

Keoki Balazs

Honu Scientist

389-1570



MAUNA Mead CANI

COMPOSITION

TID 2.1 - JULY 2-4, 2010

MOC AUGUST 2010 / p69-8-23-2012 MOC

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PAGES 48

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GEORGE BALAZS

G.H. BALAZS

2 of 2



Subject: medical records 6-25-10 Mauna Lani (fwd)
From: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Date: Fri, 02 Jul 2010 09:09:37 -1000 (HST)
To: ShandellBrunson <Shandell.Brunson@noaa.gov>

print please.

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

Ke hiki mai nei ka wa kupono
e ho'ihoni 'ia mai i na honu i na 'oiwi o Hawai'i

----- Forwarded message -----
Date: Thu, 1 Jul 2010 15:25:42 -1000
From: Robert Morris <morrisr005@hawaii.rr.com>
To: pI'I <plaeha@maunalani.com>
Cc: George H. Balazs <gbalazs@honlab.nmfs.hawaii.edu>, Jeff L. Pawloski <pawloski@hawaii.rr.com>
Subject: medical records 6-25-10 Mauna Lani

Mauna Lani # 21.pdf	Content-Type: application/pdf Content-Encoding: BASE64
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— Mauna Lani #20.pdf —

Mauna Lani #20.pdf	Content-Type: application/pdf Content-Encoding: BASE64
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— Mauna Lani # 11.pdf —

Mauna Lani # 11.pdf	Content-Type: application/pdf Content-Encoding: BASE64
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— Mauna Lani # 12.pdf —

Mauna Lani # 12.pdf	Content-Type: application/pdf Content-Encoding: BASE64
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— Mauna Lani # 13.pdf —

Mauna Lani # 13.pdf	Content-Type: application/pdf Content-Encoding: BASE64
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— Mauna Lani # 16.pdf —

Mauna Lani # 16.pdf	Content-Type: application/pdf Content-Encoding: BASE64
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— Mauna Lani # 17.pdf —

Mauna Lani # 17.pdf	Content-Type: application/pdf Content-Encoding: BASE64
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Release 4th July 2010

#11

LIVE TURTLE EXAMINATION RECORD

Date: 6-25-10
Turtle ID: #11 RH 536A
Comments: sex 42.4cm WT 26.1
1 month gain 1.0cm SL; + 1.3 lbs.

PHYSICAL EXAM

Head and neck: normal

Mouth: normal

Eyes: normal

Front flippers: normal

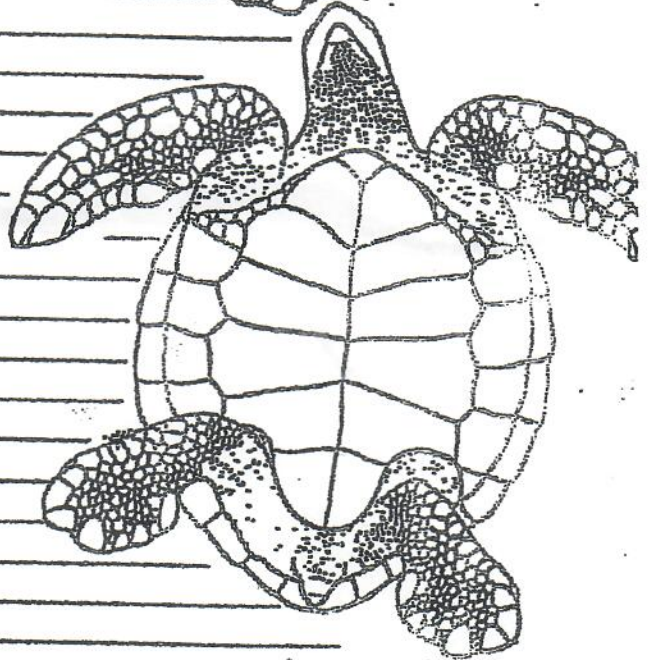
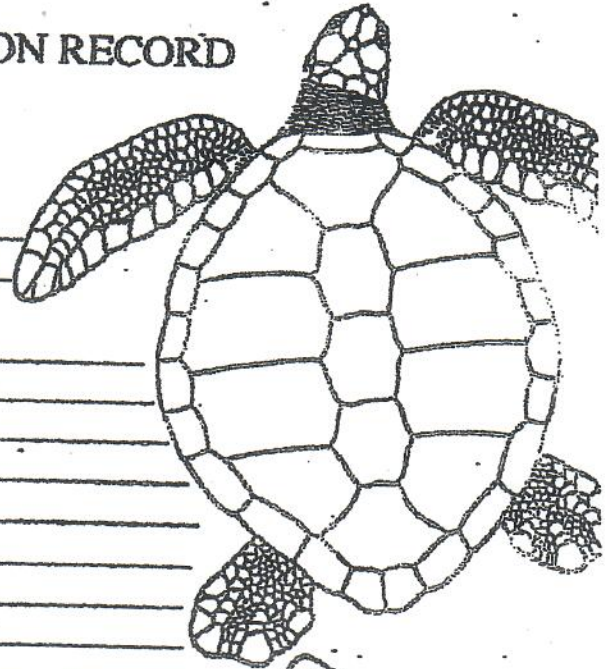
Shell: normal

Plastron: normal

Rear flippers: normal

Tail: normal

BODY CONDITION: good



SAMPLES TAKEN

PCV T.P.
CBC Chemistries
Others

APPROXIMATE TUMOR SIZE CATEGORIES:

- #1 = DETECTABLE PATCH TO 1CM DIAMETER
- #2 = >1CM TO 4CM
- #3 = >4CM TO 10CM
- #4 = >10CM

RECOMMENDATIONS: good wt + growth gain
OK to release help/2 yrs monitor good.

Signed: Robert A. Morris, DVM



ROBERT A. MORRIS, DVM, 348 ILIAINA ST. KAILUA, HI 96734

FOR RELEASE JULY 4
LIVE TURTLE EXAMINATION RECORD

#12

Date:

5-25-10

Turtle ID:

#12 RH 2B52

Comments:

40.5cm - 21.5 lbs

↑ month gain + 0.8 cm SL + 0.8 lbs

PHYSICAL EXAM

Head and neck:

normal

Mouth:

normal

Eyes:

normal

Front flippers:

normal

Shell:

normal

Plastron:

normal

Rear flippers:

normal

Tail:

normal

BODY CONDITION:

SAMPLES TAKEN

PCV T.P.

CBC Chemistries

Others

APPROXIMATE TUMOR SIZE CATEGORIES:

- #1 = DETECTABLE PATCH TO 1CM DIAMETER
- #2 = >1CM TO 4CM
- #3 = >4CM TO 10CM
- #4 = >10CM

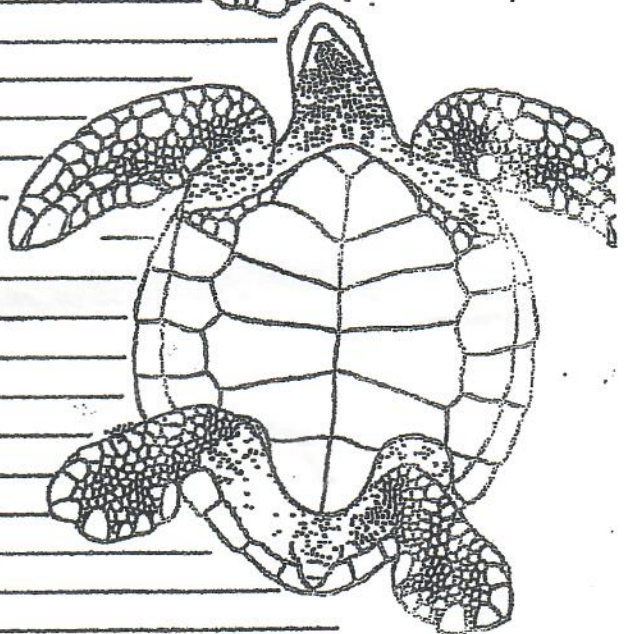
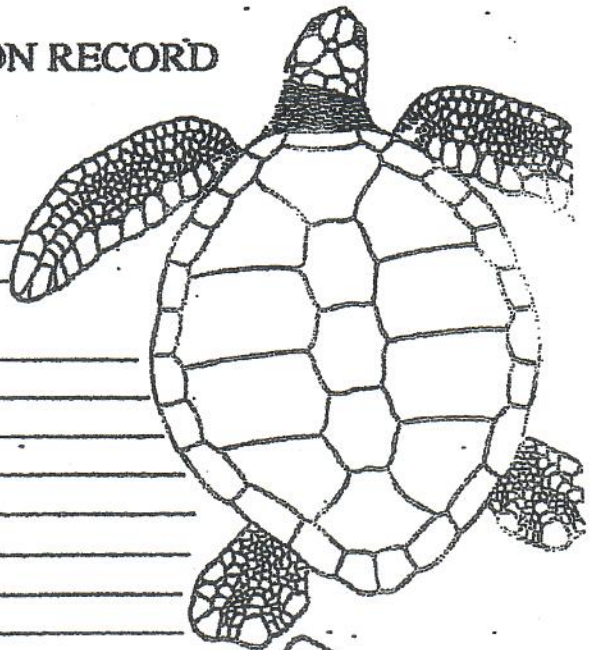
RECOMMENDATIONS:

wt. and growth gain

Signed:

Robert A. Morris, DVM

ROBERT A. MORRIS, DVM, 348 ILIANA ST. KAILUA, HI 96734



#13

RELEASE JULY 4, 2010
LIVE TURTLE EXAMINATION RECORD

Date: 6-25-10
Turtle ID: #13 RH 5908

Comments: 41.9 cm 24.1 lbs
1 month gain + 1.0 cm SL, + 1.6 LBS

PHYSICAL EXAM

Head and neck: normal

Mouth: normal

Eyes: normal

Front flippers: normal

Shell: normal

Plastron: normal

Rear flippers: normal

Tail: normal

BODY CONDITION: good

SAMPLES TAKEN

PCV T.P.
CBC Chemistries
Others

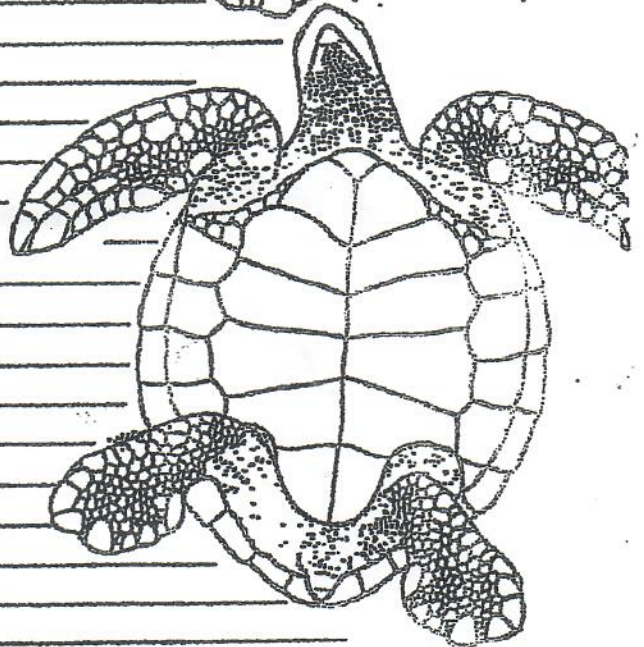
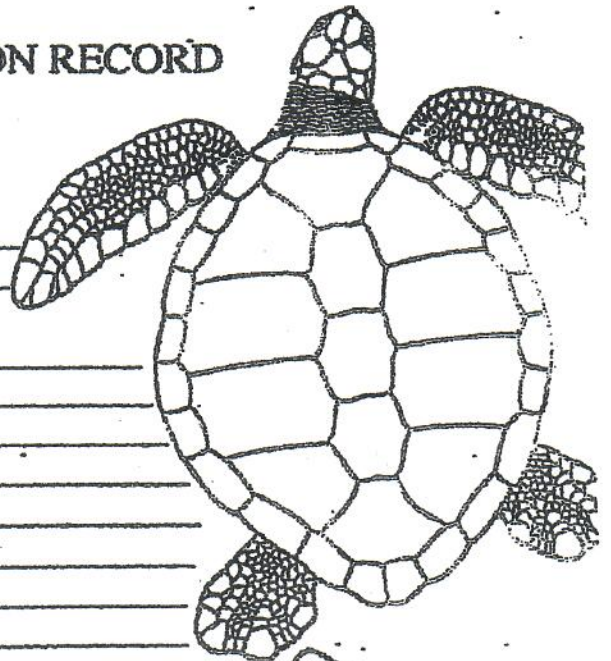
APPROXIMATE TUMOR SIZE CATEGORIES:

- #1 = DETECTABLE PATCH TO 1CM DIAMETER
- #2 = >1CM TO 4CM
- #3 = >4CM TO 10CM
- #4 = >10CM

RECOMMENDATIONS: WT + growth gains

Signed: Robert A Morris DVM

ROBERT A. MORRIS, DVM, 348 ILIAINA ST. KAILUA, HI 96734



MAUNA LANI NORMALS *

Based on 43 to 58 samples DATE: 6-25-10

RH 5908
TURTLE ID # 13

VALUES (43-58)	MEAN	SD	RANGE					
WBC EST.	11.5	5.6	3.7-29				23-25	
HCT	31	6.7	17-45				26	
HETEROPHILS %	32	13	10-64				10	
LYMPHOCYTES %	56	14	24-80				85	
EOSINOPHILS %	5	6	0-24					
AZUROPHIL %	5	3	0-17				5	
MONOCYTES %	1	2	0-6					
BASOPHIL %	0.5	1.4	0-6					
ABSOLUTE HET	3947	3325	680-18560					
ABSOLUTE LYMPH	6324	3248	1924-18836					
ABSOLUTE EO	480	647	0-2460					
ABSOLUTE AZU	555	486	0-2320					
ABSOLUTE MONO	111	189	0-715					
ABSOLUTE BASO	12	45	0-222					
TOTAL PROTEIN	4.0	0.8	2.5-5.5				3.4	

SCHEDULED FOR RELEASE JULY 4, 2010.
LIVE TURTLE EXAMINATION RECORD

H16

Date: 6-25-10
Turtle ID: H16 RH 322A
Comments: SENT TO HONOLULU & RETURNED
ANOREXIA - TREATED 40.1cm 19.30g
PHYSICAL EXAM
Head and neck: none +0.1cm - 0.50g

Mouth: none

Eyes: none

Front flippers: none

Shell: none

Plastron: none

Rear flippers: none

Tail: none

BODY CONDITION: Good

SAMPLES TAKEN

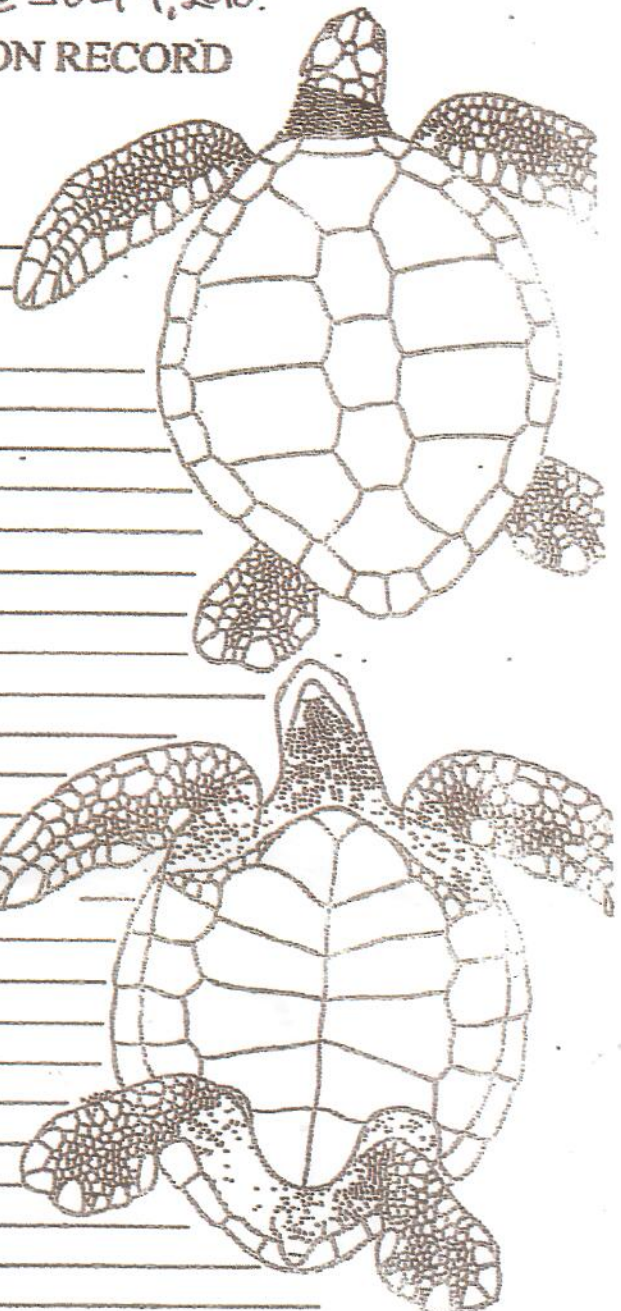
PCV T.P.
CBC ✓ Chemistries ✓
Others

APPROXIMATE TUMOR SIZE CATEGORIES:

- #1 = DETECTABLE PATCH TO 1CM DIAMETER
- #2 = 1/2CM TO 4CM
- #3 = 1/2CM TO 10CM
- #4 = 1/2CM

RECOMMENDATIONS: see medical records - none listed
growth seen - exam was on 6-24-10 - had 0.50g
of tumor to 1cm in mouth - decision to release

Signed: Robert A. Morris DVM



MAUNA LANI NORMALS * Previous Blood

RN 7F-6A
TURTLE ID # 10

Based on 43 to 58 samples DATE: 6-17-60

VALUES (43-58)	MEAN	SD	RANGE
WBC EST	11.5	5.6	3.7-29
HCT	31	6.7	17-45
HETEROPHILS %	32	13	10-64
LYMPHOCYTES %	56	14	24-80
EOSINOPHILS %	5	6	0-24
AZUROPHIL %	5	3	0-17
MONOCYTES %	1	2	0-6
BASOPHIL %	0.5	1.4	0-6
ABSOLUTE HET	3947	3325	680-18560
ABSOLUTE LYMPH	6324	3248	1924-18836
ABSOLUTE EO	480	647	0-2460
ABSOLUTE AZU	555	486	0-2320
ABSOLUTE MONO	111	189	0-715
ABSOLUTE BASO	12	45	0-222
Total Protein	4.0	0.6	2.9-5.0

11-13
22
34
60
6

3.7

Release July 4, 2010
LIVE TURTLE EXAMINATION RECORD

#17

Date: 6-25-10
Turtle ID: #17 RA 5555
Comments: 41.0 cm 23.30 lbs
1 month + 0.9 cm sh; + 1.5 lbs

PHYSICAL EXAM

Head and neck: none

Mouth: none

Eyes: none

Front flippers: none

Shell: none

Plastron: none

Rear flippers: none

Tail: none

BODY CONDITION: good

SAMPLES TAKEN

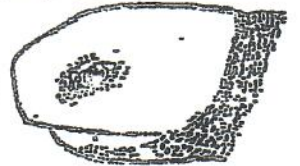
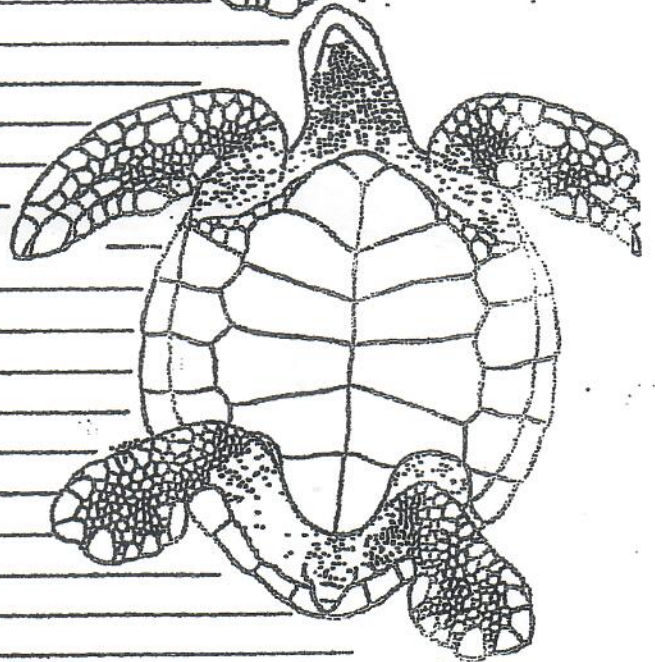
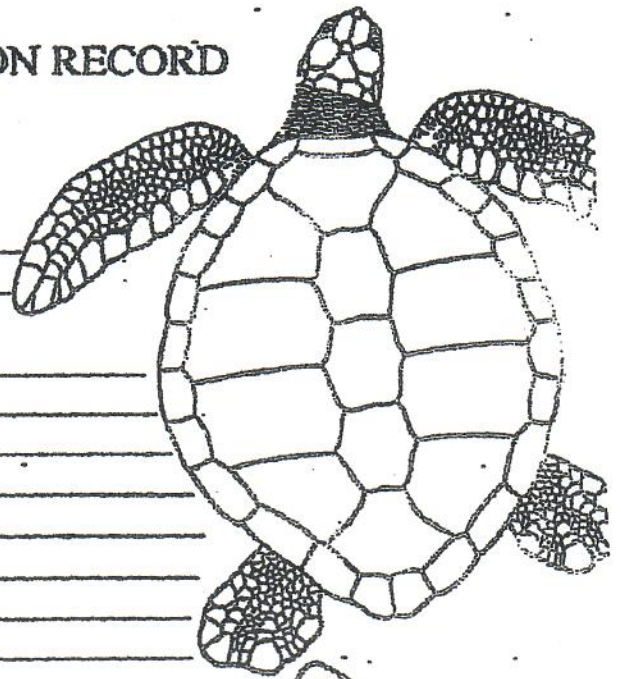
PCV T.P.
CBC Chemistries
Others

APPROXIMATE TUMOR SIZE CATEGORIES:

- #1 = DETECTABLE PATCH TO 1CM DIAMETER
- #2 = >1CM TO 4CM
- #3 = >4CM TO 10CM
- #4 = >10CM

RECOMMENDATIONS: gain wt + length

Signed: Robert A. Morris DVM



MAUNA LANI NORMALS*

Based on 43 to 58 samples DATE: 6-25-10

RW 5555
TURTLE ID #17

VALUES (43-58)	MEAN	SD	RANGE							
WBC $\times 10^3$	11.5	5.6	3.7-29							17-19
HCT	31	6.7	17-45							27
HETEROPHILS %	32	13	10-64							17
LYMPHOCYTES %	56	14	24-80							80
EOSINOPHILS %	5	6	0-24							2
AZUROPHIL %	5	3	0-17							1
MONOCYTES %	1	2	0-6							
BASOPHIL %	0.5	1.4	0-6							
ABSOLUTE HET	3947	3325	680-18560							
ABSOLUTE LYMPH	6324	3248	1924-18836							
ABSOLUTE EO	480	647	0-2460							
ABSOLUTE AZU	555	486	0-2320							
ABSOLUTE MONO	111	189	0-715							
ABSOLUTE BASO	12	45	0-222							
TOTAL PROTEIN	4.0	0.6	2.5-5.5							3.6

#20

RELEASE JULY 4, 2010

LIVE TURTLE EXAMINATION RECORD

Date: 8-25-10

Turtle ID: #20 RA 6F4D

Comments: 42.5cm 229 lbs
1 month + 0.8cm shell; + 1.2 lbs

PHYSICAL EXAM

Head and neck: normal

Mouth: normal

Eyes: normal

Front flippers: normal

Shell: normal

Plastron: normal

Rear flippers: normal

Tail: normal

BODY CONDITION: good

SAMPLES TAKEN

PCV T.P.
CBC Chemistries
Others

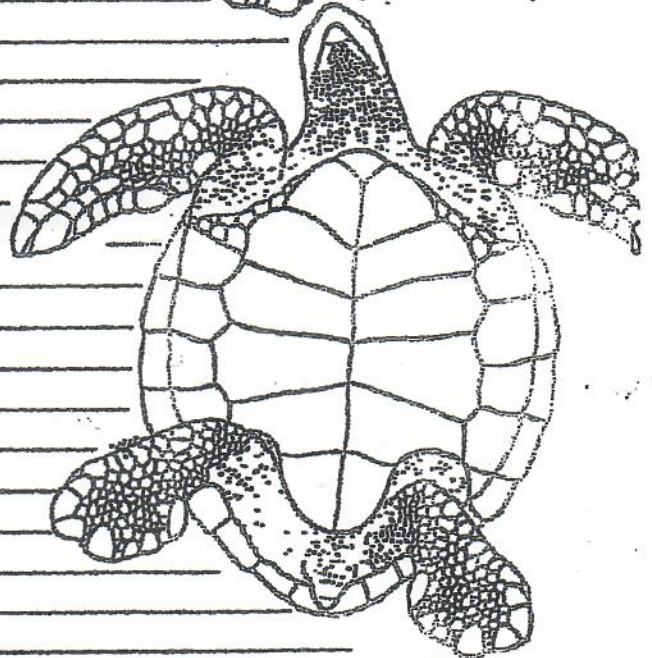
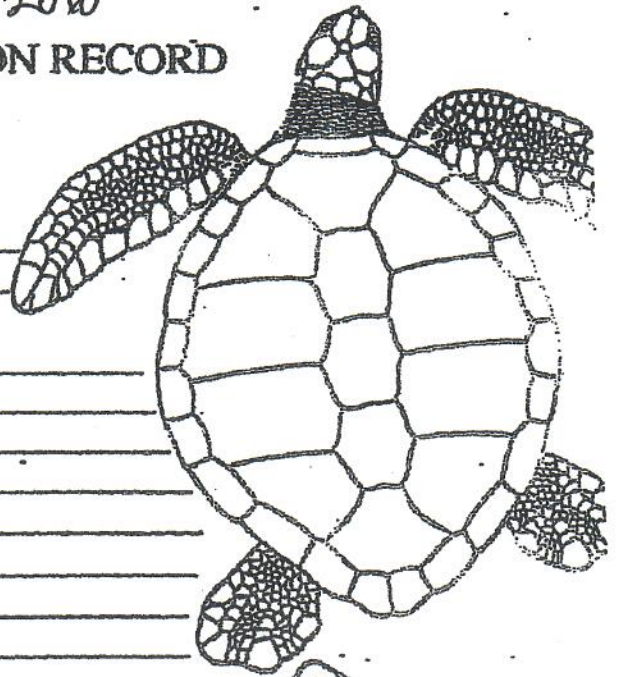
APPROXIMATE TUMOR SIZE CATEGORIES:

- #1 = DETECTABLE PATCH TO 1CM DIAMETER
- #2 = >1CM TO 4CM
- #3 = >4CM TO 10CM
- #4 = >10CM

RECOMMENDATIONS: wt & length gain

Signed: Robert A. Morris, DVM

ROBERT A. MORRIS, DVM, 348 ILIAINA ST. KAILUA, HI 96734



#21

FOR RELEASE JULY 4, 2010
LIVE TURTLE EXAMINATION RECORD

Date: 6-25-10
Turtle ID: #21 KH 732E
Comments: 42.8 cm 24.6 lbs
1 month + 1.2 cm shell; + 1.6 lbs

PHYSICAL EXAM

Head and neck: normal

Mouth: normal

Eyes: normal

Front flippers: normal

Shell: normal

Plastron: normal

Rear flippers: normal

Tail: normal

BODY CONDITION: good

SAMPLES TAKEN

PCV T.P.
CBC Chemistries
Others

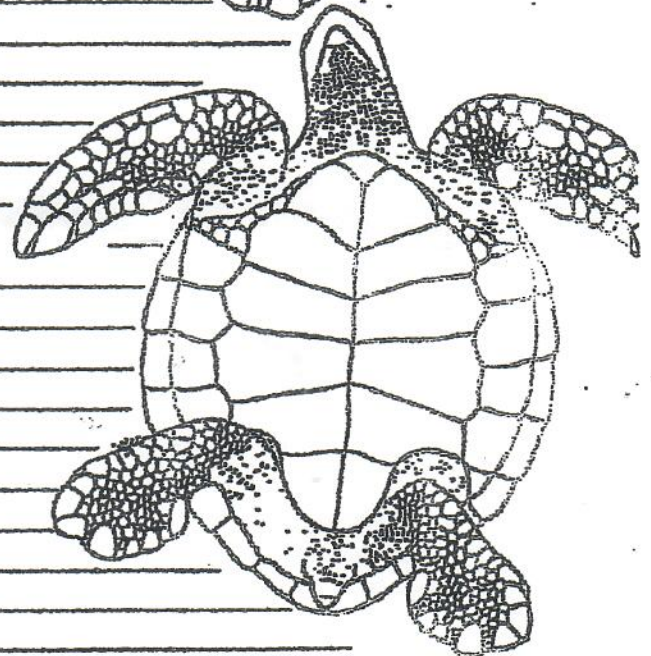
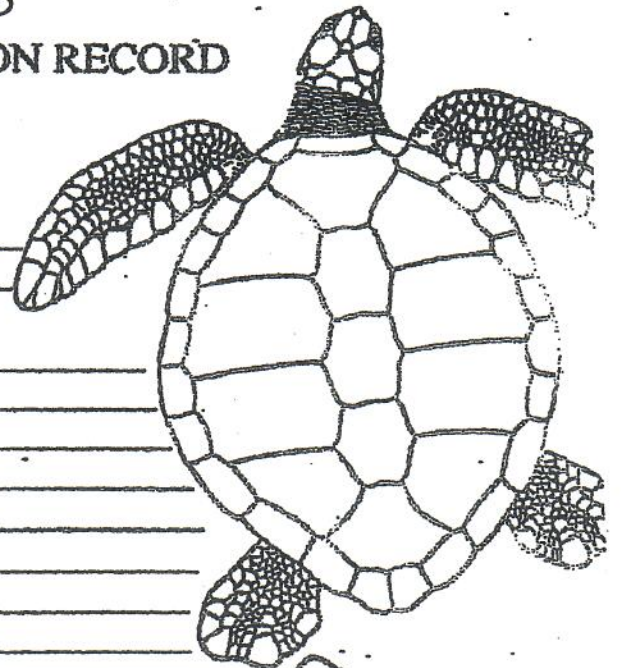
APPROXIMATE TUMOR SIZE CATEGORIES:

- #1 = DETECTABLE PATCH TO 1CM DIAMETER
- #2 = >1CM TO 4CM
- #3 = >4CM TO 10CM
- #4 = >10CM

RECOMMENDATIONS: WT & length gain

Signed: Robert A. Morris, DVM

ROBERT A. MORRIS, DVM, 348 ILIAINA ST. KAILUA, HI 96734



MAUNA LANI NORMALS *

RH 732E
TURTLE ID # 21

Based on 43 to 58 samples DATE: 6-25-10

VALUES (43-58)	MEAN	SD	RANGE
WBC <i>EST</i>	11.5	5.6	3.7-29
HCT	31	6.7	17-45
HETEROPHILS %	32	13	10-64
LYMPHOCYTES %	56	14	24-80
EOSINOPHILS %	5	6	0-24
AZUROPHIL %	5	3	0-17
MONOCYTES %	1	2	0-6
BASOPHIL %	0.5	1.4	0-6
ABSOLUTE HET	3947	3325	680-18560
ABSOLUTE LYMPH	6324	3248	1924-18836
ABSOLUTE EO	480	647	0-2460
ABSOLUTE AZU	555	486	0-2320
ABSOLUTE MONO	111	189	0-715
ABSOLUTE BASO	12	45	0-222
TOTAL PLTB/D	4.0	0.8	2.5-5.5
			4.0

11-13
31
18
73
4
5

FW: monthly exam June (fwd)

Subject: FW: monthly exam June (fwd)
From: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Date: Fri, 02 Jul 2010 09:10:01 -1000 (HST)
To: ShandellBrunson <Shandell.Brunson@noaa.gov>

print.

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

Ke hiki mai nei ka wa kupono
e ho'iho'i `ia mai i na honu i na `oiwi o Hawai'i

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

Date: Thu, 1 Jul 2010 15:32:58 -1000
From: Robert Morris <morrisr005@hawaii.rr.com>
To: George H. Balazs <gbalazs@honlab.nmfs.hawaii.edu>
Subject: FW: monthly exam June

Has tag numbers etc----Bob

-----Original Message-----

From: Pi'i Laeha [<mailto:Plaeha@maunalani.com>]
Sent: Thursday, July 01, 2010 8:33 AM
To: Robert Morris
Cc: Jeff Pawloski
Subject: monthly exam June

No virus found in this incoming message.

Checked by AVG - www.avg.com

Version: 8.5.439 / Virus Database: 271.1.1/2975 - Release Date: 07/01/10
06:35:00

EXAM 6.25.10.doc

Content-Type: application/msword
Content-Encoding: BASE64

DATA ON TURTLES

Date: 6/25/2010

Technicians: Dr. Bob Morris,
Pi'i, David, Elsie

<i>SHELL #</i>	<i>location</i>	<i>PIT Tag L Hind</i>	<i>PIT Tag R Hind</i>	<i>Weight (lbs)</i>	<i>SLC (cm)</i>	<i>observations</i>
11	Honu	442167200E	4853525B6A	26.1	42.4	*see veterinarian report - bloodwork-
12	Honu	44146E4C06	4414732B52	21.5	40.8	*see veterinarian report - bloodwork-
13	Honu	4413395714	483C3F5908	24.1	41.9	*see veterinarian report - bloodwork-
14	Atrium	44143A7F6D	483A3A7269	21.1	39.7	*see veterinarian report
15	Atrium	4414085039	483B252460	18.1	39.4	*see veterinarian report
16	Honu	4413217F6A	48515D322A	19.3	40.2	*see veterinarian report - bloodwork-
17	Honu	4414404C2D	483E5F5555	23.3	41.0	*see veterinarian report - bloodwork-
18	Atrium	441308300C	48533E1A1D	18.4	38.9	*see veterinarian report
19	Atrium	441466484B	485170374B	17.6	38.2	*see veterinarian report
20	Honu	44142F1A5A	48514E6F4D	22.9	42.5	*see veterinarian report - bloodwork-
21	Honu	441309101B	441429732E	24.6	42.8	*see veterinarian report - bloodwork-

* = missing tag

<i>@ 8:30 am</i>	<i>Temp (C)</i>	<i>Salinity ppt</i>	<i>pH</i>			
Honu Pond	24.4	29	8.0			
Atrium Pond	24.4	29	8.0			
Q-2 big pump	24.4	33	8.0			
		(refractometer)				

Subject: Mauna Lani non-release records (fwd)
From: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Date: Fri, 02 Jul 2010 09:09:48 -1000 (HST)
To: ShandellBrunson <Shandell.Brunson@noaa.gov>

priunt please.

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

Ke hiki mai nei ka wa kupono
e ho`iho`i `ia mai i na honu i na `oiwi o Hawai`i

----- Forwarded message -----
Date: Thu, 1 Jul 2010 15:28:53 -1000
From: Robert Morris <morrisr005@hawaii.rr.com>
To: pI'I <plaeha@maunalani.com>
Cc: George H. Balazs <gbalazs@honlab.nmfs.hawaii.edu>, Jeff L. Pawloski <pawloski@hawaii.rr.com>
Subject: Mauna Lani non-release records

Mauna Lani # 19.pdf	Content-Type: application/pdf Content-Encoding: BASE64
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—Mauna Lani # 14.pdf—

Mauna Lani # 14.pdf	Content-Type: application/pdf Content-Encoding: BASE64
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—Mauna Lani # 15.pdf—

Mauna Lani # 15.pdf	Content-Type: application/pdf Content-Encoding: BASE64
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—Mauna Lani # 18.pdf—

Mauna Lani # 18.pdf	Content-Type: application/pdf Content-Encoding: BASE64
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#14
ATR/DM

LIVE TURTLE EXAMINATION RECORD

Date: 6-25-10
Turtle ID: #14 RH @ 2269
Comments: 39.7cm 21.1 lbs
1 month - + 0.5cm sc, 00 lbs

PHYSICAL EXAM

Head and neck: round

Mouth: round

Eyes: round

Front flippers: round

Shell: round

Plastron: round

Rear flippers: round

Tail: round

BODY CONDITION: good

SAMPLES TAKEN

PCV T.P.
CBC Chemistries
Others

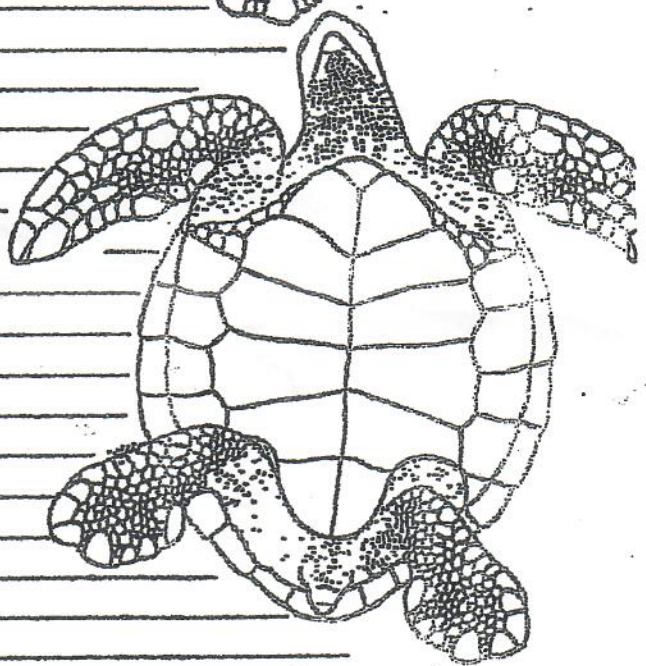
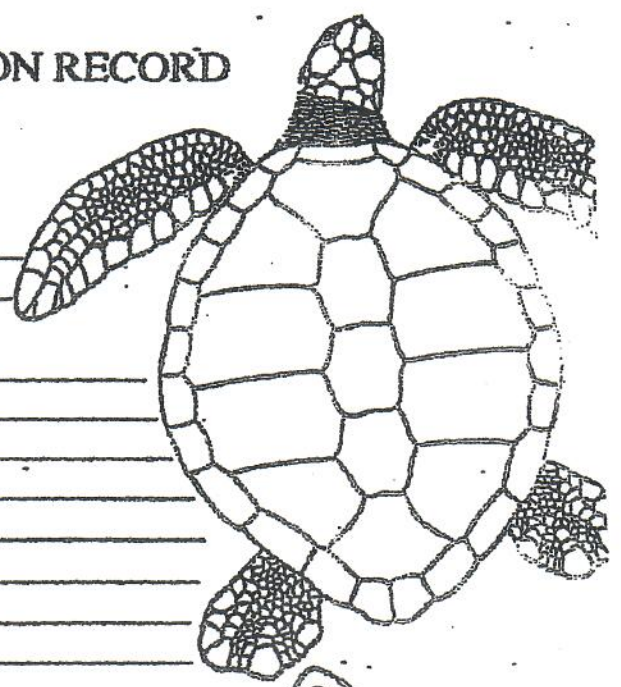
APPROXIMATE TUMOR SIZE CATEGORIES:

- #1 = DETECTABLE PATCH TO 1CM DIAMETER
- #2 = >1CM TO 4CM
- #3 = >4CM TO 10CM
- #4 = >10CM

RECOMMENDATIONS: no wt gain, + 0.5cm

Signed: Robert A. Morris, DVM

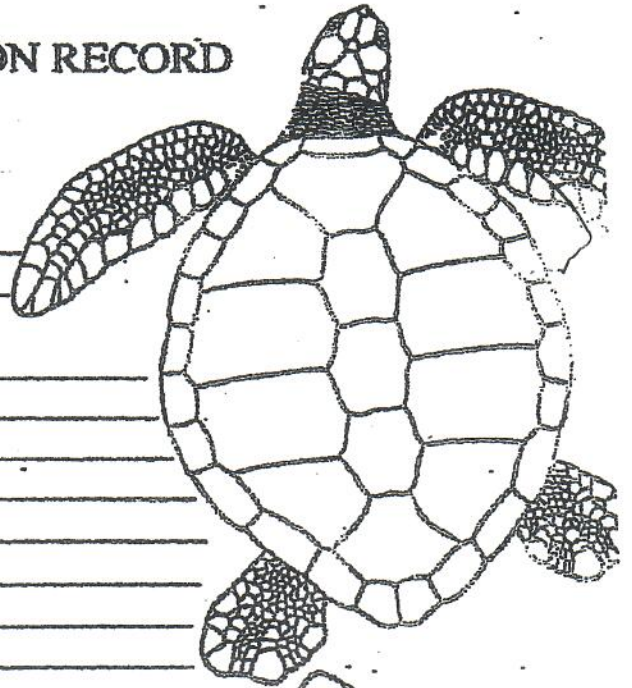
ROBERT A. MORRIS, DVM, 348 ILIAINA ST. KAILUA, HI 96734



#15 ATRIVM

LIVE TURTLE EXAMINATION RECORD

Date: 6-25-10
 Turtle ID: #15 RH 2460
 Comments: 39.4 cm 18.1 lbs
Mouth + O. & anal fecal kept
PHYSICAL EXAM + 1.4 lbs
 Head and neck: normal



Mouth: normal

Eyes: normal

Front flippers: normal

Shell: normal

Plastron: normal

Rear flippers: normal

Tail: normal

BODY CONDITION: good

SAMPLES TAKEN

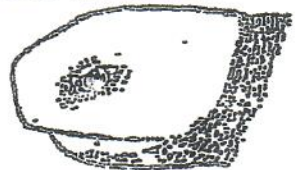
PCV T.P.
 CBC Chemistries
 Others

APPROXIMATE TUMOR SIZE CATEGORIES:

- #1 = DETECTABLE PATCH TO 1CM DIAMETER
- #2 = >1CM TO 4CM
- #3 = >4CM TO 10CM
- #4 = >10CM

RECOMMENDATIONS: wt & length gain - fecal ✓ reg

Signed: Robert A. Morris DVM



#18

LIVE TURTLE EXAMINATION RECORD

ATRIUM
Date: 6-25-10

Turtle ID: #18 RH LAID

Comments: 39.9 cm 18.4 lbs

1 month + 0.9 cm Schl, + 1.5 lbs

PHYSICAL EXAM

Head and neck: normal

Mouth: small 2mm brown plaque on tongue

Eyes: normal

Front flippers: normal

Shell: normal

Plastron: normal

Rear flippers: normal

Tail: normal

BODY CONDITION: good

SAMPLES TAKEN

PCV T.P.

CBC Chemistries

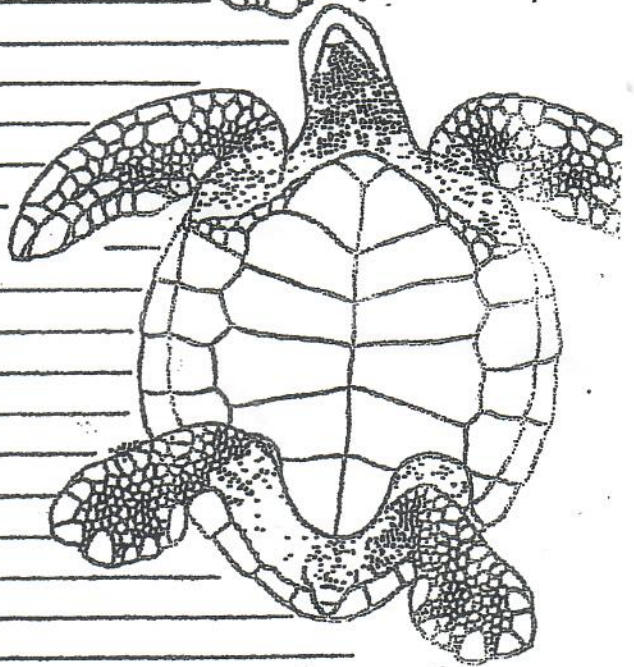
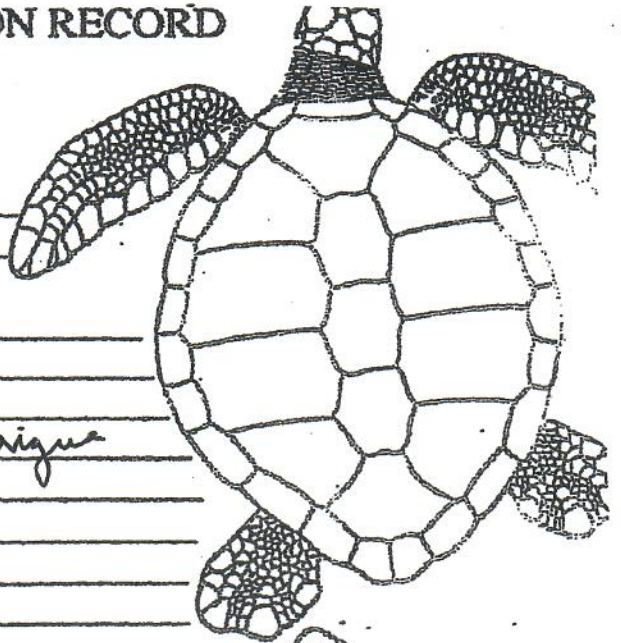
Others

APPROXIMATE TUMOR SIZE CATEGORIES:

- #1 = DETECTABLE PATCH TO 1CM DIAMETER
- #2 = >1CM TO 4CM
- #3 = >4CM TO 10CM
- #4 = >10CM

RECOMMENDATIONS: WT & length qm

Signed: Robert A. Morris, DVM



Small vertical text or stamp, possibly a date or time.

19
Atalva

LIVE TURTLE EXAMINATION RECORD

Date: 6-25-10

Turtle ID: H 19 RH 374R

Comments: 34.2cm 17.6lbs
1 month + 0.7cm sci; + 0.9 LBS

PHYSICAL EXAM

Head and neck: normal

Mouth: normal

Eyes: normal

Front flippers: normal

Shell: normal

Plastron: normal

Rear flippers: normal

Tail: normal

BODY CONDITION: good

SAMPLES TAKEN

PCV T.P.

CBC Chemistries

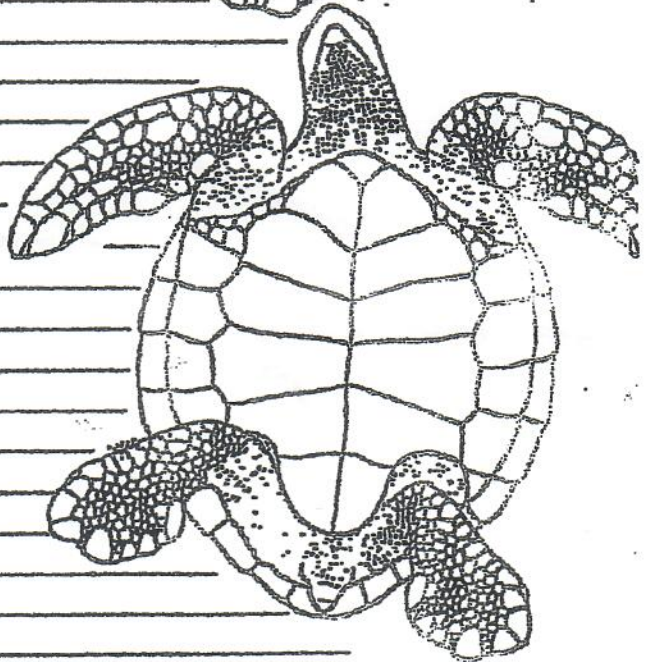
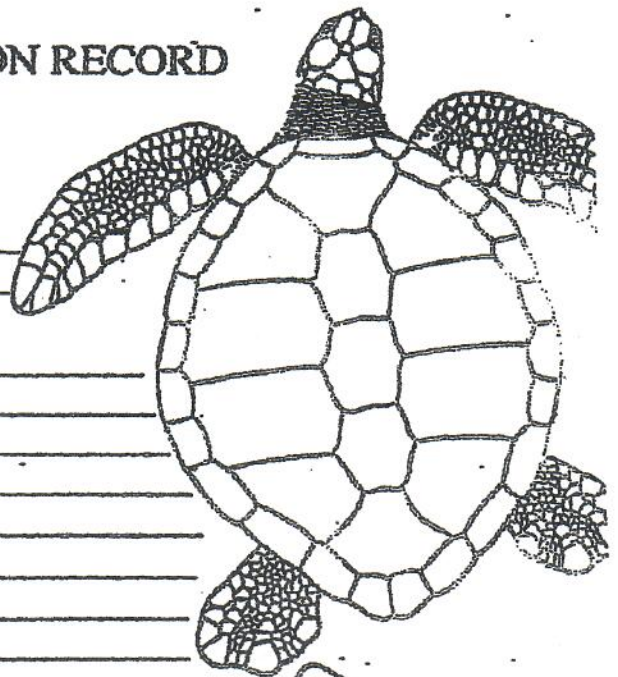
Others

APPROXIMATE TUMOR SIZE CATEGORIES:

- #1 = DETECTABLE PATCH TO 1CM DIAMETER
- #2 = >1CM TO 4CM
- #3 = >4CM TO 10CM
- #4 = >10CM

RECOMMENDATIONS: WT + length gain

Signed: Robert A Morris; DVM



Subject: Mauna Lani exam summary (fwd)
From: "George H. Balazs" <gbalazs@honlab.nmfs.hawaii.edu>
Date: Fri, 02 Jul 2010 09:09:29 -1000 (HST)
To: ShandellBrunson <Shandell.Brunson@noaa.gov>

pint please.

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

Ke hiki mai nei ka wa kupono
e ho'ihohi'ia mai i na honu i na 'oiwi o Hawai'i

----- Forwarded message -----
Date: Thu, 1 Jul 2010 14:27:36 -1000
From: Robert Morris <morrisr005@hawaii.rr.com>
To: pi'I <plaeha@maunalani.com>
Cc: Jeff L. Pawloski <pawloski@hawaii.rr.com>, George H. Balazs <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Mauna Lani exam summary

Aloha Pi'i:

Attached is the exam summary. The medical records will follow. Bob

MAUNA LANI EXAMS 6-25-10.doc

Content-Type: application/msword
Content-Encoding: BASE64

**MAUNA LANI TURTLE EXAMS
JUNE 25, 2010**

Seven turtles from the Mauna Lani Resort were scheduled for release on July 4th "turtle independence day". These turtles were given a veterinary physical exam and blood taken for complete blood counts (CBC) on June 25th. Six of the turtles had counts within the normal range and normal heterophil/lymphocyte ratios. The seventh turtle had been sent to Honolulu for anorexia. A CBC and blood chemistry and digital radiograph did not reveal a diagnosis. The turtle was robust and strong. The turtle received fluids, antibiotics and vitamin injections and shipped back to the Mauna Lani after 5 days (medical record on file). The turtle started eating and has been eating on and off since. It is still strong and robust. A decision was made to release this turtle.

The average monthly increase in length for all turtles was 0.8 cm (scl) and 1.2 lbs.

The four turtles for release next year were all normal.

Robert A. Morris DVM

MOC Turtle Measurements

Date: 8/9/2012

Turtle	Date	Weight (lbs)	SCL (cm)	SCW (cm)	CCL (cm)	CCW (cm)	Comments
	6/28/2012	5.06	25.7	20.4	26.8	23	PIT RH #1331 LH #0479 New bite on LF flipper, ventral surface. Scratch found on 8th scute, L side of carapace. Wrinkle on RH flipper looks the same
1 "D"	7/5/2012	5.06	25.8	20.6	27.2	23.4	Scratch on 8th scute, L side still present. Old bite on LF flipper healed. No bites.
	7/12/2012	5.1	26.2	20.9	27.4	23.4	Scratch on 8th scute, L side of carapace still healing. No bites. Wrinkle on LH flipper still present.
	7/19/2012	5.13	26.5	21	27.8	23.5	Scratch on 8th scute healing. New bite on top of neck, L side.
	7/26/2012	6	26.7	21	28.1	23.9	Old scratch & bite healed. New bite at end of carapace, ventral surface, and on 9th scute, L side of plastron.
	6/28/2012	4.02	23	17.9	24.6	20.3	PIT RH #5912 LH #643A Light coloration on RH flipper still present. No bites.
2 "G"	7/5/2012	4.05	23.3	18.2	24.2	21	New small bite on fatty marginal region above LH flipper. Scrape on 10th scute, ventral surface.
	7/12/2012	4.09	23.9	18.2	24.8	21	Scrape on 10th scute, ventral surface healed. RH flipper still healing, scabbing. Small bites on lip/chin.
	7/19/2012	4.1	23.9	18.3	25.4	21.2	Old bite on RH flipper still healing. New bite on LH flipper, dorsal surface and RH flipper, ventral surface.

							Old bite on LH flipper still healing. Old bite on RH flipper, ventral surface, healed. New bites on fatty marginal region above RH flipper, dorsal surface of RH flipper, and on end of plastron & tail. Noticed a little notch at tip of RF flipper.
	7/26/2012	4.12	24.4	18.5	25.5	21.5	
							PIT RH #3C36 LH #3451 No bites. Bump on RH flipper looks the same.
3	6/28/2012	5.01	25.3	20.2	26.8	22.8	
"H"	7/5/2012	5.04	25.8	20.5	27.4	23.2	No bites. RH flipper looks the same.
	7/12/2012	5.06	26	20.8	27.5	23.3	2 new bites on top of neck. Wrinkle on RH flipper same.
							Old bite on neck still healing. New bites on fatty marginal region above LH flipper, on chin, and LH flipper, dorsal surface.
	7/19/2012	5.07	26.2	20.8	27.5	23.5	
							Old bites on neck, chin, & LH flipper still healing. New bite on fatty marginal region above RH flipper, dorsal surface of RH flipper, and dorsal surface of RF flipper. RH flipper wrinkle still there.
	7/26/2012	5.12	26.4	21.1	27.8	23.8	
							PIT RH #5F1D LH #5D46 New small bite on last scute, L side of plastron and RH flipper on ventral surface. Wrinkle on RH flipper, dorsal surface, looks the same.
	6/28/2012	5.02	25.1	20.2	26.2	23.2	
4	7/5/2012	5.05	25.4	20.5	26.7	23.7	Previous bites healed. No bites.
"K"	7/12/2012	5.07	25.8	20.7	27	23.7	New small bite on RH flipper. Wrinkle on RHF still present.
	7/19/2012	5.1	25.8	20.8	27.5	24.3	Old bites healed. No bites. RH flipper wrinkle still present.
	7/26/2012	6.01	26.2	21	27.5	24.5	1 new bite on fatty marginal region above LH flipper.

	6/28/2012	4.05	23.5	18	25	20.6	PIT RH #296C LH #0444 No bites.
5 "O"	7/5/2012	4.06	23.9	18.5	25.4	20.9	Tiny scratch on LH flipper, dorsal surface. Last, middle scute has a few wrinkles & an indentation.
	7/12/2012	4.08	24.2	18.5	25.6	21.3	Scratch on LH flipper healed. Last, middle scute still has wrinkles & indentation. No bites.
	7/19/2012	4.11	24.6	18.9	25.8	21.4	wrinkle/indentation still present on middle, last scute of carapace. New bites on top of neck, L side, on RH flipper, 5th middle scute, and 4th scute, R side of carapace.
	7/26/2012	4.15	24.7	18.9	26.2	22	Old bites healed. New small bite on LH flipper, ventral surface.
							PIT RH #3869 LH #4508
	6/28/2012	4.15	24.7	19.6	26.2	22	New bite on R side of neck. Old bite healed. Nub looks the same.
6 "Q"	7/5/2012	5.01	25	19.6	26.3	22.5	Old bite R side of neck still healing. Nub on LH flipper looks the same.
	7/12/2012	5.04	25.5	20	26.7	22.6	Old bite on neck still healing. New bite on RF flipper, ventral surface. Nub on LH flipper looks to be "pointy" now.
	7/19/2012	5.06	25.6	20.1	27.4	23	Old bite on neck still healing. Bite on RF flipper, healed. No bites. Nub looks the same.
	7/26/2012	5.08	25.7	20.3	27.6	23.1	Old bite on top of neck healed. Small new bite on chin. Nub on LHF still pointy.

Note: applied wound kote on bites.

7/14/2012--> took partition out of quarantine tanks for baby turtles

7/21/2012--> increased amount of gel from 4.5oz to 6oz per feed.

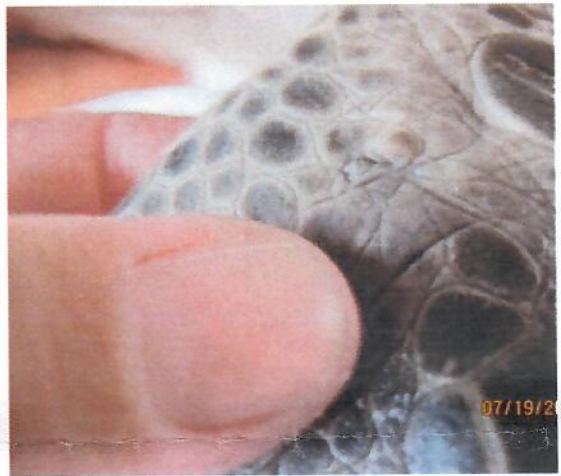
7/26/2012--> dremmeled all 6 turtles for the first time.

TURTLE 6

Picture taken on 6/21/2012

Picture taken on 7/19/2012 of Turtle 6's p







N=5

Released Grand WAILEA MAUI 8/23/2012

MOC Turtle Measurements

Turtle	Date	Weight (lbs)	SCL (cm)	SCW (cm)	CCL (cm)	CCW (cm)	Comments
#5672	7/19/2012	25.4	43.6	34.5	46.3	38.1	Old bite on cheek healed. Old bites on neck still healing. New bite on RF flipper, dorsal surface.
A	6/21/2012	23.8	42.8	33.5	44.6	37.4	Bite on neck still healing. 2 new bites on top of neck and R side of cheek.
#163B	7/19/2012	27.6	44.3	35.1	46.5	38.8	Old bites healed. 2 new bites on top of neck and L side of neck.
B	6/21/2012	25.2	43.2	34.5	45.5	38.6	Old bite healed. New bite on RF flipper near shoulder, and bite on top of head.
"87"							
#3330	7/19/2012	19.2	40.6	32.2	43.7	35.6	Bite on top of head still healing. New bite R side of neck, under chin, and L side lip.
C	6/21/2012	18.4	39.5	31.2	42.5	34.6	Bite on RH flipper healing. New bite on top of head and on LF flipper.
"91"							
#2131	7/19/2012	25	43.1	33.2	45.7	37.5	Old bite on neck still healing. 1 new bite on top of neck and edge of RH flipper. Both front flippers w/ lifted edge at the tip.
D	6/21/2012	24.6	42.1	32.4	44.9	37.1	4 new bites on top of neck.
"93"							
#7A6C	7/19/2012	26.8	43.5	34.9	46	40.2	RH flipper with splotchy skin. Claw a little breaking off. Photo below.
F	6/21/2012	26.6	42.7	33.6	45	39.2	No bites. Looks good.
"1"							

Notes: Put wound kote on bites/scratches

7/26/2012--> Still lots of gel left over, decreased gel amount to previous weight, 40.5oz per feed.

7/19/2012--> Pictures taken from Turtle-riffic Thursday
TURTLE A's NECK BITES



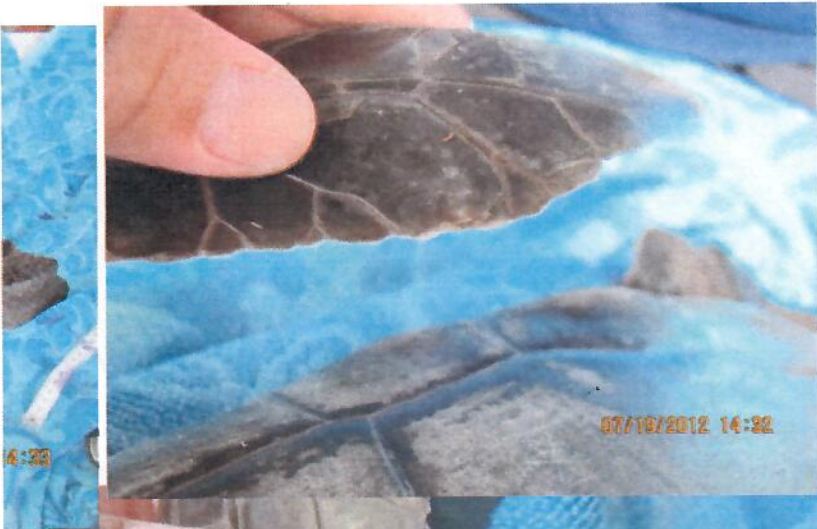
TURTLE D's SCALES & BITES



TURTLE F's SKIN & NAIL THING







MONTHLY DATA ON TURTLES

DATE :

Technicians :

SHELL#	location	PIT tag left hind	PIT tag right hind	WEIGHT (lbs)	SCL (cm)	observations
91	Honu	4A1561727F	4A7B7A2C53			
92	Honu	4A7C03585B	4A450A0A10			
94	Honu	4524021352	45224D205A			
81	Honu	442C57245D	4C3D210843			
83	Honu	442F5D5D1F	4C3B3A130F			
84	Honu	48515D430D	4C3C591448			
85	Honu	4850604A38	4C3B5E0525			
86	Honu	48564C3607	4C3B3C165D			
11	Atrium	4414362C26	4856495E23			
12	Atrium	4413010B63	44145E7F17			
13	Atrium	4413155176	4413064C68			
14	Atrium	483A0C4327	4852053C0B			
15	Atrium	4414073471	4413262B08			

* missing tag

location	temperature C	salinity (ppt)	pH		



MAUNA LANI TURTLE EXAMS

June 8, 2012

Health exams were conducted on the 13 turtles at the Mauna Lani Resort on June 8, 2012. Six of the largest turtles were selected for release on Turtle Independence Day July 4th.

Blood was taken from the 6 release turtles for CBC determination.

Microchips were placed in the right rear flippers of 5 turtles.

All 13 turtles were found to be in good body condition and had exhibited normal body growth and weight increases. No abnormal problems were noted except some minor flipper biting in the atrium pond. The lesions were treated and the daily food amount was to be increased.

The CBC values were in the normal range with healthy cell lines. These turtles have been approved for release.

Standard lengths and weights for all turtles had been taken 4-25-12 and will be repeated the end of June.

Detailed records have been sent to the Mauna Lani and Sea Life Park.

Robert A. Morris, DVM, MS

TS

MONTHLY DATA ON TURTLES

DATE : 4/25/2012

Technicians Henry Nitura, Pi'i Laeha

SHELL#	location	PIT tag left hind	PIT tag right hind	WEIGHT (lbs)	SCL (cm)	observations
91	Honu	4A1561727F	4A7B7A2C53	34.8	47.3	mouth clean
92	Honu	4A7C03585B	4A450A0A10	34.9	45.6	mouth clean
94	Honu	4524021352	45224D205A	39.6	48.8	mouth clean
81	Honu	442C57245D	0943	18.9	37.2	1 spot on tip of tongue
83	Honu	442F5D5D1F	150F	24.2	41.4	mouth clean
84	Honu	48515D430D	1448	16.7	37.7	mouth clean
85	Honu	4850604A38	0525	21.8	39.8	mouth clean
86	Honu	48564C3607	165D	20.6	38.9	mouth clean
11	Atrium	4414362C26	4856495E23	5.6	25.3	mouth clean
12	Atrium	4413010B63	44145E7F17	6.2	26.0	1 spot on left side of tongue
13	Atrium	4413155176	4413064C68	6.2	26.3	mouth clean
14	Atrium	483A0C4327	4852053C0B	5.8	25.2	1 spot on tip of tongue
15	Atrium	4414073471	4413262B08	4.9	23.9	mouth clean

* missing tag

NEW TAGS 6/8/12

- 81 4C3D210843
- 83 4C3B3A130F
- 84 4C3C591448
- 85 4C3B5E0525
- 86 4C3B3C165D

PLAN ON RELEASING 6 TURTLES

- 91
- 92
- 94
- 83
- 85
- 86

DATA on Mauna Lani Turtles

Date: 7/3/2011

Technicians: Pi'i Laeha, Marty Wisner

TURTLE INDEPENDENCE DAY - honu to be released

<i>SHELL #</i>	<i>location</i>	<i>PIT Tag L Hind</i>	<i>PIT Tag R Hind</i>	<i>Weight (lbs)</i>	<i>SLC (cm)</i>	<i>CCL (cm)</i>	<i>SPL (cm)</i>	<i>observations</i>
14	Honu Pond	44143A7F6D	483A3A7269	44.5	50.5	53.3	41.0	No abnormalities. Named: Kana'i
15	Honu Pond	4414085039	483B252460	34.0	48.0	51.0	37.0	No abnormalities. Named: 'Oline
18	Honu Pond	441308300C	48533E1A1D	31.4	46.8	49.0	36.3	No abnormalities. Named: Pili'alo'ha
19	Honu Pond	441466484B	485170374B	37.8	49.0	51.6	39.5	No abnormalities. Named: Ku lua
93	Honu Pond	45282F7877	4528357643	24.2	40.8	42.8	34.5	No abnormalities. Named: Wai puna

SCL = Straight Carapace Length (cm)

CCL = Curved Carapace Length (cm)

SPL = Straight Plastron Length (cm)

2011 Honu Names

(Turtle Independence Day)

- # 14 **Kana'i:** Smooth, calm of the sea

- # 19 **Ku lua:** 4th day of the old lunar month which is today's Hawaiian moon phase for this 4th of July 2011.

- # 15 **'Olino:** Bright, brilliant, dazzling

- # 18 **Pilialoha:** Close friendship, beloved companion, to have a loving or tender relationship

- # 93 **Wai puna:** Spring water (also used as a figure of speech for "a sweetheart")

21619

DATA ON MAUNA LANI TURTLE

inserted
Summer 2010
25 hatching

ID : # 82 (shell) / (SLP shell # 92) / LH - 442F7161727

date	WEIGHT (g)	SCL (cm)	location	notes
6/25/2010	30.0	5.3	SLP	- hatched at Sea Life Park-
7/2/10	34.5	5.5		PIT tag inserted 6/27 (2 days old)
7/5/10	36.5	5.7		
7/9/10	43.0	6.0		
7/12/10	46.0	6.3		
7/16/10	52.5	6.6		
7/19/10	54.5	6.7		
7/23/10	62.5	7.0		
7/26/10	65.5	7.2		
7/31/10	72.5	7.6		
8/2/10	78.0	7.9		
8/6/10	87.0	8.0		
8/9/10	91.5	8.3		
8/14/10	101.5	8.7		
8/16/10	100.5	8.7		
8/20/10	111.5	8.9		
8/23/10	118.0	9.1		
8/26/10	117.5	9.4		
9/3/10	134.0	9.7		
9/6/10	139.0	9.7		
9/11/10	144.5	9.9		
9/24/10	192.5	10.7		
10/3/10	230.5	11.4		
10/20/10	296.0	12.6		
10/27/10	328.5	13.1		
Nov. 2, 2010	(lbs)	(cm)	Q-2	TRANSFER TO MAUNA LANI BAY HOTEL
11/2/10	0.8	13.4		arrived in good condition, active, swimming well
11/30/10	1.1	14.7		* see veterinarian report
12/29/10	1.6	16.8	Atrium Pond	mouth clean
1/26/11	2.3	18.9		mouth clean
2/28/11	2.6	<24.2>		1 spot mid tongue
3/30/11	2.7	21.1		mouth clean
4/27/11	3.4	21.4		mouth clean
5/24/11	4.3	23.3	Q-2	mouth clean, healing bites on hind fins, transfer to Q2 (5/1)
6/29/11	5.8	25.8		mouth clean

* missing tag

7/6/2011 7:30 am

FOUND FLOATING IN Q-2 tank

21619

History: Turtle from the Mauni Lani resort found dead on July 6, 2011. I D #82 microchip LH 6172. This turtle is from the summer of 2010 Sea Life Park hatchlings. The last measurements on 6/29/11 was 25.8 cm SCL and the weight 5.8 lbs. The last veterinarian check was June 7, 2011.

The turtle was on exhibit for the July 4 turtle Independence day release celebration. It was housed in an 8 foot diameter kitty pool with 3 other turtles of the same size The turtles were not handled by the public.. It was reported to have a good appetite on July 5 after return to the quarantine pond. Five turtles were released July 4 leaving 9 turtles (now 8).

Robert A. Morris DVM

Foreign Body?
Acute?

DINING AND ENTERTAINMENT

Mauna Lani's dining selections include creative cuisine incorporating the freshest island ingredients. Our Concierge have sample menus and will assist you with dining reservations. Ext 24

THE BAY TERRACE - The garden-like setting of the Bay Terrace is the perfect place to start your day. A bountiful buffet and ala carte breakfast menu are served.

THE OCEAN GRILL - This poolside venue features burgers, salads, sandwiches and tropical smoothies.

HULI SUE'S AT MAUNA LANI - Located at the Golf Clubhouse-serving BBQ and Grill in the afternoon, Italian in the evening and cocktails throughout the day.

THE CANOEHOUSE - Dine oceanfront in a relaxed atmosphere and enjoy island fresh Contemporary Cuisine.

RESTAURANT HOURS

BREAKFAST

6:30am-10:30am The Bay Terrace
6:00am-11:00am Private Dining

LUNCH

11:00am-4:00pm Ocean Grill
11:00am-4:00pm Huli Sue's
11:00am-4:00pm Private Dining

DINNER

4:00pm-9:00pm Ocean Grill
5:00pm-8:00pm Huli Sue's (Tue-Sat)
6:00pm-9:00pm Canoe House
6:00pm-9:00pm Bay Terrace - Prime Rib & Seafood Buffet (Friday)
4:00pm-9:00pm Private Dining Dinner
9:00pm-6:00am Private Dining (Late Night Menu)

COCKTAILS AND ENTERTAINMENT

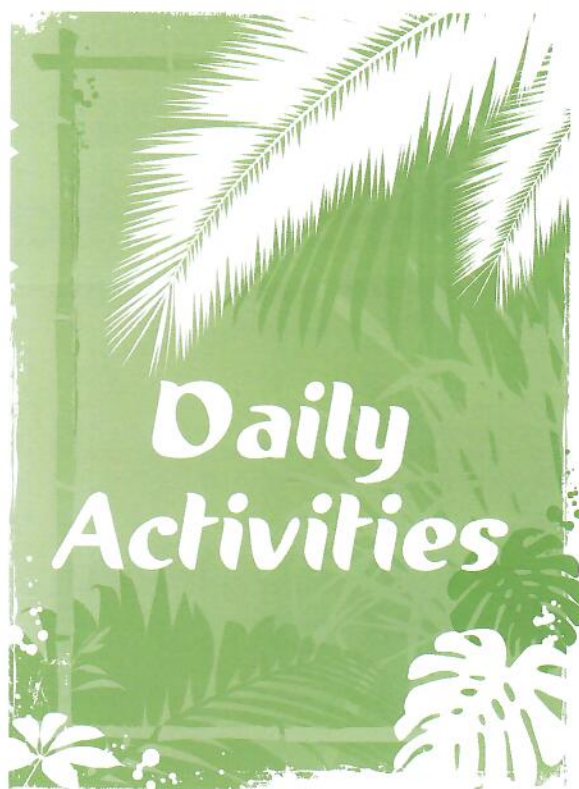
11:00am-10:00pm Ocean Grill
11:00am-6:00pm Huli Sue's (till 4:00pm on Sun & Mon)
4:00pm-6:00pm Ocean Grill Happy Hour
6:30pm-8:30pm Ocean Grill - Solo Musician (Sun)
6:00pm-10:30pm Canoe House
6:00pm-9:00pm Bay Terrace - Summertime Prime Rib & Seafood Buffet - Solo Musician (Fri)
6:30pm-8:30pm Canoe House - Solo Musician (Fri-Sat)
6:00pm-7:45pm Atrium - Live Entertainment (Fri-Sat)
6:30pm-7:45pm Atrium - Hula Dancer (Fri-Sat)

COMPLIMENTARY INTERNET & WIFI ACCESS

Mauna Lani guestrooms have a DSL modem and an Ethernet cable (located in the desk drawer). Plug one end of the cable into the port on the back of the modem, and plug the other end into the Ethernet port on your laptop. Turn your computer on and you will have instant access to the internet. If you have a WiFi capable laptop, just turn your computer on and search for available wireless networks. Complimentary WiFi service is also available in most public areas of the hotel.

THE MAUNA LANI BAY

Hotel and Bungalows · Hawaii



JULY 01 - 07, 2012

- 5:30pm **Indoor Cycling** - A high energy cardio workout indoors on open bikes.*
- 6:30pm **Torch Lighting** - As the sun sets over the islands our Hawaiian torch lighting ceremony begins in the Atrium.

PO'ALIMA ~ Friday 07/06/12

- 8:00am **Spin & Sculpt** - A interval class that incorporates cardio bouts utilizing the spin bike and strength resistance training, 60 minutes.*
- 8:30am **Gentle Beach Side Yoga** - Begin your day with a relaxing yoga class to strengthen muscles and calm your mind and body. No yoga experience required.*
- 9:00am **Tennis Clinic** - Avid tennis players USTA 3.5 and above are invited to participate in this fast paced clinic. Maximum 6 players. Please call for reservations 885-7755.*
- 9:00am **Hawaiian Historic Tour** - Join us on a journey into Hawaii's past as we meander through ancient fishponds and discover petroglyphs. Meet at the Cultural Center for an adventure you won't want to miss.
- 9:10am **Core and More** - A body sculpting class working on core strength..*
- 10:00am **Snorkel 101** - Learn the basics of snorkeling with our trained beach staff. Space is limited. Sign up at the Beach Service Center.
- 10:15am **Deepening Your Yoga Practice** - Informed by a blend of yogic traditions. Works with alignment in asana, and brings generous amounts of breath and awareness to your practice. Perfect for those with some yoga experience and those with a regular practice.*
- 12:30pm **Watercolor Art Demonstration** - Island artists showcase their artistic talents at poolside. Private art classes available.*
- 12:30pm **Floral Lei Making Class** - Learn to string tropical blossoms into a garland of aloha. The art of lei making is tailored for all ages. Meet at the Cultural Center.
- 12:30pm **Throw Net Fishing Demonstration** - This hands-on demonstration gives you the opportunity to test your skills at throw net fishing. Meet at the Eva Parker Woods Cottage.
- 2:00pm **Coconut Husking** - Learn to husk a fresh coconut the way ancient Hawaiians once did. Meet at the Beach Service Center
- 5:30pm **Vinyasa Yoga** - Class begins with gentle stretches, and then becomes a continuous movement with the breath, weaving basic yoga poses together. Mindfully breathing and moving will leave you feeling wholly refreshed and energized.*
- 6:00pm **Hawaiian Entertainment** - Our Hawaiian duo will serenade you with the music of the Islands. At 6:30 pm our graceful hula dancer joins in the Atrium.
- 6:30pm **Torch Lighting** - As the sun sets over the islands our Hawaiian torch lighting ceremony begins in the Atrium.

PO'AONO ~ Saturday 07/07/12

- 8:00am **Spinning** - Enjoy this all level spinning class that will ignite your fitness level. Spin your way to a slimmer healthier body.*
- 8:30am **Gentle Beach Side Yoga** - Begin your day with a relaxing yoga class to strengthen muscles and calm your mind and body. No yoga experience required.*
- 9:00am **Tennis Clinic** - Avid tennis players USTA 3.5 and above are invited to participate in this fast paced clinic. Maximum 6 players. Please call for reservations 885-7755.*
- 9:10am **Lava Flow Fusion** - All levels yoga class integrating breathe and movement in a flow celebrating life as a moving meditation.*
- 10:00am **Guided Snorkel Adventure** - This dynamic hour long snorkel tour includes explorations of the surrounding reefs and channels that are home to a myriad of Hawaii's tropical sea life. Class size is limited. Sign up at the Beach Service Center.*
- 10:30am **Fish Feeding Tour** - Learn about the sea life found in Mauna Lani's fishponds. Meet at the Bay Terrace Bridge.
- 2:00pm **Sand Castle Construction 101** - Show off your hidden talents at building the ultimate sand castle. All ages welcome. Meet at the Beach Center.
- 5:30pm **Twilight at Kalahuipua'a** - Join us at the Eva Parker Woods Cottage for an evening of Hawaiian storytelling and music.
- 6:00pm **Hawaiian Entertainment** - Our Hawaiian duo will serenade you with the music of the Islands. At 6:30 pm our graceful hula dancer joins in the Atrium.
- 6:30pm **Torch Lighting** - As the sun sets over the islands our Hawaiian torch lighting ceremony begins in the Atrium.

* Minimal fee applies.

For more information please contact:

Mauna Lani Bay Hotel & Bungalows

68-1400 Mauna Lani Drive
Kohala Coast, Island of Hawaii 96743
Phone 808-881-7911

Email: Concierge@maunalani.com

www.maunalani.com

DAILY HAPPENINGS

6:00am - **Morning Exercise Refreshments** - Chilled water and towels are available at the Porte Cochere.

8:00am - **Bicycle Rides** - Adult sized bikes and helmets are available at the Bell Desk. It's a fun way to tour the resort.

8:00am - **Beach & Pool Activities** - Mauna Lani offers a myriad of complimentary beach equipment for your enjoyment; snorkeling equipment, paddle boards, boogie boards, Bocce ball & volleyballs are available. Please see your Beach & Pool Attendant.

Camp Mauna Lani - Camp Mauna Lani is a fun place for children ages 5 - 12 yrs. to meet new friends. Activities vary daily so there's always a new adventure in store. Day Camp 9:00 am - 3:30 pm
Please visit the Concierge for fee information.

Mauna Lani Cultural Center - We invite you to visit our Cultural Center located under the atrium waterfall. Peruse through the history of the islands, learn the hula, play an ukulele or weave a lei of tropical flowers. Cultural activity schedules vary daily and are suitable for all ages.

Hulakai Ocean Activities - Enjoy the ocean like the Hawaiians. Learn the art of stand-up paddle boarding, canoe paddling, surfing, and kayaking. Contact our Concierge Desk or Beach Service Center for details.

The Concierge can help you plan all your activities Ext. 24. Many Daily Activities are complimentary for guests of Mauna Lani Bay Hotel. Activities with a fee are noted with an asterisk*. Activity information is also available on your in-room TV.

LAPULE ~ Sunday 07/01/12

8:30am **Gentle Beach Side Yoga** - Begin your day with a relaxing yoga class to strengthen muscles and calm your mind and body. No yoga experience required.*

9:00am **Tennis Clinic** - Avid tennis players USTA 3.5 and above are invited to participate in this fast paced clinic. Maximum 6 players. Please call for reservations 885-7755.*

10:00am **Guided Snorkel Adventure** - This dynamic hour long snorkel tour includes explorations of the surrounding reefs and channels that are home to a myriad of Hawaii's tropical sea life. Class size is limited. Sign up at the Beach Service Center.*

10:15am **Vinyasa Yoga** - Class begins with gentle stretches, and then becomes a continuous movement with the breath, weaving basic yoga poses together. Mindfully breathing and moving will leave you feeling wholly refreshed and energized. Meet at the Fitness Center.*

10:30am **Beach Combing Hawaiian Style** - Every wave reveals new treasures on the beach. Join us as we search for the gifts of the ocean. All ages are welcome. Meet at the Pool Desk ready to explore.

11:00am **Hawaiian Scavenger Hunt** - Learn the Hawaiian culture as you compete at discovering hidden treasures. This family activity is planned for children 5 years or older. Meet at the Pool Desk.

1:00pm **Watercolor Art Demonstration** - Island artists showcase their artistic talents at poolside. Private art classes available.*

6:30pm **Torch Lighting** - As the sun sets over the islands our Hawaiian torch lighting ceremony begins in the Atrium.

PO'AKAHI ~ Monday 07/02/12

8:00am **Spinning** - Enjoy this all level spinning class that will ignite your fitness level. Spin your way to a slimmer healthier body.*

8:30am **Gentle Beach Side Yoga** - Begin your day with a relaxing yoga class to strengthen muscles and calm your mind and body. No yoga experience required.*

9:00am **Tennis Clinic** - Avid tennis players USTA 3.5 and above are invited to participate in this fast paced clinic. Maximum 6 players. Please call for reservations 885-7755.*

9:10am **Shakti Pump** - High energy workout to upbeat music that focuses on Flexibility, Balance, Strength and Cardio endurance. You will find yoga, pilates, plyometrics, strength training and dance all in one action packed workout. Intermediate level class.*

10:00am **Ukulele Lessons** - Learn to play the instrument of Hawaii and you'll soon be strumming Hawaiian melodies like a Kama'aina. Recommended for ages 8-years old and older. Meet at the Cultural Center

10:00am **Snorkel 101** - Learn the basics of snorkeling with our trained beach staff. Sign up at the Beach Service Center.

10:00am **Aqua Fit** - Deep and shallow water moves that involve little or no impact. Bring goggles and start your day off with a splash! Meet at the Hotel Pool.

10:15am **Vinyasa Yoga** - Class begins with gentle stretches, and then becomes a continuous movement with the breath, weaving basic yoga poses together. Mindfully breathing and moving will leave you feeling wholly refreshed and energized. Meet at the Fitness Center.*

12:00pm **Watercolor Art Demonstration** - Island artists showcase their artistic talents at poolside. Private art classes available.*

12:30pm **Ti Leaf Lei-making** - Learn the art of creating a beautiful ti leaf lei. Children under 8 years need to be accompanied by an adult. Meet at the Cultural Center.

5:30pm **Spin & Sculpt** - A interval class that incorporates cardio bouts utilizing the spin bike and strength resistance training. 60 minutes.*

6:30pm **Torch Lighting** - As the sun sets over the islands our Hawaiian torch lighting ceremony begins in the Atrium.

PO'ALUA ~ Tuesday 07/03/12

8:00am **Pilates** - A muscle conditioning and flexibility program. Tones and corrects posture, and improves spinal alignment.*

8:30am **Gentle Beach Side Yoga** - Begin your day with a relaxing yoga class to strengthen muscles and calm your mind and body. No yoga experience required.*

9:00am **Tennis Clinic** - Avid tennis players USTA 3.5 and above are invited to participate in this fast paced clinic. Maximum 6 players. Please call for reservations 885-7755.*

9:00am **Spin & Sculpt** - A interval class that incorporates cardio bouts utilizing the spin bike and strength resistance training. 60 minutes.*

9:00am **Hawaiian Historic Tour** - Join us on a journey into Hawaii's past as we meander through ancient fishponds and discover petroglyphs. Meet at the Cultural Center for an adventure you won't want to miss

- 10:00am **Guided Snorkel Adventure** - This dynamic hour long snorkel tour includes explorations of the surrounding reefs and channels that are home to a myriad of Hawaii's tropical sea life. Class size is limited. Sign up at the Beach Service Center.*
- 10:15am **Body Alignment Yoga** - A yoga practice that focuses on the subtleties and alignment of postures. Props are used. All levels are welcome. Meet at the Fitness Center.*
- 10:30am **Fish Feeding Tour** - Learn about the sea life found in Mauna Lani's fishponds. Meet at the Bay Terrace Bridge.
- 12:00pm **Watercolor Art Demonstration** - Island artists showcase their artistic talents at poolside. Private art classes available.*
- 2:00pm **Coconut Husking** - Learn to husk a fresh coconut the way ancient Hawaiians once did. Meet at the Beach Service Center.
- 2:00pm **Honu Weigh-in** - Mauna Lani Lanai, Join us for the final weighing and measuring of the honu set to be released on the 4th.
- 2:30pm **Throw Net Fishing Demonstration** - This hands-on demonstration gives you the opportunity to test your skills at throw net fishing. Meet at the Eva Parker Woods Cottage.
- 4:00pm **Swim Workout** - A master oriented swim class. The class is designed to provide structured swim sets, guaranteed to elicit great target heart rate zoning training. Swim technique training included. Meet at the Fitness Club Lap Pool.*
- 5:00pm **Champagne Reception** - Enjoy champagne and view Hildgund's Hawaiian jewelry and gems of the world.
- 5:30pm **Body Sculpt** - An aerobic workout that integrates weights to get a full body workout. All levels welcome. Meet at the Fitness Center.*
- 6:30pm **Torch Lighting** - As the sun sets over the islands our Hawaiian torch lighting ceremony begins in the Atrium.

PO'AKOLU ~ Wednesday 07/04/12

"Happy Independence Day"

- 8:00am **Spinning** - Enjoy this all level spinning class that will ignite your fitness level. Spin your way to a slimmer healthier body. Meet at the Fitness Center.*
- 9:00am **Tennis Clinic** - Avid tennis players USTA 3.5 and above are invited to participate in this fast paced clinic. Maximum 6 players. Please call for reservations 885-7755.*
- 9:10am **Shakti Pump** - High energy workout to upbeat music that focuses on Flexibility, Balance, Strength and Cardio endurance. You will find yoga, pilates, plyometrics, strength training and dance all in one action packed workout. Intermediate level class.*
- 10:00am **Snorkel 101** - Learn the basics of snorkeling with our trained beach staff. Space is limited. Sign up at the Beach Service Center.
- 10:00am **Hula Lessons** - Everyone can learn the dance of the islands. This fun introduction to the art of hula is open to all ages. Meet at the Cultural Center.
- 10:00am **Aqua Fit** - Deep and shallow water moves that involve little or no impact. Bring goggles and start your day off with a splash! Meet at the Hotel Pool.
- 10:15am **Flow Yoga** - All levels yoga class integrating breathe and movement in a flow celebrating life as a moving meditation. Meet at the Fitness Center.*

- 10:00am **Turtle Independence Day Celebration, Beachfront** - Young honu (green sea turtles) nurtured in Mauna Lani ponds will be released into the wild. Come early! Actual release occurs at 10:30 am.
- 12:30pm **Arts and Crafts** - A fun class where you'll be using island materials. All ages welcome. Meet at Cultural Center.
- 12:30pm **Watercolor Art Demonstration** - Island artists showcase their artistic talents at poolside. Private art classes available.*
- 4:00pm **Mens & Womens Round Robin** - All levels welcome. Please call for reservations 885-7755.*
- 5:30pm **Vinyasa Yoga** - Class begins with gentle stretches, and then becomes a continuous movement with the breath, weaving basic yoga poses together. Mindfully breathing and moving will leave you feeling wholly refreshed and energized. Meet at the Fitness Center.*
- 6:30pm **Torch Lighting** - As the sun sets over the islands our Hawaiian torch lighting ceremony begins in the Atrium.

PO'AHA ~ Thursday 07/05/12

- 8:00am **Pilates** - A muscle conditioning and flexibility program. Tones and corrects posture, and improves spinal alignment.*
- 8:30am **Gentle Beach Side Yoga** - Begin your day with a relaxing yoga class to strengthen muscles and calm your mind and body. No yoga experience required.*
- 9:00am **Tennis Clinic** - Avid tennis players USTA 3.5 and above are invited to participate in this fast paced clinic. Maximum 6 players. Please call for reservations 885-7755.*
- 9:00am **Spinning** - Enjoy this all level spinning class that will ignite your fitness level. Spin your way to a slimmer healthier body. Meet at the Fitness Center.*
- 9:00am **Hawaiian Historic Tour** - Join us on a journey into Hawaii's past as we meander through ancient fishponds and discover petroglyphs. Meet at the Cultural Center for an adventure you won't want to miss
- 10:00am **Guided Snorkel Adventure** - This dynamic hour long snorkel tour includes explorations of the surrounding reefs and channels that are home to a myriad of Hawaii's tropical sea life. Class size is limited. Sign up at the Beach Service Center.*
- 10:00am **Coconut Frond Weaving Class** - Learn the art of weaving freshly cut coconut palm leaves in this hands-on class. All ages welcome. Meet at the Cultural Center.
- 10:00am **Womens Round Robin** - All levels welcome. Please call for reservations 885-7755.*
- 10:15am **Body Alignment Yoga** - A yoga practice that focuses on the subtleties and alignment of postures. Props are used. All levels are welcome. Meet at the Fitness Center.*
- 10:30am **Fish Feeding Tour** - Learn about the sea life found in Mauna Lani's fishponds. Meet at the Bay Terrace Bridge.
- 12:30pm **Watercolor Art Demonstration** - Island artists showcase their artistic talents at poolside. Private art classes available. *
- 2:30pm **Tales of Old Hawaii** - Listen closely as secret legends and stories of Hawaii come alive with Hawaiian Historian Danny Akaka. Meet at the beachside Eva Parker Woods Cottage.
- 4:00pm **Swim Workout** - A master oriented swim class. The class is designed to provide structured swim sets, guaranteed to elicit great target heart rate zoning training. Swim technique training included. Meet at the Fitness Club Lap Pool.*

TS

MONTHLY DATA ON TURTLES

DATE: 4/25/2012

Technicians Henry Nitura, Pi'i Laaha

SHELL#	location	PIT tag left hind	PIT tag right hind	WEIGHT (lbs)	SCL (cm)	observations
91	Honu	4A1561727F	4A7B7A2C53	34.8	47.3	mouth clean
92	Honu	4A7C03585B	4A450A0A10	34.9	45.6	mouth clean
94	Honu	4524021352	45224D205A	39.6	48.8	mouth clean
81	Honu	442C57245D	0943	18.9	37.2	1 spot on tip of tongue
83	Honu	442F5D5D1F	130F	24.2	41.4	mouth clean
84	Honu	48515D430D	1448	16.7	37.7	mouth clean
85	Honu	4850604A38	0525	21.8	39.8	mouth clean
86	Honu	48564C3607	165D	20.6	38.9	mouth clean
11	Atrium	4414362C26	4856496E23	5.6	25.3	mouth clean
12	Atrium	4413010B63	44145E7F17	6.2	26.0	1 spot on left side of tongue
13	Atrium	4413155176	4413064C68	6.2	26.3	mouth clean
14	Atrium	483A0C4327	4852053C0B	5.8	25.2	1 spot on tip of tongue
15	Atrium	4414073471	4413262B08	4.9	23.9	mouth clean

* missing tag

NEW TAGS 6/8/12

81 4C3D210843

83 4C3B3A130F
4C3C591448

85 4C3B5E0525

86 4C3B3C165D

PLAN ON RELEASING 6 TURTLES

91
92
94
83
85
86

KAHAWAII HAWKSEILL TRANSECTS

Transect	Date	Location	Start	End	Mins	Hrs	Snorkelers	Viz (ft)	area covered	# of 'ea
1	10.03.13	Kahekili	12:50	13:50	1:00	1.0	CKing, Don, John, Karen	60-100	scratching post to last building to N.	1
2	10.03.13	Mala	16:00	17:00	1:00	1.0	CKing & Don	30-70	S. of point & pipe to past pier	1
3	10.03.26	Mala	11:14	13:10	1:56	2.0	CKing & Don	30-60	end of Baby Beach to past pier	0
4	10.03.27	Kahekili	11:00	12:40	1:40	1.5	CKing, Don, Tracy & Jean	40-80	to pink Resort Point & back	0
5	10.04.04	Mala	10:47	12:30	1:43	1.5	CKing & Don	20-50	past pipe to past pier	1
6	10.04.18	Mala	11:24	12:30	1:06	1.0	CKing & Don	20-60	end of Baby Beach to past pier	3
7	10.05.04	Maluaka&Oneuli	13:10	15:40	2:30	2.5	CKing, Jake & Anita	30-80	to Oneuli Pt & back	1
8	10.05.10	Dumps	13:30	15:25	1:55	2.0	CKing, Jake & Anita	30-70	to Ahihi N. boundary & back	0
9	10.05.14	Maluaka	12:00	1:00	1:00	1.0	CKing, Anita, Steve, Esten, GB	15-20	to N. of golf course point & back	1
10	10.05.16	Turtle Canyon	12:04	13:10	1:06	1.0	CKing & Don	20-60	Honokeana Cove to Canyon & back	0
11	10.05.19	Maluaka&Oneuli	14:44	17:04	2:20	2.5	CKing & Jake, Anita left	50-70	to Oneuli Point & back	1
12	10.05.22	Maluaka	10:19	12:03	1:44	2.0	CKing & Anita	30-50	around golf course point & Mak Landing	0
13	10.05.23	Dumps	9:20	11:05	1:45	2.0	CKing, Anita & Sorin	20-70	to Ahihi N. boundary & to S. Point & back	0
14	10.05.23	Maluaka	11:48	12:40	0:52	1.0	CKing	20-60	'Oli's sites & to golf course point	0
15	10.05.29	Mala	11:30	13:11	1:41	1.5	CKing, Don, Jake, & Mark	40-90	past pipe to past pier	0
16	10.06.05	Dumps	9:44	11:14	1:30	1.5	CKing & Anita	60-100	to Ahihi N. boundary & back	0
17	10.06.05	Oneuli	12:05	13:07	1:02	1.0	CKing & Anita	30-70	off of p.lot & out to point	1
18	10.06.06	Mala	11:08	12:41	1:33	1.5	CKing & Don	60-100	past pipe to past pier	1
19	10.06.11	Maluaka&Oneuli	9:26	11:21	1:55	2.0	CKing & Anita	30-80	to Oneuli Point & back	0
20	10.06.11	Dumps	12:20	13:14	0:54	1.0	CKing & Anita	40-80	to Ahihi Cove & back	0
21	10.06.12	Mala	10:47	12:01	1:14	1.0	CKing & Don	40-70	past pipe to past pier	0
22	10.06.12	Kahekili	12:56	13:56	1:00	1.0	CKing & Don	60-100	to last Westin building & end of S.reef	0
23	10.06.13	Maluaka&Oneuli	9:05	11:06	2:01	2.0	CKing & Anita	50-90	to Oneuli Point & back	1
24	10.06.13	Dumps	11:47	12:47	1:00	1.0	CKing	50-70	to 'Ahihi Bay & back	0
25	10.06.16	Oneuli	7:53	9:03	1:10	1.0	CKing, Anita & Kim	60-90	to golf course point & thorough circles	0
26	10.06.16	Maluaka	9:28	10:38	1:10	1.0	CKing, Anita & Kim	60-80	to golf course point & thorough circles	0
27	10.06.18	Mala	11:07	12:20	1:13	1.0	CKing, Don, Jake, & Itana	50-70	past pipe to past pier	0
28	10.06.18	Kahekili	13:11	14:22	1:11	1.0	CKing, Don, Jake, & Itana	60-100	to last Westin building & end of S.reef	0

39.5 hrs

totals: 12

# of honu	honu details (noteworthy)	PIX		Comments
		CK	other	
1	small	N	Don	GoPro cam not working :(
4	all large: 3 m & 1 f	Y	Don	Lilia
9	assorted sizes	Y	Don	fresh water so made viz weird
4	assorted sizes	Y	Don	reef best off Westin, patchy to point
8	assorted sizes	Y	Don	Lilia
10	assorted sizes	Y	Don	Record 'ea day at Mala!!!
3	assorted sizes	Y	Anita	CK checked 'Oli's lump
0	none	Y	Anita	looked for 'ea & hooked honu
2	small	Y	Anita	'Oli capture & ship to O'ahu
100	tagged, hooked, bent fl	Y	Don	So many honu! Canon leaked :(
5	assorted sizes	Y	Anita	'Oli release (but only saw Hope)
7	1 bad FP, all sizes	Y	Anita	REEF folks also looked
6	fishing line	Y	Anita	lines from mouth to left front flipper
0	none	Y	no	solo
4	smallish	N	no	Canon #2 leaked :(
7	CK cut fishing line	Y	Anita	flipper wrapped but not connected to mouth
0	none	Y	Anita	Hope
8	assorted sizes	Y	Don?	Probably Lilia 2x (white spot) but no pix 1x
14	none off Oneuli	Y	Anita	heaps of boats and snorkelers
9	fishing line	Y	Anita	line still around flipper, cutting in
15	all deep; 1 bad FP	Y	Don	zig-zag (shallow-deep) search
0	n/a	Y	Don	amberjack, heller's baracuda, croc
4	none off Oneuli	Y	Anita	Hope / 'C' off golf course pt / lifeguard
7	all small-medium	Y	no	spotted eagle ray feeding on pencil urchin
4	all small-medium	Y	Anita	old transmittered turtle
11	assorted sizes	Y	Anita	heaps of boats and snorkelers
4	assorted sizes	Y	Jake	hooked spotted eagle ray with line
1	large male	Y	Jake	strong northern current

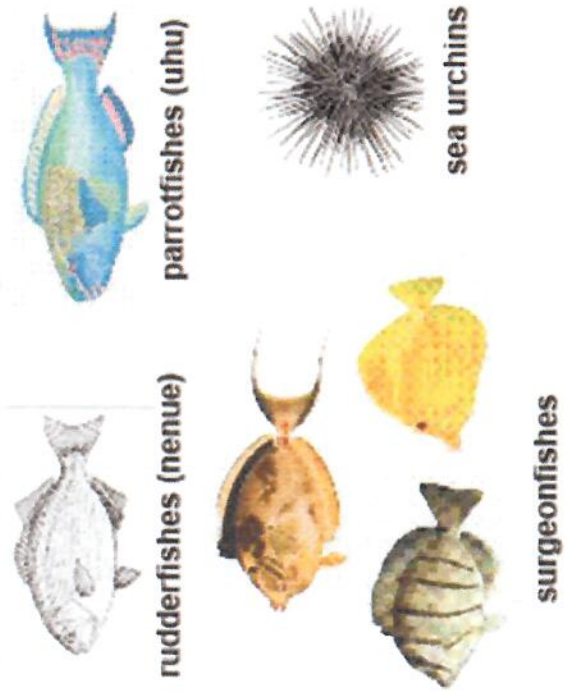
Kahekili Herbivore Enhancement Area Ka'anapali, Maui



Kahekili Herbivore Fisheries Management Area (KHfMA)

Permitted: To fish for, injure, kill, possess, or remove any finfish or invertebrate, except prohibited species indicated below. To use bait or other attractants while fishing for permitted marine life.

Prohibited: To injure, kill, possess, or remove any of the following:



Also Prohibited: To feed or deliberately introduce any attractant, directly to or in the vicinity of any marine life, except while fishing for permitted marine life.



State of Hawaii 2005. Department of Land and Natural Resources
Division of Aquatic Resources. Map Prepared by Daria White
E-mail: DJM@DLNR.Hawaii.gov. Source: NOAA, State of Hawaii, and NOAA

MOC BOOK

Hawaiian Green Sea Turtle Educational Loan Program



Hawaiian Green Sea Turtle Educational Loan Program

The sea turtles at Maui Ocean Center are part of the Hawaiian Green Sea Turtle Educational Loan Program, conducted under the supervision of National Marine Fisheries Service (NMFS). This program is specifically designed as an educational outreach program geared towards education, conservation, and the enhancement of the public's awareness of the ocean and its inhabitants.

The turtles are hatched at Sea Life Park Hawaii on Oahu then brought to Maui Ocean Center where they live until they are ready to be released. Sea Life Park Hawaii is home to a colony of adult Hawaiian green sea turtles which has produced approximately 200 to 800 hatchlings each year, all of which are released into the wild. Some of these turtles, like the ones at Maui Ocean Center, and those kept at Sea Life Park Hawaii or other collaborating institutions, are released at a later age to provide an educational learning opportunity for those that visit these institutions, as part of the Hawaiian Green Sea Turtle Educational Loan Program.

When the hatchlings reach the ages of two to three years, under the authority and approval of NMFS, they are released into Hawaiian waters at a location approved by the agency. Sea Life Park Hawaii replaces those turtles released with new hatchlings in order to maintain each facility's educational display program.



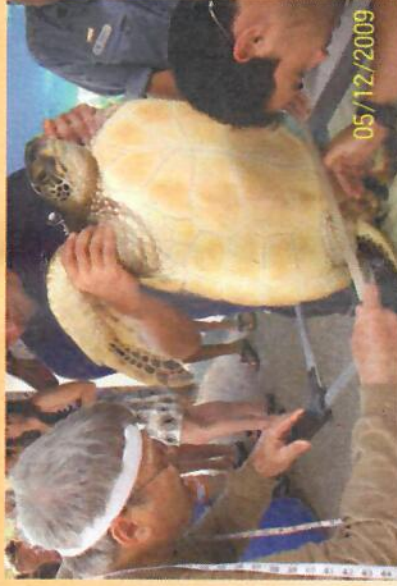
Pre-Release Checkup

Before the turtles can be released to the ocean, they must receive a clean bill of health from a Sea Life Park Hawaii staff veterinarian. This includes a final weigh-in, checking for oral lesions and tumors, measurements, and a blood sample. The turtles are also re-dremeled and re-numbered for identification.

Below are photos taken at the pre-release checkup in May 2009.



Dr. Gregg Levine checking for oral lesions and tumors.



Marine scientist George Balazs taking width measurement.



Turtle 3M being re-dremeled.



Tracking the Turtles

All of the turtles released by Maui Ocean Center are outfitted with Passive Integrated Transponder (PIT) tags implanted in both rear flippers. The tags contain an electro-magnetic code. Using hand-held scanners, researchers are able to identify PIT-tagged turtles. When the turtles return to land, the PIT tags will allow National Marine Fisheries Service and researchers to identify them as the turtles released from Maui Ocean Center. In addition, the turtles are marked with white letters and/or numbers on their shells.

Maui residents and visitors are urged to keep an eye out for these turtles.

If you encounter one, please note the time and location, and contact Maui Ocean Center at (808) 270-7000 to help with tracking the turtles.



Dr. Beth Doescher implanting a PIT tag into a turtle's rear flipper.



PIT tags are small microchips about the size of a grain of rice.

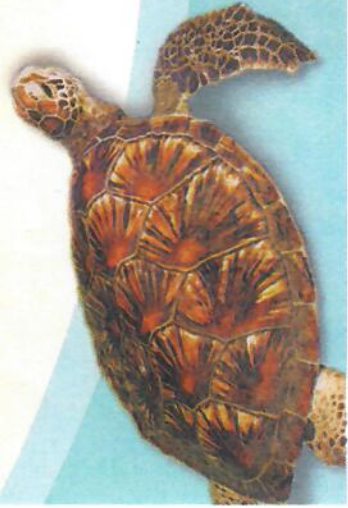


Satellite Tracking

Another way to track the sea turtles after they are released to the open ocean is by satellite transmitter. In past years, marine scientist George Balazs with the National Marine Fisheries Service, has outfitted several turtles released by Maui Ocean Center with satellite transmitters, allowing scientists to track their movements.

In August 2006, turtles #4, Maile, and #7, Kimo, were outfitted with satellite transmitters. One previous turtle, Nakine, was released in March 2003 with a satellite transmitter attached to its shell. Nakine was tracked swimming south of the southernmost point of the Big Island of Hawaii and up to the North Shore of Oahu, where the transmitter continued to send signals from for several months.

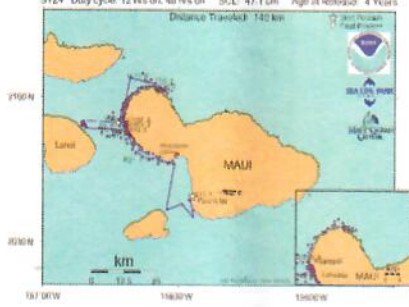
The following maps track the movements of four turtles released by Maui Ocean Center from 2003 to 2006.



FINAL MAP
2006-2007 Movement of SLP hatchling MOC captive-reared green turtle 50139. Male
released near Ahehi Kona, Maui. Age at Release: 3 Years
SI-24 Day cycle: 1248 SCI: 44.6 cm Date Deployed: 8/19/06
Days Transiting: 289 days Distance Traveled: 60 km

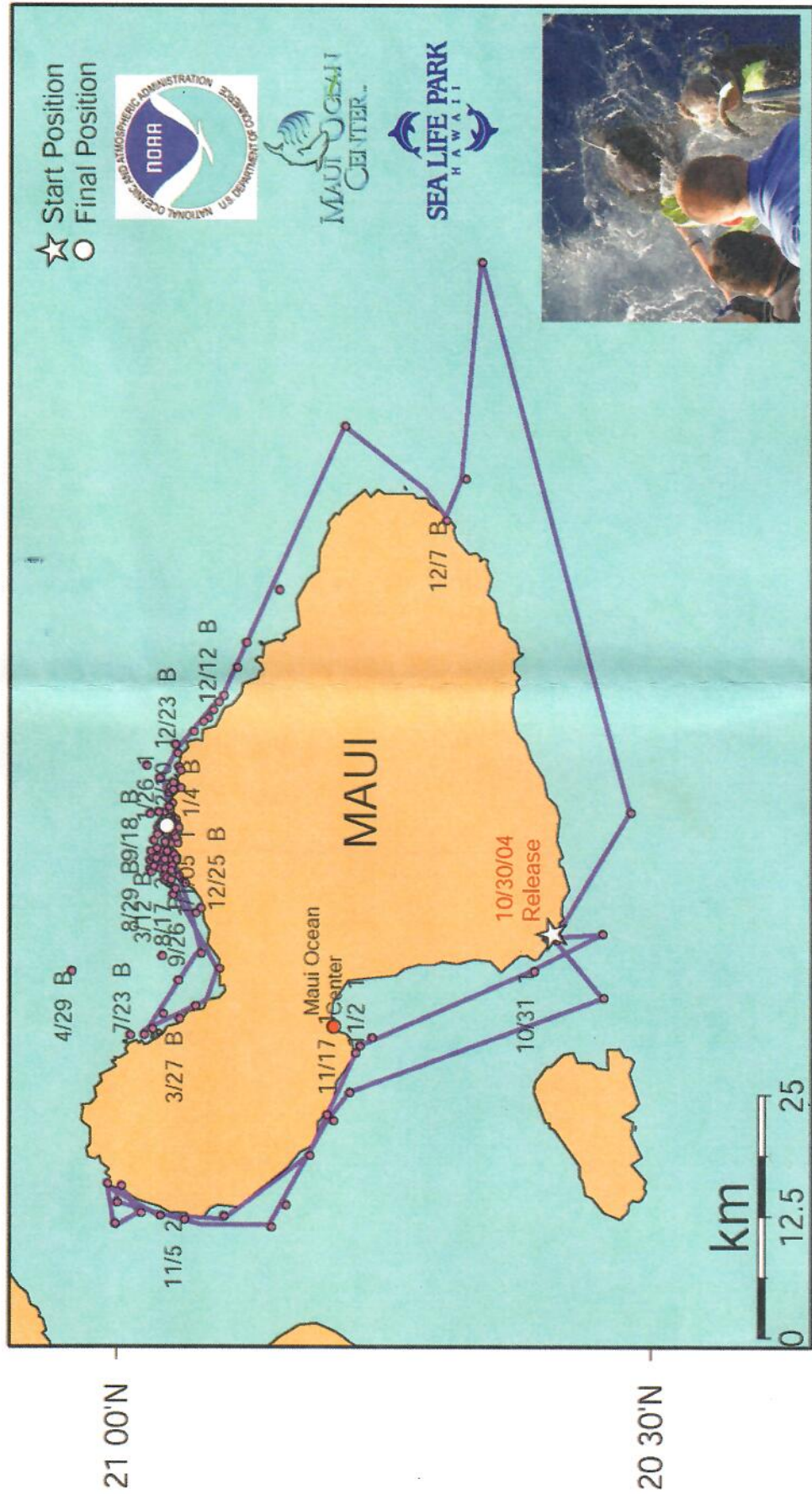


18941 MAP
2006-2007 Movement of S1 P hatchery MOC cagles reared green turtle 22837 King
Released near Pulo a Lak, Maui Data Deployed: 07/03/06 Days Transiting: 2.06 days
ST24 Duty cycle: 12 hrs on, 48 hrs off - SCL: 47.1 km Age at Release: 4 Years



FINAL Map:

2004-2005 Movement of SLP hatched, MOC captive-reared Green turtle 22279, KupuAloha
 ST-24 Duty cycle: 12 hrs on, 48 hrs off SCL: 56.8 cm Age at Release: 4 Years
 Date Deployed: 10/30/04 Days to last Transmission: 331 days
 Distance Traveled: 407 km Mean Speed of Travel: 0.3 km/hr



156 30'W 156 00'W 155 30'W

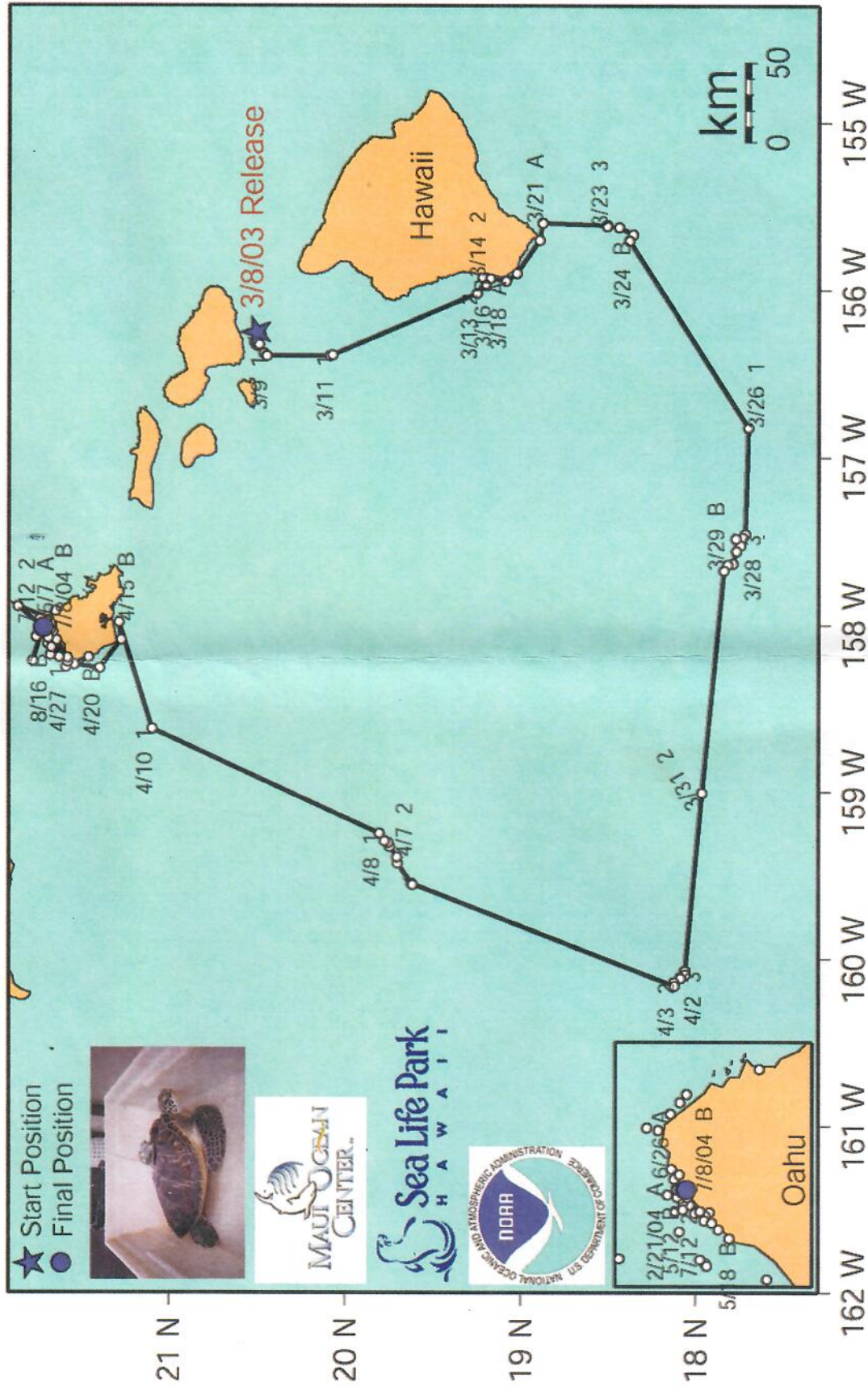
Final Map:

2003-2004 Movement of juvenile Sea Life Park captive-hatched green turtle, Nakine reared and released from Maui Ocean Center March 8, 2003, Argos 19603

Hatched September 2000, Age at Release 2.5 years

ST-19 Duty cycle: 12 hrs on, 48 hrs off SCL: 46.2 cm Days Transmitting: 488 days

Distance Traveled: 1418 km Mean Speed of Travel: 1.1 km/hr



Date: Wed, 25 Aug 2010 15:55:04 -1000
From: John Gorman <jgorman@mauiocenter.com>
To: George H. Balazs <gbalazs@honlab.nmfs.hawaii.edu>
Subject: MOC Turtle Release August 25, 2010

SLP captive
of MOC

-->

Hey George!

The turtle release was a success! We went to two sites and provided below is the corresponding information:

1) N 20° 39.326 Local name: Five Graves

W 156° 26.932 Time: 9:43am

Turtles A, B, and F were released at this location at a depth of 62 feet

2) N 20° 38.553 Local name: Puolai

W 156° 27.065 Time: 10:00am

Turtles C, D, and E were released at this location at a depth of 54 feet

MOC
[Signature]

MOC Turtle Measurements

Date: 8/12/2010

Turtle	Weight (lb)	SCL (cm)	SCW (cm)	CCL (cm)	CCW (cm)	Comments
A	28.5	44.9	36	47.2	41.5	Pit tags inserted: LH 48413A6E5E RH 48582D6554
						Little nick on plastron and bites on head, tail, and hind flippers
B	33.4	46.8	38	49.7	43	Pit tags inserted: LH 4607626424 RH 46073A364D Old tag present on rt front flipper #WH40 small bite on left tip of tail.
C	29.4	44.8	35.8	47	40.3	Pit tags inserted: LH 46075A3302 RH 46074A6D01 Bites on left & right side of neck
D	29.7	46.7	35.5	48.9	40.3	Pit tags inserted: LH 4851446B67 RH 482F763965 Small bite on right hind flipper, right front flipper, and left & center of neck
E	26.7	44.3	35.8	46.3	40.1	Pit tags inserted: LH 46072C7633 RH 4608006E02
						Little bites all over neck, small bite on right hind flipper & right front flipper
F	31	46.2	36.7	48.2	41.7	Pit tags inserted: LH 483951501F RH 4608126904 bites on right and center of neck and right front flipper

Notes Turtles A-F were released 8/25/2010 at 2 sites. Below is the location:

- 1) Location: 5 Graves Coordinates: N 20°39.326 W 156°26.932 Depth:62ft Time:9:43am (Turtles A,B,F)
- 2) Location: Puoalai Coordinates: N 20°38.553 W 156°27.065 Depth:54ft Time:10:00am (Turtles C,D,E)

MOC Turtle Measurements

		Weight	SCL	SCW	CCL	CCW	
Turtle	Date	(lbs)	(cm)	(cm)	(cm)	(cm)	Comments
	8/5/2010	6.7	27.8	21.7	29.2	25.1	bite under right front flipper
							healing
1	8/12/2010	6.7	28	22	29.4	25.3	pit tagged LH 46080D217F
							RH 4601766833
							no bites; no tag
	8/19/2010	6.9	28.4	22.4	29.9	25.7	indentation on left & right hind flipper
							where pit tags were inserted, no
							redness; applied antibiotic ointment
	8/26/2010	7.3	28.6	22.4	30.2	25.8	pit tag injection area healing
	8/5/2010	8.1	29.5	23.7	31.4	26.9	bite below left eye; other bites
							healed
	8/12/2010	8.1	29.6	23.8	31.4	27	pit tagged LH 46077F630A
							RH 46071B6370
2							still has flipper tag YW 33
							bite on right front flipper; bites on
							rear shell, sm bite on left front flipper
	8/19/2010	8.4	30.2	24.2	32	27.7	indentation on hind flippers where pit
							tag inserted applied antibiotic ointment
	8/26/2010	9	30.5	24.4	32.5	27.9	pit tag injection area healing
	8/5/2010	7.9	28.4	23.1	30.3	26.6	bite on left rear flipper healed
	8/12/2010	7.7	28.7	23.5	30.4	26.8	LH 46016F0337
							RH 4602591750
3							no bites; no tag
	8/19/2010	8.2	28.9	23.6	30.6	27	indentation on hind flippers where pit tag
							inserted; applied antibiotic ointment
	8/26/2010	9.1	29.3	23.9	31.3	27.4	injection area healing
	8/5/2010	8.4	29.5	24.5	30	27.6	bite on tail
	8/12/2010	8.5	29.9	24.6	31.4	27.8	LH 4607550806
4							RH 4602006C4B
							no tag; bite on tail
	8/19/2010	8.9	30.1	24.8	31.7	27.9	indentation on hind flippers where pit tag
							inserted; applied antibiotic ointment

	8/26/2010	9	30.4	25	32.2	28.3	injection area healing
	8/5/2010	7	27.2	22.3	28.6	25.3	healing bites on head; bite on right rear flipper
5	8/12/2010	7	27.6	22.7	29.2	25.6	LH 4607440D47
							RH 4608155C3F
							no bites; no tag
	8/19/2010	7.4	27.9	33	29.3	25.8	indentation on hind flippers where pit tag inserted; applied antibiotic ointment
	8/26/2010	7.7	28	23.2	29.7	26.2	injection area healing; bite on underside of head

NOTE: 8/12 All turtles examed and pit tagged in left & right hind flippers by Dr. Beth

NEWS RELEASE -- FINAL

PLEASE DO NOT RELEASE UNTIL 8/26/10 WITH PERMISSION FROM MAUI OCEAN CENTER

Contact: Kelsey Daimon

Marketing and Public Relations Coordinator

Telephone: 808.270.7084

Facsimile: 808.270.7070

Email: kelsey@mauiocceancenter.com

Maui Ocean Center Releases Six Green Sea Turtles

August 25, 2010—MA'ALAEA, MAUI, HI - Maui Ocean Center released six juvenile green sea turtles into the ocean the morning of Wednesday, August 25 during a special release voyage aboard Pacific Whale Foundation's vessel Ocean Intrigue. Many of the aquarium's employees and volunteers, who have spent two years feeding, cleaning and caring for the *honu*, were joined by Pacific Whale Foundation staff to witness the turtles' introduction into the open ocean. Through an ongoing field science educational partnership program that Pacific Whale Foundation conducts with Kihei Charter School, 25 middle school students were also onboard as observers.

"We have given these turtles the best of care and they are very healthy and ready for a life in the open ocean," said John Gorman, Curator at Maui Ocean Center. According to Gorman, the turtles weigh around 30 pounds each and are two years old. They were transported to the ocean area off South Maui aboard Ocean Intrigue and were released near Five Graves and Pu'u Olai.

The release was made possible with the help of the Pacific Whale Foundation, which generously donated the use of their crew and vessel, and Maui Oil Company which donated 36 gallons of diesel fuel.

"This is our third year of donating our vessel for the sea turtle release program," said Tracy Jones, Executive Director at Pacific Whale Foundation. "As an organization that has worked hard to help protect turtles and their ocean home, we are very pleased to help introduce these turtles into their wild ocean habitat."

Maui Ocean Center's Hawaiian cultural advisor *Kahu* Charles Kauluwehi Maxwell, Sr. performed a traditional blessing for each turtle before it was released to the ocean.

"In Hawaiian culture, green sea turtles are considered *na 'aumakua*, a family's ancestral god or deity that takes the form of an animal," says Kate Zolezzi, General Manager at Maui Ocean Center. "In respect for the island's host culture and the marine animals displayed at the aquarium, we are honored to have Maxwell present for the introduction or release of animals at Maui Ocean Center."

For the students from Kihei Charter School, the turtle release was an exciting way to kick-off the start of an intensive at-sea learning program with Pacific Whale Foundation. The students will be participating in 21 learning days on the ocean between September and May, traveling aboard Pacific Whale Foundation's boats and learning nautical skills and marine research techniques.

During the release, the students and other attendees heard a short presentation about the turtles by John Gorman and also learned about the natural history of the area from Pacific Whale Foundation marine naturalist Morgan Smith.

Hawaiian Green Sea Turtle Educational Loan Program

The sea turtles are part of the Hawaiian Green Sea Turtle Educational Loan Program, conducted under the supervision of National Marine Fisheries Service (NMFS). This program is specifically designed as an educational outreach program geared towards education, conservation, and the enhancement of the public's awareness of the oceans and its inhabitants.

The turtles were hatched at Sea Life Park Hawaii on Oahu and have lived at Maui Ocean Center since August 2008. Sea Life Park Hawaii is home to a colony of adult Hawaiian green sea turtles which has produced approximately 200 to 800 hatchlings each year, all of which are released into the wild. Some of these turtles, like the ones at Maui Ocean Center, and those kept at Sea Life Park Hawaii or other collaborating institutions, are released at a later age to provide an educational opportunity for those that visit these institutions, as part of the Hawaiian Green Sea Turtle Educational Loan Program.

When the hatchlings reach the ages of two to three years, under the authority and approval of NMFS, they are released into Hawaiian waters at a location approved by the agency. Sea Life Park Hawaii replaces those turtles released with new hatchlings in order to maintain each facility's educational display program.

Each of the six turtles released by Maui Ocean Center was outfitted with Passive Integrated Transponder (PIT) tags implanted in both rear flippers. The tags, small microchips about the size of a grain of rice, contain an electromagnetic code. Using hand-held scanners, researchers are able to identify PIT-tagged turtles. When the turtles return to land, the PIT tags will allow NMFS and researchers to identify them as the turtles released from Maui Ocean Center.

In addition, the turtles are marked with white letters, A through F, on their shells. Maui residents and visitors are urged to keep an eye out for these turtles. If you encounter one, please note the time and location, and contact Maui Ocean Center at (808) 270-7000 to help with tracking the turtles.

Maui Ocean Center

Maui Ocean Center displays live coral and Hawaiian marine life in over 60 vibrant exhibits. Twenty-five percent of the animals found at Maui Ocean Center are endemic, meaning they are found nowhere else in the world. In addition to daily marine life presentations given by ocean naturalists, Maui Ocean Center highlights specific marine species with enhanced presentations, special guest talks, hands-on activities, upgradeable behind the scenes tours and more each month. Throughout August, Maui Ocean Center celebrates "Sea Turtle Mania" with interactive events that allow guests to experience green sea turtles up close and personal with the opportunity to learn about the biology, behavior and diet of these amazing creatures. Program details can be found at www.mauioceancenter.com.

Pacific Whale Foundation

Celebrating its 30th anniversary this year, Pacific Whale Foundation is a nonprofit organization dedicated to protecting whales, dolphins and the ocean environment through research, education and conservation programs. Sea turtles are viewed on many of Pacific Whale Foundation's Eco-Adventures, which include snorkel cruises to Molokini, wild dolphin watch cruises, whalewatches and sunset cruises. Pacific Whale Foundation also publishes a color guide to Hawaii's sea turtles, which can be obtained free at Pacific Whale Foundation's Ocean Discovery Stores at 612 Front Street in Lahaina or at the Ma'alaea Harbor Shops, next to Maui Ocean Center. To learn more, visit www.pacificwhale.org or call (808) 249-8811.

The mission of Maui Ocean Center is to foster understanding, wonder and respect for Hawaii's marine life. This state-of-the-art aquarium was named the Top Rated Attraction in Hawaii by the Zagat Survey in U.S. Family Travel Guide, a Leader In Responsible Tourism on the Top 100 Blue List by Islands Magazine, and Best Value Family Attraction in Maui in Up! Magazine. Open daily from 9 to 5, and from 9 to 6 in July and August. For more information contact the Maui Ocean Center: 192 Ma'alaea Road; Ma'alaea, HI 96793; telephone (808) 270-7000, facsimile (808) 270-7070, email info@mauioceancenter.com or visit www.mauioceancenter.com.

#



Holomua na Honu
Pre-release meeting
Wednesday, August 3, 2011

Arrival of turtles

- Access and transport to beach
- Back-up in the event of large surf

General layout of area

Crowd control

- Turtles
- Humans

① Magnets
② Fishing Stickers

Outreach/information tables

- Who is coming
- Equipment (tents/tables)

Review of schedule

Filming, Media, and Public Relations

List of vehicles

- Send to Lori by Monday, August 15
- Other parking arrangements/price for parking

Refreshments



Holomua na Honu

Release of five-2 year old sea turtles

Ka'anapali Beach fronting Ka'anapali Beach Hotel

Thursday, August 25

9:00am-11:00am – release at 10:30am

9:00am-11:00am

Educational/Informational Stations

Hawai'i Wildlife Fund

Hawaiian Islands Humpback Whale National Marine Sanctuary

U.S. Fish and Wildlife Service

Department of Land and Natural Resources

Project S.E.A.-Link

Ka'anapali Beach Hotel

Maui Ocean Center

9:00am

Welcome

Introduction of VIP's and dignitaries

9:15am-10:15am

Guest Speakers (approximate times)

9:15am Cheryl King, Hawai'i Wildlife Fund

9:45am Skippy Hau, DLNR

10:00am Peter Bennett, Researcher/Author

10:15am George Balazs, National Marine Fisheries Service

Turtle Encounter with MOC Curatorial Staff

10:30am

Hawaiian blessing and ceremony prior to release

Uncle Charlie

Release of Turtles

Measurements and weights taken, possibility of 1 with satellite transmitter

Holomua na Honu

Share with Maui Ocean Center in saying Aloha to the Honu

Five juvenile green sea turtles will soon meet the open ocean. For two years the Honu have served as ambassadors of their species, helping to educate the public on the Hawaiian green sea turtle under the care of the staff at Maui Ocean Center through Sea Life Park Hawaii's hatch-and-release program authorized by National Marine Fisheries Service. Now they are ready to *holomua* (progress) and continue life in the wild.

Maui Ocean Center invites you to join us in witnessing this joyous occasion as a special guest.

Thursday, August 25

Beach fronting Ka'anapali Beach Hotel
9:00-11:00 a.m.

Presentations by local biologists, researchers and community members, informational booths, close-up Honu encounter, and traditional Hawaiian blessing of the Honu to precede the turtles' release.

RSVP by August 11 to Lori Mellenbruch
(808) 270-7083 or lorim@mauiocceancenter.com





Contact: Kelsey Daimon
Marketing and Public Relations Coordinator
Telephone: 808.270.7084
Facsimile: 808.270.7070
Email: kelsey@mauiocenter.com

Holomua na Honu Maui Ocean Center Releases Five Green Sea Turtles

August 13, 2012—MA'ALAEA, MAUI, HI - Maui Ocean Center will release five juvenile green sea turtles, *honu*, into the ocean the morning of Thursday, August 23, 2012 at 10:30 a.m. from the south shore fronting Grand Wailea, A Waldorf Astoria Resort. Many of the Aquarium's employees, who have spent two years feeding, cleaning and caring for the *honu*, will be joined by staff of the Department of Land and Natural Resources-Division of Aquatic Resources, the U.S. Fish and Wildlife Service, the NOAA Pacific Islands Fisheries Science Center, and the Grand Wailea to witness the turtles' introduction into the open ocean.

"Maui Ocean Center has been a part of Sea Life Park Hawaii's Hawaiian Green Sea Turtle Educational Loan Program since we opened in 1998. Through this extraordinary program we have released forty-two turtles over the past fourteen years and once again, these two year old turtles are ready for life in the open ocean" said John Gorman, Curator at Maui Ocean Center. "This is our second release from shore and following the very successful shore release last year on the west side, we are pleased to share this exciting event with the community and visitors." According to Gorman, the turtles weigh around 19-27 pounds each.

The event begins at 9:00 a.m. with festivities and educational opportunities included presentations by prominent local marine biologists, researchers and community members, informational booths, a turtle encounter, a blessing of the turtles and live music. Presentations by Cheryl King of the Hawksbill Recovery Project, Glynnis Nakai of the U.S. Fish and Wildlife Service Patrol volunteer program, and Donna Brown of the Marine Option Program Turtle Stranding Network with topics including nesting programs, current research, and the Hawksbill Recovery Project. Several organizations will be on hand to share information and answer questions including the Hawksbill Recovery Project, Hawaiian Islands Humpback Whale National Marine Sanctuary, U.S. Fish and Wildlife Service, Department of Land and Natural Resources-Division of Aquatic Resources, UH-Maui College Marine Option Program, Grand Wailea, and Maui Ocean Center. A highlight of the morning will be the chance to experience an up-close and personal encounter with the *honu* and Maui Ocean Center's Curatorial staff. At 10:30 a.m., the *honu* will each receive a blessing by Kahu Dane Maxwell, Maui Ocean Center's Hawaiian Cultural Advisor, prior to being released to the ocean. Immediately following the release, enjoy live music and hula by Kalani Smythe.

"In Hawaiian culture, green sea turtles are one of several species considered na 'aumakua, a family's ancestral god or deity that takes the form of an animal. The remarkable history of the Hawaiian people and their profound connection to the sea is at the heart of who we are at Maui Ocean Center." says Kate Zolezzi, the Aquarium's

General Manager. "In respect for our island's host culture and the marine animals displayed at the Aquarium, we are honored to have Kahu Dane present for the introduction or release of animals at Maui Ocean Center."

Including the turtles released during Holomua na Honu 2012, a total of forty-two turtles have been released by Maui Ocean Center through Sea Life Park Hawaii's Hawaiian Green Sea Turtle Educational Loan Program. Shortly after the turtles arrived at the Aquarium and their unique personalities began to stand out, a turtle naming contest was held. Each turtle was appropriately named; 1. Lalama (fearless), 2. Kilakila (majestic), 3. Luana (to be at leisure/relaxed), 4. Hoku (star), and 5. Loli'i (relaxed/at ease). The turtles will be marked in white with "MOC" and the numbers 1 through 5 on their shells. Maui residents and visitors are urged to keep an eye out for these turtles. If you encounter one, please note the day, time and location, and contact Maui Ocean Center at (808) 270-7000 or info@mauiocenter.com to help with tracking the turtles.

The shore release is made possible with the dedicated and generous assistance of the NOAA Pacific Islands Fisheries Science Center, Sea Life Park Hawaii, U.S. Fish and Wildlife Service, the Department of Land and Natural Resources, Grand Wailea, other organizations participating in the event, and many more.

The event is complimentary and open to the public. A special event parking rate of \$5.00 is available at Grand Wailea with validation. Validation is available at Maui Ocean Center's information table at the event. For more information call (808) 270-7000 or visit www.mauiocenter.com.

Hawaiian Green Sea Turtle Educational Loan Program

In partnership with Sea Life Park Hawaii, the sea turtles are part of the Hawaiian Green Sea Turtle Educational Loan Program, authorized by the U.S. Fish and Wildlife Service and conducted under the scientific supervision of National Marine Fisheries Service-Pacific Islands Fisheries Science Center. This program is specifically designed as an educational outreach program geared towards education, conservation, and the enhancement of the public's awareness of the oceans and its inhabitants.

The turtles were hatched at Sea Life Park Hawaii on Oahu and have lived at Maui Ocean Center since August 2010. Sea Life Park Hawaii is home to a colony of adult Hawaiian green sea turtles which has produced approximately 200 to 800 hatchlings each year, all of which are released into the wild. Some of these turtles, like the ones at Maui Ocean Center, and those kept at Sea Life Park Hawaii or other collaborating institutions, are released at a later age to provide an educational opportunity for those that visit these institutions, as part of the Hawaiian Green Sea Turtle Educational Loan Program.

When the hatchlings reach the ages of two to three years, under the authority and approval of the U.S. Fish and Wildlife Service and National Marine Fisheries Service-Pacific Islands Fisheries Science Center, they are released into Hawaiian waters at a location approved by the agencies. Sea Life Park Hawaii replaces those turtles released with new hatchlings in order to maintain each facility's educational display program.

Each of the five turtles being released by Maui Ocean Center will be outfitted with Passive Integrated Transponder (PIT) tags implanted in both rear flippers. The tags, small microchips about the size of a grain of rice, contain an electromagnetic code. Using hand-held scanners, researchers are able to identify PIT-tagged turtles. When the turtles return to land, the PIT tags will allow National Marine Fisheries Service-Pacific Islands Fisheries Science Center and researchers to identify them as the turtles released from Maui Ocean Center.

Maui Ocean Center

Maui Ocean Center displays live coral and Hawaiian marine life in over 60 vibrant exhibits. Twenty-five percent of the animals found at Maui Ocean Center are endemic, meaning they are found nowhere else in the world. In addition to daily marine life presentations given by ocean naturalists, Maui Ocean Center highlights specific marine species with enhanced presentations, special guest talks, hands-on activities, upgradeable behind the scenes tours and more each month. Throughout August, Maui Ocean Center celebrates "Turtle Mania" with interactive events that allow guests to experience green sea turtles up close and personal with the opportunity to learn about the biology, behavior and diet of these amazing creatures. Program details can be found at www.mauioceancenter.com.

Sea Life Park Hawaii

Sea Life Park Hawaii is not only a fascinating visitor attraction, it is a repository of knowledge, a refuge and a habitat for some of Hawai'i's most important and beloved sea creatures. Guests swim with dolphins, interact with sea lions, feed sea turtles, and dive with sea rays in an educational and entertainment manner found nowhere else in Hawai'i. Located north of Hanauma Bay, Sea Life Park Hawaii features a beautifully designed park with reefs, lagoons, pools, and theaters. Both adults and children can take part in thrilling water activities and exhilarating encounters with marine mammals. Give your entire family an adventure to look forward to – make a reservation today. The park is open daily from 10:30 a.m. to 5:00 p.m. For more information, visit www.sealifeparkhawaii.com.

U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (FWS) works to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people by enforcing federal wildlife laws, protecting endangered species, managing migratory birds, restoring nationally significant fisheries, and conserving and restoring wildlife habitats such as wetlands.

FWS operates within the Department of the Interior to manage the 150 million-acre National Wildlife Refuge System of more than 551 National Wildlife Refuges and thousands of small wetlands and other special management areas. Under the Fisheries program, FWS also controls 70 National Fish Hatcheries, 65 fishery resource offices and 86 ecological services field stations. For more information visit www.fws.gov/.

NOAA National Marine Fisheries Service

National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) is the federal agency, a division of the Department of Commerce, responsible for the stewardship of the nation's living marine resources and their habitat. NMFS is responsible for the management, conservation and protection of living marine resources within the United States' Exclusive Economic Zone (water three to 200 miles offshore). Using the tools provided by the Magnuson-Stevens Act, NMFS assesses and predicts the status of fish stocks, ensures compliance with fisheries regulations and works to reduce wasteful fishing practices. Under the Marine Mammal Protection Act and the Endangered Species Act, NMFS recovers protected marine species (i.e. whales, turtles) without unnecessarily impeding economic and recreational opportunities. With the help of the six regional offices and eight councils, NMFS is able to work with communities on fishery management issues. NMFS works to promote sustainable fisheries and to prevent lost economic potential associated with overfishing, declining species and degraded habitats. NMFS strives to balance competing public needs. For more information visit www.nmfs.noaa.gov.

Department of Land and Natural Resources

The Department and Land and Natural Resources mission: Enhance, protect, conserve and manage Hawaii's unique and limited natural, cultural and historic resources held in public trust for current and future generations of visitors and the people of Hawaii nei in partnership with others from the public and private sectors. For more information visit www.hawaii.gov/dlnr.

Grand Wailea

Grand Wailea is the largest private employer in Maui County. Since opening its doors in 1991, Grand Wailea adopted a philosophy of corporate citizenship, becoming an active member of the Maui community. In 2011, Grand Wailea donated more than \$1 million in community contributions provided in a variety of ways including monetary donations, gift certificates for rooms and food and beverage credits as well as in-kind services. For more information about Grand Wailea, call 808.875.1234 or visit www.grandwailea.com.

Turtles in Hawai'i

Of the seven species of sea turtle in the world, five are found in Hawai'i. The green sea turtle, hawksbill and leatherback are considered native to Hawai'i, and the loggerhead and olive ridleys are rare visitors. Green sea turtles, known as *honu* in Hawaiian, are the largest hard-shelled sea turtle in the world, and the most common sea turtle in Hawai'i. As adults, *honu* mainly eat algae and sea grasses, which turn their fat layer green, giving them their common name. Green sea turtles are listed as threatened under the Endangered Species Act.

#

Holomua na Honu

Share with Maui Ocean Center in saying Aloha to the Honu

Five juvenile green sea turtles will soon meet the open ocean. For two years the Honu have served as ambassadors of their species, helping to educate the public on the Hawaiian green sea turtle under the care of the staff at Maui Ocean Center through Sea Life Park Hawaii's hatch-and-release program. The program is administered by the Pacific Islands Fisheries Service Center of the National Marine Fisheries Service part of the National Oceanic and Atmospheric Administration under the authorization of the U.S. Fish and Wildlife Service.

Now, they are ready to *holomua* (progress) and continue life in the wild.

This event is complimentary and open to the public.
Special event parking rate available at Grand Wailea with validation.

Thursday, August 23, 2012
South Shore fronting Grand Wailea
9:00 a.m. to 11:00 a.m.

Presentations by prominent local marine biologists, researchers and community members, informational booths, a close-up Honu encounter and traditional Hawaiian blessing of the Honu to precede the release. Live music and hula to follow.

More info: 808-270-7000 | www.mauiocceancenter.com



LARISSA TREESE photo


MAUI OCEAN CENTER
The Hawaiian Aquarium

HAWAIIAN SEA TURTLE RESEARCH



1. **NOUN**—the name of a person, place, or thing
2. **VERB**—an action word
3. **ADJECTIVE**—describes a noun or pronoun
4. **ADVERB**—describes a verb, adjective, or another adverb
5. **PRONOUN**—substitutes for a noun
6. **PREPOSITION**—connects a noun to another part of the sentence
7. **CONJUNCTION**—connects words or ideas
8. **INTERJECTION**—an exclamation

- Some verbs need helpers.

INCORRECT

I be / You be
I ain't / You ain't
I got to
I seen
I done

CORRECT

I am / You are
I am not / You are not
I have to
I have seen / I saw
I have done / I did

- Its is possessive. It's means "it is" or "it has."
Your is possessive. You're means "you are."

2008
MAUNALANI
MEIMEI

- Which word do I use?

Lay or Lie?

To "lay" is to place an object. To "lie" is to recline.

Affect or Effect?

To "affect" is to influence. To "effect" is to cause.

4-781 11FE82208
250-42102 08912 8

- Punctuation

A comma is used to group words and phrases that belong together. It is also used to denote a slight pause, as with items in a series and interjections.

A colon is used prior to a list or other elements that rename or restate what has been previously stated.

A semicolon is used to separate independent clauses or to divide a series of longer phrases.

An apostrophe is used to indicate the possessive case of nouns, to form a contraction, and to form the plural of a letter or number.

A hyphen divides one word into syllables or joins multiple words.

Quotation marks are used around the exact words someone spoke. Use with titles of songs, short stories, chapter titles, short plays, episodes of television programs, magazine articles, and poems.

Underlining is used with the titles of books, movies, newspapers, television programs, magazines, and long plays.

Keoki Balazs

Honu Scientist



1-MCG