

Bullpen net info

BALAZS
1996-97

7

(808) 395-6409

BALAZS

MOLOKAI

15-19 JULY 96

24-26 SEPT. 96

JUNE / JULY 97

7

SCP-97-05

15-19 JULY 96 PALAAN

TAGS USED =
Q102-Q106
then
w/PITS ONLY

pages =
Tide = 5

5 pick-up days

65 captures, 28 w/TMES = 43.19%

of which 7 recaptures = 12.19%

w/MARC Rice

3 pickup days 24-27 SEPT. 96

p.33-48 TAGS USED = Q110-Q111
DATA + ALL PITS

SITE
B

59 TOTAL

(30 Turnover = 50.8%)

POLEWA
Doodie holding 16 Recaptures
9/2/96 HALAWA FOR DNA

Partially developed embryo DNA
HALAWA 9/25/96

29 JUNE (Sunday) =

JULY 97

TAGS USED =
Q118M
+ ALL PITS

Narrative p.56-

DATA PAGES 61-81

70 Turtles total - 5 pickup days, SITES F & B.

(36 Turnovers)
51.4%

BOORUM & PEASE
B&P

13 w/OLD TAGS = 18.6%

Composition Book • 9 3/4 in. x 7 1/2 in.

Available As:

Item No.	Sheets	Ruling
09-9130	60	College Ruled & Margin
09-9132	60	College Ruled & Margin & Paged
09-9134	100	College Ruled & Margin

BALAZS

ESSELTE

Esselte Pendaflex Corporation, Garden City, NY 11530
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Esselte Pendaflex Corporation.

Need TRACE

Sel 29.2
32.9
53.4
54.2
61.3

PAU Hava = 553-5342
PAUL Room - 119 (Large)

Tracking # 5396664770

3/13/88 From Ed - 200' off each wing
and 800' off grade to comply with
6/88 DLNR rule of 2000' MAX. So 1200' off
3200' = 2000'
2000' = 610M
3200' = 975M

24-26 Sept. 96 Sample List

50

RBC and Plasma samples from Palaau, Molokai, 24-26 September, 1996

<u>PIT tag ID</u>	<u>SCL (cm)</u>
2211304F3B	53.7
220E153C44	67.2
1F712E3012	58.4
2207557557	71.8
22011D1B58	63.0
220126367B	71.0
221A623629	64.2
2207405637	68.0
221158702C	48.6
22106F4205	76.5 CCL
221A63371E	51.3
2207325064	60.4
220F7B1201	56.9
2205252004	51.2
2204572B4C	59.9
2205240227	63.6
22053B5816	56.7
2205284508	72.7
220E11014A	70.6
2207593662	55.1
2211591458	69.9
1F6D69711A	68.8
22034D584C	43.7
220E30725A	63.7
4104114910	62.5
22046B3805	55.5
4104096A3F	65.5
41040C1F1A	69.7
41037F2707	72.7
41041E2609	79.1
410408560A	72.7
41041E0F6F	67.4
41037E013E	53.8
4104112536	57.7
41040A395C	58.4
41040B044A	62.2
410375220E	57.4
41041A3E3D	69.0
410379422F	74.2
4104200C3F	69.9
410414763E	64.7
407D340538	76.7
407D3F6C03	66.1
41037E530D	55.6
41041E626A	63.3
4104230A62	70.5
41037F0C55	63.1
1F771F0249	67.4
407D2C7E56	60.2
407D2C3E2F	64.3

9110

83.9

6 mm skin Biopsy

MAZE



B4 12-2-96 Honolulu Advertiser

Prawn farmers must rebuild after flood

By Edwin Tanji
Advertiser Maui County Bureau

KAUNAKAKAI, Molokai
— Prawn farmer Becky Bishop Yuen said she never thought filing for bankruptcy could be so inviting.

Becky and her husband, Mark Yuen, last month saw \$500,000 and three years worth of preparation and labor wiped out by flooding in the normally dry Palaau flats of Molokai.

"But farming is like that," she said. "You know it's going to happen sometime. We just never thought it would be in our first year," she said.

The Yuens each have more than 20 years of experience in aquaculture, from working at the Orca shrimp farm and the state's Anuenue hatchery to working in shrimp farms in South America.

In 1993, they began work on fulfilling a dream to have their own prawn farm on Molokai.

"We like Molokai," Becky Yuen said. "The first time we came here — in 1978, I think — I knew this was where I wanted to live."

They negotiated a lease with Molokai Ranch to build 14 acres of prawn ponds. They constructed 13 ponds, drilled a

well, installed pumps and bought equipment. They had stocked six ponds and had a harvest in October.

Then it began to rain.

"We got 20 inches of rain in an area that normally records 3.93 inches a year," she said. Their prawn ponds disappeared under a massive but shallow lake that formed along Molokai's south coast.

They're not giving up. State and federal agricultural officials already helped them to start applications for disaster relief, she said.

"Yeah, we'll rebuild. We'll make it," she said.

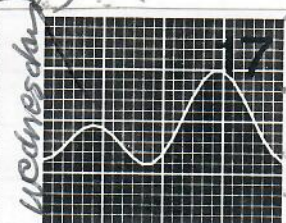
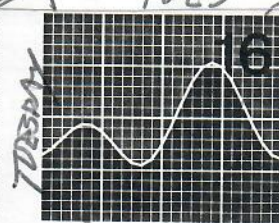
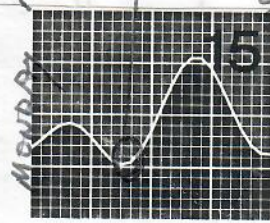
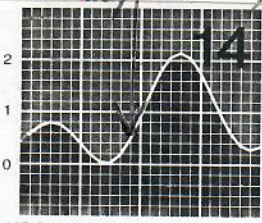
ED SET NET

DAY 1
2 w/ net
2 hand (near net) DAY 2

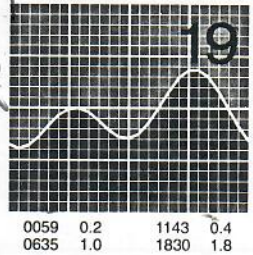
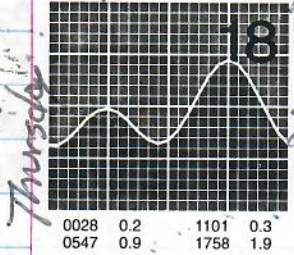
JULY 96
TUES DAY 3

5
DAY 4

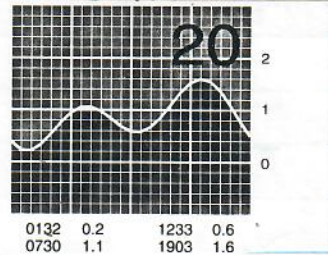
Sunday



Thurs.



Sat.



(Faint handwritten notes, possibly bleed-through from the reverse side of the page)

July 15, 96 Depart Island Air "Dash 8" FL.
Monday 6:30am Acene 7am.

Budget Rental 49.99 day.
Met Bill at Aunt's house and proceeded
to follow Ed / Dina / Jonathan / and
Richard to Waitane Petroglyph
site. Poled "Di" out to the
east where net had been laid out
in shallow water Sunday 7/14 by noon.
Numerous turtles seen by guide
and wings and around outside.
Laying still mostly. Only 2 turtles
found inside pen. One was V-728
Predominantly olive shell w/ black specks
originally captured Palau 1991.
Walked and poled in area
after bogging a small number of
fish. Turtles, mainly small, seen
resting still in shallow (2-3' deep)
water.

(husband Jerry)
Day 2 - Dina Potter, Mrs. Medeiros
A Toshia Potter (Tolani)
Jonathan, Richard (school) D
Mike Chang,

September 1, 1993

George,

Thanks for the data from the last expedition. Yes, it was a bit late! Erin has left for school...so it looks like I've got to enter them into the file myself. I guess it could be worse!

I don't understand how the confusion as to the id of sites! There really should be much of a problem to resolve any discrepancies. Each one of the turtles tagged anywhere on the south shore of Molokai have been assigned a site location. Give me a list of the animals you have in question, and I give you the location as to where they were captured and released. I think it is important for us to have this facet of the dbase coordinated.

A most interesting recovery from the Gilberts! Go to show you how important the tagging of turtles are if they are to managed properly. Gotta spend more efforts in the Marshalls as it very well may be the center of breeding activity for much of the northern Pacific, Hawaii not withstanding.

Report almost pau! Yeh...I know! Like saying the "check's in the mail", but it's true! IT IS ALMOST PAU!

Best regards,

Beel

July 24, 1996

George.

Thanks for copy of data.

Ernest has an unlisted number so I couldn't call him. Furthermore, the post office will not disclose his box number...so please send your standard "I thank you and we'll dig it up later" note to:

Mr. Ernest Deutsch
c/o Kaunakakai Post Office
Kaunakakai, Molokai, HI. 96748

Turtle data as follows:

1. 26.0 cm curved length
2. no tags
3. #1 & 2 tumors on neck, RFF, and LH
4. LFF missing

I forgot to mention to you while you were here the following stranding:

6/29/96 at Kamiloaloa

1. tumors (#4) on both eyes
2. RFF missing
3. no tags
4. 90.0 cm straight length
5. 99.0 cm curved length
6. mature male

Sunday 7/14/96 - MONDAY 7/15/96 - WAIKANE

Pick-up Day 13
SITE "O" Sunday-Monday

#1

RECOVERY

RFF V-328
LFF V-330
RH V-329

ATypical color pattern!

1. scattered small black spots on carapace of olive color.
 2. grey areas / patches on plastron
- Soft skin.

NEW PIT

- 4103760F01



SL: 61.3 ditto NOTCH

5 lateral scutes on right

SW: 48.1

6 central scutes

head width: 9.5

RF width: 9.2

SCORE = 1.

Tumors: #2 (1) RFF - Shoulder area.

48.3 = PLASTRON

T = 13.5, 11 = tail

Blood: V328

For plasma banking and RBC for DNA.

CL: 68.0

CW: 59.0

need

photo taken of Johnathan & Richard holding turtles standing in water

14 Sun. - Mon
7/15/96 - 7/16/96

SITE "O"
DAY 1

#2 SL 48.4 NOTCH 48.1 RFL: Q102
SW 38.5 RH: Q103
CL: 52.0



410414182C

Blood - Q102

#3 49.8 SL NOTCH 49.3
40.8 SW
52.5 CL RFL: Q104
38.7 PLASTRON RH: Q105



1F68766122

Blood: Q104

#4 44.1 SL NOTCH 43.7 RFL: Q106
37.5 SW RH: Q107
46.0 CL



1F6D404463

Blood: Q106

END of Day #1

total DAY 1 = 4 (1 TIME, 1 RECAP. (1 TIME) newly tagged = 3

TAGS

STRAIGHT
Length x notch x width Curved
Length x width

#1 54.6 x 54.3 x 42.7 58.0 x 51.5

RECOVERED (PT): ^{New} 2007266158 p. 86 tumor count

SCORE: 2

SEE TABLE for
Plastron: 44.7
Blood sample: V844

RH = V-844 ✓
LH = B-812
RFL = V-840
LFL = V-843

#2 52.3 x 52.0 x 48.1 56.0 x 49.5

CLEAN



Blood Sample: 1F716
PLASTRON: 42.2
RHF: 1/4 missing; healed

#3 49.6 x 49.6 x 39.2 53.0 x 47.0

CLEAN!



Blood: 200A6
PLASTRON: 39.8

#4 61.0 x 60.5 x 47.5 65.0 x 57.5



Blood: 41040
PLASTRON: 49.3

16

DAY 2 SITE 0

7/15 - 7/16/96
MON TUES CURVED

TAGS

STRAIGHT

L x N x W

L x

#5

52.7 x 52.5 x 39.9

56.5 x 47.0

Suspicious bump

on left eye: ~~|||||~~

PLASTON: 41.6

Blood: 4104182



4104182D33

- Blood

#6

8 central scutes!

Blood: 4004194

43.9 x 43.3 x 36.4

35.1 x 41.0

clean!

4104194E4A



- Blood

35

#7

68.7 x 68.3 x 51.4

73.6 x 63.5

POSTERIOR

tumor R eye #1 (1)

PLASTON: 54.5



4104173523

- BLOOD

SCORE = 1

LEFT FRONT PUDDY MISSING

Healed

∴ PITTAG ON RFF!

#8

PLASTON: 38.0

STRAIGHT

47.6 x 47.4 x 38.4

curve

50.0 x 44.5

4104101648



4104101648

- Blood

DAY 2 SITE 0

17

TAGS

7/15-7/16/96
Monday-TUES: Curved
CL x CW

9

STRAIGHT
L x N x W
57.8 57.5 43.5

Snorkel Hand capture (1221 hrs) Rice

Not Bull Pen

Tumors
Neck 1-#2

Plastron = 44.8

R. Eye - 1 #1

L 1 #2

Score = 1

4104185E20

Blood 41/418

L. Eye 2-#1

10

Snorkel Hand Capture 1220 hrs.

Not Bull Pen

L x W x W
44.9 44.2 38.8

CL CW
48 43.5

Plastron = 35.4

Blood = 1F715E



Sent
Need photo of V328

Richard McDonald
1120 Brookfield Dr.
Denham Springs, LA 70726

#11

Recovery

5/15/97

need from necropsy

7/16/96

V-852

found dead entangled in shoreside end of "guide" TMRs.

INTO 20 gal. galvanized trash can. w/ice in Paul Hara Room.

need measurements and TMR count from necropsy.

DAY 2 = 11 (2 TMR) (2 Recap, 1 TMR) Newly Tagged = 9

18

WEDS. 3rd day
7/16 - 7/17/06

SITE "F"

TAGS

Tues: wed: STRAIGHT

Curved

#1

41.9 x 41.7 x 33.5

44.5 x 39.5

22101F0937



Blood

#2

7+8 marginal left healed midline

43.4 x 43.3 x 35.0

47.0 x 41.5

2210080D3E



Blood

#3

58.6 x 58.1 x 42.8

67.0 x 52.0

221A720135



Blood

#4

43.9 x 43.7 x 35.8

46.5 x 41.0

2210063F4B



Blood

#5

59.6 x 59.4 x 46.0

65.0 x 57.0



22101A6113

Blood

#6

49.0 x 48.9 x 38.5

52.5 x 46.5

22105E2107



Blood

7/16-7/17/96

Day 3

Site F

STRAIGHT

CURVED

L x N x W

L x W

#7

67.6 x 67.5 x 50.4

72.0 x 61.5



2210733121

possible ♂
Blood

#8

50.6 x 50.7 40.6

54.0 x 40.5



221A616C2F

Blood

VENTRAL = 5.1cm

hamule

#9

47.7 x 47.0 x 37.0

54.5 x 44.5



221A751C4B

Blood

#10

63.1 x 67.9 x 47.9

68.5 x 61.0



220F7F4424

Blood

#11

63.4 x 63.3 x 48.1

69.0 x 59.0

221A623629



Blood

RFL = Healed Notch

20 7/16-7/17/96

DAY 3 "SITE F"

STRAIGHT
L x N x W

CURVE
L x W

#12 52.4 x 52.4 x 43.2

56.0 x 52.0

SCORE=1



2219281800

Blood

Tumor
RH #1(1) #2(1)

Regression?

#13 53.9 x 53.7 x 43.2

59.0 x 52.0

22100F3354



Blood

#14 61.3 x 61.3 x 48.7

66.0 x 60.0

4104135A1E



Blood

#15 57.5 x 57.5 x 45.0

61.5 x 56.5



4104017E0C

Blood

#16 54.6 x 54.4 x 41.7

59.5 x 50.5

4104185452



~~Blood~~

(No) blood drawn

#17 59.7 x 59.5 x 48.7

64.0 x 57.5

41040F2752



(No)

Blood

#18 44.6 x 44.3 x 36.1

47.5 x 42.5

410423071D



(No)

Blood

7/16-7/17/96

STRAIGHT

DAY 3

CURVED

21

L x N x W

site f

L x W

#19 72.0 x 71.6 x 57.5

78.0 x 73.0

Score = 1

4104134408



BLOOD

RFL #2(1) SHRUNKEN Regression?

#20 67.9 x 67.4 x 54.6

74.5 x 60.0

Score = 1



41041A2108

Blood

NEUK #2(1)

#21 67.6 x 67.7 x 53.8

72.5 x 61.5

Score = 2



4104231557

Blood

SEE TABLE ^{page 87} for tumor COUNT!

#22 45.9 x 45.3 x 37.3

49.5 x 43.5

Score = 2

41041F2324



Blood

Mouth #3(1) #2(1) left jaw tissue
Leye #2(1)
Reye #2(1)

#23 68.0 x 67.7 x 52.8

73.0 x 68.0

Score = 1



41041A1E3E

Blood

RH #2(1) + shriveled SOMETHING
Leye #1(1)

22 7/17/96 STRAIGHT

curved

Day 3
SITE

7/16 Tues wed

L x W x W

L x W

#24

63.3 x 63.1 x 49.8

69.5 x 67.0

Score = 1



4104172F2F

Blood Raye #2(1)

#25

61.9 x 61.5 x 50.5

66.5 x 61.0

Score = 1



4104005073

Blood NECK #2(1)

RFL #3(1)

#26

65.6 x 65.2 x 49.9

71.5 x 63.0

Score = 1



410420547E

Blood RFL #2(1) SHRIVELED Resp

#27

44.6 x 43.9 x 37.7

48.0 x 45.0

Score = 3



4104160247

Blood SEE TABLES! page 88 for tumor count

#28

63.0 x 63.0 x 52.5

69.0 x 67.0

Score = 3

410420247A

Blood 9464, 9465, H539, H540 mildly emaciated: page 89 SEE TABLES for tumor count.

Recovery

photos AVAILABLE.

#29

53.5 x 53.2 x 42.4

Right eye #

56.0 x 51.0

#1(1)

#2(1) LFF

tail #2(1)

TAIL

Score = 1

Caught in net wing.



22013E1D12

Blood

#30

42.4 x 42.0 x 35.4

23

^{Curved}
-45.0 x 41.0

7/16 - 7/17/96 DAY 3
Tues wed SITE F



220E2F533E

Blood

END of DAY #3

DAY 3 = 30 ($\frac{I^{(TIME)}}{RECAP}$, 12 times)
Newly tagged 29

THURSDAY
7/17 - 7/18/96
wed, Thurs/96
STRAIGHT

SITE F DAY 4
PARAN
- Curved

#1 L x N x W
65.4 x 65.0 x 49.0

L x W
71.0 x 59.0

22083D5C55 Blood



#2 64.3 x 64.1 x 49.4

69.5 x 61.0

2205087E33 Blood



SCORE = 1

LT. jaw hys #1 (1)
rt. eye #1 (1)

#3 47.6 x 47.1 x 38.9

51.0 x 45.5



22047C3173 Blood

#4 54.7 x 54.6 x 42.6

58.5 x 51.0



22046B3805 Blood

eye #2 (1) tail #2 (1)
eye #1 (1) LH #1 (1)

SCORE = 2

LFF (LFL) #1 (1), #2 (1)

Tag side

7/17/7/18/96 DAY 4

SITE F PACMAN 25

L x N x W

L x W

#5 42.4
47.4 x 41.9 x 35.9

44.5 x 42.0



2201514B65 Blood

#6 59.9 x 59.7 x 46.7

65.0 x 56.5

2201663C68



Blood

#7 56.4 x 56.4 x 44.5

62.0 x 55.0



2205145829 Blood

#8 63.1 x 63.0 x 49.7

67.0 x 57.5



22052A594D Blood

Recovery #9

63.8 x 63.7 x 51.7

69.0 x 61.5



220264795C

Blood Lt eye #1(i) = shriveled
Rt eye #1(i)

SCORE=1

old TAG: RH-V 595

TAG Loss from R & L FRONT PLIPPERS! Healed "V" notches

#10 71.2 x 71.1 x 55.9

78.0 x 71.0



A2205317063 B

ID# ONLY
RFL #2(1)

No PIT TAG PLACED

Recovery
SCORE=1

#2(1) on roof of mouth

V-574 on RFL
T-50227 on LFL

RH = V-575

7/17-7/18/96

#11 L x N x W 70.2 x 70.0 x 54.3 L x W 76.0 x 68.0



22042B0819

Blood Clean!

#12 46.3 x 46.0 x 36.5 49.0 x 42.5

SCORE = 2

22013E5137



Blood

SEE TABLE for Tumor Count.

Tumor biopsy in formalin

#13 69.8 x 69.8 x 51.1 74.0 x 64.5

RECOVERING!



22040F745A

Blood

Lt eye #2(2)

Rt eye #2(2) NO VISION

Rt jaw hinge #2(1)

LFF: Z103

RFF: HEALED NOTCH

SEVERELY Emaciated

SCORE = 2

#14 51.9 x 51.8 x 41.5 56.0 x 49.0



220254195D

Blood Clean!

END of Day 4

DAY 4 = 14 (3 (3 times) Recap, 6 TIME

1 new

SITE "D"
#1

STRAIGHT

FRIDAY DAY #5
7/19-7/20/96 CURVED
Thurs. - Friday

L x N x W

71.9 x 71.7 x 54.4

76.5 x 65.5



one ventral lamella = 4.5cm

#2

67.2 x 66.9 x 51.1

72.0 x 63.0



At. jaw hinge: #1 (1) #2 (1)

Score = 2

AMPHIPODS
ANTHROPODS, many

glottis -> #1, #2 (1ea)

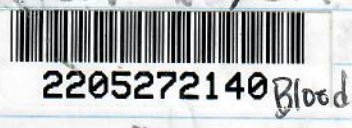
Two projected horny Scales ~~cut~~ by ^{ANTENNA} ~~of~~ ^{of} ~~glottis~~

BIOPSY TAKEN of glottis AND JAW HINGE TISSUES. SUBMITTED TO AFIP

#3

46.9 x 46.4 x 37.4

49.5 x 43.5



L & R eyes = #1 on each

Score = 1

#4

55.9 x 55.8 x 42.2

60.0 x 50.5



left eye: #2 (1) (bloody)
RFF: #2 (1)

Score = 2

tangled in guide
suspicious bump on glottis.

#5

64.0 x 64.0 x 49.4

69.5 x 63.0



tumor count on p. 90

Score = 3

END Pick-up
DAY 5

END PALAU 7/15-7/19/96

Day 5 = ~~6~~ (0 recap ~~5~~ time)
 newly trapped = 6

#6 Tinked turtle, missing hind flippers
 emaciated - not tagged - caught entangled
 in wing - Dead.
 7/20/97 Shipped to Honolulu HI,

Need Necropsy

5/15/97

necropsy

by Thierry work

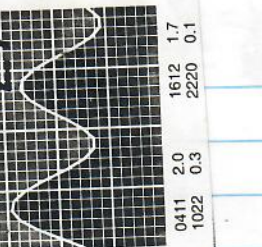
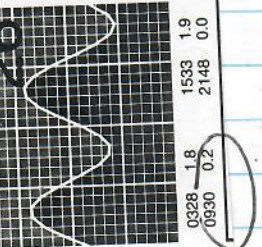
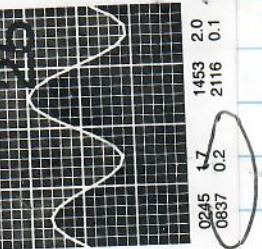
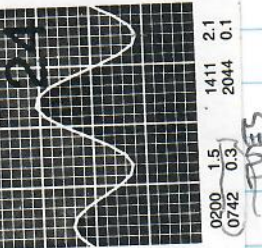
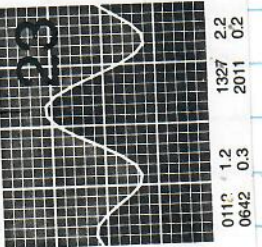
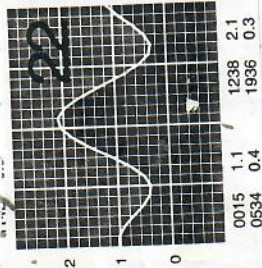
SEPT. 96

Day 1

Day 2

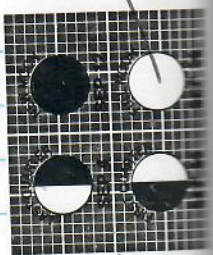
Day 3

Monday



TUES

9/26/96



PALAU

24 Sept 96 5:50 AM
Tuesday ALOHA AIR FL

SHM & GHB ²⁴¹ Departed from Dock #730 AM
outside reef - calm, very little swell.

9/26/96 Aloha AIR FL 1151
3:45 PM

9/24 net had been set SITE B

at ~ 10 AM 9/23 Monday morning.
Seawater 82°F - waste deep water.

29 turtles taken from net, however,
there were others still in it.

People on boat - DAET, Julie,
KAMALANI (~ 2 year boy), Julie's
sister's 4 year old daughter (Pant Torgan)
Mr. Medeiros ("wale Joe"), Mike Chang.

Bill
protelos
(this day
only)

4 eagle rays in net alive - 1 meter
wing span.

Motor back to wharf - arrive ~ 3 PM.

→ Room 119 & 120 are larger rooms.

553
5342 Day 2 Net same place - depart
8 AM - NO DAET NO BILL.

No Mr. Medeiros.

21 turtles in net

went to MANGROVES
NEAR BIOMASS
TOWER UP

Denise picked up at airport at 6:20 AM

9/25/96
Wednesday

In afternoon we drove
(continued p. 50)

ALL SITE B

10PM

9/23-9/24/96 DAY 1 29 (12 Turned)
9 Recaptures (of which 6 Turned)

9/24-9/25 DAY 2 21 (13 Turned)
4 Recaptures (3 of which Turned)

9/25-9/26 DAY 3 9 (5 Turned)
3 Recaptures (2 Turned)

TOTAL = 59 (16 Recaptures, 11 Turned)
↓
30 Turned (50.8%)

9/25/96 ♂ Q110/Q111 = skin biopsy for DNA SL=83
+ 50 DNA & PLASMA Samples (see p.2 for)

Note - one of turtles captured on
DAY 1 had a markedly
different colored, yellowish
shell w/ speckled black.
Note not entered as to
which one.

Need to look up ^{TAG} 10600 (Mauabani
or SLP) data - Note in TDPS.

SITE = B

PALAU 9/24/96 DAY 1 33

L x L x W

L x W

①

RECAPTURE: L3-4 = BBA-486

CURVE

83. x 82.8 x 60.7

88.0 x 76.0

Bobobelo

RFL = healed NOTCH

Male

LFL Y403

221A696941



BARNACLES ON PLASTRON

Sexually mature tail.

②

53.7 x 53.6 x 41.5

58.5 x 50.5

SCORE =

Rt eye #1(1)

Lt eye #1(1)



2211304F3B

1

Blood sample for plasma banking and DNA

③

67.2 x 66.6 x 49.4

71.0 x ?

SCORE =

220E153C44



Rt eye #2(1)

BLOOD

2

Lt eye #1(1)

Lt jaw hinge #1(1)

Rt jaw hinge #1(1)

④

58.4 x 57.4 x ? existing 64.0 x ?

LFL B841

IF 712E3017 = LFF

RECAPTURE

RFL B842

Score =

LH B843

BLOOD SAMPLE

1

RH B844

Rt eye #1(1)

⑤

71.8 x 71.6 x 53.5

77.5 x 68.5

RECAPTURE

LFL = Y812

RFL = Y811



2207557557

BLOOD

Day 1 9/24/96

Site B

Poloan

⑥

63.0 x 63.0 x 48.8

68.5 x 58.5

LFF = 1/3 missing + healed

Rt shoulder = suspicious patch

22011D1B58



BLOOD SAMPLE

⑦

71.0 x 70.9 x 54.9

76.0 x 71.0

220126367B



BLOOD SAMPLE

⑧

Recapture

64.7 x 63.9 x 49.4

70.0 x 60.5

RFL = Healed notch

221A623629 = RECAPTURE
EXISTING <-> BLOOD SAMPLE

⑨

68.0 x 67.3 x 52.8

74.0 x 65.0



2207405637

= BLOOD SAMPLE

⑩

48.6 x 48.0 x 37.9

52.0 x 44.0

221158702C



= BLOOD SAMPLE

⑪

Recapture

LFL = Z90 Blue plastic

76.5 x 70.0

RFL = Y931

RH = J741

No straight line measurements entered



22106F4205

= BLOOD SAMPLE

(12) 51.3 x 51.0 x 48.3 55.0 x 47.0



221A63371E

BLOOD SAMPLE

(13) 60.4 x 60.4 x 46.3 64.5 x 56.5



2207325064

BLOOD SAMPLE

(14) 56.9 x 56.7 x 43.8 60.5 x 51.0

220F7B1201



BLOOD SAMPLE

(15) 71.8 x 71.8 x 59.1 78.0 x 77.0
PC BROKEN + healed

221A583C10



No BLOOD!

(16) 68.4 x 68.3 x 48.8 72.0 x 64.0

78 left marginals = healed indent

SCORE =
1



220F7D4E31

neck #2(2)
RFF #2(1)

NO BLOOD TAKEN

(17) 51.2 x 50.7 x 39.5 51.5 x 46.0

SCORE =
1



2205252004

Lt eye #2(1)

BLOOD SAMPLE

~~Receipt~~
6th marginal
left
healed
indent

(18) 77.4 x 76.7 x 61.4 83.0 x 74.5

Rt eye #2(1)

H628-RFF

H629 RH

Lt eye #1(1)

T50289-LFL

NO BLOOD

L9AASRATION

22050E1F01



36

Day 1

9/24/96

Site B

Palooa

(19)

59.9 x 59.8 x 47.7

64.5 x 55.5

SCORE =

3

RFL #3(1)

2204572B4C

LFL #4(1)



NECK #1(1)

Rt jaw #2(1)

BLOOD TAKEN

(20)

63.6 x 63.2 x 48.9

68.0 x 60.0

SCORE =

2

Lt eye #2(1)

RFF #3(1)



2205240227

= BLOOD TAKEN

(21)

56.7 x 56.2 x 44.7

61.0 x 53.5

SCORE =

2



22053B5816

RFL #1(2) + #2(1)

LFL #2(1)

Lt eye #1(1)

NECK #2(1)

BLOOD TAKEN

(22)

72.7 x 72.4 x 58.5

78.5 x 75.0

SCORE =

2



2205284508

RFF #2(1) + #3(1)

NECK #2(1)

g/ottis #2(1)

Lt eye #1(1) + #2(1)

Rt eye #2(1)

BLOOD TAKEN

(23)

70.6 x 70.3 x 56.5

76.5 x 69.0

RECAPTURE

SCORE =

LFL = 2176

RFF #2(1)

regression?

RFL = N348

LFL #2(1)

Pre Central



220E11014A

= BLOOD TAKEN

Healed NOTCHES

Day I 9/24/96
Site B Palawan

37

(24) 55.1 x 54.5 x 43.6 59.5 x 53.0
LEFT HIND = healed notch
SCORES I
LEye #1(2) = BLOOD TAKEN

2207593662



(25) 69.9 x 69.7 x 56.7 75.0 x 68.0

RECRUIT
SCORE = I

2211591458



Rt eye #1(1)

L eye #1(1)

LFL J711

LH J712

Rt jaw = #2(1)

RFL J710

RH J713

= BLOOD TAKEN?

(26) 68.8 x 68.4 x 53.8 75.0 x 65.0

RECRUIT
SCORE I

IF6D69711A existing pit

RFL B856 rt eye eye #1(1)

LFL B855 left eye #1(1)

RH B854 BLOOD TAKEN

LH B853

(27) 43.7 x 42.5 x 34.3 46.0 x 44.5

Clean shell; likely NEW RECRUIT



22034D584C

= BLOOD TAKEN

Day 1: falcon site B

IMBEDDED
IN TUMORS.

9/23-9/24

(28)

63.7 x 63.7 x 51.2

69.0 x 61.5

R2-3 - 10,600 - REMOVED

Left tag = embedded w/in tumors!

UNREADABLE

LEF #4(1) + #3(2)

RFP #3(2) + #2(2)

NECK #3(2)

#2(4)

Rt eye #2(1)

Lt eye #2(1)

Rt jaw #3(1)

Lt jaw #2(1)

#3 glotta

220E30725A



Blood taken

Tag # 10,600 not in TDPS to be lost ✓

Receipture
Score 3

(29)

62.5 x 62.4 x 48.9

67.5 x 61.0



4104114910

Blood taken

END DAY 1

9/24-
side B

9/25/96 Day 2 Palouse

53.5
54.2
61.3

Straight length x Notch x Straight width
55.5 x 55.3 x 42.8

Curved L x W
59.0 51.0

①

Recapture

existing
old

22046B3805

Tumors: L. eye 1#2
LFF 2#1

Score = 1

Tail (cloaca) 1#2

Blood taken

②

~~65.5~~ 65.5 x 65.5 x 51.3

71.0 x 62.5

Tumors: RFF 1#2 (possible regression)

4104096A3F



Score = 1

Blood taken

③

~~69.7~~ x 69.7 x 54.4
69.7

73.0 x 67.0

Tumors: Neck 1#2



41040C1F1A

R. eye 1#2, 2#1

L. eye 1#2, 1#1

(Skin above) RHF 1#4

LFF 1#2

Blood taken

L. jaw hinge 1#2

R. jaw hinge 1#2

Score = 3

40

"TWIN JOKE"
Bill P. Teloa ^{old}

site B
DAY 2 9-25-96

Palau

④ 72.7 x 72.3 x 57.9

77.5 x 72.5

Tumors: LFF 2#4
L. eye 1#1
Neck 1#4

41037F2707



Blood taken

Score = 3

⑤ 71.5 x 71.2 x ~~58.0~~ 58.0

79.0 x 73.5

Old: RHF J720 / LHF: J721

Recapture Tumors: L. eye 1#1
R. eye 1#1

4104127A09



RFL LFL healed slit

(not for IDPS) No blood taken

Score = 1

⑥ 79.1 x 78.9 x 63.0

85.5 x 80.5

Tumors: RFF 2#4, 1#3
LFF 1#3, 1#2
Neck 1#4 ++
R. eye 1#2, 1#1
L. eye 1#2, 1#1



41041E2609

Leeches
6 centrals
Blood taken
NO mouth check

Score = 3

⑦ 72.7 x 72.4 x 56.5

78.0 x 67.5

Tumors: RFF 1#3 (regression)

410408560A



Blood taken

Score = 2

Palau Site B

DAY 2 9-25-96

41

⑧ ~~8~~ 67.4 x 67.3 x 54.6 73.0 x 65.0

TUMORS: LFF 1#3, 1#2
RFF (distal) 1#4
Neck 1#3
R. eye 1#2
L. eye 1#1
Glottis 1#2
L. jaw hinge 1#1

41041E0F6F



Blood taken

Score = 3

⑨ 71.9 x 71.7 x 57.6

78.0 x 72.5

Old: ~~RFL~~ 6750

Recapture Tumors: RFF 1#4

4104154F32



Neck 1#3, 1#1

R. eye 1#3 (very bloody)

LFL healed notch

L. eye 1#1, 1#2

LFF 1#2

NO blood taken
not for
TDPs

Score = 3

⑩ 77.2 x 77.1 x 60.1

83.0 x 76.5

TUMORS: LFF 1#4 ++, 1#2

41040F4D5A

Neck 1#3, 1#2



R. eye 1#2

L. eye 2#1

4th-6th L. marginals
healed indentation

Score = 3

Leech eggs

not for
TDPs

NO mouth check
NO blood taken

Sate B

DAY 2/9-25-96

falcon

(11)

53.8 x 53.6 x 43.5

57.5 x 52.0

Tumors: RFF 2#2, 1#3

LFF 1#2, 1#3

NECK 2#2,

L eye 2#2

R eye 1#2, 1#1

Glottis 1#2

R jaw hinge 1#2

L jaw hinge 1#2

RHF 1#2

Tail 1#2



41037E013E

Blood taken

Score

3

(12)

57.7 x 57.5 x 42.8

62.0 x 53.5

4104112536



Blood taken

No mouth ^{check}

(13)

58.4 x 58.1 x 46.0

63.5 x 55.5



41040A395C

Blood taken

Palau Site B
DAY 2

9-25-96

43

(14) 62.2 x 62.1 x 47.5

66.5 x 57.0

41040B044A



Blood taken

(15)

57.4 x 57.2 x 43.7

61.5 x 54.0

410375220E



Blood taken

(16) 69.0 x 69.0 x 53.8

74.0 x 66.0



41041A3E3D

Blood taken

To p. 45

From p. 43

DAY 2

9-25-96

45

Site B

Palouse

(17) 74.2 x 74.1 x 56.7

80.0 x 70.0

410379422F



Blood taken

(18) 75.9 x 75.5 x 58.0

81.5 x 73.0

Recapture

Old: RFL Y786

4104205F2F



Healed slit LFL

(19) 83.9 x 83.9 x 62.6

88.5 x 76.0

4104136857



No mouth check

New: LHF Q111

Mature tail ♂

RHF Q110

Lemm Skin biopsy from L. Shoulder (dorsal)
FOR DNA

(20) 69.9 x 69.5 x 55.6 Regressed 75.0 x 67.0
#2's Left & Right Shoulder - one each.

TUMORS

4104200C3F



Score = (1)

Blood taken

(21) 64.7 x 64.4 x 51.6

69.5 x 62.0

Moderate emaciation / blood taken

410414763E

Tumors: LFF 3#3, 1#2

RFF 1#3



LHF 1#2 RFF 1#2

Neck 1#3, 1#2

Score =

(3)

L. eye 2#2, 1#1

R. eye 1#2 (smooth swelling)

END DAY 2

Day 9/25-9/26/96

Palomar Site 6

(6) 76.7 x 76.5 x 58.0
suspicious bump left eye

83.5 x 74.5

Turned

1 #2 LFL
1 #2 neck



407D340538

Blood taken

Score = 11

(7) 66.1 x 65.8 x 50.1

Blood taken
70 x 62

Turned

1 #4 LHF
2 #2 Leys
1 #2 Reys
1 #2 roof mouth



407D3F6C03

Score = 23

top 48

Site B Day 3 9-26-96 47
Palsam

Water Temp 82°F

① 55.6 x 55.3 x 44.2

60 x 52.5

Recapture RFL R-265
LFL Healed slit
LH R-267

41037E530D


Blood taken

② 63.3 x 63.1 x 50.8

69 x 60


41041E626A

Fish
Blood

Blood taken

③ 70.5 x 70.3 x 57.0

76 x 70

Fish
Blood

4104230A62


Blood taken

④ 63.1 x 63.0 x 54.1

68 x 64


41037F0C55

Blood taken

Recapture
Turnover

LHF B835
RHF B834

⑤ 67.4 x 67.4 x 54.0

RFL 2#3 neck 1#2
1#3 LFF (LFL)

73 x 66.5
IF71F0249

LFL Y-431

③

Leve 1#3 RFL 1#2, 1#1

RFL Y43

Day 3 9-26-96
 Saloon Swe B.

65 X 58.5

(8) 60.2 X 60.2 X 46.5

1/4 LAF curved piece missing
 + healed

407D2C7E56



Recaptive
 Turned

1#2 LFL
 1#2, 1#1 Reye
 1#1 Leye
 1#2 RJ Hinge

old Y - 558

RFL Y - 557

Blood taken

Score = [a]

(9) 64.3 X 64.3 X 50

68.5 X 60.5

Turned

LFL 1#4 @ LFL; 1#3

RFL 1#3 RFL; 1#4

Leye 2#2

Reye 2#1

moderate emaciation

neck 1#3

mouth glottis 1#2

LJ Hinge 1#2

RJ Hinge 2#1

407D2C3E2F



Blood

leech eggs

1 VB

Score = [3]

~~END~~

Continued from p. 31

9/25/96 to Halawa Vally. Bill had
 wed given ^{for DNA} me a dead hatchling E.i.
 found across river - left side
 we walked right, nearly to Mesquite
 tree - Numerous hatchling tracks
 in sand (dry) very fresh. Located
 hatchling heads at surface.
 73(?) alive out - photos - watch
 them go to ocean. 2 dead in
 nest. 87(?) partly developed or
 no developed eggs. Washed by
 waves causing mortality?
 Two cats near us, but didn't
 pay any attention to hatchlings.
 Shaun departed 6:25 pm flight.

embryo
 DNA
 collected

SITE B

9/26/96 DAY 3 - 9 turtles
 in net. ~~net~~ picked up
 net and returned by ~ 1300

see page 54

V879
V880 - V882

Date: Fri, 2 May 1997 12:39:29 -1000 (HST)
 From: Bill Puleloa <puleloa@aloha.net>
 To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
 Subject: Nesting at Kawa'aloa Bay

George,

Good news: Last night Joan Aidem, Dick Langer, and I had an opportunity for the first time to tag one of the nesting females frequenting Kawa'aloa Bay. She was encountered her during the excavation of her third pit at a location just west of the fishing shack.

The data as follows:

105.0 cm (curve length)
 94.0 cm (curve width)
 92.0 cm (straight length)
 69.0 cm (straight width)
 V879 (RFF)
 V880 (3-4 LFF)
 V881 (LH)
 V882 (RH)
 Tumors: #3 LFF at normal tag site;
 #1 neck
 #1 RFF

Bad news: The animal was very lethargic. She made absolutely no attempt to escape even when tags were being applied. My guess is that she's on her last legs...and she knows it. Most unusual to be nesting during daylight hours. She had not move an inch from her last pit at sunset...but was gone when we check again this morning. (Yes, there were tracks leading back to the sea!) Nevertheless, after years of trying, we finally got to id a nesting female on the north side of Molokai. If we're lucky, we'll see her again in the near future...back on the beach doing her thing.

Under separate covers I've sent you some tissue sample for DNA if you so desire. It's immersed in some denatured alcohol.

I saw the obituary in the papers. Yes, Dan was a good man. He'll be missed.

Aloha,

Bill

PS...Has Chris decided where he's going next year yet? After an agonizing two weeks of procrastinating, Nahoe finally settled on the University of Portland. It's a small coed school taught by the Congregation of Holy Cross, the same Catholic order that serves Notre Dame. At the going tuition rate, I'll be a permanent fixture with the State for the unforeseeable future.

SEA TURTLE NECROPSY/TUMOR FORM

NECROPSY DATE: 05 / 15 / 97 STRANDING ID, DATE AND LOCATION:

GHB 07-16-96 Palaau, Molokai
 PERSON RECORDING DATA: SKKM

DESCRIPTIVE REMARKS: Found inside bullpen. RFL tag at RFL border and RIS.
necropsy by Twork 5/19/97

TAGS: LIS V851 SEX: MALE, FEMALE OR UNDETERMINED
 RFL V852 DB: 0 VB: 0
 RHF V853

NO PIT FOUND
 STRAIGHT CARAPACE-LENGTH: 49.1 WIDTH: 37.7
 NOTCH LENGTH: 48.3 PPS (Y/N): N
 CURVED CARAPACE LENGTH: 52.0 WIDTH: 45.0

HEAD WIDTH: 7.9
 TAIL LENGTH: T 8.5 C 4.5 SAMPLES COLLECTED:
 RIGHT FRONT FLIPPER WIDTH: 8.5 Humeri + tags

PLASTRON LENGTH: 39.8 Forestomach contents
 WEIGHT: 34.0#

LOCATION, SIZE, AND NUMBER OF TUMORS

	#1	#2	#3	#4	TOTAL	REMARKS
RT. EYE						
LT. EYE						
MOUTH	2				2	2#1 RJH
NECK	2	7	1		10	
RFF	5	5			10	3#1/1#2 RFL tag site & 1#2 distal trailing edge
LFF	1	5			6	1#2 LFL tag site
RHF		1			1	
LHF						
CLOACA/TAIL						
SEAMS/SCUTES						
INTERNAL						
TOTAL	10	18	1		29	

OTHER INFORMATION:
 158 ✓

TUMOR SCORE: 2
 APPROXIMATE TUMOR SIZE CATEGORIES:
 #1 = DETECTABLE PATCH TO 1CM DIAMETER
 #2 = >1CM TO 4CM
 #3 = >4CM TO 10CM
 #4 = >10CM

Tag information--

Tag Number	Date Tagged	Tag Type	Tag Position
V851	07/22/93	I681	LFL
V852	07/22/93	I681	RFL
V853	07/22/93	I681	RHF

Historical information--

Date	Type of Encounter	Location	Tumor Score	Nesting Activity	Curved Length	Since Last Encounter		Overall	
						Interval Month	Growth-rates cm/mon	Interval Month	Growth-rates cm/mon
07/22/93	Near Shore	Molokai, Palauu O	0	-	46.5	---	---	---	---
07/16/96	Near Shore	Molokai, Palauu O	0	-	---	35	2.9	---	---

See over
of photo



Give into
Molokai

HC 01 Box 121
Kaanakakai, HI 96748
July 26, 1997

Dear George,

Nice to see you on Molokai.
We've had two hatches, several
more prospecting turtles coming in
digging pits + one fine fat Hawaiian
monk seal on Kawaaloa Bay since
you were here.

Here's the picture of Cecily
Turtle, as promised. If your
office cares to acknowledge it
the gal who took the picture +
sent me her copy for you is:

Judy Oliver

2478 Morning Dove Ct. NW
Salem, OR 97304.

Bob

Regards,

Joan Aldem



54
See p. 51

SEA TURTLE NECROPSY/TUMOR FORM

NECROPSY DATE: 05 / 15 / 97 STRANDING ID, DATE AND LOCATION:

GHB 07-20-96 Palaau, Molokai
 PERSON RECORDING DATA: SKKM

DESCRIPTIVE REMARKS: Caught in bullpen wing. Abrasion on 1st central on carapace resulting from GHB towing turtle on the reef. LHF missing maybe not amputation, no scar, possibly hatched without flipper. Adult leeches and leech eggs.
Necropsy By Tiwar K 5/97

TAGS: None
 No PIT found

SEX: MALE, FEMALE OR UNDETERMINED
 DB: 0 VB: 0

STRAIGHT CARAPACE-LENGTH: 61.1 WIDTH: 45.3
 NOTCH LENGTH: 60.8 PPS (Y/N): Y
 CURVED CARAPACE LENGTH: 65.0 WIDTH: 55.5

HEAD WIDTH: 9.2
 TAIL LENGTH: T 12.0 C 7.5

RIGHT FRONT FLIPPER WIDTH: 10.4 SAMPLES COLLECTED: Humeri
 PLASTRON LENGTH: 47.9 Forestomach contents
 WEIGHT: 51.0#

LOCATION, SIZE, AND NUMBER OF TUMORS

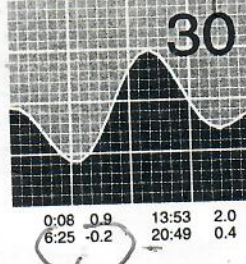
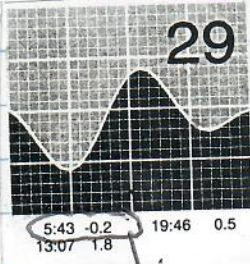
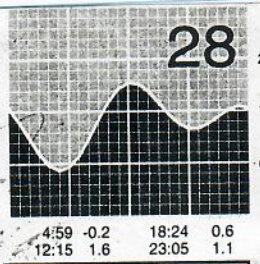
	#1	#2	#3	#4	TOTAL	REMARKS
RT. EYE	1				1	
LT. EYE						
MOUTH						
NECK	1	1			2	
RFF						
LFF		3	1	1	5	
RHF		1	1		2	1#3 associated with ventral PC
LHF						
CLOACA/TAIL						
SEAMS/SCUTES						
INTERNAL						
TOTAL	1	6	2	1	10	

OTHER INFORMATION:

TUMOR SCORE: 2

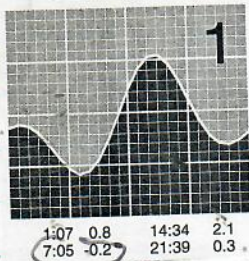
APPROXIMATE TUMOR SIZE CATEGORIES:
 #1 = DETECTABLE PATCH TO 1CM DIAMETER
 #2 = >1CM TO 4CM
 #3 = >4CM TO 10CM
 #4 = >10CM

Pickup Day ^{DAY 1} ~~Sunday~~
 June 97 ^{DAY 2} Monday



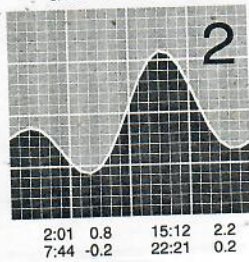
DAY 3

JULY 97 TUESDAY
6AM NOON 6PM



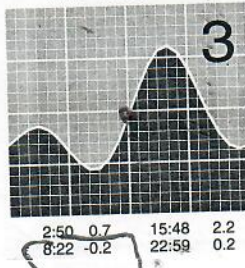
DAY 4 10 TURTLES
(6 TUMORS)

WEDNESDAY
6AM NOON 6PM



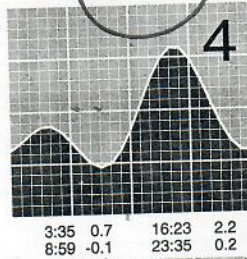
DAY 5

THURSDAY
6AM NOON 6PM



17 TURTLES
(8 TUMORS)

FRIDAY
6AM NOON 6PM



NO MOON



11 Turtles
(10 Tumors)

30 Turtles
(13 Tumors)
SITE B

2 Turtles
(1 Tumor)
SITE B

51490

70 TOTAL (36 with Tumors)

(need to break by size classes)

Score 1 = 18 (5090)

Score 2 = 12 (33390)

Score 3 = 6 (16790)

Score 4 = 0
TOTAL = 36

70 captured (18 Tag Rec.)
- 10 w/ TUMORS
- 3 NO TUMORS

29 JUNE 97

Aubrecht - 2 wks ago
on Molokai

57

Sunday - ISLAND AIR 1224 depart 6:20am

Mon 6/29 - Me & Bill (ED, Diane, Joey (28 years old),
6/30 & 7/1 - Shaun & Paul (7/1 - 2 year wedding Anniversary),
6/29 evening - Thierry work

Tue 7/1 - evening - Shaun & Paul leave; Denise, Annie
Fedexed algae to Jay Landsberg; collected

Wed 7/2 - at low tide near Paul Haysa,
Fedexed, Algae collected at low tide
off Rupens Beach, Paloa.

7/3 5:55 PM Aloha Air Dash 8
TO HONOLULU

Days 1, 2 & 3

Site = F

Days 4 & 5

Site = B

- DNA Identity Gold #077364824
- Recaps - Historical

- Hays's spectrum - catalog

needs - Roger Allen

- Pit TAG Reader to Bill

- Animal cage to Bill

- Seal Tetracycline in plastic

- Collect algae

- Go to Maui.

- SKM Revision of lifestage, EV, etc.

- hawk video to F. Smith & Ken/Brooks

- Search TO ISAH

Bill Puleloa - RFF biopsy - 4077300860

"Leave me alone" (and I'll take care of it).

Straight carapace length

*Tommy
paper
start
p. 9*

Straight carapace length (cm)	mL Liquamycin
35-39.9	0.5
40-44.9	1.0
45-49.9	1.7 1.7
50-54.9	2.3
55-59.9	3.0
60-64.9	3.6
65-69.9	4.3
70-74.9	4.9
75-79.9	5.6

Curved carapace length

Curved carapace length (cm)	mL Liquamycin
40-44.9	0.7
45-49.9	1.3
50-54.9	1.9
55-59.9	2.5
60-64.9	3.1
65-69.9	3.7
70-74.9	4.3
75-79.9	4.9
80-84.9	5.5

Pick-up DAY 1 (29 June 97 Sunday) 51

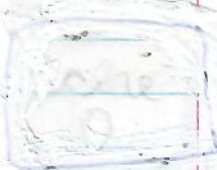
SITE F
CURVED

①

STRAIGHT

63.8 x 63.6 x 52.5

69.0 x 67.0



3.6 ml

LIGUAMYCIN

- ① clean; no tumors
- ② BLOOD sample For PLASMA Banking and DNA, 3.6 ml Q
- ③ internal tag applied



②

52.6 x 52.1 x 41.8

56.5 x 51.5

Q

1. 8 central; 6 left laterals

2. blood sample taken

3. applied internal tag

4. clean (0 tumors)

2.3 ml Q



③

61.4 x 61.2 x 48.9

66.0 x 60.0

1. blood taken

2. internal tag applied

3. clean, 0 tumors

3.6 ml Q



Tag Recap

④

56.9 x 56.8 x 43.0

61.5 x 52.5

Lig.

(1) 3.0 ml Q injected

(2) RFL #3(1) + #1(1)

neck #2(1)

(3) blood taken

TUMOR SCORE = 2

INTERNAL TAG!
22040C1570

TW 4

6/29/97 Pickup Day 1 63
SITE = F

49.6 x 49.2 x 39.0

53.5 x 46.0 @

(5)

Score =
1

- (1) blood sample taken
- (2) #1(1) right eye
#2(1) left eye
- (3) leeches $\frac{1}{2}$ jaw hinges

1.7 ml @

40773C475F



(6)

Score =
2

63.7 x 63.6 x 58.9

68.5 x 60.0 @

- (1) #1(1) right hind
#3(1) RFL
#2(1) LFL = ^{Tumor} regression?
- (2) blood sample taken
- (3) #2(1) L jaw hinge

3.6 ml @

4077503B2A



(7)

Score =
1

60.3 x 59.8 x 45.0

65.0 x 56.0 @

- (1) #2(1) R eye
- (2) blood taken

3.6 ml @

40774D251F



(8)

Score =
2

50.9 x 50.8 x 39.9

54.5 x 47.5 @

- (1) RFL 2(#2) 1(#3)
LFL 1(#2) 1(#3) R EYE 1(#2)+1(#1) @
NECK 2(#2) Leye 1(#2)
tail 1(#2)
- (2) blood taken

2.9 ml @

40773D3927



6/29/97 Pickup DAY 1

65

TAG Recap

SITE = F

9

70.3 x 70.3 x 54.9

70.0 x 70.0

(1) V571 (RFL)

(RH) V573

TW 9

(2) blood taken

(3) clean

unreadable left in place

4.9 ml @



407752313F

TAG Recap

77.1 x 76.9 x 59.9

83.0 x 72.5

(1) LFL Y368

(2) leeches

(3) RFL #4(1); #3(2); #2(1)

LFL #3(1); #2(2)

NECK #2(2); #3(2)

R eye #2(2)

L eye #2(1)

(4)

↑ tag embedded

5.6 ml @



40774C3575

10

Score =

3

6/30/97

Pickup DAY 2

1

48.0 x 47.5 x 37.0

51.0 x 43.5

(1) clean

TW 1 0.2 ml Blood for white cell count

1.3 ml @



407759620B

2

46.6 x 46.4 x 37.1

49.5 x 43.0

(1) clean

TW 2

1.7



4077460A73

6/30/97 site F DAY 2

③ TW3 49.8 x 49.4 x 40.3 53.4 x 47.5

④ TW4 56.0 x 55.9 x 42.4 49.5 x 51.0



4077341844

3.0

(1) jaw hinger, leeches

(2) rt eye = suspicious bump

⑤ TW5 43.5 x 42.9 x 34.9 45.5 x 40.0



4077335842

1.0 ml

⑥ TW6 47.6 x 47.3 x 37.1 50.0 x 42.5



4077461651

1.7 ml

⑦ TW7 52.7 x 52.5 x 40.6 56.0 x 46.0



4077363145

2.3 ml

⑧ TW8 44.7 x 44.0 x 36.3 47.5 x 41.0

40772F3E21



1.0 ml



4077531079

6/30/97

DAY 2 Site = F

9 TW9

59.5 x 59.3 x 45.9

63.5 x 56.5



407755164E

3.0

clean

10 TW10

50.3 x 49.8 x 43.6

59.5 x 49.5



4077364824

2.3 ml

Need to determine DNA identity

- (1) light color / gold carapace clean
- (2) likely new recruit

11 TW11

47.5 x 47.3 x 37.1

50.0 x 43.0



40773C086D

missing amputated needed

Score = 2

- (1) RFF = none
- (2) RFF 1 (#2) → biopsy taken into 10% formalin
 - left eye 2 (#1)
 - right eye 1 (#1)
- (3) neck 1 (#1)

12 TW12

49.4 x 49.1 x 37.7

53.0 x 47.0

4077331A0F

1.7 ml

Score = 2

- (1) RFF 3 (#1) 1 (#2)
- LEF 2 (#2)
- NECK: 2 (#2) "PATCH"
- (2) inspect injury Right side carapace - Holed.

7 = DAY 2 6/30/97 SITE = F

(13)

51.7 x 51.5 x 39.5 55.5 x 46.5 TW

407D290C7E

2.3 ml



Score =
1

(1) NECK 1(#2) 1(#1)
RFF 1(#2) 1(#1)
LFF 1(#1)

(14)

52.4 x 52.4 x 40.9 55.5 x 48.5



2.3 ml

407739327A

Score = 1

(1) left eye 1(#1)
right eye 2(#1)
(2) healed v notch: Left hind

(15)

50.7 x 50.4 x 41.3 55.0 x 48.0

40775B2867

2.3



Score =
1

(1) right edge coropace bitten off
(2) LH 1(#1)
(3) right jaw hinge 1(#1)
(4) LFF trailing edge 1(#1)

(16)

54.6 x 54.7 x 42.5 58.5 x 49.5

4077472301

2.3 ml



Score =
1

Rege 1(#2) neck 1(#2)
L eye 1(#2)
RH 1(#2)

6/30/97
SITE = F

Pickup
Day 2

69

17

71.8 x 71.8 x 60.1

77.0 x 77.5



4077584725

4.9

RECOVERING: Y781 (LFL) Y782 (RFL)

HINDS appear small

(1) RH (slit in middle)

(2) clean

Therapy work sample
#17

SITE =

DAY 3 Pickup

July 1, 1997

1

49.4 x 49.1 x 38.3

53.0 x 45.0



22115A0C13

clean

TW18

2

TW19

50.4 x 50.1 x 39.6

54.5 x 47.0

Score =

1

407D354A1E



2.3ml

(blood drawn at
9:45 am)

(1) right eye 1 (#1) left eye 1 (#1)

rt jaw hinge = leeches

jelly stuff in mouth

(blood drawn @ 9:55a)

3

TW20

48.1 x 48.0 x 37.7

51.0 x 45.0

2201175B11



1.7

Acanthopra in mouth
+?

Score =

2

Eye 1 (#1) Eye 1 (#1)

Rjaw + Ljaw 1 (#1)

REE 1 (#1) + 2 (#2) + 1 (#3)

NECK 6 (#1) + 1 (#2)

REE 1 (#3) + 2 (#1) + 1 (#2)

LH 1 (#2) TAIL = 1 (#2)

4

TW21

52.0 x 51.9 x 41.2

56.5 x 51.0



220F724152

Score = 3

NECK 2(#3) + 1(#2) + 1(#1)

LFF 1(#2) RHind 2(#3) LH1(#3)

5

TW22

48.2 x 47.9 x 38.7

52.0 x 45.0

221A555079



Score = 2

Rt eye 1(#2)

Lt eye 1(#1)

LH 1(#4)

6

TW23

53.7 x 53.0 x 47.7

57.0 x 52.0



221A744D7B

Score = 1

LFF 1(#1)

NECK 2(#2)

RFF: 2(#2) + 1(#1)

Left + right jaw hinge = leeches

rt jaw hinge 1(#1)

7

TW24

56.9 x 52.6 x 44.4

61.5 x 52.0



220760023D

Score = 1

LFF 1(#2)

TW25 July 1, 97 Pick up DAY = 3 SITE = F 71

8

55.5 x 55.7 x 43.4

60x0 x 52.0

221A731248



3.0

Score = 3

nt jaw 1 (#3) Leye 1 (#1) + 1 (#2)
lf jaw 1 (#2) Reye 1 (#2)
tongue 1 (#1) LFF 1 (#3) + 2 (#2) + 1 (#1)
RFF 5 (#2)

LH 1 (#2)

RH 1 (#2) + 1 (#1)

9 TW26

61.2 x 61.0 x 49.7

65.0 x 58.5

SD# (1F71065614) (pit tag-) recovery!

Score = 2

RFF B.487

LFF B486 (embedded in tumor)

* 2.5 ml Q (needed 3.6 ml)

B 488 LH

B 489 RH

L+R jaw 1 (#1)

Leye 1 (#2)

Reye 1 (#2) + 1 (#1)

neck ~~(#1)~~ 2 (#2) + 1 (#1)

LFF 1 (#3) + 2 (#2)

RFF 2 (#2)

72

3.0

Score = 2

JULY 1, 1977 DAY 3 SITE = F

(10)

TW27

67.3 x 67.0 x 52.8

71.5 x 63.5



220F774069

3.4 ml (required 4.3 ml)

R

LH Q118

New

can feel pit. dig under the skin.

neck (#4) 1 + 2 (#2)

l jaw + R jaw

1 (#1)

1 (#2)

RFF 1 (#4)

(11)

TW28

67.9 x 67.8 x 53.1

72.5 x 61.5

TAG RECOVERY!

★ PIT # 410423 1357

3.0 ml Q

(required 4.3 ml)

Score = 2

NECK 6 (#2) + 1 (#1)

RFF 2 (#2) + 2 (#1) + 1 (#3)

LFF 4 (#2) + 2 (#1)

Rege 2 (#2)

Lege 2 (#2)

R jaw leg 1 (#2)

l jaw hinge 1 (#1)

LEFT HAND MISSING and healed

July 2, 97
DAY 4

^{New}
SITE = B 73

①

63.7 x 63.6 x 49.5

70.0 x 59.5

407C753554



TW29

②

47.6 x 47.5 x 35.9

52.0 x 43.0



407D275E71

TW30

③

49.9 x 49.5 x 40.1

53.0 x 47.0

22100F0329



TW31

④

51.8 x 51.6 x 43.0

55.0 x 50.0



22100C2F05

TW32

⑤

49.3 x 49.0 x 40.0

53.5 x 49.5

2207387D28



NO BLOOD TAKEN!

⑥

64.0 x 63.7 x 48.0

70.0 x 61.0

221A7B5266



TW33

DAY 4 SITE B

7/2/97

⑦ TW34

72.9 x 72.6 x 54.6

78.5 x 69.0

2211570317



⑧ TW35

70.2 x 69.8 x 54.1

75.5 x 67.0

221A5D1174



⑨ TW36

53.9 x 53.9 x 40.7

59.0 x 50.0



2008220A2C

⑩

TW37

56.5 x 56.2 x 43.9

60.5 x 54.0



1F6C4E2403

LEFT HAND TORN

⑪

TW38

54.3 x 58.9 x 42.6

59.0 x 57.0



1F6F244608

⑫

TW39

68.7 x 68.4 x 56.6

74.0 x 68.5



1F69513572

new pit

RFF J174

LEF J175

RH J176

TAG RECOVERY =

TW40 Day 4 7/2/97 SITE B

(13)

58.4 x 57.9 x 44.4 63.0 x 53.0



(14)

TW41

57.6 x 52.2 x 42.2 56.5 x 49.5



(15)

TW42

51.9 x 51.9 x 39.9 56.0 x 47.0



(16)

16 Jaw
TW43

56.2 x 55.4 x 44.9 60.5 x 54.5



(17)

Score = 1

67.9 x 67.9 x 55.1 (Tag Recor) 75.0 x 68.5



LH - R299
RFP - R298
RH - R300

TW44

Reye 1(#2)
Ljaw 1(#1)

78

DAY 4 7/2/97 SITE B

(18)

TW45

62.4 x 62.1 x 48.5 x 67.5 x 59.5



1F75211833

new PIT

LFF V121

RFF T50242 (AUS34E)

Score = 1

RECOVERY

R eye 1 (#2)

LFF 1 (#1); 1 (#2)

NECK 2 (#2)

(19)

59.1 x 58.8 x 46.5

64.5 x 55



28080E2327

NO BLOOD taken

Score = 1

L eye 1 (#1) + 1 (#2)

R eye 1 (#1)

LJH 1 (#2)

1 (#2) => RHIND

RFF 1 (#1)

Score = 3

20

TW 46

62.8 x 62.8 x 51.6

67.0 x 61.5

RECOVERY!

LFF 9464

RFF 9465

PT 410420247A

<> previously tagged

L eye 1 (#3)

R eye 3 (#1)

RFF 1 (#3) 1 (#2)

R jaw 1 (#2)

neck 1 (#2)

Tail 1 (#2)

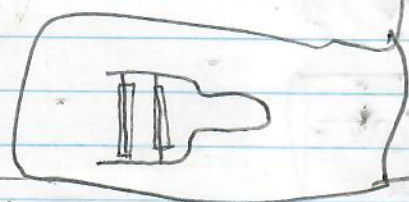
severely emaciated

DAY 4
7/2/97
SITE B

HAUP's speculum head -
Shams

TW47 54.5 x 54.1 x 44.2 58.5 x 51.5

(21)



Score =
1

RFF 1 (#2) NECK 1 (#2) regression

60.5 x 60.5 x 49.9 64.5 x 58.0

(22) TW48



Score =
3

hooker: + eggs
LFF 3 (#3) + 1 (#2)
RFF 1 (#2) + 2 (#1) + 1 (#3)
NECK 1 (#3) + 5 (#2) + 1 (#1)
h eye 1 (#2) + 1 (#1)
L eye 2 (#1)
R jaw 2 (#2) LH 1 (#3) RH 1 (#2)

(23) TW49

Score = 1

63.0 x 62.8 x 49.9

68.0 x 62.0



RFF J766 RH J768
LFF J767 LH J769

RECOVERY

New PIT

~~Multiple #7~~

R eyes 1 (#2)
L eye 1 (#1)
RFF 1 (#1)

78

Day 4

TW50 2 July 97

SITE B

24

61.2 x 61.1 x 49.3

66.0 x 58.9



1F6E530D16

Score = 2

RFF 2(#2) 2(#1) 1(#3)

LFF 2(#2) 1(#1)

anterior paraspine 2(#2)

neck 2(#2) 2(#1)

TW51

25

68.6 x 68.6 x 53.9

75.5 x 68.0



1F696E3159

Score = 1

Left eye 1(#1) r. eye 1(#1) + 1(#2)

TW52

26

69.0 x 69.0 x 54.5

75.0 x 71.5



1F72572C8C

Score = 1

R eye 1(#1)
LFF 1(#2)

Day 4 SITE B

2 July 97 Wednesday

FW53

(27)

76.9 x 76.9 x 61.4 83.5 x 76.0

Score = 1



200C587309

New Pit

Recovery

RFF V569 RH V570
LFF T50226 (AUSSIE)
LFF -1 (#2)

FW54

(28)

MISSING - healed
LFF bitten off (1/4 left)

70.8 x 70.8 x 54.9 76.0 x 72.0

Score = 1



1F6C525E45

New Pit

→ tagged today on RFF

Recovery

RH B840 Reye 2 (#1)
LH H580 leeches on jaw hinge, lots
RFF 10766 RFF 1 (#2)
LFF 1 (#2) regression

80

DAY #

SITE: ~~B~~

2 July 97

(29)

TW55

76.9 x 76.9 x 57.9

82.0 x 70.0



1F69127175

new PT

> today!

5.0 ml

(5.6 required)

LFF H 630

RFF T 50290

PH H 631

Recovery

Left lateral deeply indented; healed

(30)

TW50

75.8 x 75.8 x 58.8

82.0 x 77.0

Score = 3



1F746E5E21

3.0 ml instead of 5.6

RFF 1(#4) ← leeches

glottis 1(#2)

R eye 2(#2) 1(#1)

L eye 2(#1)

Neck 1(#2)

L jaw 1(#1) + 1(#2)

R jaw 1(#2)

Day 5 7/3/97

END 31

SITE B

TW57

SPR L

NOTCH

SW

CURVED LENGTH

C. W

49.4 X

49.2 X

37.1

53. X

44.5

LHF - AMPUTATED, HEALED

1.7 ml LA200 IM UPPER "ARMS"



1F77301717

1ST TURTLE

Tumor score = 2
2nd TURTLE

SL

N

SW

CL

CW

63.9 X 63.7 X 48.7

69.5 X 58.0

3.6 ml LA200 IM UPPER "ARMS"



1F71134800

TW58

TUMORS

LEVE 1 X #3

erd

Date: Sat, 5 Jul 1997 17:09:34 -0600
From: "R8_NWHR.HON" <R8_NWHR.HON@nbs.gov>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: 0.2ml blood for whitecell counts

Roger that...58

PCV
Mean (SD)
Range
36 (7)
15-47

Total solids
Mean (SD)
Range
3.7 (0.8)
1.4-5.4

Good trip on Molokai....I very much enjoyed it.

TMW

82

Date: Fri, 4 Jul 1997 14:18:49 -1000 (HST)
From: Bill Puleloa <puleloa@aloha.net>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Palaaau tagging.

George,

As far as I can make out, it was at site "F" the first couple of days, the site "B" the last couple of days.

You'd think one week of looking at turtles was enough...but I got a call this morning at 7 am. One very dead turtle washed up on Kawela beach.

- (1) no previous inconel/monel tags (pit tag?)
- (2) tumored
- (3) 76.0 cm curved length
- (4) left lateral bitten off by shark
- (5) ocean disposal

You can be thankful for me not sending you this one. Really ripe!

Aunt

Roger + Allen
320 Adloa St. #1109
Kailua, HI 96734
263-8035

from
Kawela
Bay

Saw wife, daughter
and baby at Molo Kai
airport 7/3/97

LOCATION, SIZE, AND NUMBER OF TUMORS

	#1	#2	#3	#4	Total	Remarks
RT. EYE						
LT. EYE	1	2				
MOUTH		1				Left jaw hinge
NECK	1	2				
RFF		1				
LFF	3	2	2			
RHF	1					
LHF						
CLOACA/TAIL						
SEAMS/SCUTES						
INTERNAL						
Total						

New PIT =

OTHER INFORMATION:

Tumor #1
V-844adult leeches
present.DAGD
page 15

20072665

B812

V840

V843

7/16/96

TUMOR SCORE:

2

LOCATION, SIZE, AND NUMBER OF TUMORS

	#1	#2	#3	#4	Total	Remarks
RT. EYE	1	1				
LT. EYE	1	1				
MOUTH	1	1				R & L jaw hinges
NECK	2	2				
RFF	4	1				
LFF	5	2				
RHF						
LHF						MISSING & healed
CLOACA/TAIL						
SEAMS/SCUTES						
INTERNAL						
Total						

OTHER INFORMATION:

Day 3: #21

new

Pit



4104231557

TUMOR SCORE:



LOCATION, SIZE, AND NUMBER OF TUMORS

	#1	#2	#3	#4	Total	Remarks
RT. EYE	1	1				
LT. EYE	1	1				
MOUTH		2				L & R jaw hinge
NECK		3				
RFF		4	1			
LFF	1	4	1			
RHF		5	1			
LHF		2	1			
CLOACA/TAIL		2				
SEAMS/SCUTES						
INTERNAL						
Total						

OTHER INFORMATION:

#27



4104160247

new
pet

TUMOR SCORE:

3

LOCATION, SIZE, AND NUMBER OF TUMORS

	#1	#2	#3	#4	Total	Remarks
RT. EYE	1	1				
LT. EYE				1		
MOUTH						
NECK		1				
RFF		1	1			
LFE		1				
RHF						
LHF						
CLOACA/TAIL		2				
SEAMS/SCUTES						
INTERNAL						
Total						

OTHER INFORMATION:

#28

9464 = LFE

9465 = RFL

H539 = RH

H540 = LH

410420247A



RECOVERY!

new pit

TUMOR SCORE: 3

LOCATION, SIZE, AND NUMBER OF TUMORS

	#1	#2	#3	#4	Total	Remarks
RT. EYE		1				
LT. EYE	1	1				
MOUTH						
NECK	2					
RFF				1		
LFF			1			
RHF						
LHF						
CLOACA/TAIL						
SEAMS/SCUTES						
INTERNAL						
Total						

OTHER INFORMATION:

#5 turtle on day 5 page 27

1. adult lesion on jaw hinges.

new pit = 20081C3606

TUMOR SCORE:

3

LOCATION, SIZE, AND NUMBER OF TUMORS

	#1	#2	#3	#4	Total	Remarks
RT. EYE						
LT. EYE						
MOUTH						
NECK						
RFF						
LFF						
RHF						
LHF						
CLOACA/TAIL						
SEAMS/SCUTES						
INTERNAL						
Total						

OTHER INFORMATION:

[Empty box for other information]

TUMOR SCORE:

[Empty box for tumor score]

LOCATION, SIZE, AND NUMBER OF TUMORS

	#1	#2	#3	#4	Total	Remarks
RT. EYE		2				
LT. EYE	3					
MOUTH	2	2				both jaw hinge
NECK		2*				
RFF		1*				
LFF		1				
RHF		1	1*			
LHF		2				
CLOACA/TAIL						
SEAMS/SCUTES						
INTERNAL						
Total						

OTHER INFORMATION:

Day 4
Turtle #12

Page 26

New PIT
22φ 13 E5 137

* denotes where biopsy taken from

9/18/96

TUMOR SCORE:

2

From: Shawn Murakawa 12/5/96 1:30PM (1541 bytes: 1 ln)
 George Balazs
 Subject: Molokai data

----- Message Contents -----

I went back and found 4 entries that need a tumor score:

- 1) 09-03-82 PalaauG Tag: 6414
 Comments: Not engraved. Moderate tumor on left eye. Small
 Score = 2 tumor on right eye. Tumor on left 3rd marginal
 edge of shell. 2 small tumors on left shoulder.
 Heavy hard scum on carapace.
- 2) 10-16-85 Palaau Tag: 9523
 Score = 3 Heavily infested with tumors. Photos taken.
- 3) 06-03-87 Palaau Tag: 6698
 Score = 3 Scum and silt on carapace. Tumors over eyes and
 behind FF. 2 tumors on LHF. Painted #9.
 Photos taken, including close-ups of tumors.
- 4) 07-13-88 PalaauA Tag: 10818
 Score = 1 Tumor ventral neck. Painted blue #2. Orange "PG"
 orange bottom R34.
 Attempted stomach sample-sample saved. Photos
 taken of tumors on ventral neck.

I checked through 7-5-89 and it seems that they were given a tumor score starting in 1989. Not much to fix! Great!

DATES	Days fishing	NO. Captured	NO. Newly tagged	NO. W/TAG TIME	NO. W/TAGS Recaptured	NO. W/TAGS TIME
28 FEB. - 2 MAR. 90	2	13	12 (5)	41.7%	1 (0)	0%
7-9 MAY 90	3	51	44 (5)	11.4%	13 (1)	143%
2-3 JULY 90	2	36	29 (10)	34.5%	19 (3)	42.9%
9-11 JULY 90	3	82	72 (13)	18.1%	12 (3)	30.0%
9-11 JULY 91	3	31	28 (6)	21.4%	9 (1)	33.3%
15-16 NOV 91	2	45	27 (9)	33.3%	40 (7)	39%
4-6 DEC 91	3	41	26 (12)	46.2%	36 (9)	60%
26-29 MAY 92	4	121	84 (38)	45.2%	30 (26)	70.3%
29-31 JULY 92	3	70	57 (27)	47.4%	18 (8)	61%
4-6 JAN 93	3	55	32 (12)	37.5%	41 (23)	52%

545 405 (137) 27.2% 148 (70)
 (33.8%) (47.3%)

19-22 JULY 93	4	64 (35)	39 (19)	41%	15 (4)	57.1%
28-1 OCT. 94	4	46 (34)	39 (22)	38.5%	15 (7)	57.1%
10-14 JULY 95	4	56 (28)	40 (21)	55%	16 (7)	75%
15-19 JULY 96	5	65 (58)	58 (30)	48.3%	10 (7)	100%
24-26 SEPT 96	3	59 (43)	43 (19)	50.8%	22 (16)	68.8%

need:

Size of recaps

vs

Size of newly tagged

DPS Summary Report? NO. TAGS

DAYS	NO. Fishing captured	NO. Newly Tagged	NO. WITH Tumors	NO. Tumors	NO. Recap	NO. WITH TMR	NO. TMR
29 June - July 1997	5	70	57	36	51.4%	18.6% (10)	13

29 June -

July 1997

5

70

57

36

51.4%

18.6%

(10)

13

7-9 July

1998

5- July

1999

Date: 30 Sep 1996 14:56:55 -0400
From: Denise Ellis <Denise.Ellis@noaa.gov>
To: "gbalazs@honlab.nmfs.hawaii.edu" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Hatchlings

George Balazs (MTRP Leader), Denise Ellis and Shawn Murakawa (JIMAR Associates) went to Halawa valley, Molokai on Wednesday, September 25, 1996. The primary objective was to search for evidence of possible hawksbill hatching in the area of the public beach, as a previous report of hawksbill hatching had come from the 'private' beach. The beach was scanned for possible hatchling tracks, stranded hatchlings, or nests with hatchlings at the surface. One lone hatchling track was sighted at the beginning of the beach. Some pits were examined without luck.

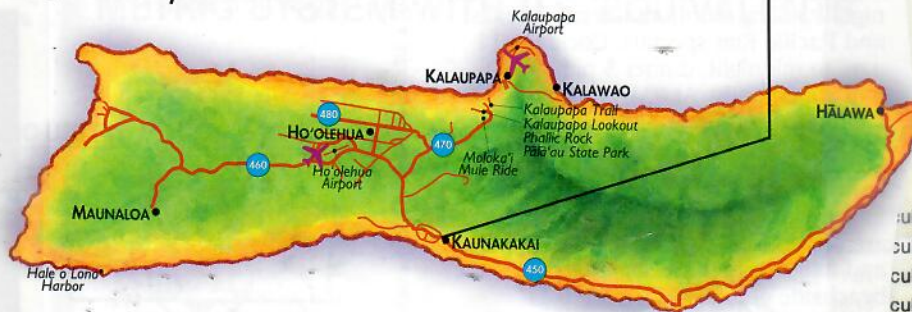
Near the far end of the beach (approx 1600 hrs), a number of hatchling tracks (possibly 6-10 individuals) were seen by GHB and DME emanating from near the brush area going down toward the ocean. (GHB and DME were talking about seeing only bird tracks, then looked at area they were standing. DME asked are those bird tracks? GHB 'no those are hatchling tracks!!' [yee-haaa]) The area where the tracks seemed to start was examined carefully, by brushing the top 1-2" of sand away. After about a minute of searching DME noticed the sand moving in the area she was searching and two hatchling heads popped up. Hatchlings were counted as they emerged, and a total of 30 hatchlings came out on their own and scurried their way down to the ocean, the last one with a little assistance from DME as it seemed stuck on a root. This was conveyed to GHB, after further examination of the nest another 39 hatchlings were found underneath a layer of unhatched eggs. A total of 69 hatchlings made their way to the ocean, 2 hatchling were found in the nest dead and 94 eggs were counted that didn't hatch.

Denise- Before I leave on Tuesday COB will you please compose a draft paragraph or two describing in your words our encountering the hatchling tracks and hatchlings at the surface. For my own internal use, so don't send much time on it. Thanks, geo.

Moloka'i

The Friendly Island

MOLOKA'I VISITORS ASSOCIATION
553-3876



M
L
mi
ce
de
me
dec
hec
kilo
my

ALENT

cubic inches
cubic feet
cubic yards
cubic yards

ABOUT MOLOKA'I

Moloka'i is a tropical haven a lifetime away from the hectic, modern world. It's a place where you can swim at the base of a cascading waterfall, surrounded by a lush, fruit-laden valley populated by ancient Hawaiian temples and dwelling sites. Wind your way down on foot or by mule to the isolated Kalaupapa peninsula and hear the com-

pellling life story of Father Damien and the Hansen's disease patients he cared for. Hike among endangered coastal plants or catch fleeting glimpses of rare native birds. Scuba or snorkel off a 28-mile pristine barrier reef. Moloka'i: Unhurried. Unchanged. No traffic lights. No buildings taller than the coconut palms. Come enjoy yesterday's Hawai'i—on today's Moloka'i.

cubic inches
cubic inches
cubic inches
cubic inches
cubic feet
cubic feet
cubic yards

WE

milligram mm 0.015 grains

cent
deci
gram
deca
hecto
kilog
quint
metri



pints
quarts

decaliter	(Dl)	1.1	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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