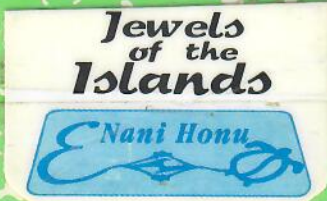


# MAUNA LANI 4 of 4 and Sea Life Park

3-14-06  
KAHALA SLP  
Releases "KALO"  
"KAPU"

2002-  
2006



BALAZS  
2002-2006

BALAZS  
286-2899

alco<sup>®</sup> 2002-  
2006  
Composition Book

Name <sup>15th TID</sup> JULY 4, 2004 page

School <sup>14th</sup> JULY 4, 2003 ML page

Grade <sup>N=4</sup> ID/ST/PS = 2534, 25312 MT4  
SP6730 = 23459 MT5 22534

Wide Ruled KAHALA = 11- -03  
MT1

9 3/4 x 7 1/2 in. 100 Sheets  
ST18 = 23542

<sup>16th TID</sup> JULY 3-4, 2005 ML

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

11-13-03 USCG SAT TAG N=2  
SLP Releases - 15 miles  
of Se Shore  
03hJ  
P. 56

I.D. 23176, 23177 SPOT 3  
I.D. 23542 ST 18

1-5-06 Tu/GB SAMPLED MAUNA LANI 7 P. 30



TW FAX = 541-3472

Necropsy by Thierry Work

SCL = 30.4

SCW = 25.0

1/23/03

CCL = 32.5

CCW = 29.0

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

N = 30.3

PL = 25.5

RFF = 5.8

HEAD = 5.5

MAUNA LANI Captive from SeaLife Park Hatch

TAIL - T = 7.5

TAIL - C = 5.5

Hatch

YEO = PPS

~~WB-53~~

WB-53

Tag: ~~WB-53~~ - R2

left lateral sloughing

skin in ventral hind areas sloughing

~~NT~~

Axial: Bloating NT

Lateral: Bloating NT

Weight: NT

180

1/17/03 ML

- WC03 - 15.9 cm, 1.5 lbs.
- WC08 - 15.2 cm, 1.5 lbs.
- WC09 - 15.7 cm, 1.5 lbs.
- WC10 - 15.6 cm, 1.5 lbs.
- WC12 - 16.8 cm, 1.75 lbs.
- WC15 - 15.8 cm, 1.5 lbs.
- WC16 - 15.0 cm, 1.25 lbs.
- WC18 - 16.1 cm, 1.5 lbs.
- WC19 - 15.2 cm, 1.25 lbs.
- WC27 - 14.8 cm, 1.25 lbs.

**SUMMARY OF TURTLE EXAMS MAUNA LANI  
1-24-03**

**2003 RELEASES-3 TURTLES TOTAL**

**2 TURTLES HAD MOUTH LESIONS**

# 8 The most severe case - has had problems in the past and was treated with antibiotics. Large caseous crust removed from dorsal pharynx. Some tongue lesions.  
Samples taken: blood for CBC and chemistries; throat swabs for aerobic bacterial cultures.

# 9 A few plaques (crusts) found in dorsal pharynx.

**2004 RELEASES-5 TURTLES TOTAL**

**3 turtles had mouth lesions**

#1 Some dorsal pharyngeal crusts.

Samples taken: blood for CBC and chemistries

#3 Crusts covering dorsal pharynx. Some tongue lesions.

Samples taken: Blood for CBC and chemistries; throat culture

Tongue lesion at tip.

Samples taken: blood for CBC and chemistries; fecal

**2005 RELEASES-10 TURTLES TOTAL (5 FOR GEORGE)**

**2 turtles had mouth lesions**

wc-19 crusts in dorsal pharynx

wc-18 Small pinpoint pharyngeal nodules

**TOTAL SAMPLES: 4 BLOOD FOR CBC AND CHEMISTRY**

**2 THROAT CULTURES**

**1 FECAL SAMPLE**



(181) 21

**SUMMARY OF FINDINGS:**

Blood chemistries-all normal values  
CBC-All total WBC in normal range  
Ratio of heterophils to lymphocytes reversed in #4 (sometimes indicates infection).  
Throat cultures: #3 *Vibrio fluvialis*, *E. coli*  
#8 *Vibrio fluvialis*, *Shewanella algae*  
Antibiotic sensitivities were run and all were sensitive to amikacin and enrofloxacin.

**ASSESSMENT:**

The mouth lesions resemble the bacterial stomatitis seen several years ago. At the Mauna Lanai. The cause is unknown but it does seem to have a bacterial element. We have cultured *Vibrio* bacteria from normal turtle throats but it can also be pathogenic. In the past viruses were never isolated. Previous lesions seemed to be non pathogenic and the turtles thrived. The problem seemed to resolve over time. I do express some concern and plan to see if antibiotics can resolve the problem.

**PLAN:**

Evaluate results of amikacin on #8 turtle  
Start # 1,3, and 4 on amikacin  
It may take weeks of treatment to see if it works  
Weekly exams of the 2005 releases (10) to monitor mouth lesions  
Weekly mouth exams of all treated turtles  
Careful records should be made to monitor results and a weekly report to me should be made.

Robert A. Morris MS, DVM

- #1 - 13.0 lb., 34.2 cm. - Mouth had one 3mm. crust on soft pallet and
- #2 - 9.0 lb., 31.4 cm. - Mouth was clean
- #3 - 10.0 lb., 32.2 cm. - Mouth has a 1 cm. crust on anterior of tongue. Last
- #4 - 12.5 lb., 34.8 cm. - Mouth is clean. Last injection was 2/25/03.
- #5 - 12.0 lb., 33.2 cm. - Mouth is clean.
- #7 - 20.5 lb., 41.1 cm. - Mouth is clean

3-12-03

Turtle weights and measures - 3/12/03 (fwd)

- #8 - 21.5 lb., 42.3 cm. - Mouth has many 3mm. crusts on tongue and
- #9 - 21.5 lb., 41.1 cm. - Mouth was clean



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2/4/03 ML

Date: Tue, 04 Feb 2003 14:45:41 -1000  
From: Marty Wisner <mwisner@maunalani.com>  
Cc: gbalazs@honlab.nmfs.hawaii.edu  
Subject: Turtle exams -Reply

Aloha again,

Here are today's results:

2-4-03

- #1 - some pharangeal crusts
- #3 - some pharangeal crusts plus some tongue lesions
- #8 - Greatly improved with amikasin, but still a few pharangeal lesions.
- #9 - a few tongue crusts

-----  
WC18 - few tongue nodules

WC19 - some tongue crusts which easily wiped off with swab  
-----

All eight other hatchlings were completely clean in their mouths

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

Date: Wed, 19 Feb 2003 12:58:30 -1000  
From: Marty Wisner <mwisner@maunalani.com>  
To: gbalazs@honlab.nmfs.hawaii.edu,  
Sandie Patton <SPATTON.PO\_VAC.MLR@maunalani.com>  
Subject: February 2003 Hatchling growth

Here are the new measurements. Only WC19 still had any sign of problems  
IN ITS MOUTH



(183)

2004 RELEASES - 5 TURTLES

1- Small tongue plaques and a 7mm area of erythema on roof of mouth. Bite lesion left rear flipper.

2-Clean

----- Forwarded message -----  
Date: Thu, 10 Apr 2003 15:55:23 -1000  
From: Marty Wisner <mwisner@maunalani.com>  
To: gbalazs@honomiab.mafsc.hawaii.edu,  
Sandie Patton <SPATTON.PO\_VAC.MLR@maunalani.com>  
Subject: Mauna Lani turtle measurements - 4/10/03

Aloha again,

Here are this month's numbers. Hatchlings and year 2000 turtles are in attached table  
Year 2001 turtles are below.

All hatchling mouths were very clean.

As for the turtles in the Honu Bar pond, # 1 had one 1 cm. crust in the center of the  
tongue, # 3 had nearly 50% of the tongue and pallet covered with 3mm.  
crusts, # 8 had  
three .5 cm. crusts on the tongue only.

2001 TURTLES

- #1 - 13.5 lb., 34.9 cm.
- #2 - 10.0 lb., 32.0 cm.
- #3 - 11.0 lb., 33.3 cm.
- #4 - 13.5 lb., 34.7 cm.
- #5 - 13.0 lb., 34.2 cm.



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## SUMMARY OF TURTLE EXAMS MAUNA LANI

5-2-03

A total of 18 turtles were examined.

All turtles are off antibiotics.

Some turtles are being treated for flipper bites.

All turtles were measured, weighed and given a physical exam.

All turtles appeared to be in good physical condition.

A summary of the physical findings is listed below:

### 2003 RELEASES-3 TURTLES

#7-Some bite lesions on right rear flipper

#8-Plaques (crusts) in rear throat area and several on tongue. Left rear flipper bite lesions

#9-A few small plaques (crusts) in rear throat (minor). A small bite lesion on right rear flipper.



## 2004 RELEASES-5 TURTLES

#1-Small tongue plaques and a 7mm area of erythema on roof of mouth. Bite lesions on left rear flipper.

#2-Clean

#3-Large plaque in rear throat. Multiple tongue plaques. Some bite lesions on both rear flippers.

#4-A few small pharyngeal nodules

#5-A few small pharyngeal nodules

## 2005 RELEASES-10 TURTLES

wc-18-Right rear flipper with a healing bite lesion.

wc-19-Pinpoint pharyngeal nodules

wc-27-Pinpoint pharyngeal nodules.

## ASSESSMENT

Some new flipper biting has occurred in the outdoor turtles. Pharyngeal nodules were found in noted turtles. Larger plaques (crusts) continue to persist in 4 turtles. Previous cultures seem to indicate bacterial inflammation with unknown cause. These seem to clear with antibiotic treatment but reoccur. The hatchling flipper biting seems to under control.

## PLAN

It is very important to increase the pellet feeding of the hatchlings and decrease the shrimp and fish. Some or all of these turtles will be moved to the outdoor pond after the July 4<sup>th</sup> release. At that time a 100% pellet diet will be fed.

Flipper biting must be closely monitored and treated on a regular basis. Increase the amount of food and/or the number of feedings to discourage biting. Treat all white areas on the flippers to discourage biting.

No treatment of the throat/tongue lesions are planned until the next exam. These lesions seem to be non-pathogenic and the turtles are doing well. Careful observations on food intake and behavior should be kept on turtles #1,3 and 8 because of these lesions.

Robert A. Morris MS, DVM



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N=10 ML

Article ID	WC03	WC08	WC09	WC10	WC12	WC15	WC16	WC18	WC19	WC20
s./ cm.	Wt./ SCL	Wt./ SCL	Wt./ SCL	Wt./SCL	Wt./ SCL	Wt./ SCL	Wt./ SCL	Wt./ SCL	Wt./ SCL	Wt./ SCL
DATE										
11/7/02	.25 / 10.8	.25 / 10.9	.25 / 10.6	.50 / 11.0	.50 / 11.1	.25 / 10.3	.25 / 9.9	.25 / 10.6	.25 / 10.6	.25 / 10.6
11/30/02	/12.6	/12.0	/12.2	/12.1	/12.9	/11.9	/11.6	/12.9	/12.3	
12/19/02	1.25/ 14.1	1.00/13.2	1.25/13.7	1.00/13.7	1.25/14.7	1.00/13.9	1.00/13.2	1.25/14.3	1.00/14.5	1.00/14.5
1/17/03	1.50/ 15.9	1.50/15.2	1.50/15.7	1.50/15.6	1.75/16.8	1.50/15.8	1.25/15.0	1.50/16.1	1.25/15.2	1.25/15.2
2/18/03	2.0 /17.9	1.75/17.3	1.75/17.7	2.0 /18.0	2.25/19.1	2.0 /18.3	1.50/17.5	2.0 /18.7	1.50/17.3	1.50/17.3
3/12/03	2.75/19.4	2.25/18.7	2.50/19.5	2.50/19.3	3.0 /20.6	2.50/19.7	2.25/19.2	2.50/19.8	2.25/18.9	2.25/18.9
4/10/03	3.5 /21.0	3.25/20.4	3.5 /21.5	3.25/21.3	3.5 /22.4	3.5 /21.6	3.0 /21.8	3.5 /21.6	3.25/20.9	3.25/20.9
5/2/03	3.75/22.3	3.5 /21.7	4.0 /23.0	3.75/22.5	4.5 /23.9	4.0 /23.1	3.5 /22.2	3.75/23.0	3.75/22.4	3.75/22.4

Tag Information:

Tag Number	Date	Tag Type	Tag Position
422F203F56	11/29/2000	PIT	LHF
42395E535B	11/29/2000	PIT	RHF
4692	11/29/2000	I681	L3

Date	Type of Encounter	Location:	TumorRank:	NestingAct:	SCL
5/1/2000	Near Shore	Oahu, Sea Life Park Captive	0	-	---
8/17/2000	Near Shore	Oahu, Sea Life Park Captive	0	-	30.0
10/12/2000	Near Shore	Oahu, Sea Life Park Captive	0	-	---
11/24/2000	Near Shore	Oahu, Sea Life Park Captive	0	-	---
11/28/2000	Near Shore	Oahu, Sea Life Park Captive	0	-	32.7
11/29/2000	Near Shore	Oahu, Sea Life Park Captive	0	-	32.7
1/8/2002	Near Shore	Oahu, Kaupo	0	-	45.5

release



N=5 ML

Turtle #	V-746, #1	WB54, #2	WB55, #3	WB48, #4	WB52, #5
lbs. / cm.	Wt. / SCL	Wt. / SCL	Wt. / SCL	Wt. / SCL	WT. / SCL
Date					
9/16/02	/ 28.2	/ 26.7	/ 27.4	/ 27.8	/ 26.2
9/24/02	7.25/	6.0 /	6.25/	6.75/	5.5 /
10/30/02	8.5 / 29.8	7.0 / 28.6	8.0 / 29.3	8.0 / 29.4	7.5 / 28.5
12/18/02	10.0 / 31.5	8.5 / 30.2	9.0 / 30.2	10.0 / 31.2	9.75 / 30.3
1/24/03	11.0 / 32.9	8.5 / 30.7	9.5 / 31.5	11.0 / 32.5	10.5 / 31.8
2/25/03	12.0 / 33.5	8.75 / 31.0	10.0 / 32.1	12.0 / 33.5	11.0 / 32.5
3/12/03	13.0 / 34.2	9.0 / 31.4	10.0 / 32.2	12.5 / 33.8	12.0 / 33.2
4/10/03	13.5 / 34.9	10.0 / 32.0	11.0 / 33.3	13.5 / 34.7	13.0 / 34.2
5/2/03	13.0 / 35.3	10.5 / 32.4	11.5 / 33.9	13.5 / 35.5	13.5 / 34.6

N=3 ML

Turtle #	ZG07- # 7	ZG02- # 8	ZG11- # 9
lbs. / cm.	Wt. / SCL	Wt. / SCL	Wt. / SCL
DATE			
4/19/02	15.5 / 37.6	16.7 / 37.8	15.3 / 37.0
6/20/02	16.0 / 38.0	17.0 / 38.8	16.5 / 37.9
7/19/02	16.5 / 38.3	17.0 / 39.0	16.5 / 38.3
8/16/02	17.0 / 38.3	17.5 / 39.2	16.5 / 38.6
9/17/02	17.5 / 38.6	18.0 / 39.4	17.0 / 39.0
10/30/02	18.0 / 39.3	18.0 / 39.9	18.5 / 39.7
12/18/02	19.5 / 40.1	20.0 / 40.8	19.0 / 39.8
1/10/03	20.0 / 40.5	20.5 / 41.4	20.5 / 40.4
2/25/03	20.0 / 40.5	21.0 / 41.8	21.0 / 40.9
3/12/03	20.5 / 41.1	21.5 / 42.3	21.5 / 41.1
4/10/03	21.5 / 41.2	23.0 / 42.6	21.5 / 41.4
5/2/03	21.0 / 41.9	22.5 / 43.0	21.5 / 41.6



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# LIVE TURTLE EXAMINATION RECORD

Date: 6/4/02

Turtle ID: M

Comments: pre physical for shipment to  
Monroa Island - Big Is.

## PHYSICAL EXAM

Head and neck: normal

Mouth: normal - 1 pharyngeal nodule  
small area on tongue - brownish

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     

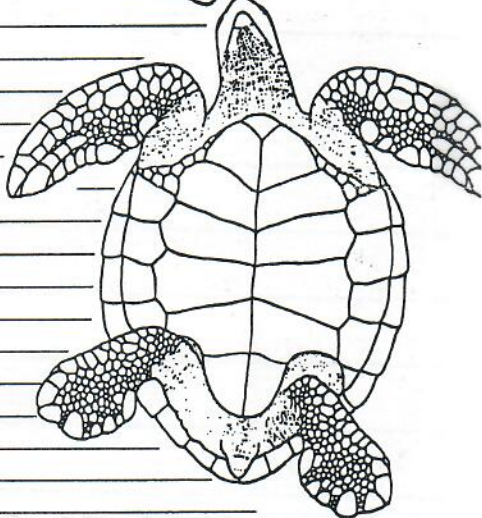
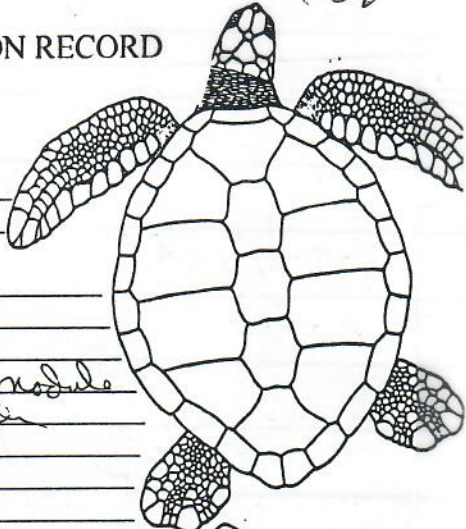
## APPROXIMATE TUMOR SIZE CATEGORIES:

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

RECOMMENDATIONS: OK for shipment - will  
put satellite tag on turtle June 20 - Kona Coast

Signed: Robert A. Mous - DVM

MAKAI ANIMAL CLINIC, 420 Uluniu Street, Kailua, HI 96734





SEA LIFE PARK HAWAII - GREEN SEA TURTLE HUSBANDRY MANUAL - NUTRITION PART 2

Sea Life Park Hawaii  
GREGG LEVINE DVM

To: Bob Morris DVM and Sandie Patton  
From: Gregg Levine DVM

5-31-02

Date: 5/31/2002

Re: Turtle #3 Left flipper tag- No tag (RF-WA96)

Pit tags - LHF 422F151E15 RHF 422D522A1B

Pre-transport exam and medical record summary

Turtle #3 was hatched at Sea Life Park Hawaii August 1999 and was transported to the Mauna Lani Resort on November 24, 1999. Turtle 3 returned to Sea Life Park Hawaii at the end of June 2000

Medical History:

Morphometric data:

Date	Weight	SCL(cm)	SCW (cm)	CCL(cm)	CCW (cm)
06/2000		23.5 cm			
8/17/00	5.5 lbs	24.6cm			
1/25/01	9.7lbs	31.3cm			
8/15/01	18lbs	38.9cm	31cm		
1/3/02		42.7cm			
3/8/02	30lbs	44.8cm	39.8cm		
3/14/02	30lbs	45.1cm	35.6cm	49.0cm	
4/10/02	28.4lbs.				
5/18/02	28.0 lbs	45.4cm	35.5cm		

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SEA LIFE PARK HAWAII - GREEN SEA TURTLE HUSBANDRY MANUAL - NUTRITION PART 2

5-31-02

Date: 5/31/2002

Re: Turtle #3 Left flipper tag- No tag (RF-WA96)

Pit tags - LHF 422F151E15 RHF 422D522A1B

Pre-transport exam and medical record summary

Bloodwork summary:

Date	Comments
12/19/01	CBC normal.
3/15/02	CBC and chem. Panel normal.
4/19/02	CBC is normal. Chem panel- Phosphorous is very low - 2.9 mg/dl
5/18/02	CBC is normal. Chem panel- is normal (Phosphorous is normal)

Physical exam - 5/18/02

Body exam: No abnormalities observed or reported.

Diet At Sea Life Park Hawaii until March 8, 2002

- 50 grams of whole capelin (2 fish).
- 130 grams headless herring.
- 30 grams of whole squid.
- Gel food (3cm x 3cm x 3cm).
- Broccoli 75 grams.
- Lettuce 100 grams or chopped celery or green peppers.

Preparation:

- Capelin is left whole, herring is cut into 5cm sections, squid is cut in halves, broccoli is cut into 5-cm sections, lettuce leaves are torn in half, celery or green peppers are cut into bite size pieces.

Diet at Sea Life Park Hawaii since March 8, 2002 through May 21, 2002  
Melick Aquafeed Turtle Finisher turtle pellets 7mm fed ad lib.

Turtle ML-3 did not show interest in the pellets  
From March 3 through May 25 the turtle was tube fed 20 pellets + 100mls of water twice weekly.  
The turtle appears to graze on algae growing in the tank

Diet at Sea Life Park Hawaii May 21, 2002 to present:

Mixed green vegetables (lettuce, celery, broccoli, and green peppers) and Sea Life Park Gel diet. The turtle has had a vigorous appetite and is quite active.

Assessment:

This turtle appears in good health.

Plan:

Schedule pre-transport physical exam with Dr. Morris on Wednesday June 12, 2002 at Sea Life Park Hawaii and transport to the Mauna Lani on Friday June 14, 2002.

Gregg Levine DVM

Kalaela Animal Clinic, 439 Ukahe Street, Kalaela, HI 96734



Table 1 -- Mean, standard deviation, and range of straight carapace length, weight, and plasma biochemistry values for clinically healthy green turtles (*Chelonia mydas*), Hawaiian Islands, 1991-95

Variable	Kaneohe Bay, Oahu			MI-3 - SLP 5/19/05
	n = 53			
	Mean	±SD	Range	
Straight Carapace Length	45.3	4.8	37.4-55.2	5/19/05
Weight	14.1	4.7	7.7-25.4	
Protein (g dl)	4.2	0.6	2.9-5.6	4.1
Albumin (g dl)	1.7	0.4	0.6-2.2	2.0
Globulin (g dl)	2.7	0.5	1.8-4.0	2.1
Albumin/Globulin ratio	0.6	0.2	0.2-1.2	1.6
Total Bilirubin (mg dl)	0.2	0.1	0.0-0.4	
Direct Bilirubin (mg dl)	0.05	0.1	0.0-0.5	
Indirect Bilirubin (mg dl)	0.2	0.1	0.0-0.4	
ALAT* (U l)	3.9	7.0	0.0-50.0	
ASAT (U l)	158.4	41.5	1.0-270	219
Alkaline Phosphatase (U l)	33.5	12.2	12-62	59
GGT* (U l)	2.7	1.5	0.0-5.0	
LDH* (U l)	203.8	180.4	55-1286	67
Urea Nitrogen (BUN) (mg dl)	5.2	14.1	0.0-64.0	32
Creatinine (mg dl)	0.2	0.1	0.1-0.5	0.5
BUN/Creatinine Ratio	25.8	70.7	0.0-320.0	
UAK <sub>2</sub> P <sub>2</sub> D <sub>2</sub> (U l)	1.3	0.8	0.0-4.5	1.0
Calcium (mg dl) CA	9.1	1.7	1.1-12.1	6.0
Phosphorus (mg dl) P	8.2	1.3	5.9-11.8	7.5
Cholesterol (mg dl)	140.0	43.0	32-280	233
Triglycerides (mg dl)	124.2	68.7	28-331	
Glucose (mg dl)	114.7	35.0	64-234	88
Iron (mcg dl)	46.3	64.8	9-321	
Sodium (meq l)	158.0	4.0	146-170	157
Potassium (meq l)	5.2	0.9	3.9-8.6	3.8
Uric Acid (meq l)	115.2	5.7	103-130	
Standard Deviation CPK Creatine Phosphokinase				374
Standard Deviation WBC White Blood Cell				17.5

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REPRINT

SEA LIFE PARK - HAWAII  
MAKAPUU POINT  
WAIMANALO, HI 96795

IDEXX VETERINARY SERVICES  
Online results at [www.vetconnect.com](http://www.vetconnect.com)  
West Region 800-444-4210  
East/Central/Colorado 888-433-9987

1-808-259-7933 ACCOUNT #: 1604

PATIENT: SEA LIFE PARK, TURTLE ML3

REQ #: 0042340  
AGE: SEX:  
SPECIES: REPTILE  
BREED:

LAB #: L8524445  
COLLECTED: 05/19/2002  
RECEIVED: 05/19/2002 19:20  
REPORTED: 05/21/2002 07:12  
REREPORTED: 05/24/2002 19:58

DOCTOR: BRAUM

TEST PROCEDURES

REPTILIAN PROFILE #1

REPTILIAN PANEL #1

\* ALK. PHOSPHATASE

\* ALT (SGPT)

LESS THAN 10

RESULT VERIFIED BY REPEAT ANALYSIS

\* AST (SGOT)

\* CK

\* LDH

\* ALBUMIN

\* TOTAL PROTEIN

\* GLOBULIN

\* BUN

\* CREATININE

\* CHOLESTEROL

\* GLUCOSE

\* CALCIUM

\* PHOSPHORUS

\* POTASSIUM

\* SODIUM

\* A/G RATIO

\* URIC ACID

AVIAN/EXOTIC CBC AND PLASMA PROTEIN

\* WBC-EST

\* WBC COUNT

\* HCT

\* HETEROPHILS

\* NEUTROPHIL SEG

\* LYMPHOCYTES

\* MONOCYTES

\* ABSOLUTE HETEROPHIL

\* ABSOLUTE NEUTROPHIL SEG

\* ABSOLUTE LYMPHOCYTE

\* ABSOLUTE MONOCYTE

\* THROMBOCYTES

\* BLOOD PARASITES

RESULTS

REFERENCE RANGE UNITS

59

IU/L

IU/L

IU/L

IU/L

IU/L

g/dL

g/dL

g/dL

mg/dL

mg/dL

mg/dL

mg/dL

mg/dL

mg/dL

mEq/L

mEq/L

mg/dL

THOUS.

THOUS.

%

%

%

%

%

MM3

/uL

/uL

/uL

ADEQUATE

SEA LIFE PARK, TURTLE ML3REPORT CONTINUED ON NEXT FORM



# MELICK AQUAFEED

## TURTLE DEVELOPER/STARTER

### GUARANTEED ANALYSIS

Crude Protein.....(min.)	42%
Crude Fat.....(min.)	10%
Crude Fiber.....(max.)	5%
Phosphorus(P).....(min.)	1%
Ash.....(max.)	15%

### Ingredients

Animal Protein Products, Plant Protein Products, Processed Grain By-Products, Fish Oil, Soy Lecithin, Calcium Lignin Sulfonate, Vitamin A Supplement, Vitamin D3 Supplement, Riboflavin Supplement, Niacin Supplement, Calcium Pantothenate, Vitamin B12 Supplement, Choline Chloride, d-Biotin, Thiamine Mononitrate, Pyridoxine Hydrochloride, Vitamin E Supplement, Menadione Sodium Bisulfite Complex (source of Vitamin K activity), Folic Acid, L-ascorbyl-2-Polyphosphate (source of Vitamin C), Ethoxyquin (A preservative), Potassium Iodate, Salt, Manganese Sulfate, Zinc Sulfate, Copper Sulfate, Sodium Selenite

### CAUTION

Store in a dry, well ventilated area, free from rodents and insects. Do not use moldy or insect infested infested feed.

Manufactured By:

Melick Aquafeed

139 South First Street

Catawissa, Pennsylvania 17820

1-800-358-6595

NET WT. 40 lbs.

# 5.0 MM

106

# Melick Aquafeed

## TURTLE FINISHER

### GUARANTEED ANALYSIS:

Crude Protein .....	Minimum 35%
Crude Fat .....	Minimum 4%
Crude Fiber .....	Maximum 5%
Phosphorus (P) .....	Minimum 1%
Ash .....	Maximum 15%

### Ingredients

Animal Protein Products, Plant Protein Products, Processed Grain By-Products, Fish Oil, Soy Lecithin, Calcium Lignin Sulfonate, Vitamin A Supplement, Vitamin D3 Supplement, Riboflavin Supplement, Niacin Supplement, Calcium Pantothenate, Vitamin B12 Supplement, Choline Chloride, d-Biotin, Thiamine Mononitrate, Pyridoxine Hydrochloride, Vitamin E Supplement, Menadione Sodium Bisulfite Complex (source of Vitamin K activity), Folic Acid, L-Ascorbyl-2-Polyphosphate (source of Vitamin C), Ethoxyquin (a Preservative), Potassium Iodate, Salt, Manganese Sulfate, Zinc Sulfate, Copper Sulfate, Sodium Selenite.

### CAUTION

**STORE IN A DRY, WELL VENTILATED AREA, FREE FROM RODENTS AND INSECTS. DO NOT USE MOLDY OR INSECT INFESTED FEED.**

Manufactured By:

**MELICK AQUAFEED**

139 South First Street

Catawissa, Pennsylvania 17820

1-800-358-6595

NET WT. 40 lbs.

7.0 MM

194

# FEED PRICES

F.O.B. - Catawissa, PA 17820



10-1-02  
*Phil Kemp*  
800. 358-6595  
ORDER FROM MICHELE

Protein/Fat	Float/Sink/Slow Sink	Size Range	Price/Bag 50 lb.
50/20	S	#0 #1 #2	\$ 25.50
50/20	S	#3 & #4	\$ 23.00
50/20	SS	1.0mm	\$ 23.00
46/18	F. & SS	1.5mm	\$ 23.00
50/12	F S SS	2.0 - 7.0mm	\$ 21.50
44/24	S SS	2.0 - 7.0mm	\$ 19.00
45/20	F S SS	2.0 - 7.0mm	\$ 18.75
45/12	F S SS	2.0 - 7.0mm	\$ 17.25
42/16	F S SS	2.0 - 5.0mm	\$ 16.50
40/10	F S SS	2.0 - 7.0mm	\$ 14.00
36/6	F S SS	2.0 - 7.0mm	\$ 12.50
32/3	F SS	2.0 - 7.0mm	\$ 11.50
34/4 NWB	F SS	2.0 - 7.0mm	\$ 12.50

STRIPED  
BASE FOOD  
Cool for  
Treatments

Received  
This 12-02  
ML  
2.5mm  
FLOATING

## Specialty Feeds, Medicated Feeds & Additives

Description	Content	Size Range	Price /50lb. Bag
Koi Feed	32 % Protein, 3 % Fat	1.5 - 5.0mm	\$ 19.50
Shrimp Feed	25 % Protein, 5 % Fat	2.5mm long cut	\$ 10.50
Shrimp Feed	30 % Protein, 5 % Fat	2.5mm long cut	\$ 11.50
Shrimp Feed	36 % Protein, 5 % Fat	2.5mm long cut	\$ 12.50
Shrimp Feed	40 % Protein, 5 % Fat	2.5mm long cut	\$ 13.50
<b>OTC</b>			
Oxytetracycline	2.5 g/lb.	Any pelletized feed	\$ 5.00
Oxytetracycline	3.75 g/lb.	Any pelletized feed	\$ 6.25
<b>Romet - 30</b>			
Sulfadimethoyine & Ormetoprm	3776.22 g/ton 775.91 g/ton	Add to any feed Extruded or Pelletized	\$ 19.00
Color Enhancer	45 ppm	Add to any feed	\$ 2.50
Vitamin Pack	2x	Add to any feed	\$ 1.00
Stabilized Vitamin C	2x	Add to any feed	\$ 1.00
Calcium Chloride/Salt	20 lb./ ton	Add to any feed	\$ .50
Yeast	20 lb./ ton	Add to any feed	\$ .50

**Volume Discounts:** 240 + bags -\$ 1.00 / bag    880 bags -\$ 2.00 / bag

139 South First Street • Catawissa, Pennsylvania 17820 • Telephone: 570.648.6710 & 800.358.6595 • Fax: 570.648.6714



# FEED SIZE GUIDE



FISH SIZE IN INCHES	PREFERRED FEED SIZE	EXTRUDED FEED	
		FLOAT	SINK
0" to 1"	# 0	<i>None</i>	.
1" to 1 1/2"	# 1	.	.
1 1/2" to 2"	# 2      1/32	.	.
2" to 3"	# 3 or 1.0mm or 1/16	.	.
3" to 4"	# 4 or 1.5mm or 5/64	o	o
4" to 5"	2.0mm or 3/32	o	o
5" to 6"	<i>True size</i> 2.5mm or 1/8	o	o
6" to 7"	3.0mm or 5/32	o	o
7" to 9"	4.0mm or 7/32	o	o
9" to 11"	4.6mm or 1/4	o	o
<i>40/10 is in stock in these sizes</i> 11" to 13"	5.0mm or 9/32	o	o
13" +	7.0mm or 14/32	o	o

**Extruded feeds** are produced in metric sizes in floating, sinking & slow sinking form.  
**Pelletized feeds** are produced in sinking form only and are true to die size, fractional inches.



176

1992

# Letters

8/4/92

## Projects conflict at Mauna Lani

Editor: QA WHT

There was an article that was run a couple of weeks ago, regarding the Mauna Lani Bay Hotel releasing the endangered honu (green sea turtle) into the ocean. How ironic, isn't it that the Mauna Lani is intending to destroy the ocean and reefs where those turtles now roam. The honu were raised at their "foster" home, the Mauna Lani Bay Hotel, in a secure, controlled environment with no predators to harm the young turtles. Those turtles grew and the employees and many visitors got to see an endangered species up close and grew to love and appreciate the turtles. And finally, the turtles were released into the ocean — their real home.

The Mauna Lani Bay held a huge bash — many keikis showed up, along with their parents. Yes, Mauna Lani was doing something good for the honu and the keikis. But we all know now that this was a publicity stunt. How can the Mauna Lani support a cause like the turtles, yet do a 360 degree spin and destroy the reef and shoreline, the very home of the honus.

I know that the Mauna Lani Bay Hotel and its subsidiaries own the land. That's fine, I won't dispute that. If they want to build high-priced condos and sell them to foreigners, while we the kamaainas have no homes to live in, that's their business. But when they fool around with the shoreline, reefs and oceans, that's our business. No one company owns the ocean or the reefs and they definitely shouldn't be allowed to alter it any way.

This newspaper also reported claims that the water in the cove will be crystal clear and clean. Give me break. Does anyone know of a marina or cove with crystal clear water? If anyone does, please let me know and I will jump on the next flight and go see it for myself. My mother was a nanny for Francis I'i Brown many years ago. Mr. Brown, his wife, the children and my mother used to visit the bay fronting Mauna Lani every summer. According to my mother, the bay used to be four different colors of blue and crystal clear. Over the years, pollution has taken its toll. With the proposed Cove, the ocean will never be the same.

I also read in this newspaper that many people were for the proposed Cove. Those people probably have some financial gain. I am a kamaaina and proud of it. I have lived here all my life and will continue to live here until I pass on. Building a cove will affect our children now and the future generations to come. What will we, the kamaainas, benefit by having a cove? This cove is not being built for us, nor will it benefit us. I am truly disgusted with these developers coming in and changing our 'aina, and if I have to keep writing letters to make my thoughts known, I will.

If there are any people out there who love Hawaii the way I do, now is the time to stand up and say something. Make your thoughts known by writing a letter or by making a phone call to the commissions who are the

key people in making decisions on who builds what where. You may not believe that what you have to say counts; but if enough people take a stand and say their piece, I am quite sure the commissions will listen. If you have to write your representatives about it, do so. Those officials are elected by us — the people. Keep Hawaii the way it is for the kamaainas, visitors and most importantly, for our keikis.

A few words to the developers of the Cove project: So you own the land — big deal. If you don't like Hawaii the way it is, go back to where you came from and change your own country or hometown. Leave Hawaii to its people.

JoAnn Bumanglag  
Kapaau



MAY 20, 02

Mauna Lani Pond, S. Kohala, Big Island, 05-20-02, turtles eating this.

Pterocladia capillacea	35%
Dictyota friabilis	30
Ulva rigida	20
Hypnea spinella	15
Enteromorpha sp.	5
Centroceros clavulatum	Trace
Cladophora sp.	Trace
Many small snails and eggs	
Sponge spicules	
Diatoms	

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

7/4/03



Kathy Krebs-Dean, MA

Travel Writer

kjkrebs@pacbell.net

Telephone: (707) 745-3373

Fax: (707) 746-5398

101 Chelsea Hills Drive,  
Benicia, CA 94510, USA

7/4/03 ~~sent~~

**CELLAR COLLECTIONS**

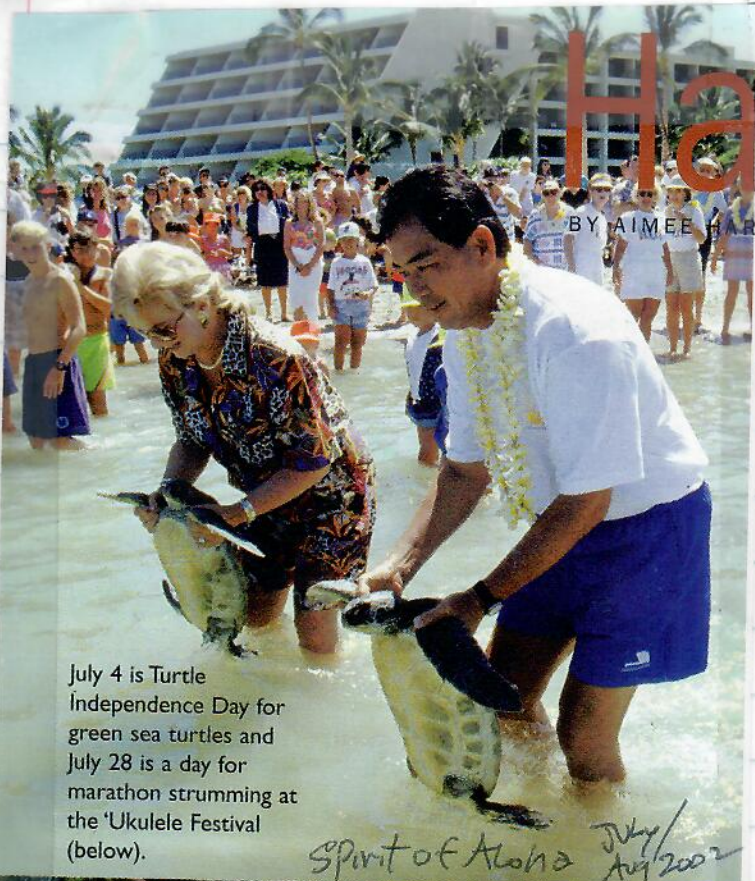
888.450.WINE (9463)  
 fax: 707.251.9360  
 1852 West Imola Ave.  
 Napa, CA 94558

Stephen Goldberg  
 cell: 707.480.9060  
 stepheng@cellarcollections.com

*We specialize in quality California wines*



1998



July 4 is Turtle Independence Day for green sea turtles and July 28 is a day for marathon strumming at the 'Ukulele Festival (below).

Spirit of Aloha July/Aug 2002



### **FREEING TURTLES**

**JULY 4**

*2002*  
**Turtle Independence Day** is a day of freedom for young *honu* embarking on their own great adventures into the open ocean. Since 1989, in an effort to boost the wild green sea turtle population, Mauna Lani Resort has nurtured more than 125 juvenile honu in saltwater ponds, then released them into the ocean. Festivities include hula, entertainment and picnic fare. Mauna Lani Resort, Big Island. Free. 885-6622.

2002







NATIONAL WILDLIFE HEALTH CENTER  
NECROPSY REPORT

Submitter's Name, Affiliation Address  
Mr. George Balazs  
NOAA-NMFS-SWFC  
2570 Dole Street  
Honolulu, HI 96822

Case: 17943  
Accession: 001  
Collected: 03/11/2005  
Exam Date: 03/14/2005  
Pathologist: T.M. Work  
Prosector: T.M. Work

Species: Green turtle Specimen: Carcass  
Bandtype: ( Z ) Ref/Band No: ( 20 ) Euth: ( 23 ) Weight (Gm): ( 7591 )  
History Summary: This Mauna Lani Resort captive turtle was lethargic and hadn't eaten since the 3<sup>rd</sup> of March. It was shipped to Honolulu and taken to the Makai Animal Clinic for examination. Due to poor prognosis, the decision was made to euthanize. PCV-17, ETS-4.

EXTERNAL/INTERNAL OBSERVATIONS - LABORATORY RESULTS

External: No remarkable lesions are seen.

Internal: There are two 0.5-1 mm well-defined raised white nodules on the oral mucosa. The liver has a linear to undulating red ill-defined 0.5 cm area on the surface. The liver appears swollen. The heart is firm, smooth, homogenous red-pink and otherwise unremarkable. The lungs are spongy and homogenous pink. The tracheal lumen is smooth and tan. The spleen is firm, smooth, and homogenous red-brown. The kidneys are diffusely swollen and very pale tan. The brain is smooth, firm, and homogenous tan-pink. The esophageal mucosa is smooth and homogenous tan. The stomach contains squid fragments. Barium is coating the intestinal mucosa. The large intestines have a nodular yellow-gray firm appearance with a 2-3 cm diameter. The proximal large intestine contains moderate amounts of firm pasty feces. There are small nodules near the anus. Feces contain fragments of coral rock. No lesions are seen in the brain, musculoskeletal system, pericardial sac, heart valves, tracheal lumen, gall bladder, gastrointestinal mucosa and serosa, ovary, adrenal and thyroid glands, pancreas and superficial and cut surface of heart, spleen, and lungs.

Preliminary Diagnosis: Undetermined Exam Type: ( GO )  
Sex ( F ) Age ( I ) / (      ) Body Cond. ( G ) Postmortem State ( E ) Giz. Lead (      ) / (      )

Samples saved:

1. Histo: Salt gland, brain, adrenal (A); thymus, liver (B); kidney (C); small and large intestines (D); bladder, large intestines (E); spleen, pancreas, spleen (F); lungs (G).
2. Frozen: liver, kidney, thymus, small intestine(2), large intestine.
3. Bact: liver, kidney, coelomic swab.

BACTERIOLOGY: (NWHC-Madison) Swab of the coelomic cavity revealed growth of *Enterococci* sp. and *Citrobacter freundii*. Liver cultures revealed growth of gram negative and positive bacteria and *Erysipelothrix rhusiopathiae*. Kidney cultures revealed growth of *Serratia plymuthica*, *Shewanella putrefaciens* and gram positive bacteria.

HISTOPATHOLOGY:

Liver: There are diffuse areas of liquefaction necrosis of hepatocytes accompanied by infiltrates of red cells, homogenous eosinophilic material, and thrombocytes. In the periphery of these areas are occasional clumps of basophilic granular pigment. Hepatocytes are diffusely distended with well defined variably sized clear round vacuoles. Gram stain fails to reveal bacteria.

Small intestines: An isolated trematode eggs surrounded by macrophages is within the submucosa.

Lung: Diffusely, small airways contain clumps of fibrillar eosinophilic material mixed with red cells.

Spleen: Diffusely, the white pulp contains focal infiltrates of red cells.

All other tissues: No remarkable lesions are seen.



Morphologic Diagnoses:

- 1) Severe, diffuse, hemorrhage, liver, spleen.
- 2) Moderate, diffuse, hemorrhage, bronchioles, lungs.

Comments: The animal had severe diffuse bleeding in multiple organs the cause of which was undetermined. The intact small intestines argued against putative fireworm ingestion as cause of death. The impacted small intestines were probably secondary to gut stasis as a result of not eating. Although bacterial infection is certainly a possible cause of the disseminated hemorrhage and would explain vacuolation of the liver (toxemia), no single predominant bacteria could be identified on cultures, and no bacteria were seen on histology.

Final Diagnosis (in order of importance)

	topog.	morph.	etiol.	funct.	disease	link
1. <u>Undetermined</u>	(T00010)	( )	(E00040)	(FY3500)	( )	( )
2. _____	( )	( )	( )	( )	( )	( )
3. _____	( )	( )	( )	( )	( )	( )

Diagnostic findings may not be used for publication without the pathologist's knowledge and consent.



# DIAGNOSTIC CASE REPORT

U. S. GEOLOGICAL SURVEY-BIOLOGICAL RESOURCES DIVISION  
NATIONAL WILDLIFE HEALTH CENTER-HONOLULU FIELD STATION  
P. O. BOX 50167, 300 ALA MOANA BLVD., Rm. 8-132  
HONOLULU, HAWAII 96850  
808-792-9520, FAX 792-9596, thierry\_work@usgs.gov

Case # 17962

Epizoo #

**Submitter:**

Mr. George Balazs  
NOAA-NMFS-SWFC  
2570 Dole Street  
Honolulu, HI 96822-2396

**Specimen description/identification:**

1 green turtle carcass


**Date Submitted:** (04/15/2005)  
(mm/dd/yy)


**Date Collected:** (04/11/2005)  
(mm/dd/yy)


**Date Examined:** (04/15/2005)  
(mm/dd/yy)

**Location:** Mauna Lani Resort

**County/Site:** Oahu

 **HISTORY:** This animal was retrieved from waters off Mauna Lani on Hawaii and shipped to Honolulu. It was taken to the Makai Animal Clinic for examination and the decision was made to euthanize due to poor prognosis. **This is MTRP ID 04-11-05B.**

 **SIGNIFICANT FINDINGS:** This was an hypoproteinemic immature male in fair body condition with numerous tumors on skin, eyes, and mouth compatible in morphology with fibropapillomatosis. Histology confirmed the skin tumors to be fibropapillomas while chronic inflammation associated with trematode eggs was seen in the spleen and lung.

 **DIAGNOSIS:** Fibropapillomatosis and vascular fluke infection.

**COMMENTS:** This animal succumbed to multiple tumors compatible in morphology with fibropapillomatosis, and these tumors likely contributed to its suboptimal body condition. The turtle also had evidence of infection with vascular flukes.

**MANAGEMENT:** None given the uncertain etiology of FP and the unknown life cycle of vascular flukes.

\_\_\_\_\_ Preliminary Report ( / / ) \_\_\_\_\_ X \_\_\_\_\_ Final Report (06/17/2005)  
date date date

Necropsy report is:  X  enclosed \_\_\_\_\_ available upon request.

X  : Copies of this report sent to:  
-Dr. Bob Morris (Makai Animal Clinic)  
-Mr. Pi'i Laeha

If you have questions regarding this case, contact Thierry M. Work MS, DVM, MPVM at 808-792-9520. Include above Case Number. Diagnostic findings may not be used for publication without the pathologist's knowledge and consent.



**NATIONAL WILDLIFE HEALTH CENTER  
NECROPSY REPORT**

Submitter's Name, Affiliation Address  
Mr. George Balazs  
NOAA-NMFS-SWFC  
2570 Dole Street  
Honolulu, HI 96822

Case: 17962  
Accession: 001  
Collected: 04/11/2005  
Exam Date: 04/15/2005  
Pathologist: T.M. Work  
Prosector: T.M. Work

Species: Green turtle Specimen: Carcass  
Bandtype: (E) Ref/Band No: (041105B) Euth: (23) Weight (Gm): (17364)  
History Summary: This animal was retrieved from waters off Mauna Lani on Hawaii and shipped to Honolulu. It was taken to the Makai Animal Clinic for examination and the decision was made to euthanize due to poor prognosis. Body measurements (cm): SCL-50.5, CCL-54.5, TTL-10.0. Blood results: PCV-23, TS-2.4. MTRP stranding identification is 041105B.

EXTERNAL/INTERNAL OBSERVATIONS - LABORATORY RESULTS

**External:** There are 17 external tumors: 5 on the neck, 2 each on the right and left hind flippers and left eye, and 1 each on the right and left front flippers, right eye, left jaw, nares, and plastron.

**Internal:** There is a 2 cm glottal tumor. The liver is firm, smooth, homogenous purple-brown and appears small. The heart is firm, smooth, homogenous red-pink and otherwise unremarkable. The lungs are spongy and homogenous pink. The tracheal lumen is smooth and tan. The spleen is firm, smooth, and homogenous red-brown. The kidneys are firm, smooth, and homogenous brown. The brain is smooth, firm, and homogenous tan-pink. There is a 4.5 X 2.5 cm tumor displacing the left salt gland. The esophageal mucosa is smooth and homogenous tan. The forestomach contains *Turbinaria* algae. The stomach is empty. The intestines are tan and empty. No lesions are seen in the brain, musculoskeletal system, pericardial sac, heart valves, tracheal lumen, gall bladder, gastrointestinal mucosa and serosa, testes, adrenal and thyroid glands, pancreas and superficial and cut surface of heart, kidney, spleen, and lungs.

Preliminary Diagnosis: Fibropapillomatosis Exam Type: (GO)  
Sex (M) Age (I)/( ) Body Cond. (F) Postmortem State (E) Giz. Lead ( )/( )  
Samples saved:

1. Histo: Brain (A); spleen (B); lung (C); skin (D-F)

**HISTOPATHOLOGY:**

**Spleen:** There are moderate numbers of trematode eggs accompanied by small numbers of macrophages and giant cells.

**Lung:** Within the muscularis are moderate numbers of trematode eggs accompanied by small numbers of macrophages and giant cells. Occasional nidi of eosinophilic necrotic debris surrounded by giant cells are noted.

**Skin:** Tumors consist of an arborizing matrix of fibroblasts and connective tissue overlaid by markedly acanthotic epidermis projecting prominent anastomosing rete pegs. One tumor exhibits massive erosion of epidermis with associated hemorrhage within the tumor matrix. Within other tumors are cysts lined by acanthotic epidermis. Other sections contain prominent lymphoid infiltrates within underlying connective tissue.

**All other tissues:** No remarkable lesions are seen.

**Morphologic Diagnoses:**

- 1) Severity, diffuse, chronic, fibropapillomatosis, skin.
- 2) Moderate, focal, chronic, inflammation with trematode eggs, lungs, spleen.

Comments: Gross and microscopic lesions pointed to fibropapillomatosis and vascular flukes contributing to hypoproteinemia and loss of body condition.

Final Diagnosis (in order of importance)

	topog.	morph.	etiol.	funct.	disease	link
1. <u>Fibropapillomatosis</u>	(T01000)	(M80001)	( )	( )	( )	( )
2. <u>Fluke infection</u>	(T41000)	(M40000)	( )	(F01310)	( )	( )
3. _____	( )	( )	( )	( )	( )	( )

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**NATIONAL WILDLIFE HEALTH CENTER  
NECROPSY REPORT**

Submitter's Name, Affiliation Address  
Mr. George Balazs  
NOAA-NMFS-SWFC  
2570 Dole Street  
Honolulu, HI 96822

Case: 17962  
Accession: 001  
Collected: 04/11/2005  
Exam Date: 04/15/2005  
Pathologist: T.M. Work  
Prosector: T.M. Work

Species: Green turtle Specimen: Carcass  
Bandtype: (E) Ref/Band No: (041105B) Euth: (23) Weight (Gm): (17364)  
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Preliminary Diagnosis: Fibropapillomatosis Exam Type: (GO)  
Sex (M) Age (I)/( ) Body Cond. (F) Postmortem State (E) Giz. Lead ( )/( )  
Samples saved:

1. Histo: Brain (A); spleen (B); lung (C); skin (D-F)

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	topog.	morph.	etiol.	funct.	disease	link
1. <u>Fibropapillomatosis</u>	(T01000)	(M80001)	( )	( )	( )	( )
2. <u>Fluke infection</u>	(T41000)	(M40000)	( )	(F01310)	( )	( )
3. _____	( )	( )	( )	( )	( )	( )

Diagnostic findings may not be used for publication without the pathologist's knowledge and consent.



Danny  
How  
Blessing  
Something wrong

ML

## TURTLE EXAMS MAUNA LANI 11-23-04

Thirteen turtles were examined and blood was drawn for CBC counts and blood chemistries. The distribution of the turtles were:

Atrium- 5 turtles (# 24, 28, 29, 37 & 39).

Large quarantine tank- 4 turtles (# 20, 21, 26, & 36).

Small quarantine tank- 3 turtles (# 23, 25 & 30).

### SUMMARY OF PHYSICAL FINDINGS

Atrium : #37 3 pharyngeal nodules

#39 small plaque on tip of tongue (present last month)

Large quarantine: # 20 several pinpoint nodules on roof of mouth

# 26 pinpoint pharyngeal nodules

# 36 healing abrasions at base of left flipper, over eye and ventral neck. These probably due to rubbing on overflow pipe and were minor.

Small quarantine tank: # 30 abnormal shell growth. Sunken area on left

Shell in area of 2<sup>nd</sup> vertebral and 3<sup>rd</sup> costal scute

This appears much like the abnormal shell growths seen at the Maui Ocean Center.

Pyramid  
Thickening  
at center  
of  
scutes

No lesions noted on other turtles.

All turtles appear in good physical condition.

### BLOOD RESULTS

All CBC & heterophil/lymphocyte ratios appeared normal

The following blood chemistry values deviated from 12 previous "normal" releases and 53 "normal Kaneohe Bay juveniles.

Alkaline phosphatase (IU/L) was mildly increased in # 20 & 38 (normal mean 76 vs 225 & 208) This test is not organ specific and difficult to interpret. Hepatobiliary disease may cause elevations as well as osteoblastic activity.

ALT(IU/L) was severely elevated in # 20 & 23 (normal mean 7.5 vs 171 & 161). This test is non-organ specific but elevations are associated with muscle and liver damage.



AST( IU/L) was elevated in # 20, 21, 25, 29, 36, 39 (normal mean 160 vs 1319, 823, 592, 894, 882, 528). This test can be elevated with muscle or liver damage.

Albumin and globulin levels normal in all turtles.

Phosphorus(mg/dl) levels were elevated in all turtles (normal mean 7.4 vs range of 9.4-13.6). Young turtles have a higher normal value than adults. I would attribute these values possibly due to the squid being fed. Squid is high in P and low in calcium.

Calcium(mg/dl) levels were low in # 23, 25, 30 (normal mean value 8.0 vs 6.9, 6.0, 6.6). A three of these turtles are in the small quarantine tank.

*Due to abnormal diet*  
Calcium/phosphorus ratios were off in all turtles except # 24, 37, 39 (all in atrium). This is due to the high P values.

CK (Creatinine kinase IU/L) levels were very elevated in # 23 & 25. This enzyme is usually associated with muscle damage and has a wide range of values (378-8,604 in 12 normal turtles). Values noted for the two were 11,416 & 48,416.

Glucose levels were higher than I usually see (88-166 for the "normal" 12 turtles vs 154-219). These values can be considered to be in the high normal levels.



Bones?

COMMENTS & RECOMMENDATIONS

All turtles have been eating well. The diet consists of 2x daily feedings, usually lettuce in AM and squid & fish in PM. I recommend that the amount of squid to be decreased and the whole smelt increased and shrimp with shells be fed 3x weekly. I also recommend add spinach to the diet 2 days weekly to replace the lettuce on those days. Costco sells large bags. I am concerned with the ca/p ratios and the abnormal carapace growth we are seeing in # 30.

The high values relating to muscle and/or liver damage raises some concern. The significance seems real but cause is unknown at this time. Observations on the behavior and appetite of all turtles should be recorded, especially the ones in the small in the small quarantine tank. Blood CBC and chemistries will be repeated on selected turtles in late January.

Robert A. Morris DVM  
348 Iliaina St.  
Kailua, HI 96734



DRIVEN OVER TRACTOR AND KILLED  
 BY BACK HOE 12/19/04  
 Thursday

Historical Information for Turtle Tag V704

Tag Information:

Tag Number	Date	Tag Type	Tag Position
1A776832	8/8/1997	PIT	PIT
500E0F3E6E	8/30/2000	PIT	LHF
7D6D2662	8/21/1997	PIT	PIT
V704	6/16/1997	1681	R23
V712	8/8/1997	1681	LFL

Date	Type of Encounter	Location	Tumor/Rank	Nesting/Act	Straight Carapace	Since Last Encounter			Overall			
						Interval Month	Year	Growth-Rates cm/mo	cm/yr	Interval Month	Year	Growth-Rates cm/mo
6/16/1997	Near Shore	Hawaii, Mauna Lani, Captive	0	-	---	---	---	---	---	---	---	---
8/8/1997	Near Shore	Hawaii, Mauna Lani, Captive	0	-	37.8	1.0	0.1	---	---	1.0	0.1	---
8/21/1997	Near Shore	Hawaii, Mauna Lani, Captive	0	-	37.9	---	---	---	---	2.0	0.2	---
7/3/1998	Near Shore	Hawaii, Mauna Lani, Captive	0	-	41.9	10.0	0.8	0.4	5.0	12.0	1.0	---
7/4/1998	Near Shore	Hawaii, Mauna Lani	0	-	---	---	---	---	---	12.0	1.0	---
8/30/2000	Near Shore	Hawaii, Keawa Nui Bay	0	-	42.1	25.0	2.1	---	---	38.0	3.2	---



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Date	Type of Encounter	Location:	Tumor Rank:	Nesting Act:	Curved Carapace	Since Last Encounter				Overall				
						Interval Month	Year	Growth-Rates cm/mo	Growth-Rates cm/yr	Interval Month	Year	Growth-Rates cm/mo	Growth-Rates cm/yr	
6/16/1997	Near Shore	Hawaii, Mauna Lani, Captive	0	-	---	---	---	---	---	---	---	---	---	---
8/8/1997	Near Shore	Hawaii, Mauna Lani, Captive	0	-	40.0	1.0	0.1	---	---	1.0	0.1	---	---	---
8/21/1997	Near Shore	Hawaii, Mauna Lani, Captive	0	-	40.5	---	---	---	---	2.0	0.2	---	---	---
7/3/1998	Near Shore	Hawaii, Mauna Lani, Captive	0	-	45.0	10.0	0.8	0.5	5.6	12.0	1.0	---	---	---
7/4/1998	Near Shore	Hawaii, Mauna Lani	0	-	---	---	---	---	---	12.0	1.0	---	---	---
8/30/2000	Near Shore	Hawaii, Keawa Nui Bay	0	-	45.0	25.0	2.1	---	---	38.0	3.2	---	---	---



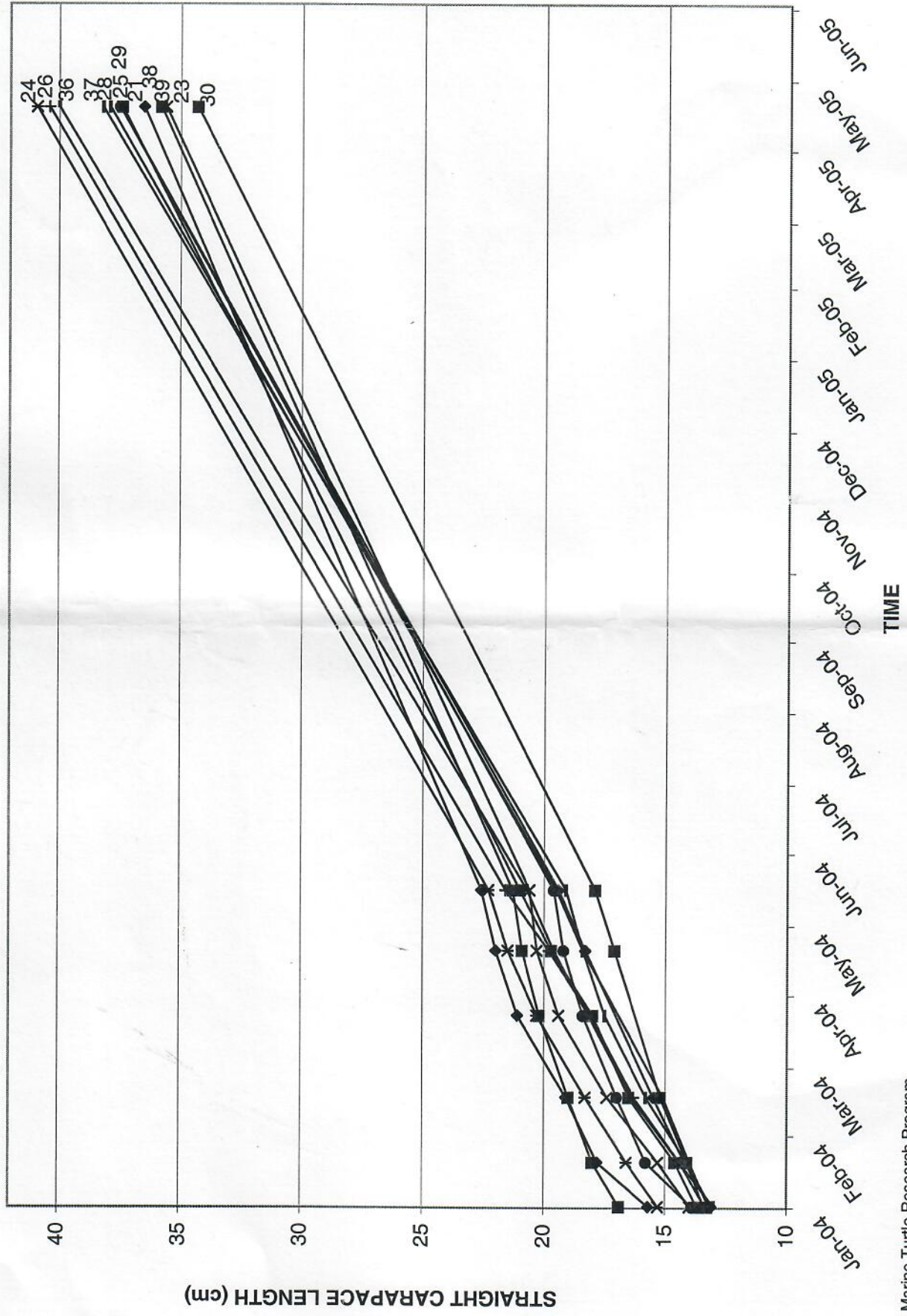
MTRP Hilite for the week of January 10-14, 2005

A small but potentially very important short-term captive turtle experiment has been initiated in collaboration with Drs. Thierry Work (USGS), James Casey (Cornell University), and Robert Morris (Oahu clinical turtle veterinarian). Seven 6-month old green turtles, captive bred by Sea Life Park for research by the PIFSC, are being raised in a customized seawater tank at Kewalo Research Facility. The other 7 turtles are being reared in an equivalent manner on the West Coast of the Big Island by the Mauna Lani Resort. During the course of the study, estimated to be 6 months, blood and other samples will be periodically collected (harmless to the turtles) to compare antibody production and various physiological characteristics resulting from living in the two different seawater environments. Wild turtles in the vicinity of the Mauna Lani Resort are free of fibropapilloma tumor disease. In contrast, wild turtles around Oahu are often afflicted to varying degrees with this disease. Both Sea Life Park and the Mauna Lani Resort have a 25-year history of rearing small numbers of turtles for conservation, research, and educational outreach purposes. JIMAR Marine Turtle Biological Technician Bridget McBride will be in charge of the day-to-day care and feeding of the turtles. To streamline the process, automated turtle pellet feeders have been installed. In addition, with the helpful and expert assistance of ITS Russell Price and Ross Tasaka, an inexpensive remote camera will be placed near the tank to view the turtles' status, well-being, and feeding activities via the intranet when MTRP staff are not at Kewalo.

George Balazs recently met with Dr. Renato Lenzi, the new General Manager of Sea Life Park, to discuss ongoing cooperative research and educational outreach projects with sea turtles. Sea Life Park has been successfully breeding green turtles since 1976 with "pre-Act" display turtles (pre-US Endangered Species Act). Several hundred hatchlings are produced annually, most of which are immediately tagged with tiny PIFSC flipper tags and released into the sea. PIFSC research of sea turtles has been enhanced on numerous occasions as the result of this close 20-year scientific working relationship with Sea Life Park and their staff. Dr. Lenzi indicated that the new owners of the Park are committed to maintaining a quality sea turtle display facility with even greater emphasis on public education. He expressed appreciation to the PIFSC for scientific advice provided to the Park in the past, and looked forward to continuing a productive and enjoyable relationship.



**STRAIGHT CARAPACE LENGTH OF MAUNA LANI SEA LIFE PARK TURTLES**  
**UPDATED MAY 2005**  
**N=12**



Marine Turtle Research Program  
 NOAA, National Marine Fisheries Service  
 Pacific Islands Fisheries Science Center  
 2570 Dole Street  
 Honolulu, Hawaii 96822-2396

SmMaunaLaniTurtles\_WgtSCL\_updatedMay2005.xls  
 6/6/05 BBM



SCL Data of Mauna Lani Sea Life Park Turtles, N=12

Turtle ID Date	# 21		WI 32		# 23		WI 36		# 24		WI 37		# 25		WI 39		# 26		WI 40		# 28		WI 46	
	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL
1/9/04	0.89	13.7	1.06	14.0	1.12	15.3	1.06	14.0	1.12	15.3	1.06	13.9	0.89	13.35	0.82	13.1								
1/28/04	1.04	14.6	1.28	15.3	1.36	16.6	1.28	15.3	1.36	16.6	1.28	15.8	1.04	14.4	0.96	14.1								
2/25/04	1.4	16.5	1.86	17.4	2.0	18.3	1.86	17.4	2.0	18.3	1.56	17.0	1.56	16.3	1.44	15.8								
3/31/04	1.86	18.0	2.42	19.4	2.26	20.3	2.42	19.4	2.26	20.3	1.98	18.4	2.04	18.1	1.72	17.5								
4/28/04	2.32	19.7	2.80	20.3	3.02	21.5	2.80	20.3	3.02	21.5	2.08	19.2	2.74	19.8	1.98	18.4								
5/24/04	3.04	21.0	2.96	20.6	3.46	22.3	2.96	20.6	3.46	22.3	2.24	19.6	3.54	21.6	2.52	19.5								
4/27/05	16.80	37.4	15.90	35.6	22.90	40.9	15.90	35.6	22.90	40.9	17.70	37.5	24.50	40.4	18.00	37.9								

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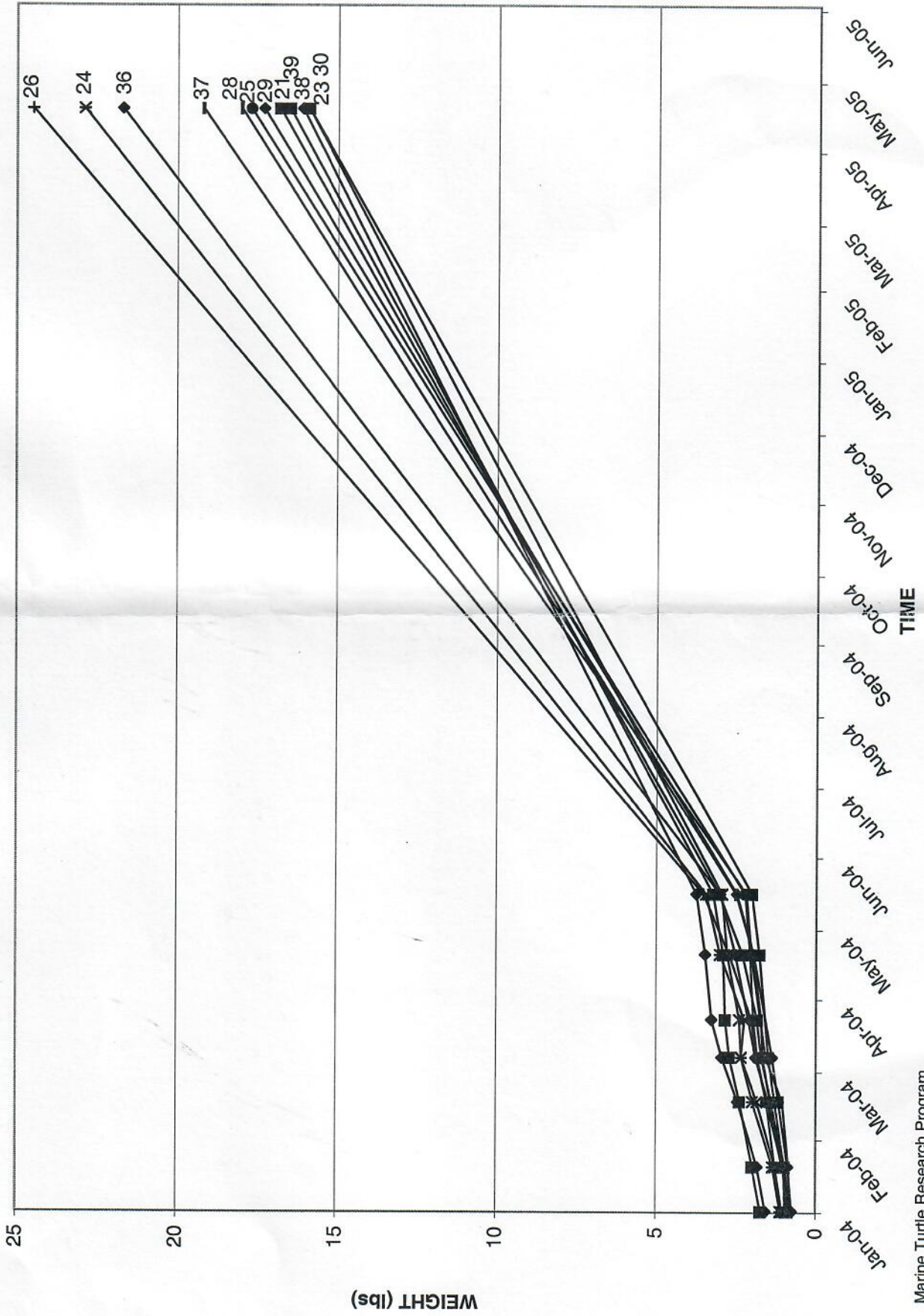
# 29	WI 48		# 30		WI 51		# 36		WI 73		# 37		WI 75		# 38		WI 93		# 39		WI 94			
	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight (lbs)	SCL (cm)	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL		
0.75	13.1	0.97	13.4	13.0	0.8	13.2	1.58	15.7	1.74	16.9	0.86	14	1.84	17.8	2.0	18.0	2.46	19.1	2.4	19.0	3.28	21.1	2.86	20.2
0.88	14.2	1.0	14.1	14.4	1.06	14	1.84	17.8	2.0	18.0	1.06	15.1	3.28	21.1	2.86	20.2	3.48	22.0	2.92	20.9	3.76	22.6	3.24	21.3
1.18	15.5	1.3	15.2	16.4	1.5	16.4	2.46	19.1	2.4	19.0	1.06	15.1	3.28	21.1	2.86	20.2	3.48	22.0	2.92	20.9	3.76	22.6	3.24	21.3
1.96	18.3	1.78	17.1	19.6	2.54	19.6	3.28	21.1	2.86	20.2	2.04	18.4	3.48	22.0	2.92	20.9	3.76	22.6	3.24	21.3	16.10	36.5	16.50	35.8
2.5	19.4	2.02	17.9	20.7	3.02	20.7	3.48	22.0	2.92	20.9	2.2	19.1	3.76	22.6	3.24	21.3	16.10	36.5	16.50	35.8				
17.30	37.5	15.90	34.3	40.0	21.70	40.0	19.20	38.2	16.50	35.8	19.20	38.2	16.10	36.5	16.50	35.8								

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**WEIGHT OF MAUNA LANI SEA LIFE PARK TURTLES**  
**UPDATED MAY 2005**  
**N=12**



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	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL	Weight	SCL
1/9/04	0.89	13.7	1.06	14.0	1.12	15.3	1.06	14.0	1.12	15.3	1.06	13.9	1.06	13.9	0.89	13.4	0.89	13.4	0.82	13.1				
1/28/04	1.04	14.6	1.28	15.3	1.36	16.6	1.28	15.3	1.36	16.6	1.28	15.8	1.28	15.8	1.04	14.4	1.04	14.4	0.96	14.1				
2/25/04	1.40	16.5	1.86	17.4	2.00	18.3	1.86	17.4	2.00	18.3	1.56	17.0	1.56	17.0	1.56	16.3	1.56	16.3	1.44	15.8				
3/15/04	1.72		2.36		2.36				2.36		1.84		1.84				1.86		1.68					
3/31/04	1.86	18.0	2.42	19.4	2.26	20.3	2.42	19.4	2.26	20.3	1.98	18.4	1.98	18.4	2.04	18.1	2.04	18.1	1.72	17.5				
4/28/04	2.32	19.7	2.80	20.3	3.02	21.5	2.80	20.3	3.02	21.5	2.08	19.2	2.08	19.2	2.74	19.8	2.74	19.8	1.98	18.4				
5/24/04	3.04	21.0	2.96	20.6	3.46	22.3	2.96	20.6	3.46	22.3	2.24	19.6	2.24	19.6	3.54	21.6	3.54	21.6	2.52	19.5				
4/27/05	16.80	37.4	15.90	35.6	22.90	40.9	15.90	35.6	22.90	40.9	17.70	37.5	17.70	37.5	24.50	40.4	24.50	40.4	18.00	37.9				

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# 29	WI 48		# 30	WI 51		# 36	WI 73		# 37	WI 75		# 38	WI 93		# 39	WI 94	
	Weight	SCL		Weight	SCL		Weight	SCL		Weight	SCL		Weight	SCL		Weight	SCL
0.75	13.1		0.97	13.4		0.77	13.0		0.80	13.2		1.58	15.7		1.74	16.9	
0.88	14.2		1.00	14.1		1.06	14.4		0.86	14.0		1.84	17.8		2.00	18.0	
1.18	15.5		1.30	15.2		1.50	16.4		1.06	15.1		2.46	19.1		2.40	19.0	
1.38			1.50			1.90			1.58			2.96			2.72		
1.96	18.3		1.78	17.1		2.54	19.6		2.04	18.4		3.28	21.1		2.86	20.2	
2.5	19.4		2.02	17.9		3.02	20.7		2.2	19.1		3.48	22.0		2.92	20.9	
17.30	37.5		15.90	34.3		21.70	40.0		19.20	38.2		16.10	36.5		16.50	35.8	

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MARINE TURTLE RESEARCH PROGRAM  
NOAA NATIONAL MARINE FISHERIES SERVICE  
INTERNAL USE ONLY

Reduction  
Xerox

TDRS:  
LOGBOOK:

*Mauna Lani*

SEA TURTLE STRANDING QUESTIONNAIRE:

"Stranding" is any injured, sick, dead, or abnormally behaving sea turtle ashore. Due to personnel safety concerns, we do not normally go into water over knee-deep to salvage a turtle, however we do record such reports. A physical response will be made to stranded (live or dead) turtles when appropriate and possible. Personnel and other resource limitations, including other cases in progress, may cause delays.

Name: Mr. Pettles (Mauna Lani Dive Shop) Date/time of call: 4/11/05 ~ 1pm ish  
Mailing address: (optional- to send sea turtle literature) Via Mac Rice \*\*Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

LOCATION

Where is the turtle located? (name and specific area of beach, driving directions, etc.)

Mauna Lani -  
One of Mr. Pettles' dive operators grabbed the turtle per GHB's request.  
Mac Rice plv turtle @ Mauna Lani is shipping it to NMFS Honolulu  
Is the turtle on shore? If not, what is the distance from shore/ depth of water? \_\_\_\_\_

Are there any obvious signs as to the cause of death/injury? Description? (tumors, fish hook/ line, etc.) OVER →

TURTLE

Is the turtle alive or dead? (A) D Unknown  
Is it possible for one person to lift and carry the turtle? Y N  
"Best guess" of the weight of the turtle? \_\_\_\_\_ lbs.  
About how large is the turtle (shell length)? 51cm

Alive- What is the behavior of the turtle? (observed swimming, lethargic, buoyant, responsive, etc.)  
TUMBLER, eyes severe

How long have you observed the turtle? \_\_\_\_\_

Dead- What is the condition of the turtle? (rotten, fresh, intact, etc.)  
Is it above the high tide mark so it will not float away? \_\_\_\_\_

How much longer will you (the contact) be home/ on site? \_\_\_\_\_

Any evidence of law enforcement violation? If yes, please describe briefly: \_\_\_\_\_

MTRP USE ONLY: Notes:  
Name: GHB/BM  
Literature sent? No

<b>SSG Pager 288-5685</b>	<b>NMFS-LE</b> 541-2727 800-853-1964	<b>BIG ISLAND</b> Hilo 327-7780 pgr. 327-7794 pgr. 327-7795 pgr. Kona 881-4200	<b>Maui</b> Kihei area 278-3375 all other Maui areas 893-3172 pgr.
<b>DOCARE</b> 587-0077 Oahu 984-8110 Maui 974-8208 Hilo/ 327-4961 Kona/ 887-6196 Waimea 274-3344/ 274-3521 Kauai 553-5190 Molokai 565-7916 Lanai 3/8/2005			



**Hooked/ entangled questions:**

If a hook is present, where is it embedded in the turtle? (FF, neck, mouth...?)

How deep does the hook appear to go into the turtle?

What is the estimated size of the hook? (length of your thumb? smaller? larger?)

Is there line attached to the hook? If yes, about how long is the line- a few inches, a foot or more?

If line is present, is it wrapped around the neck and/or flippers? Does it extend into the mouth?

Have you seen this turtle previously in the same area? If so, when?

What was the turtle doing when seen? Swimming, feeding, resting, etc?

**Tumor location/ description:**

Head:

Eyes:

Mouth:

Neck:

LFF:

RFF:

HF's:

Other:

*Vial for skin?*

*Examined*

*Disposal authorized*

*247-3553*

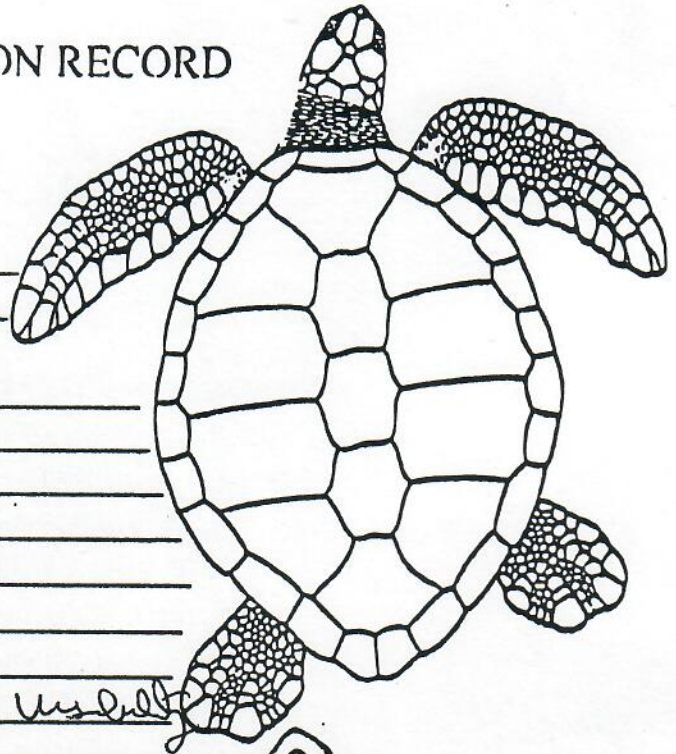
*YWCA of  
York Bay Dr.  
park left of  
jetty*

*45-021  
Likeke*



# LIVE TURTLE EXAMINATION RECORD

Date: 4/10/05  
 Turtle ID: KONA  
 Comments: \_\_\_\_\_



## PHYSICAL EXAM

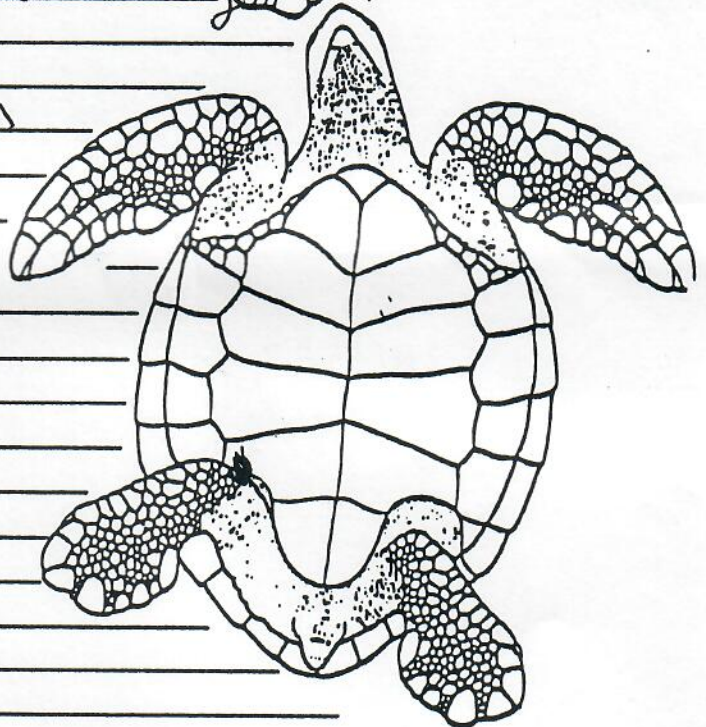
Head and neck: 6-#2 200 of 1002

Mouth: glands #2 tumor  
2 Bowls #4 #3 nose

Eyes: L #3 tumor - non-used  
R #3 + #2 tumor - very limited use only

Front flippers: L #2  
R #2 #2 loss of plastron

Shell: normal



Plastron: Mild flattening

Rear flippers: L - 1#2, 1#3, 1#1

Tail: normal

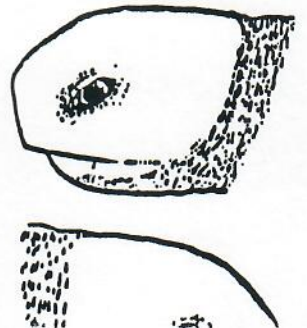
BODY CONDITION: mod #1

## SAMPLES TAKEN

PCV 22 T.P. 1.9  
 CBC \_\_\_\_\_ Chemistries \_\_\_\_\_  
 Others \_\_\_\_\_

## APPROXIMATE TUMOR SIZE CATEGORIES:

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



RECOMMENDATIONS: Euthanasia - extensive tumors  
moderately blind - large ~~glands~~ jaw tumor - glands tumor  
had at Kaula for TW to do -

Signed: Roland A. Morris, DVM



NATIONAL MARINE FISHERIES SERVICE  
 Marine Turtle Research Program  
 2570 Dole Street  
 Honolulu, Hawaii 96822-2396

SEA TURTLE NECROPSY/TUMOR FORM

DATE FORM FILLED OUT: 4/12/05

NECROPSY DATE: 4/15/05

17962

CONTACT: Mr. Pettes via Mark Rice	MTRP ID DATE: 4/11/05 B	LOCATION: Mauna Lani Kona, Hawaii
PERSON RECORDING DATA: ES/CW		BJ: TW

DESCRIPTIVE REMARKS: Retrieved by dive operator at Mauna Lani in water. Plu by M. Rice. Shipped to Honolulu 4/11/05. Plu by R Luna (SSG) and taken to MAC 4/11/05. Plu by ES/CW and taken to KRF 4/12/05.

NECROPSY: tumors taken for culture by TW.  
 - large tumor in salt gland  
 body condition: Fair  
 Body decomp: ⊗  
 GIT: 0-5%

PRE-NECROPSY:

skin barnacles  
 discolored patch on chry  
 CA on carapace

TUMOR SCORE: 2	TAGS:	SEX: Male, Female, or Undetermined: M
ORAL TUMORS EXT: YES OR NO: Y	MT#	DB: ⊕ VB: ⊕
EMACIATION: 1		

STRAIGHT CARAPACE LENGTH: 50.5	NOTCH LENGTH: 50.9	HEAD WIDTH: 8.7
WIDTH: 38.5		RIGHT FRONT FLIPPER WIDTH: 8.5
CURVED CARAPACE LENGTH: 54.5		TAIL LENGTH: T: 10.0 C: 6.5
WIDTH: 46.5		PPS (Y/N): N
PLASTRON LENGTH: 40.1		LATERAL: 19.2
WEIGHT: 38.2 57.0-18.8	AXIAL: 19.0	

SAMPLES COLLECTED (Y/N):

BLOOD: Y	FORESTOMACH CONTENTS: Y	PHOTOS: Y	OTHER:
HUMERI: Y	SKIN IN SALT: Y		



LOCATION, SIZE, AND NUMBER OF TUMORS

	#1	#2	#3	#4	TOTAL	REMARKS
RIGHT EYE		2			2	#2 on eye, #2 lower lid
LEFT EYE		1	1		2	#3 on eye, #2 on lower lid
MOUTH		2	1		3	#2 glottis, #3 L)H ← invading salt gland
NECK		8			8	
RFF		1			1	
LFF		1			1	
RHF	1	3			4	#2 w/wn skin + scrape
LHF		2			2	
CLOACA / TAIL					0	
SEAMS / SCUTES		1			1	on plastron above RHF
INTERNAL					0	
TOTAL	1	12	2		24	

ORAL TUMORS VISIBLE EXTERNALLY: YES OR NO

Y

TUMOR SCORE:

2

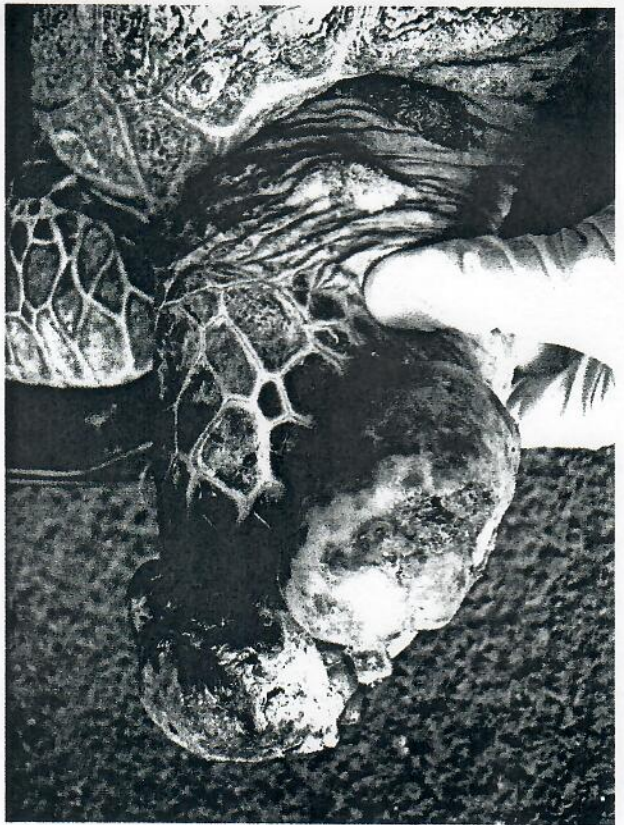
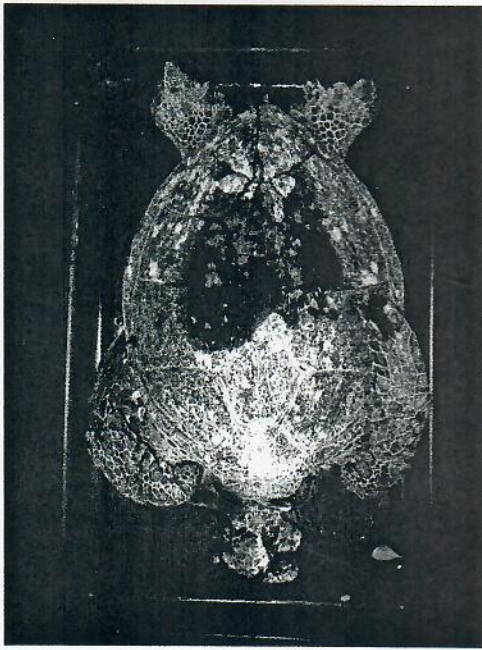
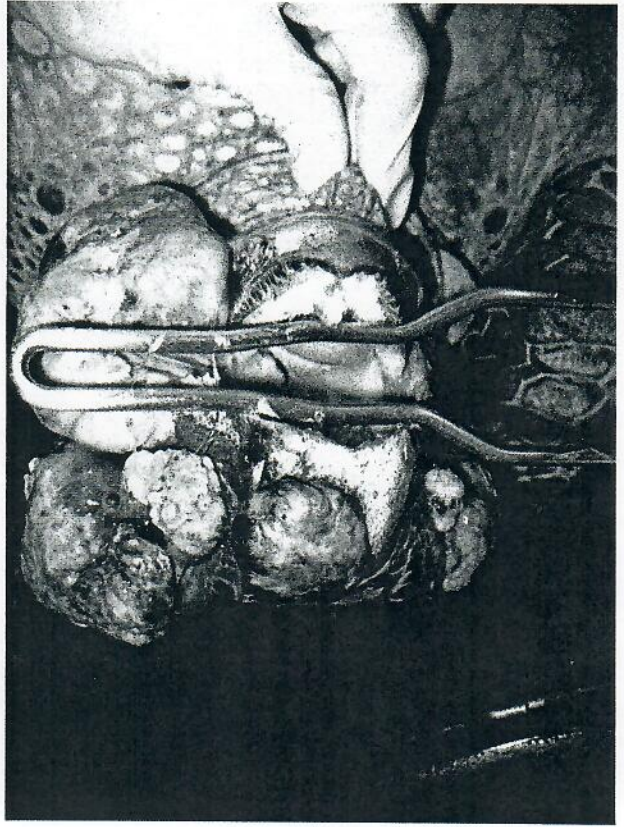
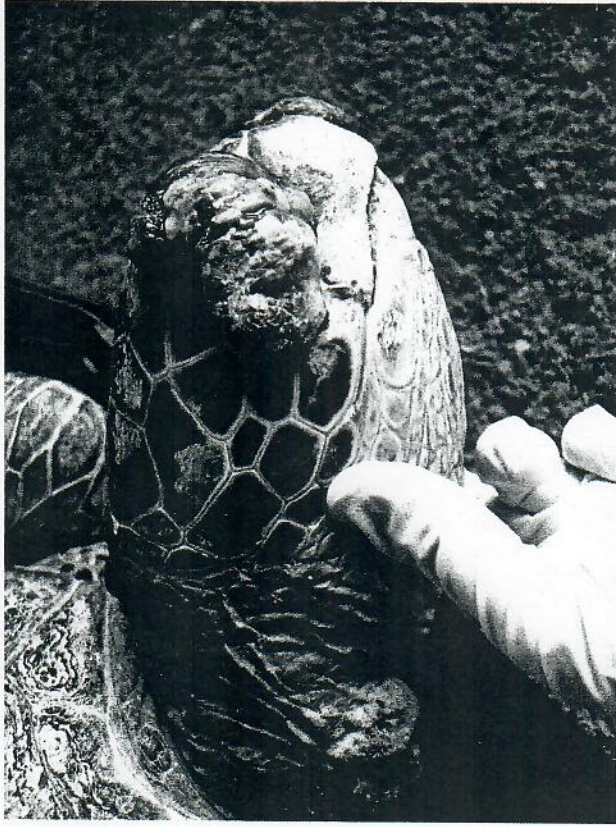
OTHER INFORMATION:

APPROXIMATE TUMOR SIZE CATEGORIES:

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



4/11/05 B  
Kona, Hawaii







# Return of the Honu

**Hawaiian green sea turtles  
stage a comeback**

By Sophia V. Schweitzer

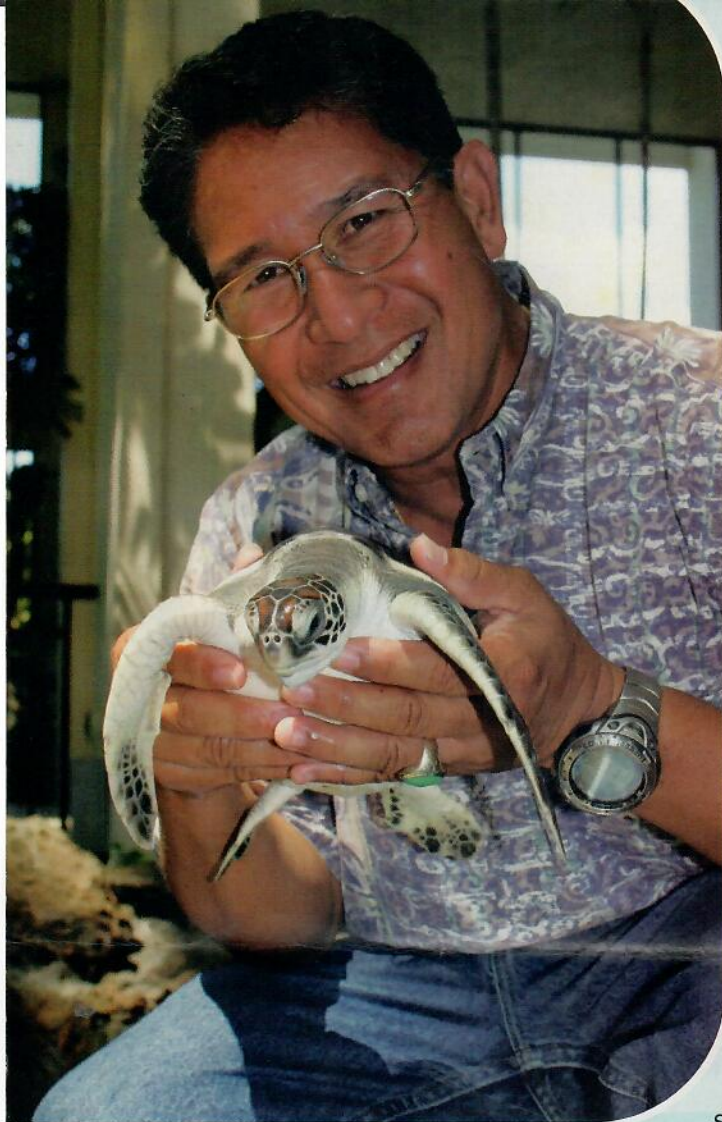
Photographs by Kirk Lee Aeder

**I**n a small, secluded inlet called Nānuku, blending in with coral sand and lava rocks, a Hawaiian green sea turtle opens its right eyelid, lifts its flipper, looks at me, decides all is cool, then continues to bask in the morning sun. This resting and sunning on shore is typical for turtles in Hawai‘i, says Daniel “Kaniela” Akaka Jr., cultural specialist at Hawai‘i Island’s Mauna Lani Resort. “This is our kupuna kahiko, an ancient ancestor, the honu,” he says. He points at the ocean. “Look, another one is swimming in.”

Akaka has brought me to this cove to talk about the Hawaiian green sea turtle, a species that outlived the dinosaurs, yet was threatened by extinction in recent years. “In Hawaiian culture, honu was a food source,” he explains, “but it was also an ‘aumakua, a family guardian. Honu was seen as a guide with wisdom. Honu was a navigator, bonded to the Hawaiians. The ancient Hawaiian navigators envisioned the map of the world on honu’s carapace to find the way back home.”







**HONU 'OHANA:** At Mauna Lani Resort, (clockwise, from left) cultural specialist Daniel "Kaniela" Akaka Jr. shares insights about honu's place in Hawaiian tradition, and Lōkahi manager Pi'i Laeha greets volunteer Bianca Shropshire and demonstrates how to clean algae off a sea turtle's shell.

The traditional regard for honu changed in the late 1960s, when Hawai'i blossomed as a tourist destination and turtles became a favorite and lucrative restaurant dish. Turtle meat consumption jumped from 380 pounds in 1963 to more than 25,500 pounds in 1972. Honu—called "green turtle" because of the color of its body fat—became scarce. "Honu is our link to nature; it symbolizes the past that is in the present," Akaka says. "In Hawaiian wisdom, everything is interdependent. If honu goes, will we go as well?"

The basking turtle lifts its flippers and, without any hurry, heads back for the waves.

The truth is that sighting honu, although always awe-inspiring, is not all that uncommon these days. During the last few decades, this remarkable creature has once again shown its survival skills. Supported by a dedicated scientist who has rallied the support of educators, coworkers, and volunteers, honu currently swim in promising numbers.

### Sticking His Neck Out

The story starts with biologist George Balazs, leader of the Marine Turtle Research Program of the National Marine

Fisheries Service at the Pacific Islands Fisheries Science Center in Honolulu. Balazs was just 26 years old when he happened to see fishermen in Lahaina handling dozens of struggling turtles to be sold to the town's eateries, back in 1969. *Could turtles possibly breed fast enough to sustain such demand?* he asked himself. The turtles fascinated the young scientist, who had recently graduated from the University of Hawai'i with a master's degree in animal science. No one knew how these turtles mated, what they ate, how they spent their time, or how and when they died. He realized that answers needed to be found before it was too late.

In 1973, Balazs spent his first lonesome season on East Island in the French Frigate Shoals, about 500 miles from the main Hawaiian Islands, where female turtles migrate to nest and lay eggs. Balazs had been told that his worries were unfounded, that thousands of female turtles crawled onto the shores of the French Frigates each year to lay their eggs. He counted 67. Not enough, he reasoned, to maintain the population across the entire 1,500-mile-long Hawaiian archipelago.

Since then, Balazs has dedicated his energies to the honu's rescue and future survival. Thanks to his efforts, the U.S.



government placed the Hawaiian green sea turtle on the endangered/threatened species list in 1978. Killing and harassment of honu became a federal crime.

Slowly, the honu came back. "Last season, we saw more than 500 nesting females on East Island," Balazs says. "The honu are well on their way to recovery. It's hard to give exact population numbers, but we are now in our 34th year of monitoring, and their future looks very good. Walk along any of our shores, and you'll see turtles pop to the surface—even in Waikīkī."

Balazs's key to the turtle's resurgence has been committed partnerships. He spread the word among schools, the media, and tourism authorities. He helped to create the "Show Turtles Aloha" campaign to educate the public on how to enjoy turtle-watching while respecting honu by leaving them to bask alone in the warm sand. Balazs also worked closely with government institutions, marine wildlife organizations, veterinary specialists, and volunteers to create a network in which turtles could get the care they needed. And he encouraged communication among all these entities. Today, a stranded turtle can be reported to the state's Division of Conservation and Resources Enforcement via various telephone numbers, and someone will come to the rescue.

### Ancient Ambassadors

One such partnership emerged in 1989, between Mauna Lani Resort and O'ahu's Sea Life Park Hawai'i by Dolphin Discovery. Today, the marine park sends turtles hatched on its artificial beach to the resort for care. They're at the perfect age (about nine months) and size (six to eight inches long) to make human hearts feel protective. These captive-raised turtles serve as their own ambassadors in an educational loan program. Balazs participates as a research collaborator.

This rainy morning, I've returned to Mauna Lani to see the turtles. Now about 15 to 18 months old, they've been gathered inside for their quarterly veterinary exam. They seem resigned to the weigh-in, but they're not too pleased about someone looking into their mouths. I watch, mesmerized by the ivory color on the underside of their shells, the vulnerability of the flesh, the porcelain patterns and tones of purple on the skin, the reddish eyebrows, and their strong flippers. Resort guests wander by, then stop in wonder, and soon pose questions to veterinarian Robert A. Morris. *How long can they be without water?* "Days, weeks," he says, reassuring us. *How much do they weigh?* "About 10 to 13 pounds."

Some of the turtles that Morris treats have been stranded or wounded by boats; others swallowed fishhooks or were tangled in debris. And some suffer from fibropapilloma, a tumor-forming, and sometimes fatal, disease. Morris provides medical expertise within Balazs's network.

Another partnership involves outreach. About once a month, Mauna Lani Lōkahi manager Pi'i Laeha invites resort guests

## Turtles Galore

I pulled the car onto the shoulder of State Highway 83, about three miles north of Hale'iwa, on O'ahu's North Shore. "If you see turtles on the beach, signal me and I'll park," I said to my girlfriend, Julie. A minute later, she emerged from behind the hedges, yelling excitedly, "Park the car! Park the car! They're all over the beach!"

Well, maybe not *all over*, but five large Hawaiian green sea turtles were lying placidly on the sand, looking as though they'd just finished a marathon swim and needed some rest. A couple of dozen people surrounded them, waiting for an eye to open or a flipper to flop. Turtles hang out here most days; in fact, they've become so popular, they need a little looking after. So for the past year, a staff member or volunteer from the Pacific Islands Fisheries Science Center has come to the beach to educate people and to make sure that the turtles aren't disturbed.

"They're quite popular because turtles are very revered in Hawai'i," says Wende Goo of the National Oceanic and Atmospheric Administration Fisheries Service. "We put a red rope around the area where they rest, with an open route to the water, and we let people know they should stay outside the rope. We want to strike a balance between people being able to enjoy the turtles while allowing the turtles the space they need." Turtle/Laniākea Beach is located at the south end of Pōhaku Loa Way loop road.

—John Lehrer

to participate in the process of cleaning algae off the captive turtles. "Out in the wild, fish clean turtle shells," he explains. "But in the ponds, the fish may need help, so we assist them."

Because of the rain, Laeha has canceled this morning's cleaning session; but Cameron Atsumi, a seventh-grader doing research for his environmental class at West Hawai'i Explorations Academy, isn't giving up. With a sponge and a bucket of water in hand, he tries to clean a turtle on the grass. The turtle, slippery and wet, wriggles and resists. "This is really hard," he says. But soon, a turtle in shining armor emerges from Atsumi's gentle hands. The boy, now covered in mud, grins.

Each year on July 4, when the captive turtles are about two to three years old, they're set free. It's Turtle Independence Day—a big celebration, complete with hot dogs and children's games. More than 1,000 visitors showed up in 2005. "We are not restocking the ocean," Laeha explains. "That would be impossible. But we do make sure that the turtles we release are healthy, which will increase their survival chances. We want each turtle to be a success."





**THE PURSUIT OF HAPPINESS:**  
Every July 4, Mauna Lani Resort celebrates Turtle Independence Day, when two- to three-year-old honu in the resort's recovery program are set free.

## Turtle Tracking

Success? One microchip-tagged Mauna Lani turtle was released seven miles offshore. Its movements are monitored by a small satellite. It recently completed a nine-month journey of 3,000 miles around the Islands before returning safely to Mauna Lani's reefs. According to Balazs, results such as this are encouraging. Yet it's still too early to tell. Turtles don't reach sexual maturity until they're about 25, which means that Hawai'i's turtle population consists largely of juveniles. It's thought that only one out of 1,000 turtles survives to maturity in the wild.

At a minimum, all these efforts have improved the honu's chances for survival. In 2005, the National Wildlife Federation gave Balazs a National Conservation Achievement Award. His awareness-raising campaign has affected Island attitudes.

Honu, the navigator, is once more the guide of the Islands. In ancient days, the Hawaiian people carved its image in lava petroglyphs to emphasize its significance. Today, honu's beauty inspires us in paintings, in photographs, on note cards, and in books—and, above all, in the life-giving water that surrounds us. Residents and visitors alike are reminded that honu is a trusted and trusting partner, a wise teacher with a story to tell, and an ancient guide with whom we share the ocean's reefs.

"We can all learn from the honu," Akaka says. "We can look at its life and the many difficulties and obstacles it has overcome. We can see that maybe we can do that, too." ■

*In the May/June issue of HAWAI'I WESTWAYS, Hawai'i Island-based journalist Sophia V. Schweitzer reported on the resurgence of traditional Hawaiian healing methods.*

## It's a Honu World

### Turtle Diary

**Honu Extravaganza**, Outrigger Keauhou Beach Resort, Hawai'i Island: Half-day educational event, held each February. (808) 322-3441; [www.outriggerkeauhoubeach.com](http://www.outriggerkeauhoubeach.com).

**Turtle Independence Day**, Mauna Lani Resort, Hawai'i Island: Annual event, held on July 4, celebrating the successes of turtle recovery programs. (808) 885-6622; [www.maunalaniculture.org](http://www.maunalaniculture.org).

### Where the Honu Are

**The Sea Turtle Lagoon at Sea Life Park Hawai'i by Dolphin Discovery**, O'ahu: Where the Mauna Lani Resort turtles are hatched. (808) 259-7933; [www.sealifeparkhawaii.com](http://www.sealifeparkhawaii.com).

**In the ocean.** Log on to the National Marine Fisheries Service website for detailed guidelines and a downloadable survey form for turtle-sighting reports. [www.turtles.org/nmfs](http://www.turtles.org/nmfs).

### Turtle Etiquette

- **Give sea turtles at least 10 feet of space**, and do not block their path.
- **Keep the ocean and beaches clean.** Sea turtles cannot digest cigarette butts or plastics.
- **Report stranded, sick, injured, or dead sea turtles** to the Division of Conservation and Resources Enforcement: O'ahu (808) 587-0077; Maui (808) 984-8110; Kaua'i (808) 274-3521; Hawai'i Island, Hilo (808) 974-6208; Hawai'i Island, Kona (808) 881-4200 or (808) 327-4961.
- **Report harassment, mistreatment, or killing of sea turtles** directly to the NMFS: O'ahu (808) 541-2727 or toll-free (800) 853-1964. —S. V. S.

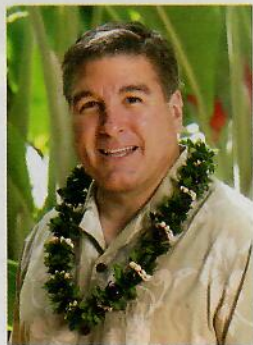






# Animal Houses

**Innovative programs at local resorts help protect Hawai'i's wildlife**



**W**atch out, don't step on that big rock under the water!" I told my son, Daniel, as we waded into the ocean near Waikiki. Then the rock moved. It was a honu—a green sea turtle. Daniel and I stood still, mindful that we shouldn't get too close to it. The honu swam past us and headed out to sea.

Since that incident a few years ago, sea turtles have fascinated me. A life-size concrete honu decorates my garden, and two underwater photos of sea turtles hang on my walls, along with a picture that my brother, Jack, painted

of a honu he saw in the ocean. So I was especially interested to read "Return of the Honu," Sophia V. Schweitzer's cover story in this issue of HAWAII WESTWAYS.

As I read about Mauna Lani Resort's honu recovery program, I was reminded of other places in the Islands to see and learn about sea creatures. On O'ahu, there's Waikiki Aquarium and Sea Life Park Hawai'i by Dolphin Discovery. Maui has the Maui Ocean Center, whose new Marine Mammal Discovery Center is scheduled to open in August. Several Island resorts host animals, too. On Hawai'i Island, manta rays swim up to the Sheraton Keauhou Bay Resort & Spa. On O'ahu, resident dolphins play in the lagoon at Kahala Hotel & Resort, and swans and ducks paddle along the waterways at Hilton Hawaiian Village. At all these places, guests can learn about our finned and feathered compatriots and gain appreciation of our relation to the environment.

Also in this issue, contributor Rita Ariyoshi shares her love of swimming at Ko 'Olina ("At the Stroke of Sunset," page 12), automotive expert John Dinkel explains the importance of a car's shocks and struts ("Shock Value," page 20), and our dining columnist Jocelyn Fujii gives her take on a new Japanese restaurant on O'ahu ("A Temple of Good Taste," page 22). Aloha.

**Richard E. Velazquez**  
Regional Manager

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Turtle Talk with Crush is inspired by Disney's presentation of Pixar's "Finding Nemo." Buzz Lightyear Astro Blasters is inspired by Disney's presentation of Pixar's "Toy Story 2." ©Disney/Pixar

Walt Disney Travel Co. CST 1022229-50 ©Disney



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**on the cover** A Hawaiian green sea turtle glides through Island waters. Turn to page 26 to learn about the honu's remarkable resurgence. Photograph by Kirk Lee Aeder.

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**JULY 3, 2006**

**12 noon - 1:00pm Honu Presentation**

**This fun educational presentation by Sea Life Park is an opportunity for children to get an up close view of the honu. It's also a great photo opportunity for parents. Please meet at the Honu Garden.**

**1:00 pm - 3:00 pm Weighing & Tagging of the Honu**

**Join us on the Mauna Lani Lanai as George Balazs of the Marine Turtle Research Program, National Marine Fisheries Service, and his team weigh, measure and tag the honu that will be released on July 4th. Learn more about the honu from everyone that nurtures, raises and monitors the honu throughout the year.**

**7:00 pm - 8:00 pm A Visual Journey - Northwestern Hawaiian Islands**  
**A slide presentation and talk by world renowned endangered species photographer /author Susan Middleton. Her personal stories and images will transport you on a virtual tour of these remote waters.**

**JULY 4, 2006**

**8:30 am - 11:30am Turtle Independence Day Celebration**

**The celebration begins with live entertainment and a carnival atmosphere complete with games, rock wall climbing, balloon animals and canoe rides for the kids. At 9:30am the turtles are gathered from the ponds and paraded down to the ocean where a special chant and 'Honu Hula' takes place prior to the release of the young turtles. During the morning's festivities, good old-fashioned picnic fare is available, from hot dogs and hamburgers to Hawaii's favorite delight - shave ice. There will be exciting turtle displays to help educate everyone about the Hawaiian green turtle and how we can help in the preservation of the species.**



# BANKED PLASMA

each to  
TW  
2-27-03  
N=9

Location: Sea Life Park turtles  
Year(s): 1996 - 1999

#	Date	ID	5cc	2cc	Comments
	03/07/96	YE63	1	0	Marshall Is., SL=11.4, Waikiki Aquar.
	03/15/96	J20	2	0	Mauna Lani, Strand
	03/19/96	YG36	1	0	SLP
	03/19/96	YG37	1	0	SLP
	03/19/96	YJ04	1	0	
	03/19/96	YJ12	1	0	SLP
	04/04/96	J20	2	0	
	06/13/96	11045	1	0	Mauna Lani, Captive
	06/13/96	11048	1	0	Mauna Lani, Captive
	06/13/96	11050	1	0	Mauna Lani, Captive
	06/13/96	11481	1	0	Mauna Lani, Captive
	06/13/96	11482	1	0	Mauna Lani, Captive
	06/13/96	11513	1	0	Mauna Lani, Captive
	06/13/96	11514	1	0	Mauna Lani, Captive
	06/13/96	11517	1	0	Mauna Lani, Captive
	06/13/96	YE57	1	0	Mauna Lani, Captive
	02/12/97	A	2	0	SLP
	02/12/97	D	3	0	SLP
	02/12/97	L	2	0	SLP
	02/12/97	NNW752	5	1 (RBC)	SLP
	02/12/97	NNW772	2	1 (RBC)	SLP
	02/12/97	P	2	0	SLP
	02/12/97	U	2	0	SLP
	04/21/99	407C731C59	2	0	SLP "G", Female
	04/21/99	407D247764	2	0	SLP "V", Female
	07/01/99	41350B047B	1	0	Kahala Release, SLP, S-48.1
	07/01/99	4135340B63	1	1 (RBC)	Kahala Release, SLP, S-71.6
	07/01/99	41357B3232	1	1 (RBC)	Kahala Release, SLP, S-72.3
	07/01/99	413E2D136D	1 + 1 (RBC)	0	Kahala Release, SLP, S-49.0

### of the Cubic Measure

12 inches = 1 cubic foot  
 136 cubic feet = 1 cubic yard  
 16 cubic feet = 1 cord of wood  
 108 cubic feet = 1 perch of stone  
 A cord of wood is a pile 8 feet  
 long, 4 feet high,  
 and 4 feet wide, and 16 1/2  
 feet of stone or brick is 16 1/2  
 feet long, 1-1/2 feet wide, and 1  
 foot high.

### of Avoirdupois Weight

16 ounces = 1 pound (lb.)  
 100 pounds = 1 hundred -  
 weight (cwt.)  
 2000 pounds = 1 ton (T.)  
 2240 pounds = 1 long ton (L.T.)

### of Troy Weight

60 grains (gr.) = 1 penny-weight  
 (dwt)  
 480 grains = 1 ounce (oz.)  
 35.274 grains = 1 pound (lb.)

### of Circular Measure

60 seconds (") = 1 minute (')

60 minutes = 1 degree (°)

π feet = 1 circumference  
 of the earth's surface or a  
 mile = 69.16 miles at the equator.

### of Apothecaries' Weight

60 grains (gr.) = 1 scruple  
 480 grains = 1 dram  
 16 drams = 1 ounce  
 16 ounces = 1 pound (lb.)

### of Surface Measures

144 sq. ft. = 1 sq. yd.  
 160 sq. rods = 1 sq. rod  
 160 sq. rods = 1 acre  
 640 acres = 1 sq. mile

An acre measures 208.71 ft. on  
 each side.  
 A section of land is 1 sq. mile.  
 A quarter section is 160 acres.  
 A township is 36 sq. miles.

- 1 decar
- 1 hecto
- 1 kilome



MAUNA LANI RESORT  
AT KALĀHUIPIUA'A

### CAPACITY

- 1 liter (l)
- 1 millilite
- 1 centili
- 1 decilit
- 1 decali
- 1 hectol
- 1 kilolite



A Pan Pacific Resort

### WEIGHT

- 1 gram
- 1 milligram (mg) = .001 g
- 1 centigram (cg) = .01 g
- 1 decigram (dg) = .1 g
- 1 decagram (dkg) = 10 g
- 1 hectogram (hg) = 100 g
- 1 kilogram (kg) = 1,000 g

### SUSAN C. BREDO

SALES & MARKETING MANAGER  
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F: 808.885.4209  
SBREDO@MAUNALANI.COM  
WWW.MAUNALANI.COM

### TABLE

7	8	9	10	11	12
14	16	18	20	22	24
21	24	27	30	33	36
28	32	36	40	44	48
35	40	45	50	55	60
42	48	54	60	66	72
7	14	21	28	35	42
8	16	24	32	40	48
9	18	27	36	45	54
10	20	30	40	50	60
11	22	33	44	55	66
12	24	36	48	60	72
84	96	108	120	132	144



# MELICK AQUAFEED

## TURTLE DEVELOPER/STARTER

### GUARANTEED ANALYSIS

Crude Protein.....(min.) 40%  
Crude Fat.....(min.) 10%  
Crude Fiber.....(max.) 5%  
Phosphorus(P).....(min.) 1%  
Ash.....(max.) 15%

### Ingredients

Animal Protein Products, Plant Protein Products, Processed Grain By-Products, Fish Oil, Soy Lecithin, Calcium Lignin Sulfonate, Vitamin A Supplement, Vitamin D3 Supplement, Riboflavin Supplement, Niacin Supplement, Calcium Pantothenate, Vitamin B12 Supplement, Choline Chloride, d-Biotin, Thiamine/Monosulfate, Pyridoxine Hydrochloride, Vitamin E Supplement, Menadione Sodium Bisulfite Complex (source of Vitamin K activity), Folic Acid, L-ascorbyl-2-Polyphosphate (source of Vitamin C), Ethoxyquin (A preservative), Potassium Iodate, Salt, Magnesium Sulfate, Zinc Sulfate, Copper Sulfate, Sodium Selenite

### CAUTION

Store in a dry, well ventilated area, free from rodents and insects. Do not use moldy or insect infested infested feed.

Manufactured By:  
Melick Aquafeed  
139 South First Street  
Catavissa, PA 17820

Net Wt 50 lbs. 1-800-358-6595 22.68 kg

# 2.0MM

## 102

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