



HONOKOWAI 19-22 JAN 99 PAGE 43

4801 Book II Mead = 710-98

COMPOSITION 1999

MAUI BOOK 2

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V
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2 of 3

as
4801 (1998)
4801 (1998)
CONTINUED

GEORGE BALAZS (808) 983-5753

NMFS, HONOLULU LAB
Marine Turtle Research
2570 Dole Street
Honolulu, HI 96822-2396



6x

Date: Sun, 24 Jan 1999 19:00:43 -0500
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Cc: honu@turtles.org
Subject: Oops..written but never sent.

Red

What prompted this? Fears that the Honokowai Honu would become a "field trip" for HPA or a curiosity for The Rich. (Mean no offense to Marc. I like him a lot.)

Oh we've seen kayaks go up and down the coast, yeh. Last summer one stopped and two people snorkelled right over Reef2. No question they were looking at the turtles. We watched the entire time. No frothing of the water to suggest chasing. No diving down. Harmless stuff.

A white wooden boat with about 5 fishermen will place nets all around where Polzbarney lives (last time they really tore up the corals) or work right over the Turtle House. Sometimes near the sand basin makai of Mahinina. They work with one perhaps two in SCUBA. In these situations we watch with binoculars.

Won't enter the ocean when fishers around. More important to watch from lanai. So far nothing large and circular has been plunked into the boat. Good people actually. Are with their nets the entire time.

Our paper is coming GREAT! You should see the magic Peter is working on the GRAPHICS.

At 08:05 AM 1/22/99 -1000, you wrote:
>I'm not sure what prompted this. I guess that hinges on "exact"
>location. You are correct, I won't publish or hand out lat long.
>However, be aware, Skippy asked to go with us on one dive, he's the
>Maui
>State Biologist, I work with him closely so he was invited and indeed

>went
>with us. I doubt he could ever find it again. Also, be aware that
on
>Wednesday a kyak came from the south and paddled straight to Reef 2,
>anchored and spent time we are sure doing turtle watching from the
>surface. I see no harm in this, in fact that's a major "value" of
the
>turtles.
>
>We dive with Randy again today. Aloha, Geo.

Date: Mon, 01 Feb 1999 21:20:26 -0500
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: 1999 Turtle #1

Red

Mahalo.

Skid row, all right. Every single honu we ever saw in there was a one-seasoner only. always juveniles --always tumoured. Like revolving doors. Reason I asked is PB's ledge is really the Lahaina side one.

He only started using the Kapalua side last year...and when 1998#1 was there (badly tumour larger turtle) he'd kick out PB. So when PB was in his former ledge we knew the other honu was around.

Very odd feeling for us to enter 1999 Turtles 1 and 2 into database and not actually be sighting them. Also highly rewarding too. I'm glad you are at Honokowai, George.

At 03:56 PM 2/1/99 -1000, you wrote:
>yes same ledge. Hot-bedding it, they are, as they say in the Army
(and
>
>on skid row).

October 5, 1998

Diagnostic Laboratories
College of Veterinary Medicine
and Biomedical Sciences
Fort Collins, Colorado 80523-1644
(970) 491-1281
FAX: (970) 491-0320

George Balazs
National Marine Fisheries Service
2570 Dole Street
Honolulu, HI 96822-2396

RE: DL# 989-10555

Dear George:

Three vials were received from you with request for histopathology. Vial 1 contained several small pieces of tissue. The vial was labeled "4077510D6D Tissue from LFF plus Barnacle". These tissues all came from a green sea turtle from Maui. Five tissues were examined from Vial 1. Two of the small masses contain tumor and one section of tissue was right from the edge of a tumor and two of the small pieces of tissue were relatively normal skin. The sections of tumor from Vial 1 were similar to the other tumors found in green sea turtles from Hawaii. The interesting finding is that these tumors were associated with a small barnacle.

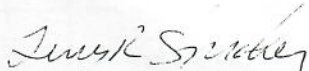
Vial 2, same number, and from the same turtle, also had a tumor that was identical to the tumors observed in other green sea turtles. This tumor was (via your E-mail) removed from the oral cavity of this turtle.

Vial 3 also contained one mass and this mass was removed from the anterior aspect of the right front flipper. This tumor also was identical to other tumors except that the degree of pseudoepitheliomatous hyperplasia was not present in this tumor, however, this tumor was also associated with a barnacle. The tumor from Vial 3 was extremely difficult to distinguish from a small scar, however, the epidermal part of this lesion did not show pseudoepitheliomatous hyperplasia, but the superficial dermal region did show fibroblastic proliferation typical of a fibropapilloma.

DL# 989-10555
Page 2

Your concern about the association of barnacles and fibropapillomas should probably be further investigated. There are several possibilities here, one would be that the organism within the barnacle may play a role in the transmission of the disease, either by carrying the agents from turtle to turtle or the barnacle could cause a disruption or proliferation or some type of change in the epithelium that would make the skin more susceptible to an infectious agent, perhaps the agent of fibropapillomas. The two sheets of paper included in this report are the summary sheet or raw data for the histological examination of the tissues from these three vials from this turtle from Maui.

Sincerely,



Terry R. Spraker, DVM/PhD

TRS/ea

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989-10555

TURTLE CHART HISTOPATHOLOGY

slide # (vial)	1					1A		2	3
	8/10r Skin sect.	SKIN	Tum #1	Tum #2	skin also of tumor	SKIN	tumor		br.
Tumor pattern, <i>10ured, nodular</i>	-	-	-	-	-	-	+	+	
Flat	-	-	-	-	-	-	-	-	
Papillary	-	-	+	+	-	-	-	-	
Acanthosis +, ++, +++	6-7	10-12	12-15	10-15	4-10	8-10	6-10	8-	
Orthokeratotic hyperkeratosis	1/3	1/4	1/2	1/2	1/3	1/1	1/4	1/1	
Fungus on surface	-	+	-	-	-	+	-	-	
Mites on surface	-	-	+	-	-	1 each	-	by	
Bacteria on surface	-	-	+	-	+	+	+	+	
Pseudoepitheliomatous hyperplasia	-	-	++	++	+	+	+	-	
Necrosis, focal, epidermal	-	-	+	-	-	-	+	-	
Inflammation under necrosis	-	-	+	-	-	-	+	-	
Swelling of nuclei	-	+	+	+	+	-	+	+	
Nucleoli 1:1-2, 2:3-4, prom.	①	①	①	①	①	①	①	①	
Margination of chrom + IN include	-	-	-	-	-	-	-	-	
Intercellular edema	-	+	+	+	+	-	+	-	
Intracellular edema	-	+	+	+	+	-	+	+	
Individual cell necrosis (S-B/8)	-	+	+	+	+	-	+	-	
Blister between SB/8/8E dermis	-	+	+	+	+	-	+	-	
Mitotic figures	-	-	-	-	-	-	+	-	
<i>cytoplasmic vacuolation</i>	-	-	+	+	+	-	+	+	
<i>lymphocytic inf. str. basale</i>	-	-	+	+	+	-	+	-	
<i>perivascular prolifer. embolus</i>	-	+	-	-	-	-	-	-	
<i>serocellular crusts</i>	-	-	-	-	-	-	+	-	

989-10555

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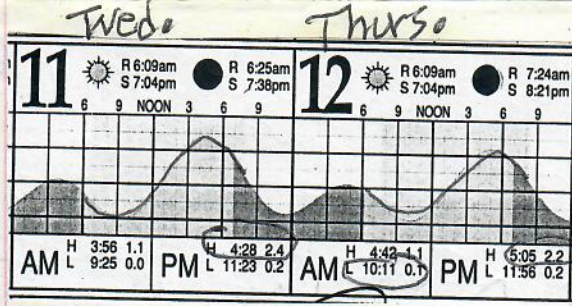
slide #	1	1	1	1	1	1A	2	
	skin	skin	Tum #1	Tum #2	scar cyst tumor	1A skin		
DERMIS								
Reactive fibroblast cellularity	T/W	T/W	mod	mod	T/W	T/W	mod	
Fibroblastic area: Dense/Loose	NR	NR	Den	Den	NR	NR	Den	
Deep fibroblastic reaction	-	-	-	-	-	-	-	
Vessels sur. by lym - tumor	NP	NP	-	-	NP	NP	+	
Vessels sur. by lym - under tumor	+	+	++	++	+	+	NP	
Granuloma - tumor	NP	ND	+	+	NP	ND	+	
Granuloma - under tumor	-	-	-	-	-	-	ND	
Cleft between epidermis/dermis	-	+	+	+	+	-	+	
Pigment in tumor	+	+	+	+	-	-	-	
Small foci nec. within tumor	NP	ND	-	-	NP	ND	-	
Inflammation in tumor	NP	NP	-	-	NP	NP	+	
Mitotic figures	NP	ND	-	-	NP	NP	-	
Keratin pearls	NP	NP	-	+	NP	NP	+	
lymphatics/veins/interweaving	NP	NP	HH	HH	ND	ND	HH	HH
neovascularization	NP	NP	-	-	NP	NP	-	
foci of sarcoma	NP	ND	-	-	NP	NP	-	
regressing	NP	NP	-	-	NP	NP	-	

1A- appears to be an epidermal cyst associated with a keel.

2. typical tumor - squamapilloma

3. ? early tumor or scar in dermis associated with a barbed, barnacle

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AUGUST 1999

II AUGUST 99 Depart Aieha 555 AM For Wednesday KAHULUI. no car rental drove to KAPALUA to pick up Driso (Parker) 745 AM. Breakfast at McDonalds. TO NORTHWANI - meet Peter and Ursula -

Dive One ~ 9:30 AM ~ 60 MIN ^{SCUBA} 47 ft _{no swell}

Snorkel out some distance, then down - went to their new "North House" slightly more off shore and to north of "Turtle House" - Small pier on near Point's mound - they have name Mt. Balazs. Data logger was put here by them - easily seen in crevice in pumice. 5 large turtles around base resting - like parking lot (or jet way) plane parking! Point's mound seems to be newly broken down ^{away} - not a place used for years. Back to

Wednesday
11 August 99

stuttle house - 3-5 turtles resting
here - read 605-C LHF
adult female. ^{Demise} Located
data logger from 1999 under ledge
at top. Smooth dead coral seems
to be more broken down. Deployed
new logger end #63 set 1 hour
330 days. TO "The Rock" - didn't
find logger from 1999, but real.
Bad shot this prevented extensive
search. Many traps seen. No
turtles here. on the way back
in saw a tumored turtle TS3 -
only one seen on dive one heavily tumored
all others were at least TS1,
worst, low TS2. Checked
Polzbanj hole on way in - not there.
Didn't see Keoki Hardsbell, or
Nicholo (J) or Polzbanj
on dive one
Break between dives discussed web
cam idea, etc.

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Dive up
also saw
particles of chlorophyll
Boring by - like plankton
Spread out most small
size - next to view.

11 AUGUST 1999

Wednesday

8-
11-99DIVE TWO42 ft deep
69 min.

TO Reef 2 area
Denise found loggers from 8/1/99
decided to retrieve it because
when placed in pories it is too
difficult to relocate - apparently because
turtles and swell regularly break up
pieces. Searched alot for hawksbill
and kholo - none found. Ursula shows
us places of pories broken apart
by hawksbill biting searching for
Chondrosia chubbii growing
at bases (non-living) of live pories
Collected some to photo. Lots
Saw video tank breaking up coral,
Saw Psyllapora numerous small
patches beached white glass.
Numerous turtles in resting

wednesday
8/11/99 Dive TWO

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activities of Reef Two. Went out
to remains of Zeus Larr. No
heavily (not even T59) turned turtles
seen anywhere. Noted more responses
to divers than before (though
there was always response ^{many} less
accepting of diver presence. Saw
turtle they named "AhiBono"
Very small <40 SCL clean green
new recruit, accepting. Saw
Mahara under same canyon ledge
restrained long enough to closely
examine eyes, etc. I saw no
signs of ~~the~~ #1 me or suspicious
bumps. on the way in found
Polzamer in his ledge - turbid -
he darted out before we could
catch. I saw ~~the~~ TMR #3 on
right shoulder - didn't look any
larger to me. Turtle larger?
Maybe a little

Drove Denise to Kapala for 545pm
depart.

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11 August 99 ^{wed.}

Called ^{ed} Hardy Miller
 Drove PM to get more air tanks.
 Talked about TVITROX, Bought
 small spear and scoop net to try
 to catch jactators for virus
 screening.

He drifted dove to ← Parasail
 to Hale Wharf and saw ~10
 turtles in between, all, each
 were associated with some
small junk bottom feature.

At sunset observed turtles feeding
 close to shore (25-50 yards out)
 off "Smoke House" restaurant
 just harbor side of Chart house.
 Are dinner at Koto's in
 Napili.

Stayed overnight at Conbat Resort
 Mauka of Hanalei Park ^{with} \$50 gov. rate.

LISA ^{Retired} Attorney

& Steve ^{Judge?}

Smith at

SON - Daniel

Met them in 8/98

Sacramento, CA

more into on turtles

12 August 99
Thursday

Up ~ 545am. Phoned Peter Dutton,

TO Makarua kahora ~ 645am.

TO NOTHONANI - out diving ~ 8:45am

Low tide.

Peter said he writes

Dive Three: TO Reef 2 w/ 3-prong spear
60 min 40 ft and small scoop net

NO #53 seen. One low #2. A few w/ eye tag to collect gastator (spotted ray)

at resting areas, with presumption they pick

Bite on turtles, and on tumors. Impossible to

scoop - way too fast during heard their. Success
with 3-prong spear 7 collected. Shot at

~ 12 of them. Put in zipper bags - most still
alive. Frozen V&P freezer, also frozen

seawater taken they had collected in

cryovials. No hawkbill seen by me,
though Peter said he saw a new (tiny) one

way in the distance. "Squatters" drifting in
current seen during return to shore

I again pulled Makarua out of
"his/her" ledge to examine eyes. This
time I felt right eye (and maybe even left) had budge.

(76)

12 Aug. 99 Thursday

Returned to Kohonani, Kested. About 12
we drove to Lohaina - bought dive flag to
tow. Parked across from Chart House
Restaurant and swam out to Parasail platform
wreck - strong current. Replaced (obtained)
data logger from '99 - deployed
logger (1 hour, 330 days) with serial
number ending "65" *Wetters*

DIVE 4 (40ft. 70 min)

Numerous turtles seen, most adult,
are very large (long and round) female,
2-3 juveniles, 2 subadults, spray 100
NO 4800.

- need
- 1) Build artificial reef for turtles, Lohana 77
Time lapse, webcam, ^{Mala area} other research uses.
 - 2) Video underwater - time lapse
at Hanohouai
 - 3) Progression after Regression documentation

Depart Aloha FL²²⁵ 6PM, arrive 6:30pm

Date: Thu, 26 Aug 1999 20:57:00 -0400
From: RANDY Miller <millermereid@compuserve.com>
To: GEORGE BALAZS <gbalazs@honlab.nmfs.hawaii.edu>
Subject: 4800

[The following text is in the "ISO-8859-1" character set]
[Your display is set for the "US-ASCII" character set]
[Some characters may be displayed incorrectly]

Aloha George
I was glad to see you when you were here.
I recieved a sighting of 4800 from a visitor that was on a snorkel boat of
Mala warf on friday. She is still around!! I hope to see her my self, i
will keep looking.
Aloha for now
Randy

Date: Wed, 10 Nov 1999 17:24:19 -0500
From: Randy Miller <millermereid@compuserve.com>
To: GEORGE BALAZS <gbalazs@honlab.nmfs.hawaii.edu>
Subject: #4800 alive and well

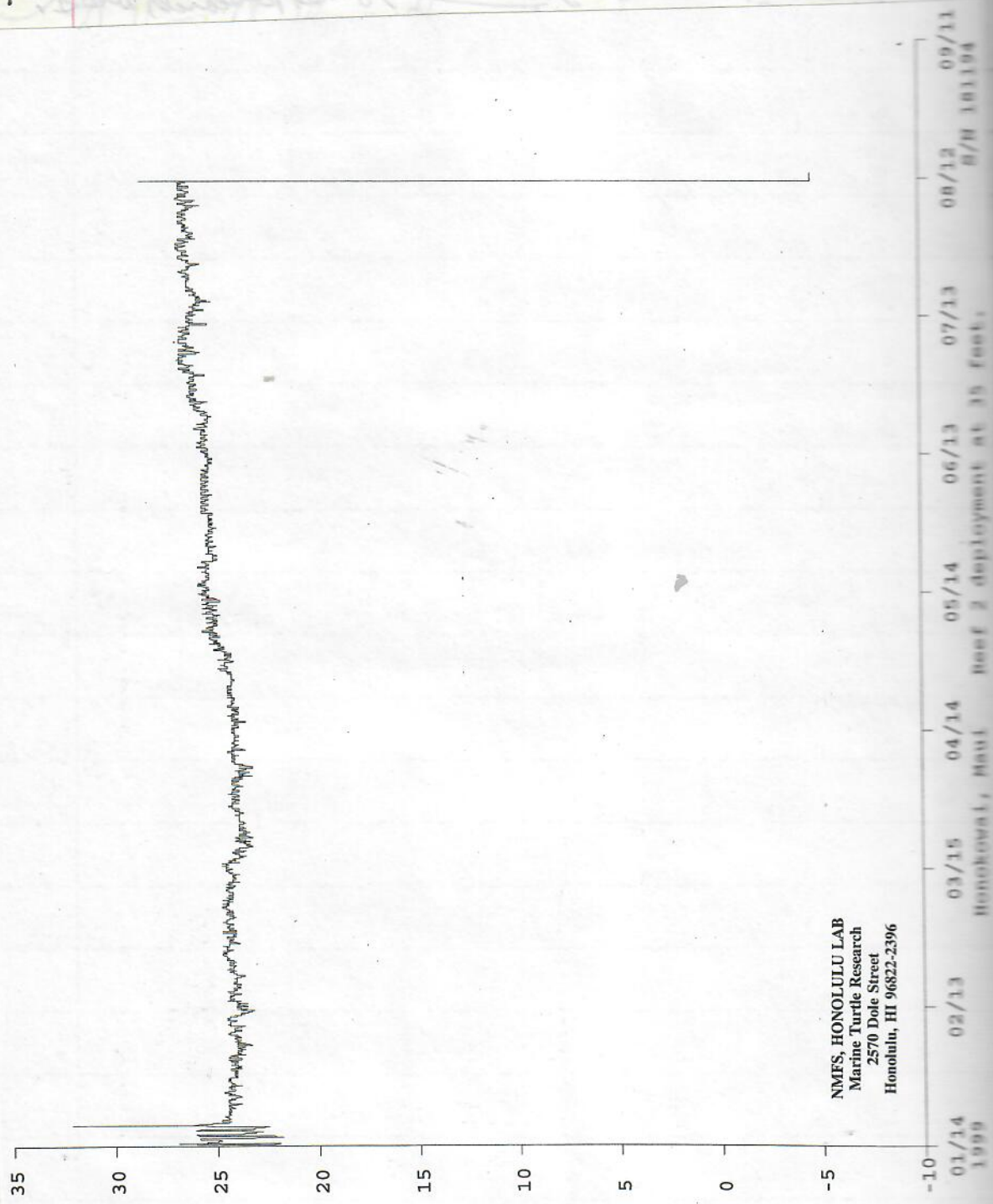
[The following text is in the "ISO-8859-1" character set]
[Your display is set for the "US-ASCII" character set]
[Some characters may be displayed incorrectly]

Aloha George

I have been getting consistant reports of 4800 sightings at the condos and
Mala Warf.
I personally havent seen her since you were here the first time. I dont get
out there much latley.
I am posting a web cite with a photo gallery and information, I am doing a
small piece on #4800, do you have a web cite I can link to for more info on
turtle research etc?
Is there anything you special you want to say in regard to turtle tagging
and the tumor problem?

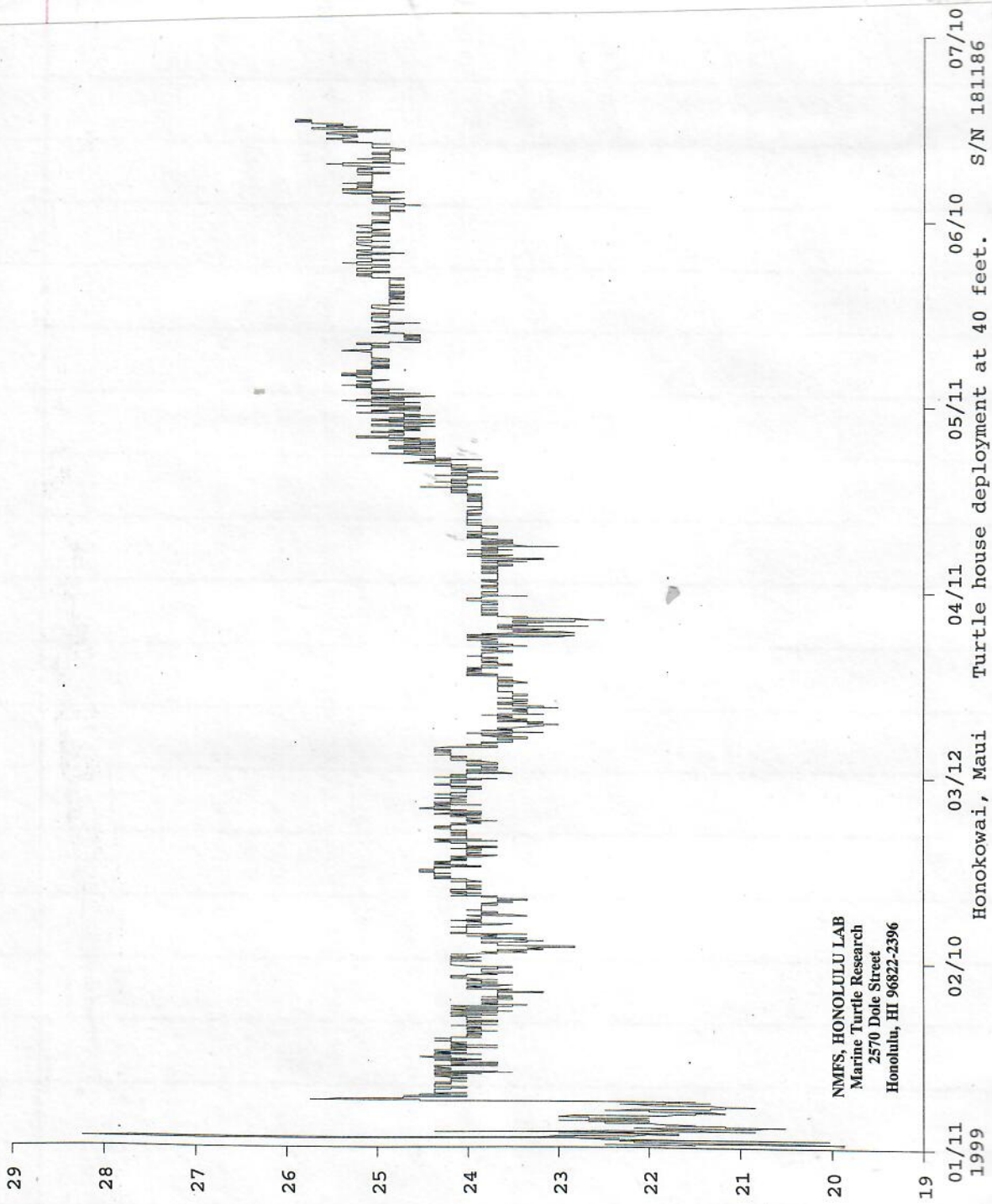
Aloha and happy diving
Randy

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NMFS, HONOLULU LAB
 Marine Turtle Research
 2570 Dole Street
 Honolulu, HI 96822-2396

01/14 1999 02/13 03/15 Honokowai, Maui 04/14 Reef 2 deployment at 35 feet, 05/14 06/13 07/13 08/12 B/H 181194 09/11



NMFS, HONOLULU LAB
 Marine Turtle Research
 2570 Dole Street
 Honolulu, HI 96822-2396

181186 2570 Dole Street

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Date: Mon, 17 Apr 2000 08:43:32 -1000 (HST)
From: Yuanan Lu <ylu@pbrc.hawaii.edu>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Toby (Jactator) fish

George,

I received two batches of Jactator fish from you on 9/14/99. The batch No. 1 has 5 fish and batch No 2 has 7 fish. The code for these fish is: 8-12-99. No other wards or comments were read on the bags.

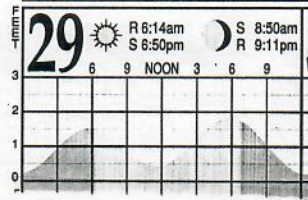
As I indicated to you last week, we have detected one fish from batch No 2 to be green turtle herpesvirus positive.

I would like to know a little more about these fish, their activities and where they were caught, etc.

Yuanan

00
Sunday

AUGUST 29, 1999



Date: Mon, 17 Apr 2000 08:43:32 -1000 (HST)
From: Yuanan Lu <ylu@pbrc.hawaii.edu>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Toby (Jactator) fish

George,

I received two batches of Jactator fish from you on 9/14/99. The batch No. 1 has 5 fish and batch No 2 has 7 fish. The code for these fish is: 8-12-99. No other wards or comments were read on the bags.

Mau

As I indicated to you last week, we have detected one fish from batch No 2 to be green turtle herpesvirus positive.

I would like to know a little more about these fish, their activities and where they were caught, etc.

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----- Forwarded message -----

Date: Sun, 25 Jul 1999 00:20:20 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Night dive report...

Polzbarney was in his ledge. We shot just enough video (5-6 seconds) to record him there. Poor guy seemed very ill at ease.

Went along Reef1, Makana's Ridge (Makana not there though medium sized yellow margin was). Went to East House, then makai to Zeus' Lair, then where Zaphod usually hangs out and all other depressions in between. No honu period.

Turned off lights to see by the moon --can actually see better that way. Figured we might see a honu skating for air. Nothing.

Went back way we came and aimed lights behind us so we could navigate by moonlight. Beautiful. Once we got to tip of Reef1 we turned off lights for most of way to Cavern. Polzbarney was not there on return trip.

>From Cavern we kicked back all the way to beach without lights at all. Cool.

I don't know if we answered the question, "Do honu sleep at Reef2 at night. Perhaps if we dived at 1 am..." All we found out is they aren't there around full moon between 10 and 11 pm.

Mahalo for the Epurb thing. I carried it and Peter had that other little device. No current to speak of. Perfect conditions. Proud of myself this night. Faced my demons.

(Now to see if Turtle Trax got to Toronto ok)

----- Forwarded message -----

Date: Sun, 25 Jul 1999 19:42:52 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Polzbarney

See him fairly regularly yes but not like every day like we used. Saw him at his ledge during yesterday's night dive and both morning and afternoon dive today.

Yes, got photos but video much better. More tumours and the ones he had last year worse. Especially the primary right shoulder tumour now a #3. When we see him again we'll make sure we get footage from all sides for you to evaluate.

He's a goner.

At 06:56 PM 7/25/99 -1000, you wrote:

>
>Yikes, I had momentarily forgot about the little bugger! Been seeing
>regularly? Tumor status? Photos I can examine? Please I'd like to know
>all about what you've seen for him/her. Mahalo,Geo.
>

----- Forwarded message -----
Date: Sun, 25 Jul 1999 19:51:14 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Sighted Keoki again

in same place. Obviously her hangout. Named the area "HaleManu" the other day in the hopes it turned out to be just that --House of the Bird. Keoki let me take 11 photos before she left.

And she only kind of moved away and watched us. This time we made zero attempt to follow. We know we'll see her again and again.

Now that I have stills we're going to shoot video to determine her Clingon status. No tumours apparent. Don't expect any. But will be interesting if she's got Clingons.

Small wonder there are reports of divers seeing a hawksbill at Airport Beach. She LIVES at Honokowai!

Oh! Kiholo J 628. Got excellent close video today. Small tumour forming left eye and what appears to be beginning of tumour lei. Will do close video again at end of August. Sometimes a pre-eruptive tumour breaks by end of the summer.

----- Forwarded message -----
Date: Mon, 26 Jul 1999 07:03:23 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Sighted Keoki again

Wasn't referring to Keoki --the hawksbill. Rather Kiholo. Just adding FP info on the Big Island honu for you. Hawksbill looks just fine and I expect him to stay that way.

At 06:34 AM 7/26/99 -1000, you wrote:
>You should not assign a tumor, any size, visually photographically to a >hawksbill. Call it a "suspicious bump" remember we use that category.

>
>
> *****
> * George H. Balazs, Leader *
> * Marine Turtle Research Program *
> * National Marine Fisheries Service *
> * SWFSC Honolulu Laboratory *
> * 2570 Dole Street *
> * Honolulu, Hawaii 96822-2396 USA *
> * Tel: (808) 983-5733 *
> * Fax: (808) 983-2902 *
> * gbalazs@honlab.nmfs.hawaii.edu *
> *****
>

>On Mon, 26 Jul 1999, Ursula Keuper-Bennett wrote:
>
>> Again I stress the left eye looks suspicious. Something white happening
>posterior but not a lump yet. White blotches on neck not lumps either. In our database we'd refer to that as "FP vulnerable".
>>
>> He would not receive an overall 1 which means a tumour is certain. Will have video available for you to analyze. Perhaps you could "call it".

>> -----
>> At 08:10 PM 7/25/99 -1000, you wrote:

----- Forwarded message -----

Date: Mon, 26 Jul 1999 07:00:30 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honiab.nmfs.hawaii.edu>
Subject: Re: Sighted Keoki again

Bigger than Polzbarney. 70? He's at Reef2. There's no way Peter has the spit to help you with that one. Even with no current --left leg injured as a child. Then you better get Skippy over here.

Yes, J 628 should be examined (more of a priority than PB in my view). But he isn't there every single day. Neither is Polzbarney any more. (For the first time we've sighted him at Reef2 and surprisingly at NorthHouse.)

At 06:33 AM 7/26/99 -1000, you wrote:
>Ought to catch and examine that one also. How large about?

>> *****
>> On Mon, 26 Jul 1999, Ursula Keuper-Bennett wrote:
>> Again I stress the left eye looks suspicious. Something white happening posterior but not a lump yet. White blotches on neck not lumps either. In our database we'd refer to that as "FP vulnerable".
>>> He would not receive an overall 1 which means a tumour is certain. Will have video available for you to analyze. Perhaps you could "call it".

>>> At 08:10 PM 7/25/99 -1000, you wrote:
>>> >Well, that would add some weight to habitat being the quicksand. None of
>>> >the Kiholo turtles have had tumors.
>>>

----- Forwarded message -----

Date: Mon, 26 Jul 1999 17:42:17 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honiab.nmfs.hawaii.edu>
Subject: We have two DIFFERENT hawksbills

No mistake.

Got to Makana's ledge and saw a Black Tipped Reef Shark interacting with Makana (looked like they were playing). By the time we had our cameras ready the shark took off. I followed IT going over the ridge and almost hit what I thought was Keoki face on.

The hawksbill was foraging up a blue streak. Peter got AMAZING video and me I blew a dozen pics.

Then we went to HaleManu (House of the Bird) because we figured the hawksbill would circle and show up there. And there was the hawksbill all right. Peter already figured it out underwater --two very different sizes.

Me, I needed to watch the video. No mistake (I checked profiles --they are different) we have TWO hawksbills and BOTH let us video them eating to our hearts' content.

And to think we wanted foraging behaviour!

Now whether this bigger hawksbill is resident will remain to be seen. Christ, Honokowai is SOME kind of PLACE!

Better go. Taking the pics to Lahaina for processing. We are calling the hawksbills, "gooneybirds" because they are.

84

----- Forwarded message -----
Date: Tue, 27 Jul 1999 14:27:56 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Vials, article and nesting data etc arrived

Info on U 249 appreciated. Mahalo. Will read other stuff this evening.

Guess what?

That second hawkbill was resting with the honu no kidding. Tiamat, Hoa, Zaphod there and so was this dude. Peter got great video. Me, I COULD have had great video except my camera wasn't aligned right and I have a curved vignette on the left side of everything. Trashed ALL sequences.

We now know gooneybirds scratch their shells, yawn as a way of saying "Piss off", tuck in their necks when crabby, stick out their necks when they're curious.

You know what I think? This new bird? I think this is the one divers report seeing at Airport Beach. How else can you come upon a hawkbill first time and it lets you crawl all over it? This number doesn't give a SHIT about divers.

(And we thought the honu were brassy!)

Will be posting a message on CTURTLE asking for info in hawkbills. I need to know more about them now that we got two. I want FOUR next summer. Then we can say we have "exponential growth" like that shrimp consortium claimed for the Kemp's.

Peter is kicking me off the computer.

----- Forwarded message -----
Date: Tue, 3 Aug 1999 21:06:11 -1000
From: Ursula Keuper-Bennett <howzit@TURTLES.ORG>
To: CTURTLE@LISTS.UFL.EDU
Subject: Sea Turtle "Windows" 99

Aloha,

(Thought I'd take advantage of the summer quiet on here to share some sea turtle images for those interested.)

First the bad news --this turtle, a resight. 1998 #50 now holds the unenviable record of the honu whose gone downhill the fastest in a single year. (Photo)

<<http://www.turtles.org/special/fpright.jpg>>

Here's a tragic FP case we saw a few days ago. Not only was this animal burdened with tumours, its right front flipper was "amputated". And something else. It had a dinner plate sized hole in its carapace revealing its left hind leg! We're not sure what we're looking at here. (Hi 8 video "grab")

<<http://www.turtles.org/shelhole.jpg>>

Regression continues in this community. We've even added five new cases for 1999. That's the good news. They are all males. That's the puzzler.

We offer here, two images of regressed tumours from an animal we've known since 1996. A new regression case. It's the first macro image we have of a regressed mouth tumour. This honu is special --a laidback cooperative one. He let me get within inches of his face. (Photo)

<<http://www.turtles.org/special/mouthtumour.jpg>>

85

Here's a regressed eye tumour --posterior. (Photo)

<<http://www.turtles.org/special/eyetumour.jpg>>

NON-FP IMAGES

We resighted the hawkbill "Keoki" again this summer (actually it would be more accurate to say she resighted us).

We think you'll be intrigued by this --an unprovoked hawkbill attack on a much larger greenie. (All images are digital video freeze-frames)

Keoki was swimming along towards a group of resting honu. She selected her target.

<<http://www.turtles.org/special/keokiapproach.jpg>>

then veered and "rammed" Tiamat (a sweet gentle honu known since 1991)

<<http://www.turtles.org/special/keokipush.jpg>>

nipping her on the marginals for no good reason.

<<http://www.turtles.org/special/keokibite.jpg>>

Ti spun round and Keoki (satisfied she made her point) continued on her way.

<<http://www.turtles.org/special/keokistinkeye.jpg>>

We don't know what to make of it...but we think Keoki has some Ontario Snapping Turtle blood in her somewhere.

We also witnessed our first turtle "mounting session" of 1999. Adds up to our third such observation over the years. Thing is it was the same male doing the deed as the other two times in 1996.

His victim was again --another male!

<<http://www.turtles.org/mount99.jpg>>

On this occasion our "alpha-male", Zeus (known since 1992) looked on.

Imagine. Three large male honu frothing up the surface. I looked at Zeus and thought of the Booth/Feters paper about "attendant males" courtship activity.
 For more photos of all the males see a printed album

86
When you think about it, this is a good way for a male to fight a rival instead of the usual honu beak-to-beak snap and bite. Safe on your opponent's back, you can get all your "licks" in and stay unscathed in the process.

We used to think that particular male was just stupid. No more.

This is our last image. Shows why we love the honu so much. (Photo)

<<http://www.turtles.org/special/coolhonu.jpg>>

More beautiful, gentle creatures never graced this planet.

Malama na honu (Protect the turtle) Aloha to all.

Ursula Keuper-Bennett
mailto:howzit@turtles.org

^
0 0 /V^ \ /V^ \ /V^ \ /V^ \
/ \ / \ / \ / \ / \ / \ / \ / \ / \
Turtle Trax // \ \ \ \ \ \ \ \ \ \ \
http://www.turtles.org

"Men have forgotten this truth," said the fox. "But you must not forget it. You become responsible, forever, for what you have tamed."

/ \ / \ / \ / \ / \ / \ / \ / \ / \
malama na honu

--The Fox shares his secret
Antoine de Saint-Exupery

----- Forwarded message -----

Date: Sun, 08 Aug 1999 15:13:20 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Fabulous two dives

What a DAY! 3 pm here and close to our third dive. Oh man.

AM. Keoki let us video her as long as we wanted. Then Peter sees Kiholo and follows and who's there but Ake. Peter video'd a jactator working Ake.

Imagine, both hawksbills one after the other.

Doesn't stop there.

Second dive we snorkel and damn if it isn't two mahimahi looking us over (3 footers) Eyes like jewels. Saw Keoki right away and she now lets us follow her around.

And here's the wondrous thing. She took us to a new reef -- farther out than even the farthest reaches of our OutBack past the Turtle House. Points straight to Molokai --doesn't seem to end. And Keoki came upon a big honu swimming mauka. Keoki tried to bite the honu's ass. Honu leaps vertical with Keoki also vertical trying to clamp on to the honu's tail.

Anyway... better go. The honu call. And now two new voices have been added to the chorus!

Date: Thu, 26 Aug 1999 21:06:16 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: 1991 Turtle 7

sighted 91, 95, 96 and 97 --absent 98. Back again for 99. Subadult in 91 who kept growing.

Noticed early on this summer what looked like a 6 on rear right carapace but just thought it was white algae and green creating the number illusion.

Peter noticed her today and swears it really IS a 6 and that it's engraved. I just reviewed the video and darned looks like a 6 now. There appears to be a second digit possibly a 2 --but could be a sweeping 7 -- shell's clean so I suspect the paint's worn.

In a.m. we normally go to NorthHouse but now interested in meeting up with 91#7 and try to read her number. Very tame so should be easy.

Please tell me. Would all 98 nesters have a letter and two numbers painted? For example Mendelbrot is D 62. (With the paint worn and the etching not all that deep, we need to know what to look for.)

87

(88)

Honokowai, MAUI

29 AUGUST 99 ^{DASH 8} ^{alone} ^{6:30am}
Sunday Depart Aloha Island Air FL. 1302
for Kapalua

Objective: Dive w/ U&P last opportunity this

Summer TO see ^{(1) SAW} ^{(2) TWO HAWKS BILLS}
^{(3) Polz ^{SAW} ^{NOT SEEN}} ^{(4) TUTU A-142} nested 6/8 & 6/2
(+ more likely) at east this season, only recent
returned to Honokowai " MISREAD TIME AT EAST BY TIME U512 (SIC) (15 U52)

Picked up by U&P - breakfast at McDonald's
KAWA. Dive 1 ~ 9:30 AM - TO N. H.
Saw "Small Tall and deep" Mount BATS

"^{MAX 10' diameter} tall ~ 35"
Parking lot" for turtles. Data Logger here.
Numerous resting turtles here and
on top of adjacent reef. "Turtle House"
as told to us earlier not used as much.
Peter saw ~ 25 different turtles, I estimate
4 w/FP, only one of those TS3.

Dive 1 38 FTU 70 minutes

Saw large female 605-C LH

- Absence of sharks
- Turtle Attractor

Sunley above

8/29 Tail has depression of old injury - white scabby, tucked tight under.

Mounted drive to Airport Beach - north end of KAAUA PACI. White sand starts where "Black Rock" point ends. Keawe about beach end on undeveloped portion.

DIVE 2 - 145 PM 46 ft. 65 MIN.

To Reef 2. Numerous resting turtles. None with TS3 (or even TS2) FF. Across sand area to reef. Saw "Kittolo" - I followed it, let me be close, spanned saw 4 tops, so ingrown midly.

29 AUG 99
FL 1505

Depart KAPALUA
5:15 PM Island Air

(88)

Honokowai, MAUI

29 AUGUST 99
Sunday

^{DASH}
alone

Depart Alpha Island
for Kapalua

6:30 am

Objective: Dive w/

Summer TO see

③ Polz Barney
(+ more likely)
return

Pick
6:50 min.
turtles

④
6" pentagons
underdeveloped

⑤
PACI, white sand
to Airport Beach -
to right under
depression of old runway -

8
de
see
plant
disc

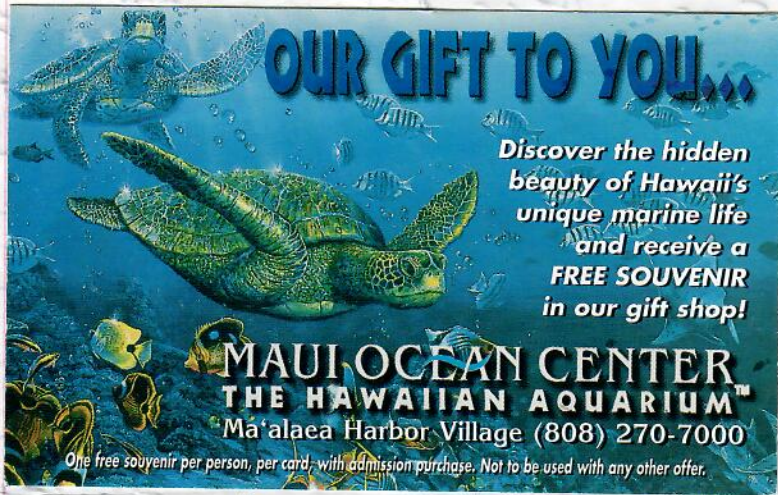
89

TO ~~Mac~~ 5 liter liquid nitrogen

NOHONANI
to Honokowai - arrive ~ 10:30 am. Forget flippers
Blue's caught = Kelly.

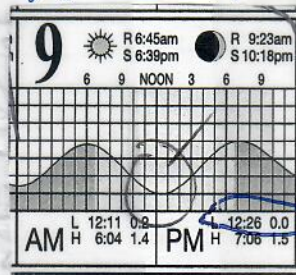
Scuba #1

Out on first scuba ~ 11:30 am low tide
went right to Polz Barney ledge - not the
circled and to north - shallow flat, and
to the north - some relief - coral near
DMP spotted 38lb head under base of coral
captured and brought to shore - worked up



9/10

Thursday
MARCH 9, 2000



ALL IN 2ml cryo vials

3-9-2000

POLZ Barney

φD6D " AS per Bob
MORELS
37 PCV 4.4 TP

- one leech φD6D (from Tumor)
- 2 - skin barn ventral neck ^{small tube} _{0 - barn}
- 3 - " " " " _"
- 4 - ANT. BARN
- 5 - LFL BARN
- 6 - " " "
- 7 - " " "
- 8 - BARN RH pos
- 9 - " POS
- 10 - " LH pos
- 11 - " POS
- 12 - " POS

N=12
TO Jean Casey

+ Mott's ^{Shaw Hinge Tube R} sample for Dennis

90 HONOLULU

see p. 189 & 188

DMP&GB

9 MARCH 2000 Depart 620AM Aieha to Kohala
Thursday objectives: 1) Catch 10/2 Barney at low tide
at Honokowai - Treat tumors with Liq. Nitrogen
to hopefully elicit an immune response to
shrink all tumors - including one in mouth

- 2) Check for Faces at Kanaha only short check - 1 sec
- 3) Change loggers at Parasil wreck - Lahaina

TO KANAHA - Beach immediately next to sewage plant
quicklook = 1 pellet.

730AM

TO power plant - 2 large seen in water, water disc
are w/ tumors, including tip of LFF.

TO MacDowds - breakfast.

TO Gaspro 5 liter Liquid Nitrogen. #39

TO Honokowai - arrive ~ 1030 AM. Forgot flippers
Blues caught = Kelly.

Scuba #1

Out on first scuba ~ 1130am low tide
went right to Polybarney ledge - not the
circled one to north - shallow flat, and

to the north - some ^{bottom} relief - coral
DMP spotted 38lb head under base of coral
Captured and brought to shore - worked up

92

See page 188

N=~~10~~ N=

new fit Page 5

Sample List

Bob Morris
42 PCV
5.6 Top.

- 1 6925-1 1 leech Jaw Hinge
- 2 " - 2 " "
- 3 " - 3 " "
- 4 6925-4 skin Bury TO Jam base
- 5 " - 5 "
- 6 " - 6 "
- 7 " - 7 "
- 8 " - 8 "
- 9 ~~6925-9~~ not #9
- 10 6925-10 Leech Eggs

PoczBauer 2-22-2000
by GHB
Ni. FOTOS



sent

EARTH - SKY - WATER
 Jim & Sandi Clayton
 3001 Haddonstone Drive
 Hampton Cove, AL 35763-8459
 (256) 533-5179
 Painting Lessons Oil Paintings

3-9-00

photos given to me

Turtle 6925

3-9-2000 NORTONAVI



*Departed for Atlanta 6:30 pm
 3/9/00 in Haddonstone*

94

9 MARCH $\phi\phi$

from p. 90

3-9-~~pp~~ on radio of Apt. 106.

NOTHONANIS

scuba out for second scuba ~ 130 pm -

#2 straight to Polkaway ledge - he was there. No tumors on eyes.

Captured and brought to Apt. 106. Over next 2-3 hours we collected samples (bars, leeches), took blood measurements, wt. and selected

four tumors for 3x cryofreezing. Noted no tumors on posterior.

Consider - skin bars of posterior versus Anterior

viral infection.

Departed for Kahului -

Departed Aloha 630 PM

7 PM in Honolulu

shears ✓ ~~scissors~~

See p. 144

Camera (2)
- TAPPS
- flagging tap

OK TO disposal
Blunt
scissors

need photo of
entangled
twines
2nd

95

4-20-2000
Thursday

To Round out other kit
- Blk pen
- Medium rubber gloves
- knife
- more unbranded

CARDS

- 1 STEILA M. OPLE
- 2 JERRY STOWELL
- 3 Dick Larson
- 4 Maureen Stowell
- 5 DIANA SCHULTE
- 6 Jean Johnson
- 7 Dick Kiligian
- 8 PATRICK J. RYAN
- 9 Gloria Adlawan
- 10 Tristan Adlawan

96

Date: Fri, 10 Mar 2000 15:07:20 -1000 (HST)
From: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
To: Bob Morris <gturtle@aloha.net>
Subject: Re: Polzbarney (fwd)

Maui Reduce

Report on the day on Maui. Bob, to save time, I'm forwarding what I wrote this morning to Ursula and Peter (www.turtles.org) about yesterday. Geo. ----- when you get the photos taken 2/22 you will see two #3s, one on each eye, and one also with a #2. We went out yesterday at 1130am. No Polzbarney. But Denise spotted a clean 38lber we caught and worked up (under a coral head 50m from Polz hole). Good turtle because it had jawhinge leeches and eggs which we generously removed and saved. 130pm went out again, Polzbarney there. What a good feeling. Brought him in, not a problem, but he was vigorous. Eyes. Oh my goodness, where are the three tumors? All I see is small protrusions. The salks? Apparently. They had to have fallen off since 2/22, or fish ate them off. Good news. But during careful inspection, Denise and I both noticed left eye not opening. Closer look= eyeball assumed to be deflated, destroyed. Presumably by tumor pressure? Eyeballs like this do not reconstitute. Four tumors selected for the cryo treatment. Each done 3x with slow thaw (takes a long time). Since 1/99 our scale says he increased 2 lbs. CCL increase 1.5cm. He is not emaciated, nor even the suggestion of "skinny." Mouth= multilobed #2 at each jaw hinge, but only on one side do they show externally (a trifle). Glottis- a small bump, that's all.

2.5 hrs later we let him go, took off like a rocket for the gap in the limestone. Right eye must be compensating very well.

Your observations of him this coming summer will provide more added insight. Of course in the best of all worlds by the time you come All Tumors may be gone from the crude "autovaccination" theoretically that might happen from the cryotreatment. I won't hold my breath for that. BUT, if someone had told me that the eye tumors would be gone in 3 weeks, I would have said flat out "you're nuts!"

Never say never. Aloha, George

PS The folks, and there were many, at the Nohonani Apartments were absolutely spectacular to us, for us!

Date: Mon, 20 Mar 2000 17:42:06 -0500
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: profile pix for Ursula (fwd)

*Reduce
Maui book*

Le'a. The honu's name is Le'a (Joy, pleasure, delightful --which she was). Sighted 1998 no tumours. Not sighted in 1999. Easy to "find" --what took me so long was to work the images for you so you can check the validity.

Note, one plate doesn't quite match left side (Could either have darkened --has happened before to us, or your hand got in the way and shadowed it up.)

Here's info from database.

? *no front of pike
no turtles*

Sighted Lahaina of Cleaner Station mauka of Miracle Reef 980727
good right 98T10 @ 47:19 then later @ 1:07:14 pretty but still distant
right 98T 10 @ 1:34:09
Strong left of 98T12 @ 14:53

Mahalo. This was FUN! Best of all, she's still FP-free. Lucky honu. Thanks for sharing. Hi to Denise.

At 08:07 AM 3/20/00 -1000, you wrote:
>Know this turtles? The non-tumored one we caught on 3/9/00 my wife's
>birthday.

Sample list for leeches, leech eggs and skin barnacles collected from two green turtles
(Chelonia mydas) at Honokōwai, Maui, on March 9, 2000.

George B. AAZS
HONOLULU LABORATORY
NOAA, NMFS
2570 Dole Street
Honolulu, HI 96822-2396

97

Non-Tumored Turtle 6925 (N=9)

Vial Label	Location
6925-1	leech from jaw hinge
6925-2	leech from jaw hinge
6925-3	leech from jaw hinge
6925-4	skin barnacle
6925-5	skin barnacle
6925-6	skin barnacle
6925-7	skin barnacle
6925-8	skin barnacle
6925-10	leech eggs

Forwarded to Jim Casey
3-20-00
by Bob Ramsey USGS
Thierry office

FAX TO Jim
Thierry

Tumored Turtle - Turtle 0D6D (N=12)

Vial Label	Location
0D6D-1	leech from tumor
0D6D-2	skin barnacle from neck
0D6D-3	skin barnacle from neck
0D6D-4	skin barnacle - anterior
0D6D-5	skin barnacle - LFL
0D6D-6	skin barnacle - LFL
0D6D-7	skin barnacle - LFL
0D6D-8	skin barnacle RH
0D6D-9	skin barnacle - posterior
0D6D-10	skin barnacle - LH
0D6D-11	skin barnacle - posterior
0D6D-12	skin barnacle - posterior

KALAMA HEIGHTS
101 Kalamia Road, Honolulu, HI 96822
(808) 879-1500

98

Turtles

The Honokowai Project

Start Exit

Name Familiar Description Add Turtle

RHF shredded. First verified sighting 95T3 @ 34:48. Distant but feet unmistakable was in coral rings makai of TH with Nuil 1999 first sighting 990826 first dive

Tag Sex Go To Turtle



Annual Number
1999 Turtle 76

Estimated Size

Tumour Score Weighted 1

Preferred



Notes

Sighted 990826 am tucked under a ledge approaching North House Digital #24 @ 8:06 good right then left

Add Log Year

Tumour codes

	1	2	3	4	Total
Right eye	0	0	0	0	0
Entire turtle	1	0	0	0	1
Left eye					
Mouth					
Left front flipper					
Left hind flipper					
Cloaca/tail					
Right eye					
Neck					
Right front flipper					
Right hind flipper					
Seams/scutes					

Tumour Details

Handwritten notes on the page below the form:

Sighted 990826 am tucked under a ledge approaching North House Digital #24 @ 8:06 good right then left

Notes: This was RWY, best of all, she's still 22-yr old

at 08:07 am 3/20/00 - RWY, you were

when this happened? The

Maui Island

Weekly

June 8 - 14, 2000 Vol. IV, No. 25

www.MauiWeekly.com

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teers have begun their annual beach inspections to locate and report signs of turtle tracks on South Maui beaches. The volunteers do their stuff early in the morning from June to November, the nesting season for the rare and endangered hawksbill turtle. Sea turtles come on to beaches only to nest and only at night.

The object of these dedicated efforts is to locate hawksbill nests so they can be protected by other volunteers.

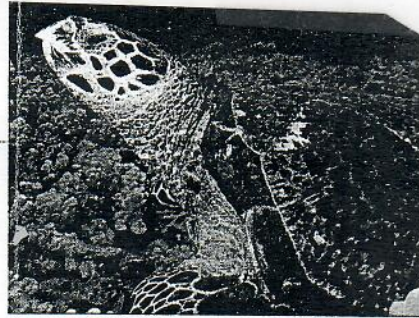
Hawksbill females usually lay over 200 eggs to a clutch and nest four or five times during a nesting season. Despite these large numbers, some eggs do not hatch and only a few hatchlings survive the rigors of life in the ocean.

Turtles have been around 150 million years, more or less.



Volunteers follow the obvious tracks of the turtles, and then try to protect them from predators.

Photo by Bill Halsey



The endangered Hawksbill turtle seen here in waters off of Maui. This often hunted turtle species is close to extinction. It's named for its distinctive bill.

Photo by Bill Halsey • State Division of Aquatic Resources

But the rarest, most seldom seen, most endangered of sea turtles is the hawksbill which nests in Hawaii on the islands of Maui, Molokai and Big Island. The species is distinguished by its hawklike "beak" it uses to scrounge sponges, its principal food.

The curse of the hawksbill is its red shell. Because its shell is prized for its ornamental value the hawksbill, or red turtle, has been hunted to near extinction. It is estimated there may be fewer than 100 hawksbills in Hawaii waters with perhaps as few as 30 females.

Besides human hunters who reduce their numbers, hawksbill eggs and hatchlings are prized by rats, feral cats and mongooses.

Volunteers with the Hawaii Wildlife Fund erect

protective fences around known hawksbill nests. As the 60-day egg incubation process approaches, volunteers spend nights guarding the nests and helping hatchlings when they arrive.

A major step for protecting the hawksbill turtle are the sand fences installed along the beach adjoining the Kealia Wildlife Preserve. The fences keep turtles and their young from crossing North Kihei Road where they have been hit by cars and killed in the past.

People interested in joining the turtle tracking effort may contact Steve Williams who heads up the Turtle Beach Patrol, phone 874-6194. Glynnis Nakai, manager of the Kealia Wildlife Reserve, also needs volunteers to mend the sand fences. Her phone is 875-1582. ■

Date: Sun, 26 Feb 1945 09:26:06 -1000
 From: skippy hau@exec.state.hi.us
 To: gbalazs@honlab.nmfs.hawaii.edu, Margaret.Dupree@noaa.gov
 Cc: smurakaw@honlab.nmfs.hawaii.edu
 Subject: 4/19/00 RESULTS TABLE CORRECTIONS

George,

This morning, I went over the table and found the following corrections.

I reviewed the data sheets from each nest. Nest one is o.k.

Nest 2. Number hatched dead is 26 and not 24. The numbers were corrected on the sheet. The number of live released is 4. Approximate live is 8 or 4%.

Nest 3. Number of live released is 53. Approximate live is 105 or 61%.

Nest 4. Approximate live is 177 or 89%.

Nest 5. Full term dead but unhatched is one. Total estimated eggs is 166. Approximate live is 152 or 92%. (Dead hatchling in shell given to Vic Honda for educational purposes.)

I noted wetness in nest four on October 30. Rainfall occurred on 20 October.

Nest 3 was damp on bottom with larger than normal egg sizes.

NEST SUMMARY 1998-99

SKIPPY

1998 HAWKSBILL TURTLE NESTS										
DATE	ONE	TWO	THREE	FOUR	FIVE					
NEST	19-May-98	8-Jun-98	29-Jul-98	20-Jul-98	8-Aug-98					
EMERGENCE	*	5-Aug-98	59	1-Sep-98	65	12-Sep-98	54	4-Oct-98	58 (57-69)	
EXCAVATION	27-Jul-98	69	9-Aug-98	63	2-Sep-98	66	15-Sep-98	57	7-Oct-98	61 Day 63 excavation average
DAYS	69	6	6	66	57					
DEAD HATCHLING	0	1	1	84	3					
RELEASED	0	1	1	47	17					
% HATCHED	0%	95%	44%	98%	97%	93		67%		
TOTAL EGGS	208	14	150	148	124	Total=772		S.D.=32		
						ave=154				
1999 HAWKSBILL TURTLE NESTS										
DATE	ONE	TWO	THREE	FOUR	FIVE					
NEST	2-Jun-99	18-Jul-99	1-Aug-99	28-Aug-99	19-Sep-99					
EMERGENCE	23-Aug-99	55	23-Sep-99	57	1-Oct-99	55	26-Oct-99	60 *	19-Sep-99 *	(58-73)
EXCAVATION	26-Aug-99	58	29-Sep-99	73	5-Oct-99	60	30-Oct-99	64	29-Nov-99	72 Day 65 excavation average
DAYS	58	2	2	60	64					
DEAD HATCHLING	2	2	2	8	1					
RELEASED	90	1	1	53	19					
% HATCHED	52%	4%	4%	61%	89%	159		*1 weak hatchling released 4 Dec 1999 (day 77)		
TOTAL EGGS	198	23	172	200	166	325		60%		
						Total=951		S.D.=21		
						ave=190				
Empty eggshells	105	3	119	177	154					
No sign of develop	13	1	7	10	5					
Partial developm	80	17	46	13	6					
Full dev but dead	0	0	0	0	1					
Hatched/hatchlin	2	2	14	0	2					
Live hatchling rel	90	1	53	19	159					
Total egg in clut	198	23	172	200	166	951				
Live hatchling to	103	1	105	177	152	545				
	52%	4%	61%	89%	92%					
Revised 8 May 2000 St(GN correction for nest 4/199)										

6/28

Results of Analysis of Waiohuli Hawksbill Nests #'s 1-5
(June-September, 1999)

Marine Turtle Research
NMFS HONOLULU LAB
2570 Dole Street
Honolulu, HI 96822-2396

	Nest #1	Nest #2	Nest #3	Nest #4	Nest #5
Empty eggshells	105	34	119	177	154
No sign of development	13	4	7	10	5
Partial development but dead (nearly all are late-term development)	80	177	46	13	6
Full-term development but unhatched and dead	0	0	0	0	0
Hatched / hatchlings, dead	2	24	14	0	2
Live hatchlings released	90	2	52	19	15?
Total estimated eggs in clutch	198	215	172	200	165
Approximate live hatchlings to the sea	103 (52%)	10 (5%)	96 (56%)	176 (88%)	153 (93%)

Total eggs for the season - 950
Approximate total hatchlings to the sea - 538 (57%)

4-18-99 Examinations and estimates made by George Balazs to supplement data/counts made earlier by Shippy Hsu and Glynnis Nakai.

Conclusion - Excellent egg production (5 clutches) and egg fertility by this 1999 Maui hawksbill. However, some adverse environmental (incubation) factor caused excessive late term embryonic mortality. STEPS NEEDED FOR CORRECTION.

----- Forwarded message -----
Date: Sat, 24 Jun 2000 13:43:12 -0400
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Fwd: Re: email addresses

FP signature

103
101

Quickly (because I'm out the door to get to the hair dresser)

I have hypothesized and Peter's FINALLY in agreement that there may be a visible "FP signature" in the eyes of a regression case when there are no body tumours or even true eye tumours to hint it ever had the disease.

The signature refers to some (any) possible every-so-subtle scar/abnormality in the connective tissue posterior after a tumour has vanished.

I told Peter imagine a Kleenex over an eye and then a tumour erupts and then subsides. There should be a crinkle in the Kleenex. Some hint there was a tumour there once.

The 'signature'

It has to be visible to the eye or camera (on a molecular level it means zip to us). What an FP signature would mean is we can look at an untumoured apparently healthy turtle and say "Whoa, this turtle once had the disease." Or, completely naive turtle.

With a naive one if she then sticks around Honokowai for three summers she's got an 80% chance of getting FP.

I hope this helps. I'm out the door.

At 07:27 AM 6/24/00 -1000, you wrote:
>"FP signature"- Definition please

MAUI

Date: Thu, 29 Jun 2000 11:05:57 -1000
From: severns@mauigateway.com
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Y292

Y292

MAUI

Oh darn. So it's not a very valuable sighting. :(The wreck is actually right on the border between Kihei and Wailea. So if the swimmer gave you a more specific location in Wailea I could tell you how close this was to it. We did a night dive on the wreck last night and it was not there. We dive there quite a bit during the day and this was the first time we had seen it.

Thank you for the info on her. It does beg the question though..... do you think they might move b/c they are being captured and remeasured all the time? :)

Have any moved from Maui to the Big Island?

>Excellent, Pauline and Mike. This turtle was originally tagged by us in >1/90 at our Kiholo Bay, S. Kona study site. Seen there many times (caught >and remeasured etc) through 9/96. Starting in 5/99 it has been seen >multiple times reported to us by a swimmer at Wailea. He exercises and >watches turtles while swimming daily. So, now you have many pinpointed >the turtles sleeping spot. How close is this to "Wailea?" Interesting >and Exciting, for sure!

>
>Note that this is one of a few turtles we have now documented as moving >across the channel to Maui from Kiholo. We hypothesize that habitat and >forage limitations at Kiholo may cause such moves as the turtles grow to >larger sizes. Stay in touch, best regards, George

>
>PS Note I've cc'ed this to my friend and colleague Marc Rice our research >partner for the work with turtles at Kiholo. Marc is with the Hawaii >Preparatory Academy in Kamuela. His student serve as excellent >scientific field assistants for us for over 10 years now.

104

Date: Sat, 24 Jun 2000 17:31:31 -0400
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Fwd: Re: email addresses

I'd like to try this again. I re-read my other message and it was confusing even to me.

(Again. I'm not asking you to buy into this. In fact maybe the first step is for me to take macros of all our regression cases and have a look. Could be I find nothing there or no commonality and won't waste your time further.)

Here's the situation.

I told you already about a researcher going into a new area and he grabs 10 turtles and 3 have tumours. He'd examine the other 7 and find that they're completely tumour-free. He'd conclude the FP rate is 30% but he could be very wrong.

What if 5 of those 7 are regression cases? Then the FP rate is really 80% and the site was an established enough FP site for the disease to blow through AND build more regression cases than actual tumoured turtles.

But to get that far he'd have to be able to recognize the difference between a naive turtle TS=0 and a regression case TS-R0 (R0 = Regression case zero tumours)

The logical place to look for any "hint" is in the eyes. First because if anything would really scar it would be that soft eye tissue rather than scaly body tissue. Next, a significant number of honu only ever get eye tumours.

We ask does fibropapilloma leave some kind of tell-tale permanent trace of its passing in the eyes of its victims? Something visible requiring no special equipment to recognize --something that can be detected readily in the field? And last hopefully it would be some artifact/"signature" that is common to all regression cases and can't be confused with any other disease/anomaly or physical insult.

And permanent.

It will be one HELL of a thing if an "FP signature" existed. But as I told you in a previous message. I don't think I'm that lucky.

At 07:27 AM 6/24/00 -1000, you wrote:
>"FP signature"= Definition please

Date: Tue, 27 Jun 2000 20:34:56 -1000
From: severns@mauigateway.com
To: gbalazs@honlab.nmfs.hawaii.edu
Subject: Tagged turtle

Dear George:

OK, we have another tag for you. An adult female. No tumors. J630 and Y292.
We have not seen these numbers before.

Off Keawakapu Beach in Kihei. 65 feet of water on the wreck the St. Anthony.
Pauline

106

Date: Thu, 29 Jun 2000 20:53:59 -1000
From: severns@mauigateway.com
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Y292

Thank you for your reply to my questions. Ever since I heard from Tim Clarke that their brain was the size of a thumbnail I kind-of thought they must not be tooooooo smart.

Y292 was not one of those turtles that just sits there and shows zero agitation. But it did let me get close enough to see the tags. I was amazed that a SWIMMER was able to get the numbers b/c I had to get within three feet of her and she had to be still to see them.

Glove

>Oh NO very much the opposite, it IS a valuable sighting. The depth the
>place add wonderful knowledge to the puzzling life of Hawaiian honu.

>Your question is one that comes up every so often. 20 years ago I
>wondered myself. I never do any longer because I've lived through
>thousands of tagging and multiple thousands of recaptures of ones tagged.
>The upset they (sometimes) show from capture handling lasts a few hours
>or less. It even astonishes me, to be frank. Let's just say they are
>very loveable and beautiful and wonderful. But as far as 'smarts' well....

>No, no immatures moving from Maui to Kona have been documented. But then
>not all that many have ever been tagged on Maui make such a determination.
>Not sure what I've sent you, but can send some specific things showing
>years and years of living at the same place by hundreds of turtles tagged
>and recaptured. With regard to Kiholo (representative of many places)
>realize though we only work there about 3 times a year and on each trip
>only catch/handle a fraction of what's been tagged in the past.

>I have a question for you. Did the Y292 show any fear or fright when you
>watch him/her? What was the response? "Normal" or hyper?
>Warm Aloha, George

>PS if you see Y292 again (I'll bet you will) please say Hi from a friend!

>On Thu, 29 Jun 2000 severns@mauigateway.com wrote:

>> Oh darn. So it's not a very valuable sighting. :(The wreck is actually
>> right on the border between Kihei and Wailea. So if the swimmer gave you a
>> more specific location in Wailea I could tell you how close this was to it.
>> We did a night dive on the wreck last night and it was not there. We dived
>> there quite a bit during the day and this was the first time we had seen it.

>> Thank you for the info on her. It does beg the question though..... do you
>> think they might move b/c they are being captured and remeasured all the
>> time? :)

>> Have any moved from Maui to the Big Island?

>> >Excellent, Pauline and Mike. This turtle was originally tagged by us in
>> >1/90 at our Kiholo Bay, S. Kona study site. Seen there many times (caught
>> >and remeasured etc) through 9/96. Starting in 5/99 it has been seen
>> >multiples time reported to us by a swimmer at Wailea. He exercises and

*Maui
Positive
Severus*

Historical Information for Turtle Tag Y292

g Information:

Tag Number	Date	Tag Type	Tag Position
1A68727A	9/30/95	PIT	PIT
H27	1/13/92	I681	LHF
J630	9/16/94	I681	RHF
Y291	1/24/90	I681	LFL
Y292	1/24/90	I681	RFL

Date	Type of Encounter	Location	Tumor/Blank	Nesting/Act	Straight Carapace	Since Last Encounter				Overall			
						Interval		Growth-Rates		Interval		Growth-Rates	
						Month	Year	cm/mon	cm/yr	Month	Year	cm/mon	cm/yr
1/24/90	Near Shore	Hawaii, Kiholo	0	-	47.3	---	---	---	---	---	---	---	---
4/26/90	Near Shore	Hawaii, Kiholo	0	-	47.8	3.0	0.3	0.2	1.7	3.0	0.3	0.2	1.7
1/13/92	Near Shore	Hawaii, Kiholo, Mixohaline Enbayment	0	-	49.1	20.0	1.7	0.1	0.8	23.0	1.9	0.1	0.9
9/29/92	Near Shore	Hawaii, Kiholo	0	-	50.8	8.0	0.7	0.2	2.4	32.0	2.7	0.1	1.3
9/16/94	Near Shore	Hawaii, Kiholo	0	-	52.3	23.0	1.9	0.1	0.8	55.0	4.6	0.1	1.1
9/30/95	Near Shore	Hawaii, Kiholo	0	-	52.7	12.0	1.0	0.0	0.4	68.0	5.7	0.1	0.9
9/11/96	Near Shore	Hawaii, Kiholo	0	-	54.0	11.0	0.9	0.1	1.4	79.0	6.6	0.1	1.0
5/26/99	Near Shore	Maui, Wailea	0	-	---	32.0	2.7	---	---	112.0	9.3	---	---
5/28/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	112.0	9.3	---	---
5/29/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	112.0	9.3	---	---
5/31/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	112.0	9.3	---	---
6/3/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	112.0	9.3	---	---
6/4/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	112.0	9.3	---	---
6/8/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	112.0	9.3	---	---
6/15/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	112.0	9.3	---	---
6/17/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	112.0	9.3	---	---
6/18/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	112.0	9.3	---	---
6/19/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	112.0	9.3	---	---
6/20/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	112.0	9.3	---	---

Date	Type of Encounter	Location	Tumor Rank	Nesting Act	Straight Carapace	Since Last Encounter				Overall			
						Interval		Growth-Rates		Interval		Growth-Rates	
						Month	Year	cm/mon	cm/yr	Month	Year	cm/mon	cm/yr
2/1/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	112.0	9.3	---	---
2/22/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	112.0	9.3	---	---
7/3/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	113.0	9.4	---	---
7/4/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	113.0	9.4	---	---
7/5/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	113.0	9.4	---	---
7/7/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	113.0	9.4	---	---
7/8/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	113.0	9.4	---	---
8/3/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	114.0	9.5	---	---
8/4/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	114.0	9.5	---	---
8/5/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	114.0	9.5	---	---
8/7/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	114.0	9.5	---	---
8/17/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	114.0	9.5	---	---
8/18/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	114.0	9.5	---	---
8/20/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	114.0	9.5	---	---
8/21/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	114.0	9.5	---	---
8/23/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	114.0	9.5	---	---
8/24/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	115.0	9.6	---	---
8/25/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	115.0	9.6	---	---
8/26/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	115.0	9.6	---	---
8/28/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	115.0	9.6	---	---
9/6/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	115.0	9.6	---	---
9/7/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	115.0	9.6	---	---
9/9/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	115.0	9.6	---	---
9/13/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	115.0	9.6	---	---
9/14/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	115.0	9.6	---	---

Date	Type of Encounter	Location	Tumor Rank	Nesting Act	Straight Carapace	Since Last Encounter				Overall			
						Interval		Growth-Rates		Interval		Growth-Rates	
						Month	Year	cm/mon	cm/yr	Month	Year	cm/mon	cm/yr
9/15/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	115.0	9.6	---	---
9/16/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	115.0	9.6	---	---
9/17/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	115.0	9.6	---	---
9/18/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	115.0	9.6	---	---
9/19/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	115.0	9.6	---	---
9/23/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	116.0	9.7	---	---
9/24/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	116.0	9.7	---	---
9/25/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	116.0	9.7	---	---
9/26/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	116.0	9.7	---	---
10/1/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	116.0	9.7	---	---
10/10/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	116.0	9.7	---	---
10/11/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	116.0	9.7	---	---
10/16/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	116.0	9.7	---	---
10/20/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	116.0	9.7	---	---
10/22/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	116.0	9.7	---	---
10/26/99	Near Shore	Maui, Wailea	0	-	---	---	---	---	---	117.0	9.8	---	---

Date: Sat, 8 Jul 2000 21:49:23 -1000
From: severns@mauigateway.com
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Q438

Ah, sorry. Friday July 7, 2000

>Today? Or ? Let me know and we will surely make it another computer
>entry! Mahalo and Aloha, George

>-----
>On Sat, 8 Jul 2000 severns@mauigateway.com wrote:

>
>> Dear George:

>>
>> Another sighting of Q438, this time in 60 feet of water out from the 40
>> foot spot that we saw her 6 months ago. She was resting near an old WWII
>> personnel carrier.

>>
>> Pauline

Date: Sat, 8 Jul 2000 18:48:29 -1000
From: severns@mauigateway.com
To: gbalazs@honlab.nmfs.hawaii.edu
Subject: Q438

Dear George:

Another sighting of Q438, this time in 60 feet of water out from the 40
foot spot that we saw her 6 months ago. She was resting near an old WWII
personnel carrier.

Pauline

----- Forwarded message -----
Date: Sun, 02 Jul 2000 20:34:31 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Two tagged honu reports

Tutu U521 at Reef2 this pm. Can give you exact time if you need it.

Also 605C also at Reef2 (a resight from last year) --something funny in
left eye and must confirm what we're seeing.

----- Forwarded message -----
Date: Sun, 02 Jul 2000 20:34:08 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Polzbarney

Polzbarney sighted --soon as he heard our bubbles he left his ledge. MAN
that RFF tumour is ghastly! But both eye tumours look ok and to be honest
I can't tell what eye is gone. I know you told us one eye got eaten out
but for the life of me I can't tell which one.

Next: Reporting resighting of Tutu U521 at Reef2.

Also 506C.

Ho'olulu is BACK. But Peter never got to look at her shell right
side. HAD to have gone to FFS --only reason she'd be away. He never got a
really good look but we'll look tomorrow.

110

----- Forwarded message -----
Date: Mon, 03 Jul 2000 07:00:25 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Two tagged honu reports

Yes. We'd asked about U521 last summer and you said she never showed but a U251 did. Later in August Tutu was sighted with engraving proving she WAS at the Shoals.

There WAS another honu we were worried about Ho'olulu. Here every summer and almost every day since 1992 and not around at all last summer. Well she was back yesterday sweet and true. Unfortunately when I asked Peter about any remaining engraving he said he never really looked. Ho'oulu will let me get as close as we want for as long as we want. If there's residual engraving we'll see it.

Video shows something funny both eyes. Have to confirm she's getting FP. Then I have to determine if it's coming in or going out. A first time sighter last year I called a regression case and guess what? It was. Problem now is there are so many honu we DON'T recognize by sight and I have to work through every image on the database to find a match! Taking a very long time. Two linked computers here. One works the images and enters them in the database. The other, is used to enter "field notes" right after a dive.

But working the images takes the longest --HUNDREDS of images now. And we must keep up logging/IDing in order to know what pics/macros we need to take on a subsequent dive!

We're searching for that FP signature.

At 08:42 PM 7/2/00 -1000, you wrote:
>Tutu was the one you were worried sick about, right? I mean she was
>missing all last year?
>

----- Forwarded message -----
Date: Mon, 03 Jul 2000 06:51:17 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Polzbarney

No sir, no mistake for Tutu (U521) she was expected here what being at the Shoals last summer. BUT. Your people DID make a mistake last summer and said she wasn't there.

re: Polzbarney. He's wary of us. I think it's because of you (now he scoots out soon's we show --he never used to do that) Fortunately turtles think "situational" which means if we see Polzbarney at NorthHouse he'll let us close. Yessir. Both Peter and I feel he's got vision both sides. We'll try and look closer today (we're trying for two dives although I don't believe we're ready and certainly my back will come killing me tonight.

Re: primary tumour on RFF --the only way to determine the extent of growth is comparing an excellent tumour pic from last summer with one from this. Won't be bringing in the still for at least a week.

At 08:41 PM 7/2/00 -1000, you wrote:
>What's the signifiant of U521? Did I say it was suppose to be at FFS and
>now you find it isn't? Mistakes certainly are possible. Let me knon.
>Polzbarney's eyes. Do you mean maybe they both have vision? Interesting
>no regrowth of on the eyes. But, increase in the RFF doesn't speak well
>for my cryo treatment affecting regressing other tumors. Did I send you
>the picture of the ones we froze? If so, look close at those next time.
>Aloha, Geo

----- Forwarded message -----
Date: Mon, 03 Jul 2000 21:29:53 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Reporting another tagged honu

McTaggart F765 (nested last summer at FFS) now here. Cool eh?

Also I think I see what's left of an engraving on Ho'olulu's right rear quarter panel. VERY TOUGH to make out. Recall we sighted her regularly every summer since 1992 and last year wasn't around. I thought I saw 22 but video camera does not pick it up. Will try with still in about a week.

111

----- Forwarded message -----
Date: Wed, 05 Jul 2000 13:16:48 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Honu bad news

Kiholo (J6280 sighted this am. Just as I called it last year. He's got FP. Both eyes, tumour lei and video shows a possible mouth tumour. Have to go to Lahaina for more air and will do a pm dive thereafter. Will tumour score the honu but I think he'll work out to be an early Overall12. You last tagged him in 96. By 99 he was at Honokowai throwing white. 2000 he greets the new millenium with a full case of FP.

Next Makana was sighted today. True tumours this summer (last summer I just logged her as FP vulnerable) --definite Overall12 and has gone downhill fast. First sighted Summer 98. Throwing white in 99. True FP in 2000. Right on schedule. And Akebono first sighted last summer? Is throwing white this.

Anyway, better go.

----- Forwarded message -----
Date: Fri, 21 Jul 2000 08:14:08 -1000
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: Shawn Murakawa <smurakaw@honlab.nmfs.hawaii.edu>
Subject: Re: FedEx box

*FedEx
Maui*

Aloha Shawn,

Just letting you know both loggers you sent were deployed yesterday. Here are the specifics.

Logger 295518 set at Mt. Balazs (NorthHouse) 000720am

Logger 295519 set at Zeus' Lair (Reef2) 000720pm

We have three loggers that need returning but we'll likely send them out today. Alohas.

Date: Thu, 13 Jul 2000 09:10:52 -0700
From: Denise Parker <dparker@sgilj.ucsd.edu>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>,
Liz Arnone <Mary.Arnone@noaa.gov>
Subject: Re: Sampling cycle/period?

Liz can confirm this but the list I have has 4 loggers out at Honokowai (S/N# - 265252, 261363, 261365, 261364) - they are sampling every hour (which means they should last about 331 days ~ 1yr). one was started 7/19/99, two started 8/10/99 and one 8/13/99.

At 04:56 PM 7/12/00 -1000, George H. Balazs wrote:
>For the loggers out at Honokowai, how often do they sample?
>

*GO TO
PAGE 165*

Copy to
MARC -
Go find
while diving on
Maui?

National Marine Fisheries Service
2570 Dole Street
Honolulu Hawaii 96822-22396

Tag information--

Tag Number	Date Tagged	Tag Type	Tag Position
1A68727A	09/30/95	PIT	PIT
H27	01/13/92	1681	LHF
J630	09/16/94	1681	RHF
Y291	01/24/90	1681	LFL
Y292	01/24/90	1681	RFL

Historical information--

Date	Type of Encounter	Location	Tumor Score	Nesting Activity	Straight Length	Since Last Encounter				Overall			
						Interval Month	Interval Year	Growth-rates cm/mon	Growth-rates cm/yr	Interval Month	Interval Year	Growth-rates cm/mon	Growth-rates cm/yr
01/24/90	Near Shore	Hawaii, Kiholo	0	-	47.3	---	---	---	---	---	---	---	---
04/26/90	Near Shore	Hawaii, Kiholo	0	-	47.8	3	0.3	0.2	1.7	3	0.3	0.2	1.7
01/13/92	Near Shore	Hawaii, Kiholo	0	-	49.1	20	1.7	0.1	0.8	23	1.9	0.1	0.9
09/29/92	Near Shore	Hawaii, Kiholo	0	-	50.8	8	0.7	0.2	2.4	32	2.7	0.1	1.3
09/16/94	Near Shore	Hawaii, Kiholo	0	-	52.3	23	1.9	0.1	0.8	55	4.6	0.1	1.1

Date	Type of Encounter	Location	Tumor Score	Nesting Activity	Straight Length	Since Last Encounter				Overall			
						Interval Month	Interval Year	Growth-rates cm/mon	Growth-rates cm/yr	Interval Month	Interval Year	Growth-rates cm/mon	Growth-rates cm/yr
09/30/95	Near Shore	Hawaii, Kiholo	0	-	52.7	12	1.0	0.0	0.4	68	5.7	0.1	0.9
09/11/96	Near Shore	Hawaii, Kiholo	0	-	54.0	11	0.9	0.1	1.4	79	6.6	0.1	1.0
05/26/99	Near Shore	Maui	0	-	---	32	2.7	---	---	112	9.3	---	---
05/28/99	Near Shore	Maui	0	-	---	---	---	---	---	112	9.3	---	---
05/29/99	Near Shore	Maui	0	-	---	---	---	---	---	112	9.3	---	---
05/31/99	Near Shore	Maui	0	-	---	---	---	---	---	112	9.3	---	---
06/03/99	Near Shore	Maui	0	-	---	---	---	---	---	112	9.3	---	---
06/04/99	Near Shore	Maui	0	-	---	---	---	---	---	112	9.3	---	---
06/08/99	Near Shore	Maui	0	-	---	---	---	---	---	112	9.3	---	---
06/15/99	Near Shore	Maui	0	-	---	---	---	---	---	112	9.3	---	---
06/17/99	Near Shore	Maui	0	-	---	---	---	---	---	112	9.3	---	---
06/18/99	Near Shore	Maui	0	-	---	---	---	---	---	112	9.3	---	---
06/19/99	Near Shore	Maui	0	-	---	---	---	---	---	112	9.3	---	---
06/20/99	Near Shore	Maui	0	-	---	---	---	---	---	112	9.3	---	---
06/21/99	Near Shore	Maui	0	-	---	---	---	---	---	112	9.3	---	---
06/22/99	Near Shore	Maui	0	-	---	---	---	---	---	112	9.3	---	---

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114

Date	Type of Encounter	Location	Tumor Score	Nesting Activity	Straight Length	Since Last Encounter				Interval	
						Interval Month	Interval Year	Growth-rates cm/mon	Growth-rates cm/yr	Month	Year
07/03/99	Near Shore	Maui	0	-	---	---	---	---	---	113	9.6
07/04/99	Near Shore	Maui	0	-	---	---	---	---	---	113	9.6
07/05/99	Near Shore	Maui	0	-	---	---	---	---	---	113	9.6
07/07/99	Near Shore	Maui	0	-	---	---	---	---	---	113	9.6
07/08/99	Near Shore	Maui	0	-	---	---	---	---	---	113	9.6
08/03/99	Near Shore	Maui	0	-	---	---	---	---	---	114	9.7
08/04/99	Near Shore	Maui	0	-	---	---	---	---	---	114	9.7
08/05/99	Near Shore	Maui	0	-	---	---	---	---	---	114	9.7
08/07/99	Near Shore	Maui	0	-	---	---	---	---	---	114	9.7
08/17/99	Near Shore	Maui	0	-	---	---	---	---	---	114	9.7
08/18/99	Near Shore	Maui	0	-	---	---	---	---	---	114	9.7
08/20/99	Near Shore	Maui	0	-	---	---	---	---	---	114	9.7
08/21/99	Near Shore	Maui	0	-	---	---	---	---	---	114	9.7
08/23/99	Near Shore	Maui	0	-	---	---	---	---	---	114	9.7
08/24/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8
08/25/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8

Bo

Historical information--

Date	Type of Encounter	Location	Tumor Score	Nesting Activity	Straight Length	Since Last Encounter				Interval	
						Interval Month	Interval Year	Growth-rates cm/mon	Growth-rates cm/yr	Month	Year
08/26/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8
08/28/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8
09/06/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8
09/07/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8
09/09/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8
09/13/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8
09/14/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8
09/15/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8
09/16/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8
09/17/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8
09/18/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8
09/19/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8
09/23/99	Near Shore	Maui	0	-	---	---	---	---	---	115	9.8
09/24/99	Near Shore	Maui	0	-	---	---	---	---	---	116	9.7
09/25/99	Near Shore	Maui	0	-	---	---	---	---	---	116	9.7
09/26/99	Near Shore	Maui	0	-	---	---	---	---	---	116	9.7

Date	Type of Encounter	Location	Tumor Score	Nesting Activity	Straight Length	Since Last Encounter				Overall			
						Interval		Growth-rates		Interval		Growth-rates	
						Month	Year	cm/mon	cm/yr	Month	Year	cm/mon	cm/yr
10/01/99	Near Shore	Maui	0	-	---	---	---	---	---	116	9.7	---	---
10/10/99	Near Shore	Maui	0	-	---	---	---	---	---	116	9.7	---	---
10/11/99	Near Shore	Maui	0	-	---	---	---	---	---	116	9.7	---	---
10/16/99	Near Shore	Maui	0	-	---	---	---	---	---	116	9.7	---	---
10/20/99	Near Shore	Maui	0	-	---	---	---	---	---	116	9.7	---	---
10/22/99	Near Shore	Maui	0	-	---	---	---	---	---	116	9.7	---	---
10/26/99	Near Shore	Maui	0	-	---	---	---	---	---	117	9.8	---	---

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Historical Information for Turtle Tag Q436

Tag Information:

Tag Number	Date	Tag Type	Tag Position
100B927B	4/10/96	PIT	PIT
Q436	4/10/96	I681	RFL
Q437	4/10/96	I681	LFL
Q438	4/10/96	I681	LHF
Q439	4/10/96	I681	RHF
SON28	5/17/96	SON	SON
TD95123	5/17/96	TDR	TDR

Date	Type of Encounter	Location	TurnorBlank	NestingAct	Straight	Since Last Encounter			Overall		
						Month	Year	Growth-Rates cm/mon	Month	Year	Growth-Rates cm/mon
4/10/96	Near Shore	Hawaii, PUAKONS	0	-	78.2	---	---	---	---	---	---
5/17/96	Near Shore	Hawaii, PUAKONS	0	-	78.1	1.0	0.1	---	1.0	0.1	---
6/6/96	Near Shore	Hawaii, PUAKONS	0	-	78.5	---	---	---	1.0	0.1	0.3
7/11/96	Near Shore	Hawaii, PUAKONS	0	-	78.4	1.0	0.1	---	3.0	0.3	0.7
1/21/97	Near Shore	Hawaii, Puako	0	-	---	6.0	0.5	---	9.0	0.8	---
1/22/97	Near Shore	Hawaii, Puako	0	-	---	---	---	---	9.0	0.8	---
4/2/98	Near Shore	Hawaii, Puako	0	-	---	14.0	1.2	---	23.0	1.9	---

Historical Information for Turtle Tag K11

Tag Information:

Tag Number	Date	Tag Type	Tag Position
K11	7/28/93	I681	LFL
K12	7/28/93	I681	R34
K13	7/28/93	I681	LHF
K14	7/28/93	I681	RHF

Date	Type of Encounter	Location	TurnorBlank	NestingAct	Straight	Since Last Encounter			Overall		
						Month	Year	Growth-Rates cm/mon	Month	Year	Growth-Rates cm/mon
7/28/93	Near Shore	Mau, MAKENAS	0	-	41.9	---	---	---	---	---	---
8/8/93	Near Shore	Mau, MAKENAS	0	-	---	---	---	---	---	---	---
8/14/93	Near Shore	Mau, MAKENAS	0	-	---	---	---	---	---	---	---
10/30/93	Near Shore	Mau, MAKENAS	0	-	---	2.0	0.2	---	3.0	0.3	---
4/4/96	Near Shore	Mau, MAKENAS	0	-	---	39.0	3.4	---	89.0	8.7	---

SIGHTING INFORMATION TURTLE AND SEAL

117

Animal sighted (circle): Turtle Seal
Number of animals: 1 Type, if known: Green sea turtle
Date: Jan 7, 2000 Observer: Pauline Fiene-Severns
Address & phone Severns@maui.gateway.com
(optional): (808) 879-6596
Time: 10:30 AM
Location: Makana, Maui just south of Makana landing, 40 feet
Observed from (circle): shore, boat (name: _____),
while skin or SCUBA diving (on surface or at 40 feet deep).
Estimated size (length): 2 feet long?

Comments: (such as color pattern; injuries; scar patterns; tumors;
whether flipper tags are present (Y/N); color and number of the tag(s);
bleach marks (number/letter); behavior; and weather)

2 flipper tags (silver) (Q438 & Q439)
appeared to be a healthy adult female

Seals and sea turtles are protected under Federal and State law.
DO NOT DISTURB

20° 30'N
20° 00'N
158° 00'W

118

Date: Sat, 01 Jan 2000 09:15:23 -0500
From: Ursula Keuper-Bennett <howzit@turtles.org>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>,
Peter Bennett <honu@turtles.org>
Subject: Re: I'm here, you're there, but we Are all together still.

Oh my plans! Wake at 4:50 to write you at midnight Hawaiian-time and see a Canadian dawn. Didn't happen.... We were going to clear out the bottle. Didn't happen either.

You wrote, "I may not "cross over" at midnight." Yeah, well I know how you feel. I never really negotiated the switch from the Sixties to Seventies.

I look at the date in bottom right hand corner and it says, "Saturday, January 01, 2000" and I find it disorienting. I see that and then I look outside and it's like any other Canadian day in January.

I didn't like the 90's much --the Triumph of Corporations. But it was also the decade we met the honu and that changed our lives and defined us. 2001 and we'll have known you ten years.

I guess a lot of people are happy and feeling up and stuff but me, I feel a sense of loss. I'm not sure how to handle it except to plunge into Turtle Trax and the Symposium papers today.

"Can it get better, can it at least stay the same? Only time will tell."

Yessir, only time will tell.

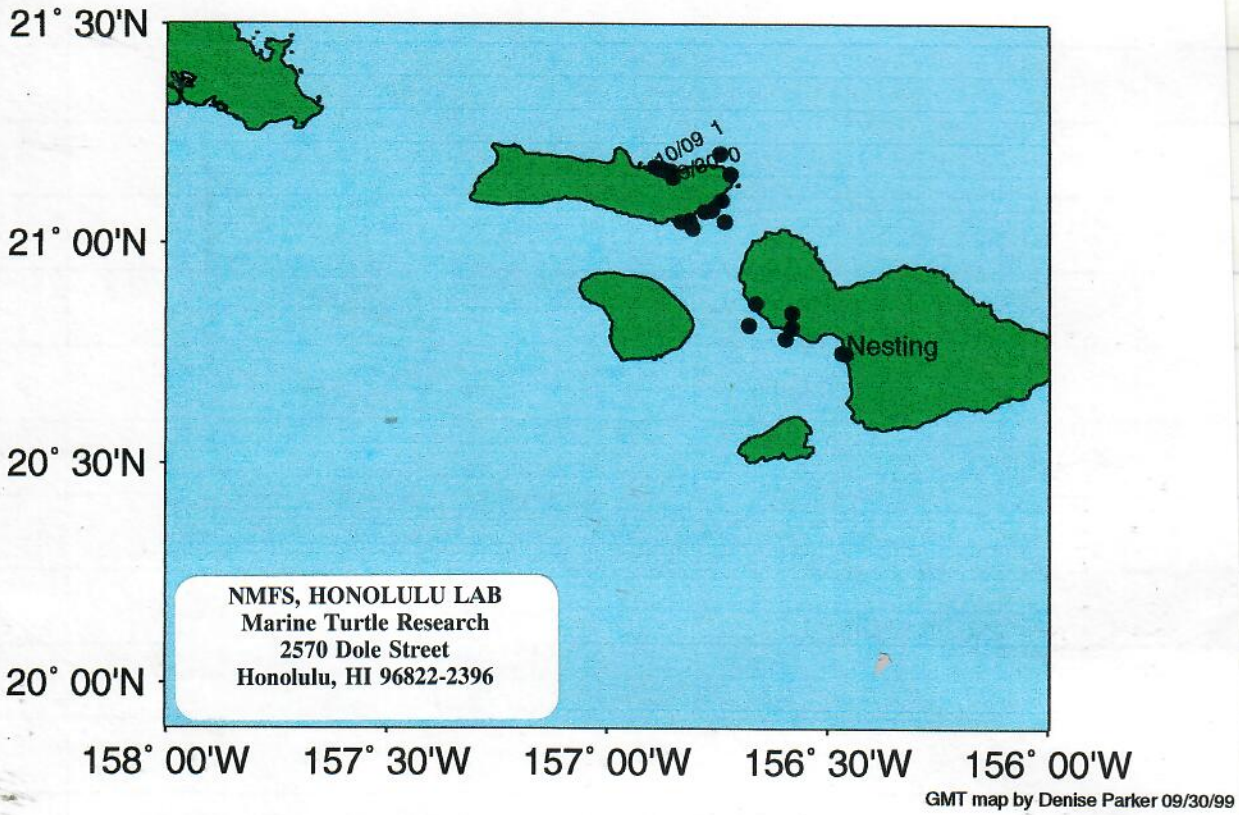
We wish you MANY more years with your beautiful honu --but above all we wish you happiness. We love you and are grateful for all that you've done and will continue to do on their behalf. And of course we're grateful for the friendship and support you direct our way too.

At 07:27 PM 12/31/99 -1000, George H. Balazs wrote:

>We are now a Millenium Apart! How is life on the other side, over there
>in the year 2000? We are still in the past, and things are fine here. I
>may decide to stay, I may not "cross over" at midnight. I mean heck, it
>has been very good, I've lived and swam and helped and loved the honu.
>Can it get better, can it at least stay the same? Only time will tell.
>Our friendship and understanding of one another has unfolded and
>strengthened in a most pleasant and effective fashion. It shall continue,
>I know.

>
>One contributing reason I ran upstairs to write to you now is due to a
>clip live they showed on NBC TV of 12 midnight celebrations in Toronto
>(shortly after they showed NY Times Square. Warm Aloha, Glad Peter is
>feeling better, take care, Love, George

Hawksbill 25692 September 1999, Waiohuli, Maui to Pelekunu,



120

Date: Wed, 23 Jun 1999 09:21:45 -1000
From: George Watson <gwatson@hpa.edu>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Cc: mrice@hpa.edu
Subject: Re: Spot where Maui hawksbill lives

4801

Hi George,

You can see those three islets from the Polulu lookout. They are closer to the Honokane Iki gulch than the Honokea gulch. We have kayaked around them several times on our trips from Waipio valley to Keokea Park. This is the windward side of the island so there is usually a bit of bounciness around the islets. When the wind shifts and goes Kona, the water is really nice out there. Usually the best time to find smooth water on that side is from the middle of August through late October.

We have seen some huge green sea turtles along that coast during our trips. Mr. Michael Gomes of the Chalon International of Hawaii, offices in Hawi, controls access to those gulches. He is also a wealth of information about the historical data of that area. He was born and raised in Kohala and is an alumni of HPA. The phone number for Chalon International is (808)889-6257.

Hope this information helps.

Concerning the Mauna Lani project, what time should we be there in order to be set up and ready to go by 2:00pm? Would 1:00pm be a good time? I will get a list of equipment to bring from Marc Rice. Let me know if you think of anything else. Aloha, George

>and presumable others. The recent LC 1 I told you about for 6/4/99 is at

>
>20d 10.56 min, 155d 40.32min

>
>Denise plotted for me on the UHPress Hawaii map with all the Hawaiian
>place names. Look for three tiny islets Paoakalani I, Moku Puka I and
>Paalaea I (all listed in red as seabird sanctuaries). The exact spot is
>between them and the coast. The gulch on the coast is named Honoke'a.
>Interesting that the name for Hawaiian hawksbills is Honu'ea! Maybe that
>was the Real name of the gulch (due to lots of hawks offshore?) but
>western tongue made it Honoke'a? I'm likely grasping for straws on that
>one.

>
>Well, anyway, that's THE SPOT to go to. Remote, huh? I'm copying this to
>George and Sandy maybe they've know something about the area. Aloha, George

Date: Sun, 24 Jan 1999 09:19:14 -1000
From: Casey Jarman <jarman@aloha.net>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Forwarded mail....

4801
Reduce

[The following text is in the "ISO-8859-1" character set]
[Your display is set for the "US-ASCII" character set]
[Some characters may be displayed incorrectly]

we checked in and heard her surface a couple of times a week ago...she's still there. i have 2 people planning on getting a 24-hr dive-surface profile on her starting tomorrow a.m., but we may put it off, high trades and an east swell, not good for data collection up there. Kristen O'Brien has been out each day last week listening from cliff tops for the 2 Kamehame turtles, but no luck yet. The Coast Guard (Hilo), starting mid-Feb will do some looking (listening) for the Kamehame turtles along Hamakua - their boat has a 40' antenna mast, with direction finding ability and they can tune in the freq. of the radio transmitters -- they'll cruise 1-2 mi off shore.

Coupons - i have a lunch meeting Mon with a probable funder of our Midway monk seal work - sorry, this takes precedence over lunch with you! But, i will try to come by the lab (how i'm feeling tomorrow will determine a lot) -if i come by and don't see you, i'll leave the coupons in an envelope on your chair or in mail box. if i don't get to the lab, i'll have casey drop them off.

from page 119 Book 1

04801 Date : 09.02.99 19:33:40 LC : (Z) IQ : 00
Lat1 : ?????? Lon1 : ??????? Lat2 : ?????? Lon2 : ???????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -132 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
159 4539 4275 05
00 00

04801 Date : 10.02.99 02:05:53 LC : (C) IQ : 50
Lat1 : 20.155N Lon1 : 155.686W Lat2 : 14.806N Lon2 : 178.903W
Nb mes : 005 Nb mes>-120dB : 000 Best level : -122 dB
Pass duration : 179s NOPC : 2
Calcul freq : 401 650478.4 Hz Altitude : 0 m
159 2377 4244 05
00 00

04801 Date : 10.02.99 18:34:54 LC : (A) IQ : 00
Lat1 : 20.145N Lon1 : 155.758W Lat2 : 12.904N Lon2 : 123.832W
Nb mes : 003 Nb mes>-120dB : 000 Best level : -127 dB
Pass duration : 090s NOPC : 2
Calcul freq : 401 650437.2 Hz Altitude : 0 m
158 6589 3038 07
00 00

04801 Date : 14.02.99 15:07:11 LC : Z IQ : 00
Lat1 : ?????? Lon1 : ??????? Lat2 : ?????? Lon2 : ???????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -130 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
159 6611 3547 06
00 00

04801 Date : 14.02.99 20:56:53 LC : Z IQ : 00
Lat1 : ?????? Lon1 : ??????? Lat2 : ?????? Lon2 : ???????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -134 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
159 2050 3547 06
00 00

04801 Date : 16.02.99 01:02:49 LC : Z IQ : 00
Lat1 : ?????? Lon1 : ??????? Lat2 : ?????? Lon2 : ???????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -128 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
160 446 417 51
00 00

04801 Date : 16.02.99 18:54:26 LC : (Z) IQ : 00
Lat1 : ?????? Lon1 : ??????? Lat2 : ?????? Lon2 : ???????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -123 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
160 652 856 25
00 00

04801 Date : 17.02.99 00:53:28 LC : (C) IQ : 00
Lat1 : ?????? Lon1 : ??????? Lat2 : ?????? Lon2 : ???????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -135 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
161 19 416 51
00 01

04801 Date : 17.02.99 03:19:51 LC : (Z) IQ : 00
Lat1 : ?????? Lon1 : ??????? Lat2 : ?????? Lon2 : ???????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -134 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
160 291 416 51
00 00

04801 Date : 05.02.99 21:13:45 LC : 0 IQ : 60
Lat1 : 20.174N Lon1 : 155.677W Lat2 : 30.626N Lon2 : 157.532E
Nb mes : 004 Nb mes>-120dB : 000 Best level : -128 dB
Pass duration : 231s NOPC : 2
Calcul freq : 401 650467.1 Hz Altitude : 0 m
158 48 5366 04
00 00

04801 Date : 06.02.99 06:35:17 LC : B IQ : 00
Lat1 : 20.171N Lon1 : 155.660W Lat2 : 14.453N Lon2 : 178.079E
Nb mes : 002 Nb mes>-120dB : 000 Best level : -126 dB
Pass duration : 045s NOPC : 2
Calcul freq : 401 650467.1 Hz Altitude : 0 m
00 5814 2660 08
00 00

04801 Date : 08.02.99 00:44:34 LC : Z IQ : 00
Lat1 : ?????? Lon1 : ??????? Lat2 : ?????? Lon2 : ???????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -126 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
00 656 553 38
00 11

04801 Date : 08.02.99 03:14:04 LC : B IQ : 00
Lat1 : 20.163N Lon1 : 155.640W Lat2 : 24.344N Lon2 : 135.826W
Nb mes : 002 Nb mes>-120dB : 000 Best level : -123 dB
Pass duration : 044s NOPC : 1
Calcul freq : 401 650467.1 Hz Altitude : 0 m
158 480 553 38
00 01

04801 Date : 08.02.99 18:55:34 LC : (C) IQ : 50
Lat1 : 20.174N Lon1 : 155.657W Lat2 : 15.638N Lon2 : 136.123W
Nb mes : 004 Nb mes>-120dB : 000 Best level : -123 dB
Pass duration : 409s NOPC : 2
Calcul freq : 401 650469.0 Hz Altitude : 0 m
158 86 928 23
00 00

121

22

04801 Date : 25.02.99 18:46:09 LC : $\text{\textcircled{C}}$ IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -129 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 00 546 962 22
 00 14

04801 Date : 25.02.99 18:46:31 LC : $\text{\textcircled{B}}$ IQ : 00
 Lat1 : 20.174N Lon1 : 155.595W Lat2 : 14.228N Lon2 : 129.215W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -128 dB
 Pass duration : 044s NOPC : 1
 Calcul freq : 401 650463.2 Hz Altitude : 0 m
 00 546 962 22
 00 14

04801 Date : 26.02.99 03:22:15 LC : $\text{\textcircled{C}}$ IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -135 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 525 423 50
 00 00

04801 Date : 26.02.99 18:31:58 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -126 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 00 856 788 27
 00 08

04801 Date : 26.02.99 20:07:51 LC : A IQ : 00
 Lat1 : 20.087N Lon1 : 155.548W Lat2 : 23.705N Lon2 : 171.737W
 Nb mes : 003 Nb mes>-120dB : 000 Best level : -126 dB
 Pass duration : 204s NOPC : 1
 Calcul freq : 401 650453.9 Hz Altitude : 0 m
 160 12 788 27
 00 01

04801 Date : 27.02.99 00:34:30 LC : B IQ : 00
 Lat1 : 20.045N Lon1 : 155.665W Lat2 : 24.522N Lon2 : 135.110W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -124 dB
 Pass duration : 477s NOPC : 1
 Calcul freq : 401 650463.2 Hz Altitude : 0 m
 00 295 419 51
 00 19

04801 Date : 27.02.99 02:51:19 LC : B IQ : 00
 Lat1 : 20.146N Lon1 : 155.815W Lat2 : 26.378N Lon2 : 126.177W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -130 dB
 Pass duration : 053s NOPC : 1
 Calcul freq : 401 650463.2 Hz Altitude : 0 m
 161 1025 419 51
 00 00

04801 Date : 27.02.99 15:24:14 LC : B IQ : 00
 Lat1 : 20.200N Lon1 : 155.610W Lat2 : 14.172N Lon2 : 127.543W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -124 dB
 Pass duration : 044s NOPC : 1
 Calcul freq : 401 650463.2 Hz Altitude : 0 m
 161 2246 712 30
 00 00

04801 Date : 27.02.99 19:55:16 LC : 0 IQ : 50
 Lat1 : 20.118N Lon1 : 155.609W Lat2 : 29.507N Lon2 : 128.838W
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -122 dB
 Pass duration : 180s NOPC : 1
 Calcul freq : 401 650463.2 Hz Altitude : 0 m
 159 05 3548 06
 00 00

04801 Date : 19.02.99 19:59:16 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ?????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -128 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 1426 759 28
 00 01

04801 Date : 21.02.99 18:34:03 LC : 1 IQ : 50
 Lat1 : 22.836N Lon1 : 168.013W Lat2 : 20.173N Lon2 : 155.665W
 Nb mes : 004 Nb mes>-120dB : 001 Best level : -120 dB
 Pass duration : 180s NOPC : 1
 Calcul freq : 401 650463.2 Hz Altitude : 0 m
 159 05 3548 06
 00 00

04801 Date : 22.02.99 19:50:38 LC : $\text{\textcircled{C}}$ IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -138 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 00 3037 3046 07
 00 03

04801 Date : 23.02.99 02:48:22 LC : $\text{\textcircled{B}}$ IQ : 00
 Lat1 : 20.189N Lon1 : 155.583W Lat2 : 27.805N Lon2 : 121.914W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -128 dB
 Pass duration : 044s NOPC : 2
 Calcul freq : 401 650463.2 Hz Altitude : 0 m
 159 4016 2665 08
 00 01

04801 Date : 24.02.99 01:10:11 LC : $\text{\textcircled{B}}$ IQ : 00
 Lat1 : 20.182N Lon1 : 155.487W Lat2 : 21.033N Lon2 : 151.663W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -122 dB
 Pass duration : 230s NOPC : 1
 Calcul freq : 401 650463.2 Hz Altitude : 0 m
 159 341 2645 08
 00 01

04801 Date : 24.02.99 13:35:52 LC : $\text{\textcircled{Z}}$ IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -129 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 159 3602 759 28
 00 00

04801 Date : 24.02.99 19:03:59 LC : $\text{\textcircled{B}}$ IQ : 00
 Lat1 : 20.182N Lon1 : 155.607W Lat2 : 26.466N Lon2 : 176.381E
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -126 dB
 Pass duration : 044s NOPC : 1
 Calcul freq : 401 650463.2 Hz Altitude : 0 m
 00 1179 759 28
 00 09

04801 Date : 25.02.99 02:42:26 LC : $\text{\textcircled{C}}$ IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -122 dB
 Pass duration : 180s NOPC : 1
 Calcul freq : 401 650463.2 Hz Altitude : 0 m
 159 05 3548 06
 00 00

04801 Date : 05.03.99 20:18:33 LC : $\text{\textcircled{C}}$ IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -133 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 850 761 28
 00 00

04801 Date : 07.03.99 03:14:21 LC : $\text{\textcircled{C}}$ IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -125 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 1048 641 4129
 00 02

04801 Date : 08.03.99 07:20:46 LC : $\text{\textcircled{C}}$ IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -133 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 278 481 44
 00 00

04801 Date : 08.03.99 19:39:13 LC : B IQ : 00
 Lat1 : 20.196N Lon1 : 155.673W Lat2 : 29.806N Lon2 : 159.565E
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -133 dB
 Pass duration : 047s NOPC : 1
 Calcul freq : 401 650442.3 Hz Altitude : 0 m
 160 2208 592 36
 00 00

04801 Date : 08.03.99 19:40:00 LC : B IQ : 00
 Lat1 : 20.170N Lon1 : 155.521W Lat2 : 20.974N Lon2 : 157.535W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -130 dB
 Pass duration : 044s NOPC : 1
 Calcul freq : 401 650442.3 Hz Altitude : 0 m
 164 2720 592 32812
 00 18

04801 Date : 09.03.99 15:03:32 LC : $\text{\textcircled{C}}$ IQ : 00
 Lat1 : 20.122N Lon1 : 155.710W Lat2 : 11.805N Lon2 : 117.367W
 Nb mes : 003 Nb mes>-120dB : 000 Best level : -128 dB
 Pass duration : 100s NOPC : 1
 Calcul freq : 401 650417.2 Hz Altitude : 0 m
 160 07 966 22
 00 00

04801 Date : 09.03.99 19:30:28 LC : $\text{\textcircled{C}}$ IQ : 00
 Lat1 : 20.183N Lon1 : 155.661W Lat2 : 19.118N Lon2 : 151.920W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -125 dB
 Pass duration : 046s NOPC : 1
 Calcul freq : 401 650442.3 Hz Altitude : 0 m
 00 2351 966 22
 00 12

04801 Date : 10.03.99 01:59:58 LC : $\text{\textcircled{C}}$ IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -134 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 542 638 290
 00 00

04801 Date : 10.03.99 08:33:15 LC : $\text{\textcircled{C}}$ IQ : 00
 Lat1 : 20.164N Lon1 : 155.655W Lat2 : 11.468N Lon2 : 167.314E
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -134 dB
 Pass duration : 047s NOPC : 1
 Calcul freq : 401 650442.3 Hz Altitude : 0 m
 160 2390 622 34
 00 00

04801 Date : 01.03.99 18:57:19 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -129 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 514 784 27
 00 00

04801 Date : 02.03.99 01:43:08 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -125 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 162 1088 578 37
 00 00

04801 Date : 02.03.99 18:35:53 LC : $\text{\textcircled{C}}$ IQ : 00
 Lat1 : 20.205N Lon1 : 155.697W Lat2 : 22.998N Lon2 : 168.645W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -126 dB
 Pass duration : 086s NOPC : 1
 Calcul freq : 401 650463.2 Hz Altitude : 0 m
 00 1281 851 25
 00 10

04801 Date : 03.03.99 08:19:25 LC : A IQ : 00
 Lat1 : 20.143N Lon1 : 155.738W Lat2 : 13.081N Lon2 : 173.928E
 Nb mes : 003 Nb mes>-120dB : 000 Best level : -127 dB
 Pass duration : 090s NOPC : 1
 Calcul freq : 401 650462.2 Hz Altitude : 0 m
 161 1898 887 24
 00 00

04801 Date : 03.03.99 19:08:36 LC : $\text{\textcircled{C}}$ IQ : 60
 Lat1 : 20.171N Lon1 : 155.656W Lat2 : 16.782N Lon2 : 140.860W
 Nb mes : 004 Nb mes>-120dB : 000 Best level : -123 dB
 Pass duration : 134s NOPC : 1
 Calcul freq : 401 650442.3 Hz Altitude : 0 m
 160 13 571 37
 00 00

04801 Date : 04.03.99 01:16:30 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -127 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 161 643 680 31
 00 01

04801 Date : 04.03.99 02:43:46 LC : B IQ : 00
 Lat1 : 20.164N Lon1 : 155.632W Lat2 : 27.334N Lon2 : 121.313W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -125 dB
 Pass duration : 045s NOPC : 2
 Calcul freq : 401 650442.3 Hz Altitude : 0 m
 161 964 680 31
 00 00

04801 Date : 04.03.99 08:06:33 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -127 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 2113 680 31
 00 00

04

04801 Date : 12.03.99 03:04:26 LC : B IQ : 00
 Lat1 : 20.165N Lon1 : 155.687W Lat2 : 25.046N Lon2 : 132.504W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -126 dB
 Pass duration : 044s NOPC : 1
 Calcul freq : 401 650442.3 Hz Altitude : 0 m
 161 513 1319 16
 00 00

04801 Date : 13.03.99 15:12:44 LC : B IQ : 00
 Lat1 : 20.171N Lon1 : 155.655W Lat2 : 13.158N Lon2 : 122.930W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -126 dB
 Pass duration : 047s NOPC : 1
 Calcul freq : 401 650442.3 Hz Altitude : 0 m
 160 3103 1013 21
 00 00

04801 Date : 14.03.99 01:11:25 LC : Z IQ : 10
 Lat1 : 21.400N Lon1 : 150.753W Lat2 : 20.169N Lon2 : 155.682W
 Nb mes : 003 Nb mes>-120dB : 000 Best level : -124 dB
 Pass duration : 162s NOPC : 0
 Calcul freq : 401 650442.3 Hz Altitude : 0 m
 160 42 33640 4337
 01 01

04801 Date : 14.03.99 13:36:12 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -129 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 07 1523 14
 00 00

04801 Date : 14.03.99 15:18:28 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -134 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 2976 1523 14
 00 00

04801 Date : 15.03.99 00:56:32 LC : A IQ : 00
 Lat1 : 20.167N Lon1 : 155.673W Lat2 : 22.600N Lon2 : 144.776W
 Nb mes : 003 Nb mes>-120dB : 000 Best level : -122 dB
 Pass duration : 090s NOPC : 1
 Calcul freq : 401 650449.6 Hz Altitude : 0 m
 160 3101 1099 19
 00 00

04801 Date : 15.03.99 18:41:36 LC : B IQ : 00
 Lat1 : 20.196N Lon1 : 155.609W Lat2 : 25.654N Lon2 : 173.1
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -134 dB
 Pass duration : 044s NOPC : 2
 Calcul freq : 401 650449.6 Hz Altitude : 0 m
 160 10 2663 08
 00 01

04801 Date : 16.03.99 01:36:57 LC : B IQ : 00
 Lat1 : 20.164N Lon1 : 155.655W Lat2 : 11.468N Lon2 : 167.314E
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -135 dB
 Pass duration : 047s NOPC : 1
 Calcul freq : 401 650442.3 Hz Altitude : 0 m
 160 2390 622 34
 00 00

04801 Date : 10.03.99 08:33:15 LC : B IQ : 00
 Lat1 : 20.164N Lon1 : 155.655W Lat2 : 11.468N Lon2 : 167.314E
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -134 dB
 Pass duration : 047s NOPC : 1
 Calcul freq : 401 650442.3 Hz Altitude : 0 m
 160 2390 622 34
 00 00

04801 Date : 10.03.99 14:38:58 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -135 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 2724 888 24
 00 00

04801 Date : 11.03.99 01:41:49 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -126 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 881 1701 34842
 00 18

04801 Date : 10.03.99 08:33:15 LC : B IQ : 00
 Lat1 : 20.164N Lon1 : 155.655W Lat2 : 11.468N Lon2 : 167.314E
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -134 dB
 Pass duration : 047s NOPC : 1
 Calcul freq : 401 650442.3 Hz Altitude : 0 m
 160 2390 622 34
 00 00

04801 Date : 10.03.99 14:38:58 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -135 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 2724 888 24
 00 00

04801 Date : 11.03.99 01:41:49 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -135 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 2724 888 24
 00 00

04801 Date : 11.03.99 01:41:49 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -135 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 2724 888 24
 00 00

04801 Date : 01.04.99 14:48:29 LC : B IQ : 00
 Lat1 : 20.181N Lon1 : 155.689W Lat2 : 10.745N Lon2 : 112.591W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -132 dB
 Pass duration : 044s NOPC : 1
 Calcul freq : 401 650449.6 Hz Altitude : 0 m
 160 3766 5357 04
 00 00

04801 Date : 01.04.99 21:23:15 LC : Z IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -136 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 2108 5359 10308
 00 01

04801 Date : 02.04.99 08:45:34 LC : B IQ : 00
 Lat1 : 20.193N Lon1 : 155.746W Lat2 : 10.434N Lon2 : 162.680E
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -133 dB
 Pass duration : 044s NOPC : 1
 Calcul freq : 401 650449.6 Hz Altitude : 0 m
 00 8293 2346 09
 00 01

04801 Date : 02.04.99 21:11:35 LC : Z IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -134 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 72 5342 04
 00 00

04801 Date : 03.04.99 00:50:22 LC : B IQ : 00
 Lat1 : 20.220N Lon1 : 155.612W Lat2 : 24.742N Lon2 : 139.512W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -129 dB
 Pass duration : 081s NOPC : 1
 Calcul freq : 401 650449.6 Hz Altitude : 0 m
 00 764 660 34
 00 00

04801 Date : 04.04.99 02:58:35 LC : Z IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -125 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 161 555 757 28
 00 00

04801 Date : 04.04.99 19:09:58 LC : Z IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -126 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 161 435 967 22
 00 00

04801 Date : 04.04.99 20:50:11 LC : B IQ : 00
 Lat1 : 20.207N Lon1 : 155.693W Lat2 : 27.078N Lon2 : 172.991E
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -126 dB
 Pass duration : 048s NOPC : 1
 Calcul freq : 401 650449.6 Hz Altitude : 0 m
 161 77 967 22
 00 00

04801 Date : 05.04.99 06:59:47 LC : Z IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -138 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 161 3903 558 38
 00 00

04801 Date : 20.03.99 18:50:17 LC : B IQ : 00
 Lat1 : 20.161N Lon1 : 155.746W Lat2 : 13.296N Lon2 : 132.605W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -129 dB
 Pass duration : 045s NOPC : 1
 Calcul freq : 401 650449.6 Hz Altitude : 0 m
 161 3939 3559 06
 00 00

04801 Date : 21.03.99 20:26:31 LC : B IQ : 00
 Lat1 : 20.159N Lon1 : 155.652W Lat2 : 24.642N Lon2 : 175.939W
 Nb mes : 003 Nb mes>-120dB : 000 Best level : -126 dB
 Pass duration : 109s NOPC : 1
 Calcul freq : 401 650427.3 Hz Altitude : 0 m
 160 10 5357 04
 00 01

04801 Date : 22.03.99 19:31:57 LC : B IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -140 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 587 4282 05
 00 00

04801 Date : 23.03.99 07:31:20 LC : B IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -132 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 160 7870 2667 08
 00 00

04801 Date : 24.03.99 00:58:36 LC : B IQ : 00
 Lat1 : 20.163N Lon1 : 155.617W Lat2 : 22.561N Lon2 : 144.540W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -122 dB
 Pass duration : 354s NOPC : 1
 Calcul freq : 401 650449.6 Hz Altitude : 0 m
 160 118 645 33
 00 00

04801 Date : 24.03.99 07:17:24 LC : Z IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -123 dB
 Pass duration : 044s NOPC : 0
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 00 3512 645 33
 00 08

04801 Date : 27.03.99 02:38:13 LC : B IQ : 00
 Lat1 : 20.171N Lon1 : 155.607W Lat2 : 28.285N Lon2 : 118.097W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -131 dB
 Pass duration : 044s NOPC : 1
 Calcul freq : 401 650449.6 Hz Altitude : 0 m
 160 1700 758 28
 00 01

04801 Date : 27.03.99 12:56:43 LC : B IQ : 00
 Lat1 : 20.187N Lon1 : 155.656W Lat2 : 14.615N Lon2 : 130.946W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -122 dB
 Pass duration : 044s NOPC : 1
 Calcul freq : 401 650449.6 Hz Altitude : 0 m
 160 07 558 38
 00 00

04801 Date : 01.04.99 02:27:12 LC : B IQ : 00
 Lat1 : 20.182N Lon1 : 155.623W Lat2 : 29.260N Lon2 : 112.982W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -131 dB
 Pass duration : 089s NOPC : 1
 Calcul freq : 401 650449.6 Hz Altitude : 0 m
 00 3773 2631 08
 00 04

04801 Date : 06.04.99 01:52:04 LC : B IQ : 00
Lat1 : 20.153N Lon1 : 155.650W Lat2 : 16.890N Lon2 : 170.095W
Nb mes : 002 Nb mes>-120dB : 000 Best level : -124 dB
Pass duration : 045s NOPC : 1
Calcul freq : 401 650449.6 Hz Altitude : 0 m
00 00
161 242 757 28

04801 Date : 06.04.99 18:45:39 LC : Z IQ : 00
Lat1 : ?????? Lon1 : ?????? Lat2 : ?????? Lon2 : ??????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -135 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
00 03
00 2524 1636 13

04801 Date : 06.04.99 19:01:47 LC : 1 IQ : 50
Lat1 : 20.181N Lon1 : 155.673W Lat2 : 25.841N Lon2 : 178.275E
Nb mes : 006 Nb mes>-120dB : 000 Best level : -125 dB
Pass duration : 277s NOPC : 2
Calcul freq : 401 650441.6 Hz Altitude : 0 m
00 01
161 07 1636 13

04801 Date : 10.04.99 19:09:40 LC : A IQ : 00
Lat1 : 20.195N Lon1 : 155.650W Lat2 : 27.265N Lon2 : 172.266E
Nb mes : 003 Nb mes>-120dB : 000 Best level : -125 dB
Pass duration : 135s NOPC : 1
Calcul freq : 401 650446.1 Hz Altitude : 0 m
00 00
160 5013 4259 05

04801 Date : 11.05.99 19:25:39 LC : C IQ : 00
Lat1 : ?????? Lon1 : ?????? Lat2 : ?????? Lon2 : ???
Nb mes : 001 Nb mes>-120dB : 000 Best level : -128 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
00 09
00 3207 2368 09

04801 Date : 11.05.99 21:25:01 LC : E IQ : 00
Lat1 : ?????? Lon1 : ?????? Lat2 : ?????? Lon2 : ???
Nb mes : 001 Nb mes>-120dB : 000 Best level : -132 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
00 00
161 3574 2368 09

04801 Date : 12.05.99 12:38:35 LC : B IQ : 00
Lat1 : 20.211N Lon1 : 155.586W Lat2 : 11.715N Lon2 : 121.138W
Nb mes : 002 Nb mes>-120dB : 000 Best level : -133 dB
Pass duration : 044s NOPC : 1
Calcul freq : 401 650435.6 Hz Altitude : 0 m
00 01
00 4994 1127 19

04801 Date : 16.05.99 06:54:19 LC : B IQ : 00
Lat1 : 20.185N Lon1 : 155.693W Lat2 : 12.556N Lon2 : 170.612E
Nb mes : 002 Nb mes>-120dB : 000 Best level : -131 dB
Pass duration : 053s NOPC : 1
Calcul freq : 401 650435.6 Hz Altitude : 0 m
00 03
00 1807 2158 10

*more
to
copy*

04801 Date : 13.04.99 00:34:06 LC : (B) IQ : 00
Lat1 : 20.168N Lon1 : 155.655W Lat2 : 25.395N Lon2 : 132.091W
Nb mes : 002 Nb mes>-120dB : 000 Best level : -129 dB
Pass duration : 044s NOPC : 1
Calcul freq : 401 650441.6 Hz Altitude : 0 m
00 156 518 41
00 17

04801 Date : 13.04.99 08:01:53 LC : Z IQ : 00
Lat1 : ?????? Lon1 : ?????? Lat2 : ?????? Lon2 : ??????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -127 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
00 00
160 5158 518 41

04801 Date : 13.04.99 08:01:53 LC : Z IQ : 00
Lat1 : ?????? Lon1 : ?????? Lat2 : ?????? Lon2 : ??????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -127 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
00 00
160 5158 518 41

04801 Date : 13.04.99 19:46:48 LC : B IQ : 00
Lat1 : 20.191N Lon1 : 155.693W Lat2 : 30.148N Lon2 : 156.508E
Nb mes : 002 Nb mes>-120dB : 000 Best level : -134 dB
Pass duration : 044s NOPC : 1
Calcul freq : 401 650441.6 Hz Altitude : 0 m
00 02
160 05 3050 07

04801 Date : 14.04.99 15:01:42 LC : B IQ : 00
Lat1 : 20.181N Lon1 : 155.634W Lat2 : 12.317N Lon2 : 119.063W
Nb mes : 002 Nb mes>-120dB : 000 Best level : -129 dB
Pass duration : 045s NOPC : 1
Calcul freq : 401 650441.6 Hz Altitude : 0 m
00 01
00 5644 710 30

04801 Date : 16.04.99 03:28:41 LC : C IQ : 00
Lat1 : ?????? Lon1 : ?????? Lat2 : ?????? Lon2 : ??????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -127 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
00 00
161 623 789 27

04801 Date : 16.04.99 07:26:00 LC : C IQ : 00
Lat1 : ?????? Lon1 : ?????? Lat2 : ?????? Lon2 : ??????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -130 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
00 00
161 1531 789 27

04801 Date : 16.04.99 19:51:55 LC : B IQ : 00
Lat1 : 20.178N Lon1 : 155.565W Lat2 : 22.189N Lon2 : 160.846W
Nb mes : 002 Nb mes>-120dB : 000 Best level : -132 dB
Pass duration : 044s NOPC : 1
Calcul freq : 401 650441.6 Hz Altitude : 0 m
00 00
161 1683 686 31

04801 Date : 17.04.99 01:30:00 LC : Z IQ : 00
Lat1 : ?????? Lon1 : ?????? Lat2 : ?????? Lon2 : ??????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -132 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
00 00
162 326 416 51

04801 Date : 23.04.99 10:13:18 LC : IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -136 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 08 458 1061 1044
 00 12

04801 Date : 23.04.99 15:03:33 LC : IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -131 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 161 221 666 2080
 00 00

04801 Date : 23.04.99 19:26:18 LC : IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -130 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 161 18 709 30
 00 01

04801 Date : 24.04.99 19:55:12 LC : IQ : 00
 Lat1 : 20.200N Lon1 : 155.681W Lat2 : 21.550N Lon2 : 161.078W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -127 dB
 Pass duration : 045s NOPC : 1
 Calcul freq : 401 650441.6 Hz Altitude : 0 m
 165 945 712 30
 00 00

04801 Date : 25.04.99 18:38:27 LC : IQ : 00
 Lat1 : 20.155N Lon1 : 155.650W Lat2 : 24.197N Lon2 : 171.414W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -127 dB
 Pass duration : 046s NOPC : 1
 Calcul freq : 401 650441.6 Hz Altitude : 0 m
 00 3153 1187 18
 00 08

04801 Date : 26.04.99 06:57:43 LC : IQ : 00
 Lat1 : 20.167N Lon1 : 155.688W Lat2 : 22.167N Lon2 : 146.640W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -122 dB
 Pass duration : 044s NOPC : 1
 Calcul freq : 401 650441.6 Hz Altitude : 0 m
 00 1765 1069 20
 00 09

04801 Date : 27.04.99 01:22:45 LC : IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -127 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 161 1140 896 24
 00 00

04801 Date : 27.04.99 19:17:23 LC : IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -123 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 161 20 887 24
 00 01

04801 Date : 17.04.99 19:57:03 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -138 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 161 1155 642 33
 00 01

04801 Date : 17.04.99 21:24:53 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -133 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 161 48 642 33
 00 02

04801 Date : 18.04.99 01:23:33 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -132 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 162 532 621 34
 00 00

04801 Date : 18.04.99 13:46:45 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -130 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 161 2066 575 37
 00 00

04801 Date : 18.04.99 15:17:02 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -131 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 161 375 575 37
 00 00

04801 Date : 19.04.99 02:24:29 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -128 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 162 493 470 45
 00 00

04801 Date : 19.04.99 19:12:46 LC : Z IQ : 00
 Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -129 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 161 1107 759 28
 00 00

04801 Date : 22.04.99 02:58:54 LC : B IQ : 00
 Lat1 : 20.173N Lon1 : 155.633W Lat2 : 25.710N Lon2 : 129.408W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -124 dB
 Pass duration : 044s NOPC : 1
 Calcul freq : 401 650441.6 Hz Altitude : 0 m
 161 807 776 27
 00 01

04801 Date : 28.04.99 19:08:53 LC : B IQ : 50
Lat1 : 20.168N Lon1 : 155.673W Lat2 : 16.000N Lon2 : 137.144W
Nb mes : 004 Nb mes>-120dB : 000 Best level : -123 dB
Pass duration : 135s NOPC : 1
Calcul freq : 401 650437.4 Hz Altitude : 0 m
159 05 1328 16
00 00

04801 Date : 30.04.99 14:55:21 LC : B IQ : 00
Lat1 : 20.188N Lon1 : 155.699W Lat2 : 27.227N Lon2 : 173.161E
Nb mes : 002 Nb mes>-120dB : 000 Best level : -129 dB
Pass duration : 057s NOPC : 2
Calcul freq : 401 650437.4 Hz Altitude : 0 m
160 2365 1135 19
00 00

04801 Date : 02.05.99 15:00:41 LC : B IQ : 00
Lat1 : 20.179N Lon1 : 155.640W Lat2 : 12.211N Lon2 : 119.545W
Nb mes : 002 Nb mes>-120dB : 000 Best level : -133 dB
Pass duration : 069s NOPC : 1
Calcul freq : 401 650437.4 Hz Altitude : 0 m
161 4089 4318 04
00 49

04801 Date : 03.05.99 19:39:59 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -125 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
161 41 4319 05
00 00

04801 Date : 04.05.99 19:35:14 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -127 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
160 630 1197 18
00 00

04801 Date : 05.05.99 01:27:11 LC : 0 IQ : 50
Lat1 : 20.158N Lon1 : 155.751W Lat2 : 19.865N Lon2 : 157.056W
Nb mes : 004 Nb mes>-120dB : 000 Best level : -126 dB
Pass duration : 159s NOPC : 1
Calcul freq : 401 650436.8 Hz Altitude : 0 m
160 12 1195 18
00 02

04801 Date : 09.05.99 00:43:31 LC : B IQ : 50
Lat1 : 20.173N Lon1 : 155.661W Lat2 : 24.698N Lon2 : 135.456W
Nb mes : 005 Nb mes>-120dB : 000 Best level : -121 dB
Pass duration : 277s NOPC : 2
Calcul freq : 401 650435.6 Hz Altitude : 0 m
162 12 924 23
00 00

04801 Date : 10.05.99 15:29:29 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -131 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
161 4058 1425 15
00 00

04801 Date : 18.05.99 02:29:58 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -135 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
180 932 2393 09
00 00

04801 Date : 20.05.99 15:06:48 LC : B IQ : 00
Lat1 : 20.161N Lon1 : 155.633W Lat2 : 12.715N Lon2 : 120.976W
Nb mes : 002 Nb mes>-120dB : 000 Best level : -131 dB
Pass duration : 046s NOPC : 1
Calcul freq : 401 650435.6 Hz Altitude : 0 m
163 3751 1128 19
00 00

04801 Date : 20.05.99 19:31:03 LC : B IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -135 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
163 797 1128 19
00 00

04801 Date : 24.05.99 07:49:26 LC : B IQ : 00
Lat1 : 20.158N Lon1 : 155.662W Lat2 : 17.229N Lon2 : 168.672W
Nb mes : 002 Nb mes>-120dB : 000 Best level : -130 dB
Pass duration : 060s NOPC : 1
Calcul freq : 401 650435.6 Hz Altitude : 0 m
155 1572 647 33
00 01

04801 Date : 23.05.99 01:31:09 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -126 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
165 1819 1773 81
00 00

04801 Date : 24.05.99 15:18:21 LC : B IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -130 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
164 430 856 25
00 00

04801 Date : 24.05.99 19:40:09 LC : B IQ : 00
Lat1 : 20.274N Lon1 : 155.792W Lat2 : 29.646N Lon2 : 159.599E
Nb mes : 002 Nb mes>-120dB : 000 Best level : -131 dB
Pass duration : 050s NOPC : 1
Calcul freq : 401 650435.6 Hz Altitude : 0 m
163 19 856 25
00 01

04801 Date : 25.05.99 19:15:56 LC : B IQ : 00
Lat1 : 20.175N Lon1 : 155.656W Lat2 : 27.717N Lon2 : 170.693E
Nb mes : 002 Nb mes>-120dB : 000 Best level : -133 dB
Pass duration : 081s NOPC : 1
Calcul freq : 401 650435.6 Hz Altitude : 0 m
00 1437 926 23
00 00

04801 Date : 26.05.99 15:08:43 LC : B IQ : 00
Lat1 : 20.177N Lon1 : 155.668W Lat2 : 27.828N Lon2 : 169.413E
Nb mes : 002 Nb mes>-120dB : 000 Best level : -128 dB
Pass duration : 045s NOPC : 1
Calcul freq : 401 650435.6 Hz Altitude : 0 m
163 4091 714 30
00 00

04801 Date : 27.05.99 00:42:30 LC : B IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -129 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
164 327 1318 16
00 00

04801 Date : 27.05.99 03:10:43 LC : B IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -138 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
163 327 1318 16
00 00

04801 Date : 07.06.99 08:15:27 LC : Z IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -131 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 162 2709 827 26
 00 00

04801 Date : 07.06.99 19:32:18 LC : Z IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -136 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 161 1435 1013 21
 00 00

04801 Date : 09.06.99 01:35:35 LC : (Z) IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -126 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 00 2142 820 26
 00 00

04801 Date : 11.06.99 13:44:35 LC : Z IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ????
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -128 dB
 Pass duration : 050s NOPC : 0
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 162 2094 1336 16
 00 00

04801 Date : 12.06.99 06:56:13 LC : Z IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -131 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 162 05 1536 14
 00 01

04801 Date : 12.06.99 13:30:11 LC : Z IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -135 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 162 1434 1256 17
 00 00

04801 Date : 14.06.99 00:37:27 LC : Z IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -133 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 163 11 1016 21
 00 00

04801 Date : 29.05.99 06:48:40 LC : (Z) IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -129 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 163 516 968 22
 00 00

04801 Date : 30.05.99 01:48:42 LC : (Z) IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -131 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 175 9401 26291 46633
 02-27

04801 Date : 30.05.99 12:39:55 LC : (B) IQ : 00
 Lat1 : 20.169N Lon1 : 155.668W Lat2 : 12.084N Lon2 : 120.123W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -131 dB
 Pass duration : 045s NOPC : 1
 Calcul freq : 401 650435.6 Hz Altitude : 0 m
 163 3043 971 22
 00 00

04801 Date : 01.06.99 03:14:14 LC : (Z) IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -129 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 163 388 892 24
 01 02

04801 Date : 04.06.99 00:55:38 LC : (Z) IQ : 50
 Lat1 : 20.176N Lon1 : 155.672W Lat2 : 24.121N Lon2 : 138.432W
 Nb mes : 007 Nb mes>-120dB : 000 Best level : -124 dB
 Pass duration : 271s NOPC : 1
 Calcul freq : 401 650437.4 Hz Altitude : 0 m
 163 08 1012 21
 00 00

04801 Date : 04.06.99 06:31:08 LC : (Z) IQ : 00
 Lat1 : 20.178N Lon1 : 155.656W Lat2 : 15.061N Lon2 : 179.180W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -132 dB
 Pass duration : 046s NOPC : 1
 Calcul freq : 401 650435.6 Hz Altitude : 0 m
 00 3573 1012 21
 00 02

04801 Date : 05.06.99 02:23:29 LC : A IQ : 00
 Lat1 : 20.163N Lon1 : 155.686W Lat2 : 14.257N Lon2 : 178.751E
 Nb mes : 003 Nb mes>-120dB : 000 Best level : -126 dB
 Pass duration : 090s NOPC : 1
 Calcul freq : 401 650450.2 Hz Altitude : 0 m
 162 11 1316 16
 00 01

04801 Date : 06.06.99 15:24:53 LC : B IQ : 00
 Lat1 : 20.164N Lon1 : 155.640W Lat2 : 15.029N Lon2 : 131.988W
 Nb mes : 002 Nb mes>-120dB : 000 Best level : -126 dB
 Pass duration : 049s NOPC : 1
 Calcul freq : 401 650435.6 Hz Altitude : 0 m
 161 2899 1646 13
 00 00

04801 Date : 07.06.99 08:15:27 LC : Z IQ : 00
 Lat1 : ?????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
 Nb mes : 001 Nb mes>-120dB : 000 Best level : -131 dB
 Pass duration : ? s NOPC : ?
 Calcul freq : 401 650000.0 Hz Altitude : 0 m
 162 2709 827 26
 00 00

LC1

Date: Fri, 13 Aug 1999 12:59:39 -1000
From: Casey Jarman <jarman@aloha.net>
To: George Balazs <gbalazs@honlab.nmfs.hawaii.edu>
Subject: turtles, again

[The following text is in the "ISO-8859-1" character set]
[Your display is set for the "US-ASCII" character set]
[Some characters may be displayed incorrectly]

Hi george,

1. Maui turtle is interesting s/of the Kihei beach, Suzanne should see the position fixed by today. She is giving us long (3min) surfaces easy to get bearings from shore antenna. We can also receive her signal from the second story condo, probably 2mi away and thru trees. result of the higher power this unit has over previous model. interestingly, the unit is placed well back on carapace to allow the possible sat tag addition later.

2. Talked to Larry yesterday.....He agrees on trying to get a satellite the Kahului resident turtle.....she should nest again next week, we have a est. of interesting time from that and then try to get her on her following nesting attempt, likely early Sept.

3. As you and I had discussed and Larry agreed, a sat tag on one of the Pohue (South Kona/Ka'u border) turtles should be a priority. I suggested that he may be able to get some year end \$\$ to buy one to get one of the ones he recently sent you rehab'd. I told him to mention this to you. I asked him to get the nesting data for the site could look at it to see what good timing may be for that site.

so, on re all this and whatever else....I'll be on oahu Sat - 9:00 a.m., have some time to get together. If I don't get a response today on this I'll call you when I'm on oahu, as I may not get e-mail Sat a.m. --Bill

04801 Date : 20.05.99 15:06:48 LC : B IQ : 00
12.715N Lon2 : 120.976W

04801 Date : 22.06.99 19:15:35 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ?????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -123 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
00 2481 1020 21
00 04

04801 Date : 23.06.99 08:12:29 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ?????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -126 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
162 2118 1343 16
00 00

04801 Date : 23.06.99 08:12:29 LC : B IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ?????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -126 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
162 2118 1343 16
00 00

04801 Date : 28.04.99 19:08:53 LC : C IQ : 50

04801 Date : 14.06.99 02:24:54 LC : A IQ : 60
Lat1 : 14.468N Lon1 : 179.762E Lat2 : 20.173N Lon2 : 155.662W
Nb mes : 003 Nb mes>-120dB : 000 Best level : -130 dB
Pass duration : 089s NOPC : 0
Calcul freq : 401 650592.7 Hz Altitude : 0 m
163 1584 1018 21
00 00

04801 Date : 14.06.99 03:17:12 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???????
Nb mes : 002 Nb mes>-120dB : 000 Best level : -126 dB
Pass duration : 045s NOPC : 0
Calcul freq : 401 650000.0 Hz Altitude : 0 m
163 1454 1016 21
00 00

04801 Date : 14.06.99 06:47:18 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ?????
Nb mes : 002 Nb mes>-120dB : 000 Best level : -132 dB
Pass duration : 044s NOPC : 0
Calcul freq : 401 650000.0 Hz Altitude : 0 m
00 2174 1016 21
00 04

04801 Date : 16.06.99 15:07:09 LC : C IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???
Nb mes : 001 Nb mes>-120dB : 000 Best level : -136 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
163 2407 792 27
00 00

04801 Date : 17.06.99 02:14:05 LC : C IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???
Nb mes : 001 Nb mes>-120dB : 000 Best level : -132 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
00 5026 949 151
02 02

04801 Date : 20.06.99 19:36:32 LC : C IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ?????
Nb mes : 002 Nb mes>-120dB : 000 Best level : -134 dB
Pass duration : 044s NOPC : 0
Calcul freq : 401 650000.0 Hz Altitude : 0 m
162 08 632 34
00 02

04801 Date : 21.06.99 13:31:05 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ???
Nb mes : 001 Nb mes>-120dB : 000 Best level : -128 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
00 1958 852 25
00 05

04801 Date : 22.06.99 06:47:28 LC : Z IQ : 00
Lat1 : ??????? Lon1 : ??????? Lat2 : ??????? Lon2 : ?????
Nb mes : 001 Nb mes>-120dB : 000 Best level : -125 dB
Pass duration : ? s NOPC : ?
Calcul freq : 401 650000.0 Hz Altitude : 0 m
00 1996 1344 16
00 09

Date: Thu, 12 Aug 1999 08:16:13 -1000
From: Casey Jarman <jarman@aloha.net>
To: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Maui Turtle Instrumented (fwd)

Bob

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[The following text is in the "ISO-8859-1" character set]
[Your display is set for the "US-ASCII" character set]
[Some characters may be displayed incorrectly]

hi Geo.....yes, I was there and just now returned from Maui and a few days in Kona w/ visiting Casey's relatives, now they are here w/us so time is limited!! Instrumenting went well. We had been up on the beach for the 3 nights previous as well, bracketing her probable nesting date so not to miss her. Her first interval was 19 d, then 20 d 2nd nest to 3rd nest.

A story with it: She appeared at the water line a little after 8pm, in the midst of loud music at 3 nearby sites and 12+ fishermen in the water down the beach a way with lights. She slipped back into the water, then a little after 10 pm, within 20-30 min of the music going off and fishermen leaving the water, she came ashore and nested!

--more later, Bill

> From: George H. Balazs <gbalazs@honlab.nmfs.hawaii.edu>
> To: Bill Gilmartin <jarman@aloha.net>
> Subject: Maui Turtle Instrumented (fwd)
> Date: Sunday, August 08, 1999 8:42 PM

> Who was we? Were you there, Bill, to do it, head it up, supervise? Did you know this was going to happen? Note you can tell Hannah to erase Nitta from her mailing list, he's long gone to SilverSpring.

> I do have a satellite tag on hand. But no way is anyone else going to put it on. Except me, or you. Geo.

> ----- Forwarded message -----

> Date: Sun, 8 Aug 1999 13:07:48 -1000
> From: Hannah Bernard <wild@aloha.net>
> To: jarman@aloha.net, larry_katahira@nps.gov, gbalazs@honlab.nmfs.hawaii.edu, williams@mauigateway.com, kitti_jensen@smtp2.irm.r9.fws.gov, glynnis_nakai@mail.fws.gov, puleloa@aloha.net, Eugene.Nitta@noaa.gov, skipppy@dar.CCMAIL.compuserve.com, riverdolphin30@hotmail.com, canals@sol.racsa.co.cr, nature@aloha.net
> Subject: Maui Turtle Instrumented

TAG # =

> Aloha turtle friends,
> Last night, our single Kihei turtle of the season nested for the third time at Waiohuli Beach. Hawai'i Wildlife Fund staff and helpers captured her (after nesting, an extensive amount of nest burying, sand throwing and good camouflaging action) on her way back to the water. She appeared in excellent shape, vigorous, and measured 82 x 89 cm, with no previous tags or extraordinary markings. We successfully flipper-tagged both foreflippers and attached a radio transmitter to her back. We began tracking her today, and will keep you all updated as to her activities.
> Mahalo to those who assisted in the night, and to the Dawn Patrol for their good work identifying her earlier tracks. She nested in the same vicinity as the previous two nests, but makai-ward.
> Aloha,

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Results of Analysis of Waiohuli Hawksbill Nests #'s 1 -5
(June-September, 1999)

	Nest #1	Nest #2	Nest #3	Nest #4	Nest #5
Empty eggshells	105	34	119	177	154
No sign of development	13	4	7	10	5
Partial development but dead (nearly all are late-term development)	80	177	46	13	6
Full-term development but unhatched and dead	0	0	0	0	0
Hatched / hatchlings, dead	2	24	14	0	2
Live hatchlings released	70	1	52	19	157
Total estimated eggs in clutch	198	215	172	200	165
Approximate live hatchlings to the sea	103 (52%)	10 (5%)	96 (56%)	176 (88%)	153 (93%)

Total eggs for the season - 950

Approximate total hatchlings to the sea - 538 (57%)

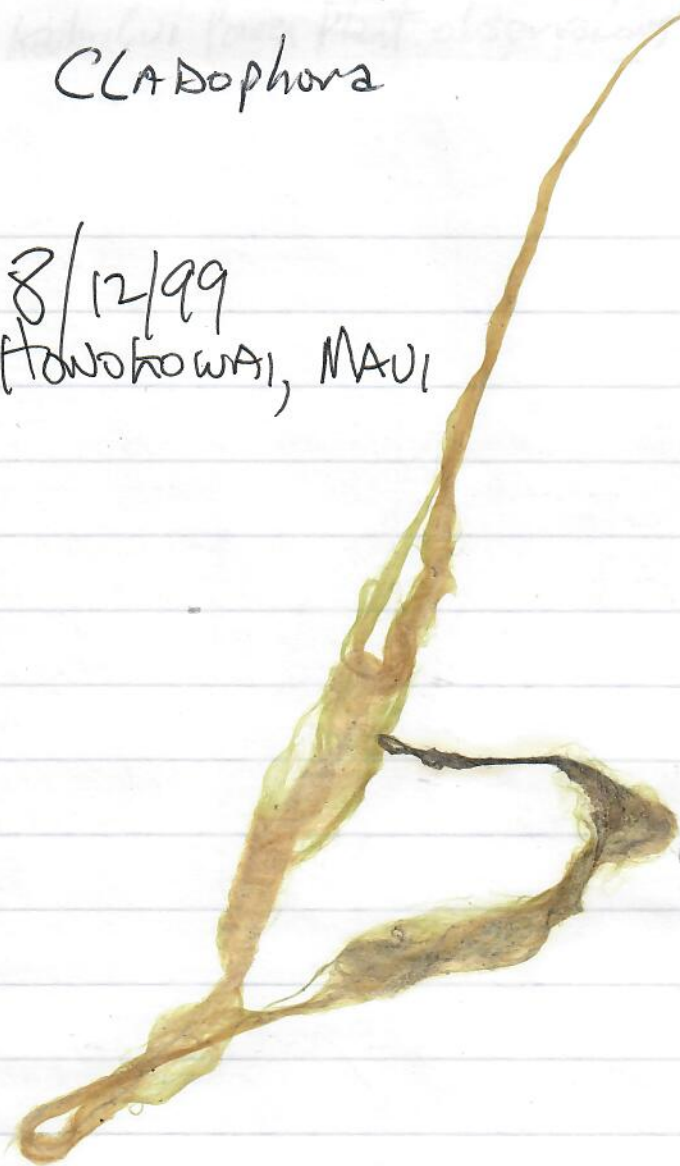
4-18-99 Examinations and estimates made by George Balazs to supplement data/counts made earlier by Sherry Hsu and Glynnis Nakai.

Conclusion - Excellent egg production (5 clutches) and egg fertility by this 1999 Maui hawksbill. However, some adverse environmental (incubation) factor caused excessive late term embryotic mortality. STEPS NEEDED FOR CORRECTION.

Cladophora

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8/12/99
HONOKOWAI, MAUI



NAME

Address

E-mail
Phone

- 1 Skippy Ham Div. of Aquatic Res. 130 Mahalani St. Wailuku, HI 96793
- 2 JANICE ROBERTS KIHAI - JR08E24678@aol.com 874-8750 laurene@hotmail.com 878-2952
- 3 Laureen Elizabeth 624 Omaopio, Kula, HI 96790
- 4 Joylynn Oliveira P.O. Box 1371 Kihai, HI 96753 jamakajo@gte.net 874-44
- 5 CONRAD ENGELKE 1164A S Kihai RD HI 96753 280-2955
- 6 Lou Di Cibeato 72 Konale Pl. Kihai, HI 96753 874-8340 lou@me
- 7 Joan Terhorst 936 Kepulauan Dr. Kihai HI 96753 879-3349
- 8 John Terhorst " " " " " " JTONMAUI@aol.com
- 9 Glynnis Nakai US Fish & Wildlife Service, P.O. Box 1042, Kihai 875-1582 glynnis_nakai@fws.gov
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- 12 Claire Cappelle #IHW71115 Claire.Cappelle@noaa.gov
- 13 Cindy Hylkema " " " " Cindy.hylkema@noaa.gov
- 14 DIANA SCHULTE 50 LAUMAEWA LOOP Kihai 874-3679
- 15 BULLY KAPAHULEHUA - KOKUA KEALIA - 938 So. Kihai Rd. #20 Kihai, MAUI 96753 (BOB) 874-4201
- 16 Bogie L Sherry AIKANE - 140 Uwapo Rd 7-203 Kihai MAUI 96753 875-0405 BHAIKANE@aol.com

put photos of back and arm TATTOO

Make turtle w/TDR
Kamanokekai Nov 1997 Punalu'i Kai

4-4-00 needs NOAA permit (state) eggs camera phone card Randy Anao DODACE

- 7 Domingo Carvalho - yellow tape for Sanctu
- 8 PAGER
- 9 "Public Works" Movie - dead animal pickup.
- 10 tarp/cartoner
- 11 Flopping tape

Tag Number	Date Tagged	Tag Type	Tag Position
04237014	02/16/99	PIT	PIT
7550	12/18/83	I681	RFL
7570	12/18/83	I681	LFL
7571	12/18/83	I681	L34
7741707A	02/16/99	PIT	LHF
6598	06/26/96	I681	LHF
SON68	11/20/97	SON	SON
TDR97245	11/20/97	TDR	TDR
Y649	04/09/90	I681	RHF

Historical information--

Date	Encounter	Location	Tumor Score	Nesting Activity	Curved Length	Since Last Encounter		Overall		
						Interval Month	Growth-rates cm/mon	Interval Month	Growth-rates cm/mon	
12/18/83	Near Shore	Hawaii, Punaluu Bay	0	-	70.5	---	---	---	---	
04/09/90	Near Shore	Hawaii, Punaluu Bay	0	-	83.0	75	6.3	0.2	2.0	
11/28/90	Near Shore	Hawaii, Punaluu Bay	0	-	83.0	7	0.6	0.0	0.0	
Type of										
04/24/91	Near Shore	Hawaii, Punaluu Bay, Boat Ramp area	0	-	84.0	4	0.3	0.3	3.3	
11/13/91	Near Shore	Hawaii, Punaluu Bay	0	-	83.0	6	0.5	-0.2	-2.0	
04/15/92	Near Shore	Hawaii, Punaluu Bay, Site #1	0	-	82.5	5	0.4	-0.1	-1.3	
07/14/92	Near Shore	Hawaii, Punaluu Bay	0	-	83.0	2	0.2	0.3	2.5	
07/15/92	Near Shore	Hawaii, Punaluu Bay	0	-	---	---	---	---	---	
11/18/92	Near Shore	Hawaii, Punaluu Bay	0	-	82.5	4	0.3	---	---	
06/26/96	Near Shore	Hawaii, Punaluu Bay	0	-	81.5	43	3.6	0.0	-0.3	
11/20/97	Near Shore	Hawaii, Punaluu Bay, Pavillion area	0	-	82.0	16	1.3	0.0	0.4	
02/16/99	Near Shore	Hawaii, Punaluu Bay, Pavillion area	0	-	82.5	14	1.2	0.0	0.4	
						88	7.3	0.2	1.8	
						94	7.8	0.1	1.6	
						99	8.3	0.1	1.4	
						102	8.5	0.1	1.5	
						102	8.5	---	---	
						107	8.9	0.1	1.3	
						150	12.5	0.1	0.9	
						167	13.9	0.1	0.8	
						181	15.1	0.1	0.8	

← TDR

← TDR recovered

KAMAUO KEKA I
Jofflynn

4/4/00 Tues
715AM - ~ 8 adult (only one w/ tumor seen) 135
2 group/pairs - Numerous copulation attempts seen.
215PM (photos) → 20-25 Turtles present, mainly same also in corner.