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GEORGE H. BALAZS

P. I. PROJECT

AND

1973
1978

ENEWETAK PROJECT
1976

HIMB - G. H. BALAZS

LIBRARY OF
GEORGE H. BALAZS

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REWARD

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FIRE PROTECTION ENGINEER

DEPARTMENT OF THE AIR FORCE
SPACE AND MISSILE SYSTEMS ORGANIZATION
LOS ANGELES, CALIFORNIA 90045

Photographs
**BEAVER
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REPRESENTATIVE



**NO. 1130
COMPOSITION BOOK**

FAINT RULED WITH MARGIN

120 PAGES • 9½ x 7½ IN.

No. 1130-P Has Numbered Pages

S. E. & M. VERNON CO., ELIZABETH, N.J. 07208
DIV. OF THE MEAD CORPORATION

CANTON Island - 13-20 FEB 1973 . . . pages 27
Phoenix Islands - 29-31 JAN 1978 . . . pages 35-48

ENEWETAK - 12-20 October 1976 pages 52-73

Fred Liebert

Global Assoc. Box 142

APO SF 96401

Rick Nepomuceno

KenTron - Hawaii Ltd

Box 1156

APO SF 96401

NM - international and U.S. unit equal to 1,852M or 6,076F.

SM - 5,280F or 1,609M.

1SM = 0.8689 NM

1NM = 1.1507 SM

1NM = 1.852 Km

Coenobita - perlatus - ^{Land} Hermit Crab

Turbo

Cardisoma - Land Crab

Ocyropsis ceratophthalmus

Blacktip shark

Carcharhinus melanopterus

Day 1

2-13-73 0745 Capital DC-8 for Canton from Hickam -
 few passengers - partly cloudy. Foreward compartment
 freight. Scheduled Tuesdays to PAGO PAGO via Canton and
 return same day to Honolulu.

Reviewed charts enroute. Previous information
 indicates Canton Is. to have nesting on NW side
 (HO 5740-5741) from jet runway to Pyramid Pt
 5739 shows Enderbury to have nesting on both
 East and West sides. Stakes put in mentioned
 sites on ~ Nov. 21, 1972 total ~ 50+. Korean
 fish boat on reef NW side of Sydney Is. N end
 of Hull Is. has Palma 40-60' with Korean fish
 boat on reef. Kenton has 2 men at this point
 to operate radar station. Turtle nesting E-NE
 point. Birnie reported to be covered with
 birds - agreement with British restricts landing.
 Korean fish boat on reef on East side of
Enderbury.

H.O. 80 indicates turtles on Enderbury, Sydney
 and Hull Is. - However - McKean and Gardner missing.

Check on military Regulation (215) ^{wrong} OI-AE
 concerning water activity and off limits.

Kenton - Sam Butler ^{note} chief (manager)
 Jerry Persinger and Ed Bain stationed on Hull.

Steve Spurlin - many years on Canton
 Address: 576 ULUMANU, Kailua 261-0989

ask Col. Deem about ecology file on P.I. at facility.

Decent to Canton 11:05 AM - arrive
in 30 minutes.

" I further certify that I will abide by all
established rules and regulations made known to me
during my tenure at the Space and Missile Test
Center " Santee Form 164 Feb 71

Landed 10:25 85°F Briefing →

Kentron Personnel
Letter personal only -

NO spear guns. Pictures taken anywhere
except rental vehicles. No provoking fights

Canton, Enderbury, Bernie, Hull - no
disturb Sea Turtles or Birds.

No Pets outside Canton.

Swimming only in shark protected area.

Skin or Scuba only under supervision of
Canton dive club.

Bill of assignment - KENTRON ^{ITT} FEC Global

checked into "Hotel" 588 - told to see Col. Deem
after lunch (1:30 PM). Checked out town, lagoon,
and back to air. 1:30 met Col. discussed
study - met Sgt. Schrader, Lem Bittler. Rich will
assist me and I can ride to "A" site
tomorrow 7 AM. Feb 12 a 36M Korean fish
boat went on reef on Enderbury beside

(4 miles) from 27M1 ^{fishing vessel} which went on 6 months ago. New vessel has 40T fish and 120T fuel. Forward tank leaking. 23 crew members. Three men here from Fiji to try and salvage.

Two large tanks with sand noted in town, where is sand coming from? Noted hermit crabs, periwinkles - NE wind? - small fish in lagoon with black pectoral fins and yellowish tail.

P.M. Visit Col. sea water pond - 6 baby greens, one dead, appear hungry. Also one large trigger fish. Told that only turtles found on road inland are brought to Col. Algae on back. Told they are 3 weeks old (?).

Walked to Pass. Noted large red hermit crabs, flies, Bee, Butterfly, ants, Ghost crabs on lagoon side (many). Steel tank of "Poison Spray Mix" Told that Turtle and Bird Reg. have been in effect 2 years. ^{III} F.E. on Hull and Enderbury.

24 hour light reported at A-site, Airport, Hull and Enderbury. observed at Harbor. Reported 10 airforce personnel in total. Heard substantiated report of entire nest of eggs being dug up. No reason given. - Food is excellent in Mess -

All radar sites (many) are reported to be fenced. also reported all trash brought back from outer islands.

Evening - Higher up of Kentron: "Bud

1967-68 British side evacuated. Ships, planes to stay clear because of Polio epidemic" so said cablegrams. Stamps left in P.O., cars in middle of street. Medical supplies left in place. an abandoned city.

Direct charters by Santes (7-141?) up until a few years ago. Now MAC.

Kentron involved for 2 1/2 years now?

Dogs found that drank brackish water and fished lagoons. Copra plantation on Hull. Sprouted coconuts taken from them for transplantation here 2 months ago. They seem to be growing and doing well.

May have been a study on birds by someone from UH in past few years.

Seal on Johnson - Pet - Male came up on beach frequently. Not bothered by humans.

Wed 14-73

Day 2

Set off at 0745 by 2 men, going to site A, on NE shore. Blk. mask birds - black pond - observed pits (old), photographed - sand rack turned to steep rubble -

9:00 AM

Entered sand beach with flat vegetation top. old pits all along way. Small black tip shark seen inside Surf. Log on beach (NE tower ^{on pole})

with many hermit crabs on end. photographed.

old
info

- Reported coconut crabs on Hull-

- Birnie gentle slope offshore as seen from Clapper-

Encountered one set of tracks and glass balls.
Tracks measured 36 inches at widest point. May have
been as old as 1 week. Found Col. Hines stakes
just outside of 2 concrete bunkers. Left sand
to encounter heavy rubble - no sign of pits
until sand beach at site A was ~~again~~ reached.

Distances from trucks speedometer -

Site A to	miles
2 Bunkers - beach side	1.35
Pole (Tower)?	2.30
Pond (beach side beginning airport)	3.15
beach house	5.65
NASA	6.65

These
don't
all check
out with
chart.

Big turtles in lagoon and pass outside -
Scuba dives claims no small ones seen (25/13)
Leo will take me for sail into Lagoon.

Reported that SAMTEC came in 1970
and that British left in 1967-68. Also
that National Geo put out a story on
the NASA facility in the early 60's.

Two confirmed sightings of tracks on Sydney Is. today, NW
shore (reference head man FEC)

Sail canceled. Truck to beach house tonight.
Nest and track immediately in front of beach house - Nest dug up? - Sunny (Ricardo)

did not see animal lay eggs. states that animal was returning to water when he saw it.

at Beach house about 8 PM - walked along fine sand beach ~ 1 mile N site side. Veg table top after smooth slope, except for last ~ 200 yard where it is sand cliff like. Counted min. 14 tracks which were not more than max. 1 week old.

I measured - 36" and 38". Drove to A site. By this time tide has gone out considerably. Returned at 10:30.

Literally herds of ghost crab at beach surf line. - Tide going out, enroute saw rats, foxes, Herm. TUPA. every day.

Thursday
2-15-73
DAY 3

- Enderbury - Bill Howard - FEC
- Bud Villander - ^{older fellow w/ interest in conservation} Kenton administrator - Range rat
- Art Lehman > FEC A site
- Vic Strongreen

Tracks seen 2-14-73 on Enderbury near ship wrecks.

Earl Stewart - ^{every day} pilot B

Will see ecology film Friday (2-16-73) night 8:40

7:30 - truck ride to ^(1 mile past end of runway) ~~beach~~ ^{bunker ruins} on lagoon side.

Followed beach toward airstrip - all rubble - found perfect molt (?) of 7-11 crab.

Photographed bunker on rubble beach. Just past 3rd bunker (2nd one in pieces) see sloping sand beach. Beach has rubble mixed with sand and a heavy rubble top.

This extends beginning of Runway. Beach is still sand but with much less rubble - 6 old pits observed at beginning of this section. after approx. 1000ft the beach turns to gravel and 3 pit marks were found + 1 path. Highly

unlikely that animals completed a successful nesting. After ~700 feet area of steep gravel dike is encountered followed by gravel beach no dike followed by ~~steep~~ dike w/ junk landfill! apparently heavy surf hits end of runway at times! No fighter planes seen. I walked around end of taxi strip and saw $\frac{2}{3}$ destroyed chopper from fire last night.

* Must remember to take night photographs of lights.

May go to south side with Leo Sunday or Moss.

* Beaver Dredging representative > to send
and Earl Steward photographs

Story told by Bill Howard about Samoan on Venderby dragging turtle off apparently for eating. Several people had to be called to convince him not to molest animals.

16 Brass coming 2-16 AM about five - I will have to move.

* Photographs from head man of FEC.

Nest by beach house substantiated as being dug up by someone.

Removed that \$5.00 a piece can be obtained in Honolulu for the eggs.

Visited with Col. Deers - he indicated that agreement with British included all regards - also that no British inspecting had been here to his knowledge. offered complete use of Ecology file, absent issue of specific regulation which protects wildlife.

Korean fishing boat was bottom fishing close in to reef - why not make them keep x miles offshore - "Enforce it with what?"

at 4:30 took a hobie ride $\frac{1}{2}$ way across lagoon. water extremely warm and turbid - tide had just come up. No turtles were seen.

Dinner talked with 2 frequent Suiho divers - all turtles seen look like the same kind. also, generally, smaller ones 15-50lb seem to be in lagoon although large ones can be found both in and out.

~ one year ago woman pilot landed and
yacht with father/son docked. she stayed
3 hours at airport area and they stayed
2-3 days were escorted everywhere they
went off boat - mostly to med.

Inabled to spend night at beach house
this P.M. due to heavy rain.

Talked with fellow who used to be
at Emmetok, knows Helfrich, etc. all
these contractors usually hire retired
military (political).

Rained and strong W wind all night -
soaked bunks, etc.

2-16-73

Friday

DAY 04

Still rain 0800 - not near as much wind

Ecology file

Candidate Environmental Statement use
of Canton Island Area
by Space and Missile Systems
Organization Air Force Systems Command
9 June 1972

Prepared by SAMTEC SAMSO

FK Members

1965 - FAA Terminal air flight service

M 3

environmental impact considered to be negligible" "No sig. det. impact"
 C. 1660 NM SW HONO

610 on Hull resettled to Solomons
 in mid-1960s.

Last scheduled airline stop 1959

SAMTEC 18 Sept 1970

Airforce Samoan security 1968 fall

ornithologist MR. Roger Clapp
 selected locations to minimize
 bird disturbance.

Room E-601
 Bird Section
 NM of NH
 Wash. 20560

3670 N from Vand

350-400 support

2 600gph

2 63,000 storage

"Most of the noise generated in support
 of SAMTEC activities on Carter Is
 will have little or no consequence
 on the environment"

"In summary, noise will not create any
 significant adverse environmental effects"

"Yearly inspection by environmental survey
 teams will assure that no further
 degradation of their land biota occurs"

during airforce tenancy".

|| provides critical data inputs to the integrated war planning effort ||

attendees

Joint US/UK Ad Hoc Committee
meeting (10-14 NOV 1970)

MR. David Spott

U.K. Co-Chairman

Foreign and Commonwealth Office

Sir John Field

Resident Commissioner

Gilbert & Ellie Is. Colony

P.I. Briefing NAs Jan 25, 1971

Dr. N. Philip Asmole

Peabody Museum of Natural History

Yale University

New Haven, Conn 06520.

Mr. Thomas Kimball

National Wildlife Federation

1412 - 16th Street N.W.

Wash. 20036

Dr. John W. Aldrich
 B 5FW
 Room 601-ENM
 DI
 Wash, D.C.

Dr. F. Raymond Fosberg - site visit April 1971
 Special Advisor, Tropical Biology
 Office of Director,
 Museum of Natural History
 Wash 20560

Dr. John Milton
 Deputy Director of International Programs
 The Conservation Foundation
 1717 Massachusetts Ave N.W.
 Washington, D.C. 20036

D. of the A.F.
 Headquarters Space and Missile Test Center AFSC
 Vandenberg Air Force Base, Calif 93437
 Louis L. Wilson Jr. -> now TIG
 Major General
 Policy governing Ecology of the P.I.
 OH-1 Regulation 126-1 5 March 1971

Forest E. Blair, Major
 Base Commander

OL-1 Reg 127-1 27 Aug 1971

Off Limits Areas

Proc. Haw. Ent. Soc.

Vol XI No. 3 August 1943

The Insects of Canton Island

R.H. Van Zwaluwenburg

Pac. Islands Year Book p78-79

(Sydney 18th ed Jan 1968)

Canton and Enderbury

atoll Research Bull.

NO 41

Canton Island, S.P.

by Otto DeGeren and Edwin Gillispy

The Pacific Science Board

NAS

NRC

Wash DC.

Aug 15, 1955

ARB NO. 42

The Insects and certain other
arthropods of Canton Is.

by R.H. Van Zwaluwenburg

Aug 15, 1955

ARB NO. 43
 Natural vegetation of Canton Is. an
 equatorial Pacific atoll
 by W. H. Hatheway
 Aug. 15, 1955

ARB
 NO. 64
 Canton Is. SP
 (Resurvey of 1958)

by
 Otto Degener and Elsa Degener
 May 15, 1959

Dawson, E. Y. Some marine
 algae from Canton atoll.
 ARB 65: 1-6 1959

- * Dead turtle - take stomach sample.
- * Dead hatchling - save

- Blastis in Lagoon 46 K SIN Jan 72

- File of the Pacific Scientific INFO Center
 Bishop Museum, Hono

- Insecticides

Commander: Meeting 30 Jun 1972 -

USAF Environmental Health Lab.

Kelly AFB 78241

Trip 29 May 7 Jun 1972

Capt. Richard A. Callahan Phd

USAF
MR. Paul Gohiel

Purpose - a assess water quality -
cutting passage.

b control termites

c. control flies

U.S. Guano Act of 1856

(6) Very little is known about the
marine environment of C.I. (Page 3)

2 (Page 9) 46K explosives

a The concussive forces of the
explosions have killed moderate numbers
of fish and sea turtles in the lagoon.
Dead animals must be collected after
each detonation to avoid odors. Losses of
sea turtles are especially unfortunate.

These species are not adapted
to losing reproductive adult animals
in numbers. Sea turtles are endangered
species and cannot afford these losses.
The animals that wash to the beach

Blasting

are probably a small percentage of those killed.

Nitrogenous compounds introduced....

Recommend dredging of coral heads be substituted for blasting whenever feasible.

- base line survey needed -

Presidential Executive Order,
International Agreement with Great
Britain and AFR 19-1 concerning
protection and enhancement of the
environment.

DEC 15, 1954
+ Pac Canton Island by R. C. Murphy 78pp
R. J. Niedrach and A. M. Bailey,
DU 790.9 Denver Museum Pictorial J NO 10
C3MB Bishop M. - Edwin H. Bryan, Manager

American Polynesia and the Hawaiian Chain,
1942 pp 45-48 by E. H. Bryan

ARB 23 (Fosberg 53) 41 (Degener 55)
 42 (V. Zwal. 55) 43 (Hathaway 55)
 64 (Degener 59) 65 (Dawson 59)

SAMSO Suppl AFR 161-22
 Environmental Assessments
 "The basic environmental factors to be considered are changes in surroundings which affect man, land use, wildlife, plants, fish or marine life"

SAMSO Information officer

Minutes of Briefing -

"Resid. permanent on Canton - other install. will be visited by helicopter at an expected rate of 40 x per year by 3-man crews."

* HEMB ? Put out phanget of turtles
 * release any turtles to outside

[May 13, 1971]

Subject: Enderbury Island
Biological Survey

+ Letter from Roger -
Judging from reports received from radar
techs as well as my own observation of
fresh diggings along the west beach there
would appear to have been considerable
recent breeding activity. The 2 incidents
in which hatchlings were drawn to tower
spotlights (1 on Canton 1 on Enderbury) indicate
that the procedure used by radar techs
(that is shutting off the spotlights as well as
returning the young to the water) might well be
incorporated as part of operating procedure.
The west beach seems to be the
primary breeding ground on Enderbury and
other nests probably also occur close
to the Canton sites. Thus if these
turtles are seasonal breeders, a
negligently run operation could
easily cause great mortality in
any year's total hatch.

Burt, C.E. and M.D. Burt
1932

+

Herpetological results of the
Whitney South Sea Expedition, VI

PH 1
A4

American Museum of
Natural History Bull 63 art 5

Schultz, L.R.

1943. Fishes of the Phoenix
and Samoan Islands collected
in 1939 during the expedition of the
U.S.S. Bushnell. U.S. Nat. Mus.
Bull. 180: 316 pp

Leo Johnson -

+

History of Canton Island

"For internal use only, not for pub."

prepared by Mr. Robt. D. Bickett, Historian
Hq Space and Missile Test Center
11, Jan 1971

26 April 71

Memo for the Record -

Subject: Phoenix Is. Ecology Survey

Capt. Dixon and Capt. Lewis

trip to Canton above 12-18 April 1971

LEON

FEC MANAGER

2-16-73

Day 4

4.19 inches 7 PM 7 AM

Spent morning going through Col's material.

P.M. Walked along west beach from town toward pass to first point. Gentle sloping sand/small rock to very hard rock/rubble top.

6:00 PM - board & drove to beach house - saw turtle inside surf - high tide -

Arrived at beach house ~ 10:15 with 5 local going lobster-crab hunting on reef because of low tide. Immediately spotted tracks 100 yards A site side of house. Turtle on veg. flat - appar. just finished depositing eggs. - one other $\frac{1}{2}$ pit unexc. Observed covering ①. Kneading sand step ② Light spiky sand front flippers

③ Heavy front flipper action. Photos both color and blk. & white. Tags 318 and 319 put on after Jan. only 319 worked. Animal slowly pulled self to water edge. Midnight. measured $39\frac{1}{2}$ " CL straight.

Men came - observed - no say to much (?) left. Had big lobster - small crabs. Turtle pulled $\frac{1}{2}$ way to reef - in situ - apparently for tide. (notable to see her at 2:00 AM) Turtle 2 spotted 12:30 AM little farther down beach. (A site)

Many (4-5) $\frac{1}{2}$ dug nests. Apparently sand not proper texture. Broken hole ^{algae on shell} - dorsal area.

Left animal alone - will return later. Walked past NASA on beach - no sign of tracks - beach tunnel intermixed with coral/pack. only saw evidence of 2 or 3 old pits. Returned to other nesting animal. She was working on new pit. Laid on beach fell asleep - woke up at 3:00 AM. animal started to move off - abandoned pit again. I gave up and went to bedroll in beach house. Awoke at 9:00 to check animal - gone. Paced off over 400 yards of tracks and 7 apparently abandoned nests. Don't think she ever laid.

No Barnacles
seen on animals

Day 5
2-17-73

Took photographs of area - at 10:15 AM
head electrician and dog pulled up for
short time. I walked past NASA and
he picked me up ~11:15 AM on return
from A-site.

* Precautions

Don't dig up - or even check eggs.

Don't walk on site.

Lights

Saw Ecology Movie last night put out
by airforce - "A Legacy to Preserve"
Runs about 15-20 minutes color.
Birds and Turtles.

Report of turtles swimming off runway
immediately across from terminal to
From FID memo

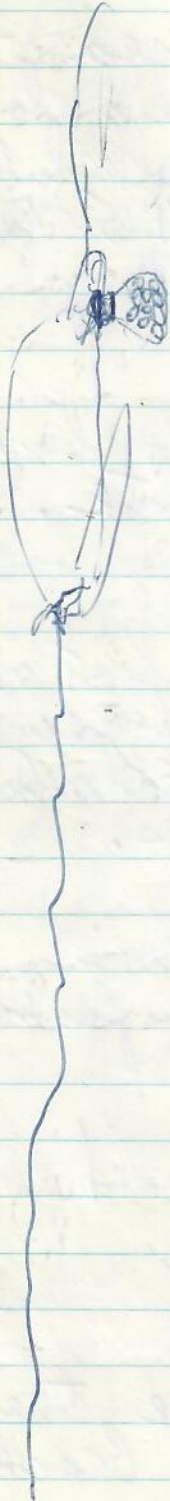
① AFCO

② Systems command

③ 7 commands

Sandy McKenna
Direct of Civil Eng.

PM - Watched first movie then went with
Lep and Mike to beach shack -
walked beach - no new signs.
Drove to generator houses - walked
beach - rechecked old pits - drove



P. 11 B. 1

out past A-site to beach on SW side - walked beach which is not near as sloped - some intermixed rubble - larger beach plants/vegetation than other sites. Area littered with clam shells. Many apparent pits - some up behind plants. Some evidence of recent tracks. Drove on to British side - herring crabs all over road. Returned - double checked beach shack before coming to town.

Day 6
2-18-73

Got up 9 AM - went to pier - current in pass treacherous. Saw turtle off wharf - to far off to identify.

1:00 PM Leo ^{car} motored me to British side - took photographs walked to British residence, met Ted Hill - FEC and photographer. Took ^{w/ Leon Burdick} footage for AF ecology flick. Fred Liebert Global Associates, saw truck on Gardiner ^{Room House} 526 - South shore - This area is sard.

Federal Electric - crew cut - Ron E. attorney
R.W. Birch

9:00 AM Went with Ted Hill to beach shack beach and A-site beach was shown new section of A-site beach with many old pits. Saw distance light from ship.

Earlier info indicates that 2 people have seen turtles with ridge or ridges on shell. In at 11:30 AM.

DAY 7
2-19-73

Took small boat to British side at 10:15 AM.

Explored town, took BW and Color pictures.

* "Life and Death in a Sea of Coral" by Jacques-Yves Cousteau
Double Day 1971
Chapter 11

Larry Baldwin - Draftsman
I supplied chart with road.

4:30 PM Tom Shields - Administrator - Kenton
Drove with her part A-site to "British Beach" - photo - plans - no logs - checked A-site beach - checked beach shack beach - returned about 6 PM.

DAY 8 AM 2-20-73 Rode to beach shack with FFC people, checked area - found fresh tracks at steep portion, -diggings, etc. walked back to airport - saw DC-9 come in, returned to town in bus.

PM Saw Leon, Birch, Col., Butler, Liebert before take off.

Data and notes for report,

Entrance road to SW ^{side} British beach to entrance road to A-site:

$$= 1.04 \text{ NM} = 1.93 \text{ Km} \quad 1.2 \text{ SM}$$

Entrance road to A-site to 90° bearing on second transmitter bunker:

$$1.13 \text{ NM} = 2.09 \text{ Km} = 1.3 \text{ SM}$$

Entrance road to A-site to frigate bird colony on lagoon side: 2.3 SM

$$2.00 \text{ NM} = 3.70 \text{ Km}$$

Entrance road to A-site to 90° bearing on beach house: 5.6 SM

$$4.87 \text{ NM} = 9.02$$

Think speedometer as covered road.

2-25-73 Phoenix Island - Bib.

Ref

24775

K73

Krauss, N.L.H.

13p.

Formal report completed and mailed

3-3-73 (Sat.)

Received telephone call 3-5 saying
it had arrived.

5-7-73 Letter from Gen. Lowe

5-8-73

Ted Hill called - no activity on Canton IS, however, lots of tracks on Enderby - Common this time of year on Enderby?

7-2-73

Leo Johnson called - indicated that Class Fosberg, DOI were on Canton and other islands. Area 2 had 13 sets of fresh tracks during last week of June. Maragos will teach oceanography class during September - wants to go to other islands - Interest still exists in tagging on Canton.

must get - photos from Leon, sent 7-4
Letter to Lowe, sent 7-4
Letter to Beaver Dredging.

[Received letter from Lowe first week in August denying support for Canton trip -

Maragos to Canton for month of September.

SEA TURTLE REPORT—please note date, location, type of activity (tracks, etc.) and any other interesting details. Thank you.

After 4 days of heavy rain found 5 baby turtles on the A site road about $1\frac{1}{2}$ miles from A site. We put the 5 turtles in the ocean. Attempted to find where they hatched from but was unable to locate. Found on 23 August 1973.

V. Stromgren

SEA TURTLE REPORT—please note date, location, type of activity (tracks, etc.) and any other interesting details. Thank you.

13 Sept. 1973, Canton Island, $1\frac{1}{8}$ miles from "A" site (SDR-1) in a northern direction. On the way to work (7:45 A.M.), found 16 young sea turtles on the road. Removed same and placed them in the ocean.

Note: Several recent nests were found 300 ft from where the turtles were found—toward the sea from the road.

John R. Keyser

John R. Keyser
Box 153
FEC/WTR
APO San Francisco, Calif.
96401

SEA TURTLE REPORT-please note date, location, type of activity (tracks, etc.) and any other interesting details. Thank you.

KE 21 Nov 1973 7 0745 Local

Driving to work, to SDR-1, 4 baby sea turtles were noticed on the road. We placed them in the sea near SDR-1. They were picked up approximately 1 3/8ths miles, north of SDR-1.

John R. Keyser
FEC/WTR P.O. F-153
APO San Fran., Calif.
96401

SEA TURTLE REPORT-please note date, location, type of activity (tracks, etc.) and any other interesting details. Thank you.

Found 1 baby turtle 1 1/2 miles from SDR-1 in a Northwestern direction (on the road to the main base). Placed him in the ocean, but I have my doubts whether he made it as he was very tired. Found at approx. 10:30AM, 2 March 74.

John R. Keyser
FEC Box-153
APO San Francisco, Calif.
96401

4/15/74 - Call from Ed Ewen (Outrigger West)
 Giant Patriot missile from Great Falls
 Montana to RV in lagoon - 15' depth
 S.I.A. Panama doing F.I.S.
 If on land - destroy 5' diameter.
 C.O. now Philip Stack maj.

5/12/74
 Maj Stack called indicating fish
 and turtles washing ashore on
 Hull - covered with red algae.
 First reported this morning.
 From lagoon

SEA TURTLE REPORT - please note date, location, type of activity
 (tracks, etc.) and any other interesting details. Thank you.

Please send a few more
 cards to your turtle-watcher
 on Canton Island!

Thanks,

Major Philip J. Stack
 SAMTEC/OL-AE
 APO San Francisco 96401

~ 5/15/74 ^① turtle head and partial rear -
+ photos

5/28/75 ^② dead ♂ green Turtle found NW shore Canton - photos -
letter sent in response -

7/3/75 Ed Ewen telephoned - left message indicating he
would write letter.

2/2/76 Report of large whale shark in
Canton, Kaggon - been there possibly
several months.

2/16/76 Leighton ^{Taylor} reports he will go to
Canton within coming week to
check on whale shark - I gave
him my reports + 2 BW photos.

9/7/76 Leighton reports 35 men on Canton -
no travel possible to other islands -
no choppers, etc. Dwyer would
like to establish lab - will
provide building, but outside funding
needed. MAC flight regional RT \$400+
Government assisted \$166.00 RT

10/ | /76 Leighton Taylor to Canton - two trips
very short time apart - reported to
→ ~~blow out~~ coral in connection with
Whale Shark.

10/27/76 ^③ Talked to Ed Ewen at Vandenberg
about dead turtle reported by Taylor
to be located near "A" site - in Dry
pond(?). - [Ewen - 622-4171] (8878).
He called Canton, they said turtle off.

CONT. 2 months dead - Canton will call me.

10/27/76

Leighton gives contacts at Canton

JOYCE HAAS - 226 and Peter Hanni.

(Hal Ross ABC hog head?)

1/12/78

11/9/76

Turtle parts will be on tomorrow's flight.

SAMTEC ^{SIASDON} contacts at Hickam are Sgt. Robbins (talked to him) and Mrs. Young

449-5860. Pick up turtle Thursday. 11/11/76

11/11/76

Picked up Turtle bones at MacCaughey (449-5100) also received color slides of dead turtle at recovery site. from Leighton

1/17

12/3/76

622-4171 Jext 226 Talked to (Thanked for Turtle) Pete Hanni, Site Manager, very nice man - said Gray-backed Terns

1/27/78

are nesting - also lots of turtle activity. \$80 for MAC
His address is Box 1345,

PRINT PHOTOS IN FILE #1/14/77 (4)

Global, Canton Island, HI 96736

Received turtle bones from Joyce Haas

8/10/77

Call from Ed Ewen - environmental film being made by Air Force - asked about turtles. Today there are 10 scientists going to Canton. Low level (3500') flights are being conducted over other Islands out of Hickam. Second call asking for copied slides of nesting turtles. - NO HURRY

29 JAN 78 SUNDAY

Headquarters SAMTEC/PMS
Vandenberg AFB 93437
redball 468

Vardenberg (7607) on Redball 468
- [6023]

1/12/78 Call from Ed Ewen - will be sending back photos - 11 people scientist now at Canton; overflight AF of Phoenix scheduled for 29 January - said it goes once every 6 months.

1/17 Called Ewen at Vardenberg about reconnaissance flight AFG-130

1/27/78 Called Ewen about contact for Phoenix overflight - It is:
Major ~~Johnston~~ → Home (423-1559)
- Hickam office - 449-2063; 6025

Ewen's Home - 423-1559

Be at Hickam ^{old} Base operations at 7AM 1/29/78

Aircraft Commander -

Capt. - Jim Stonerberg

Copilot - Joe Markstein

29 JAN 78 Arrived at Base operations/Hickam at SUNDAY ~ 630AM - met Capt Stonerberg and Copilot - also on flight are two men from Reno - scrap dealers - and Airforce Capt. from Vardenberg. Bus to

JC-130? AF 10965

29 JAN 78 C-130^B "catch a falling star" on flight
 Sunday deck. Much internal equipment for recovery
 of falling objects. Departed Hickam at
 approximately 830 AM - project 6h 15min
 flight time to 1800-1900 miles. Fly at
 ~22,000 feet.

29 JAN 78
 Sunday

Scrap dealer showed me PACIFIC ISLANDS
 YEAR BOOK 12th Edition, 1977, by
 Pacific Publications (Aust.) Pty. Ltd.
 76 Clarence Street
 Sydney NSW 2000

Excellent publication.

owner of book - ~~Bob~~ Bob Marsh, 50 Kietzke Lane
 Reno, Nevada 89502

Islands listed as U.S. possessions (or as specified)

see
 Bryan
 book

- ① Guam - "unincorporated territory of the U.S."
- ② Howland and Baker Islands - "American possessions"
- ③ Johnston Island -
- ④ Jarvis - "under control of USDI"
- ⑤ Midway Island - "under jurisdiction of US Navy"
- ⑥ Northern Mariana Islands (?)
- ⑦ The IT of the IP is a UN Trust, administered by the U.S.,
 more than 2000 islands - 8,000,000 km² ocean
- ⑧ Wake - "American Possession"
- ⑨ American Samoa - (Rose Atoll)
- ⑩ Canton and Enderbury - an "Anglo-American
 Joint Administration" - 1939 for 50 years
- ⑪ Kingman and Palmyra

AND ST

~430

29 JAN 78 Arrived at Canton ~ 2:45 PM Honolulu time,
Sunday Made one pass at runway - circled around
atoll - light wind from West.

Met Pete Hanni, Site Manager - Joyce
Haas - clerk (?), Captain ^{DENNIS} McMahon, safety
officer from Vandenberg, George O'GORMAN,
civilian employee of Air Force down for one
week from Vandenberg - Was here in
1969 (?), "when they were not suppose to be
here".

Proceeded to quarters - "new" building¹ for
SAMTEC personnel - with flight crew^{quarters}.
About 4 PM, went out runway, to beach
shack. Still in good shape. No signs
of recent nesting on adjacent beaches. Photo of
^{taken} me by George O'Gorman.

Report that there are now ~ 37 employees, all
Global Associates. Junk dealers ^{brother} already
here for one week - Report that attorney ^{JACK} ~~STREETER~~
came with junk dealer ^{RENO} ~~SCRAP~~

AND STEEL

Noted that reef near beach house is
close to shore 1200 yards. Also noticed
gray, discolored beachrock chunks inland
of sand beach buildup.

~ 4:30 PM Returned to Mess Hall for drink and
roast beef dinner.

Noted temperature data for 1977 posted
on mess deck bulletin board -
following page:

29 JAN 78

SUNDAY

	<u>Average High</u>	<u>Average Low</u>	<u>Seawater</u>	<u>Rain</u>
JANUARY	89.8	80.4	84.2	3.57
February	89.6	80.2	83.8	3.18
March	88.7	80.1	83.4	13.71
April	88.9	80.2	84.2	11.00
May	89.5	80.8	83.7	3.14
June	89.1	79.3	86.8	3.11
July	89.2	80.8	83.4	5.641
August	89.6	80.8	83.7	3.54
September	90.0	81.0	83.3	3.32
October	90.3	81.2	83.39	2.39
November	90.5	81.2	83.8	1.05
December	88.8	79.9	84.3	20.56

30 JAN 78
MONDAY

Shortly before sunset, met Otis Otis -
 superintendent of power and distillation
 plant - had us out sail small
 boat in lagoon - claims to have seen
 many turtles - run over one -
 Otis told me of turtle feeding close to
 shore - I saw it and headed out -
 full size adult male feeding on bottom -
 paid ~~no~~ attention to me. I stopped by
 it in knee deep water and watched
 for 25 minutes - light color of carapace
 traced black speckles - I noted that
 some algae was growing on carapace.
 Bottom algae sample collected.

2.

3.

4.

~~30 JAN 78~~
 30 JAN 78 MONDAY Up about 6 AM Canton time (which is one hour behind Honolulu time). Prepared for overflight - had ham, egg for breakfast at ~ 6:30 AM.

Started readying aircraft at ~ 7:15 AM.

Alt. 600-800' 135 knts (150 mph)
 Depart ~ 8:30 AM to [Each Island passed over several times]

1. Enderbury - Roll 1, ^{ELW} 2nd half of roll. noted vehicle tracks around beach - ponds in center, ship on beach, some sections of shore is rubble. [Clapp and others report heavy nesting along West beach in MAY]
2. Bernie - old pits, tracks on sand point, end opposite of pretty reef extension
3. Phoenix - Nearly all rubble beach -
 → rabbits(?) - photos are #6-8
 ELW Roll 2 - #8-10 pilot - a pilot.
 Rabbits still there in June of 1974 as per Ken who visited for one week with Clapp on bird study.
4. Sydney - at 9:45 AM, - photos to #23
 Roll 2 ELW, red coloration in lagoon.
 Noted 3-4 sets of tracks - one fresh (lost night?), other in gray

40 (Sydney cont.)

sand/coarse beachrock substrate -  shaped-

30 JAN 78

MONDAY

Source not absolutely known.

30 JAN 78
MONDAY

5. HULL - over at ~10:15 - 10:30 AM
strange trails running inland
around strip of glard - ^{PHOTOS of} remains of
trailer, pod for helicopters on Roll 02 ELW.
Also full frame on R.O. EL^{PL}. Noted
~50 poles in water - Mel reports
that this was part of antenna tracking.
Also that he was on and surveyed all
islands - Small boat channel was
blasted at Hull. Mel reports that
Governor of Gilbert Islands landed on
Hull in November - also visited Canton.
Many birds seen at end of Hull where
trailer is - bird flocks. Many white sand
beaches, but no tracks seen.

6. GARDNER - started descent to Gardner
at ~10:50 AM - completed survey at ~11:00 AM.
Tin Roof house in coconut grove. Turtle
floating at surface in lagoon. Photos of
island to #21 Roll 3 ELW

30 JAN 78
MONDAY

7. McKEAN - Surveyed at ~ 11:20 - 11:30 AM,
photos to #34 Roll 3 ELW plus
full frame roll 0 EL, PL.
Many shipwrecks on one side -
Georg O'Gorman reports seeing turtle floating in
the water offshore. Bird flocks
[sooty?]

Descent to Canton at ~ 12:05 PM → land
about 12:10 PM.

note that low clouds, large atoll
make it very difficult to take good
full frame photos.

While standing on, opened ramp I had
on flotation gear and heavy duty
harness with shoulders and crotch
cable reel. Assisted by two
flight crew members - one on each side

Names and Address:

GEORG O'GORMAN, Environmental Coordinator
204 Princeton Pl.) Canton
Lompoc, CA 93436

[01] SAMSO/DEC

Vandenberg AFB
CA 93437

(805) 866-5921

Antevon 276-5921

30 JAN 78
Monday

Captain Stoneberger
DOAA

Lt. Marksteiner - patch
DOAC

Both - 6594 Test Group
HAFB, HI 96853

T.C. Hanni - Site Manager, Global

Joyce Haas - send ^{Turtle} patch

Joyce originally
from Hawaii

Had lunch in mess hall ~ 12³⁰AM - returned
to quarters - wrote up notes - checked charts.
Later in afternoon I visited in Joyce Haas
office (w/ O'GORMAN later on). She has been
here ~ 3 years - ~~at~~ Phoenix Islands
Science Center seems to be in mess -
she knows little about it - apparently there
will be a meeting w/ Air Force, Taylor, etc in
March. She received call from Leighton
today - reported that there are ~ 30 hawksbill
juveniles suitable for tagging and release
in Palau. Reports that Leighton

30 Jan
May

30 Jan 78
May

is interested in next month's FAA flight to go to Canton with wife - FAA goes once every three months, enroute to Samoa. Bob Iversen has been on this flight.

• British Governor for Gilbert Islands
Mr. John Hilary Smith

visited in Nov - went ashore on Hull - reportedly interested in marine turtles.

Science team came down in August - sent back nice photo album which is now in lounge. Included were Les Gunter, McCosker, wife, two other women, Dr. Chris Ireland, Chemist, now with Kewalo marine lab - reportedly found unusual blue-green alga. Also rich man - Jamps. Joyce reports seeing in past group of turtles lagoon side by "coconut grove". About 4:30 PM Gregg took out in search of dead turtle reported by science visitors who recently departed. Been there about 3 weeks. We proceeded to concrete bases of four old transmitters - just past concrete building. Inland on side road and parked. Walked to my nesting beach designated as Area 2. Noted debris on beach, and that barrier reef

30 JAN 78 Monday is very close to shore, waves break right in almost notes that white sand extends inland considerable distance over beach berm before ending at gray, coarse beach rock and coral chunks. Walked in the direction of Akea along Aread. Found dead turtle (aimed toward ocean, about ~~1~~ on top of rise - should have been able to see ocean. Many (2-300) hermit crabs outside and inside carapace/body. Ken later reported that another dead turtle is present along this beach section - ~~1~~ turned over, but after dead by personnel. There were many depressions, older, along this coastline, also recent tracks only a few days old. There was one set of tracks that I followed way inland on sand - but lost trace. Took photos of dead turtle with crabs - Georg took some of me with turtle - and in old pit depression. Inside of turtle was inspected by looking between ribs - noted remains of shelled eggs. Looked for tags, but found none. Measured curved carapace length with light nylon line = ~ inches. This appears to be a very large turtle - abnormal plate count on right laterals (5) ^{odd} small on at regular position of number 5. Returned to town about 6 PM.

30 JAN 78 Monday

31 JAN 78 Tuesday

30 JAN
78
Monday

Along the way, noted ^{black} noddy-tern (2-3 in flight) and several large petrels in flight. Noted "warning birds" signs. Also very small colony of sooty terns, and a few roosting or nesting frigates. It was reported that birds were really thick, with eggs a few ~~months~~ ago, but that most eggs disappeared and birds left. Personnel wanted to know what happened to eggs. Also noted rats (apparently "polynesian" type). On drive out we stopped at lagoon house w/ screening and well-constructed fireplace/barbq facility. This may be new since my 1973 visit. Noted geckos and skinks. Along the road there were large Messerschmitt bushes/trees.

31 JAN 78
Tuesday

Up about 6:15 AM - to breakfast, picked up 8 brandys at ~ 7 AM from Mrs. Hanni - they will be in Honolulu in about 2-3 weeks - I requested copy of slide showing late "rescuing" turtle caught during day on reef flat near A-site. Paid bill - \$13.00 - to Joyce Haas - Walked around town for two photos - loaded gear - plane took off at 8:05 AM Canton time. Called Lin

Flight crewman - K. Pettersson photo w/ Mayday
 47-082C Gaenani Dr.
 Kahaluu

31 JAN 78
 TUESDAY

through Wheeler before departure.

31 JAN 78
 TUES



NOTES:

Joyce Haas got Leighton interested in Canton -
 called on him for whale shark episode.

Bad Sanders - had coffee at breakfast
 with him.

Boresit - is a tower, of known position,
 used to adjust radar units.

Canton is a difficult site to do work on
 nesting turtles due to its large size
 and nesting areas being spread over great
 distances.

Captain Dennis J. McMahon (Safety officer)
 696 Korina Street
 Vandenberg AFB CA 93437

SAMTEC/SE

Vandenberg 93437

31 JAN 78 of Considerable assistance - flight crewman
 TUES Sgt. Harold (Oth) Reiser
 NAVIGATOR - Capt ERIC ELDON

Needs -

1. Collect bones of turtle I examined
 Write-up? → "Worth of nesting green
 turtles at Canton due to
 'disorientation' crosscheck
 Richard comment on Bikini.
2. Diagrams of P.I. from HO charts (?)
3. Collect and distribute ARB Canton paper
4. Send plastic covered photos - more
 sighting sheets to Hanni/Haas
 plus (turtle patch) -
5. Review previous Canton slides and
 transfer to box
6. Call Joyce/Hanni every so often
7. Call FAA - check flight schedule
8. Must get copy of Pacific Islands Yearbook
9. Canton/Phoenix IS Sea Turtle observer

Tide?

I mentioned
 this in my
 ARB paper

31 JAN 78
TUES

- Capt. Stoneberger flew low level over PFS in 1974 - apparently the flight I saw. He requested this area for some flight training - "say he would have something to see". He also noted that Necker is frequently used as a navigation aid.

- Navigator reports there is no COLAN coverage 400 miles south of Hawaiian Islands.

- Joyce reported to me that EOD team wanted to blast a channel (increase flushing(?)) implied that Global should turn their back - after finished, EOD would take blame. This was not allowed, but some blasting did take place (by channel).

- Canton personnel are regularly eating Papio and Ulu

- May be value in conducting 1-2 week intensive monitoring at AREA 2 - tent campsite established

2/12-2

3/28
Tues

5/30
Tues

6/78

6/27

8/10

2/12-2/15/78 L. Taylor and Ann Fielding will
go to Canton on FAA.
note flight had to turn around due to
bad gauge -

3/28/78 Called Joyce Haas - about
cages - she will be
up next week for a visit
Tues

5/30/78 Joyce Haas called - saw a
whole herd of turtles in
knee-deep water off the end of
runway (ocean side) - Divers were
extending seawater system
Lots of snorkelers in lagoon -
personnel now up to 48.
Tues

Leighton will go down on MC next
week.

6/78 Photos ^{IN Files} from Haas - big turtles on
shallow reef flat -

6/27 - Bones from Leighton - see note
from him in file.

8/10/78 Call from Joyce Haas - Ed Owen
at Canton Island -
Found a turtle (45" ^{TOTAL LENGTH} x 29") dead
(by site) - will fill out
form - took photos - will keep at
aplace for future recovery.

A few days later Ed called from Waikiki Hotel.

9/11/78

Joyce Haas is staying with Leighton -
I brought her out to the lab
for a visit.

Groups of turtles are no longer
being seen at that shallow site
off the runway. However, in lagoon
behind her house, *S. individual* turtles
are regularly seen - This is where
I walked out in Jan - saw turtle and
collected algae. ID by Russell in
sheet.

4/23/79 Called Ewen -

\$184 + 7.50 Jan
MTC flight every Wednesday

Air Force out in July

21 Oct
79

Saw Joyce Haas - Charley Apuna
at Waikiki Aquarium 75th
Anniversary ceremony -
Now living in Honolulu.

TUESDAY
10/12/76
0715

Tues
10/12/76

DEPART VIA MAC HICKAM for Enewetak via Wake.

Informed by Air Force ^{Himmeler} Sargent that Wake has no SCUBA - skin diving allowed - turtles seen by bridge - channel from open ocean - 8-9' water. Air Force took over in 1973 - previously FAA - No dependents at present time - however a few women - About 250 personnel concerning Canton - one radar unit taken to Pogo lagoon one deep sided. Caretaker people there are Global associate people. No contact with Hull or Funderbury, all closed down. only small boat for inside of lagoon.

* Note - more reports received upon arrival Enewetak - not in this tabu.

Predeparture
tabulation

	Green	UNK	Hawksbill	
= < 24"	(11) IIII IIII	(16) IIII IIII IIII	(4) IIII	31
> 24 = 30"	(5) IIII	(7) IIII II		12
> 30"	(10) IIII IIII	(6) IIII	(1) I	17

26 29 5

83.9% greens
16.1% hawksbill
of those for which ID was given

51.7% 24" or less
20% > 24" = 30"
28.3% > 30"

Tues
10/12/76

Layd Wake Is. - 1200 (1090 their time)

humid but brisk wind.
visited war memorial - battle Dec 8-23, 1941,
mentioning about a sub base previously here.
talked to C.G. man - for an A exists,
about 9 ^{islands} coasters - in chain with Enewetak
and Kawij. under 14th district - get ship only
several times a year. C.O.'s name _____

Sgt. Scott Hummer introduced me
to Roger Shaffer (Kenton?). He knew
about my letter - had been looking for
someone who knew about ^{the tag} recovery - ^(midway's Wake) no
luck thus far. Roger has an interest
in turtles!

For about 9 months of the ^{year?} British maintain
men on Wake (for Vulcans - also Guam).
Bulletin Board in Wake terminal -

"Mid Pacific Sport Divers" "Wake Is"

Two color photos show turtles (estimate
^{light color} approx 22" shell length?) Caption - "at certain
time of the year, turtles are in numbers,
This 5016 turtle swims along around
the Vortac area" (Feb 70)

Second photo looks like a spangler
turtle - a SCUBA diver has a hold
of it. caption reads "if you're lucky
enough, to find a turtle napping
on the bottom, chances are you might
hitch a ride"

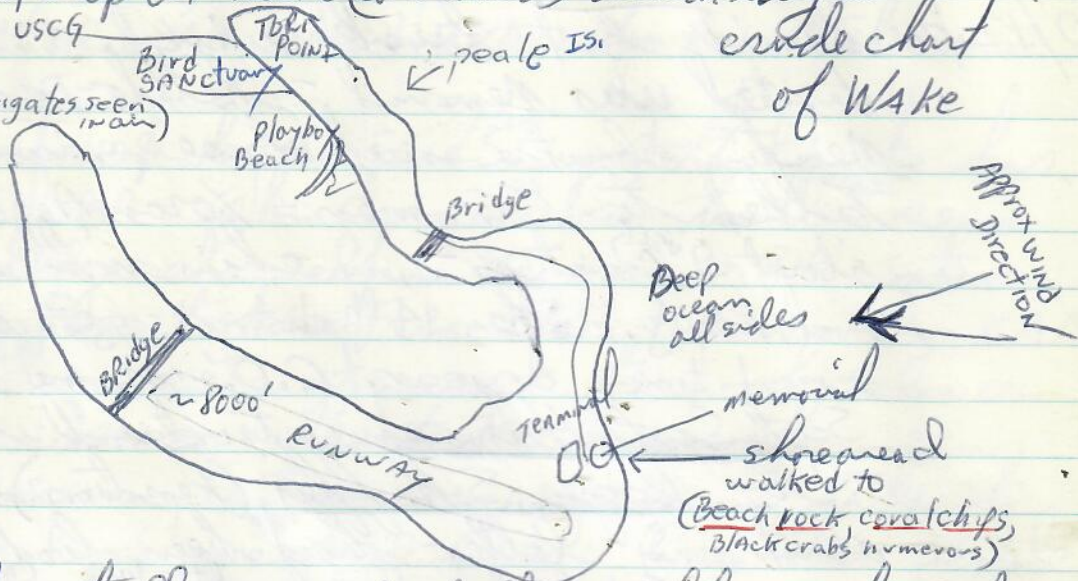
Short stop at Wake (continued) Photos from flight deck on way in
 crude chart of Wake

10/13/76
 WEDNESDAY

Day 2

10/12/76
 TUESDAY

USCG (Frigates seen in air)



NOTE: AEB article on oil substance pollution - see file

Wake actually composed of three islets - Wake, Peale and _____

Depart Wake approx. 12:45 PM.

DAY 1

Arrive Enewetak - photos from flight deck on way in - Roll 2 # 0-5.

10/14/76
 Thursday

DAY 3

Met Colonel Spacuzza - DNA
 Vincent DeMaria - site Manager Holmes and Narver
 ERDA Representative - Joe Merrill?
 Meeting about turtles with Colonel Stevensmith
 USCG W.O. killed turtle - jumped on it from boat. Location - Vera-Walms (on form)
 By March ~5-600 cleanup people will be here - many will be military.
 Three weeks ago there was an official ceremony signing over atoll from DNA back to TT Enewetak people.
 Kwajalein is leased.

NAB

10/13/76 C:141 came back from Kwajalein, depart
WEDNESDAY Enewetak - 1000 hours

Mark Yunker

Day 2

~1030 hours² went out with two sponge
people - they went for dive on Pinndel,
let me off on

ELMER (MEDREN) - photos #6-18 roll 2

white sand beach on lagoon side,
beach rock, coral rubber ocean side.
lots of buildings, rusted ship, etc.
Saw several white terns, many
Golden plover - some Curlew.

Possibly one juvenile turtle at north
end Cove. Photos of Noddy Tern on hiking
Dove ^{SCUBA} pier with sponge people
25-30'. Much invertebrate growth on piling.
#19 Roll two (2) - Enewetak Is from dump.

10/14/76
Thursday

Depart BW ^{halen} #2 for Leroy (BIKEN) - 0830

Day 3

LEROY (Biken) - sand beach mostly on
NW end - photo roll #2, from Quater,
White Terns, also another species
of tern with black eye strip.

NAPED

Pisonia - Coconut Crabs in middle
of Island - also small sink hole
seen. Black (small) Tip sharks
in very shallow water. Curlews,
Plovers - Pole-Most present.
Two off-lying sand/coral islets.

Thursday
10/14/76DAY 3
CONT.a few
Brown
Boobies?

TO KEITH (KIDRENEN) - distinguishing feature - very large square steel structure washed ashore on NE side. As on most of the islands surveyed today, ocean side is mostly beach rock, ^{coral} rubble.

TO JAMES (RIBEWON) - distinguishing feature - orange Navy Drone washed ashore on NE side. Many Brown Boobies nesting - all stages from eggs to full fuz just starting feathers. Photos - now on roll 3

TO IRWIN (BOKEN) - ^{1 set} turtle tracks
* found NE side, SE end
just past rusted junk on beach. Tracks est. not more than 3-4 days old (check tides for past week). Tracks lead right into large ~~scrub~~ scrub - excavation. Tracks approx _____ wide.

TO HENRY (MUT) - small pole at SE end with wire apparatus - appears to be aiming at YVONNE. Several Noddy chicks seen in grass. also hermit crabs Centobita.

Thursday
10/14/76DAY
3
CONT.

white Terns seen carrying fish - chicks not seen.

FRIDAY
10/15/76DAY 4
CONT.

Thursday
10/14/76

DAY
3
CONT.

TO **GLENN (IKUREN)** - ^{Lamberton} Phil has
small mooring here. From boat
I saw very recent (last night?)
isot tracks (fup down?) on lagoon side
* NW end sand area. Only
spent 30 minutes ashore. Need to
return.

Note - algae reference -
Bawson, 1957 Pacific Science
11 (1) 92-132.

also

Palumbo, R.F. 1950 algae p 108-118
IN Radiobiological Survey
of Bikini, Eniwetok and
Likiep atolls July-Aug 1949
U.S. AEC report UWF L-2B
(AEC D~~g~~ 3446) office of Tech. Services
U.S.D.C.

also ^{ENEWETAK} Radiological Survey Volume 1
page 138 - turtle - need data p 953
Phil

FRIDAY 0800 Motoped

10/15/76 With gardner "Ray" to

DAY 4
CONT.

ENJEBI (JANET) - Experimental plot
growing papaya, coconut, etc. for
isotope uptake study. Dr. Warner
Horticulture in on experiment (LL)

7/83 NOTED
that pages
don't go this high

FRIDAY
10/15DAY 4
CONTI

ENJEBI (JANET) continued - very large bunkers in center - Phil says to see how structure holds up against blast. Bunkers at NW end used for Beryllium ^{Rocket?} engine experiment - engine blew up.

Roll 3 - photo ~~along~~ along front side (of beach). beach rock area along E side. Mooring by twisted landing craft. Sooty's present. Sign at W end says "Haywards area"

TRENE (BOKEN) - Island with A-bomb crater. - W. sand point is adjacent to H-bomb crater. ^{photo} Sooty Terns noted - also tern ^{Black capped?} ^{created?} with black eye bar. juvenile looks like gray back juvenile. ^{South} end has buried bunker by crater. Green mat algae on beach. Returned to Enjebi to pick up Roy and friend. Motored back to Enewetak following islets. Tower noted on Tilda and Yvonne. I returned alone to

JAPTAN (David) - many Coconut trees, some good aluminum buildings. Photo of lizard and bow of large shipwreck. Most of beach is large chunks of broken rubble

FRIDAY
10/15/76SATURDAY
10/16/76

DAY 5

More sand on beaches on these Northern islets?

1/23/76 Robert O'Garra
to see if it would support
Vanderbeek - AF.

FRIDAY 0600

10/15/76 Return to Enewetak island - ate my dinner with Lambersons.

Pan roll 3! Into roll 4 (1-12 ↑)

In Blue Book - Marine algal studies at Bikini and Enewetak atolls by Palumbo and Welander p251-61 + appendix 5 and 6

SATURDAY

10/16/76

out about 1030 to Ursula bridge - ^{yellowish head} Turtle seen

DAY 5

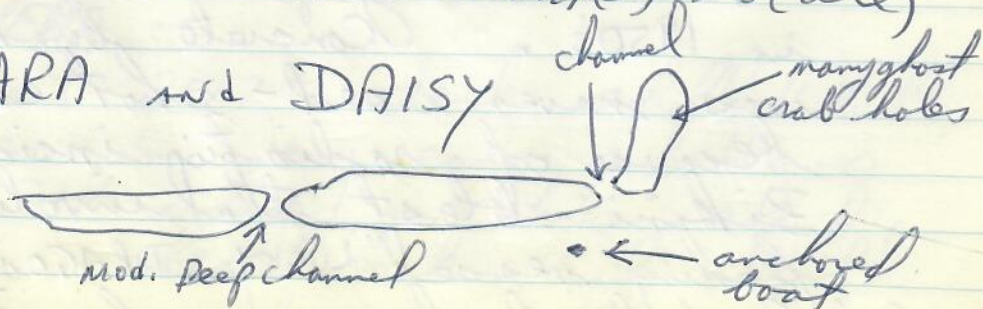
123°

ALICE (BOKOLOUO) - Prominent feature is large concrete bunker on beach facing towards **IRENE** (BOKEN). ^{Roll 4} Photo 13 of U lagoon beach side. ^{Red tailed} Tropic, Black Noddies and Curlews noted - also 2 white w/black eye strip terns.

Difficult entry to both Alice and

BELLE (BOKOMALO?) - Good sand beach on both this island and Alice - but mostly on lagoon side

Neat consecutive island(s) is(are)

CLARA and **DAISY**

More sandy beaches on these Northern islets?

SAT (cont)

10/16

DAY 5
CONT.

Saw ^{one} Gray and ^{one} yellow shark when getting out of boat. Much TURBINARIA washed up on this island (at other end of atoll). Unable to cross channel to SW to adjacent island. 1 yellow shark seen. Also ~20" turtle - light yellowish colored head. Very alert - moved off when I entered water.

Shortly after I observed two ~20" yellowish ^{head} turtles swimming together - ^{against current} one possibly following the other. Total observation time perhaps 10 minutes. Surfaced to breath very little.

TO

KATE -

island just SE of Enjebi. Many red bricks - 2 concrete pillars at sand

TO

URSULA to camp overnight - with Hal N people. Sally-Tilda have been joined by land & fill and iron plate like Tern Island.

Gabe and 2 Japanese men were here in 1950's. Concrete bunker on Tilda was never used - shot canceled because of radiating incident from Bikini blast that involved Japanese fishing vessel "Lucky DRAGON" NO. 15

Some concrete bunkers were for taking photos

sat.
10/167/10/16
never had
cont.SUNDAY
10/17/16

DAY 6

Sat.
10/16

of blast just as it occurred. Explosives on steel doors went off a few seconds after detonation of bomb - protected gear for when heat wave hit.

1 woman
never had
coconut(?)

Many ^(at) coconut trees on these islands were burned away. Half N men were on Elmer - announcement of blast came over speaker - men wore ^{dark} goggles.

SUNDAY
10/17/76
DAY 6

Walk around URSULA. - Walk SW shore of Tilla, around N and E of Sally - up onto road where filled area connects islands.

Photos (end of Roll 4) of Curlew with Bunker in background.

Small turtle seen swimming in from lagoon side under bridge.

Note 10/16 - ^{much} limu seen floating in water off of ENJEBI - looks like fine dark green string type (Enteromorpha) mixed in strip type - a Sargassum?

TO VERA -

about 20-24" dark shelled turtle seen in very calm shallows of SW shore. This island has beach rock nearly all the way around. TO Half men back to URSULA

TO PAGE 64

TENTATIVE CONCLUSIONS/IMPORTANT POINTS -

1. Beach rock and large broken coral rubble predominates on ocean side of most islets - sandy beaches are on lagoon side.
2. MY Results of foot surveys of islets (A) Nesting (B) Near shore
3. 40 dives by Mark Junker/Hanke - not turtles
4. Turtles now being taken by personnel (Hank and green)
5. Abstract salient points thus far obtained from forms
6. Trip made it possible to clearly see just what important questions should be asked
7. Break down to studying subject of turtles at ENWETA
 - I. Turtles and Food
 - A. Past knowledge (knewetakee - published literature) (Bikini aspect - (?) Mordokare?)
 - B. Info from sighting reports
 - C. My own sighting findings
 - D. Radiological implications
 1. Nesting - embryos, development
 2. Feeding - Juveniles
 3. Migrations - adults
 - E. Predation
 1. Eggs, hatchlings
 2. Juveniles - adults
8. Desire by many resident personnel to have meat shell
9. Rapid flight of many turtles
10. Old. H N people dying of Cancer (?)

Ref. My AEB Canton Is. article

H₂O and mineral (?) uptake

Questions - present

1. What is level of radioactivity in turtles off of various islets? (also algae?)
2. Do turtles go to other areas where they may be consumed by humans?
3. What is genetic effect in ^{-egg} incubation and juvenile/adult residency - if residency exists?
4. Can radioactivity be used to determine ^(growth rate) age of Frenetok/Bikini turtles?
5. What types of algae and in what proportions do Frenetok/Bikini turtles eat?
6. "Algal ridge" composition
7. What would be revealed by doing nesting survey during Chief Johannes peak? Choppers?
8. Can turtles efficiently excrete various radionuclides? or are they retained and concentrated?
9. Beryllium levels in algae and turtles?
10. Species and abundance of host and host nesting
11. Level of Weakness in sighting reports - effort

Long
Cute

SUNDAY (CONT.)

10/17

DAY 6
CONT.

Platform
Tower with guide
to WILMA - cables on this island - severely rusted
out. Much beach rock around this
island also.

Motored past YVONNE - to strong
current channel between ALVIN
and Bruce, - perhaps channel just
before this also - turtle seen (~30")
near channel areas - 2 turtles,
* 1 - 22" 1 - 32" 22" moved
off, while larger one stayed
motionless until I returned.

Water off Bruce very calm - much
shallow water coral growth - looks
like good sand beach on this island.

Motored past Clyde (Juni) - very
small

Motored past Ron (Jedrol). Sand
beach end NW side - lots of
junk around island. Motored
past concrete ship - photos
on Roll 8. Note that beginning
photos on Roll 4 of white terns
in flight may not have come out
good due to possible telephoto
coupling malfunction.

MONDAY
10/18DAY 7
CONT.

MONDAY
10/18

DAY 7
CONT.

TO Garbage dump at 0800. ^{no sharks} TO Glenn ~ 1100.
Walked around - inspected turtle nest.
Mark and Hauka arrived. Much
beach rock around island. Forg and
partly vegetated sand projection to NW.
Put reinforcing rod with colored ribbon
by nest. ^{Saw 4 coconut crabs - 2 w/ yellow tops}
Photos of Noddy Terns in flight Roll 5/Pain
1545 Heavy rain started. Put together
lean-to shelter.

1800 cleared rain - departed for
Eniwetak.

Talked with Gabe at club. - after blast,
men were sent in next day in suits -
dead birds present.

Saw Janet Jamerson's BW contacts
of site where turtle nested on
* Glenn (Ikuren) AUGUST 21, 1976.

Miscellaneous notes -

Steve Yoshita - old-timer
Menfachi Man
met him on Ursula

Kwajalein - taking of turtles allowed?
"Joe" turtle man of Kwaj.

Data page 953 for ENEWETAK RADIOLOG SURVEY

Gabe and Yamb are bridge builders/Repair
* ERDA has public information office
in Honolulu.

* A Review of the Ecology of Eniwetok
atoll, Pacific Ocean 1962
Woodbury, Angus M. (cont)

page 101 - "Pacific green turtle"
and "hawkbill turtle" - "a live
specimen was captured in the lagoon
of Rojoa (Ursula) islet, May 20, 1962
by Larry McIntyre and kept in a
pool on Eniwetok (Fred) islet."

10/19/76

Laws, R. M. and Taylor 1957 Mass dying
of crab-eater seals, Lobodon carcinophagous
Proc. Zool. Soc. Lond. 129: 315-324

MUST
OBTAIN

A Twenty-year Review of Medical
Findings in a Marshallese population
accidentally Exposed to Radioactive Fallout
by Robert A. Congard M.D. et al.
Brookhaven National Lab

other stomach

stomach
contents

USERDA

Sept 1975

Defense ^{Intelligence Agency}
DNA Field Command
Kirtland AFB

TUESDAY New Mexico 87117

10/19/76

DAY 8
CONT.

TO Garbage pier in the morning -
photos of ~~the~~ Nelson and crew.
~1030 out with Mark Yunker
and H

- Dive at Tunnel Pinnacle - he has
photos of me. - short dive at JAPTAN
Pier. Dive at Reefers & Pinnacle.
Kweali - H²N man, previously at JA

2 algae samples taken at Reeper 8

67

10/19/76

Chemistry of marine algae by
James J. Sidus. UC, Riverside.
EMBL 1973-74

" Two algae were collected
Asparagopsis sp.

Schizothrix calcicola (very irritating dust)

Algal Zonation on the Transects
by James A. Marsh

other stomach contents work?

EMBL 1972

stomach
contents

EMBL

1969 - Richard Wass - shank sampling

The Bikinians: a Study in Forced
Migration Robert U.C. Kiste
1974

FROM U.H.:

- research summary of zoology
faculty

- graduate catalogue

- application for admission

send to: Timothy C. TRICAS

Mid Pacific MARIOZ Lab

ENewetak, MARSHALL IS. 96737

10/19/76
TUESDAYBikini - Eniwetok Studies, 1967
Part I & Part II Radiobiological Studies

by

Arthur D. Welander
 Kelshaw Bonham
 Ralph F. Palumbo
 Stanley P. Gessel
 Frank G. Lowman
 Williams B. Jackson
 Raul McClint
 Gary B. Lewis

Laboratory of Radiation Biology
 Univ. of Washington
 Seattle, Wash.
 Sept 8, 1967

Address

Nuclear detonations on or near
islets of Bikini and Eniwetok

Laboratory of Radiation Ecology
 College of Fisheries
 University of Washington
 Seattle, Wash 98105

10/19/76
Tuesday

dates Eniwetok, list of Events - names
 4/14/48 - 5/4/48 - Sandstone Series
 4/7/51 - 5/24/51 Greenhouse
 11/1/52 - 11/16/52 IVY
 5/13/54 Castle Series

5/5/56 - 7/21/56.
5/5/58 - 7/26/58

Redwing Series
Hardtack ~~Phase~~ Phase I

Types - Barge, Surface, Tower (300')
air (1480'), Underwater (150', 500')
11°N 20'41" 162' 10' 14"

GBT

"Gross Beta Radioactivity of the
Algae at Eniwetok atoll, 1954-1956
by Ralph F. Palumbo
~~August~~ August 31, 1959

US AEC Technical Information Service

10/19/76
Tuesday

Notes from party at Bar given by
Gabe Perez and Yama Key stationed JA

Charlie Lum King butchered turtle taken
by Fred - I have seen color photos (3).

Talked in detail with Chang Y'o -
he has been here 6 months and has
taken (killed) 5 turtles - released

3-4 others. Most were taken in
lee of Vera Wilma (my question -
what about Yonne?).

One was small hawksbill taken ocean
side of Alice - in very shallow H₂O along shore.

10/19

TUESDAY

DAY 8
CONT.

Turtles were taken by hand - jumped off boat. Turtles taken had much lime in guts.

10/20

WEDNESDAY

DAY 9

Phil concerned about "questions" investigators asking. ^{BENEFIT help ERDA FT}
Saw Lamberson's photos slides of green and hawksbill tagged and released. ^{unusual color of hawksbill}
asked for copies of four.

Question - do I know tag numbers?

Read article about Leatherback

in HIGHLIGHTS Sept 1, 76 - issued by FT office of the High Commissioner. How Liason man - Got Fred's shell and checked for radioactivity at MPMU office - "background" made this hard to distinguish.

* Two films made on Bomb Testing. Bitixi available from ERDA other Notes - ARB #3 talks about baitfish at Arno atoll - Lamberson's have color slides of tracks at Biken 6/75 also photo of blue-green algae Nostoc muscopum, before plane takeoff

Walked with Mark Junker to water tower for photo from top. Roll 6 also took group photo in front of lab.

~1130

DEPART ENNEWETAK C-141 Colonel aboard to review Bruce Carter footage.

Joe Merrill - ERDA representative.

Check "Micronesian Reporter" - Roger Ray letter

- Things to ask or send to Lambersons - chief
- ① photo of Irwin nesting site
 - ② Copy of Johannes's interview ^{OK}
 - ③ I need tag numbers and number of tagged turtles. ^{got}
 - ④ Sample of stringy lime
 - ⑤ Changwo shells photos + S and C measurements on Fred's shell also

10/20

II -
Riggins
Islander

10/20

- ⑥ copy of my migration paper and color booklet ⑦ Kwajalein situation
 ⑧ copy of p953 ⑨ Plutonium slabs ⑩ Save all of turtle specimens
 ⑪ Shearwaters
 Things to ask Steve Smith ① Livermore job people talk
 ② Longer-term turtle project at MPML - funding from ERDA
 for all Marshall Islands - LC ③ Clean up crews effect
 on marine life ④ Blasting? ⑤ Marshallese eat all of turtle

letter to Colonel - ^{Turtle} laws, etc.; - my paper, booklet,
 influx of clean-up people, copy to Steve Smith Tamboran
 brief finding (future work choppers support), personnel
 now taking - do not accuse, Federal law stiff penalty,
 questions - algae studies, shark sampling, groupers (2000)
 for Foster

ONE HOUR LAY-OVER AT WAKE -

PI =
 Philippine
 Islanders

Scott Hummer and Roger Schaffer (Supply) could not
 find out further info about tagged turtle recovery - they
 suggest that PI may have taken, eaten, ∴ do not
 want to report - Taking of turtles prohibited (?)
 perhaps following letter to Major Goros needed.
 Met Lt J.G. Bruce Austin - will
 be leaving in two weeks - USCG LORAN.
 only saw one turtle during stay - near bridge.
 Report that there is now an
 instructor on island (SCUBA) - Kenton
 may be getting a compressor. Send letter
 to Bruce requesting feedback on turtle
 sightings. Pilman getting on plane

wed
10/20

note 1/21/78

Lopp Wake closed

New Wake USCG CO

will be Mike Blume

Wake (cont.) indicated that large turtles are seen floating on surface outside reef 150-200 lbs (?).

4/30/77

Day 9
cont.

Note that Wake Island publishes the WAKE OBSERVER (newsletter?)

Roll 6 has aerials of Frenwetak and Wake taken from flight deck. also Mark and Hauke by Wake monument.

NOAA weather station on Wake. They take sea water temperature - outside ocean and boat harbor - "latter 1° colder due to shade".

Important points -

1. Nesting - species, abundance, locations, seasonality
Productivity, predation, substrate
2. Feeding - Adults, less than adults, various size categories, locations, seasonality
abundance, food sources (types, abundance locations), Predations (+ man)
3. Migrations, movements
4. Radiological implications
5. Protection, conservation, legalities.

Arrive Hickam, Honolulu approximately 2230 h

4/30/77

Examined gallon jar full of turtle parts recovered by J. Trikas from Tiger Shark stomach.
 • contact - 1 front limb/flippers ~~yes~~
 also laminae from carapace area ^{per} too large for flippers. Algae sample found from turtle's stomachs (?) I.D. on 6/15/77 by Dennis Russell as Galathea williamsi
 on log Galatocerdo cuvieri

4.02 m ♀ 568 kg Medren Pier
 Captured Dec 6, 1976

Stomach contents (less head of turtle)

T. Trikas

1- lateral (?) 8" length

Lamina - 1- lateral (?) 8" length

saved → 1- Central (?) 4 3/4" center line-length
 5 3/4" width along edge
 3 3/4" center line-width

1- Central (?) smaller

4- Marginals - 3 1/2" length

3 1/8"

3 1/8"

2 3/4"

Photos taken 5/1/77

Left front flipper - 12 1/2" from
 radius/ultra joint

(as a comparison -
 Canton Green lateral lamina measured 14")

1/30/78 Report from AF crewman well ^{I was at} at Canton - he
saw private person at KWAIJALEM
preparing a very large green turtle shell.

10/23 data compilation
as per Hirth (1971) for Green Turtles:

Juvenile: up to 40cm (16")

Sub-Adult: 40cm - 80cm (32")

Adult: > 80cm

From: 125 SIGHTING REPORTS

	Green	HAWK	UNK	
Juvenile	 8 5		 10	
Sub-Adult	 8 23 * 13	 7 5	 17 30	
Adult	 13 13 11		 4 8	
TOTAL	 41 6	6	 48	95
	<u>29</u> 70	<u>9</u> 15	<u>21</u> 69	<u>59</u> <u>154</u>
(Near shore on the reef)	 21 33 6		 18 40	
Pinnacle	 1 2 6	 2		1
open water	 5 2	 4 3	 7 7	
Inside	 (5)	 (5) 	 (10)	
outside	 			
TOTAL	41	6	48	95
	<u>28</u> 69	<u>9</u> 15	<u>26</u> 74	<u>63</u> <u>158</u>

Number of ^{turtles} reported by Lambersons - 32 ~~th~~
 Time of year No. sighting reports - 28

"Moving fast" - 7

Start October 1974 TO October 1979 (5 years)

males - 4 greens, 1 unknown

Smallest - 12" UNKNOWN, 15" green (7-10" greens #109)

Deepest report - > 100' AdH hawk - Pinnacle; ^{Turner} But also sighting along 300' drop outside.

Largest -

Tags -

- OBSERVATIONS -

"Tame" 8-75 #35

- Groups -

#41 6-14 turtle ocean side west end of Alice

#51 5 turtles lagoon side of Glenon

#65 "Greatest density" Alice to Edna 10"-24" ^{W/2}

#81 6-8 4'-3' Green turtles 250 yd lagoon side of Kate 12/76

Sighting Report #2 12/6/74

Randall - Oman - Lamberson et al.

Green turtle shell in stomach of 11 1/2' tiger caught off Fred at edge of wide channel - (shell (scute) in

my office - Adult green)
 #83 12/15/76 Tricas Tiger stomach contents

Jan 74 - Johannes-Lamberson caught and ate a 0.5 m green

Report #20 3' wide tracks - nesting -

lagoon side of Jerry 1/6/75
 Report #48 3/76 Feeding on garbage scraps

#90 2' green-back right flipper missing 7/77

#100 2 1/2 -- skin divers "Never became alarmed at presence"

#109 4 - 7 to 10" greens 9/78 right off Lojawa

Manner of sightings:

Skin

Scuba

Shore

boat

helicopter

#20 - NESTING Report 1 June 1975 Leroy

#69 - Green turtle captured 8/28/76 near Wipima -
I saw the shell.

NOTES: NO COPULATION EVER SIGHTED
NO HATCHINGS EVER SEEN / FOUND

underwater explosions 1948-1958

sighting

1. #

2. 3

3. 3

4. 3

5. 3

6. 3

7. 3

(2) 8. 3

9. 3

10. 3

11. 1

12. 1

13. 1

14. 1

15. 1

16. 1

17. 1

18. 1

19. 1

20. 1

21. 1

22. 1

23. 1

24. 1

25. 1

26. 1

27. 1

28. 1

29. 1

30. 1

* Note - PHOTOS of TAGGED HAWKSBILL by LAMBORSON
(NEED SLIDES from file for specific DATA)

HAWKSBILL - Summary

sighting Report

1. #27	-	2' (SA)	Juvenile: 1	(<u>6.7%</u>)
2. 31	-	2' (SA)		
3. 33	-	18" (SA)	Subadult: 8	(<u>53.3%</u>)
4. 34	-	> 3' A		
5. 52	-	2' (SA)	Adult: 6	(<u>40.0%</u>)
6. 82	-	1'		
7. 94	-	60 cm (SA)		
(2) 8. 97	-	24" (SA) 28" A		
9. 98	-	~ 2 ft (SA)		
10. 99	-	about 30" A		
11. 102	-	2 1/2' - 3' A		
12. 111	-	30" A		
13. 113	-	24" (SA)		
14. 124	-	2 1/2' A		

(15) TOTAL -

HABITATS: Nearshore or fringing reef: 8 (53.3%)
Pinnacle: 2 (13.3%)
Open water, lagoon: 5 (33.3%)

(15) TOTAL

GREENS (from p. 76)

Juvenile -	13	(18.6%)
Subadult -	31	(44.3%)
Adult -	26	(4 males) ^{of which 1 died} (37.1%)

TOTAL -

70

HABITATS: Nearshore island or fringing reef: 55 (78.6%)
 Pinnacle: 8 (11.4%)
 Open water, Lagoon: 7 (10.0%)

TOTAL - 70

UNKNOWN SPECIES (from p. 76)

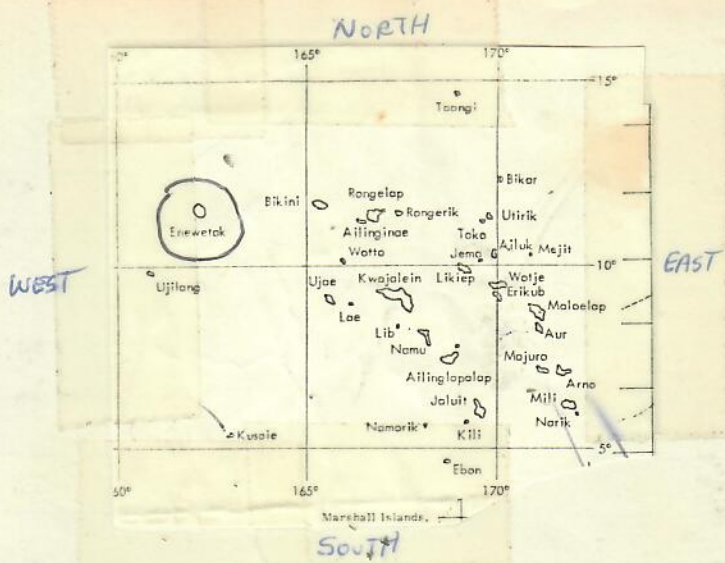
Juvenile -	10	(14.5%)
Subadult -	47	(68.1%)
Adult -	12	(1 male) (17.4%)

Total -

69

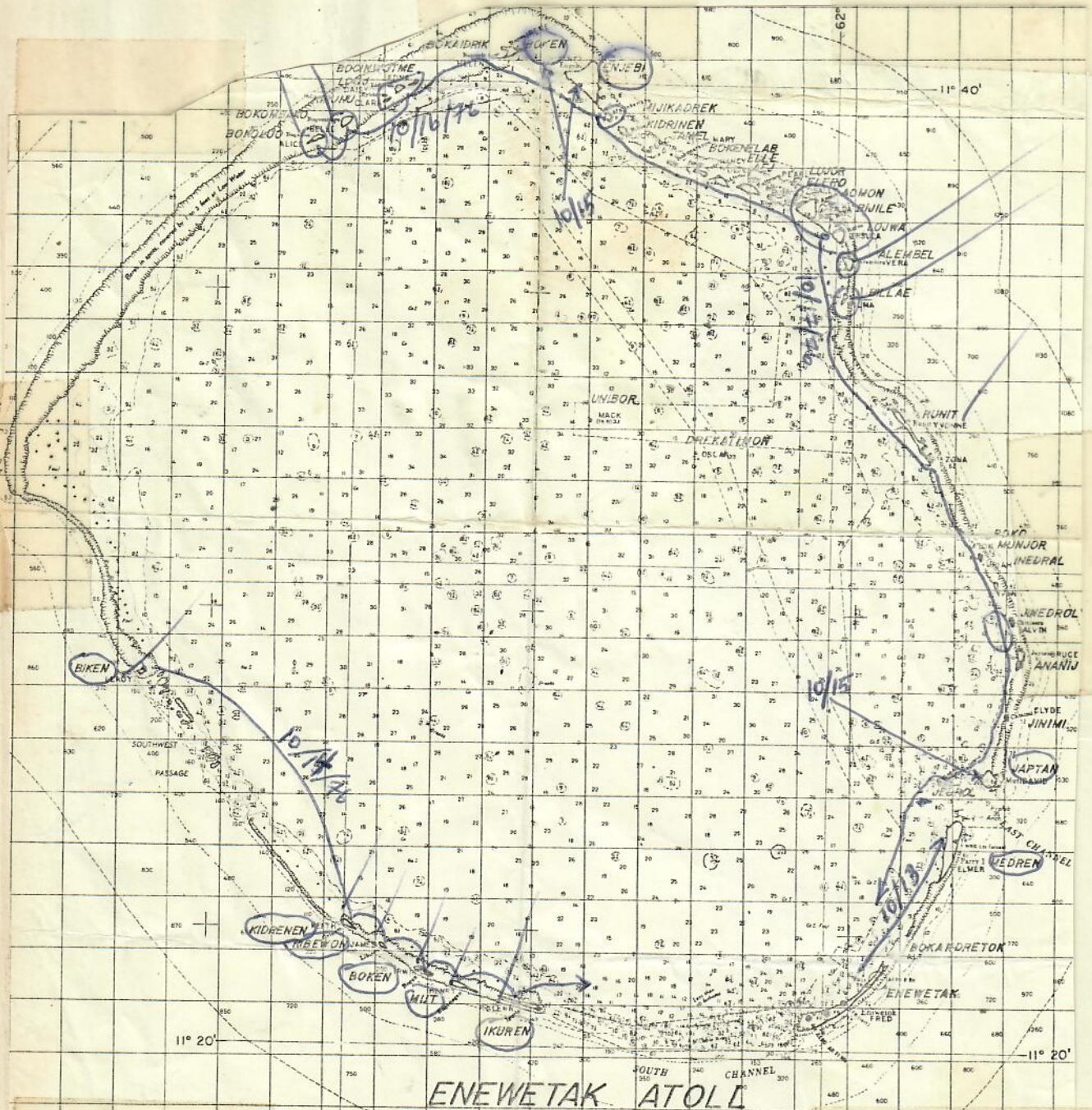
HABITATS: Nearshore island or fringing reef: 62 (83.8%)
 Pinnacle: 2 (2.7%)
 Open water, Lagoon: 10 (13.5%)

TOTAL - 74



TEL. (808) 247-6631

BALAZS - Hawaii Institute of Marine Biology
 P.O. BOX 1346 - KANEHOE, HAWAII 96744



ENEWETAK ATOLL

180 182 184 186 188 190 192 194 196 198 200 202 204 206 208 210 212 214 216 218

11° 20'

11° 20'

11° 40'

162

10° 10'

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