

BOOK I

2 OF 2

FFS
1979
Book 1

10-30 JUNE 1979

(808) 395-6409

EXPEDITION 23

BALAZS

27 JUNE 79 3:30 PM East Reef juvenile capture.

S-16^{7/8} x 13^{3/4}
 42.9 / 34.4

3156 C-17^{3/4} x 15^{7/8}
 45.1 / 40.3

PL-13^{5/8} 04.6

3159 HEAD-2^{7/8} 7.3

TAIL-2^{3/4} 7.0

Weight-25^{1/2} lbs

Caulerpa sampled from mouth
 and retained. GB-451

Polysiphonia, a green plston alga, and skin
 barnacles present.

pink coralline alga present on postcentrals.

C-130 dropped rail at Tern Island sometime
 this afternoon.

During noon census at SNEP I observed
 4-5 turtles "coming in" from NE side
 of SNEP reef (see map on page).

27 June 79 *
Wednesday

The most significant unanswered question about Hawaiian Chelonia life history continues to be:

HOW DO HATCHLING OR JUVENILE TURTLES PRODUCED - AT FFS ARRIVE AT RESIDENT FEEDING PASTURES IN THE MAIN ISLANDS?

Possibilities -

- 1.) Swim there directly as hatchlings (against prevalent winds and currents)
- 2.) Swim there as juveniles after growing to this size in pastures to the NW of FFS (where they were carried by currents as hatchlings);
- 3.) An undescribed "gyre" carries the turtles there and by the time they arrive they are juveniles of ~ 35 cm.
- 4.) They make an ocean current circle throughout a vast expanse of the North Pacific (see Euz about photo of sea turtle on Milwaukee Bank; also note presence of juveniles at Wake, Marcus).
- 5.) Turtles in the main islands (as some turtles in the main islands) don't originate from FFS; They come from Mexico or Rostogiados.
- 6.) Combinations of the above.

28 JUN
Thursday

26 SEP 2002

27 June 79 ~~Wednesday~~ Spent a lot of the afternoon keeping an eye on pregnant seal to see photograph her "pupping".

Noted that shark line is stuck again - probably another gray reef shark.

Noted one - 5 foot shark on and around east reef - did not get a good view, but it appeared to have white tips on pectorals and dorsal.

Hard, cold rain at 10:00 PM. 5016
At 11:15 survey, I recovered 5018, on sand point, labeled her TC 52. - Should be a feeding pasture tagging at Kaalualu, Hawaii.

SEE "Pupping" observations
page 107

28 June 79
Thursday

*Note, that component of breeding population returning to the major islands will be confronted with an "up-hill" swim. This must be difficult given the fact that considerable energy has been expended hauling out on land to rest, and traveling to FFS. An important point would be if all this takes place using body - nutrient reserves, or if feeding takes place while at FFS (East Island in particular).

During the return from FFS, some turtles could become disabled or exhausted and take up residency at a pasture other than

28 JUNE 79

Thursday

the one of original residency. This could involve Necker, other pastures in the main islands (possibly Kawai since it is the closest) or Seven Johnstons Atoll if disorientation was considerable.

* Concerning interesting interval, the energy expended while hauled out for resting might be so great that rest is absolutely essential during this period. As per Scyra ^{Ph.D.} thesis (Florida), rest in the air, where respiration is readily possible, would be far more efficient than resting underwater where a trip to the surface would periodically be necessary.

At ~ 11:30 AM walked to SNEP for survey and observations. At ~ 12:30 PM, once again observed turtles along NEP reef and coming in to NEP basking beach.

Could different colored turtles originate from specific feeding pastures? Need to examine the shells of adults from different pastures to possibly answer this question.

Could Bronze-Copper abandoned machinery in water be toxic to coral?
Ask Steve Smith. (see later notes on Smith interview)

28 JUNE 79

Thursday

At East Island, and other islands, baskets are in contact with moist sand most of the time.

"Sand Flipping" serves to cover part of the surface with moist sand, as well as place front flipper in contact with deeper and moist sand.

Scratches in painted TC numbers most certainly result from contact with coral - probably while resting in underwater shelter habitat.

Can high number of baskets ashore in the breeding season be predicted by examining tide and time combinations (i.e. lower tide 11AM-5PM)?

Stayed at SNEP until ~ 2 PM, when I returned to tent because of large rain squall. As it turned out, the heavy segments were to each side of East.

Had planned to go to Whale-Skate today, but heavy rains, and strong winds/choppy seas to the North-Northeast prevent this.

Tagged a "new" basket on Sandpoint - 3260 RR. Noted a fair amount of dried up Turbinaria can be found along the shoreline.

The presence of "late arrival" turtles to the breeding colony is indicated by

- 1) an untagged, NOC turtle after tagging for 15 or more consecutive nights;
- 2) A sudden burst of copulation along shoreline

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Thursday

Perspective:

Each ^{discrete} feeding pasture makes a contribution to the breeding assemblage - both males and females. Need to know numbers necessary in a pasture (by size class) in order to make the contribution. Hirth's mortality rates paper in Copeia? Types of mortality - human, shark (both in pasture, and enroute and at FFS) - others? Groupers? Consider that slower growth rates would theoretically result in higher predation - smaller size exposed to predators for longer period of time. Based on information thus far gathered, I seriously doubt if "developmental migrations" take place during juvenile and subadult stages. At Puuakua and Kaalualu, nearly all sizes of turtles are present. In the case of Bellows where only juveniles - small subadults have been captured, the adults may very well be present (and have grown up there), but are using a different part of the same pasture/discrete area (further offshore). Consider Kaneohe Bay, where Scuba dives along outside of "dropoff" revealed some adults at ~90' depth.

Time of high tide suggest that transition will soon take place whereby turtles will start to emerge early in evening - shortly after sunset.

29 JUNE
FRIDAY

and two very "aged" as reflected by fast growth" detected at this area.

possibly neophytes "follow" turtles to Hawaii. This would be Hawaiian from Mexico to nest at

29 June 79 ~~FRIDAY~~ Recovered 651 ~~HMB~~ ^(TC55) and 2255 (TC49) last night.

651 RFL appeared in good condition - this would be a 1973 turtles - 6 years elapsed time.

* The identification of neophytes (recruits to breeding assemblages) would appear to be very difficult with small numbers - note that after 6 years, tag 651 measures 3478" SL. Perhaps adults from "slow growing" pastures can be I.D.'ed by this means.

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and two year cycle as reflected by post growth detected for this area.

* Consider possibility that turtles are traveling from a particular pasture in groups - i.e. All of my 2-year recoveries are from Hilo to South Point Pasture (as evidenced by one-year recovery in Hilo Bay & 5078 from Kapaolu). Late ^(longer cycles) arrivals may be from other pastures - simply, adults from pastures that produce slow growing turtle DO EVERYTHING SLOWER.

Possibly neophytes "follow" older turtles to rookery - This would permit turtles recruited to Hawaiian pastures from Mexico to nest at FFS.

Perhaps turtles of a "group" even bask near each other - check 1979 basking TC's. Remember baskers on Trig recovered by Flip Nicklin sleeping near each other in barge off of North Tern.

29 June
79
FRIDAY

Note - that "choj" has been heavy on East Reef in recent days, therefore apparently keeping juvenile turtles from feeding.

Note - that weaned pups have been present on East Reef - feeding?
Weaned pups would be the best suited of any age group for TAGGING.

Note - that I have put a lot of "ground wire" once again this year - particularly along eroded bank of areas 12-13.

Do young adults follow older animal to breeding grounds - learn how to get there? (suggested by Hendrickson to me in 1974)

Tiger sharks only feed on slow (or injured) prey? (unsuspecting prey?)

Leopard Rays seem to have no fear of tigers - always seen splashing at the surface in deeper water around East.
(too fast for tigers?)

"Cathedral"

Noted original 1973 stacks for area 4-5;
(photo Roll 9)
Also present by pole.

29 June 79
FRIDAY

What is responsible for the white
silt/scum frequently noted on feeding
juveniles?
Collected plant specimens.

~1545 Depart East (with all gear) for Whale-Stat-
Surveyed SNEP reef edge but only saw
2-3 turtles.

Arrived at W-S 1615 - fast trip -
fairly calm seas.

Scoop netted a large (~100lb) green
in West Cove - ripped net and escaped.

Arrived at Trig 1800h - observed
Meter D (two tie wraps broken) and 1205 mile
basking right again eroded humus bank
on West shore. one turtle had "sand
flipped" partially into the bank.
Meter D ^{female} removed.

also observed and photographed juvenile
seal with now opened "boil." appears
to be healing well. Heard crickets
on Trig.

29 June 79
FRIDAY

Arrived at Tern ~ 1845 h - hauled
boat out and packed/cleared all
gear for departure tomorrow - and
shipment on buoy tender. Didn't finish
up until ~ 1 AM.

29 JUNE
FRIDAY

30 June 79
SATURDAY

Bob Justman, ^{copilot - Leslie} FWS chapter arrived
~ 10 AM. Passengers included Dale Coggelsham,
Dennis Black, Brent, two other FWS personnel,
Captain Holtzman (former Tern Island CO).

Two other aircraft arrived at ~ 1115 AM with
Admiral Lauth, Advertiser photographer David Yamada,
Sun Press reporter, Channel 2 news Sandy
Carney, and UPI reporter, and USCG Public
Relations.

Decommissioning
Ceremony took place on tennis court, followed by
dinner on mess deck.
Following dinner, the sign with "last crew" names
was unveiled.
Captain Holtzman indicated that no fishing boats
were at FFG during his tenure - only one
small sailboat; ~ 8 seals could be seen at
any one time on Shark. At one time, Shark
disappeared altogether. Indicated that East

29 JUNE 79

FRIDAY

was moving - "quonset huts were out over the water." This man brought back a seal pup from W-S - took it from mother. It was fed turafish and milk with a tube, but died within 1 1/2 months.

He remembers 6-8 specific times that turtles nested on Tern. Once they found dead, dried up hatchlings beside the runway. PMR was active at that time - USCG fed them and was reimbursed.

Note that he stated that Whale and Skate were separated.

His daughter (7th grade) did a report for school on FFS.

(Two daughters now in USCG Academy)
Walked to East end of Tern and took photos of Sooty Tern colony. Bob and Leslie were on beach - she took photos of her with adult monk seal.

Departed Shoop ~ 4:15 PM. Lengthy discussions with Capt. Holtzman concerning Tern. Arrive Honolulu International about 7:45 PM.

SEE HAND DRAWN MAP.

~~W.L.B.~~ Requested
Class ball book

SA. Ed. A. Guy II
USCGC Basswood (WLB 388)
FPO San Francisco
96601 (Guam)



U.S. FISH AND WILDLIFE SERVICE
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Coast Polluted

NAGS HEAD, N.C. (UPI) — Raisin-sized globs of oil washed up along about 20 miles of North Carolina's Outer Banks resort beaches today, polluting the coastline for the second time this month.

Officials said the ribbon of oil, about 50 feet wide, and was sighted south from the Cape Hatteras national seashore north to Kill Devil Hills.

Businesses several miles north of the beach reported a 12-foot-wide strip of oil up to a quarter inch thick on their shores.

Tony Barrett, town manager of Nags Head, said beaches would remain open unless the spill worsened. He said tourists were on the beaches this morning despite the oil.

L.J. Drozdowski, a Coast Guard officer who inspected the spill shortly after it was sighted early today, said it is similar to one that washed onto more than 60 miles of the barrier island chain about two weeks ago.

Chief Petty Officer Chuck Kern of the Coast Guard said cleanup work for that spill, costing the agency nearly \$100,000, almost was finished when today's spill was sighted.

A-12 Honolulu Star-Bulletin
Wednesday, June 27, 1979

like FFS

FRENCH BRIGADE SHOALS ROSTER

<u>NAME</u>	<u>SSN</u>	<u>ROTATION ASSIGNMENT ADDRESS</u>
LTJG A. M. HEGGERS	463 98 2771	NSO Huntington, P.O. Box 2412 Huntington, W.V. 25725
EM2 M. A. GEORGE	536 56 2733	SEVENTH CG District Federal Bldg., 915 2nd Ave., Seattle WA 98174
SA E.A. GUY	229 04 7583	CG Base Honolulu, HI
FA A. J. HOME	368 70 8339	LORSTA SAIKAN, Box 337 Saipan, Marianna Isl 96950
HM1 H. D. HYLTON	218 44 8995	CG Station St. Petersburg, 600 8th Ave. S.E. St. Petersburg, FL 33701
HM1 R. A. JOHNSON	457 94 3674	CG Station Port CHARLES NONE, AK 99762
ET3 W. E. JONES	517 74 5934	CG OMEGA Sta., P.O. Box H Kaneohe, Oahu, HI 96744
MK2 T. J. KNIGHT	242 74 0608	900 Beach Dr., Rio Vista, CA 94571
EM2 J. D. MCMAHON	460 78 8473	CGG HOLLYHOCK, 100 McArthur Causeway Miami Beach FL 33139

ET3 K. J. MITCHELL	077 48 8026	CG Station, Panama City, FL 32401
ET2 B.W.H. ROBERTS	259 11 4780	CG Sta. Ft. Myers Beach, P.O. Box 2469 Ft. MYERS Beach, FL 33450
SA J. B. ROBINSON	478 86 7108	OMEGA Sta. LaMoure, P.O. Box 568 LaMoure, ND 58458
ETC R. E. STAREN	546 90 0139	COMSTA Portsmouth-NM, C/O NAVSECGRUACT Chesapeake, VA 23322
ET2 E. W. TOMBERLAKE	541 86 6418	LORSTA Cape Blanco, P.O. Box N Sixes, OR 97476
SS1 T. D. VILLANUEVA	568 80 2713	AIRSTA Brooklyn, Floyd Bennett Field Brooklyn, NY 11234
SA D. P. WILLIAMS	266 53 8234	CGC BASSWOOD, FPO San Francisco 96601
SA R.L. Bowman	425-86-7278	41A Chudress Sheppard AFB, TX 76311

Disestablishment of LORSTA will be on 30 JUNE 1979. All personnel will leave on 7 July 1979.

Why do the juvenile turtles grow ~~so~~
so slow??

Some of the same food sources are present in separated pastures.

For example, Codium at FFS, ~~is~~ also present at Oahu.

Could Caulerpa be a growth inhibitor? note Doty's Science article on "Caulerpin Toxin."

Postnote:

Does life in different feeding pastures / food sources / availability of food / coastal pollution produce different corrosion rates in turtle tags?

Note Pritchards "Age of Turtle - Age of Tag"

Note - for turtle tags, "small is better."

Note - That Arn Heggens stated that Nachias people gave Carretti marijuana, Carretti being the "drug offices", gave it to Arn.

5 JULY 79 Steve Smith indicated that a cold spell could possibly have killed coral reef NE of East Island. Copper is very toxic to corals, but usually only in a closed system. However, toxicity at East might be possible, as sand scouring of metal takes place. He also indicated that "tectonics" of a few centimeters could change conditions. He stated that Hawaiian sea level is believed to have been at the same level for about the last 3000 years. Even then, the most recent are in the area of about 3m. He also notes that it is believed that as you go farther north, calcareous structures are more likely to be associated with mollusc ~~shells~~ and barnacles. He also questioned if the change now seen at East might not be part of a long term normal cycle. Suggested that I check Ed Bryan's 1923 maps.

[Continued on page 81, Book 2]

AREA UTILIZATION (successful nestings)

<u>TC</u>	<u>AREA</u>
TC 1 -	6
TC 4 -	6
5 -	6
6 -	2
8 -	6
9 -	4
10 -	6
13 -	7
14 -	2
16 -	6
17 -	11
19 -	5
20 -	SP
21 -	13
22 -	2
23 -	1
24 -	6
28 -	5
29 -	7
30 -	6
31 -	11
32 -	1
35 -	6

<u>TC</u>	<u>AREA</u>
TC 36 -	5
37 -	13
38 -	2
39 -	5
41 -	5
42 -	5
43 -	10
44 -	6
47 -	4
50 -	16
54 -	15
56 -	2
57 -	6

36 = Total

11	-	AREA 6 = 30.6%
6	-	Area 5 = 16.7%
5	-	Area 2 = 13.9%
2	-	AREA 4 = 5.6%
2	-	AREA 7 =
2	-	AREA 11 =
2	-	AREA 13 =
2	-	Area 1 =
1	-	SP = 2.8%
1	-	Area 10 =
1	-	Area 15 =
1	-	Area 16 =

12 of 18 AREAS
AREAS 4-5-6-7 accounted for 58.5%

SOIL SAMPLES COLLECTED DURING EXP. 23
(Zip Bags)

<u>DATE</u>	<u>LOCATION</u>	<u>COMMENTS</u>
1.	Trig Island - Nishore basking beach	(with Whitton)
2.	EAST Island - Spout coral rubble	(with Whitton)
3.	East Island - SEP Basking beach	
4.	GIN Island - Nesting area (subject to seasonal rearrangement)	
5.	Little GIN Island - Nesting area (subject to seasonal rearrangement)	
6.	East Island - Area 6 nesting	
7.	East Island - Area 5 nesting	
8.	East Island - Area 17 nesting	
9.	East Island - Spout nesting area (subject to seasonal rearrangement)	
10.	Trig Island - Nesting area - NW rim	
11.	Whale-Skate - 6/29 Central nesting area	
12.	Tern Island	

23 (13 recoveries + 10 possible tag loss) of the 62 turtles examined on 6/29
may have previously had tags (37.1%)

FLAP SCARS, KNOTS AND OTHER ABNORMALITIES

NESTERS

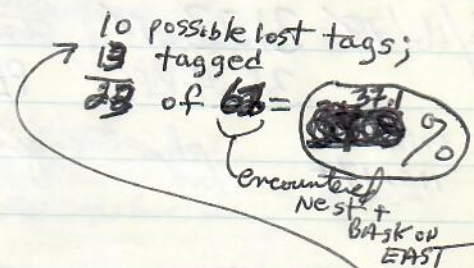
- TC8 - Left flap partly missing
- TC9 - Piece missing in distal left flipper
- TC11 - knot in left flap
- TC25 - Tumors on ventral flaps
- TC27 - Small tumor on ventral left flap
- TC35 - Slit hole close to edge in left flap; knot in right flap
- TC41 - Part of left flap missing
- TC43 - Piece missing in distal right flipper
- TC51 - Piece missing in distal left flipper
- TC49 - Right flap missing

check recoveries with a single tag to see if second tag was originally placed on turtle. Try to answer question "Can tag hole heal up and not be detected?"

BASKERS

6/19 - 3174	EAST ✓
6/21 - 3187	W-S
6/21 - 3188	W-S
6/23 - 3195	W-S
6/23 - 3215	W-S
6/26 - 3233	W-S

also see p34



5

11 ~~W-S~~ / females East Island Total

(4 does not include recoveries with tags, ONLY THOSE EXAMINED w/o TAGS)
 10 out of 49 = 20.4% (Nester + bask on East)

20.1 %

13 out of 62 + ~~11~~ w/tags (excluding SD19, tagged elsewhere)

CONSIDER INITIATION OF DRILL HOLES IN MARGINAL AS SECONDARY MARKING SYSTEM.

23 (13 recoveries + 10 possible tag loss) of the 62 Turtles examined on East may have previously had tags (37.1%)

26 SEP 2002

BASKER TAGGINGS and Radiometer - cloaca readings

DATE/TIME	TAG NOS.	SEX	LOCATION/REMARKS
6/15/79 ~ 2PM FRIDAY	3117; 3118; 2029	MALE Black short tailed long tails on front flippers	W-5 (Turned) Rectal 29.1°C Polysiphonia on skin; Tail - 10 1/2"; PL - 26 3/4 w/tape Ends of front flippers injured from thrashing.
6/15/79 ~ 2:30PM ENT. #231	3119; 3120; 2031	FEMALE Black	Rectal - 31.3 (Turned) Mean estimated wt 115.0g based on PL SL Appears thin; Scabs on limbs and neck possibly indicative of copulations TAIL - 9 1/4"; PL - 29 1/8" w/tape This turtle came out twice to bask over ~ 2 hour period
6/16/79 Saturday	3121; 3122; 2033	MALE BLACK	W-5 (Turned) TAIL 2/3 missing - healed - pseudo penis comes out LH limb 1/2 off but healed; Photos Roll 2 29.1°C cloaca
6/16/79	3123 LFL 3124 RFL	FEMALE Blackish shell	Basking ~ 30 minutes (Turned) W-5 Radiometer 38°C CLOACA - 27.5°C PL - 28 1/4"; Tail 9 3/4" yellow-orangeish plastron like most others
6/18/79 Monday	3150 RFL	Male	AT3 East (Bask) RH limb 1/2 missing - healed.

ENTERED
NO. 177

6/18
6/19
6/21
6/21

26 SEP 2002

DATE/TIME	TAG NOS.	SEX	LOCATION/REMARKS
6/18/79 ✓	3151 [Subsequently TC-17]	FEMALE	EAST Bay w/ Barnacle - very high on NEP
6/18 ✓	3152 [subsequently TC-39]	Female	SEP EAST
6/18 ✓	3154	?	SEP EAST
6/19/79 Tuesday	3164 6/26/79 Bask w/S	Female	BASK-W-S
6/19 ✓	3165 NO. 176	Female	W-S
6/19 ✓	3166 6/21 BASK-W-S	Female	photo on Roll 13 following ghost crab W-S
6/19 ✓	3167 6/29/79 BASK-W-S	Female	NO. 155 4/15/82 - W-S TW-S
6/19 ✓ Tuesday	3168	Female	W-S
6/19 ✓	3170 RFL not checked	Female	reddish color areas in carapace EAST (photo)
6/19 ✓	3171 LFL 6/28/79 - NEP EAST (subsequently TC 57 6/29)		
6/19 ✓	3172	MALE	Bad Bites on Flippers, Bites showing SEP EAST
7-27-84 NOTE	GOARCH, but couldn't locate TAGS	3173 - ENT.# 255	ASSUMED TAGGED AS BASTER EAST IS
6/19 ✓	3174 6/24/79 SEP 6/29 SEP EAST	FEMALE	(spot) PINK AREAS ON R Flap - may Be due to previous TAG SEP EAST
6/21 Thursday	3187 RFL ENTERED NO. 139	Female	(tag flap on right pinky) W-S
6/21 ✓	3188	Female	possible scar on flap W-S
TAGS: 1/83 Anon returned to Bill Puleloa on MOLOKAI - also 3269 (same turtle?)			

26 SEP 2002

BASKER TAGGINGS (CONTINUED)

DATE/Time	TAG NOS.	SEX	LOCATION/Remarks	DATE
6/21/79 6/21/79 Thursday	3189	Female	W-S	6/26
6/21/79 10306 ENT. NO: 420	3190	Female	W-S	6/27 Wed
6/21/79	3191	Female	W-S	6/28
6/21/79	3192; 3193	Female	W-S	6/28
6/21/79	3194	Female (small 2/34")	W-S	6/28 Thursday
6/23/79 SATURDAY	3195 RFL	Female	W-S RFL MISSING	6/29 Friday
6/23/79	3215 RFL	MALE	W-S left flap has pinkish spot - but no knot	6/29
6/23/79 2345h 6/24 2300h Area 10, BASK	3216 RFL ENTERED NO. 81	MALE	W-S BASK NEPT EAST	6/29
6/24/79 SUNDAY	3224 RFL (MANY BARNACLES B&W on B)	MALE	W-S SEP EAST	6/29
6/26/79 TUESDAY	3233 LFL	Female	W-S pliers did not release - swam off with pliers healed - in scale close to flap.	6/29
6/26/79 1700	3234 ENT. #101	MALE	W-S	6/29
6/26/79	3235 RFL	FEMALE	W-S	6/29
6/26/79	3236 RFL 3237 LFL	ENTERED NO. 68 FEMALE	W-S	

BASKET TAGGINGS (CONTINUED)

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26 SEP 2002

DATE/TIME	TAG NOS.	SEX	LOCATION/Remarks
6/26/79 TUESDAY	3238 ^{did it lock?}	Female	EAST
6/27/79 Wednesday	3243, 3244	Female (Big)	SEP-EAST
6/27/79 1730h	3245 RFL 6/28-1630 SEP	Female	ENT #238 SEP-EAST
6/27/79 1730h	3246, 3247	ENTERED No. 183 Female	SEP-East
6/28/79 Thursday 1530h	3260 RFL	Female	SP-East
6/29/79 FRIDAY	3268 RFL	Female	NEP EAST
6/29	3269	Female	water's edge W-S
6/29	3270	Male	Bask-W-S
6/29	3271	Female	Bask-W-S
6/29	3272, 3273	Female	Bask W-S
6/29	3274 LFL	MALE	Bask-W-S
6/29	3275 RFL	Female	Bask W-S

ENT. NO. 36 - 6/26/86 Term - N RV
 Recovered late June or early July 1986 FFS vetter M. Major
 Possible healed spear hole in left side of snout
 observed biting tail of
 ENT. #112

HEAD &
SUMMARY OF A TAIL MEASUREMENTS

DATE	SEX	PLASTRON	HEAD	TAIL	TAG	LOCATION
6/15/79	M	26 ³ / ₄ " 67.9		10 ¹ / ₂ " 26.7	3117	TRIG
6/15	F	29 ¹ / ₈ " 74.0		9 ¹ / ₄ " 23.5	3119	TRIG
6/16	F	28 ¹ / ₄ " 71.8		9 ³ / ₄ " 24.8	3123 ³¹²⁴	W-S
6/16	M	27 ¹ / ₂ " 69.9	-	13 ³ / ₄ " 34.9	2397	W-S
6/17	F	29" 73.7	4 ⁷ / ₈ " 12.4	9 ¹ / ₂ " 24.1	1201	TRIG
6/17	F (SL-29 ¹ / ₄)	24" 74.3	4 ³ / ₈ " 11.1	6 ¹ / ₄ " 15.9	3082	TRIG
6/17	M	26 ⁷ / ₈ " 68.3	5 ¹ / ₈ " 13.0	14 ¹ / ₄ " 30.2	2593 ¹²³³	TRIG
6/17	M	26 ³ / ₄ " 67.9	4 ³ / ₄ " 12.1	15 ¹ / ₄ " 38.7	1214 747	TRIG
6/17	M	28 ¹ / ₄ " 71.8	5 ¹ / ₈ " 13.0	16 ¹ / ₂ " 41.9	2828	TRIG

- need plastron - length conversion from
Kridler measurements

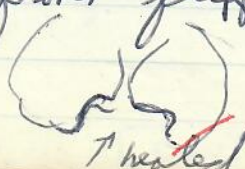
Recorded on master sheet

10 Oct 2002

TURTLE TAG RECOVERIES

DATE	TAG NO.	SEX	LOCATION / REMARKS	DATE
✓ 6/15/79 FRIDAY	Tag-1237, 3053 Depth Meter B (80')	3 May 79 Trig Female	BASK - Trig north shore	6/17/79 SATURDAY
✓ 6/16/79	Tag-2003 Blue, 1719, 3034 Depth Meter C (80' but probably not accurate) 1718	3 May 79 Trig Female	BASK - W-S	
✓ 6/16/79 Saturday	2397 RFL 2398 LF 2399 LF	25 Sept 1977 male BASKER w/5 MALE PL-27 5/8 Cloaca - 27.0°C 34.9	BASK - W-S (TURNED) V-notch in LFLimb; healed piece missing RHLimb RFLimb partly missing - healed.	no pigment noted 6/9/80
✓ 6/16/79	3063 RFL 6/17 - all 7PM's 3169 NEW	5 MAY 79 SEPEAST Male BASKER	1020 AM Area 12-13 East	6/17/79
✓ 6/17/79	3059 RFL 6/29 NEPEAST	11 AM 6/19 All 7PM's; 6/28 NEPEAST 5 MAY 79 NEPEAST Male BASKER	NEPEAST East	1230
✓ 6/17/79 Sunday	943 GA2	Feb 78 JAN 76 JUNE 78 Female BASKER	215 PM TRIG	
✓ 6/17/79	1201 RFL (good condition) 3129 (new) 2032 LF (black new)	JAN 76 Female BASKER Skin barnacles present; Skin algae sampled. Also stomach.	TRIG (#2) Just hauled out - Cloaca 26.4°C Seawater 26.9°C GB-443	6/17/79 747
17 JANUARY 1976		Female BASKER Trig	PL-29"; Head-4 7/8"; 9 1/2" Tail lot of light color in carapace. 23.7 12.9 24.1	

1 OCT 2002

- | DATE | TAG NO. | SEX | Location/Remarks |
|----------------------------|----------------------------------|--|--|
| ✓ 6/17/79
SUNDAY | 3082 RFL
3130 LFL new | ^{6 May 79}
TRIG Small Female | TRIG (TURNED) (#3)
Skin barnacles; stomach sampled. GB-450
- high & dry when turned. Cloaca 28°C
S-29 1/4 x 23
PL-24" 61.0 HEAD-4 3/8 TAIL-6 1/4
11.7 15.9 |
| no pigment noted
6/9/80 | | | Black pigment in margins of plastron - photos Roll 2
Also photos of distraught & this turtle with another female.
mark seal (mother of dead pup) |
| ✓ 6/17/79
1230 | 2593 RFL
3131 new | ^{April 76}
^{June 78} Trig MALE | TRIG (TURNED) (#4)
Dry - 30.7° centigrade
"25" blue - yellow bottom
penis goes in and out -
possibly stimulated by telethermometer probe -
possibly semen present; penis photos Roll 2;
Skin barnacles; stomach sampled; Healed curved
piece missing from left hind limb.
PL-26 7/8; S width - 25 5/8; HEAD-5 1/8; TAIL-14 1/4
68.3 65.1 13.0 36.2 |
| ✓ 6/17/79
747 | 1214 LFL
2616 LFL
2827 RFL | ^{68.3}
^{68.6} "old 747" MALE GB-447 | TRIG (TURNED) (#5)
Sore algae regurgitated when turned;
Stomach sample collected;
Just emerged - 26.7°C cloaca
seawater - 27.3°C; 27.1°C
PL-26 3/4; S width - 27"; HEAD-4 3/4; TAIL-15 1/4
12.1 38.7 |
| | | | Thick flesh and scabs on trailing edges
of front flippers.

↑ healed
photos Roll 2 |

Turtle Tag Recoveries (Continued)

DATE	TAG NOS.	SEX	LOCATION / Remarks
✓ 6/17/79 SUNDAY	2828 3132 RFL PURPLE DISC LFL webb	MALE Cloaca - 26.9°C	(Jvener) TRIG (#1)
			PL-28 1/4; HEAD-5 1/8; TAIL-16 1/2; SWATH-27 7/8" Black pigment in plastron - photos 32-35 Roll 2; Tumors completely covering and/or growing out of left eye; Small TUMORS on ventral neck - photo skull 2; These TUMORS were cut off & preserved in glutaraldehyde Stomach sample retained - may not be much. GB-445
✓ 6/18/79 Monday	3058 6/20 - All East Bask EAST	Male	BASK A13 EAST
			Tumors on both eyes & chin.
✓ 6/18/79 Monday	2594 LFL; 122 RFL	MALE	BASK - NEP EAST
			US WILDLIFE HONOLULU RF limb ← miss
✓ 6/18/79 ENTERED NO. 39	2688 RFL 6/24/79 BASK SEP - 3225 LFL (new); 6/29 SEP BASK	MALE	BASK - SEP EAST
			Tumor on Left Flap
✓ 6/18/79	3028 3153 new	Male	BASK - SEP EAST

*See also
6/26/79

Turtle Tag Recoveries (continued) 91

10 OCT 2002

DATE	TAG NOS.	SEX	LOCATION/Remarks
6/19/79	3041 6164	MALE	Bask - W-S
6/19/79	3018	MALE	Bask - W-S
6/19/79	3077	MALE	BASK - W-S
6/26/79	w-s (see below)		
6/19	2598 2597	MALE	BASK - EAST
6/21/79	3166	Female	BASK - W-S
Thursday	erroneous entry same expedition recovery	(Gold colored like captive)	
6/21	Depth Meter C ²⁰⁰³	Female	42' (reliable) Bask - W-S
6/23/79	Depth Meter C ²⁰⁰³	Female	20' (reliable) BASK W-S
SATURDAY			
6/24/79	1268	Female	Bask SEP EAST
SUNDAY	HIMA (photos on B&W roll)		
6/26/79	Depth Meter C ²⁰⁰³	Female	1300h 20' (reliable) BASK W-S
TUESDAY			
6/26/79	3076	Female	Bask W-S
	6/29 - Bask W-S		
6/26/79	3077, 3078	MALE	2 BARKS, 2 NO LAT RIGHT BASK W-S

[CONTINUED ON PAGE 96]

BASKING TURTLE CENSUS

DATES/TIMES	MALE	FEMALE	I	Total	OFFSHORE			LOCATION
					M	F	I	
6/15/79 1-4pm FRIDAY	2	4	0	6				TRIG
6/16/79 12 NOON SATURDAY	3 ^{2 SEP} (23%)	10 ^{4 NEP} 6 SEP (76.9%)		13	copulating in SEP			EAST
6/16/79 2pm	3	4	8	15	--	5		W-S
6/17/79 11 AM SUNDAY	1 ^{3059 NEP}	5 ^{4 NEP} 1 SEP	1 ^{Nov 8}	7	2 cop. + 1 SEP			EAST
6/18/79 1830 MONDAY	7 ^{2 NEP} 3 SEP (23.3%)	23 ^{9 NEP} 10 SEP (76.7%)	0	30				EAST
6/19/79 1730 TUESDAY	1	0	0	1				TRIG
6/19/79 1800	3 (37.5%)	5 (62.5%)	0	8	one juvenile close to East shore			W-S
6/19/79 1845	3 (18.8%)	13 ^{6 NEP} 5 SEP (TC 6) 2 SP (TC 1820) (81%)		18				EAST
6/21/79 1300h THURSDAY	2 ^{-TMS eyes, both shoulders} "hook tail"	13		15				W-S
6/21/79	1	0		1				TRIG
6/22/79 ~1130 FRIDAY	3 ^{NEP} (13.6%)	19 ^{11 NEP} 11 SEP (86.4%)		22				East
6/22/79 2:50 PM	-	-		0				GIN
6/22/79 3:30 PM	-	-		0	1-TC 3?? 1-cop. Attempt L-GIN			GIN
6/22/79 1830 PM	0	25 ^{10 NEP} 15 SEP		25				EAST

(quantity) BASKING TURTLE CENSUS (CONTINUED)

DATES/Times	MALE	FEMALE	I	TOTAL	OFFSHORE			LOCATION
					M	F	I	
6/23/79 130pm SATURDAY	1	3	0	4				W-S
6/23/79 200pm	1	0	0	1				TRIG
6/24/79 1400 SUNDAY	2 ^{SEP}	29 ^{15 NEP (5 TCs) 14 SEP (9 TCs)}	0	31			several	EAST
6/24 1830	-	12 ^(8 TCs)	-	12				EAST
6/25 1215 MONDAY	0	10 ^{6 TCs}	0	10	2 SEP	8 NEP	passing RAIN strong winds	EAST
6/26/79 12 noon TUESDAY	0	5	0	5				W-S
6/26/79 1630h TUESDAY	-	-	-	0				TRIG
6/26/79 1700h TUESDAY	4	4	0	8				W-S
6/26/79 1800h	1	16 ^{1-5P 2-NEP 12-SEP}	0	16				EAST
6/27/79 1300h WEDNESDAY low tide	2 ^{SEP}	14 ^{9 NEP - 7 TCs 5 SEP 5 TCs}	0	16				EAST
6/27/79 1730h WEDNESDAY	1	18 ^{13 SEP 4 NEP}	0	19			2 males close to shore	EAST
6/28/79 1230-2 PM Thursday	3 ^{1-NEP 2-SEP}	19 ^{10 NEP 9-SEP}	0	22			several offshore	East
6/28/79 1630 Thursday	0	20 ^{14-SE Ball TCs 6-NEP, all TC or tagged}	0	20				EAST

BASKING TURTLE CENSUS (CONTINUED)

DATE/TIMES	MALE	FEMALE	I	TOTAL	OFFSHORE			LOCATION
					M	F	I	
6/29/79 12noon FRIDAY	1	1-NEP	12	TC1 one to 10 7-NEP (6TCS) 4-SEP (3TCS)	13	several		EAST
6/29/79 1430h FRIDAY	2	2-SEP	14	TC20-SP 5-NEP (4TCS) 8-SEP (allTCS)	16	Numerous at NEP reef edge on plot of SNEP		EAST
6/29/79 FRIDAY 1615h	4	0	7		11	→		W-S
6/29 1800h	1	0	1		2	1205 & meter D ♀ 941		TRIG

TURTLE TAG RECOVERIES

10 OCT 2002

[CONTINUED FROM PAGE 91]

DATE	TAG NOS.	SEX	LOCATION/REMARKS
√ 6/26/79 TUESDAY	3039	1 May 1979 BASK-W-S MALE	BASK-W-S
√ 6/26/79 6/28/79 NEAR EAST	2232 LFL 3248 ^{RF} new Right Flap missing 6/27 1730 BASK NEP 6/28 1630 BASK SEP	FEMALE	BASK-EAST (Pure white collagen patches) on carapace. - Big, thick turtle
√ 6/27/79 wednesday 6/28/79 NEAR EAST	2238 LFL 6441	Female	BASK-NEP-EAST
√ 6/29/79 FRIDAY	3019	2 May 1979 BASK-W-S Female	BASK-W-S
* 6/29/79	3069	Should be in BASKER TAGGING S	water edge BASK W-S
6/29/79	3070	Thought it was a Female observed biting tail of 3070 - MALE ALSO ENTERED THERE	BASK W-S
√ 6/29/79	2663 RFL	HookTAIL - 13 June 1978 NEP-EAST MALE	VENTRAL FLAP TUMORS BASK-W-S
√ 6/29/79	2756, 3276 (new)	17 June 1978 BASK-W-S MALE	BASK-W-S
√ 6/29	Depth Meter D(OFF) 70' 941	Female Not Reliable	BASK, West TRIG
√ 6/29 FRIDAY	1205 3277 (new)	MALE	BASK, West TRIG

MONK SEAL TAG RECOVERIES

DATE	TAG NO.	STAGE	LOCATION/REMARK	DATE
6/16/79 SATURDAY	A775	Adult Gray ♀	W-S ~95" long by long 0	6/26/79 SATURDAY
6/16/79	A923	Adult Brown	W-S	6/26/79
6/16/79	212 scar head	Adult female without PUP	W-S	6/26/79
6/18/79 MONDAY	Round light spot ~ 5" dia Right side-back area	Almost adult	East	6/28/79 MONDAY
6/21/79 10AM	775 (see first entry)	Adult female newly molted - By fallen pole, area 11 - measurement = 87" Photos on Roll 4	East	6/28/79 THURSDAY
6/21/79	⊙	Approximately 1/2 grown male with "donut" shaped white mark on right side - about mid body position.	pole - Area 11 East	6/29/79 FRIDAY
6/22/79 FRIDAY	Seal with pup on little Gin has distinctive face scar - Photos on Roll 5.			6/29/79 FRIDAY
6/22 1830	Adult seal w/ left eye glass - thin scar on forehead - photo on Roll 5		[note that glassy eye seal was photographed on EAST JUNE 1978]	6/29
6/23 0700	A754 possibly "4" yes	Female w/pup area 3 only one tag, popped open.		
6/24 0030	A788	ADULT Male	East Area 16	
6/24 1230		with another seal, presumably female (yes)		

DATE	TAG No.	STAGE	LOCATION/REMARKS
6/26/79 TUESDAY	straight scar on right side, about 14" long.	Adult	W-S
6/26	A22	BIG MALE	TRIG
6/26/79	A757	Adult	W-S
6/28/79 Thursday	Mid-body line scar seal - photographed during expedition 22 on Trig Island. With female Area 6; Photo on Roll 9; Pelage looks old - check to be certain this is indeed the same seal as Trig.		
6/28/79 Thursday	Partly missing right hind flippers; with pup in Area 15 since I arrived. "Boil" on back has stopped draining. Photo on Roll 9.		
6/29/79 FRIDAY	503 US Wildlife KAUAI - Big Female		W-S
	with brand new pup; 2 photos on Roll 9; May circular wounds covering body - did not see this seal during previous visits this expedition.		
6/29	opened Boil -	SA	photos, BW roll c TRIG

SEABIRD COUNTS & other wildlife

6/20/79 WEDNESDAY
 1. Black-footed albatross young - (near fledg)
 SE to pole - 600, Pole to NW - 364
 total - 964

2. Laysan Albatross young - 380 (near fledg)

3. Frigatebirds - 114 (newly hatched to 1/2 down 1/2 feather)

4. Common Noddy COLONY 0
 sp by tent: Rubble - veg. 12 young
 (48 eggs; 7 chicks, 5 1/2 grown)
 (C3) area 7: 42 eggs; 32 young (C4) area 4: 19 eggs; 24 young (C5) area 1-17: 37 eggs; 20 young
 Many with BANDS
 223 eggs
 32 young
 Some area scattered & build nests in bushes; all susceptible to Turtle damage.

5. Red-tailed Tropicbirds - 6+? (small fuzzy young)
 1 - intermediate size, 4 Banded juveniles

6. Wedgetailed Shearwaters - 583 active burrows -
 eggs put no young (burrows caved in by turtle); many more adults at night
 heads get out, but not body

7. Sooty Terns - 2100 young - fledged - juvenile plumage
 (estimate count)

8. Masked Boobies - 47 young (1/2 down, 1/2 feathers)

9. Red-footed Boobies - 8 young (1/2 grown, all down)
 (note mortalities of mokuau (April-May) described by whitlow - He suggested to
 Manned that dead birds be cleared up before Audubon members arrive)

10. Grayback Terns - 9 young fledged - juvenile plumage

Gray Reef Sharks - 2 schools of ~10-15 each 6/20/79
 Leopard Rays - 3+1

Juvenile turtles feeding offshore - 3-4 with incoming tide, however - have been tagged since 1973.

12. Plovers - groups of 2-3+

13. Turnstones - several flocks of ~15 each.

surface area -
 Reduction -

Human usage -
 MARINES - Rainbow
 NAVY - SEAPLANES
 MARINES - security force
 Fishing base
 USCg 1944
 1952

14. Ghost crabs - (2 species) some up high in vegetation;

15. Misc. Shore Birds - SPECIES same as Enewetak photo;

16. Ulua - Reef fish see 1974 sampling study

17. INSECTS (?) poison spider previously I.Ped.; chiggers that bite people; cockroaches; termites, Dermatitis; flies;

18. Vegetation (?) exotic weeds;

→ [Additional Noddy Tern note: Have observed Noddys chasing young and adult Goonies out of their colony by hovering overhead, making noise, and flying down in threatening gestures. Also seen 20 Chased Masked Bobby and Tropicbird that entered colony.

→ [Additional shearwater note: Broken egg in burrow revealed very small embryos.

- Defenders reference

- Amerson ARB for FFS, EAST IS.

Sea Frontiers? Elepaio?

19. Tiger Sharks - Note groups caught on shark cable.

Noddy Tern nests seen to consist of twigs, vines, leaves, feathers, pieces of sea shells, string, Gooney bird regurgitation material, & feathers. On light wind, hot days Noddies like to roost by water;

MONK SEAL CENSUS

DATE	TIME	LYP	Adult	SA	P	SWP	LOCATIONS
6/14/79	6 PM	0	107 27	31	2	0	South shore TERN
THURSDAY							
6/15/79	1:15 PM	3 ^{green}	16	6	0	0	TRIG
FRIDAY							
6/16/79	12 NOON	1	21	7	24	12	EAST
SATURDAY							
6/16/79	2 PM	5	31	9	17	6	W-S
Saturday							
6/16/79	6:45 PM	0	16	21	9		ROUND
Saturday							
6/16 or 17	Pup born on north beach of Trig - but apparently suffocated; mother in attendance. 6/19 mother still there; 6/21 mother gone. Have noted several seals with holes or tears in flippers, presumably from tags.						
6/20 wed	New pup born during the afternoon at SEP						
6/21	SA (possibly LYP) with back abrasion on W-S - photo on B&W roll A.						
6/21	SA with tar on chin-mouth: Laying next to two large globules - photo on B & W roll A.						

<u>Dates</u>	<u>Times</u>	<u>LYP</u>	<u>Adult</u>	<u>preg</u> <u>molt</u>	<u>SA</u>	<u>P</u>	<u>SWP</u>	<u>LOCATIONS</u>
6/22/79 FRIDAY	2:50 PM	2	0		3	1	0	GIN 1 (detached sandspit)
6/22/79	3:30 PM	5	5 (1 preg?)		6	4	1	LGIN
6/23/79 SATURDAY	12 NOON	0	5		1	0	0	BARE

- HAVE NOTED SEVERAL NEW "PAIRS" APPEAR ON THE ISLAND - MALES FIGHT WITH APPROACHING SEAL - DEFENSIVE. EAST
- HAVE NOTED A NUMBER OF SEALS WITH TEARS OR HOLES IN HIND FLIPPER(S), PRESUMABLY FROM TAGS. [All Islands]

6/24/79 SUNDAY	2345h night count	0	24	1 preg 4 pairs	6	28 ^{twentyone} (winter)	10	EAST
But no moon - nocturnal feeding may be related to stage of moon.								
6/26/79 TUESDAY	12 NOON	5	29	1 preg	17	19	6	W-S
6/26/79 TUESDAY	1630	2	16	2 molts 3 pairs	7	0 ^{1 dead pup}	0	TRIG
6/26/79 TUESDAY	1400	1	2 (pair)		1 front flipper cut	0	0	TERN

- Except for newborn pup on Trig, no recently dead seals have been noted.
- My impression is that considerable turnover occurs of seals on land (observable).
- Lugging seals seem to show up on East just a day or two before giving birth.

6/27/79 WEDNESDAY	1:00 PM	1	17	3 - pairs 1 - molt	3	28	9	EAST
----------------------	---------	---	----	-----------------------	---	----	---	------

<u>DATE</u>	<u>Times</u>	<u>LYP</u>	<u>Adult</u>	<u>Preg molt</u>	<u>SA</u>	<u>P</u>	<u>SWP</u>	<u>Locations</u>
6/28/79 Thursday	1230	1	21	3-pairs	1	26	10	EAST

6/29/79
Friday

Noted two new pups on W-S since last visit - one has lots of "circular" wounds
photos on Roll 9 & BW Roll C

total high counts for Shoals:

pups - 63 excluding Shark
and Disappearing

PRENATAL, NEONATAL AND POSTNATAL OBSERVATIONS
ON A HAWAIIAN MONK SEAL

6/27/79
WED

This could very well be the
same female that came ashore
for the night of 6/25 in area 9-10.
[
was comfortable
on land?]

Between 2-3 PM a pregnant seal (very large) hauled out on the beach of area 16, near boat anchorage. Most of the time she remained very quiet - however, several times she "rooted" forward with head buried in sand - presumably to form comfortable place in sand. On one occasion, the "white spot" male hauled out by her for a short time. No particular alarm was displayed, and male left a short time later. During observations, I noted a peculiar "flopping" of the hind flippers periodically taking place. Due to the incoming tide, she eventually got hit by waves, thereby moving higher up beach. Spent much of the afternoon watching her for possible photographs of birth. At 7:30 PM she crawled all the way up into vegetation zone of area 16 and into large turtle pit. Sunset was approximately 7:55 PM - full darkness - 30-45 minutes later. At 10 PM there was a very hard cold rain lasting ~15 minutes. A 15 minutes

6/28/79
Thurs.

after midnight, while returning from turtle survey, I noted newborn pup (by mother's posterior). Pup appeared clean, but I did not observe for very long. ^{Blood stain by nostril of mouth.} Mother and pup still in turtle pit. Prior to this, TC 54 attempted to nest a short distance away in area 17. Later on she went back into the water, came out in area 15, and laid eggs. At 0015 observation the pup was bleating (bawling), and nursing or making an

28 June 1979
Thursday

attempt to nurse. There was no sign of the placenta.

at 0230, and 0600, mother and pup were still in turtle pit.

At ~ 0915, mother moved a short distance out of pit toward the water. Pup moved to her, to her head possibly in response to vocalization which took place. At ~ 0930 they had progressed about halfway down beach slope, where mother rolled to her side and nursing took place. At 1100 observation, mother and pup's heads were toward the water lying side by side - and waves were occasionally washing their heads. Note that mother has ^{large} blood stain spot on back - apparently she rolled on the expelled placenta. At 1100 h, heads are facing inland and pup is nursing.

Frequent nursings probably take place during these early days, just like in the young of the human species.

→ Is regular use of an island for hauling / bogging purposes a prerequisite for pupping? This would seem like a logical sequence. Mother and pup stayed close to water all day. At ~ 5:30 PM they crawled back into vegetation zone into a different turtle pit.

At 7:30 AM, I made close observations of ~~mother~~ sleeping pair. Pup had recently passed some dark brown feces.

6/29/79

3:30 AM observation revealed that pup was not

6/29/79
Friday

6/29/79
FRIDAY

in contact with mother - both were sleeping. A young SA, possibly LYP, was also sleeping just five feet from head of mother.

At 6:30 AM mother and pup were still in vegetation. When I awoke at 9:30 AM, both were already laying close to the water. Juvenile LYP green seal is on beach ~ 15' from pair.

Upon departure the seals had still not been totally in the water, however, waves have lapped portions of body.

CLIMATIC

DATE	SEAWATER TEMP.	OBSERVATIONS	DATE
6/12 - 6/13/79	ROUTE TO FFS -	strong trades - but on our stern	6/22/79 FRIDAY
6/13 - 6/14 Wed. Thurs.	strong trades; passing rain squalls with sunny times	FFS - LATERHOUSE TERR	6/23/79 SATURDAY
6/15 Friday	FFS - (26.3°C Trig) Telethermometry	Trades down - light seas	6/24/79 SUNDAY
6/16 Sat	EAST (26°C glass thermometer) 7:30 PM At 3:30 PM 27.5°C at W-S, open whittow.	Sunny; Hard during early morning at TERR; light wind calm seas.	6/25/79 MONDAY
6/17 SUN	EAST	TRIG SEAWATER - 27.3°C (withittow) AM hours - frequent bright lightning - moderate rain PM - light wind - hot all day - 10 PM hard rain on EAST.	6/26/79 TUESDAY
6/18/79 MONDAY	East - FFS (26.5°C glass thermometer)	Hot, sunny but strong winds slightly to East-SE. short light rain ~ 9 PM	6/27/79 WEDNESDAY
6/19/79 TUESDAY	EAST	hard rain at 9 AM moderate to strong trades all day; Hard Rain (~30 minutes) at TERR; Hot - sunny.	6/28/79 THURSDAY
6/20 Wednes.	EAST	7:30 AM frequent rain squalls; daylight - hot - sunny; strong trades, choppy seas. Afternoon - passing rain showers intermittent with sun - strong wind	6/29/79 FRIDAY
6/21/79 Thursday	EAST	strong trades during morning, but lessened in afternoon. Sunny and cloudy.	6/30/79 SATURDAY

DATE	SEAWATER TEMP.	OBSERVATIONS
6/22/79 FRIDAY	East 28°C	night ^{was} short rain; morning light trades; cloudy; Hot & sunny all day - light trades
6/23/79 SATURDAY	East	Moderate Trades back - sunny with passing clouds; short rain last night; short rain 6/23 PM night.
6/24/79 SUNDAY	EAST	Morning - moderate - brisk trades - Sunny - passing showers to the North. Strong Trades during afternoon, several passing rain showers (light rain fall); same during night - Got soaked once in areas
6/25/79 MONDAY	EAST	Frequent rain showers AM; continuing in decreasing quantities through afternoon - strong trades; but no rain at Tern. Sunset - 7:55 PM. ^{cold} Hard 10 minute Rain at 11 PM
6/26/79 TUESDAY	EAST	short cold rains at 1 AM and 3:30 AM - STRONG trades - choppy seas all day. passing rain squalls.
6/27/79 WEDNESDAY	EAST 27°C	moderate trades - big rain squalls still; periodically passing through shoals; moderate - light Southwest swell apparent; Hard cold rain at 10 PM for ~ 15 minutes. A few rain AM of 6/28 -
6/28/79 THURSDAY	EAST THIN MOON DURING EARLY EVENING	moderate to strong trades all day - very rough seas; heavy frequent showers through shoals but only a few hit East. Too rough/squally to travel to whale-skate. Intermittent sun.
6/29/79 FRIDAY	EAST - FFS	AM - Wind decreased - bright sun; light winds all days - hot - lots of sun.
6/30/79 SATURDAY	TERN - FFS	light winds - sunny & hot all day

ROLL

Subjects

1 ASA64 (EL)
20 EXPOSURE

6/11 Leka; 6/13/79 - Lakemouse at sunrise; 6/15 plastron view of 2031^{LF} Black 3119; photos of quarters on Tern from BW; East 6/16 IS, erosion; Whittow recording seawater on W-S;

2 ASA64 (EL)
36 EXPOSURE

6/16 - Whittow with radiometer on W-S; plastron & Tail-Penis of MALE BASKER 3121; 6/17 - 4 wean pups together; Shoreline of East Island; 3082 with seal on Trig; 3082 plastron; 2593 tail and penis on Trig; 1214 TRIG showing curved pieces missing from hind limbs; 2828 Trig black in plastron & Tail; Trig with WA from BW.

3 ASA64 (EL)
36 exposure

6/18 Buttonwood at anchor with Tern in background; Fairy Terns on valve handle & concrete post (PL filter) ^{Ti Knight}; 6/19 - Ghost crab on ~~W-S~~ ^{W-S}; Tag 3166 ♀ basking on W-S; Seal faces by fallen pole on East; Sand point with lots of glass bottles on beach; wide-angle of island with rainbow; 6/20 - Bulldozer in sand; seal with black footed; pup by coral chunk (W.A.); last two shots - Sootys in flight
6/19 - (morning) Seal w/pup; basking turtles; panoramas of East Island

ROLL A
100' 16mm
Movie

4 ASA64 (EL)

6/20 seal pup by rusted 55gal drum; JC 4 Basking ^{250mm PL}; BASKER with barnacles; Abandoned black pup with basking turtles; 6/21 Sooty Tern in flight at 9 AM; Seal Tag 775; Seal face by worm eaten log; young albatross with wings spread; Seal with pup and basker; Sooty Tern in flight.

ROLL B
100' 16mm
Movie

6/20 - 3:30 PM Baskers, island panorama.

ROLL

Black & white

FL A ASA 125
36 EXPOSURE

5 ASA 64 FL
36 exposure

NOTE TO
KODAK - "SAVE
LAST FRAME
ON ROLL"

✓ 6 ASA 64
NIKKOR MAT &
FLASH

TC 36
2995
covering

Black & white

FL B ASA 125
36 EXPOSURE

6/24 - Basking turtles and seals at SNEP, including male with many barnacles; tag recovery 1268 HMB ♀ RFL; TC 11 along side "domed" female; Areas 5, 8, 9, (dark clouds); Two basking turtles at NEP, on partly on top of the other; Sunset at Sand Point, East Island - glass bottles, TC 20, and seals.

✓ 8 ASA 64
NIKKOR MAT

Kodak
Try to save
last on roll.

6/27 - Seal w/pup and basking turtle (many views); basking female with reddish areas in shell (all with 105 mm at NEP-East Island); Flash photos of TC 54 in area 16 6/27;
6/28 - 3 views of Noddy colony in front of tent; Photos of brand new pup nursing; Posterior photo of ♂ bitten and sand flip 3169, 3063; close up views with TC 30; TC 30 last on roll.

SUBJECTS

6/21 - W-S seal w/pup; Rooted Boobies tag on SA face; abcess on back; 6/22 - NE coast line of East; basking turtles w/close-up of TC 6 at SEP;

6/22 - two seal pups and basking male at NEP; Gin Island w/wa; L.Gin (wa) showing turtle pits; Adult female (with pup) on L.Gin showing distinctive face seen
6/23 - TC 36 in area 5 covering WA & 55mm; Base Island; seal on W-S with line wrapped on it; W-S standing on my white bucket. / CHANGED BATTERY
6/24 - TC 11 and rendered basker at NEP; TAG ON SEAL A788

6/24 ^{SUNDAY (M)} First few frame erroneously at F11; TC 39 & 41 nesting; TC 30 hind flipper's excavating; (A few frames erroneously at 1/30"); me by Pinball machine (self-photos).

ROLL

SUBJECTS

↓ 9 ASA64

Nikkormat

6/28 - self photos in areas 8-9 with abandoned machinery;
 at 4PM - TC30 SEP with 105mm; 3 photos of Noddy colony Areas with 105mm;
 TC 24 & 37; Seal w/pup in water 105mm 20th; Group of boaters
 SEP with 50mm, and 105mm; Area 15 seal w/pup, partly missing
 hind flipper. 6/28-6/29 TC56 area 2 "SEATURTLES LOVE CHRISTIAN"
 (Albatross in background); 6/29 TC1 (Gold Brown) & seal Area 10;
 Turtles & seals WA; 3 shearwaters 105mm; Area 5-6-7 (note 4-5
 stamps "sea turtles L.I.C."); Seal 503 US Wildlife KAILUA w/new pup (w-s)
 and "circular" wounds;

Black & white

C
 Nikkormat
 20 Roll
 ASA125

6/29 Seal 503 W-S (see above); opened Boil juvenile seal
 on Trig; 6/30 USCG-FWS closing ceremony

10 ASA64
 ELW

6/30 - Fuel tank/Tern beach where turtle attempted to nest;
 Sooty Tern colonies on Tern; Closing ceremonies on
 tanks court; views during dinner on mess deck;
 Justina & Leslie; Trig as departing stools;
 Maze reefs extending north of Gin - L Gin;

5 rolls of color EL; 2 rolls color Nikkormat; 1 partial roll ELW;
 2 rolls BW EL; 1 roll Nikkormat. (all with Nikkormat)

* SYNOPSIS POST NOTES: NIKKORMAT Rolls 8, 9 & BW C
 are underexposed - meter was set at midpoint,
 therefore in the future overexposure should be carried out.

Flash with Nikkomat should 1) use 5.6 f
stop with blue mode; or switch to
red mode for 15' distance subjects.

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METRIC SYSTEM WITH U.S. EQUIVALENTS

METRIC UNIT (1) U.S. EQUIVALENT

WEIGHT

milligram	mg	0.015 grains
centigram	cg	0.154 grains
decigram	dg	1.1543 grains
gram	g	0.035 ounces
decagram	Dg	0.353 ounces
hectogram	hg	3.527 ounces
kilogram	kg	2.2046 pounds
quintal		220.46 pounds
metric ton		1.1 tons

LENGTH

millimeter	mm	0.04 inches
centimeter	cm	0.39 inches
decimeter	dm	3.94 inches
meter	m	39.37 inches
decameter	Dm	32.81 feet
hectometer	hm	109.36 yards
kilometer	km	0.62 miles
myriameter		6.2 miles

VOLUME

cubic centimeter	cm ³	0.061 cubic inches
cubic decimeter	dm ³	0.0353 cubic feet
cubic meter	m ³	1.31 cubic yards
cubic decameter	Dm ³	13.10 cubic yards

METRIC UNIT (1) U.S. EQUIVALENT

AREA

square centimeter	cm ²	0.155 sq. inches
square meter	m ²	1.196 sq. yards
are	a	119.60 sq. yards
hectare	ha	2.47 acres
sq. kilometer	km ²	0.3861 sq. miles

CAPACITY, CUBIC

milliliter	ml	0.06 cubic inches
centiliter	cl	0.6 cubic inches
deciliter	dl	6.1 cubic inches
liter	l	61.02 cubic inches
decaliter	Dl	0.35 cubic feet
hectoliter	hl	3.53 cubic feet
kiloliter		1.31 cubic yards

CAPACITY, DRY

deciliter	dl	0.18 pints
liter	l	0.908 quarts
decaliter	Dl	1.14 pecks
hectoliter	h	2.84 bushels

CAPACITY, LIQUID

milliliter		0.27 fluidrams
centiliter		0.338 fluidounces
deciliter		0.21 pints
liter		1.057 quarts
decaliter		2.64 gallons

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JIA LU 2001
Water / *L'eau*
oil on canvas / *huile sur toile*
55 x 79 inches / 140 x 200 cm

呂佳 〈森〉 油畫

While many of my paintings are inspired by Buddhist ideas, this one is essentially Taoist, contrasting motion and stillness, and the force of water that can wear down stone. Water is a female principle, supple and cold, dark and mysterious. For me it represents the quiet softness of true power.

ABOUT THE ARTIST:

Jia Lu was born in 1954 in Beijing, China, where she worked as a nurse, an actor, a navy officer, and as an art editor before enrolling in the Central Academy of Art and Design to begin her professional training as an artist. She moved to Canada in 1983 where she continued her studies at York University. In 1995 her work underwent a dramatic change following a visit to Europe where she rediscovered the power of oil painting. Since then she has exhibited throughout Asia and North America. Ms. Lu now lives and works in California.

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