KURE ATOLL NEWSPAPER ARTILCES

FILE OF GEORGE BALAZS

KURE
1970s G. BALAZS
FILE

II KURE
1970s - 1990s GH BALAZS FILE

2 of 2

Mr. GEORGE H. BALAZS
Hawaii Institute of Marine Biology
Kaneohe, Hawaii 96744

10131 Merrimac Drive
Huntington Beach
California 92646
23 February 1976.

Dear Mr. Balazs:

Thank you for your letter of 14 Feb 76 and the interesting news items about Kure and French Frigate. I was intrigued also by your address. In 1943 I was the Engineering Officer at Naval Air Station, Kaneohe Bay and the only thing outside the main gate was the little settlement of Kailua and, if memory serves me correctly, another one called Lanikai (?). I assume that Cocoanut Island must be what we used to call Chris Holmes Island since the other little islands in the bay would be too small to have a marine institute.

I'm not sure I can give you much information which maybear upon your research problem but I shall offer what little (mostly negative) that I possess:

With respect to the presence at Kure in 1944 of the green sea turtle (CHELONIA MYDAS?) I can state only that there were certainly none there on the one day I was on the island. Except for that visit our reconnaissance of Kure was done by low flying dive bombers and the creature would not have been visible despite his size. With respect to his presence at Midway in 1944 I am even more certain. I frequently patrolled the beaches of both Sand Island and Eastern Island many times on foot during April through September 1944 and never saw a trace of them. However we must remember that there were 8000 men on Midway at that time. There was also a great deal of activity: bulldozers, graders, airplanes, torpedo boats, frequent gunnery activity. Under these circumstances the green sea turtle might not have felt welcome if Midway was indeed one of his habitats. I shall however offer the following suggestion which may be helpful.

Up until 1935 when Pan American Airways used it as a way station for the China Clipper aircraft, Midway must have been in something approaching its original pristine condition. Before then, all through the 1920s and 1930s the Pacific Cable Company maintained a small crew of cable technicians on Sand Island. Some of these men must still be alive though retired by Pacific Cable. It may be helpful to contact the Cable Company and get the addresses of their older retired personnel who served at Midway in the period just prior to its occupation by the U.S. Navy. These chaps could probably attest to the presence or absence of CHELONIA. Also the Dillingham Company (which participated in the early construction at Midway) may have such people on their pension roll. They may be helpful

Concerning the banding or marking of turtles to study their migratory habits I can give only one piece of data and this applies not to the green sea turtles but to the giant land turtles of the Galapagos Islands. Years ago, perhaps in the 1950s, I read an article in the National Geographic Magazine concerning these latter creatures and the methods used to study their migratory habits and lifetimes. I do not specifically recall that the article dealt with banding or notching their shells. But I do remember that they had discovered one turtle so ancient that the name of a colonial Spanish soldier was found carved in his shell along with the date which must have been in the late 18th or early 19th Century. The Readers Guide to Periodical Literature at the University Library may guide you to the article which may contain further information on banding or marking of the Galapagos Turtles.

I regret that I can not be of further help in guiding your researches but with best wishes for success therein, I am, Sir,

Very Respectfully Yours,

Webb Miller

WEBB MILLER
LCDR USNR (Ret)

STEPHEN F. AUSTIN STATE UNIVERSITY
NACOGDOCHES, TEXAS 75962

SCHOOL OF FORESTRY

P. O. Box 6109
713/ 569-3301

May 2, 1978

Dr. George H. Balzazs
Univ. of Hawaii at Manoa
P.O. Box 1346, Coconut Island
Kaneohe, Hawaii 96744

Dear George:

Enclosed is the photograph that I promised to send you. Note tag in the left front flipper.

This animal was really large. As I remember at least 3 feet in each direction across the carapace.

I found this animal swimming in the lagoon at Kure. Ultimately it took 5 of us to rope and land it.

This tag was the only one of Archie Car's tags that we used.

I hope Roger can get copies of my field notes from Archives. The only other turtle information was tags and measurements from a Leeward Island trip in 1964!

w if I can be of further help.

Sincerely,

Robert R. Fleet
Research Associate

May 23, 1978

Dr. Robert R. Fleet
Research Associate
Stephen F. Austin State University
Nacogdoches, Texas 75962

Dear Robert:

Many thanks for your letter and photograph of May 2nd which I only received today upon return from a meeting in Toronto.

Unfortunately, Roger was unable to locate any of the original field notes from the Smithsonian or Archives. As a final effort, I have sent off a letter of inquiry to Dr. Woodward.

Through the process of elimination, it would certainly appear that the adult you captured and tagged was indeed the one recovered by my Coast Guard friend. I will contact you again if additional information becomes available.

Sincerely,

George H. Balazs
Assistant Marine Biologist

GHB:md

August 9, 1978

Ms. Karen Bjorndal
Department of Zoology
223 Bartram Hall
University of Florida
Gainesville, Florida 32611

Dear Karen:

After several inquiries, I have at long last been able to track down the tagging information for turtle B26. You will recall that B26 was observed basking on Sand Island at Kure Atoll by Coast Guard personnel in November of 1976. This turtle was tagged as an adult (estimated 3 feet in carapace length) at Kure in May of 1964 by Robert R. Fleet. It took a total of 6 people to capture the turtle which was found swimming in the lagoon.

This is an interesting piece of additional information with respect to the longevity of adult green turtles. I wonder if you can tell me what the longest elapsed time is in the Caribbean/Atlantic for the recovery of a tagged adult?

Sincerely,

GEORGE H. BALAZS
Assistant Marine Biologist

GHB:ec

UNIVERSITY OF FLORIDA
GAINESVILLE, 32611

DEPARTMENT OF ZOOLOGY
223 BARTRAM HALL
904-392-1107

18 November 1976

George Balasz
Hawaii Institute of Marine Biology
P.O. Box 1346
Kaneohe, Hawaii 96744

Dear George,

The enclosed letter is self-explanatory. When we hear from Dr. Wirtz, I will be sure to let you know. With so many tagging programs in so many parts of the world, it is very difficult to keep our records straight. Especially as most of our taggers are very lazy about sending us their tagging records. Hopefully, we will soon straighten out B26.

I am finished with my field work in Inagua, unfortunately, and am now busy doing lab work with all of my samples. In the next few months I hope to have figures for feeding rate, assimilation efficiency and egestion for green turtles.

Thank you for keeping us informed on the the developments in Hawaii.

Best regards,

Karen

Karen Bjorndal

UNIVERSITY OF FLORIDA
GAINESVILLE, 32611

DEPARTMENT OF ZOOLOGY
223 BARTRAM HALL
904-392-1107

5 Dec '77

Dear George –

Sorry to be so late in answering your letter. It arrived while I was at Mikito Cays. We have heard nothing from Kirby – I don't even know if that is his current address.

If you find anything out, please let us know.

Hope you're well.

Best Regards,

Karen

DEPARTMENT OF TRANSPORTATION
U. S. COAST GUARD
COMMANDING OFFICER
USCG LORAN STATION
US NAVAL STATION
BOX 36
FPO SAN FRANCISCO
96614
OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

HM3 G. G. MARTIN
USCG Loran Station
U.S.Naval Station,Box36
FPO San Francisco 96614

11015
08 November 1976

Director of Marine Biology
Department of Biology
University of Florida
Gainesville, FL.

Dear Sir,
This is to inform you of a most startling find on Kure Atoll. Upon a routine cruise of the Atoll's lagoon 6 November 1976, myself and a couple of friends decided to beach our boat on the Atoll's only sand spit that remains above sea level throughout the year. As we were looking for glass fishballs, I spotted a Green Sea Turtle snoozing in the sand. Upon closer observation I noticed a tag on his left front fin.

It is not at all uncommon to observe these Sea Turtles while diving in the lagoon. I've been here approximately 11½ months and frequently sight many of them to which I report all findings to George H. BALAZS, U. of Hawaii Institute of Marine Biology. However, this is the first Florida "citizen" I've seen here. The tag on the Turtle read your address on one side with number B-26 on the other side.

I hope this has been of some help to your department's research program. Enclosed is a copy of USCG Loran Station, Kure Island Info. Booklet. This booklet should give you an idea of what exactly is here. George BALAZS will come out in the near future for an extensive study on Green Sea Turtles, so he may be of some help to you as well. Good luck with your tagging and research programs.

Sincerely,

Greg Martin, HM3, USCG
Medical Representative
Kure Island LORAN

Copy to: G. H. BALAZS
Jr. Marine Biologist
Hawaii Institute of Marine Biology

UNIVERSITY OF FLORIDA
GAINESVILLE, 32611

DEPARTMENT OF ZOOLOGY
223 BARTRAM HALL
904-392-1107

18 November 1976

1/4/77 call

Dr. William O Wirtz, II
Dept. of Zoology (714) 626-8511
Pomona College
Claremont, Ca. 91711

Dear Dr. Wirtz,

Enclosed is a copy of a letter that Dr. Carr received yesterday. By lengthy digging in dusty files, I have been able to determine that tags B1 - B100 were sent to you in July 1963. Apparently you later returned all but B26 to us, because tags B1-25 and B27-99 were sent to Ascension in 1967.

We are quite anxious to learn where and when turtle B26 was tagged. Can you help us? Even a vague recollection as to year would be appreciated. Also if you have any idea of the amount of tagging done by Dale Rice and Robert McFarlane, that information would also be helpful. Movements of turtles through and within the Hawaiin Archipelago are so poorly known that a tag return such as this one is of great interest.

Dr. Carr sends his regards. We await your reply with great curiosity.

Sincerely yours,

Karen Bjorndal

Karen Bjorndal
Archie Carr's Graduate Student

wirtz

→ Bob Fleet / TEXAS A&M 1962

left in 1966

7 Books

(1966)

Wirtz (V) Population Dynamics and interactions
Movement of the H M S
14pp
3 Tabl. 6 fig

Wirtz (1966) Reproductive and population Dynamics
of the Hawaiian Monk seal
16pp. 2 tab 4 fig

UNIVERSITY OF FLORIDA
GAINESVILLE, 32611

COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF ZOOLOGY

4 Feb. 1981

Dear George:

While going through some of Dr. Carr's files yesterday, I found the enclosed letters in a file marked "Green Turtles." A great file to have in someone's office whose whole lab could be filed under "Green Turtles." Obviously, an old file. Anyway, the hatchling was stapled to the letter in a plastic bag. You can find just about anything in his files. I've given the hatchling to Peter Meylan for the Museum to enter in their collection. Thought you might be interested in these letters for your historical file. I believe the 100 tags that Wirtz mentions are the 99 tags minus the one we both know so well. Unfortunately, the grass and barnacles that Huber refer to were not attached to the letter.

I also found a copy of "Anthropological Working Papers, A series issued from the office of the staff anthropologist Trust Territory of the Pacific Islands, Guam, M.I. Number 1, Notes on the present regulations and practices of harvesting sea turtle and sea turtle eggs in the Trust Territory of the Pacific Islands" dated April 1957. If you don't have a copy, I can make one for you.

Hope all is well with you. I have a water buffalo planning meeting tomorrow, so I have to get back to my reading and preparation.

Fondest regards,

Karen

United States Department of the Interior
FISH AND WILDLIFE SERVICE
National Fish and Wildlife Laboratory
National Museum of Natural History
Washington, D.C. 20560

Mon. 27 March 1978

Dr. George H. Balazs
Assistant Marine Biologist
University of Hawaii at Manoa
Hawaii Institute of Marine Biology
P.O. Box 1346
Coconut Island, Kaneohe, Hawaii 96744

Dear Dr. Balazs:

Bob Fleet passed along to me your letter on turtle tagging on Kure. I do not know whether Bob communicated with you separately so I pass along what little I have been able to find out. Bob clearly remembers tagging a turtle on Sand Island, Kure and feels that he took measurements, etc. but I have not been able to find original data verifying this. Woodward's Atoll Research Bulletin 164 (1972)(p. 297) states that on 29 May 1964 a Green Turtle was "caught, tagged, photographed and released" There is, unfortunately a similar entry for one caught in the lagoon on 2 July 1967. The Kure Island report for July 1967 does not mention turtle tagging but that for May 1964 confirms that on 29 May Sand Island was visited and "One large sea turtle was captured, tagged, and released." Similar information is in the intermediate green data book.

I also asked the people at Smithsonian Archives to check their holdings to see if they could find the original tagging data- (measurements etc.) but they were unsuccessful. I feel almost certain that the B-26 your letter mentions is the animal tagged by Fleet. You might want to write Paul Woodward to see if the animal tagged by him was certainly not B26. He might, in fact, know just where to lay hands on the tagging data. His address is:

Paul W. Woodward
2433 Southgate Sq.
Reston, Va. 22091

Sorry I was not able to be of more help. Before they moved the POBSP files into Archives I used to be able to lay my hands on the answers to such questions as yours with some dispatch. Now it is a much more complicated matter.

By the way, thank you very much for the reprints you sent some time back. I much enjoyed them.

Sincerely yours,

Roger Clapp

Roger B. Clapp

UNIVERSITY OF FLORIDA
GAINESVILLE, 32611

DEPARTMENT OF ZOOLOGY
223 BARTRAM HALL
904-392-1107

8 Sept. 1978

George Balazs
Hawaii Institute of Marine Biology
P.O. Box 1346
Coconut Island
Kaneohe, Ha. 96744

Dear George,

Thank you very much for your letter. It's great to finally be able to file Turtle B26 away. The longest elapsed time that I know of is 19 years. We've had at least three turtles come back to Tortuguero 19 years after being tagged there originally.

I'm sorry this letter is late; I just returned from a trip to Nicaragua and Costa Rica. This summer at Tortuguero is our biggest summer so far. Previously 1976 had been our biggest season, with 2398 individual turtles. This year we will certainly pass 2400. It's nice to have some good news to tell about turtles, for a change.

I hope you are well and happy. By the way, both Anne Meylan and I wanted to go to the Toronto meetings, but when Dr. Carr asked about it, he was told that in the past meetings had been overwhelmed by his students and it was preferred that we not attend. Sorry to have missed the chance to see you again.

Best regards,

Karen

Karen Bjorndal

file: green turtle (Chelonia) notes

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM
WASHINGTON 25, D. C.

U.S.C.G. Loran Station
U.S.N. Station, Box 36
FPO San Francisco
96640

14 April 1965

Dr. Archie F. Carr
Dept. of Biology
University of Florida
Gainesville, Florida

Dear Dr. Carr:

I found the enclosed mummified turtle hatchling on North Island, Pearl and Hermes Reef, on 17 March 1965. I don't think our project has any previous records substantiating breeding at Pearl and Hermes and didn't know whether you did or not, so I thought you might be interested in the beast.

During the month of March I was on Laysan, Lisianski, and Pearl and Hermes Reef, and I have color slides of turtles on the first two islands; I'm not sure about the third. I'll be back to D.C. in June and would be glad to have either duplicate slides or color prints made for you if you're interested. I've had the slides developed and I think they're pretty good; in all cases the turtle fills the frame and I have them from several different angles of the same animal, as well as one with four animals in it.

I'll return the 100 tags we still have of yours sometime in June. We're cutting down our operations here on Kure next month, and I doubt that I'll be coming back out here again. I'm going back to graduate school either this September or next February; I'm not sure when or where yet as several factors are involved.

Please give my regards to all my friends at Gainesville.

Most sincerely,

Bill

William O. Wirtz II
Research Curator, Pacific Project

on 12/28/76 Chief Chappell informed me that Kichner saw 3' turtle on land 25. (Recently) w/tag B25

2433 Southgate Sq.
Reston, Va. 22091
13 June 1978

Dr. George H. Balazar
Hawaii Institute of Maime Biology
P. O. Box 1346
Coconut Island
Kaneohe, Hawaii 96744

Dear Dr. Balazar,

I agree with Roger Clapp that the turtle tagged B26 was the one marked by Fleet on 29 May 1964, but I can't verify it now. The one I tagged on 2 July 1967 was caught swimming in the lagoon by some Coast Guardmen and brought back to the barracks. There I photographed it and marked it with a yellow roto-tage (No. 499) - the kind we used on Monk seals. I suspect that by now it has worn away.

I am sure that when I was writing the Time accounts I found

records of all the turtles we tagged there, so the two listed in the Atoll Research Bulletin are the only ones the POBSP marked. This makes it even more likely that B 26 was tagged by Fleet.

I am busy right now but when I have a chance I'll go to the Archives to see if I can locate the original tagging data.

I hope this information may be of some value.

Regards.

Paul Woodward

United States Department of the Interior

FISH AND WILDLIFE SERVICE

National Fish and Wildlife Laboratory
National Museum of Natural History
Washington, D.C. 20560

Dr. Robert R. Fleet
Stephen F. Austin State University
School of Forestry
Nacogdoches, Texas 75962

Mon. 27 Feb. 1978

Dear Bob,

Checked out what little data remains physically in the NMNH and your notes on the Green Turtle for May 29, 1964 are not among them. There is a bound volume of original field notes of yours supplementary to the xeroxed version but this is for SIC 9 not 1964. I have put a request in to archives for the data but god knows when Ill hear from them. If and when I manage to get the scoop, do you wish me to respond directly to Balazs? I have had some miscellaneous contact with him before. —BS

I was sorry that I did not get a chance to talk more with you when you were by since I would have welcomed the opportunity to learn more about your recent endeavors. (Hm. that phrase seems a trifle fustian). The new cafeteria (as you may have found out) serves both beer (Heinekins sp? and another good one I didnt you) and wine (Gallo rotgut special) which is probably our single improvement over the old days. If you come by again, within the next decade, say, let us plan to go out and practice those attributes for which POBSP was injustly (well--probably justly) famous.

Best regards,

Roger

Roger

P.S. Your flyer was amusing but what the hell is the SFA?

Dear Dr. Balazs: I have been trying to get copies of my field notes for this period. Roger will send the records directly to you if he can get them from Archives!

Sand Island, Kure Atoll - in the lagoon - 29 May 1964. We captured a large green turtle near this animal was measured, tagged with one of Archie Carr's tags & released. I can send you a photograph of the animal if you wish.

Sincerely,

Bob Fleet

July

DATE	Time	Sea Water Temp	Wind
July 5 77	1000	29	S-SW 0-5 KT
July 13, 77	0830	27	S-SW-0-5 KTS
July 20, 77	1300	29	S-SW-5 KTS
July 31, 77	1100	28.5	SKT-S

Only Observed 2 Turtles from South Point both on the same day on 16 July 77 0800 / at 1400 / Have Seen Other Turtles around Island.

Michele

KURE 2 week STAY

Turtles

Date	Size*	Tag	Sector	Time
6/13	1.5 ft	?	7	1322
6/14	2.5ft (swimming close to shore right off of N. Point)	?	2	1341
6/16	1.5-2ft (swimming along shoreline towards pier)	?	8	1002
6/18	1.5ft (swimming - off of the tip of N. Point)	?	2	0915
6/26	2ft	?	7	0800

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs, Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: Steve Dollar

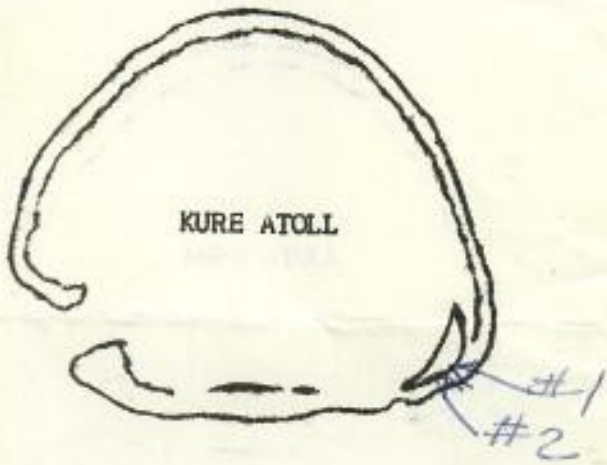
Address & Tel. No. (optional): 948 7429

Date: 1/26/78 Time: 8:00am Location (indicate on chart): _____

Observation made from: ✓ shore; ___ boat; or while ___ skin ___ SCUBA diving.

Estimated size (shell length): #1 20" #2 -?

Turtle seen on: #2 surface; or at depth of approx. ___ ft. Distinguishing #1 beached characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):



#1 animal appeared to be sleeping on beach at approx. mean low water mark — no tag observed but animal was not touched to check tag presence under flipper. #2 turtle swimming with monk seal approximately 50' off beach — no size estimate possible.

Other comments: _____

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: Daniel Whiting

Address & Tel. No. (optional): LORST KURE ISLAND

Date: 31 MARCH 84 Time: ~1800 Location (indicate on chart): Inner reef, off NORTH POINT (045°T from TOWER)

Observation made from: ____ shore;

____ boat; or while X skin ____ SCUBA diving.

Estimated size (shell length): 1 ½ FT

Turtle seen on: ____ surface; or at depth of approx. 3 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

SHORT TAIL, LIGHT GREEN, NO TAGSEEN, long front legs, GREEN

Other comments: WAS BETWEEN THE TWO OF US, left area rapidly just as I noticed him, swam north and beach-ward

THANK YOU FOR YOUR COOPERATION

DANIEL WHITING
LORSTA KURE
FPO SAN FRANCISCO, CA
96619

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: DANIEL WHITING

Address & Tel. No. (optional): Posta Kure Island

Date: 30 MARCH 84 Time: ≈ 1830 Location (indicate on chart): RIP OFF SOUTH POINT LANDING

Observation made from: X shore;

____boat; or while ____skin ____SCUBA diving.

Estimated size (shell length): TWO FEET

Turtle seen on: X surface; or at depth of approx. ____ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

DARK, LONG NECK, NO TAG SEEN

Other comments: WAS SWIMMING ON the surface, into the current, and semi-surfing breaking waves. Came to surface between waves. Raised Head out of water

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: DANIEL WHITING

Address & Tel. No. (optional): LORSTA KURE

Date: 1 APRIL 80 Time: 1500 Location (indicate on chart): _____

Observation made from: ____shore; ____boat; or while X skin ____SCUBA diving.

Estimated size (shell length): 16 IN

Turtle seen on: ____surface; or at depth of approx. 5 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

SEE BACK

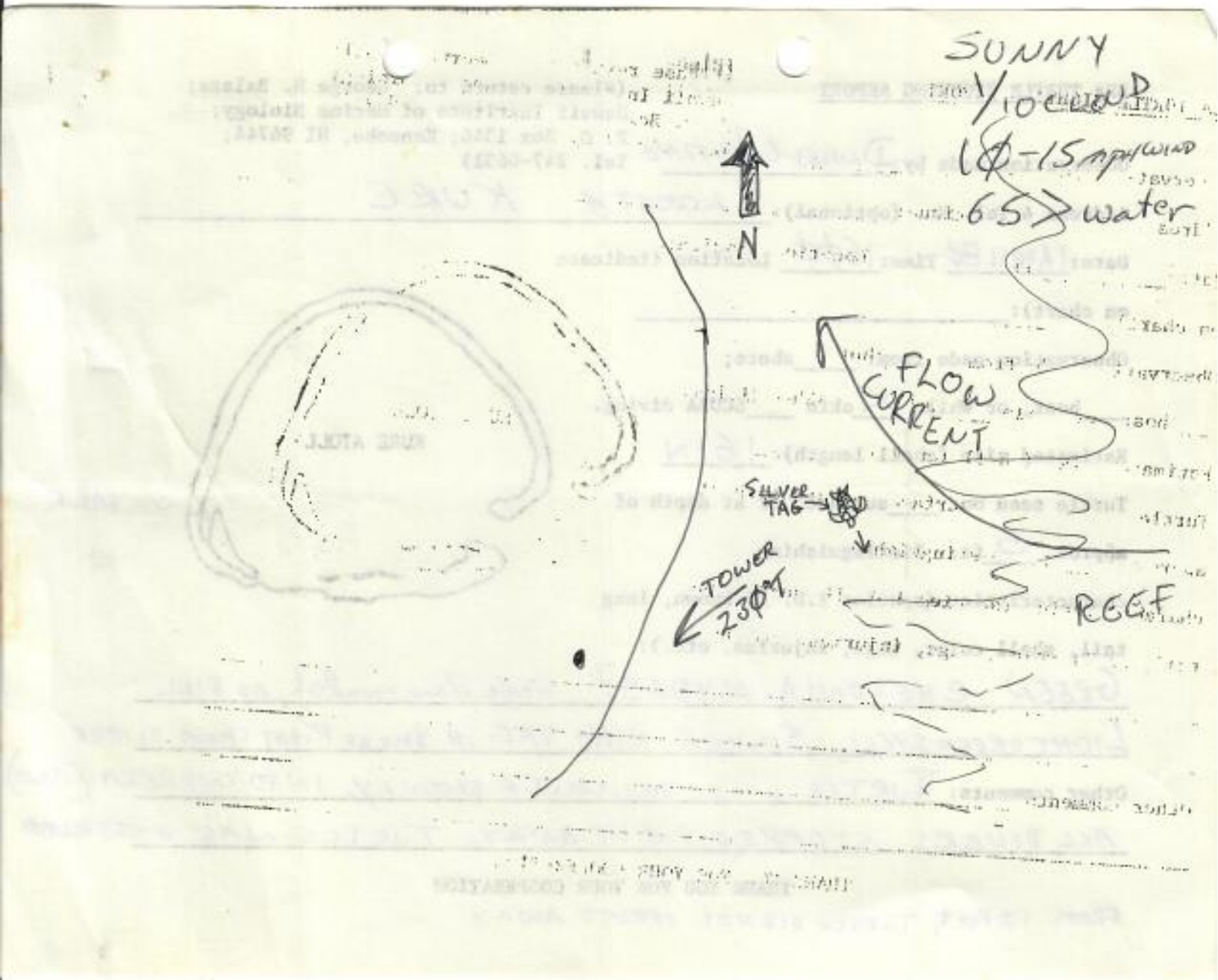
GREEN - CHELONIA MYDAS? Single claw, roundish, no BILL

LIGHT GREEN SHELL, SILVER RING TAG IN BACK OF RIGHT FRONT FLIPPER

Other comments: TURTLE WAS SWIMMING SLOWLY, INTO CURRENT (.5 KNTS)

ALL DIVERS STOPPED 20 FT AWAY. TURTLE WAS OBSERVED FROM 10 Feet, TURTLE DID NOT SPRINT AWAY

THANK YOU FOR YOUR COOPERATION


SUNNY
1/10 CLOUD
10-15 mph WIND
65° water
N
FLOW
CURRENT
SILVER
TAG
TOWER
230°
REEF

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs, Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: ET3 J.J. Jolly

Address & Tel. No. (optional): Kure Island

Date: 12-16-76 Time: 1315 Location (indicate on chart): 150 YDS from Doc Shack on beach

Observation made from: X shore;

____boat; or while ____skin ____SCUBA diving.

Estimated size (shell length): 3-4ft

Turtle seen on: ____surface; or at depth of approx. ____ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

No Injuries, Shell Dark green Light green markings No tags

Other comments:

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: Herbert R. Holst

Address & Tel. No. (optional): USCG Loran C Station Kure Island, FPO San Francisco, Ca 96619

Date: 30 Jan, 1981 Time: 0330 PM Honolulu Time Location (indicate on chart): In Surf of Landing Cut off South Point

Observation made from: ✓ shore; ___ boat; or while ___ skin ___ SCUBA diving.

Estimated size (shell length): 2 Ft

Turtle seen on: ✓ surface; or at depth of approx. ___ ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

Shell color Seemed to Be hazey Green as if a build up of algie on the shell

Other comments: 2 Turtles Sighted aproximetly same Size. They appeared to be feeding as they were on surface then ~~dived~~ diving. they were observed for about 2 hours about 20 Feet off shore.

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: - Alan D. Young

Address & Tel. No. (optional): KURE ISL.

Date: 15-DEC-76 Time: - 5:30 Location (indicate on chart): WEST SIDE OF ISL.

Observation made from: X shore; ____boat; or while ____skin ____SCUBA diving.

Estimated size (shell length): 1 1/2

Turtle seen on: X surface; or at depth of approx. ____ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

- THE TURTLE HAD NO TAG. - HIS SHELL WAS DARK GREEN-BROWN-

Other comments:

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: J. DEEM.

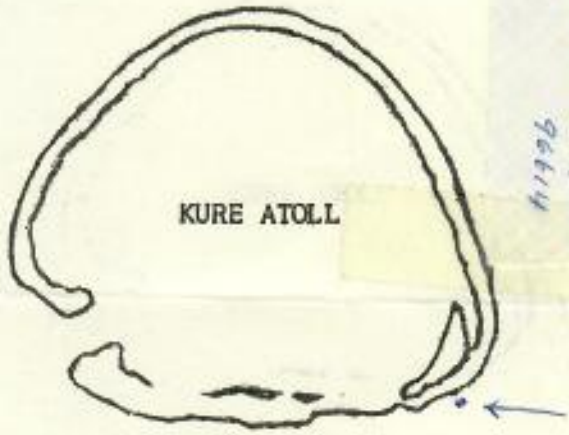
Address & Tel. No. (optional): _____

Date: 21 APR Time: 1500-1700 Location (indicate on chart): OUTSIDE REEF

Observation made from: ____shore; ____boat; or while X skin ____SCUBA diving.

Estimated size (shell length): 22-24 IN.

Turtle seen on: ____surface; or at depth of approx. 20 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):



GREEN, NO TAGS, WHITE GROWTH ON BOTH EYELIDS. NO TAIL VISIBLE. APPEARED TO BE RESTING, QUICKLY

Other comments: SWAM OFF WHEN APPROACHED. DARK SHELL.

THANK YOU FOR YOUR COOPERATION

J. DEEM
USCG LORETTA KURE
USNS BOX 36
FPO SAN FRAN., CA.
96614

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: J. DEFM.

Address & Tel. No. (optional): _____

Date: 21 APR Time: 1500-1700 Location (indicate on chart): OUTSIDE REEF

Observation made from: ____ shore; ____ boat; or while X skin ____ SCUBA diving.

Estimated size (shell length): 36"

Turtle seen on: ____ surface; or at depth of approx. 12 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

GREEN, NO VISIBLE TAIL, NO DISTINGUISHING MARKS. NO TAGS. SWIMMING IN A TRENCH. SWAM OFF IMMEDIATELY.

Other comments: I SAW 2 ON THIS DAY. MR. STARK SAYS HE SAW 5. HE SAID THAT HE WOULD SEND REPORTS TO YOU.

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: J. DEEM.

Address & Tel. No. (optional): _____

Date: 25 APR Time: 1430 Location (indicate on chart): APPROXIMATE

Observation made from: ____shore; ____boat; or while X skin ____SCUBA diving.

Estimated size (shell length): 36 IN

Turtle seen on: ____surface; or at depth of approx. 15 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

GREEN, No tail Projecting from SHELL. No tags, SHELL DARK GREEN. FLIPPER tips APPEARED DAMAGED AS OBSERVED ON PREVIOUS SPECIMENS. SLEEPING UNDER LEDGE. Didn't WAKE.

Other comments: _____

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: J. L. DEEm.

Address & Tel. No. (optional): Kure Island.

Date: 09 Jun 79 Time: 1400 Location (indicate on chart): _____

Observation made from: ____ shore; ____ boat; or while X skin ____ SCUBA diving.

Estimated size (shell length): 25-30 in.

Turtle seen on: ____ surface; or at depth of approx. 15 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

Green Sea Turtle, no tags, appeared in good health. No scars or growths apparent.

Other comments: Found sleeping in a hole. Swam (turtle) away after a couple pictures were taken.

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: J. L. DEEM.

Address & Tel. No. (optional): KURE Isl.

Date: 9 Jun 78 Time: 1500 Location (indicate on chart): _____

Observation made from: ____shore; ____boat; or while X skin ____SCUBA diving.

Estimated size (shell length): ~24-26 in

Turtle seen on: ____surface; or at depth of approx. 4 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

Green Sea ~~turtle~~ turtle, flippers had a ragged appearance on ends. No tags. No other markings.

Other comments: Sleeping, very calm, simply went to another hole when approached.

THANK YOU FOR YOUR COOPERATION

J. L. DEEM
USCG LORSTA KURE ISL
USNS BOX 36
FPO SAN FRAN, CA
96614

11 Jul 78

George,

just a little note for your info. I'm sure you recall the news of the crown of thorns starfish a couple of years back. I think we have found one here. On the 9th we were diving outside the reef and saw it in about 15-18 ft of water.

It was covering a small coral head and was 10-12 inches wide I'd estimate. Within 25 ft of it, we found 2

small coral heads white as snow. Probably eaten by the starfish. Also saw another white head outside the reef near sand island.

Useful or not, you have the info.

Your turtles seem pretty healthy. Haven't seen any with tags.

Coming back out soon?

Regards,

Jeff

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: BM1 J.R. Michael

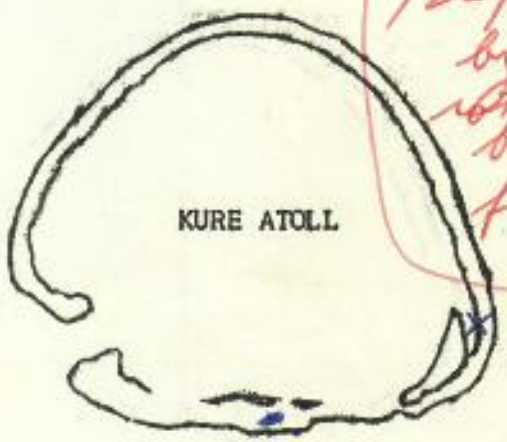
Address & Tel. No. (optional): Kure Island

Date: 4/16/77 Time: 1200 hrs Location (indicate on chart): _____

Observation made from: ____ shore; ____ boat; or while X skin X SCUBA diving.

Estimated size (shell length): [redacted]

Turtle seen on: ____ surface; or at depth of approx. 6 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):



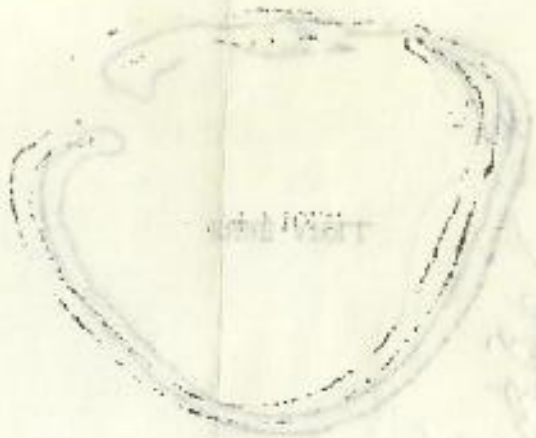
Tagged 1/22/77 by wind rock on both front flippers

Tags Numbers 2085 - 2086 Right Front Flipper was cut Turtle was Sleeping under A coral Head Also Noticed A Large Turtle but was unable get any Info

Other comments: _____

THANK YOU FOR YOUR COOPERATION

BM1 Tiki Michaels
USCG
Box 36
FPO San Francisco



SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: LTJG J.J. KICHNER

Address & Tel. No. (optional): KURE ISLAND

COMMANDING OFFICER
USCG LORAN STATION
US NAVAL STATION
BOX 36
FPO SAN FRANCISCO
96614

Date: 16 DEC 76 Time: 1600 Location (indicate on chart): South Point Landing

Observation made from: X shore;

____boat; or while ____skin ____SCUBA diving.

Estimated size (shell length): 1 1/2

Turtle seen on: ____surface; or at depth of approx. 2 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

Light Brown/Green in color, Unable to see other distinguishing marks due to surf conditions

Other comments: Turtle swam by in about 2ft of water five feet from shore

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: LT26 KICHNOR

Address & Tel. No. (optional): _____

Date: 28 FEB 77 Time: 1500 Location (indicate on chart): French

Observation made from: ____shore;

X boat; or while ____skin ____SCUBA diving.

Estimated size (shell length): 19"

Turtle seen on: X surface; or at depth of approx. ____ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

Appx same area where we went diving that day of the double dive, Mark and I by that small spit in the middle of lagoon. Couldn't get close enough for any other visible marks.

Other comments: You and I by that small spit in the middle of lagoon. Couldn't get close enough for any other visible marks.

THANK YOU FOR YOUR COOPERATION

George,

I would like to thank you for everything you've done for the Station and Saginaw work. especially the wall charts. They were just super! Also the underwater picture of me.

Looking forward to seeing you and mark on 4, about 4 April. Only 30 days to go!

Best Regards.

Jerry

P.S. You're most welcome to come to Kure anytime again in the near future. If you need any help with District let me know. I'll also clear everything with the new CO. Hi from Chief Parker!!

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs;
Hawaii Institute of Marine Biology;
P. O. Box 1346; Kaneohe, HI 96744;
Tel. 247-6631)

Observation made by: LTJG J. KICHNOR

Address & Tel. No. (optional): _____

Date: 27 FEB 1977 Time: 1430 Location (indicate on chart): Field HQ

Observation made from: X shore;

____boat; or while ____skin ____SCUBA diving.

Estimated size (shell length): 15"

Turtle seen on: X surface; or at depth of approx. ____ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

No tags visible, Turtle seen by the "Univ of Hawaii Kure elsland Field HQ. G.H. BALAZS resident."

Other comments: _____

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: LTJG J. KICHNER

Address & Tel. No. (optional): KURE ISLAND (CB)

Date: 27 FEB 1977 Time: 1252 Location (indicate on chart): By the Wind Sock

Observation made from: X shore;

___boat; or while ___skin ___SCUBA diving.

Estimated size (shell length): 18"

Turtle seen on: X surface; or at depth of approx. ___ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

No tags seen, two turtles swimming together (I don't know if they were "together")

Other comments: about 250 ft off beach north of Wind Sock

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: LT J.J KICHNER

Address & Tel. No. (optional): KURE ISLAND

Date: 16 FEB 77 Time: 1330 Location (indicate on chart): South side of island

Observation made from: X shore; ___ boat; or while ___ skin ___ SCUBA diving.

Estimated size (shell length): 1.5'

Turtle seen on: X surface; or at depth of approx. ___ ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

No tags nor injury definitely a Hawksbill (Ate el remember)

Other comments:

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: T R MICHAEL

Address & Tel. No. (optional): KURE IS.

Date: 2/9/77 Time: 1030 Location (indicate on chart): SOUTH POINT OPEN IN REEF

Observation made from: X shore; ___boat; or while ___skin ___SCUBA diving.

Estimated size (shell length): _____

Turtle seen on: X surface; or at depth of approx. ___ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

OBSERVATION MADE OF APPROX 20 - 25 TURTLE FROM SOUTH POINT FEEDING AT THE OPENING IN THE

Other comments: REEF UNABLE TO GET TRUE COUNT BUT SUCH A LARGE NUMBER TOGATHER WAS WORTH REPORTING SIGHTING. THANK YOU FOR YOUR COOPERATION

OVER

ALSO A COWAKE SHARKS SEEN APPOX 50 YARDS FROM AREA OF TURTLE.

COMMANDING OFFICER
USCG LORAN STATION
US NAVAL STATION
BOX 36
FPO SAN FRANCISCO

George,

You guys missed the weather by about one week. Just after you left the temps went up and the lagoon calm. The sun was there straight for about four days. The water temps warmer and water clear.

Sorry about that

Jerry

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: BM1 JR MICHAEL

Address & Tel. No. (optional): KURE ISLAND

Date: 11-5-76 / 11-6-76 Time: same / 1330 Location (indicate on chart): 50 yards From South Point

Observation made from: X shore;

____boat; or while ____skin ____SCUBA diving.

Estimated size (shell length): 26"

Turtle seen on: ____surface; or at depth of approx. ____ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

TURTLE HAD NO INJURIES, SHELL BROWN LIGHT GREEN, NO TAGS.

Other comments: HAVE SEEN TURTLE IN THE SAME PLACE 3 or 4 TIME THIS WEEK.

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel, 247-6631)

#1

Observation made by: Russell + Dallas GRADY

Address & Tel. No. (optional): P.O. Box 3131 Lihue Kauai

Date: 4/20/78 Time: 1030 am Location (indicate on chart): KURE ISLAND South end between Shark? + Kure Is

Observation made from: ___ shore;

___ boat; or while X skin ___ SCUBA diving.

Estimated size (shell length): 24"

Turtle seen on: ___ surface; or at depth of approx. 10 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

green Turtle free swimming outside the reef edge - NO Tag - or other marks

Other comments: The water was cold!

THANK YOU FOR YOUR COOPERATION

PO Box 3131
Lihue Kauai
96766

SEA TURTLE SIGHTING REPORT

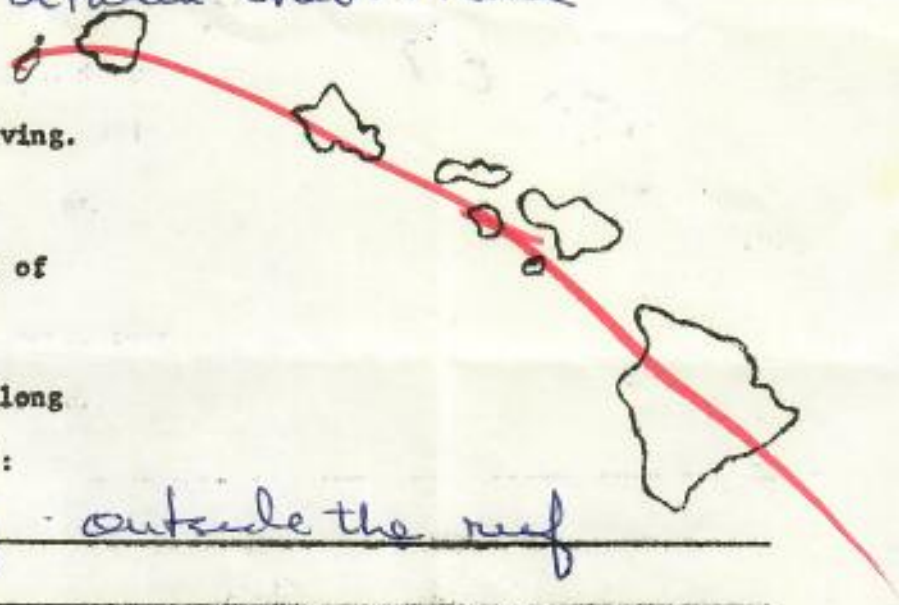
(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

#2

Observation made by: Russell + Dallas GRADY

Address & Tel. No. (optional): P.O. Box 3131 Lihue

Date: 4/20/78 Time: 10:30 Location (indicate on chart): Kure Is. South end between Shark's + Kure



Observation made from: ___ shore; ___ boat; or while X skin ___ SCUBA diving.

Estimated size (shell length): 18"

Turtle seen on: ___ surface; or at depth of approx. 8-10 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

Green Sea. NO TAG - outside the reef edge

Other comments:

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

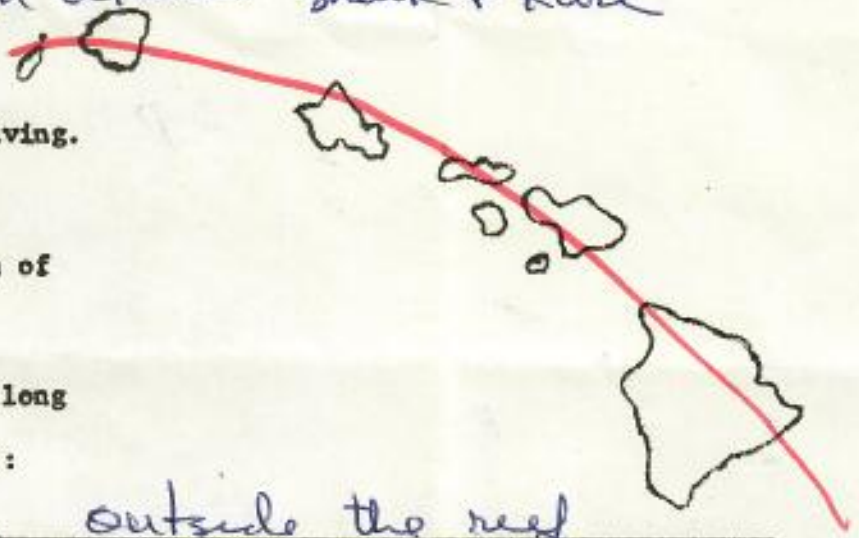
(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel, 247-6631)

#3

Observation made by: Russell + Dallas Grealy

Address & Tel. No. (optional): P.O. Box 3131

Date: 4-20-78 Time: 10:30 Location (indicate on chart): Kure Is South End between Shark + Kure



Observation made from: ___ shore;

___ boat; or while X skin ___ SCUBA diving.

Estimated size (shell length): 24"

Turtle seen on: ___ surface; or at depth of approx. 20 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

Green Sea - no tag outside the reef edge

Other comments:

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

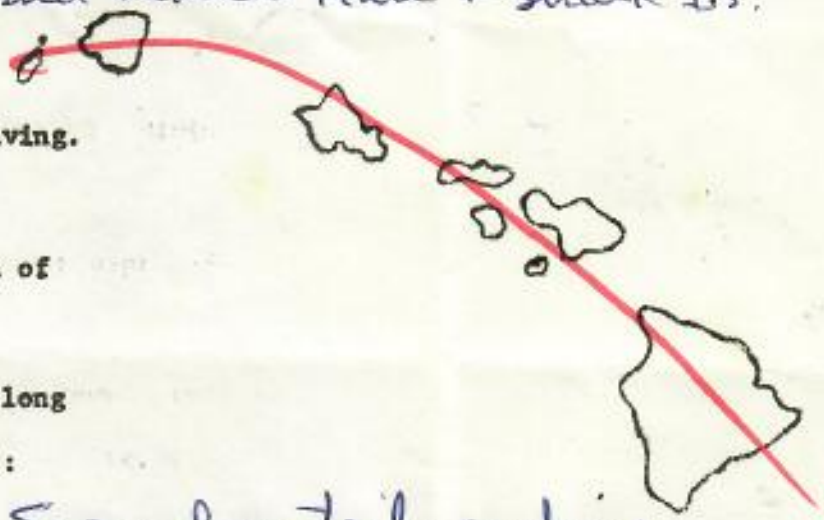
(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

#4

Observation made by: Russell + Dallas Grady

Address & Tel. No. (optional): P.O. Box 3131

Date: 4-20-78 Time: 1030 Location (indicate on chart): Kure Is. South end between Kure + Shark Is.



Observation made from: ___ shore;

___ boat; or while X skin ___ SCUBA diving.

Estimated size (shell length): 36"

Turtle seen on: ___ surface; or at depth of approx. 15-20 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

Appeared to be green Sea, long tail, resting on bottom head into a cave. butt end out.

Other comments: No tag was seen

THANK YOU FOR YOUR COOPERATION

Dear George,

Will keep in touch. Not enough time on Kure. Could have done much more work. Am planning a 2 wk. trip in the early fall. Could you come along? If so I'll bring my zodiac w/ 25 hp Johnson.

Saw only 4 turtles. All appeared queer.

If anything I can do let me know.

Dallas

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: Bill McRae

Address & Tel. No. (optional): [redacted] COSTA MESA

Date: 7-Aug-77 Time: 1330 Location (indicate on chart): _____

Observation made from: ____ shore;

X boat; or while X skin X SCUBA diving.

Estimated size (shell ~~length~~ width): 36"

Turtle seen on: X surface; or at depth of approx. ____ ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

observed Large TuRTle laying ON Top of Coral on ReeF NO Tags Dark Green

Other comments: Shell color Also observed Two More SMALL TuRTle in Appros 6 FT WATer.

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: Daniel Whiting Robertson

Address & Tel. No. (optional): KURE

Date: 29/8/89 Time: 1700 Location (indicate on chart): In surfline, South Point

Observation made from: ____shore;

____boat; or while X skin ____SCUBA diving.

Estimated size (shell length): 22 inches

Turtle seen on: ____surface; or at depth of approx. 5 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

Green sea Turtle, noted single claw on Flippers

NO tag seen

Other comments: Could have easily caught

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: Keith D. Larson

Address & Tel. No. (optional): USCG LORSTA KURE IS.

Date: 24 Mar 78 Time: 2100 Location (indicate on chart): _____

Observation made from: ____ shore; ____ boat; or while ✓ skin ____ SCUBA diving.

Estimated size (shell length): ≈ 48"

Turtle seen on: ____ surface; or at depth of approx. 68 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

Green turtle, long tail (≈ 12", No tags or injuries observed.

Other comments: _____

THANK YOU FOR YOUR COOPERATION

Dear George:

Mahalo for the Seed info. I will Do the article soon. Your turtle reports. I hope their Satisfactory & of use Sorry I'm such a layman on these matters. Anytime you need my help let me know

Dallas

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: D. Grady

Address & Tel. No. (optional): _____

Date: 13 mar 78 Time: 10:30 AM Location (indicate on chart): _____

Observation made from: ____ shore; ____ boat; or while X skin ____ SCUBA diving.

Estimated size (shell length): 24"

Turtle seen on: X surface; or at depth of approx. E ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

no tags, no injuries, Sex unknown, green sea

Other comments: _____

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: D Grady

Address & Tel. No. (optional): _____

Date: 13 MAR 79 Time: 1030 AM. Location (indicate on chart): /

Observation made from: ____shore; ____boat; or while X skin ____SCUBA diving.

Estimated size (shell length): 18"

Turtle seen on: ____surface; or at depth of approx. 10 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

No tags, Sex Unk., NO injuries, Resting on bottom green sea

Other comments: _____

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: Dallas Geady

Address & Tel. No. (optional): P.O. Box 384, Kilauea Kauai 96754

Date: 4 Feb 79 Time: 10:30 pm Location (indicate on chart): /

Observation made from: ____ shore;

____ boat; or while X skin ____ SCUBA diving.

Estimated size (shell length): 30"

Turtle seen on: ____ surface; or at depth of approx. 2 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

No tag, Resting in shallow cove sand bottom inside reef green sea turtle. Sex unk.

Other comments: * two turtles seen within 10 yds of eachother both approx 30" in size. Other chara - same.

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: Dallas Grady

Address & Tel. No. (optional): PO. Box 384, Kilauea Kauai

Date: 3/7/79 Time: 1400 Location (indicate on chart): /

Observation made from: ____shore;

X boat; or while ____skin ____SCUBA diving.

Estimated size (shell length): 20-24"

Turtle seen on: X surface; or at depth of approx. ____ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

No TAG, Sex unk, NO injuries, Hawksbill Species

Other comments: George Sighting was within 10' from the boat. Overlapping plates Serrated edge.

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: D Grady

Address & Tel. No. (optional): _____

Date: _____ Time: _____ Location (indicate on chart): _____

Observation made from: ____shore; ____boat; or while X skin ____SCUBA diving.

Estimated size (shell length): 40"-45"

Turtle seen on: ____surface; or at depth of approx. 8 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

male? [redacted], no tags, no injuries, green sea, resting on bottom in hole head first. long tail

Other comments: largest seen

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: Dallas Grady

Address & Tel. No. (optional): P.O. Box 384, Kilauea Kauai 96754

Date: 29 Feb 79 Time: 1000 Location (indicate on chart): /

Observation made from: ____shore;

____boat; or while X skin ____SCUBA diving.

Estimated size (shell length): 24"-30"

Turtle seen on: ____surface; or at depth of approx. 2½ ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

No tag, Sex unk, Species - green - Swimming freely

Other comments:

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: Dallas Grady

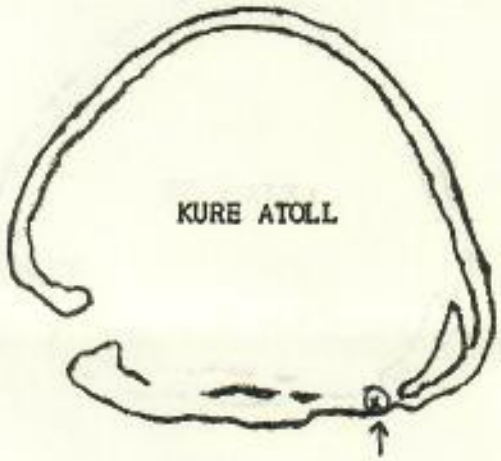
Address & Tel. No. (optional): P.O. Box 384, Kilauea Kauai 96754

Date: 8 Mar 79 Time: 3:30 pm Location (indicate on chart): /

Observation made from: X shore; ___ boat; or while ___ skin ___ SCUBA diving.

Estimated size (shell length): 30-36"

Turtle seen on: ___ surface; or at depth of approx. 1 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):



Sex unk. No tags seen, no injuries

green Sea Turtle Species.

Other comments: _____

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: D Grady

Address & Tel. No. (optional): _____

Date: 13 Mar 79 Time: 1100 PM Location (indicate on chart): /

Observation made from: ____shore; ____boat; or while X skin ____SCUBA diving.

Estimated size (shell length): 18" to 22"

Turtle seen on: ____surface; or at depth of approx. 4 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

No tag, green sea, no injuries undetermin Sex

Other comments: _____

THANK YOU FOR YOUR COOPERATION

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

TO : GEORGE BALZAZS

DATE: 21 APR 1980

FROM : D. C. Whiting, LTJG, USCG
Commanding Officer

SUBJECT: TURTLES;

HERE ARE A FEW SIGHTINGS. HOPE TO HAVE MORE AS IT MOVES INTO SUMMER.

Daniel

5010-109

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SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: HOWL HUNT

Address & Tel. No. (optional): USCG LORSTA KURE

Date: 4/12/80 Time: 1900 Location (indicate on chart): LAGOON Side South Point

Observation made from: ____shore;

____boat; or while X skin ____SCUBA diving.

Estimated size (shell length): 4-5 FT

Turtle seen on: ____surface; or at depth of approx. 5 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

LEATHER NECK Flipper Appred 2FT

Other comments: MANY TURTLES IN SAME AREA

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: HMC HUNT

Address & Tel. No. (optional): USCG LORSTA KURE

Date: 4/12/80 Time: 1900 Location (indicate on chart): MAGNON SIDE SOUTH POINT

Observation made from: ____shore;

____boat; or while X skin ____SCUBA diving.

Estimated size (shell length): 2 FT

Turtle seen on: ____surface; or at depth of approx. 5 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

GREEN SEA TURTLE

Other comments: MANY TURTLES IN SHAIS AREA

3 MORE GREEN SEA TURTLES SEEN WITH IN SHAME TIMES Period

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs, Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: MK3 Robertson

Address & Tel. No. (optional): USCG LORAN STATION KURE

Date: 4-13-80 Time: 545 PM Location (indicate on chart): South POINT (LAGOON SIDE)

Observation made from: ___ shore; ___ boat; or while X skin ___ SCUBA diving.

Estimated size (shell length): 3' 8"

Turtle seen on: ___ surface; or at depth of approx. 6 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

GREEN SEA TURTLE, observed turtle Lying on the bottom I APPROCH the turtle AND HE SWAM up to me AND I GRABBED HIM AND LOOK him OVER, I NOTICE SERVAL SORES ON FRONT FLIPPERS AND EYES, THE TURTLE SEEM VERY WEAK AND didnt CARE TO be HANDLED,

Other comments:

THANK YOU FOR YOUR COOPERATION

—MENTIONED MOSS AND BARNACLES ON SHELL AND REARSIDES OF FRONT FLIPPERS. OLD AND CRUSTY! - Daniel

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: MK3 Robertson

Address & Tel. No. (optional): USCG LORAN STATION Kure

Date: 4-14-80 Time: 5:30 Location (indicate on chart): SOUTH POINT

Observation made from: ____shore;

____boat; or while X skin ____SCUBA diving.

Estimated size (shell length): _____

Turtle seen on: ____surface; or at depth of approx. 5 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

4 GREEN TURTLE AN ONE LEATHERBACK TURTLE

TWO OF the GREEN TURTLES WERE TAGGED BUT COULDN'T GET CLOSE ENOUGH TO GET TAG NUMBERS.

Other comments: I HAVE OBSERVED THREE DIFFERENT LEATHERBACK TURTLES ON the ISLAND.

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: MK3 Robertson

Address & Tel. No. (optional): USCG LORAN STATION KURE

Date: 4-17-80 Time: 3:30 PM Location (indicate on chart): Deep Hole

Observation made from: ____shore;

____boat; or while ____skin X SCUBA diving.

Estimated size (shell length): 3[illegible] FT

Turtle seen on: ____surface; or at depth of approx. 35 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

GREEN TURTLE. Observed ~~many~~ 3 other turtles IN SAME AREA.

Other comments:

THANK YOU FOR YOUR COOPERATION

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

TO : George Balaya DATE: 3/23/10

FROM : CO, Kure

SUBJECT: Turtle Sightings

George,

Enclosed are the sighting reports we discussed during your brief stay. Hope these are of some assistance and that you can stay a little longer next trip.

Mike

M. D. Farrell, LTJG, USCG
Commanding Officer

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

5010-109

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs, Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: Michael Farren

Address & Tel. No. (optional): ——— Kure Island

Date: 3/2/80 Time: 1400 Location (indicate on chart): _____

Observation made from: ✓ shore; ____boat; or while ____skin ____SCUBA diving.

Estimated size (shell length): 1½ feet

Turtle seen on: X surface; or at depth of approx. ____ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

Green Sea

Other comments: _____

THANK YOU FOR YOUR COOPERATIO

COMMANDING OFFICER
U.S. COAST GUARD LORAN STATION
FLEET POST OFFICE
SAN FRANCISCO 96619

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs, Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: Thomas Maloff et al.

Address & Tel. No. (optional): Kure Island

Date: 2/23/80 Time: 1430 Location (indicate on chart): _____

Observation made from: ___ shore; ___ boat; or while X skin ___ SCUBA diving.

Estimated size (shell length): 2 feet

Turtle seen on: ___ surface; or at depth of approx. 5 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

Green Sea

Other comments: _____

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs, Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: Steven Grenier

Address & Tel. No. (optional): ——— Loran Kure Island

Date: 12/10/77 Time: 1200 Location (indicate on chart): _____

Observation made from: X shore; ___boat; or while ___skin ___SCUBA diving.

Estimated size (shell length): 2 feet

Turtle seen on: X surface; or at depth of approx. ___ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

not sure

Other comments: date is estimate

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: TERRY MORINI

Address & Tel. No. (optional): 2777 KALAKAUA AV.

Date: SEPT. 79 Time: _____ Location (indicate on chart): /

Observation made from: ____shore; ____boat; or while ____skin X SCUBA diving.

Estimated size (shell length): 24"

Turtle seen on: ____surface; or at depth of approx. 20 ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

HAWKSBILL

Other comments: ALL OBSERVATIONS IMMEDIATELY RECORDED ON OUR DATA SHEETS. SEE CRAIG McDONNEL FOR DETAILS.

THANK YOU FOR YOUR COOPERATION

SEA TURTLE SIGHTING REPORT

(Please return to: George H. Balazs; Hawaii Institute of Marine Biology; P. O. Box 1346; Kaneohe, HI 96744; Tel. 247-6631)

Observation made by: Herbert P. Holst

Address & Tel. No. (optional): ~~6533 So. Earhart, Bartlett, Tn. 38134~~ 14460 Belvedere Dr., Dale City, Va 22193

Date: 18 Feb 81 Time: 710 PM Hawaiian Time Location (indicate on chart): Swimming Around Coral on Lagoon Side

Observation made from: ✓ shore;

____boat; or while ____skin ____SCUBA diving.

Estimated size (shell length): 1½'

Turtle seen on: ✓ surface; or at depth of approx. ____ft. Distinguishing characteristics (species I.D. if known, long tail, shell color, tags, injuries, etc.):

Turtle Swimming underwater and Surfacing a few times, Water about 3 to 4 foot in the area, Turtle approximatly 60 Foot from Shore

Other comments: _____

THANK YOU FOR YOUR COOPERATION

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B	Braniff Airways, Inc. P.O. Box 35001 Dallas, Texas
C	Capitol International Airways, Inc., P.O. Box 325, Bldg. 613, Smyrna Arpt. Smyrna, Tennessee 37167
D	Other
E	Eastern Air Lines, Inc. EAL Bldg 10 Rockefeller Plaza New York, New York
F	The Flying Tiger Line, Inc. 7401 World Way West Los Angeles Intl Airport Los Angeles, California
G	Seaboard World Airlines, Inc. SBW Bldg John F. Kennedy Intl Arpt Jamacia, New York
H	Continental Air Lines, Inc. Los Angeles Intl Airport Los Angeles, California
J	Trans International Airlines, Inc. P.O. Box 2504, Airport Station, Oakland, California 94614
K	Mackey International, Inc. 3116 S. Andrews Avenue, Ft. Lauderdale, Florida 33316
L	Other
M	American Airlines, Inc. 633 Third Avenue New York, New York
N	Northwest Orient Airlines, Inc. Minneapolis/St. Paul Intl Arpt St. Paul, Minnesota
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Q	Overseas National Airways John F. Kennedy Intl Arpt Jamaica, New York
R	Airlift International, Inc. P.O. Box 535 Miami Intl Arpt Miami, Florida
S	Reeve Aleutian Airways, Inc. Box 559, Anchorage, Alaska 99510
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V	Other
W	World Airways, Inc. Oakland International Airport Oakland, California
X	Saturn Airways, Inc. P.O. Box 2406, Oakland International Airport, Oakland, California 94614
Y	Other
Z	Other

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A. IT IS A FEDERAL CRIME TO:

1. Carry concealed weapons aboard aircraft.

2. Interfere with flight crews *(including a steward or stewardess)*.

3. Transport explosives aboard aircraft.

4. Attempt to seize or seize an aircraft by threats, force or violence.

5. Stowaway aboard aircraft.

6. Possess, use or transfer narcotic drugs, including marijuana, aboard aircraft.

7. Convey false information concerning the above criminal acts. Passengers and baggage are subject to search under Federal Law.

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Passengers under the influence of alcohol or drugs or acting in an unruly manner will be denied boarding of aircraft or removed from aircraft at next point of landing and turned over to appropriate authorities for further action.

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1. Under no circumstances shall acids, matches, fireworks, gun powder, gasoline or other hazardous articles be packed in baggage.

2. Small cans of lighter fluid not to exceed 12 fluid ounces may be transported on military aircraft as hand baggage. The cans must have a positive means of closure. Propane, methyl alcohol, butane and the "see through" plastic reservoir cigarette lighter cannot be utilized aboard the aircraft. Under the changing conditions of the cabin, it is sometimes possible to have a very large flame due to a pressure buildup causing excessive leakage from this reservoir.

3. Mercury, metallic, is poisonous and will not be transported aboard the aircraft unless properly packaged and otherwise authorized.

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NUMBER	GATE
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FLIGHT NUMBER	PQDY532
BOARDING TIME	2-0
ORIGIN	MIDWAY
DESTINATION	HICKAM
VIA	
DATE	DAY / MONTH / YEAR
BAGGAGE	PIECES / POUNDS

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PAGES 3 AND 4 CONTAIN A STATEMENT BY THE CARRIER WHICH IS HEREBY DELIVERED TO THE PASSENGER AT THE CARRIERS REQUEST.

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Passengers on a journey involving an ultimate destination or a stop in a country other than the country of origin are advised that the provisions of a treaty known as the Warsaw Convention may be applicable to the entire journey, including any portion entirely within the country of origin or destination, that in most cases limits the liability of the carrier for death or personal injury and in respect of loss of or damage to baggage. For such passengers, the convention and special contracts of carriage embodied in applicable tariffs provide that the limit of liability for each passenger for death, wounding, or other bodily injury shall be the sum of U.S. $75,000 inclusive of legal fees and costs, except that, in case of a claim brought in a state where provision is made for separate award of legal fees and costs, the limit shall be the sum of U.S. $58,000 exclusive of legal fees and costs. The carrier shall not, with respect to any claim arising out of the death, wounding, or other bodily injury of a passenger, avail itself of any defense under Article 20(1) of said Convention as amended by the Hague Protocol signed September 28, 1955. The names of carriers parties to such special contracts are available at all ticket offices of such carriers and may be examined on request. Additional protection can usually be obtained by purchasing insurance from a private company. Such insurance is not affected by any limitation of the carrier's liability under the Warsaw Convention or such special contracts of carriage. For further information please consult your airline or insurance company representative.

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B. The place of departure is the place of "Origin" as set forth in the "Origin" block on the front page of this document; the place of destination is in the "Destination" block on the front page of this document. The agreed stopping places are set forth in the "VIA" block on the front page of this document.

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RECEIPT Date 31 JAN 1977 2475

Received From MR. GEORGE BALAZS + MR. MARK YUNKER

Address UNIVERSITY OF HAWAII

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By Paul M. Bernstein

8K808 Rediform

It should be noted that it is in the direct line of a naval commander's duty, when he is in the neighborhood of such dangers to navigation, to confirm by observation their position on the charts as well as to rescue any unfortunate persons that fate may have cast away upon them. Our own subsequent situation gives proof of the wisdom of such a regulation.

Ocean Island is about fifty miles to the westward of the Midway Islands, is of similar formation, and is the last one (so far as our chart shows) in the chain of ocean dangers that I have referred to as extending more than a thousand miles to the westward from the Sandwich Islands. It was on this reef that the British ship Gledstanes was wrecked in 1837, and the American ship Parker in September, 1842, the crew of the latter vessel remaining there until May, 1843, when they were taken off.

OCEAN ISLAND AND REEF

is what drains through the sand after the heavy rains."

Charles Darwin[1] has the following to say concerning Ocean Island, which he characterizes as a true "atoll," as distinguished from "barrier" and "fringing" reefs, which are generally formed near the shores of higher land:

I have in vain consulted the works of Cook, Vancouver, La Peyrouse, and Lisiansky for any satisfactory account of the small islands and reefs which lie scattered in a northwest line prolonged from the Sandwich group and hence have left them uncolored, with one exception, for I am indebted to Mr. F. D. Bennett for informing me of an atoll-formed reef in latitude 28° 22′, longitude 178° 30′ West, on which the Gledstanes was wrecked in 1837. It is apparently of large size and extends in a northwest and southeast line; very few inlets have been formed on it. The lagoon

[1] *The Structure and Distribution of Coral Reefs*, by Charles Darwin. Walter Scott: 24 Warwick Lane, London, 1842. If Mr. Darwin had known of the proximity of the Midway and Pearl and Hermes reefs he would probably have doubts as to the true character of our atoll.

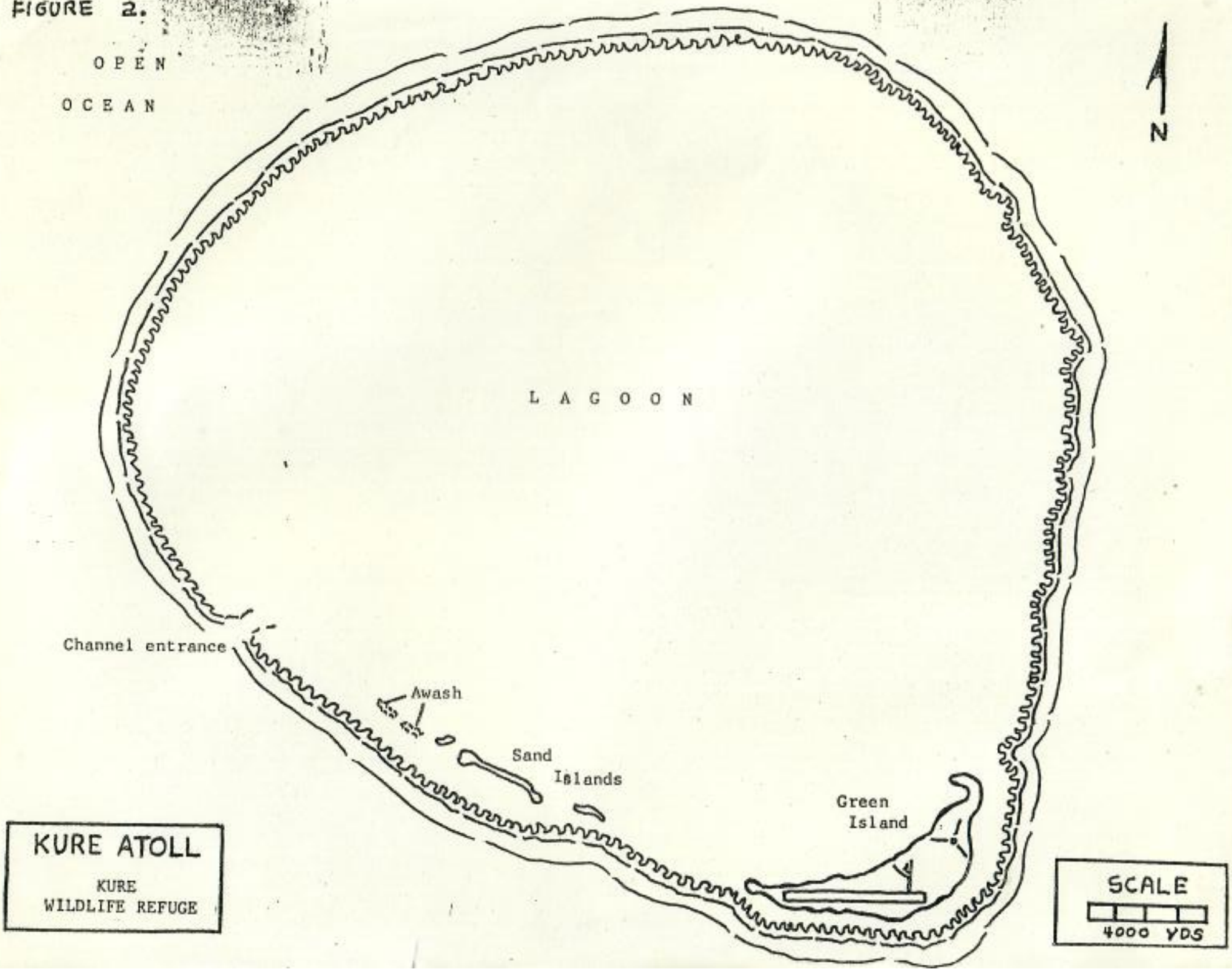
VIEW OF OCEAN ISLAND, REEF, AND LAGOON, AS SEEN FROM THE SOUTH

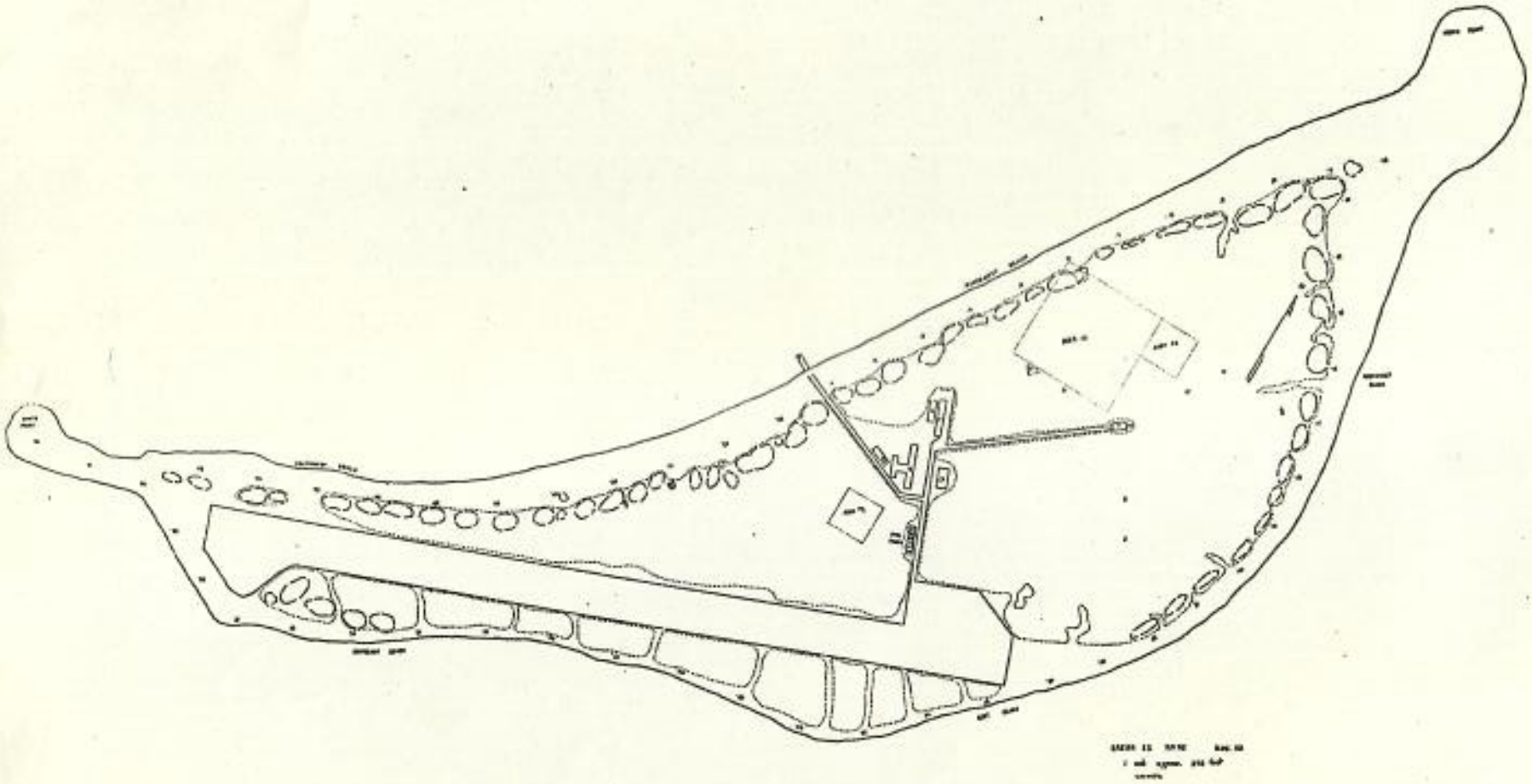
(The island is at the lower edge of the circle.)

OCEAN ISLAND AS VIEWED FROM THE NORTH

(The arrow shows where the Saginaw struck.)

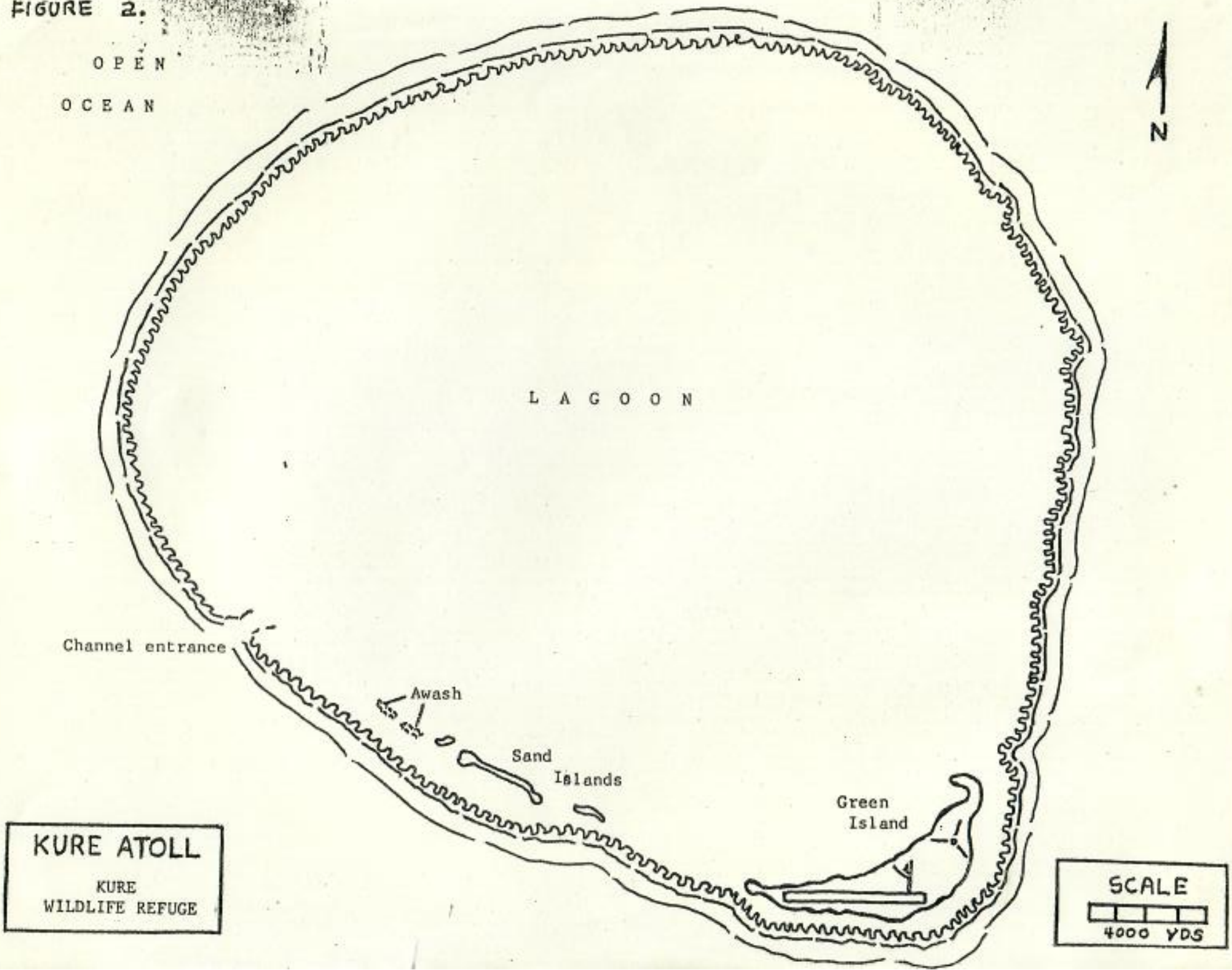
FIGURE 2.


OPEN
OCEAN
N
LAGOON
Channel entrance
Awash
Sand
Islands
Green
Island
KURE ATOLL
KURE
WILDLIFE REFUGE
SCALE
4000 YDS



GREEN ISLAND-KURE ATOLL

FIGURE 2.


OPEN
OCEAN
N
LAGOON
Channel entrance
Awash
Sand
Islands
Green
Island
KURE ATOLL
KURE
WILDLIFE REFUGE
SCALE
4000 YDS

On the Reef Corals of the World's Most Northern Atoll (Kure: Hawaiian Archipelago)[1]

THOMAS F. DANA[2]

KURE (28°25′N, 178°20′W) forms the northwestern terminus of the Hawaiian Archipelago and constitutes the world's northernmost atoll (Bryan, 1953). The marine geology of the atoll has recently been discussed by Gross et al. (1969). Brief descriptions by visiting scientists and survivors of shipwrecks have presented general aspects of the flora and fauna, principally terrestrial, and the Pacific Ocean Biological Survey Program of the Smithsonian Institution (POBSP) has made some 5 years of observations on the atoll's avifauna (unpublished). Gross et al. (1969) give a short discussion of marine organisms and environmental factors of Kure, Midway, and Pearl and Hermes Reef. Yet detailed descriptions, especially of an ecological nature, are almost totally lacking for all aspects of the marine fauna of Kure. A brief visit to the atoll in the late summer of 1968 on the STYX Expedition of Scripps Institution of Oceanography and 3½ months spent on the atoll with the POBSP (winter and spring, 1969) form the basis for the following observations on the distribution and relative abundance of hermatypic scleractinian corals present there.

GEOLOGICAL HISTORY

Deep drilling on Midway Atoll (28°13′N, 177°23′W), some 80 km east-southeast of Kure, has established the age of the contact with basalt as approximately 15×10^6 years before present (Miocene) (Ladd et al., 1967). The shallow drill hole reached basalt at 155 m, a depth comparable to the top of the Miocene reported from Eniwetok, Bikini, and Kita-Daito-Jima (Ladd et al., 1967). Presently there is no reason to assume that Kure has not had a parallel post-Miocene history.

At least one major interruption in the construction of Kure has occurred as indicated by a marked break in slope at a depth between 73 and 109 m (Fig. 1). That this was the result of a lower stand of sea level is suggested by the fact that Midway shows the same break in slope and that there are several seamounts or banks in the vicinity that appear to form comparable platforms (Fig. 2). This depth range brackets the maximum depth of lagoons reported elsewhere in the Indo-Pacific by Wiens (1962) and the top of the lower zone of recrystallization in the Eniwetok and Bikini drillings reported by Schlanger (1963). A second interruption is indicated by a calcite-aragonite unconformity at approximately 60 m noted in the Midway drillings (Ladd et al., 1967). This interruption may also correlate with the lower limit of the shallowest recrystallized zone reported from Eniwetok and Bikini by Schlanger (1963), and with a seaward terrace and the general depth of lagoons found in the Marshall and Caroline islands by Curray and Newman (personal communication). Presumably the development of Kure was also interrupted at this depth. Curiously, the 17 to 18 m seaward terrace reported by Wiens (1962) as occurring elsewhere in the Pacific is lacking on Kure. The maximum depth of the lagoon (15 m), although certainly reduced by recent sediments and growth, may correspond with this terrace.

CONTEMPORARY REEFS

Shallow Reefs

The shallow-water reefs have arbitrarily been divided into 4 major zones: seaward reef, surface reef (somewhat comparable to a reef flat), back reef, and lagoon reefs. Kure is located in the northeast trade wind belt, giving each reef

[1] Contribution of the Scripps Institution of Oceanography and paper no. 64 of the POBSP. Support provided in part by the Pacific Ocean Biological Survey Program of the Smithsonian Institution and National Science Foundation Grants GB-7596 and GA-1300. Manuscript received June 8, 1970.

[2] Scripps Institution of Oceanography, La Jolla, California 92037.

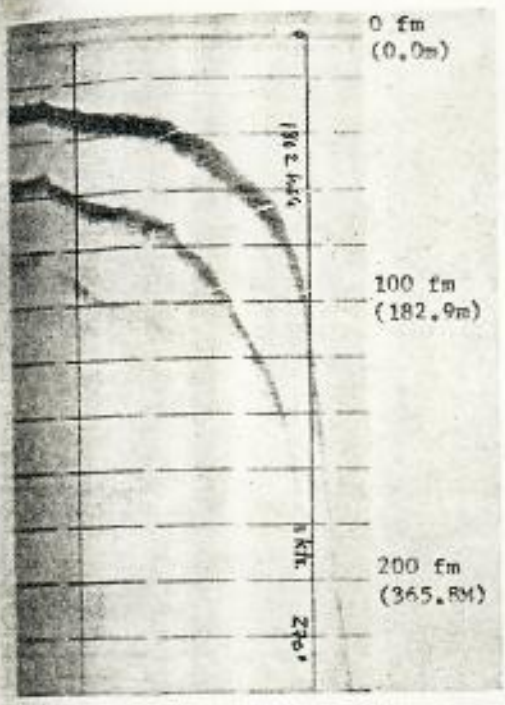


FIG. 1. Profile of the southern flank of Kure. Ship's course was 270° at 11 knots. Depth intervals are 20 fathoms (36.58 m); time lines are 5 minutes. The uppermost trace is the actual profile, the second and third are multiples of the first.

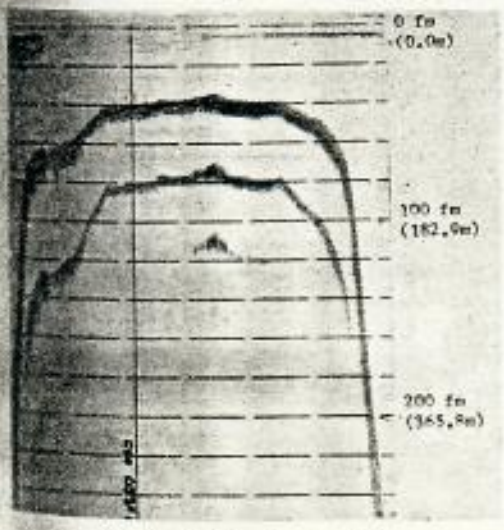


FIG. 2. Profile of Nero Bank. Ship's course was 033° at 11 knots. Depth intervals are 20 fathoms (36.58 m); time lines are 5 minutes. The uppermost trace is the actual profile; the second and third are multiples of the first.

zone a windward and leeward aspect. Each zone has a characteristic coral assemblage (Figs. 3, 4, 5). Observations were all made while skin diving; SCUBA was not available. The distributions and relative abundances of the coral species as well as the reef zone descriptions are a composite summary of numerous nonquantitative surveys. Corals were identified in the field by sight. The identification of a reference collection made by the author from Midway prior to the present field study was checked by Dr. John Wells. During the course of the work, a reference collection was made from Kure. (This collection is presently at Scripps Institution of Oceanography but will be deposited in the United States National Museum).

SEAWARD REEF: The seaward reef extends shoreward from the break in slope at somewhat less than 80 m as a broad terrace to the reef face. The slope is gradual ($< 8°$). On the windward side relief increases until near the reef face the terrace consists of massive buttresses separated by deep, steep-walled channels oriented perpendicular to the trend of the reef face. Immediately before the reef face the bottoms of the channels are 8 to 9 m below the sea surface or at approximately wave base. They deepen gradually to seaward. The tops and sides of the buttresses, away from the immediate face of the reef, are dotted with colonies of *Pocillopora meandrina nobilis* and occasionally *Porites lobata*. The principal

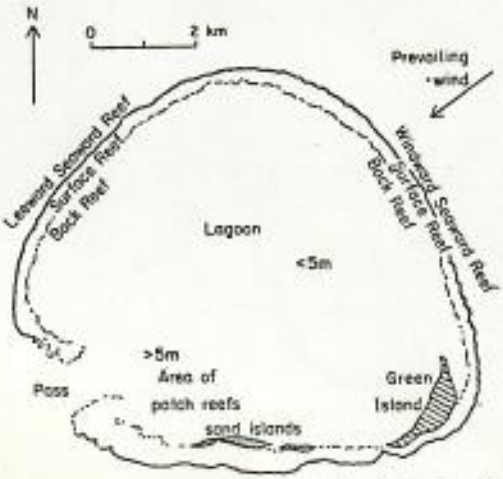


FIG. 3. Plan view of Kure Atoll giving locations of the reef zones. The outline of the atoll was sketched from an aerial photograph (Gross et al., 1969).

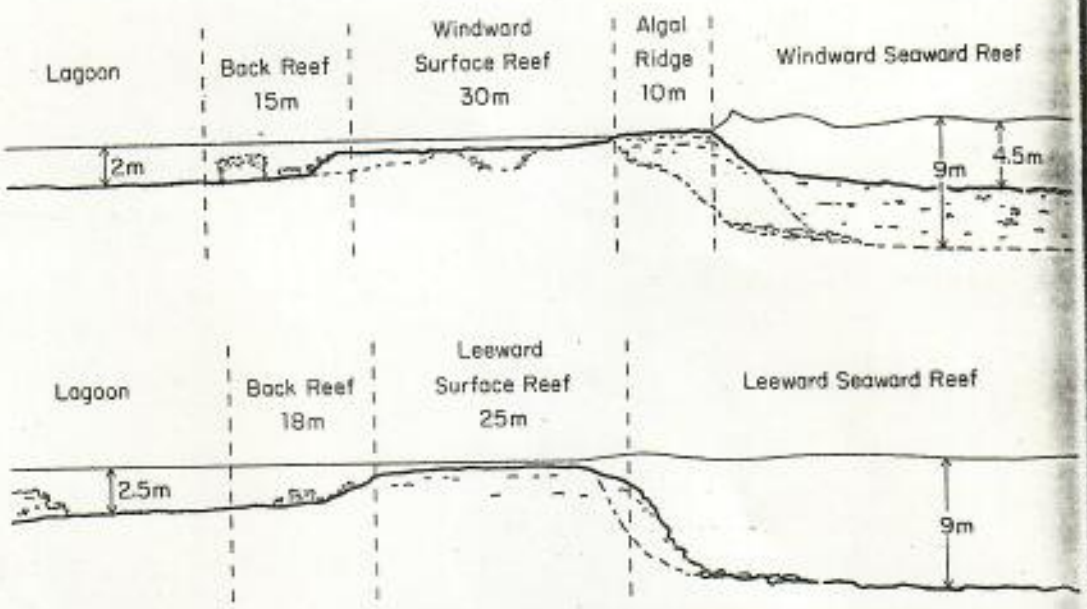


FIG. 4. Cross-sectional view of the various reef zones. These profiles have been generalized from numerous nonquantitative surveys.

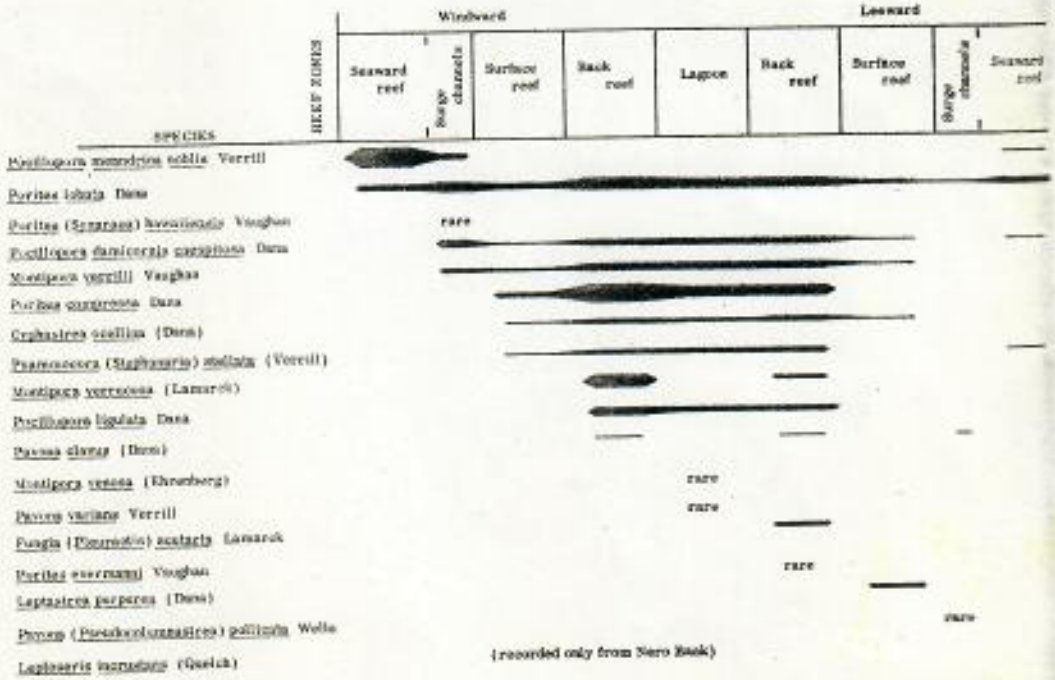


FIG. 5. Relative abundance of each species of hermatypic scleractinian found in each of Kure's reef zones. Abundances are estimates from nonquantitative surveys.

lime-secreting organisms are, however, coralline algae.

The immediate face of the windward reef is highly cavernous, cut by surge channels, and devoid of living coral. The bottoms of the larger and deeper surge channels are cobble filled. Sand fills the bottoms of the channels at depths greater than about 9 m as one progresses away from the face of the reef. At the heads of the surge channels living coral, principally *Porites lobata*, is again encountered.

Proceeding leeward around the atoll, the system of buttresses and channels becomes less coherent and finally disappears almost completely on the western side of the atoll (Fig. 4). Living coral becomes more scarce and the species composition also changes. *Pocillopora meandrina nobilis* loses its position of obvious relative dominance and *Porites lobata* becomes relatively more abundant. The extreme leeward seaward reef has virtually no living coral.

SURFACE REEF: The surface reef is nearly circular surrounding a lagoon some 9 km in diameter. Width of the reef is greatest on the windward side, becoming progressively narrower to leeward with the exception of the portion of the southern sector near the sand islands (Fig. 3). A gap or pass of approximately 1.5 km is present in the southwestern sector. Along the inner part of the northern and northeastern sectors a number of sections of consolidated reef debris stand exposed even during normal high tides. An algal ridge occurs only on the windward side of the atoll and there are no living corals growing on it. The surface reef behind the algal ridge, where the ridge is present, and from the reef's seaward edge where the ridge is not present, is a hard and consolidated reef flat covered by a few centimeters of water during normal low tides. The maximum tidal range at Kure is about 0.64 m.

Numerous small shallow channels and pools are present on the windward surface reef, and it is in these that living corals are generally found. *Porites lobata* is the dominant species. However, channels and pools are generally lacking on the leeward surface reef, and, although nearly all the same species are present, coral growth is concomitantly less profuse.

BACK REEF: The immediate lagoonward face of the surface reef, and the lagoon area immediately adjacent to it (usually some 30 m or less in breadth), comprises the back reef zone. Water depth is usually less than 3 m. An irregular series of ledges and terraces descend from the surface reef to a shallow sand bottom occupied by large heads, mounds, and patches of coral. Important species here are *Montipora verrucosa*, especially abundant in the northeastern sector, and *Porites compressa*, which forms large flat-topped heads up to 2 m in diameter. This zone is the richest, both in terms of the number of species present and the relative amount of area covered by living coral.

LAGOON REEFS: The lagoon is nearly 80 percent sediment-filled to depths less than 5 m (Gross et al., 1969). Deeper water is found in the southwestern corner, lagoonward of the pass. Maximum depth is about 15 m. Patch reefs occur chiefly in the southwestern sector in water depths from 2 to 6 m. The amount of living coral present on these patch reefs is highly variable, but algae and algal-covered dead coral generally predominate. *Pocillopora ligulata* and *Porites lobata* are frequently encountered lagoon species (Fig. 5).

Deep Reefs

Information on the occurrence of living coral at depths greater than 15 m is scanty. Two dredge hauls were taken on the south side of Kure: the first in 15 to 35 m of water, the second in 40 to 60 m. Both hauls brought up abundant soft and coralline algae, a variety of invertebrates, several fish, and calcareous debris. The only living corals obtained were two small colonies of *Pocillopora damicornis caespitosa*, which were found in the shallower haul. Another dredge haul in 77 to 115 m of water on nearby Nero Bank (27°59′N, 177°56′W) brought up actively growing coralline algae in the form of spherical concretions and various invertebrates, including a single species of hermatypic coral, *Leptoseris incrustans*.

With the exception of a single species, reef-building corals at Kure appear to be generally restricted to quite shallow water, and no vertical zonation is readily apparent.

ECOLOGICAL FACTORS

Circulation

Scour, mechanical stress, siltation, turbidity, and food supply are all ecological agents affected by the vigor of circulation. Gradients influencing rates of diffusive exchange are also affected by water movements. Heavy surf, particularly during winter storms, exerts great mechanical stress on the seaward reefs and over the surface reefs, especially on the northern and eastern portions of the atoll. Surf also subjects portions of these reefs to severe scour from sand and cobbles. The shallow, largely sediment-filled lagoon becomes increasingly turbid under moderate wind stress and siltation becomes an important factor. The presence of large ripple marks across the shallow lagoon terrace (Gross et al., 1969) is convincing evidence that the shifting distribution of sand is in good part responsible for the paucity of patch reefs in that area. The predominantly northeast to southwest flow of water across the atoll, fluctuating in intensity with the tidal cycle (spring tidal range on Midway according to Gross et al., 1969, is 0.64 m) and wind conditions, creates an upstream-downstream effect in the transport of zooplankton and dissolved organics and gases. Presumably the species composition of the various reef zones reflects these gradients.

Temperature

A survey of bathythermograph records kept at Scripps Institution indicates that a weak thermocline generally develops in the vicinity of Kure by late summer. The depth and strength of the thermocline appears to be quite variable. When best developed, the thermocline begins at a depth of approximately 34 m, where the temperature is near 28°C, and ends at approximately 80 m, where the temperature is near 20°C (Fig. 6). Depths are normally somewhat shallower and temperatures slightly lower. Winter cooling and mixing result in a nearly uniform temperature structure from the surface to about 80 m.

Monthly mean sea surface temperatures measured on Midway (1943–1963) range from 26.9°C in August to 19.2°C in February, with annual mean of 23.1° C (Gross et al., 1969). Optimal temperature range for vigorous coral growth is between 25°C and 29°C (Vaughan and Wells, 1943)—a criterion met at least in shallow water at Kure for 5 months of the year. The mean for the coldest month of the year must not be below 18.5°C for vigorous growth of hermatypic corals to endure (Vaughan and Wells, 1943). This condition is met at Kure to depths approaching 80 m.

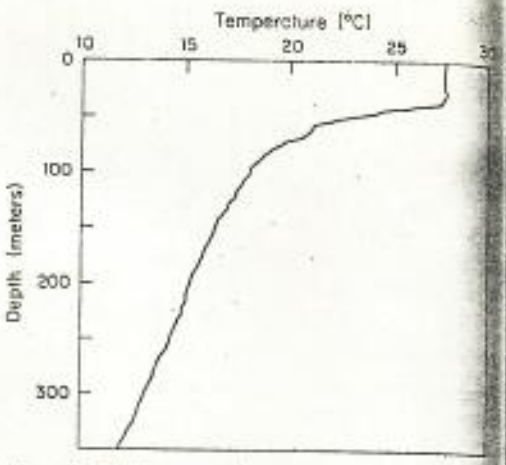


FIG. 6. XBT trace obtained near Kure in early September 1968, showing unusually well-developed thermocline.

All of the hermatypic genera and subgenera found in the more southerly and warmer Hawaiian Islands that are not either extremely rare or of unsubstantiated occurrence (a total of 12) except one, *Madracis*, are also found at Kure. However, the number of species appears to be only about one-half. (Dr. J. W. Wells, personal communication, lists five possible additional species collected by the U.S. Geological Survey from Midway and Kure for which I have no ecological data, bringing the species total there to 23.) The reduction in the number of species may be related to temperature, but also may simply reflect a reduction in island area (MacArthur and Wilson, 1967). By comparison, 33 species in 21 genera and subgenera, including *Acropora*, are listed as occurring in Tateyama-wan (35°10'N) and Enoura-wan (35°05'N), the northernmost localities of reef corals in Japan (Yabe and Sugiyama, 1935). Mean monthly seawater temperatures in those localities fall below 13° C for the coldest month of the year, and coral growth extends to a depth of at least 40 m. However, when all three sub-

faunas of Japan are combined, more than 200 species in 40-plus genera and subgenera are found (Yabe and Sugiyama, 1935). Further, six widespread Indo-Pacific genera, including two not found at Kure (or any of the Hawaiian Islands), occur well beyond the southern extremity of the Great Barrier Reef, where temperature falls to between 12° to 13° C (Wells, 1955). Therefore temperature, while undoubtedly a critical factor limiting the distribution of all hermatypic species, does not presently appear to be the major factor limiting the total species complement nor the depth distribution of corals at Kure.

Time

Dr. J. W. Wells, who is examining the corals obtained in the Midway drillings, states that the present fauna is somewhat attenuated in comparison to that of the Miocene (Ladd et al., 1967). Three hermatypic genera absent from present-day Hawaiian reefs were present in the past (Menard, Allison, and Durham, 1962; Durham, 1964). The occurrence of a fourth, *Acropora*, the coral genus containing the greatest number of species (Wells, 1956), and a conspicuous dominant over large areas of reef throughout the Indo-West-Pacific, is extremely limited today. Dr. Edwin C. Allison (personal communication) now believes these fossil materials reported by Durham to be late Pliocene or early Pleistocene in age. Depauperization of the coral fauna at Kure during the Pleistocene may have been even greater than for the southern major islands. As the southern major Hawaiian Islands are undoubtedly the principal source region for immigrant species traveling up the chain of island stepping stones to Kure, the relative depauperization of the Hawaiian coral fauna is germane to considerations of why there are so few species present at Kure. Occupying an isolated zoogeographical position as they do, the question then is whether conditions in the Hawaiian Islands today are simply unfavorable for many coral species, or whether many species have not as yet been successful in invading or recolonizing these islands, or whether both these factors are operating together.

Larval Transport

As suggested by Vaughan as early as 1907, the factor most likely limiting the present number of coral species found in the Hawaiian Islands is lack of successful larval transport, and, indeed, the attenuation of coral genera from west to east in the Pacific noted by Wells (1954) without a noticeable change in local environmental factors substantiates this contention. No doubt the relative richness of the Japanese fauna is the result of larval influx with the strong Kuroshio Current.

Species-specific laboratory studies on the free-floating period of coral larvae done in Palau by Abe (1937) and Atoda (1947 *a, b;* 1951 *a, b, c*), on the Great Barrier Reef by Stephenson (1931), and in Hawaii by Edmondson (1929) indicate no trend that would lead to generalizations regarding distribution; i.e., those species having the longest laboratory free-floating existence are not necessarily the most widely distributed. The only species studied which is common to both the Hawaiian area and Palau is *Pocillopora damicornis caespitosa*. In Palau, where the temperature was between 26° C and 30° C, all planulae of this species settled within 9 days, with greater than 50 percent in the first 2 days (Atoda, 1947 *a*). In Hawaii, where the temperature was between 24° C and 27° C, settlement took from 3 to 18 days (Edmondson, 1929). As a result of his experiments Edmondson stated that warmer temperatures hasten settlement and attachment. Consequently, larvae transported into, or originating in, cooler waters might be expected to have slightly longer free-floating periods resulting in transport over greater distances. However, as Kawaguti (1944) pointed out, thigmotaxis, phototaxis, geotaxis, and rheotaxis are all involved in the settlement and affixation of coral planulae. Behavior during, as well as the length of, the free-floating period may be an equally important factor governing the distribution of coral species.

The similarity of coral faunas from Hawaii in the northern hemisphere (Vaughan, 1907) and the Marquesas in the southern hemisphere (Crossland, 1927) eastward to the western continental margin of the Americas (Durham, 1966) suggests that only a limited number of

coral genera contain species which are capable of crossing broad oceanic barriers.

SUMMARY

1. A long and complex history has led to the establishment and maintenance of an atoll at 28°25′ north latitude—outside the tropics.

2. The atoll can be divided into four major reef zones, each with a characteristic coral assemblage.

3. The vigor of circulation resulting from wave action and tidal fluctuations is probably the principal macroscopic parameter governing the distribution of corals in shallow water at Kure.

4. Although Kure's temperature regime is undoubtedly suboptimal for many, if not for most, species of hermatypic scleractinians, comparative temperature data suggest that more should be able to survive there than are currently present.

5. A relative inability of the larvae of many coral species to cross deep oceanic barriers, resulting in long time constants for invasion or recolonization of distant areas, may be the major factor presently limiting the number of living species at Kure.

ACKNOWLEDGMENTS

I would like to express my appreciation to Dr. W. A. Newman (SIO) for fruitful and stimulating discussion as well as for a critical reading of the manuscript. I also extend my thanks to Jeff Kaiser and to Douglas Allen of the U.S. Coast Guard without whom effective field observations would have been impossible.

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DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS

20 December 1978

Dear George,

Thanks for the information on the note in the bottle. No one here seems to remember who found it and gave it to you, but I will answer the note with a letter to the Japanese school. I also appreciate all the interesting articles related to life at Kure that you have been sending.

I have another request that I hope you can help us with. Enclosed are some slides that I took last Saturday while diving in the lagoon. I believe that the animal is a sea snake. At first, I thought that it was an eel, but upon closer observation, it looked very different from most all of the eels I've seen here. Its coloring was whitish-yellow with dark brown spots. It moved along the bottom in a wavelike motion and didn't seem to be concerned with us or being exposed on the bottom. I must apologize for poor quality photos, but I'm still learning and experimenting with the Nikonos. One more thing that might help in identification is that there wasn't a Jaw like on most eels. If you can tell me if this is an eel or a snake, please do.

Haven't done too much diving lately because of windy rough and cold weather, but Saturday was beautiful for it. I guess you know about the people from UH that are coming out to study lobsters. They are coming out on Jan 15 for two weeks. I hope to get some diving in with them. Thanks for the use of your tanks, they have come in handy a couple times. Haven't been fishing much either--so no turtle parts have been found since the last ones we sent.

Have a good holiday season and hope to see you out here again soon, Thanks again.

Jim Stark

U. S. COAST GUARD
Commanding Officer
USCG Loran Station Kure Island Hi
c/o USCG Air Station
Barbers Point, Hawaii 96862

OPTIONAL FORM NO. 10
JULY 1973 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

NEW ADDRESS

COMMANDING OFFICER
U.S. COAST GUARD LORAN STATION
FLEET POST OFFICE
SAN FRANCISCO 96619

TO :

DATE: Thursday, 11 Jan 1979

FROM :

SUBJECT:

Dear George,

Just a note to let you know that we saw a large green turtle basking in the sun on Sand Island today. I was really suprised at his size and by the fact that it was on the beach. It was a male about five feet long and probably weighing closeto 300 lbs. I didn't see a tag, but as soon as we approached he head for the water, so he may have been tagged. This was the first I've seen out of the water here at Kure and by far the largest I've seen.

Things are going pretty good here. We expect the lobster study people to arrive Monday. My relief has received his orders, so for me the end is in sight (March 28). Hope this information about the turtle is of some use to you and hope to see you out here before I leave.

Aloha,

Jim Stark

COMMANDING OFFICER
U.S. COAST GUARD LORAN STATION
FLEET POST OFFICE
SAN FRANCISCO 96619

KURE EXPEDITION
1/19/77 – 2/1/77

2/18/77 ID by Paul Jokiel

KURE CORAL SPECIMENS

<u>Montipora</u> sp.  purple — reef inside fringing reef

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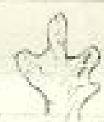
<u>Montipora verrucosa</u>
growing up worm tubes  30'

<u>Psaminocora</u> (<u>Stephonaria</u>) <u>stellata</u>



<u>Pocillopora meandrina</u> 

Pocillopora verrucosa 

<u>Pavona varians</u> 
encrusting

1/19/77 – 2/1/77 KURE

TURTLE TAGGINGS

DATE	TAG NOS.	straight	CURVED	OBSERVATIONS
① 1/21/77	2083, 2084	23 3/8 x 18 1/2	25 x 23	Generally dark shell; polysiphonia neck; hind flipper area; split postocculars on one side; captured in hole/under ledge near S point.
② 1/22 (caught by windsock 4/10/77 under coral ledge see form)	2085, 2086	15 7/8 x 12 7/8	17 x 15 1/8	polysiphonia, ends of both front flippers (caught by windsock) show necrosis, bone showing, looks pathological; shell somewhat gold-sun burst
③ 1/23 (Recovered 1/31/79, 2091 missing)	2089, 2091F	18 1/8 x 14 1/8	19 1/4 x 16 3/4	caught 1st deep area from S point; dark shell – Polysiphonia; Tissue sample taken. Tar in mouth?
④ 1/23	2087, 2088F	20 1/4 x 16 1/2	21 3/4 x 20 3/8	very dark shell (photo roll 1) ~95% black pigment; captured S point, E side; polysiphonia; tissue sample taken. Tar in mouth?
⑤ 1/23	2090, 2092F	17 x 14	17 7/8 x 16 1/4	Gold shell, captured S-point E side, polysiphonia, tissue from hind limb. Tar in Mouth?
⑥ 1/23	2093, 2094	17 1/2 x 14 1/8	18 1/2 x 16 7/8	caught S point, E side; Gold shell, ends of both front limbs, show necrosis like 1/22 turtle. photos roll 1. Tar in mouth?
⑦ 1/27	2095 LFL	s 11 5/8 x 10 1/4	c 12 1/4 x 12	Pink coralline alga on carapace; section of right post central missing; captured at diving location #6 (on chart) 0'– deep hole – captured at beginning of dive swimming slowly in ~ 10-15' water in crevice of porites coral. showed no

Date	Tag Nos.	straight	curved	Observations
7/27 cont.				Fair peasy to capture. Photos of head by Mark underwater - also with me holding - underwater and in boat. Very clean shell and skin.
(8) 7/28	2096 RFL; 2097 FL	17⅛ x 13⅝	18¼ x 16⅝	Scoop netted at Spoint at SUNSET close to shore, tentacle of man-o-war hanging from mouth; Carapace nearly all dark with algal growth and imbedded sand. Polysiphonia all over skin. South wind (moderate) blowing. 7/8th and 11th marginal right have indentations.
(9) 7/28	2098; 2099	19⅜ x 15⅞	20¾ x 18⅞	Scoop netted, at sunset at Spoint (same as above) close to shore, tentacle of man-o-war hanging from mouth. Mostly dark cabbage with algal growth and imbedded sage; Polysiphonia all over skin. Right hind limb has injury as — healed completely
(10) 7/30	2100, 2101 F	S 22½ x 18⅛	C 24 x 22⅛	Scooped netted as sun setting at Spoint; Not apparent that it was feeding on man-o-war; feeding on bottom? Mostly all dark carapace; Polysiphonia
(11) 2102 add tag 7/30	2103; 2104 F	S 16⅜ x 12⅞	C 17⅜ x 15¼	Scooped by Mark - same as 2100, very

TAG NO.

1/30 cont. active, bitter, Mostly dark carapace; Straight Curved Polysiphonia

(12) 1/30 2105; 2106F 18⅛ x 14⅝ 19⅛ x 16⅜
Scoop netted at 5 point; all same as above;
Mostly dark carpace, but some gold rays;
Polysiphonia

KURE 1/19/77 - 2/1/77

TURTLE SIGHTINGS

DATE	LOCATION	est. Number/size	Comments
1/19/77	Along E side of Island	5 (4-juvenile, 1 subadult)	floating on matter? feeding
1/20	South Point	5-6 some very small	feeding?
1/21	S Point/E side	1 - 23 3/8" caught 2 smaller seen	
1/22 SAT.	E-side	1 small caught No others seen	
1/22	S-Point	6-7 seen in close	sunset and after
1/23 SUN	S-point	3-4 in close at 0830 - ~0915	
1/23	S point	only one, far out, at 5:30 PM	
1/24	S point	only one small 9:00 AM	
1/24	1st hole from S point	one swimming ~3 PM	
1/24	S point, along E side	three juvenile	one seen eating "codium" like
1/24	N point end	NONE seen, however, numerous shelters	
1/25	S Point	morning afternoon 4-5 in close	really rough
1/25	E side by Doc's shack	3-4 just at sunset	
1/25	S Point	very rough - 3-4 feeding just at sunset	
1/25	E side from S point	walked with light along beach - No turtles seen (after sunset - dark)	
1/26	E side by Doc's shack	1 juvenile on reef flat	
1/26	S Point	Several visits during day - only one ever seen	
1/27	S Point 8:30 9:30 - 10:30 - morning -	looked and dove - nothing	
1/28	S point late afternoon/sunset	- 3-4 turtles actively feeding on man-o-war	
1/28	Dive area #7	1 from boat - 1 underwater - maybe same two - 18" estimate (?)	
1/29	By Pier - West side	Report of one juvenile seen	
1/30	1/2 way to dump on N side on coral patch - one juvenile about 3 PM - 5W wind NW		
1/30	S point - late afternoon	3-4-5 (?) juveniles	
1/31	S point in morning - no sightings		

116 1/19/77 - 2/1/77 KURE

DIVE LOG

DATE	LOCATION	ACTIVITY / COMMENTS
1/20/77	"Trench" - loc. #1 on chart	General survey of area, algae mostly sand/sediment bottom eggplant - samples taken; one large coral head with many lobster - 1 cylinder of air. Doc, Jerry + 2
1/21/77	Free Dive - S point to Beach Shack across runway from LORAN	only several "holes"
1/22	to past wind sock	numerous "holes" present
1/23	S-point and 1st deep area	1 SCUBA each, - many holes
1/24	S-point and 1st hole	1 partial SCUBA each "shelter"
1/24	Towards N-Point	many shelters - No turtles - Turbinaria simple
1/26	Hole "one" / reef edge area	Tuba - Skin Dive 2 20 minutes - no turtles seen
1/27	South Point, 20 min	SCUBA 10:30 AM out along reef edge no turtles
1/27	Location #5 on chart	1 SCUBA - Mark and me - No turtles algae -
1/27	location #6 on chart	1 SCUBA - Mark, Jeff, and me - many fish - POrites -
1/28	location #7 on chart (only probable)	Mark, Jerry, Jeff: 1 SCUBA each afternoon - 4:30 PM
1/29 Photos	location #8 on chart (end of hole)	Mark, me, Jerry 1 SCUBA each - 2 PM Porites and fish. - "Bob's in boat"
1/29	location #9 on chart (sand ISL forms during summer)	same people 1 SCUBA each Porites and fish

Debris Locations

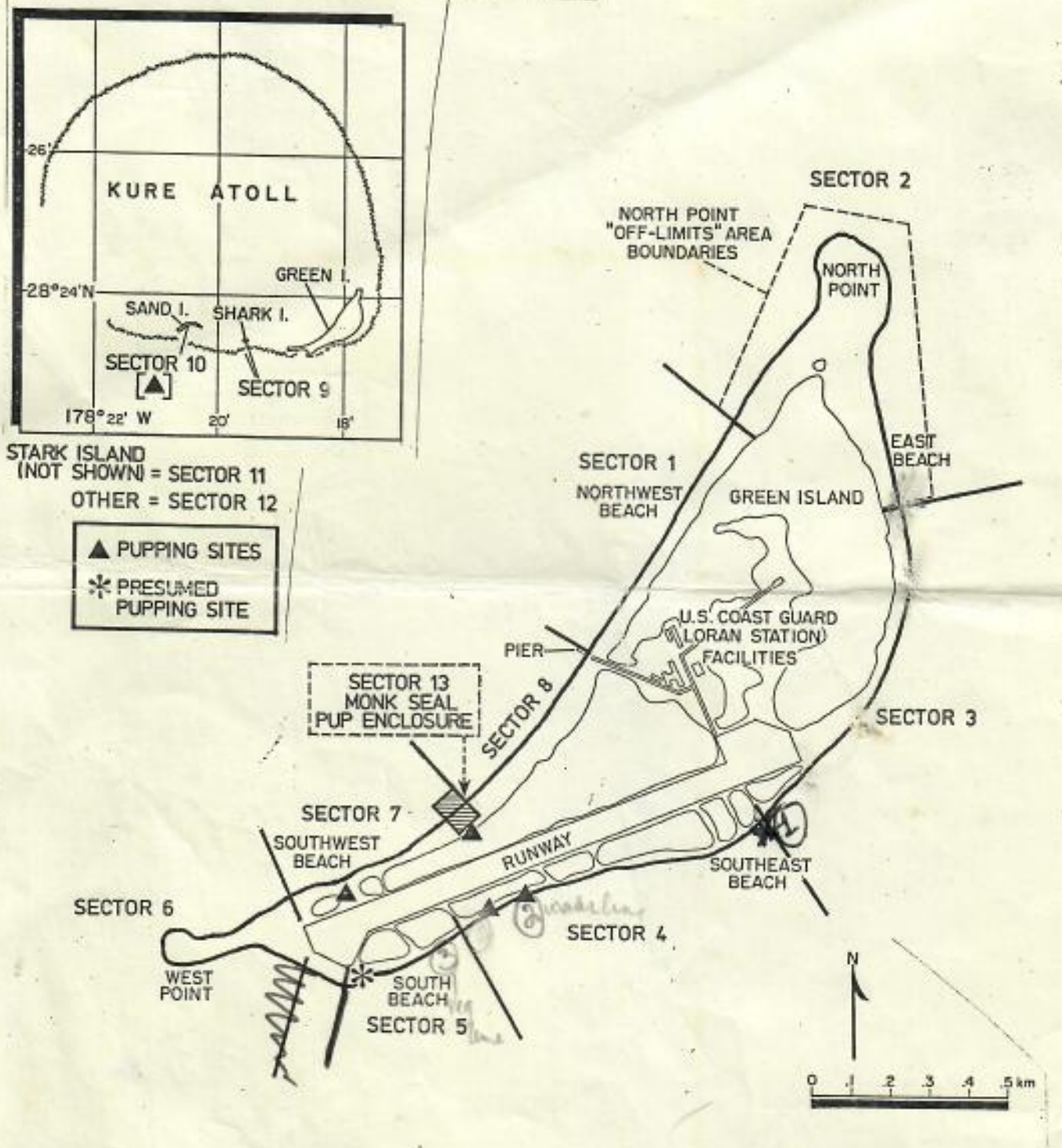


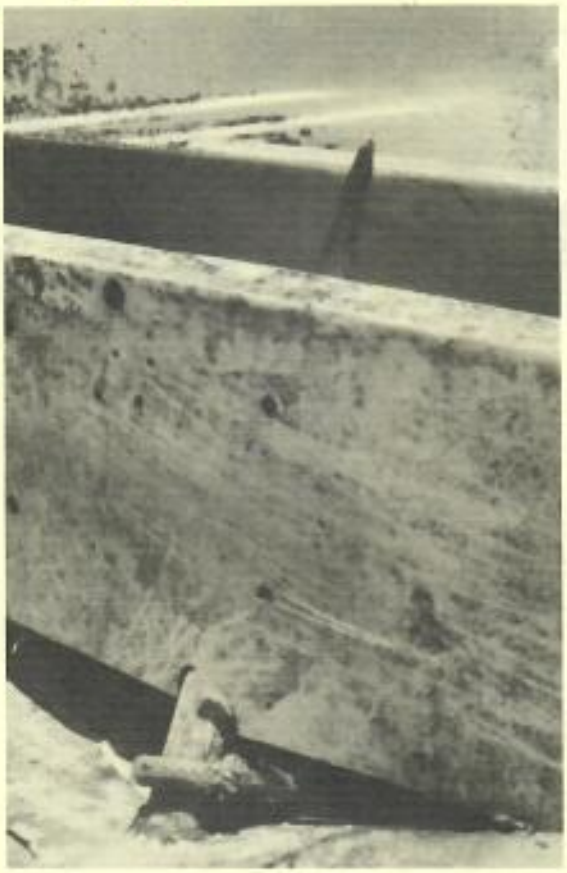
Figure 2.--Kure Atoll and Green Island, showing the Hawaiian monk seal enclosure site, off-limits area, sector division, and 1987 pupping sites.

KURE -

During the first week of December 1980, Bill Gilmartin observed evidence of nesting ~100-200 yards from the south end of the railroad - along the east side. Evidence of dead vegetation.

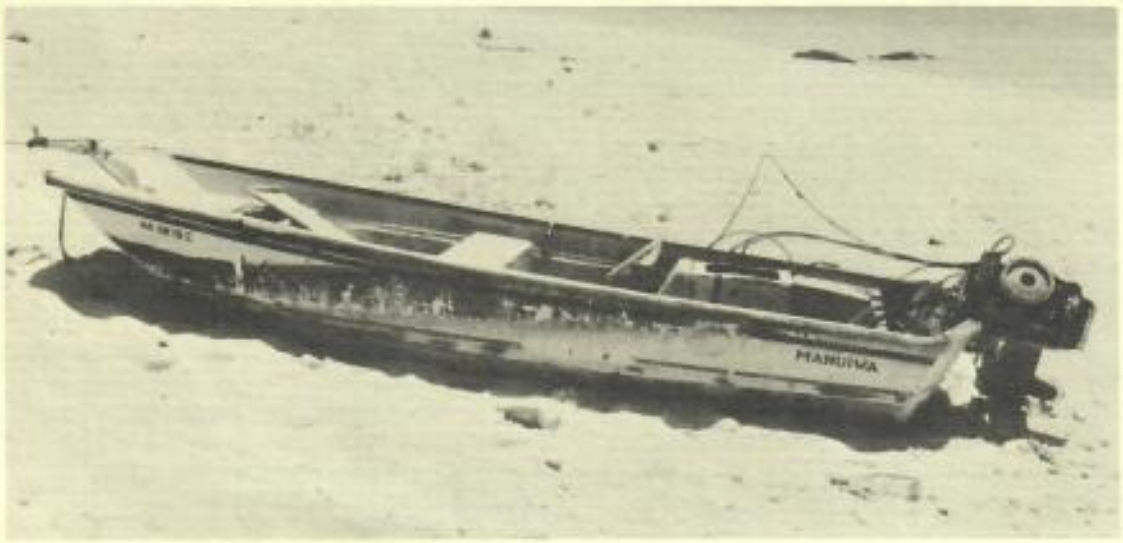
Waikiki Aquarium FEB 85

Fish Sinks Boat



Scientists still do not know the function of the long sword-like bill of billfishes and swordfishes. Some speculate it may be used in feeding by lashing it back and forth and stunning schooling fish. Others suggest that the sword might be used as a defensive weapon. The deep submersible "Alvin" was "attacked" by a swordfish in very deep water while on a research dive.

Recently Aquarium scientist, Reid Withrow, came upon this castaway Boston Whaler which had washed ashore on Green Island, Kure Atoll. The skiff was lost near Oahu and, during its drift to the northwest, was speared by a marlin, right through the seat. Fortunately, no one was in the boat at the time. Nobody knows the motive for this attack or the fate of the noseless fish. ●



Michelle Reddy | USCG LORSTA Kure Atoll, Hi

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LORAN STA. FPO SAN FRAN

George Balazs

NMFS
PO BOX 3830
Honolulu, Hawaii
96812

Photos - do not bend please!

careful!
Photos enclosed

March 6, 1985

George ——,

Here are some pictures of the turtle that we've been seeing quite alot of on the island recently. It does not have a long, pointed tail, does that mean it is a female? Is she laying eggs? We've seen her at south point, north point, & out on sand island. She seems to be quite large - 3½ to 4 ft. from nose to tail.

Aloha,
Michelle

turtle on sand island
2-23-85
Kure atoll - no tags
short, stubby tail

A Reddy