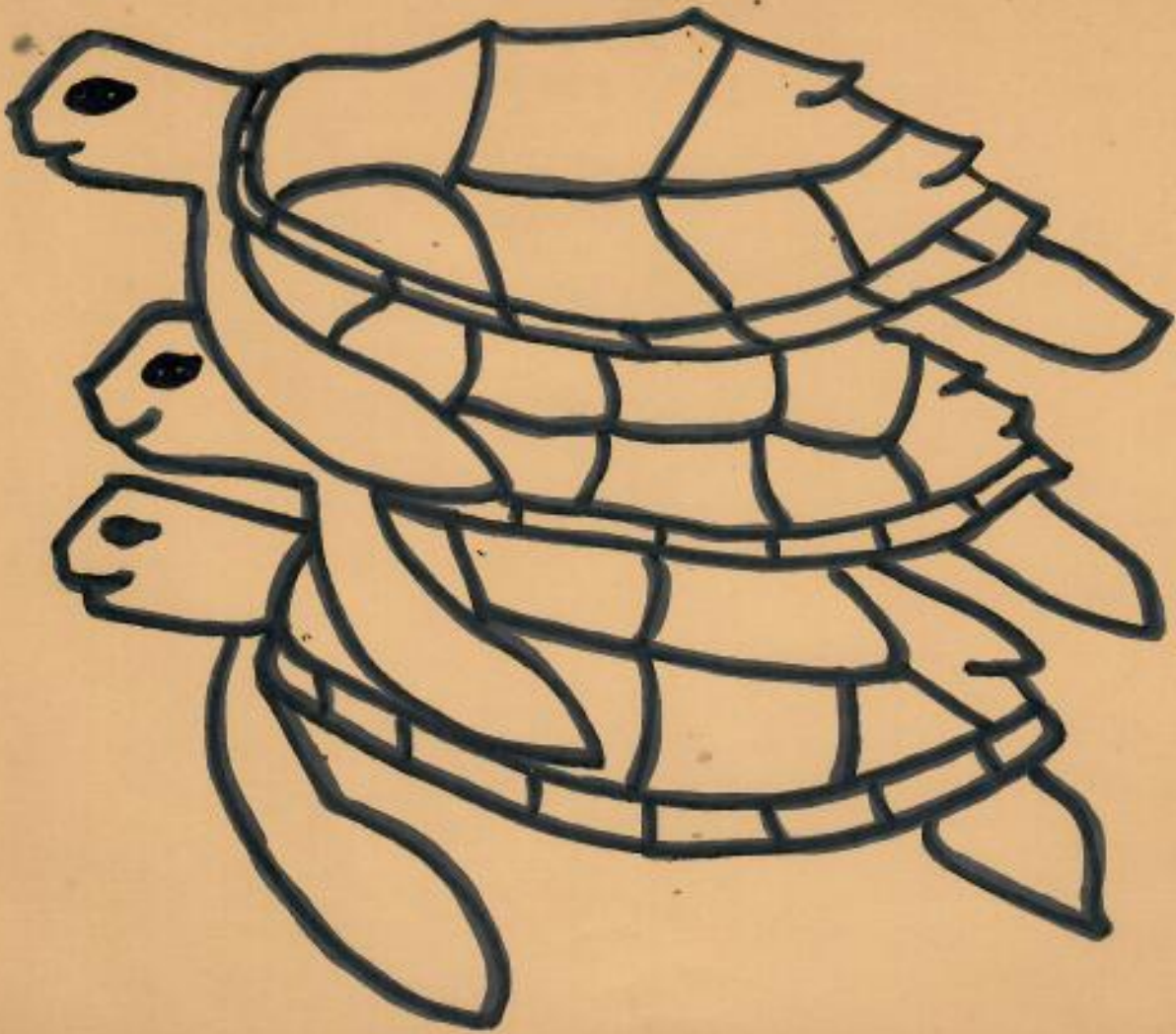
Ronald Lau, a Kahului teacher, asked that a minimum, instead of maximum, fine be imposed to "prevent too low fines."

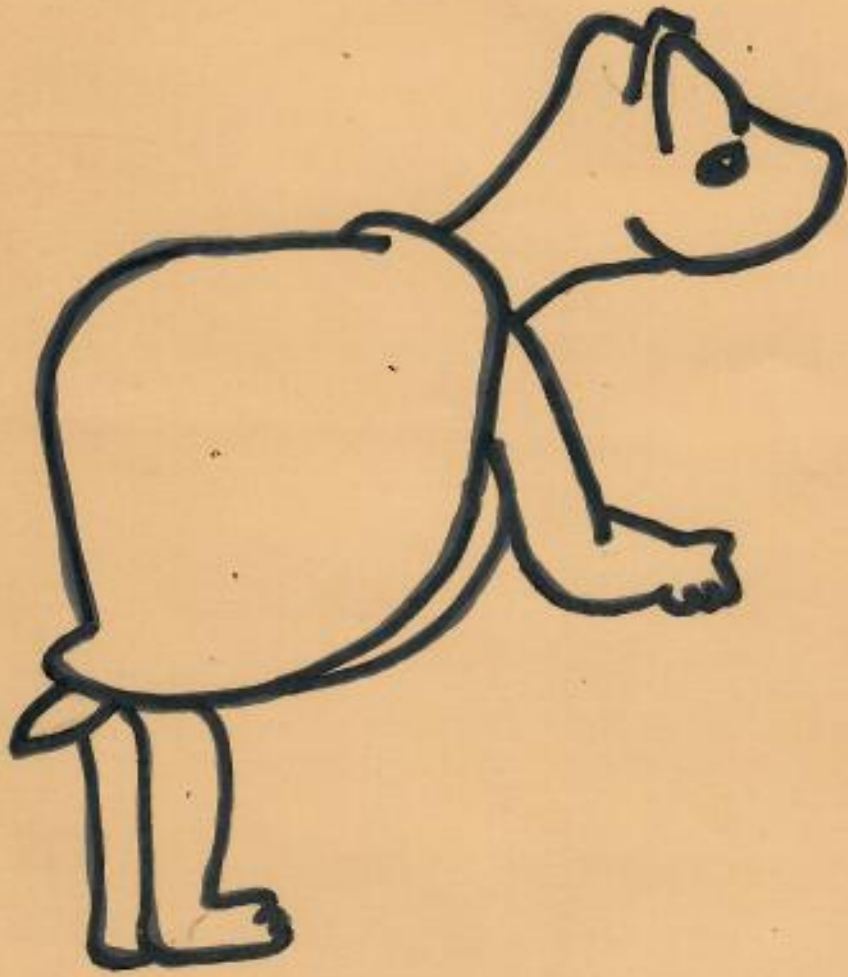
He asked also that a two-year moratorium be considered first before the regulation goes into effect.

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

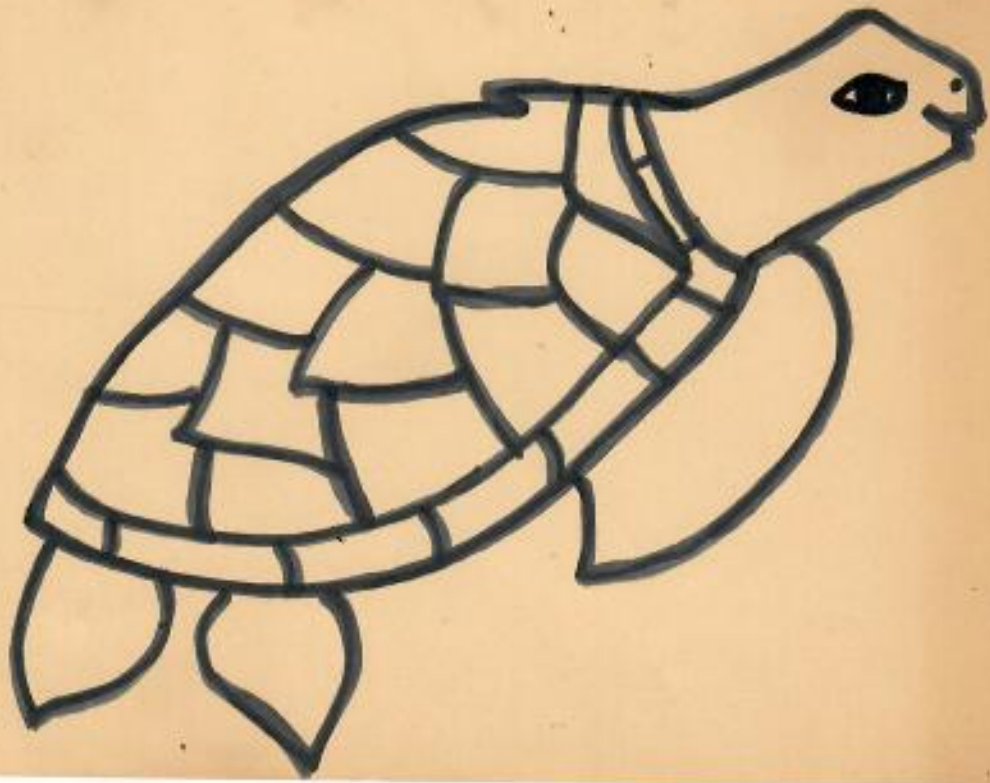
BUT HE ALSO URGED that permits for taking turtles for home consumption be administered under stronger guidelines that would guarantee population growth of the turtles.

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









# WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

1164 BISHOP STREET - ROOM 1405  
HONOLULU, HAWAII 96813  
TELEPHONE (808) 523-1368

## S U M M A R Y

### MEETING ON THE HAWAIIAN GREEN SEA TURTLE

State Capitol, Honolulu, Hawaii  
February 1, 1984

Since 1978, the Hawaii population of green sea turtles has been listed by the Federal government as a "threatened species". As such, the green sea turtle is very strictly protected by the Federal government, and no taking of this animal is permitted for any purpose (the only exception is scientific collecting under a special permit). The "threatened" status and the regulations protecting the green sea turtle in Hawaii have created several problems:

#### Problems

1. The green sea turtle was listed as a threatened or endangered species worldwide, and the Hawaii population was grouped with other turtle populations although there was little data to document that it was truly "threatened". Since this listing, the Endangered Species Act has been amended to require more complete documentation before a species is listed. However, the amendments also made it more difficult to get a previously listed species off the list. This created a "Catch 22" situation in which the burden of proof to remove the Hawaii green sea turtle population from the threatened species list is not on those who want it listed, but on those who want it de-listed.
2. The Federal regulations which prohibit all taking of the Hawaii green sea turtle ignored the existence of a State regulation which restricted the harvest of green sea turtles for subsistence use only. The Federal regulations do not allow subsistence harvest of this species in Hawaii, although the residents of the Trust Territory of the Pacific Islands are allowed to harvest the green sea turtle for subsistence purposes. This contradiction has not been resolved, although the National Marine Fisheries Service is conducting a review of this issue in Hawaii. Unfortunately, this review relied heavily on written documents and there was no provision for collecting data through oral history interviews.
3. The question of aboriginal rights to take threatened species has not been addressed by the Federal government with respect to harvesting green sea turtles by native Hawaiians although this issue has been resolved with respect to the right of Eskimos to harvest endangered whale species.



Strategy

The strategy which emerged from the meeting centers on issuing political messages to the administrative and Congressional branches of the Federal government.

1. Concerned State legislators will prepare resolutions to the National Marine Fisheries Service/Fish and Wildlife Service and to the Hawaii Congressional delegation asking for quick resolution of the green sea turtle problems in Hawaii.
2. The State administration may also prepare a message urging the Federal government to act on the turtle issues.
3. The Office of Hawaiian Affairs may lend support to the issue of aboriginal rights to take a threatened species.
4. Informal discussions with the staff of the House Merchant Marine and Fisheries Committee may lead to a clarification of the 1978 amendments to the Endangered Species Act.

# WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

1164 BISHOP STREET - ROOM 1405  
HONOLULU, HAWAII 96813  
TELEPHONE (808) 523-1368

## MEETING ON THE HAWAIIAN GREEN SEA TURTLE

State Capitol, Honolulu, Hawaii  
February 1, 1984

In Attendance: See attached list.

The meeting was held at the request of Alika Cooper, who had provided background materials on the problem of Federal prohibition of all taking of green sea turtles in Hawaii. Cooper opened the meeting by describing his frustration with the process by which the Federal government made the green sea turtle a "threatened species" without first checking with people in Hawaii. After the turtle was put on this list, Federal regulations were adopted prohibiting all taking, in spite of the fact that turtle is a traditional food in Hawaii. As the manager of the Kalahuipuaa fishpond complex, Cooper has been trying to get Federal action on his request to transfer green sea turtles from the ocean for three years. He also wants action on the request to allow harvesting of green sea turtles at least by native Hawaiians, using traditional gear and for home consumption only. Although they could not attend the meeting, Emmett Aluli of the Kahoolawe Ohana and Senator Inouye's Hawaii office notified Cooper of their support and want to see a firm timetable for action by the Federal government.

Gary Smith, the Deputy Director of the Southwest Region of the National Marine Fisheries Service (NOAA), said that the background material distributed by Cooper prior to the meeting accurately and fairly documented the history of Federal involvement in the regulation of green sea turtle harvest in Hawaii. Smith recounted how the present situation developed. Under the Federal Endangered Species Act, species which are "listed" as "endangered" or "threatened" are protected by the Federal government. In the case of the green sea turtle, the species was listed as endangered or threatened throughout the world, not only in the Pacific. In the early years of listing endangered/threatened species, the designation was often rushed and some of the documentation was incomplete. At that time, there was little data on the Hawaiian green sea turtle population, and it was lumped together with other turtle populations in the western Pacific for regulatory purposes. Amendments to the Endangered Species Act in 1978 provide for de-listing of species which have recovered under Federal protection. The Act also requires a status review of the listed species every five years.

Smith said he could understand the impatience regarding the regulation of green sea turtles in Hawaii. The Federal law lays out what can and cannot be done with turtles, and in order to get it off the "threatened" list would

require documented evidence which is not presently available. The 1978 amendments to the Act tightened up the listing procedure, so that a species can no longer be listed as endangered/threatened without adequate documentation; however, the same amendment also made it more difficult to de-list a species once it is on the list.

Smith said that the National Marine Fisheries Service (NMFS) has, since January 1982, been working on the required 5-year review of the status all turtle species on the endangered/threatened list. In addition, the NMFS Southwest Regional Office has been working on a separate review of the subsistence harvesting issue; at the request of the Territory of Guam, the State of Hawaii, and others. The original timetable called for both reviews to be completed by September 1983, but there were delays. These reviews are expected to be completed in the next few weeks.

Public hearings were held as part of the review of the subsistence issue, but little information was collected that documents the historical use of the green sea turtle in Hawaii. Therefore, the NMFS contracted with Dr. Robert Johannes to search through the literature to augment the public hearings. This contract study was completed in December 1983 and will be available in the next few weeks. Smith noted that, to date, the U.S. Fish and Wildlife Service (FWS), which shares responsibility with NMFS for protecting endangered/threatened species, has not participated in the review of the subsistence issue, despite efforts by NMFS at the national and regional levels to obtain inter-agency cooperation. NMFS plans to submit documents to the U.S. Fish and Wildlife Service for its review. (Subsequent to the meeting, the FWS published a Federal Register notice announcing an independent review of the status of threatened/endangered turtle species.)

Smith said the he is not optimistic that any consumptive use of the green sea turtle in Hawaii will be permitted until the population is removed from the threatened species list. There are insufficient biological data available to lead to a de-listing. Under the Endangered Species Act, there is a provision for the NMFS and FWS to do a "recovery plan" for a threatened species. If a "recovery plan" were initiated for the green sea turtle, this would fund the kind of research needed to assess the biological questions which need to be answered about the Hawaiian turtle population and could provide for a conservation program leading to de-listing.

Cooper said that he had worked with a Dr. John Hendrickson on a research proposal involving the green sea turtle as early as 1968-1970. What has been done about carrying out this type of research? He said that the Federal prohibition against the taking of turtles ignores the aboriginal rights of Hawaiians, who managed marine resources through a system of konohiki rights. The rights of Eskimos have been recognized by the Federal government with respect to the traditional taking of whales, and the rights of Indians to harvest salmon are also protected. However, Hawaiians are treated as second-class citizens.

Kenji Ego said that the problems over the Hawaiian green sea turtle have been created by the arrogance of the Federal government, which is now trying to pass the buck and put the burden of proof to de-list the animal on

people in Hawaii. The green sea turtle was originally placed on the "threatened" species list by the Federal government over the strong objections of the State of Hawaii, which did not believe that there was sufficient documentation that it was in jeopardy. Now, Gary Smith has admitted that the Federal agencies responsible for the original listing were remiss in not providing adequate supporting records. The Federal regulations ignored the existence of a State regulation restricting the harvest of turtle and took over the entire responsibility for turtle management. Now, the Federal government is admitting that research on the status of the Hawaiian turtle population has not been done to remove this stock from the threatened list. They are telling us that there is this inflexible law and they are unable to move on this issue. Can't the NMFS admit that it was wrong in the first place?

Smith responded that he was trying to be honest about the position where we find ourselves on the green sea turtle issues. Under the circumstances, Ego said, the animal may remain on the threatened list forever. Smith said that a major sticking point was the lack of a reliable estimate of the initial size of the turtle population. Cooper asked who was going to fund the research needed to derive such a number. He criticized the lack of interaction with fishermen by scientists who have done turtle research in the past. Smith replied that there are scientists in the NMFS system who are qualified to do the research and that their population studies are different from the kind of information that can be derived from talking to fishermen about turtles.

Cooper said that NMFS researchers have never come to the fishermen even to ask about traditional uses of turtles. He asked the representatives from the Office of Hawaiian Affairs and the State Department of Land and Natural Resources if they had ever been contacted concerning the traditional use-aboriginal rights issues. T.C. Yim, as a former State senator, said he has many times been completely frustrated in dealing with the Federal government on issues involving the Northwestern Hawaiian Islands and endangered species. He mentioned the use of Tern Island as another issue. It appears that the people in Washington are completely ignorant of what is happening in Hawaii. The Federal government took action to list the green sea turtle as threatened, overriding the strong objections of the State, but now the burden of proof is being put on those who want the turtle taken off the list. The situation should be the reverse. The burden of proof should be on those who want the turtle on the list, not on those who want it off. Alika Cooper and the State have tried many times to resolve the turtle issue with zero result. At the local level, we are only going to spin wheels agains. The way to take care of the problem is at a high, political level.

Several other people in attendance also commented that the problem seemed to be a "Catch-22" or a "cat and mouse game" of the Federal government's own making. They asked why a solution could not be negotiated. Smith said that the basic ground rules had changed. Initially, it was easier to list species as "threatened" under the Endangered Species Act, but now the listing procedure is much stricter. Likewise, it is just as strict to get a previously-listed species off the list.

Georgiana Padeken asked by what authority the NMFS had determined that it is permissible for inhabitants of the Trust Territory to take turtle for

subsistence use there, but it is illegal here. Smith could not provide details but said that an administrative decision allowed the people of the Trust Territory to harvest turtle for home consumption. Bill Tagupa said that the consumption of turtle in some areas of the Trust Territory is more a question of survival than of subsistence. Under the United Nations trusteeship, the U.S. was obligated to recognize this right. Smith noted that the decision to allow subsistence taking of green sea turtle in the Trust Territory was backed by documentation. Cooper argued that no one came to see the local people in Hawaii about traditional uses of turtle, and no one went up to Washington to say that we ate turtle historically. He believes that the NMFS was and continues to be remiss about talking to local people on these issues. Henry Sakuda reminded the NMFS that Governor Ariyoshi had strongly opposed the listing of the green sea turtle and had supplied information about its importance for traditional home consumption on several occasions. The Governor's letters are part of the record but were completely ignored. Susumu Ono asked if we can find out why.

Dante Carpenter said he could understand Mr. Cooper's frustration and suggested going to a higher political level to see if the law or the listing can be changed. Otherwise, we could be back here in another 5 years with the same problem. He asked Smith about the present status of biological information for the Hawaiian stock of green sea turtles. Smith replied that he had not yet seen any firm estimate of current stock size. Several members of the group noted that there was even less data available when the Hawaiian turtle population was first listed as a threatened species. In response to Senator Carpenter, Smith sketched an organizational chart to show the chain of command for the NMFS. (A similar chain of command exists for the FWS.) Yim questioned who in the chain of command would make the change requested by Hawaii. Smith said that NMFS has the responsibility for protecting the turtle in the water, but FWS is responsible on land, and a joint decision would be needed to make the change.

Padeken asked if advisory groups were involved in NMFS-FWS decisions to list threatened species. No, responded Smith. Decisions are made in-house. Smith said that the decision-making process is supposed to work from the local office on up to the regional office and then to Washington. Cooper warned that the Western Area Programs Office of NMFS based in Honolulu has little credibility with the local fishing industry and has created an "ugly American" kind of image for itself. He cited an instance in which a NMFS enforcement officer attempted to cite him and the owners of the Kalahuipuaa fishponds because there were 5-6 green sea turtles in the ponds. Smith said that the NMFS has established that those turtles were in the ponds prior to the listing of the green sea turtle as "threatened". However, until a mechanism is devised to provide for subsistence taking in Hawaii or the species is taken off the list, Cooper cannot catch any more turtles for transfer to the ponds. Cooper warned that if nothing is done to resolve this problem within 4-5 months, he was going to catch turtles for the ponds, get arrested, and go to court.

Ego questioned whether the regulations protecting threatened species are so inflexible that there can be no creative solution to the problem. It is his understanding that the regulations are much less restrictive for a threatened species than for an endangered species, and that permits can be obtained for certain scientific uses or public display of threatened species. At one time, the former Southwest Regional Director of NMFS, Alan Ford,

discussed the possibility of turning over green sea turtles that NMFS had in captivity to Mr. Cooper in a properly-documented manner. However, Ford denied Cooper's request in a subsequent letter. Ego believes that there are mechanisms, such as controlled experiments in the fishponds, whereby Cooper can legally put more turtles in the ponds. Smith said that the Johannes study had not located any literature documenting the historical use of turtles in fishponds. This does not mean it wasn't done, only that it was not written about. The Johannes report is being circulated to try to solicit non-written reports about historical uses of turtles in Hawaii. Ono asked if there had been any provision for interviews in the Johannes study to obtain oral history material from old-timers. Smith said no, the public hearing process was used for that purpose. Cooper noted the need to select the right type of people for oral history interviewing.

Bob Ogawa told the group that as a member of Congressman Akaka's Washington staff in 1977-1978, he had helped to write amendments to the Endangered Species Act. He is returning to Washington shortly and can talk informally with the staff of the House Merchant Marine and Fisheries Committee (although Congressman Akaka is no longer a Committee member) about what was the intent or non-intent of the Congress in tightening up the listing and the de-listing process for endangered/threatened species. If necessary, an amendment to clarify the intent could be implemented rather quickly if the support of the Committee is obtained. In addition to working with Congressional staff, political input may also be needed.

Carpenter said there is a need to work through several channels to resolve the turtle problem. After further discussion, he suggested the following strategy:

- (1) He will work with other State legislators to get passage of separate resolutions to the NMFS/FWS and to the Congressional delegation to ask for quick resolution of the problem.
- (2) The Department of Land and Natural Resources and the Department of Hawaiian Home Lands could jointly be responsible for the State administrative branch response.
- (3) Bob Ogawa would work informally with the staff of the House Merchant Marine and Fisheries Committee.
- (4) The Office of Hawaiian Affairs (OHA) might lend support to the issue of the aboriginal right to take turtles in Hawaii.

In this way, informal actions would be supported by political messages from the State's legislative and administrative branches to both the administrative (NMFS/FWS) and Congressional branches of the Federal government. The combined actions should have the objective of correcting the "Catch 22" situation created by the 1978 amendments to the Endangered Species Act, as well as permitting the subsistence taking of the green sea turtle in Hawaii. Over the long term, the group should support efforts to obtain the data necessary to

support the Federal status reviews and assess what amounts of turtle can be taken without reducing the population.

Tagupa asked if there are any lessons from the agreement between the Federal government and the Eskimos regarding the taking of endangered whales which could be applied to the Hawaii turtle issue. Could the issue be settled administratively without a court battle, as in the Alaska case? He also asked if there are international agreements between the U.S. and other nations regarding the protection of the green sea turtle which could encumber the resolution of the Hawaii problem. Smith said there are no international agreements. Sakuda noted that the whale issue in Alaska was not whether Eskimos had the right to harvest whales but how much they could harvest. Hawaii is still on the first step, because the question of whether Hawaiians have the right to take threatened/endangered species has not been resolved.

Tagupa said the Federal status review of the green sea turtle should not ignore the existence of other natural predators of turtles besides man. Cooper suggested that turtles newly hatched in the Northwestern Hawaiian Islands could be removed from an environment in which there are a lot of predators (ulua, shark, birds), brought to the main islands, raised in fishponds until the age of one year, and then released into the ocean. This would improve the survival rate. Smith reported that this kind of conservation program for turtles was being done in the Gulf of Mexico.

Carpenter ended the meeting by asking Mr. Cooper if he was satisfied with the general direction. Cooper said he was.

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SYMPOSIUM ON THE NORTHWESTERN HAWAIIAN ISLANDS

May 27, 1983

Verbatim Transcript of Tape Recording

My name is Alika Cooper. I feel this seminar has been very detrimental to the industry. I think it's bias, I think it's brainwashing. I see there are a lot of Ph.D's here, a lot of transient people, a lot of [ ? ] people. Most of the speakers were transients. We have only one native Hawaiian [ ? ]. There are probably only two of us in the whole room. I hope that the audience will be broad enough to note that the Leeward Islands [ ? ] and not be brainwashed by this seminar. I would like to address the following things. One, is that these lands, the Leeward Islands, are ceded lands, some of 3.5 million acres. These lands belong to the State of Hawaii, held in trust for the Hawaiian people. They do not belong to the federal government. The territory has leased these lands to the Coast Guard, Buzzy Agard, and back to the Coast Guard. When Tern Island was returned, it was returned illegally from the Coast Guard to Fish and Wildlife. Fish and Wildlife don't own those lands at all. I want that to be clear. I would like to address the scientists who spoke. I think in the tri-basis agreement, the scientists were employed to do scientific research on their subjects. Not to make a decision that if anybody can fish that area, or if anybody cannot. I would appreciate it if the audience would, would, think of that. I want to talk about the birds. You heard the lady speak of birds, very bias toward the industry. I don't think she understands that Kashumanu, who was Kamehameha's favorite wife, went to the Leeward Islands in the early 1800's for two purposes. One, to get bird feathers. Two, to reclaim the Leeward Islands as our [ ? ].

I don't think that people know that people from Niihau went to the Leeward Islands for many years to get the bird feathers. They didn't kill the birds. They got the feathers from the bosun birds. You look at the Kahilis. In the big islands, you only have white feathers, in the Leeward Islands they're all colors. People lived on Nihoa, Necker, French Frigate, and possibly some other islands. These are our ancestors, these are Hawaiians. And so these are very important. I want to talk a little bit about the seals. We have been brain-washed. For years we've heard that commercial fishermen are the ones guilty of killing monk seals. When we left French Frigate Shoals in 1951, there were twice as many seals as there are now. Now nobody's fished there all those years, except on occasion. Let's look at what happened to the seals. In the lower Hawaiian chain you have [ ? ] and ciguatera. The seal population has dropped tremendously around Midway. This is one of the main causes. The second cause, is man, transient people. The Coast Guard people, the people down in the Navy. You know, it's a known fact that it's nice to kill a young monk seal for the pelt, big trophy. And, they took the helicopters and worked the close islands. I talked to a Chief, who had been down to French Frigate Shoals, and he said, well we used to shoot glass balls, and we also shot a hell of a lot of seals and turtles. So I don't want this stigma that the fishing industry is blamed for this, because when we fished there the population grew. Not only the seals, the birds, but the turtles because we caught a hell of a lot of sharks. And I just think you have to [ ? ] I don't appreciate pictures of turtles, a dead turtle, and some guy, another transient person, saying in 1959 this is the commercial fisherman from Hawaii. That picture of the turtle could be shot in Kailua or anywhere else. I think that's a low blow. We did take turtles, I caught turtles, but we never took anything less than 200 lbs, and we never took

more than the market demanded. And we never [ ? ] supplied the market [ ? ]. And I think the turtle stock today is better than it has ever been. For the last 15 years the turtles [ ? ] .

I heard nothing about aborigine rights. What about the native Americans?

[ ? ] Don't they have their rights? Why do we go to court year after year after year winning all the big cases. We even beat Laurence Rockefeller for fishing rights and trail rights. Now why can't we be included in the planning, why can't we be included in the beginning. We fished the Leeward Islands. Our ancestors fished there. The next point I would like to bring up is that the fishing industry was not really included in this type of study. Just a few [ ? ] people like Naftel. You know, mainlanders. The problem is we were not included, so we don't have our say. And if this body, or any body, is going to govern our destiny, then we damn well better have our people in there governing ourselves. This is a very important thing. Lastly, the Governor of Hawaii, Governor George Ariyoshi, Sus Ono, Land and Natural Resources, and DPED, not including this transient fellow who spoke, have done a tremendous job in trying to make our fishing industry a viable industry. They've worked very hard and we in the industry really appreciate it. I wish some day I could say the same about the federal government. Maybe when their track record gets better, we can. But I will leave you to say that I hope you're not going to be brainwashed by these people. And I hope next time there's something like this we have equal representation. And I'm sure that DPED does not represent what this gentleman here said today. Thank you very much.

May 10, 1983  
7:20 pm Hilo, Hawaii  
Verbatim from tape recording  
of public meeting

ALIKA COOPER

U.S. Department of Commerce public hearing on review of sea turtle regulations, May 10th, Tuesday, Hilo council room. My name is Alika Cooper from Hilo. In 1978, National Marine Fisheries Service and Fish and Wildlife, two transient federal organizations, got together, dismissing what the State of Hawaii and the Governor of Hawaii said, never going to the people, to the native Americans, decided that there was a subsistence for turtle, and stopped all taking of turtles in the Hawaiian archipelago. Since then my family hasn't eaten turtle. Prior to that we ate turtle at least twice a week, probably more. This was part of our diet. This was our aborigine rights, our life style. This has been going on for generation, after generation, after generation, after generation. Can any of you, federal people, tell me, what was the substitute for turtles? How can they have regulations that say there's a substitute for turtles, if you have no substitute? (pause) No comment from the feds. In 1978, handling of the turtle issue was badly done. National Marine Fisheries and Fish and Game, probably illegally, on their parts, set this thing up. At that time, these two bodies got together and they said, "oh well, there's a substitute for turtles so why let the people of Hawaii, especially native Hawaiians, catch turtles, and they stopped the whole thing. At that time, no Hawaiian organizations, no Hawaiians, no fishermen, were notified. The same thing happens now, 5 years later. Only two Hawaiian organizations were notified, one being OHA, and one being Lanakila Brandt's group, Kahanahou in Kona. Even I, who brought this matter up in the beginning, was not notified by National Marine Fisheries until the 7th, Saturday the 7th. I heard about these public hearings from Alan Ford when I was representing the Western Pacific Regional Fisheries Management Council in San Diego at seminars, at the end of April. On arrival home, on the 10th, excuse me, on arrival home on May 6th, I received letters from all our congressional people with copies of hearings. I received a letter from the Governor, from Fish and Game, from the University of Hawaii and several other more copies. And yet I have not received anything directly myself, giving us only 4 days to prepare. Also going on in Hilo on May 10th, tonight, the state and federal task force on Hawaiian Homes Land has a public hearing, which is a conflict of interest. Also interferring with your Kona hearing tomorrow night and several other hearings throughout the state. At least the task force has given us 30 days to prepare for these hearings. Almost

Alika Cooper

May 10, 1983

Page two

two years ago I asked if I could get some turtles to take care of the seaweed problem that the finfish, the mullet and awa, can't control in our fish ponds at Kalahuipuaa for the Mauna Lani people. The National Marine Fisheries Service has (pause) has refused to grant people permission to catch turtles and use turtles for limu control, seaweed control, as our ancestors always have done. And my family has always done. Lucky we have 4 or 5 turtles within the complex. But that's not nearly enough to control the blooms. The finfish can't eat all the different types of limu, especially when they bloom, and its always been traditional that turtles have been used in fish ponds, to clear swamp areas, etc. The turtles in the fish ponds often stir up the bottom, which increases diatom counts, which feeds the mullet and the awa. It also all its waste turns to fertilizer. It's one of the very important balances that we need in fish ponds. The turtle, the entire animal, except for the leathery skin, was eaten by the Hawaiians. The blood, the wings, the stomach, the stomach contents, the intestines, the meat, the bottom shell. The oil was always been prized, for the best oil for medicine, and medicine purposes. For rashes that nothing else can cure turtle oil will cure it, burns, scars, oil was used in many Hawaiian remedies. Very good for lubrication of the stomach, and for the rectum if one has piles. It's always been used by our people for massage. Used on their hair, to make it thick and prevent drying out. It's a very important remedy for asthma, one of the best asthma cures that we have in our herbs. It's used for ear aches and cracked feet. In the cowboy business, on the ranches, turtle oil was always used for cuts, saddle burns, for preventing the flies from their laying eggs directly in the meat of the animal, this is traditional. All classes of Hawaiians ate turtles. There was no distinction between ali'i and the common people. Traditionally, turtle was usually caught with floating turtle nets, so there were no casualties. This is the traditional way turtles were caught. When I was a boy, I fished with a man that lived in Keokahi here by the name of Jack Kahiliani(?). And he had olona nets that went back over 100 years old that they caught turtles with. So traditionally turtle nets were used to catch the turtles. Grabbing the turtles in shallow water, or snagging the turtles on cliffs, and also harpooning were used. I'm asking that the turtle be opened up to the native Hawaiians, that is, anyone that can prove he was here before 1778, regardless of what percent Hawaiian he or she may have. This is our aborigine rights, our historical rights, our rights under the 1978 Freedom of Religion Act.

I recommend that turtles being used in other ways than subsistence that were traditionally used. Such as, in clearing of fish ponds, swamp areas, control of grasses, in religious rites, for medicine, and for various other things it should be opened up. As a fisherman who has fished 123 of the 133 islands in our archipelago, I have noticed a large increase in turtles in the last 10 to 15 years. The specie is not threatened by any means. And, for native Americans, for Hawaiians, using turtles as subsistence and for traditional uses, is our aborigine rights, and I know it will not hurt the stock. Size limits of turtles should be considered. Probably 100 lbs and above should be allowed to be caught in the traditional Hawaiian manners. No commercial sales of turtles, by-products of turtles such as the shells, or any other product of the turtle should be allowed. Any size turtle for cleaning of limu or grazing in fish ponds would be permissible. Actually, in the fish pond business, when the turtle gets to be 300 to 400 lbs we always let it go and caught 2 or 3 small ones to start over again. In many of our fish ponds, we had as many as a dozen turtles. In our 220 acre complex at Pearl Harbor we must have had 50 to 70 turtles in our fish ponds. For medical use, turtles over 100 lbs are desirable, except in special cases. And in those cases, smaller turtles should be considered. Under these conditions, I feel turtles must be opened up to native Americans in the western Pacific, including the Hawaiian archipelago. It probably could be opened up to all people in the Hawaiian Islands. These are our aborigine rights, I expect America to honor our rights. Are there any questions? Are there any comments? (pause) I'd like to add while we're waiting for these gentlemen to come, is that many parts of the turtle were used for implements, and in our case are still used for implements. The inside of the shell, the bone part of the shell, were used for scrapers of olona, the tapa, and also were used to take the skin off the taro and the potatoes. And we in our household still use these turtle scrapers. Very important. The shell itself was very seldom used because it's very thin. The only turtle shell that was used in the Hawaiian Islands for ornaments was the hawk-bill turtle. But because we have so few hawk-bill turtle, we've never killed them. Every time we catch a hawk-bill turtle we let it go. But I believe these are our aborigine rights, and I really don't know how for 5 years the National Marine Fisheries and the Fish and Game has gotten away by not letting us catch for eat turtles, which has been traditionally our life style for generations after generations. Thank you.

May 10, 1983  
Hilo, Hawaii  
Verbatim from tape recording  
of public meeting

KAOHU COOPER

I'm Kaohu Cooper, and since I was a small boy I used to go out and catch turtles and eat turtles. I always ate turtles since I grew up, and I don't think people have the right to come and take this right away from us, from going out there and catching from the ocean which we grew up on, and we learned how to do. And, you guys got to let us do this kind of thing cause this is our turtle, our heritage, we always did this. Thank you very much.

MAHI COOPER

My name is Mahi Cooper. Ever since I was alive I have eaten turtle. I ate it a couple times a week. Since you folks put in this law that we can't catch any turtles, I have to go to the supermarket and elsewhere to buy food just to eat. From what I know, the Hawaiians have eaten turtles all their lives, and I don't think you folks have the right to take our heritage away.



Wailuku, Maui  
May 12, 1983  
Verbatim from tape recording  
of public meeting

RENE SYLVA

My name is Rene Sylva and I'm from Paia. I'm here today because of my concern for the green turtle. I was a turtle fisherman since the 1940's and was involved in catching 100's of turtles over the years. My best catch was 14 in one day. Normally the catch was 4 or 5. To me, nothing beats the taste of turtle. It can be cooked and served in different ways, even put in the umu. Because of my long experience as a fisherman and my interest in turtle, I still check out the areas that I caught them. Most turtle that I see are small, and average of 10 small to one big. I say this because if you allow subsistence, the take will be the big ones. And since a turtle must be over 30 inches to be breeding stock, these will be the ones caught. I'm assuming that if subsistence is allowed, the old rule will be followed where only turtles over 36 inches can be taken. Most turtles caught are females, and so you are catching the breeding age stock, and most are female, the chances for the turtle to survive are very slim. If you allow subsistence, this will increase the chances of illegal catching of turtles, some of it still going on today. I base this on my experience that law enforcement has been poor and ineffective. The green turtle population has not stabilized yet, and with subsistence the population would decrease and possibly become extinct. To those of you who talk about their rights for subsistence, let me say this. Your rights to subsistence for the taking of turtle will eventually cancel the turtle's right to survive. If the turtle becomes extinct, the turtle will cancel your rights to subsistence. Hawaii has a very poor record of protecting its flora and fauna. And in some instances, they have through direct or indirect action, destroyed that flora and fauna. We must not let happen in the future what was allowed in the past. To me, subsistence today will mean extinction tomorrow and zero for generations to come. I ask that the turtle remain on the threatened list and the moratorium continue.

May 17, 1983  
Kaunakakai, Molokai  
Verbatim from tape recording  
of public meeting

WALTER RITTE

My name is Walter Ritte, trustee from the Office of Hawaiian Affairs, representing the island of Molokai. I guess what I would like to start off with is some of the local history concerning turtles. The valley of Pelekunu has a history of the turtle. The aumakua, or the god of that valley, was a turtle. The right wall of Pelekunu Valley was in the shape of a turtle. The left wall is part of a very old chant which talks of two brothers seeking their mother who was captured and was on top of the hill. And the story ends, near the ending of the story, talks of how the hill started to rise on the backs of the turtle. And started to go into the sky until the turtles were killed by the sons. And, the oral history from our kapuna tells of the winds that blew from Maui. Whenever the winds blew from Maui, and I don't exactly know what that means, but when the winds blew from Maui, the people would get their clubs ready, because that told of the arrival of the turtle. And the method that they used to catch the turtles was to club them. And any turtle that had any white of it, whether the turtle was full white or had a speck of white on it, that turtle was not touched. This is one part of our local history that I am familiar with that I have been told by our elders. In talking with some of the fishermen on this island, I have been told of turtles laying eggs in the Palau area of Molokai. I have been told of turtles laying eggs on the eastern side of Molokai, at Kalaeloa point. I have been told of turtles laying eggs in Halawa Valley. This week when I talked to the fishermen, whichever fishermen I could talk to, the ones that fish in the Palau area says the waters are loaded. The ones that fish in Manae(?) area says that the waters are loaded. And what that means is that there are turtles out there that can be gotten. I was always under the impression that we didn't have too many turtles around for us to eat because that's why the law was made. But, I've seen fishermen come back with turtles, and I know that these guys, they have an affinity towards ecological balance. And my background, I have some background which gives me an appreciation for ecological balance, the strongest part of that comes from the Hawaiian being very concerned about ecological balance, because without that they ain't going to eat. So, if the fishermen are telling me that there's turtles out there, and I don't know what the scientists are saying, I haven't heard from their point of view. And we know that we've been

Walter Ritte  
May 17, 1983  
Page two

eating turtles since day one. I remember growing up here if you go into Mid Nite Inn, which is probably the favorite restaurant on this island, you could get turtle soup, turtle steak. And, they never made turtle pies, so that was about it. But we grew up with those kinds of things. We also grew up seeing a lot of the fishermen getting pretty good at catching turtles, where they would have them all stocked in ponds, and then sell them when the price was right. Which is what I think screwed up the whole turtle trip anyway. So, the position that we're taking, is that we're in strong support of the recognition of aboriginal rights, and Hawaiian rights, and our gathering rights for these turtles. We are also in strong support of keeping the ecological balance. It would be foolish to annihilate all of the turtles. So, I guess what I'm saying here tonight is that we would like to pursue our rights as Hawaiians to gather these turtles for subsistence. And, impress upon your agency to change the rules to include the rights of Hawaiians to gather turtles. Thank you.

May 10, 1983  
Hilo, Hawaii  
Verbatim from tape recording  
of public meeting

TOM NAHIWA

I'm Tom Nahiwa. I was born and raised in Waimea. My young life was spent down by Kawaihae-Puako area. My dad was a fisherman. He and I dived together all the time. There was always an abundance of turtles, something the family would always enjoy eating. As I grew up, I always loved to dive and fish. I used to watch the turtles year after year, early in the morning, crack of dawn, when they used to make their routes inshore in the inlets, and I used to know how to set my nets to get them. So there was always many and lots of turtles. When I would dive, after I grew up and moved to Hilo, I would dive the Puna coastline, there was always turtles. We take, actually, what we need, because we know there's always turtles and can go back and harvest again if we needed any. But my family, my children, they were raised, and they know how good and ono turtle is. The turtle is plentiful. When they passed the law as far as regulating the catching of turtles, I was wondering why. It kind of make you lose faith- have no confidence in government administering the regulations governing the catching of these things. And I don't see why. I think sometimes possibly maybe they pass laws without facts. They don't understand. Just like they say, fish is wiped out. You know, you go by the moon calendar, the phase. Today you go you see menpachi in every rock. Tomorrow, when you dive, you can hardly see any menpachi. What happens? It's a change of moon phase. The same like uhu and other fish, on certain days you go it's plentiful. Like going for turtles, especially in our Puna coastline. There's lots of them. So I do hope they do allow us in our lifetime, at least, to bring back the enjoyment of having turtle on our table again. At least the children can enjoy it. That's all I have to say. Thank you.

Comment made during discussion period-

Just again, the government, it makes me wonder. The subject here is green turtles, but then our government again, you see I've hunted since I was a young boy. The government slaughters all the sheep. Gee, that's terrible, because you guys do that. I don't care about the little bird. They have a lot of islands they can go to. Slaughter everything, that's a shame. Look at our goats. I used to see 100's of goats. When we want barbecuegoats when we're fishing, always had food there. What happened when they go through the national park, they slaughter almost everything, shameful. Bad sense. And a lot of people are in need of food. I understand this turtle situation population. Sure, we had more catching of these green turtles and things like that. But when it's taken for food. We had cases in the past where people used to take pot shots at them. Don't understand all of this.



October 20, 1983

F/SWC2:WGG

Mr. Alika Cooper  
163 Kaiulani Street  
Hilo, HI 96720

Dear Alika,

This letter is in response to your phone call of October 19 to attempt to contact George Balaza.

George is on leave, so I thought I would respond to your concerns about his statement in the September 1983 issue of Honolulu Magazine that "porpoises and seabirds were also eaten by Hawaiians." Copies of the Bishop Museum reference publication from which this information was derived are enclosed. We consider these sources reputable, certainly justifying the above statement.

I hope the enclosed material is useful to you.

Sincerely,

William G. Gilmartin  
Leader, Marine Mammals and  
Endangered Species Program

Enclosure

cc: Balaza  
Shomura  
Gilmartin  
HL

October 20, 1983

F/SWC2:WGG

Mr. Alike Cooper  
163 Kaiulani Street  
Hilo, HI 96720

Dear Alike,

This letter is in response to your phone call of October 19 to attempt to contact George Balazs.

George is on leave, so I thought I would respond to your concerns about his statement in the September 1983 issue of Honolulu Magazine that "porpoises and seabirds were also eaten by Hawaiians." Copies of the Bishop Museum reference publication from which this information was derived are enclosed. We consider these sources reputable, certainly justifying the above statement.

I hope the enclosed material is useful to you.

Sincerely,

William G. Gilmartin  
Leader, Marine Mammals and  
Endangered Species Program

Enclosure

cc: Balazs  
Shomura  
Gilmartin  
HL



# United States Department of the Interior

FISH AND WILDLIFE SERVICE

WASHINGTON, D.C. 20240

ADDRESS ONLY THE DIRECTOR,  
FISH AND WILDLIFE SERVICE

Ms. Emily Roet  
Sea Turtle Rescue Fund  
Center for Environmental Education  
624 9th Street N.W.  
Washington, D.C. 20001

APR 19 1984

Dear Emily:

I have read the minutes and summary of the Western Pacific Regional Fishery Management Council meeting concerning the status of the green turtle in Hawaii and find myself appalled at the lack of knowledge of the Endangered Species Act presented by NMFS officials and the others present at that meeting. I have grown accustomed to the distortions and misinformation shown by Mr. Cooper. I am particularly amused by his continuing threats to violate the Endangered Species Act; he has been threatening to do so for many years now but never seems to take the step. Perhaps if he did, then we could set this issue to rest once and for all; I know that we have the data on the turtles to do so.

Mr. Cooper and others have continuously asserted that the listing of the turtles in Hawaii was conducted in haste. Nothing could be further from the truth. The listing, as you know, occurred in September 1978 after nearly 54 months of review by both the Fish and Wildlife Service and National Marine Fisheries Service. Public comments were received from scientists, States, private individuals and organizations from throughout the country. These were carefully evaluated and both organizations have continuously updated their files in the intervening years. The record is solid in showing that the green turtle is indeed properly listed from a scientific point of view. Information on the status of the turtle is presented in a NMFS publication (NOAA Tech. Memorandum NMFS-SWFC-7, 1980) entitled "Synopsis of Biological Data on the Green Turtle in the Hawaiian Islands." I find it curious that a NMFS administrator should be so apparently unfamiliar with this publication prior to representing his agency at a meeting concerned with the status of this species.

Prior to Federal listing, the State Department of Land and Natural Resources also conducted a 14 month review of the status of *Chelonia mydas*. Public hearings were set for each of the main islands so that information could be presented. This review led the State itself to adopt regulations prohibiting commercial turtle fishing, and to restrict noncommercial catch to turtles over 90 cm. No requests were made at that time to exempt "traditional Hawaiians" from these regulations. From 1974 to 1978, 84 turtles were taken legally. Even considering this, there is no reason to believe that these turtles were taken for subsistence purposes as defined in the regulations adopted by the combined regulatory agencies in 1978.

The question of subsistence also seems to not be understood by either the State nor Mr. Cooper and his allies. It is quite obvious that Cooper wants to eat turtles because he likes them, not because his survival or customs depend on honu. Extending subsistence take to Cooper would be somewhat akin to allowing big city Nicaraguans to harvest turtles along side the Miskito Indians; after all, they are both from the same country. But what Cooper really is after



is to be allowed to take turtles for his personal use. As such, his preference is little different from that of any group that at some time in the past liked to eat turtles, say the coastal residents of Florida, or Virgin Island fishermen. Simply because he is partly of Hawaiian ancestry is no reason to allow him and his friends to avoid or circumvent the law.

The issue of subsistence take was certainly adequately dealt with in the administrative record leading to the listing of the green turtle (see pages 32805-32806 of the Federal Register of July 28, 1978). On page 32811, §227.72 (f) states:

(f) Subsistence. The prohibition in §227.71(b) shall not apply with respect to the taking of any member of the species of green sea turtle (Chelonia mydas) in waters seaward of mean low tide for personal consumption by residents of the Trust Territory of the Pacific Islands if such taking is customary, traditional and necessary for the sustenance of such resident and his immediate family. Sea turtles so taken cannot be transferred to non-residents or sold.

The crucial issue here is not only whether Cooper and his associates would take turtles as custom or tradition (for which there is very little support, as NMFS scientists have determined), but also whether the take would be necessary for sustenance. This last point is very often overlooked by those who are in sympathy with Cooper. It was put in to ensure that turtles would not be taken simply because people liked to eat turtles, and yet allow those who truly require turtles to survive a legal way of carrying on their precarious traditional life-styles. In this regard, the similarity to the Eskimo situation is analagous, even though some have argued that the Eskimos do not really need the bowhead as a subsistence item. Cooper and allies clearly do not meet the requirements of sustenance. If they were allowed to hunt turtles, I could see no legal way that turtles could be protected from home use take in Florida, the Virgin Islands, or Puerto Rico. The precedent would be a severe blow to conservation efforts for the green turtle, and Hawaiian legislators should be made aware that the biological status of the turtle and its conservation are what is most important, not the temporary inconvenience to one self-centered individual.

I also find the reference to tighter standards of listing brought about by the 1978 amendments to the Endangered Species Act rather curious. I am not aware of these requirements and I have been here since 1976. The criteria for listing (i.e., the five factors) are exactly the same now as they were in 1973. One may always argue that different standards of completeness are applied, but this is a function of those reviewing and administering the program, not the 1978 amendments. Actually, the amount of data required for listing has remained relatively constant, with the exception of foreign species listings. Indeed, the administrative record regarding the listing of the three sea turtles in 1978 remains one of the most thorough in the history of the Program, and the only listing for which a full Environmental Impact Statement was prepared. To say that lax standards were in force in 1978, and thereby imply that the green turtle could not be listed today, is biologically preposterous.

The 1978 amendments to the Act specified several new definitions, particularly involving critical habitat, and specified more in detail the exemption

process and the need for economic considerations in the determination of a species status (see Endangered Species Technical Bulletin; October, 1978). The amount or kind of data in terms of listing requirements was not altered. Additionally, the Act was amended again in 1979 and 1982. Many of the conditions imposed by the 1978 amendments were removed by the 1982 amendments, although the data required for listing has never changed. I would be most interested in knowing the basis for the belief contained in the minutes that the 1978 amendments require "more complete documentation."

In any case, the minutes also state that the Federal government "ignored" the State's comments on the listing of the green turtle. Of course this is not true. The FWS and NMFS may not have agreed with the State, but the comments were not ignored, as stated in the Federal Register of July 28, 1978. The FWS and NMFS at that time determined that the biological data did indeed support the listing of the species. The existence of the State regulation was taken into consideration, but it was not deemed sufficient by itself to conserve the green turtle in the Hawaiian archipelago. In fact, we know today that the so-called conservation efforts of legislative bodies and agencies to "protect" sea turtles by imposing artificial size class definitions for take have no basis in scientific data. They are generally based at best on incomplete information about the biological requirements of a species, at worst on unsupported concepts derived from other species' management, say the use of the unsound maximum sustained yield concept. If conservation efforts were directed at Hawaiian green turtles, I would recommend protecting the larger turtles, since we know that it may take up to 50 years for these animals to reach sexual maturity. This is the exact opposite of what the State regulation allowed.

One curious nature of the comments by Mr. Smith is that the development of a recovery plan would fund research needed to assess the biological questions pertaining to the species' status. This of course is not true, although I wish it were for the sake of all the other listed species that desperately need biological studies, but for which funds are not available. Again, is Mr. Smith really unaware that biological studies on the Hawaiian green turtles have been ongoing for over 10 years, and that there is a wealth of published information, including assessments of the population of Hawaiian Chelonia, at NMFS' own Southwest Fisheries Center in Hawaii? Is NMFS aware that they have the world's expert on green turtles in Hawaii on their staff? Actually, the fact that Smith seems unaware of such expertise is not really all that surprising if you have worked within a bureaucracy.

In any case, having a number does not really mean much in determining a species' status, unless those numbers are very low. Hawaiian green turtles are vulnerable because of their biological characteristics, their limited breeding range, and the possibility that the lack of strict protection could be very detrimental to the species. The vast distances of the Hawaiian chain already make enforcement difficult, and creating a loophole for "home use" would virtually negate conservation efforts.

As to the authority of NMFS (and FWS) to create special rules for species that allowed take of green turtles for true subsistence use in the Trust Territories, that authority is contained in the Endangered Species Act of

1973; threatened species may have special rules if they are deemed necessary by the Secretaries of Interior and Commerce, and will not result in the extinction of the species. It is indeed a regulation, but I could see no biological justification for establishing an exemption for "home use" take of green turtles by an extremely small minority of Hawaiian citizens similar to that in effect for Trust Islanders following an undisputed traditional life-style.

One additional thing which needs to be clarified, Hawaii did indeed propose that there be exemption for "home use" of *Chelonia mydas* and as such opposed the listing. However, in a letter dated April 1, 1976, to Mr. Sidney Galler, then Deputy Assistant Secretary for Environmental Affairs in the Department of Commerce, Governor Ariyoshi stated quite clearly that the State was "cognizant of the 'declining trend' of the Hawaiian marine turtle population," and that the Hawaiian regulations on May, 1974, were meant to address this problem. It would seem that the State had sufficient data in 1974 to believe that conservation efforts, including a complete ban on commercial take, were necessary. To say in 1984 that there is not enough data on which to determine the status of this species in Hawaii is nonsense. We disagree about "home use" take, but if the State has data showing that *C. mydas* is improperly listed, they have not made their way to the published and scientifically peer reviewed literature.

I must admit that it continues to be disheartening to see the misrepresentation of the biological status of the green turtle, the administrative record, and the "subsistence" issue continued. You would think that people in such supposedly responsible positions would be at least on the surface responsible in assessing a situation, rather than listening to a vocal and persistent rabble with good connections.

The biological evidence is clear, however; the green turtle is properly listed in Hawaii as threatened, and there is no basis whatsoever for claims that "home use" by Hawaiians is consistent with subsistence take as defined by the special rules promulgated for the green turtle.

I would like to be kept informed of information relating to this issue.

Sincerely

*Ken*

C. Kenneth Dodd, Jr. Ph.D.  
Staff Herpetologist  
Office of Endangered Species



PACIFIC SCIENTIFIC INFORMATION CENTER

# B I S H O P M U S E U M

1525 BERNICE STREET • P.O. BOX 19000-A • HONOLULU, HAWAII 96819 • (808) 847-3511

August 4, 1983

Mr. George Balazs  
National Marine Fisheries Service  
P.O. Box 3830  
Honolulu, HI 96812

Dear George,

At long last I'm responding to your letter of May 26th; I had held off hoping that something would come of several inquiries I had made on your behalf, but as nothing has materialized I thought I'd better let you know. I haven't heard anything about turtles in fishponds since your correspondence with Bill Kikuchi back in 1976. **Marion Kelly** thought that the ubiquitous **John Stokes** might have uncovered something on this, and that a no-doubt painstaking search of his notes in the BM Library (**particularly on the Pearl Harbor fish traps**) might prove enlightening. Perhaps you may find time to undertake such a search one day. Marion also mentioned a gentleman by the name of **Bill Madden**, formerly of the Oceanic Institute (present whereabouts unknown) had knowledge of fishponds in the Hilo area. None of this is very helpful, I'm sorry to say.

I see that your affiliation has changed. I guess it's true that the only constant is change. In that regard I should mention that Alan Ziegler, whom you also wrote re turtles, has left the Museum; I told him I would answer for both of us, since he had nothing to add on the subject. We were sorry to see Alan go; he will be missed.

Over the past year I've visited every major Hawaiian island except Ni'ihau, including Kaho'olawe three times. It has been a great period for local travel. Don't know if I ever told you about my South Pacific trip in 1981; I visited ten countries collecting maps and government documents, and I'm still compiling the data.

If you're ever in the vicinity of the Museum, drop by and renew old acquaintances!

Aloha,

*Lee S. Motteler*

Lee S. Motteler  
Geographer and Manager

*Madden  
19-A AINA  
HILO, HI*

*Wednesdays  
9-12  
1-4  
B.J.  
847-3511*

*Anthropology*

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## TURTLES NEST ON MAUI

Biologists on the Big Island found *Lentipes* populations in their initial surveys of Waimanu Stream on the island's north shore. Surveys of native fish and insect species in the Honoli'i Stream north of Hilo showed "a diverse assemblage of native aquatic species, and a habitat of pristine quality," according to Devick.

In January, 1992, Dr. Robert Nishimoto discovered *Lentipes* in reproductive condition in the upper reaches of Keanuimano Stream, which parallels Kawaihae Road on the dry side of Hawaii. DAR biologists also managed for the first time to film gobies and atyid shrimp ('opae kala'ole) climbing waterfalls on Molokai and Hawaii.

The results of these and other stream surveys are very encouraging. They indicate that Hawaii's native stream species still exist in sufficient numbers for continued survival. *Lentipes*, in fact, has now been found in most windward streams statewide. DLNR has gone on record opposing "threatened" or "endangered" status for *Lentipes*, since listing would divert needed attention from the other native aquatic species.

Threats to all these native species still come from a number of sources. Waihee Stream on Oahu, for example, is being considered for channelization. But Waihee contains all five native fish species, as well as sizeable populations of atyid shrimp, prawns ('opae 'oeha'a) and endemic damselflies.

Channelization would surely impact these animals. Upstream movement of hinana, for example, would become extremely difficult.

The Commission on Water Resources Management recently considered an application for a stream alteration permit to divert water from Honoli'i Stream on Hawaii for a hydroelectric plant. DAR surveys indicated that the stream was of considerably higher biological value than had been previously suggested. As a result, the Commission decided that the pristine stream quality and diversity of native species were worth protecting, and denied the permit.

Accidental introductions of exotic species continue to threaten the quality of life for Hawaii's native fishes. Nine more species of aquarium fishes were discovered in freshwater habitats in 1991, bringing to 34 the total for the last decade. These exotics will compete with native species for food and habitat. DAR will continue its campaign to encourage people with unwanted pet fish to return them to pet stores, rather than releasing them into the wild.

With all the media interest devoted to Hawaii's "extinction crisis" over the past few months, some good news about our native animals is certainly welcome. Still, we need to keep in mind that threats to their populations will continue, but can be averted through public support.

All the native freshwater species can be preserved if habitat is protected and a vigorous effort is made to understand the relationships between these species and their supporting ecosystems. "Such understanding is prerequisite to management," said Devick. "With a good information base, and decision-makers who give highest priority to the perpetuation of the native biological resources, the survival of these species along with their natural ecosystems should be assured." ■

**T**he first hawksbill sea turtle nest ever discovered on the island of Maui was unearthed recently by

DAR staff on that island.

On the morning of July 31, the Maui DAR office received a report from a woman who had seen three sea turtle hatchlings making their way to the ocean



had died emerging from the nest. The nest site was therefore confirmed. The second hatchling was found a few feet away facing the ocean. It had apparently died while trying

been able to make it to the surface on their own.

The nest extended from about 18 inches to 29 inches below the surface. Another nine hatchlings were found out of their shells,



the previous morning on Maalaea Bay Beach. The call was taken by Brooks Tamaye, aquatic resources information specialist, who inspected the area that afternoon but was unable to find tracks or other evidence of hatchlings.

Thinking more hatchlings might emerge during the evening, Tamaye returned to the site at about 6:30 p.m. and conducted another inspection of the area. Eventually he was able to find two dead hatchlings, which were dehydrated from exposure to the sun.

One hatchling had only its head and front flippers exposed, indicating that it

to make its way to the sea. No other hatchlings emerged from the nest that evening.

Fearing that humans or animals (especially dogs or mongoose) might disturb the nest site, Tamaye consulted with National Marine Fisheries Service turtle specialist George Balazs. The two concurred that the nest should be excavated. On the morning of August 2, Tamaye, accompanied by DAR staffers Randy Honebrink and Skippy Hau, carefully dug into the nest site.

Eleven live hatchlings were recovered and successfully released. They probably would not have

*Skippy Hau and Randy Honebrink dig up hawksbill sea turtle hatchlings from a Maui nest and release them into the ocean.*

but dead. Eight others had died while emerging from their shells.

Also found were 87 unhatched eggs (which were no longer viable), and 86 empty egg casings. A total of 181 eggs had been deposited, of which 64 apparently hatched successfully. Specimens sent to Balazs on Oahu were confirmed as being Hawksbill sea turtles (*Eretmochelys imbricata*). ■

UNIVERSITY OF FLORIDA  
GAINESVILLE, 32611



DEPARTMENT OF ZOOLOGY  
223 BARTRAM HALL  
904-392-1107

July 10, 1984

Mr. D. A. Parkinson  
White House  
San Roque  
San Jose  
Occidental Mindoro,  
Philippines

Dear Mr. Parkinson:

My son Chuck has sent me a copy of your letter of 16 June with the encouraging news of your productive talks with Mohammed Khan about the Turtle Island Park Concept. The indication that Malaysia is willing to cooperate with the Philippines in establishing and running an ASEAN Heritage Park in Turtle Islands is exciting news indeed.

I was sorry to see from your letter to Chuck that you had been awaiting a letter from me before proceeding to negotiate with the Philippine government. It was my impression that the next step would be a meeting with the Pawikan Task Force, and that if, as you expected, that had favorable results, you would be in a position to recommend subsequent procedure.

In any case, your success with Director General Khan clearly opens the door for further substantial planning, and I hope you will be willing to continue to contribute your invaluable aid and consultation. As I told Bruce White, the Marine Turtle Specialist Group attaches the highest priority to a Turtle Island sanctuary. With the collaboration that can be expected from NYZS and with your understanding of the protocol involved, it is only necessary for you to propose further appropriate action. If attendance of an officially designated representative of the Marine Turtle Specialist Group at a meeting with government officials there would be helpful, Dr. Colin Limpus would be our choice. Meanwhile, please accept my thanks and felicitations for the remarkable progress you have made in the project.

Sincerely yours,

*Archie Carr*  
Archie Carr  
Graduate Research Professor

AFC/cb

**TRIP REPORT: REPUBLIC OF THE MARSHALL ISLANDS**  
**16-22 May, 1992**

Scott A. Eckert, Ph.D.,  
Coordinator, U.S. Pacific Sea Turtle Recovery Team  
National Marine Fisheries Service, Southwest Region

**PURPOSE:**

Meet with resource management agencies of the Marshall Islands to assess interest in their inclusion in the U.S. Recovery Plan for Marine Turtles. Also to assess current use of sea turtles; general population status; and threats to the populations. The trip was carried out under the auspices of the Pacific Island Network (PIN) and NOAA International Affairs Office as part of a site visit.

**BACKGROUND:**

The U.S. National Marine Fisheries Service and the U.S. Fish and Wildlife Service have begun development of Recovery Plans for Marine Turtle populations in the U.S. - administered Pacific Ocean. These plans will be developed for each of the marine turtle species listed as Threatened or Endangered in the U.S. Endangered Species Act. Such recovery plans will include a detailed description of the status of each sea turtle species in the U.S. Pacific Ocean; threats to same; current conservation or management activities; agencies responsible for implementing actions; approximate cost of recovery; and a time-table.

In February 1992 the Marshall Islands government requested assistance from the U.S. with management of their marine turtle populations through the National Oceanic and Atmospheric Administration's Office of International Affairs and the Pacific Island Network (PIN). The request was convenient to the U.S. Recovery Team's objective of developing a recovery strategy for U.S. populations because populations are highly migratory and it is likely that turtles move between U.S. and Marshallese jurisdiction.

This report summarizes my activities, as Coordinator of the Recovery Team, during my visit to the Republic of the Marshall Islands as part of a PIN site visit.

**TRIP NARRATIVE:**

Upon arrival in Majuro on 18 May we were met by the Assistant Director of the Environmental Protection Authority, Kazuo Hellginberger, and escorted through immigration. We subsequently spent the afternoon in meetings at the EPA (Kasuo Helgenberger, Jiba Kabua) and the Marshall Islands Marine Resources Authority (MIMRA) (Mike Konnelus, John Bungitak, Gordon Benjamin, Len Lenglin, Ronald



Alfred) and we stopped in at the U.S. Embassy and met briefly with Barbara Ash. The purpose of these initial meetings was to describe the goals of the site visit and to set up appointments for more in-depth meetings later during the site visit.

I was also able to hold a brief meeting with Paul Holthus, Chief of Science for the South Pacific Regional Environment Program (SPREP) and discuss the relationship between the U.S. Recovery Plans and sea turtle conservation activities being carried out by SPREP's Regional Marine Turtle Conservation Program (RMTCP). Holthus was very positive about the U.S. Recovery Plan, especially if it could be utilized to support activities in the Marshalls and the Federated States of Micronesia (FSM). He felt that SPREP was stretched very thin and that anything the U.S. could do for turtle conservation in the region was beneficial. He noted that RMTCP's funding was due to expire within the next year and that any support that could be provided through U.S. activities would be most useful. Holthus was also very positive about acting as a Technical Advisor to the Recovery Team and suggested that while SPREP had recently hired a sea turtle coordinator, her experience was very limited and he was discouraged that her position was only temporary. Hence, he offered that we continue to coordinate sea turtle management through his office.

#### **NESTING BEACH SURVEYS:**

An opportunity for me to survey the sea turtle nesting beaches in Erikup Atoll and to interview turtle fisherman on Wotje Atoll was arranged by Gordon Benjamin of the Resource Development Authority (RDA). On May 19, Len Lenglin of RDA and the I flew to Wotje (with permission from the Mayor of Wotje Atoll: Tony Phillips). On Wotje we met with the acting mayor, and the Atoll Chief, and arranged for a boat to take us to Erikup the next day. That evening I interviewed a number of local people with experience in sea turtle hunting, particularly Glen Lokjohn, about the harvest of turtles in the islands.

#### **WOTJE ISLAND INTERVIEW NOTES:**

Most turtles taken by the Wotje Atoll inhabitants come from Erikup Atoll. The previous Friday (May 15), 10 turtles had been brought back from the Atoll. All were large female green turtles that had either been taken from the nesting beach, or captured in the shallow water directly adjacent to the beach. Apparently, it is common for the these turtles to lie in the shallow water next to the beach before coming onshore to nest. Turtles are taken primarily for celebrations (these turtles were taken to celebrate a birthday) and generally they are large mature turtles. According to Glen Lokjohn, turtles are taken as often as calm seas allow boat access to Erikup. Only occasionally are turtles captured at Wotje and Glen showed me the carapace of a small hawksbill he had caught recently

(carapace length 39 cm, width 34.5 cm over-the-curve) by hand. Most often turtles caught in the lagoon are taken by snorkeling over a sleeping turtle at night and gaffing it through the neck. The gaff is attached to a line on the boat which is used to retrieve the turtle.

On June 9, a large celebration was planned for "Liberation Day" to celebrate the liberation of the islands from Japanese control. On that day Marshallese arrive from all over the Northern Atolls, staying with relatives or in the infirmary and quarters for construction workers. Glen suggested that turtles would be captured and stockpiled for about one week prior to the celebration and that it was likely that more than fifty turtles would be consumed during the celebration. All would likely be nesting turtles taken at Erikup Atoll.

Turtle harvest season corresponds closely to the nesting season, April to July, and is reflected by the local name "man loran" or "the time of year when turtles are available". Mating by turtles is throughout the nesting season. Glen estimated that roughly 1000 turtles are captured annually - though it was clear that this number represented a very rough guess. He also stated that he felt there were substantially fewer turtles available than in previous years, and that nesting had declined by as much as 50% in the last 10 years. On this latter point, he was quite positive. Turtle eggs are also consumed when available, though Glen suggested that often they will take only 1/2 the eggs from a clutch. Occasionally eggs are also taken to hatch as pet turtles.

In the Atoll of Erikup, Glen felt that most nesting took place on the islets of Loj and Enego and on Erikup islet to a lesser degree. However, most harvesting takes place on Erikup islet. None of the people I interviewed knew of any regulations controlling the harvest of turtles (it should be noted that the Marshall Islands Resources Act prohibits the killing of all turtles on shore or the taking of eggs, and that minimum size limits for harvesting hawksbills is 67.5 cm and for greens is 85 cm. No turtles may be taken from June 1 to 31 August or from 1 December to 31 January<sup>1</sup>).

One item of particular concern for resource management on Wotje and Erikup is a plan to establish a large High School on Wotje Islet. The school will be attended by students from all the Northern Atolls who will be housed in dormitories. It is anticipated that there will be 500 students housed at the school. If the school is to be supplied with locally caught resources such as fish and particularly turtle, it would be very easy to overharvest those resources, and in the case of turtles, accelerate the population decline already occurring. From my discussions with

<sup>1</sup> Thomas, P.E.J. 1989. Report of the Northern Marshall Islands natural diversity and protected areas survey 7-24 September 1988

the Wotje islanders, it was unclear how food would be supplied to the school. Most seemed to feel that local resources such as fish and turtle would be utilized. I would hope that with current regular air service available to Majuro, supplies for the school could be flown in and local resources used only to supplement the imported supplies. Also, because students will be attending from all of the Northern Atolls, I believe that the school might provide a very useful venue for teaching wise resource management to an important segment of the Marshall Islander population.

#### Erikup ATOLL:

The trip from Wotje Atoll to Erikup Atoll was made in a small fiberglass boat powered by a 40 hp outboard engine and took approximately four hours. It is likely that such a trip could be made more quickly, but the seas and weather were quite bad for such a small vessel. Our goal was to survey 3 islets in Erikup Atoll known to support green turtles nesting. Surveys were conducted on foot, and only nesting pits that were associated with crawls were counted as activities. This prevented us from over-estimating the number of nesting attempts as it appeared in many cases that a turtle would create more than one nesting pit on a single visit. Also it prevented us from counting pits left from the previous season. I did not try to conclude whether an activity contained eggs, as probing might prove detrimental to the eggs. In general, I believe that most activities could be counted as actual nests, because the activities had a finished look - the final pit of each activity appeared to have been backfilled by the turtle, in contrast to false attempts which were not backfilled.

#### Enego Islet (5/20/92)

Enego was the first islet surveyed. It is approximately 1.5 km long and .75 km wide with beach bordering 3/4 of the island. The last 1/4 of the perimeter is bounded by coralline rock and is unsuitable for nesting. Density of nesting was uniform and quite high with 98 activities counted. Two of the activities were excavated by one of the Wotje islanders travelling with us, and both contained eggs. In one nest an egg was opened revealing a 1.25 cm embryo (approximately stage 23 according to Miller, 1985<sup>2</sup>) which allowed us to approximate the age of the activity at one month. By comparing the level of track degradation to the other activities we were able to anticipate the age of other nests, the oldest appeared to be approximately 2.5 months old. About 25% of the nesting area had extensive beach rock and it is likely that the turtles wait until the tide covers the rock before nesting. Crawls in this area were uniformly short, and located high on the beach. All nesting

<sup>2</sup> Miller, J.D., 1985. Embryology of marine turtles, p 269-328. IN: Biology of the Reptilia, Development A, Vol. 14, C. Gans, F. Billett, P.F.A. Maderson (eds.). John Wiley and Sons, New York.

pits (even on broad beach areas) were located at the edge of or slightly within the vegetation.

There were signs that Enego was used for a camping (for fishing or turtling) as there were a few lean-to frames scattered around the island perimeter. Also there were sharpened sticks on the beach which are used to probe for eggs.

#### Loj Islet:

Loj Islet is about the same length as Enego, however it is only about .25 km wide. The beach is narrower and only 50% of the perimeter is suitable for turtle nesting. Density of nesting on the beach is also less than Enego with 26 activities counted. This island has clearly been the sight of heavy turtle harvesting as we found numerous campsites and large piles of turtle bones and other turtle remains.

#### Erikup Islet:

Erikup is the largest of the islets surveyed and is 2.5 km long and .75 km wide. When we arrived at the beach at 1730 h a green turtle was already crawling up the beach to nest. Her nest placement was very near the vegetation and was typical for nests on the atoll. She was forced to dig two pits before she successfully completed a nest hole due to the extensive vegetation and debris in the nest pit. After egg-laying the turtle was measured (carapace length: 87 cm; width 83.5 cm over-the-curve) and tagged (no. X378 and X379) with inconel flipper tags. No other turtles were observed nesting that night, however approximately 10 turtles were seen lying in shallow water adjacent to the beach or slowly patrolling along the water's edge. This latter observation confirms what Glen Lokjohn had said about the turtle hunters being able to capture turtles in the water near the beach. It would have been easy to catch one of these turtles lying in shallow water. They seemed to be least active when the tide was low and the moon obscured by clouds. Once the tide started rising and the moon was uncovered the turtles became very active patrolling the water's edge.

I surveyed the island for nesting activity early the next morning. Only about 70% of the islet has useful nesting habitat. A total of 81 green turtle activities were counted with most of them located on the NE side. Also that morning we observed two turtles mating offshore with 3 other turtles (sex unknown) in attendance.

From descriptions of the Wotje islanders and from evidence on Erikup, this islet is heavily utilized for turtle harvesting. There were many campsites and remains of turtles. According to the Wotje islanders who had travelled with us to Erikup, turtles are butchered and the meat is salted for return to Wotje, or the turtle is brought back alive.

Conclusions of this brief survey indicate that Erikup Atoll supports large numbers of nesting green turtles, with the highest

concentration of nesting on Enego and the next highest density on Erikup. It also seems that the take of nesting females is very high, and it is hard to imagine such take being sustainable.

We returned to Majuro on the evening of 21 May. On 22 May I met with Ronald (Virgil) Alfred, a fisheries biologist for MIMRA. Virgil was quite knowledgeable about marine turtles in the Marshall islands and had hunted turtles himself for a number of years.

#### **VIRGIL ALFRED INTERVIEW NOTES:**

##### **Historical and Cultural use of sea turtle in the Marshall Islands**

Sea turtles have been used for food by the Marshallese for many years. However, this use was only in the Atolls north of Majuro, or the so-called Northern Atolls. Harvest of turtles was strictly controlled by the Chief of each atoll. Nesting turtles were the most commonly harvested age (size) class, which is likely the reason that there is no tradition of harvesting in the Southern Atoll: nesting is limited to the North. The rules that were generally followed about the use of turtle were that nesting turtles or any turtle caught on land belonged to the Chief, but only certain portions of turtles taken in the water belonged to the Chief. No turtle could be taken on land without the Chief's permission and such harvest was limited to special celebrations.

Some Atolls were set aside as tribal reserves and were to remain uninhabited with only limited harvest allowed. These atolls were Ailinginae, Jemo, and Bikar. Bikar has the largest number of nesting sea turtles in the Marshall Islands.

##### **Current Harvest Practices**

Harvest and consumption of sea turtle has expanded to all of the Atolls, with Majuro and the Southern Islands importing turtle from the Northern Islands. There is little or no control over the harvest of turtles on any of the islands, although informal control comes from the owner of the land (upon which the turtles are nesting) the atoll chief and finally the land owner's supervisor (often the land owner is absent, so assigns a supervisor to administer his holdings). Harvest of turtles is still primarily on the nesting beaches, but more recently (in the last 10 years) turtles are also taken by snorkelers at night in the water. Such turtles are captured while they sleep by diving down and planting a hook through the turtles neck. This hook is tethered to the boat with a long line which is then used to retrieve the turtle.

Eggs of the turtles are harvested regularly and eaten. Also, eggs are hatched and young turtles retained as pets, in some cases the practice of raising these young turtles for release is considered good conservation practice (by some Marshallese).

## Species of turtle

Virgil was only aware of Green turtles and Hawksbill being found in the Marshalls, although he had recently heard mention of a "different" species seen occasionally. Green Turtles were reported to nest on Bikar, Wotje, Alinginae, Erikup, Rongrik, Wotho, and most of the other Northern Atolls. Hawksbills were reported to nest on Bikar, Wotje, Alinginae and Erikup.

## Population status

He was very positive and concerned that populations had declined by 50% in the last 20 years, and blamed it exclusively on overharvest. He suggested that the recent demand for turtle on the Southern Atolls was much to blame for the decline and was worried about the lack of controls on harvest of sea turtles. He knew of no laws currently being enforced for protection for marine turtles (this same opinion was repeated by virtually every Marshallese I spoke to including, those in the government resource management agencies). For evidence of decline, Virgil noted that he had been diving in the Arno Atoll lagoon for many years and that there were many fewer turtles (both adults and juveniles) seen today. Also he suggested that daytime nesting was much less common on Erikup, Jemo and Bikar than in ten years ago, and suggested that it was due to the smaller populations of nesting females (this statement is actually quite possible - smaller populations will exhibit less total aberrant behavior, such as daytime nesting).

## Proposed management solutions

When asked about restoring turtle populations, Virgil suggested a good, though impractical start would be a moratorium on all turtle harvest. Given the impracticality of that idea he proposed that an educational program aimed at the atoll government councils would be very useful. These local government council members are the primary resource management authorities for the islands and could effectively replace the now defunct control of the atoll chiefs in sea turtle population management. If these council members could be convinced of the importance of controlling turtle harvest - to preclude total loss of the resource - effective management might be restored in a relatively short period of time.

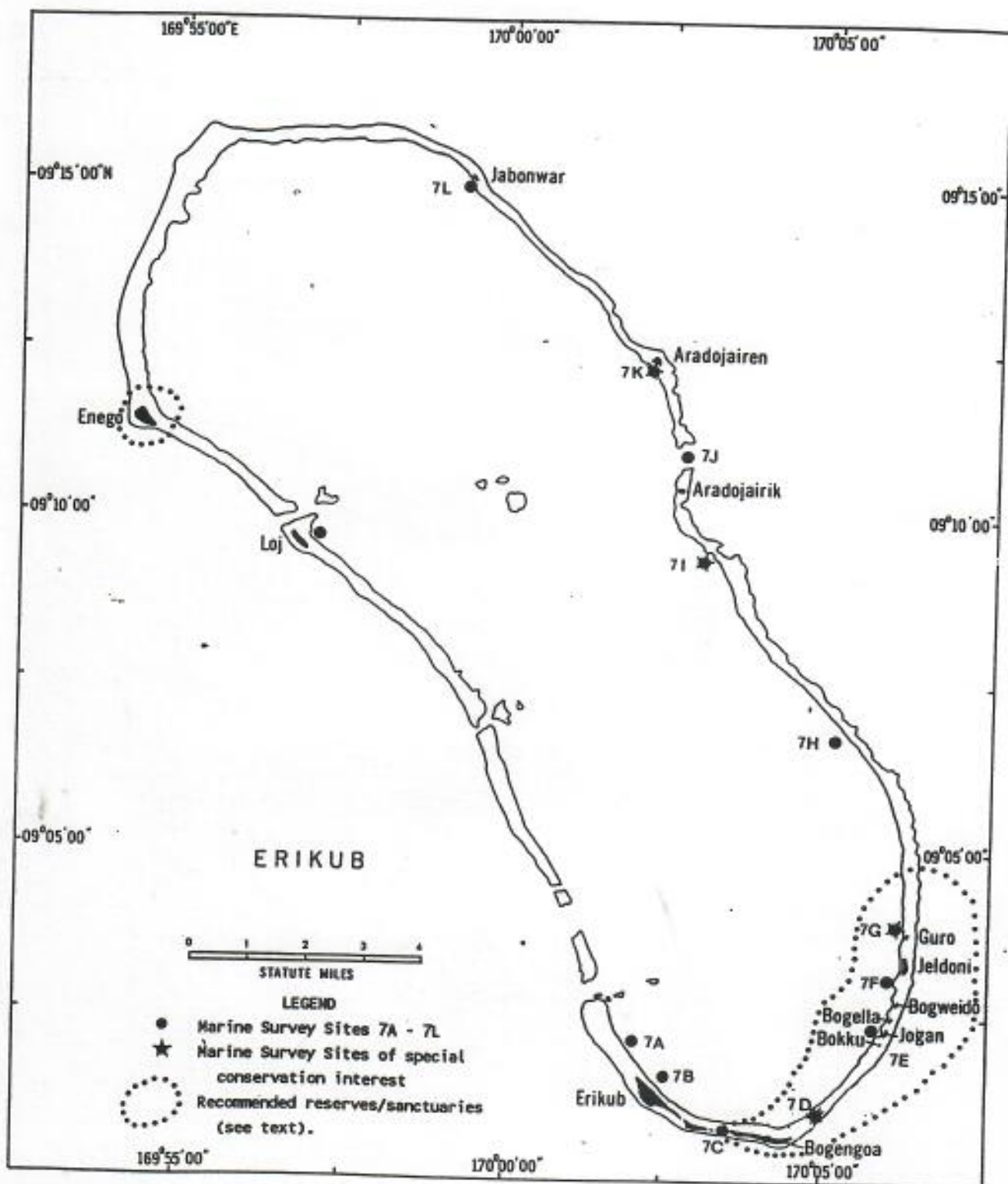
## U.S. Recovery Plan

Virgil was very interested in participating in the development of a U.S. Recovery Plan as a technical adviser, and felt that the Republic of the Marshall Islands would also be very interested in participating. We attempted to meet with the Director of MIMRA (John Bungitak) to discuss further RMI participation, but he had unfortunately been called away on other business. However, Virgil

agreed to approach the Director about RMI participation, and would inform the him of our discussion.

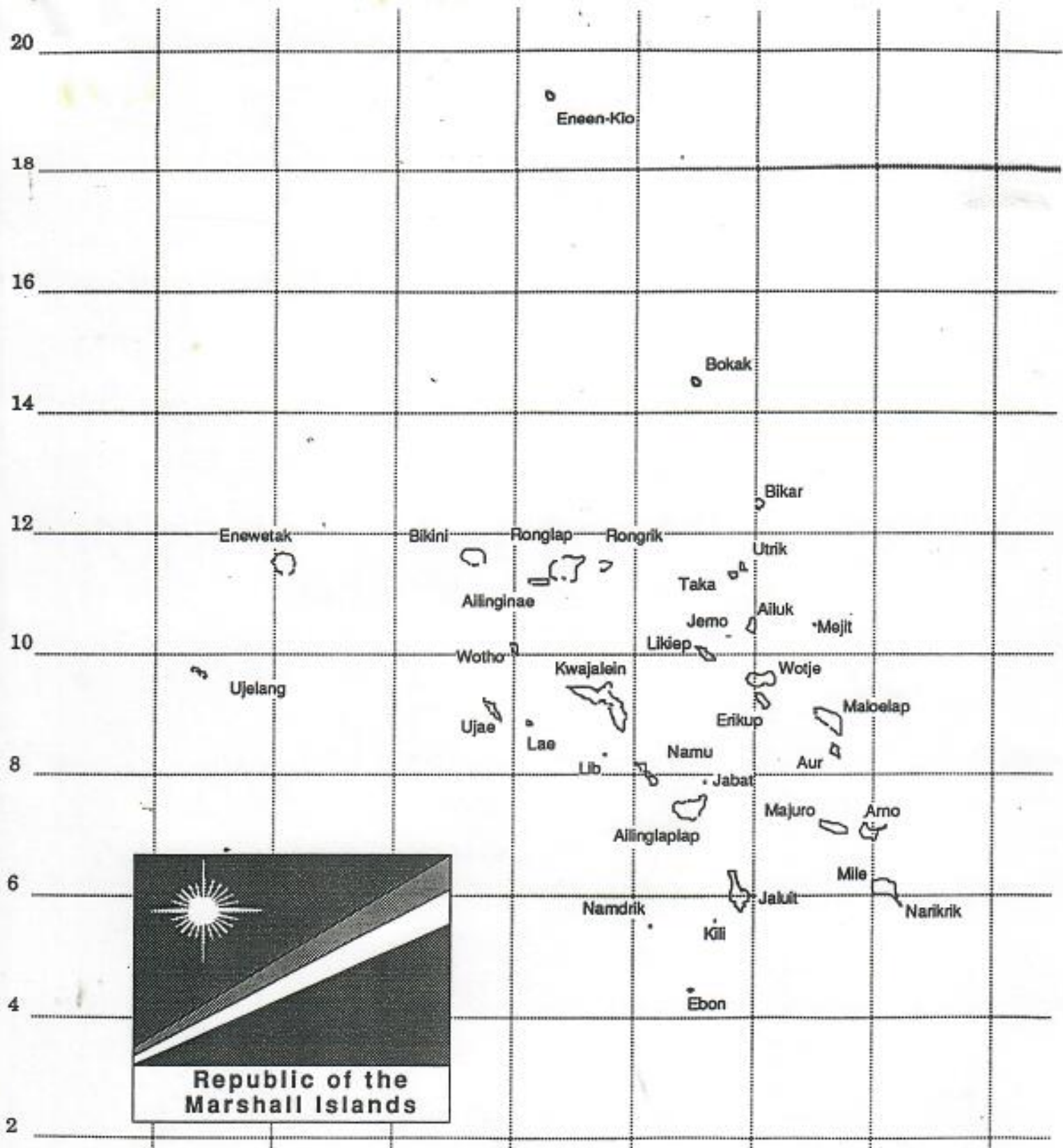
**CONCLUSIONS:**

The trip to the Republic of the Marshall Islands, while in many ways too short, was extremely successful. Communication with the government of the RMI about the U.S. Sea Turtle Recovery Plans was effectively established, and much of the information needed to incorporate the RMI was gathered. A bonus of the trip was the discussion with the chief scientist for SPREP which furthers the U.S. Recovery Team's desire to integrate U.S. sea turtle recovery plan development into a regional context. Follow-up by the Recovery Team Coordinator's office will consist of a letter to the Director of MIMRA inviting the Republic of the Marshall Islands to be included in the scope of the Recovery Plan. This letter will most likely be sent through PIN. Also a letter of invitation to participate as Technical Advisers will be sent to Virgil Alfred, and to Gordon Benjamin. Information on the U.S. Recovery Plans will be sent to Paul Holthus of SPREP and his comments will be invited.



Source: Adapted from Amerson, A.B. 1969

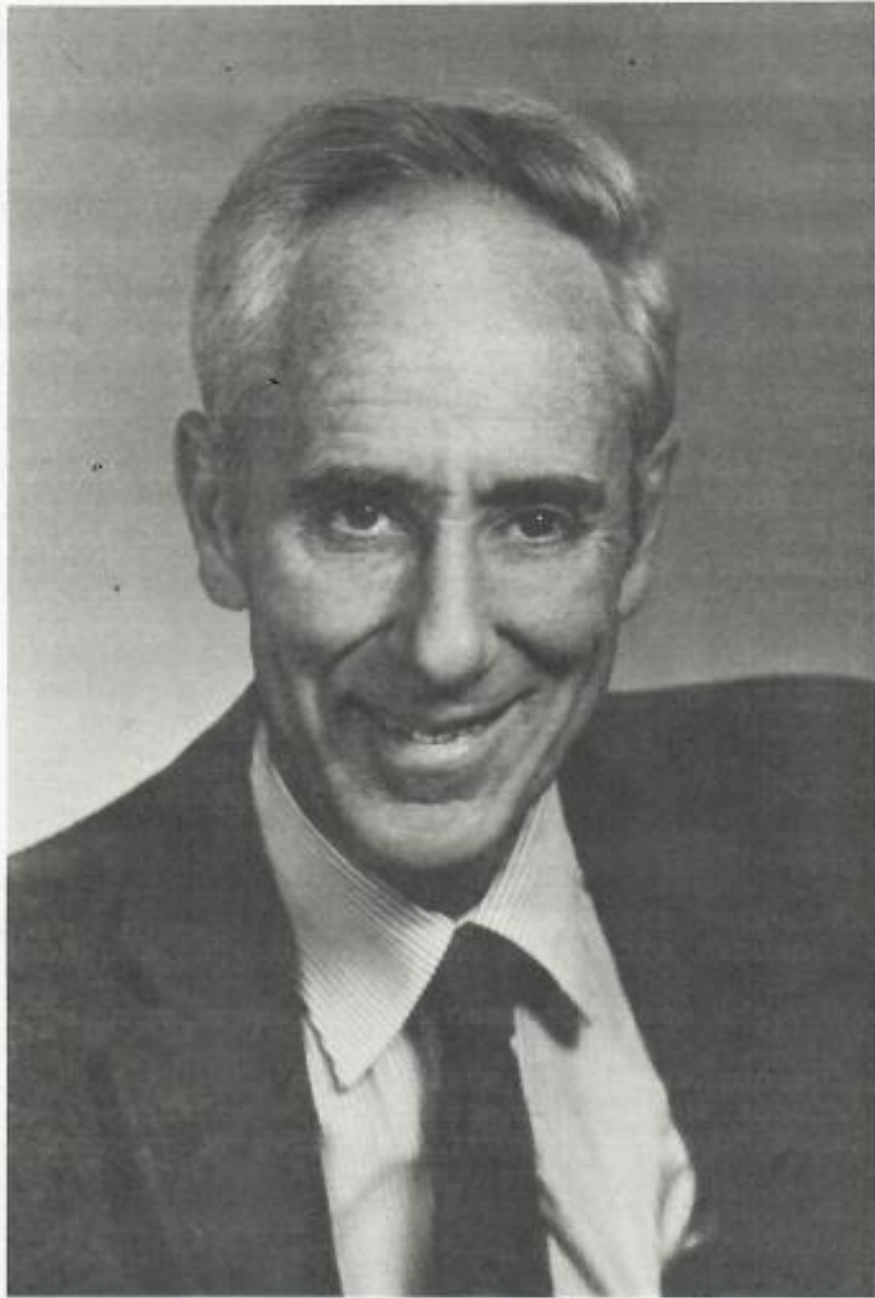




NORTH



nautical miles



Archie Fairly Carr, Jr.  
1909 - 1987

His memory is tinged with the sadness of his loss to us.

What he worked for,  
What he wrote about,  
What he believed in.

But more than our feeling of loss,  
We who knew him and you who know of him  
Can be stimulated to dedicate our work to  
His goals of conservation and learning more about sea  
turtles.

The best teacher,  
The best leader.

This symposium is dedicated to Dr. Archie Carr.

# C

# Food

**KEAAU, Hawaii (UPI)** — Legend says that when one of the first Hawaiians swamped a canoe in rough waters, the prophet Moa'ula dispatched the opihi, a shellfish, to help the sailor safely ashore.

Some 1,500 years later, it is the opihi needing a prophet and lifesaver.

(This spring, at the end of an 8-year study of the opihi, Dr. E. Alison Kay, professor of zoology at the University of Hawaii, turns out to be that prophet and lifesaver. See story below.)

Though it is unlikely to become extinct, the shellfish, once a standard delicacy in the Hawaiian diet, keeps getting smaller and fewer in number.

"It's one of our natural re-

sources, and we regard it as a highly delectable delicacy because it's one of the traditional dishes, used at traditional luaus," said Kenji Ego, director of the state Office of Aquatic Resources. "The population could be cut down to where many of us will not be able to enjoy it any more, and that would be unfortunate."

The opihi's taste abetted its decline. A growing number of restaurants and jewelry makers sought the opihi. Overfishing was the result.

The Hawaii Legislature in 1978 established regulations keeping the size of opihi eligible for taking to one and one-quarter inches.

But, says Kay, "when you look at the refuse at fishing sites, in 1977 around 50 per-

cent of the shells discarded were less than regulation size. Last year, 64 percent were below regulation size."

Kay, a University of Hawaii scientist, has led a project to save the opihi since the early 1970s.

"The possibility exists," she says, "that people are just not paying attention to the regulations."

Kay and an assistant have transplanted opihi into tanks filled with rocks to provide a natural home and have watched their charges for more than four months.

"They are growing," she said, "there's a very definite new shell growth in a number of them."

Next step: Opihi aquaculture?



# Report

Honolulu  
Advertiser

Wednesday, February 24, 1982



*Kay: "We're reporting to the State how two species of opihi can be raised in the laboratory." Left, opihi shells gathered from various "settlements."*

# Tender loving care

By Mary Cooke  
Advertiser Food Editor

Move over, prawns and oysters. The next candidate for aquaculture may be the Hawaiian opihī.

University of Hawaii professor of zoology Dr. E. Alison Kay, completing a study "to provide a detailed base for the management of this unusual resource," said opihī could become an "annual crop of protein."

The limpets, she explained, convert limu (seaweed) directly into protein. They also are a source of vitamins A and D, phosphorous and iron.

Because opihī are decreasing in size and numbers in their natural habitat (coastal rocks which are open to opihī pickers), Kay said, "We're now looking at attempting to culture opihī, with the idea of growing them in sort of backyard farms or bigger commercial ventures, or just using the larvae to reseed the coastlines.

Kay said the idea (to research opihī production) started in the 1950s when Sen. Hiram Fong, then in the Territorial legislature, noted a steady decrease in the numbers and an increase in the cost of opihī and suggested the Territory do something about it.

"I was asked to do a study to see if there was any way to re-seed the shoreline, or find where the danger areas lay.

"I started by just getting shoreline counts and this evolved into the State supporting a project to look into the possible culture of opihī. Funding will cease the end of May because they feel we now know more or less what routes we could go.

"We're reporting to the State how two species of opihī (the black foot and yellow foot) can be raised in the laboratory. How long it would take to scale it up (to an aquaculture operation), I don't know.

"It is possible to do this, and an

interest in growing opihī has been expressed by potential small farmers in aquaculture. They would need to experiment a little more, but they could raise them."

Kay said the demand for opihī continues steady, even with the retail tab hovering just under \$5 per pound, including shell. At that price, a fish market spokesman said there isn't exactly a rush on the limpets, but neither do any harvested opihī go unsold.

Kay said she and other workers on the opihī project started from zero recorded knowledge about the breeding, lifespan and mortality of these shellfish which are found only in Hawaii.

"We didn't even have any Hawaiian proverbs or sayings like 'when the surf is up the mullet come in' or 'when the hala blooms the squid come in' or anything of that sort.

"There are some very nice legends about opihī but I haven't yet

# for opihi on the rocks

found one that tells us when it breeds, when it's plentiful.

"However, we have found out about the opihi breeding seasons and we are, right now, in the midst of their big settlement time that runs from about January through April.

She explained "opih settlement time."

"The animals spawn and the eggs are fertilized in the ocean. They move around in the water as larvae for a week or a little longer, and eventually settle on the rocks. A wave just sweeps them up on the rocks and they settle there.

"They've been doing this for the last two or three months but now they've grown to the point where I can see them. Last week I was counting 200 and 300 on a boulder, versus 40 or 50 back in December."

Favorite habitat of opihi is the wave-swept rocky areas on windward coasts of the Islands.

"Because of this and the often

dangerous conditions of picking opihi, Hawaiians called it the shell of death," Kay said.

Pre-contact Hawaii archeological evidence confirms the opihi's preference for windward coastlines. Shell contents of pre-contact middens (refuse heaps at fishing shelters and the like) show that at windward sites almost half the shells found were opihi. At leeward sites, opihi comprised less than 5 percent of the shells found.

Because they need "lively" water, Kay said laboratory-raised opihi are kept in agitated water. "We have them in tanks, with sprinklers in the tanks to provide the pulses of energy they need," she said.

Also, when opihi are allowed to grow on boulders, the "foot" is curled on the boulder. As a result, the shell grows upward and the meat grows into the shell.

"When we tried putting them on cinder blocks we got a thin, flat shell," she said. "Now we're putting them on rounded shapes."

What about the possibility of re-seeding the shoreline with opihi larvae?

"That's a possibility," Kay said, "but until we're more sure about mortality rate and conditions, it might be wasted effort.

"Shorelines are very variable areas. You have tides going in and out, a lot of surf sometimes, or days of very low tides and clear skies when everything dries up.

"I'm curious to know, if you have a period of very clear skies, bright sun, no rain, no surf and reasonably low tides for say three or four days, does this cause any widespread death along the shore?"

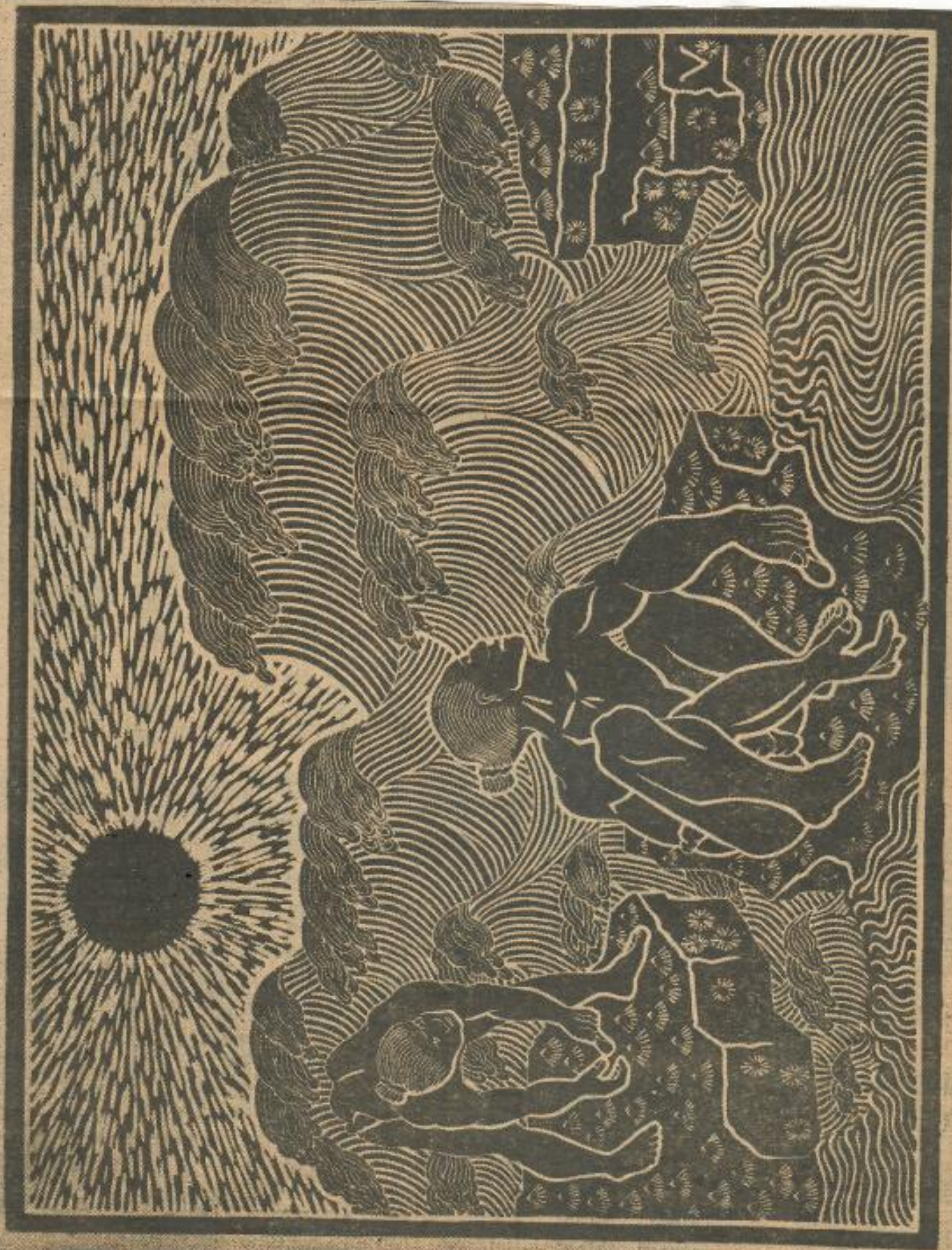
"The opihi and other things are all there together and there is interaction, competing for space. There are swings back and forth.

"I'm curious to know what this does to all the plants and animals that are on the shorelines. That's one reason I'm out there looking, at least once a month."

*"The Opihi Pickers" by  
Deitrich Varez shows  
'settlements' of opihi  
clinging to wave-swept,  
black volcanic rock. The  
gatherers pay constant  
attention to the sea for, to  
the early Hawaiians, opihi  
were known as the shell  
of death.*

Advertiser photos by Gregory  
Yamamoto





6 Jan 85

### *Kept alive by turtle eggs*

SYDNEY — A woman feared lost at sea during skin diving championships survived three days by clinging to a buoy and eating turtle eggs after she washed ashore, police said yesterday.

Susan Gay Docker, 28, of Sydney, was in intensive care at a Gladstone, Queensland, hospital after her rescue Tuesday by a helicopter pilot, police said.

She had used her speargun to dig for turtle eggs on the isolated island.

Ernie -  
when doing anything, it's  
always best to go to the top!

January 30, 1974



Dr. John Gooch  
Hawaii Department of Health  
P. O. Box 3378  
Honolulu, Hawaii 96801

Dear John:

First, let me thank you somewhat belatedly for sending the information regarding the Institute of Marine Biology at the University of Hawaii. I appreciated the information and found it very interesting.

Second, I just have returned from a meeting of the World Mariculture Society at which I met Mr. George H. Balazs of the Institute of Marine Biology and with whom I had several interesting discussions. Mr. Balazs told me of the tentative identification of a microbacterium isolate from a sea animal as Microbacterium avium, a most unusual situation to say the least. He further indicated that he has additional animals from this same group frozen and I suggested it might be appropriate to discuss with you the possibility of having cultures made by the State Health Department and if such cultures grow out an acid fast organism of referring them to CDC for typing. I believe the isolation and identification of M. avium from a marine animal would be most unusual if not a first and I am of course wondering if there is a possibility of misidentification of Microbacterium marinum.

I hope that we will see you in Atlanta at the Biennial Veterinary Conference which will begin April 2. The program will appear in the VPH notes. We have planned what I think will be a full and interesting program and will certainly count on discussing this situation further with you at that time.

With best personal regards.

Sincerely,

Richard L. Parker, D.V.M.  
Chief, Veterinary Public Health

cc:

✓ Mr. George H. Balazs  
Dr. Hugo David  
Dr. Phyllis Edwards

3

GREEN TURTLE SURVEY  
FOR SPAWNING SEASON 1972

**PURPOSE:** To survey populations, tag, and record all pertinent data on green sea turtles on West Faiyu Island and surrounding reefs in Yap District, W. Caroline Islands, U.S. Trust Territory of the Pacific Islands.

**JUSTIFICATION:** Because of apparently receding numbers of turtles in this area, as well as a lack of knowledge of their actual numbers and migratory habits, it is felt that a study should be made of the green turtles of this area as soon as possible. There has never been a study made in this area, and recent local reports point to lessening numbers in recent years.

**LOCATION:** The survey will primarily take place on West Faiyu island, which is located approximately 55 miles north of Satawal in Yap District at  $146^{\circ} 45' E$   $8^{\circ} 4' N$ . The total land area does not exceed 25 acres (approx.), but the lagoon has a circumference of approximately 6 miles, with a pass that allows entrance of canoes, boats and small ships. The island is uninhabited most of the year, but is used by the people of Satawal (population 400) as a resource island for copra, fish, and turtles which supply a large portion of the protein in the Satawal diet.

**DESCRIPTION:** A minimum of eight local men will be sent from Satawal island, Yap District, W. Caroline islands to W. Faiyu island via local (canoe transportation). If timing of field trip ships allow, initial transport of men and supplies will be made via field trip ship (government vessel). This would also allow transportation of an 18 ft. canoe to this island. This size canoe would be too small to sail from Satawal, but would be invaluable in operations. A small outboard boat would also prove useful, but availability of such a boat in Yap is unknown at this time.

After the men arrived on the island, they would begin to hunt for turtles both inside and outside the lagoon. They will engage themselves in catching and tagging the turtles, using traditional methods. These methods include catching by hand in the lagoon of both males and females during mating, as well as surprising the turtles as they feed. During the night in the spawning season one has to simply sit on the beach and wait for the females to approach and lay her eggs. Those eggs which are layed will be counted and watched during incubation, and notice made of survival rates. All turtles caught will be tagged, weighed, and measured. All pertinent data will be recorded to be used in later identification and tracking of migration.

Local canoe transportation will be used to both catch turtles and transport men to their home island for rotation. The minimum number of men on the island should not be below eight to insure a successful program. If a small outboard boat is available in the district center of Yap, it will be purchased and used during the many summer days (June-August) that the wind becomes unpredictable. It would not, however, be used for transportation outside the lagoon.

DESCRIPTION (CONT.) In addition to the above, a small-scale attempt at raising turtles will also be tried. This will entail fencing off of a small portion of the shallow side of the lagoon next to the island where turtles commonly lay their eggs. The eggs will be allowed to hatch, and will be fed until such time as they are unsusceptible to natural predators.

Forays would also be taken in canoes to hunt for turtles on Oratilipu Bank 25 miles east (13 fathoms), and Pikelot Island (8°N 147° 40' E) in addition to the main side at W. Faiyu.

FURTHER INFORMATION : The island of W. Faiyu is an uninhabited island of approximately 20-25 acres. It is traditionally owned by the chiefs of Satawal Island, Yap District, W. Caroline Islands (the head chief at this time being Gambier Luguto). The people use it primarily as a resource island, and periodic canoe trips are taken there primarily during the summer (May-August). However it can be reached at any time except during peak trade-winds of December-February. Even during that time, however, certain breaks in the wind makes sailing possible. It is a low, coral and limestone island with not much soil, but is a major rookery for seabirds (terns, boobies and frigates). It would be impossible to carry out such a project without the expressed permission of the chiefs of Satawal, as well as concurrence of the local Trust Territory government, represented by the District Administrator in Colonia, Yap. It is felt that at this time these men would be receptive to such a project, and would offer all cooperation necessary,

DURATION OF THE SURVEY: In order to be considered successful, this program must begin with the nesting and spawning season of 1972, somewhere around March, and run until such time as it is felt that the nesting season has run its course. It would impossible to project an exact terminating date, but local wind conditions would probably set a limit of October-early November as a termination date.

PERSONNEL: The men for the survey would be chosen from volunteers among the men of Satawal Island, Yap District. The men would be chosen by the co-ordinator, but would be rotated to their home island at periodic intervals (weather and sea conditions permitting). The men involved are Carolinians, excellent canoe navigators and builders, as well as experienced fishermen and turtle hunters. They have been sailing to W. Faiyu island (called 'Pigelo' in Carolinian, but not to be confused with the island of Pikelot to the East, which is called Pig by them), for many years, and have made use of the island's resources in the past. At the present time a small coconut re-planting scheme is being carried out on the island, using large Yapese nuts to replace and replenish the supply already there. The island does not offer much food, and most food (except for fish and turtle of course) is carried to men working there by canoe from Satawal.

CO-ORDINATOR: The major part of co-ordination for the survey will be handled by a person who has had 2½ years experience living with the people of Satawal. He has traveled to W. Faiyu numerous times in the past two years while employed as a teacher with the Peace Corps on the island. His language ability is considered fluent with the islanders, and would not require special living conditions apart from them. Since He will be employed with the Peace Corps until at least July of 1972, his salary would be paid by them, and would be considered more or less a volunteer worker. Basically, he would be responsible for gathering necessary materials in the district center, shipping them to Satawal via field trip ship, and handling necessary details on the island. He will travel with the men to W. Faiyu and reside with them gathering the scientific data necessary.

MATERIALS AND PROJECTED COST:

- A. Capturing of Turtles: local and traditional materials would be used
- B. For Tagging: If there is a possibility of obtaining a small outboard boat and motor in the district center, one will be obtained. Along with this would necessarily be included spare parts, gas and oil
- |                |          |                      |
|----------------|----------|----------------------|
| Estimated cost | \$800.00 | <del>\$1200.00</del> |
|----------------|----------|----------------------|
- C. Recording: Record books, large copra suspension-type scale, various tape measures and calipers
- |  |        |  |
|--|--------|--|
|  | 150.00 |  |
|--|--------|--|
- D. Shelter: Local materials are used for construction of shelter. However it would be necessary to set up a water catchment with drum cans and roofing tin.
- |           |       |  |
|-----------|-------|--|
| Est. cost | 75.00 |  |
|-----------|-------|--|
- E. Food: The sea around the island will supply fish and seafood. However, since the island does not produce any starch (except some few breadfruit in season), it will be necessary to have enough food for eight men for at least 3 or 4 months. This would primarily consist of rice, Japanese noodles, etc. to replace taro and breadfruit that would ordinarily be eaten.
- |           |        |  |
|-----------|--------|--|
| est. cost | 500.00 |  |
|-----------|--------|--|
- F. Communication: Radio communication is a necessity, since the work will take place on canoes operating in the peak typhoon season in one of the most remote areas of Micronesia. To safeguard the health of everyone concerned, it is felt that a single side band radio (co-pilot type) and a small Honda gas generator would be a necessary.
- |           |        |  |
|-----------|--------|--|
| est. cost | 800.00 |  |
|-----------|--------|--|

- G. Other Equipment: Since much activity will be taken place at night, flashlights and lanterns will be a necessity, along with the batteries and kerosene.
- |           |         |
|-----------|---------|
| est. cost | \$50.00 |
|-----------|---------|

NOTE ON SUPPLIES: all supplies would have to be purchased in the district center in Yap and transported to Satawal via government field trip vessel, which usually sails for all the 'outer islands' (inhabited) every 2 or 3 months. Because of the infrequency of schedules and inability to predict precise sailing times, all necessary materials and supplies would have to be gathered well in advance and transported to Satawal. If at all possible, the ship might be diverted directly to W. Faiyu to drop off supplies there.

est cost of transportation	\$200.00
----------------------------	----------

- H. Salary: Since the islanders have not made the transition to a completely money economy, it must be kept in mind that money could not necessarily compensate for time away from family and obligations on their home island. The field trip ships are infrequent (once every 2 or 3 months) and often times money is a poor substitute for the fresh fish and other things that one would normally be providing his family. With that in mind, it is hopeful that the salary could be used to order fishing gear and the like through the Trust Territory Marine Resources Division, and would thus supply the people with things that they would not ordinarily have a chance to acquire. Also, all material used during the duration of the study would then revert to the people of Satawal (i.e. the chiefs) to do as they wished.

Thus, a salary of \$3.00 per day per man does not seem unreasonable. Since various men would be rotating doing things that all can do well, it would not work a hardship on the rest of the people of the island of Satawal, but would also give the men a chance to earn money for necessary items (fish-hooks, knives, etc.) which they would be ordinarily be making copra for. A salary in this range would not inflate the economy unreasonably, and would allow for men of various abilities to work.

eight men @ \$3.00 per day for minimum 90 days: \$2,160

- I. Other work to be undertaken: Although the men would of course be paid for their attempts at catching turtles and tagging and recording the data, there will be days when this work will be impractical due to storms, high winds, etc. . It will be the co-ordinator's job to see that the work at hand is completed, but spare time will be spent fixing canoes, planting coconuts, and perhaps making salt fish to take back to Satawal for the islanders there. It must be remembered that none of these men have ever taken part in a scientific expedition on their islands, and will perhaps be hard pressed at times to see the value in such work as opposed to catching and preserving fish for their families. It is felt that this can be controlled, and presents no problem.

The above proposal is designed to efficiently collect the maximum amount of data necessary without a large expenditure of capital, or use of outside aid. All participants are completely familiar with the area, and would be able to subsist on the island in a situation that might be difficult for Europeans.

It is felt that at this time there is sufficient interest on the island of Satawal to warrant such a study, and full co-operation can be expected from the chiefs and people there.

#### RELATIONSHIP OF SATAWAL TO WEST FAIYU

A. Number of turtles caught during the period April 29- May 8 by men from Satawal on West Faiyu (1971)

April 30 - May 7 14 females were captured  
4 males

The large number of females indicates that many were caught while spawning on the island. All males and some females would have been captured while mating in the lagoon.

B. Canoe trips by Satawal men to W. Faiyu July 1969-August 1971

<u>Number of canoes</u>	<u>Days spent on W. Faiyu</u>	<u>No. Canoes</u>	<u>Days spent</u>
3	9		
1	20	2	
1	11	1	10
1	6	1	5
1	5	3	5
1	7		7
2	4		
1	4		
1	6		
2	3		
1	7		
1	8		
1	10		
1	5		
1	10		
1	7		
1	14		
1	8		
1	6		
1	10		
1	5		
1	12		
1	8		
4	9		
1	9		
	22		

Minimum days spent on W. Faiyu 3  
Maximum Days spent on W. Faiyu 22  
Average days spent on W. Faiyu 8+

It should be noted that primary reasons for returning to Satawal include the lack of food on W. Faiyu. The length of time spent on the island could, in effect, be extended indefinitely if sufficient food (rice, etc) were made available.



## C. FREQUENCY OF TRIPS TO W. FAIYU (JULY 1962-August 1971)

Jan.	2
Feb.	2
March	5
April	5
May	6
June	2
July	3
August	3
September	0
October	2
November	3
December	3

The trade winds in the December \*to February period account for a somewhat diminishing number of trips. September is usually the month of unpredictable winds as the summer southerlies and westerlies give way to the resumption of the trades (NE).

Although actual catch data is not available to correlate with frequency of trips to W. Faiyu, it should be noted that March-August period has the highest frequency of trips. It is also the time when the most turtles are returned to the island for consumption on Satawal/

October, 1971

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