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1980s - 1990s

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DATA & ARTICLES
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Molokai Honu # 7294

by Juyn Illgen

Wavecrest beach—Ray Kresek examines the 250 dead turtle and the net she was tangled in when spotted and brought to shore last week. (pics: Kresek)

The Moloka'i Advertiser-News

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Susan

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Helm

George Helm Story Contract Signed

George Jarrett Helm, Jr. was born March 23, 1950 to Melanie & George Helm, Sr. on Hawaiian Homestead land at Kalamaula, Molokai.

He attended Holomua and Kaunakakai Elementary School on Molokai, was a scholar athlete and graduate of St. Louis High School in Honolulu, attended BYU, Laie and the University of Hawaii Moana and was a well-known classical Hawaiian musician and singer. George was the co-founder and the president of the Protect Kahoolawe Ohana (movement to stop the military bombing and use of Kahoolawe) in the mid "70's". He mysteriously disappeared around March 6, 1977 with cousin Kimo Mitchell.

His legacy lives on. George spoke openly about water, land, Hawaiian issues, corruption, politics, etc He was a very charismatic articulate speaker who attracted many people. Before and after George disappeared, many articles were written about him in newspapers and magazines and also many television news segments, videos and TV shows about his story were seen. Record albums of songs sung by George, "True Hawaiian Volumes I and II"; songs written for and about him, "Hawaiian Soul", by Randy Borden and Jon Osorio; Hoku winning "Molokai Sweet Home" by Malani Bilyeu; "Ballad of Keoki" by Malani Bilyeu; a book written Hoi Hoi Hou (giving back and restoring) by Rodny Morales. George's motto was do your homework and speak the truth. He preached aloha aina (love of the land), take care of the land and the land will take care of you. "Kahoolawe can teach the rest of the world aloha aina and save us from becoming evolutionary dropouts," said George.

Melanie Helm, mother, has signed a contract with Hollywood film producer Dana Gluckstein on the life story of George Helm.

If a film is made, it could be a positive message for Kahoolawe, Molokai, Hawaii, and the world.

Molokai Ranch's land holdings

The company owns 52,750 acres on Molokai.

Source: Company's annual, quarterly reports

Hawaiian Homes
W. Ritte 11/88

2-9-90 MAUI NEWS

Molokai man doesn't enter plea

WAILUKU — Walter Ritte Sr. decided not to enter a plea to drug charges yesterday and has been scheduled for trial April 16 along with his wife Ann.

Ritte, 71, was scheduled to plead to promotion of a dangerous drug in the first degree and possession of drug paraphernalia before Judge Boyd Mossman. In exchange for the plea, charges against his wife were to be dropped, according to prosecutor Richard Bissen.

Ann Ritte, 63, is charged with promoting a detrimental drug in the second degree and possession of paraphernalia.

Now, both will be tried on the charges.

Last March, a yearlong police investigation into cocaine on Molokai resulted in more than an ounce of cocaine being seized at the Ritte home, along with some marijuana, valium and drug paraphernalia.

Continued from page 15

mahi, Hawaiian tuna and other fish and sells his catch to hotels, restaurants and stores. Visitors can charter his 35-foot sport fisher and two-man crew for a day of fishing, but he wants to be under way before dawn, say, 4 a.m. "I ask people if they want to catch fish," he says, "or pay to cruise around all day while the fish sleep. You can sleep on the way out, but I'm out there to catch fish, because I make my living that way, so I'll make sure I take you where the fish are."

If deep-sea fishing isn't for you, you may enjoy a kayaking expedition along the coast. Naki offers kayak trips on the East End. On the West End, Kaluako'i's beach concession, called Fun Hogs, is run by Mike and Maria Holmes, sailing enthusiasts who moved to Moloka'i from Honolulu. Fun Hogs—derived from a nickname a friend once gave sports-and-outdoor-oriented Mike—offers snorkeling, kayaking and mountain bike rentals. You can kayak downwind in Kaiwi Channel, past Pāpōhaku's white sand beach, snorkel for a while and be picked up by the Holmes' van. If you're game for a long bike ride, Mike or Maria will drive you to Kalaupapa Lookout and you can bicycle back, stopping at Kualapu'u Cook House for lunch and a look at the old Del Monte pineapple plantation town of Kualapu'u. The less ambitious can bicycle from the old Dole plantation town of Maunaloa, closer to the resort, visiting the Big Wind Kite Factory, where novelty kites like flying cows and hula dancers are created.

BRETT UPRICHARD

Verdant Hālawa Valley on the island's East End is a scenic place for a hike to a waterfall.

There are some must excursions on Moloka'i. One is the scenic trip down Kamehameha Highway to Hālawa Valley, believed to be one of the first Polynesian settlements in Hawai'i. It's easy to see why the Polynesian voyagers put their canoes in at Hālawa. The green, fertile valley is sheltered by mountains, blessed with one of the best beaches on

SEA TURTLE TAGGING FORM

CAPTURE DATE, LOCATION AND METHOD:

PERSON RECORDING DATA:

OLD TAGS: RFL

LFL

NEW TAGS: RFL

LFL

TUMOR SCORE

OTHER NEW TAGS:

STRAIGHT CARAPACE-LENGTH:

WIDTH:

NOTCH LENGTH:

CURVED CARAPACE LENGTH:

WIDTH:

HEAD WIDTH:

SEX: MALE, FEMALE OR UNDETERMINED

TAIL LENGTH: T

C

RIGHT FRONT FLIPPER WIDTH:

SAMPLES COLLECTED:

PLASTRON LENGTH:

WEIGHT:

DESCRIPTIVE REMARKS:

No. w/TUMORS = 60
No. Clean =
TOTAL =

Summary of green turtles tagged and resighted at Palaau, Molokai 10791
11-15 July 1988. 10823

Compiled by George H. Balazs
Southwest Fisheries Center Honolulu Laboratory
2570 Dole Street
Honolulu, Hawaii 96822-2396

Inconel tag No.	Colored plastic tag No.	Straight carapace length, (cm)	Curved carapace length, (cm)	TUMOR SCORE Notation
7/11-12/88 Site A (19 turtles with 3 tag resightings)				
10756-58	gr-HF-b1	93.9	100.5	female; tumor
10759-60	gr-HG-b1	67.2	72.0	
10762-63	gr-HB-b1	75.2	80.5	
10764-65	gr-HD-b1	64.6	69.0	
10766-67	gr-HJ-b1	62.8	67.0	
10768-69	or-PM-b1	54.7	58.0	
10770-71	--	43.4	46.5	
*9884-85	--	41.3	44.0	a
10772-73	--	48.9	52.0	
10774-75	--	44.7	47.5	stomach sampled
10776-77	--	47.5	51.0	
*9589-90	--	50.1	54.5	b
10778-80	rd-AW-b1	75.7	81.0	
*7947, 49	--	60.8	65.5	c
10781-82	gr-HR-b1	67.0	71.5	
10783-84	--	45.4	48.5	
10785-86	ye-BF-b1	59.6	64.5	stomach sampled
10787-88	--	48.9	52.5	
10789-90	--	42.7	45.0	

Inconel tag No.	Colored plastic tag No.	Straight carapace length, (cm)	Curved carapace length, (cm)	Notation
7/12-13/88 Site A (19 turtles with 3 tag resightings)				
10791-92	gr-HP-bl	62.1	66.0	
10793, 95	--	50.6	53.5	
10796-97	gr-HK-bl	63.2	67.0	
10799-800	gr-HM-bl	61.3	66.5	
10801-02	gr-HW-bl	59.9	64.0	
10803, 05	--	54.4	58.5	
*9877-78	gr-HZ-bl	59.8	64.5	d
10806-07	gr-HY-gr	59.8	64.0	
*7945-46	--	47.9	50.5	e
10808-09	--	54.1	57.5	
10810-11	gr-HU-gr	66.3	71.5	
10812-13	or-PR-rd	62.7	69.0	
10814-15	ye-BA-or	61.6	65.5	
10816-17	--	43.5	46.3	
10818-19	or-PG-or	53.3	57.0	2 tumors; stomach sampled
10820-21	--	51.2	48.5	
10822-23	--	39.7	42.0	
10824-25	--	49.7	53.0	
*9874-75	--	56.2	60.0	mortality; f

Inconel tag No.	Colored plastic tag No.	Straight carapace length, (cm)	Curved carapace length, (cm)	Notation
7/13-14/88 Site E (65 turtles with 8 tag resightings)				
10826-28	rd-AB-or	74.7	78.5	
10829-30	rd-AG-or	68.0	72.5	
*7835-36	or-PB-or	72.2	77.0	3 tumors; g
10831-32	--	59.8	64.5	
10833-34	ye-BD-or	68.1	73.5	
10835-36	--	47.7	51.0	
10837-38	--	48.5	52.5	
10839-40	--	53.4	57.5	
10841-42	or-PW-rd	62.1	67.0	
*6539-40	--	54.0	57.5	h
10843-44	ye-BJ-rd	69.3	75.5	2 tumors
10845-46	ye-BS-rd	67.4	72.5	
*8527-28	--	56.1	59.5	i
10847-48	--	49.7	53.0	
*9486-87	ye-BL-rd	61.7	66.5	j
*8543-44	ye-BW-rd	59.6	65.5	k
10849-50	--	60.6	65.0	
10851-52	ye-BZ-rd	62.9	67.5	
10853-54	--			
10855-56	ye-BU-b1	73.7	79.0	

Pam 10-22

Inconel tag No.	Colored plastic tag No.	Straight carapace length, (cm)	Curved carapace length, (cm)	Notation
10857-58	--	52.5	56.5	
10859-60	--	49.3	53.0	
10861-62	--	56.8	59.0	healed notch
10863-64	--	51.1	54.5	6 centrals
10865-66	--	56.3	61.5	
10867-68	ye-BG-rd	72.5	78.0	
10869-70	--	51.4	54.0	
10873-74	--	61.2	65.5	
*8601, 8650	--	47.1	50.5	
10875-76	--	56.8	60.5	
10877-78	--	56.3	60.5	
10879-80	ye-BP-rd	63.4	69.0	
10881-82	--	53.6	58.0	
10883-84	--	54.5	58.0	
10885-86	--	50.7	53.5	
10887-88	--	52.5	56.5	
10889-90	--	52.7	57.0	
10891-92	ye-BK-rd	64.2	69.5	
10893-94	--	48.7	52.0	
10895-96	--	60.1	65.0	
10897-98	--	54.0	58.0	
10899-900	--	40.9	43.5	

Inconel tag No.	Colored plastic tag No.	Straight carapace length, (cm)	Curved carapace length, (cm)	Notation
10901-02	--	40.4	43.0	
10903-04	ye-BR-bl	72.7	78.5	
10905-06	--	46.0	49.5	
10907-08	--	46.8	50.0	
10909-10	--	57.1	60.5	
10911-12	--	57.9	62.0	
*8519-20	--	56.6	62.0	m
*7825-26	--	46.9	50.0	n
10915-16	--	62.7	67.5	
10917-18	--	62.1	67.5	
10919-20	ye-BM-rd	69.4	76.0	
10921-22	--	60.2	65.0	2 tumors
10923-24	ye-BY-rd	72.1	78.0	3 tumors
10925-26	--	56.3	59.5	
10927-28	ye-BN-rd	74.7	81.0	
~~10929-30~~	~~--~~	~~45.4~~	~~48.0~~	~~hawksbill~~ DO NOT ENTER
10931, 33	--	54.4	58.5	
10934-36	--	65.9	71.0	
10932, 37	--	59.4	64.0	
10938-39	--	63.0	69.0	
10940-42	--	69.4	75.0	

Tumors Present when recaptured 7/2/90

Inconel tag No.	Colored plastic tag No.	Straight carapace length, (cm)	Curved carapace length, (cm)	Notation
7/14-15/88 Site E (23 turtles with 2 tag resightings)				
10943-44	--	45.1	48.5	
10945-46	--	55.1	58.0	
10947-48	--	48.7	53.0	
10949-50	wh-MW-or	65.4	69.5	
10951-52	--	57.6	62.5	
10953-54	--	46.0	49.0	
10955-56	--	41.5	43.5	
10957-59	--	57.0	61.5	
10960-61	--	50.5	53.0	
*7875, 7926	wh-MY-or	62.3	67.5	o
10962-63	--	47.1	49.5	
10964-65	--	50.2	53.5	
10966-67	--	53.0	56.0	healed notch
10968-69	--	49.0	51.5	
10970-71	--	55.5	58.5	
10972-73	--	53.7	57.5	
10974-75, 11000	wh-MP-or	80.1	86.5	
10976-77	wh-MD-or	65.5	70.0	
*8531-32	wh-MM-or	69.0	74.0	p
--	wh-MK-or	57.2	61.0	
10978-79	wh-MB-or	63.1	67.5	

Inconel tag No.	Colored plastic tag No.	Straight carapace length, (cm)	Curved carapace length, (cm)	Notation
10980-81	wh-MR-or	65.4	70.5	
10982-83	wh-MG-or	65.0	70.5	
7/11/88 (5 captive-reared Sea Life Park green turtles released at Palaau)				
D156, D157 (10751)	--	26.8	--	
D171 (10752)	--	21.8	--	
D166, D167 (10753)	--	24.1	--	pc's partly missing
D164, D165 (10754)	--	25.9	--	
D158, D159 (10755)	--	21.7	--	

*Growth rates for tag resightings at Palaau.

	Tag No.	Initial straight carapace length, (cm)	Recapture interval, (yr/mo)	Growth rate, (cm/yr)
a	9884-85	40.6	1-1	0.65 (1/4 in)
b	9589-90	47.0	1-10	1.69 (5/8 in)
c	7947, 49	51.9	3-3	2.74 (1-1/16 in)
d	9877-78	57.4	1-1	2.22 (7/8 in)
e	7945-46	38.8	3-3	2.80 (1-1/16 in)
f	9874-75	54.0	1-1	2.03 (3/4 in)
g	7835-36	68.6	3-0	1.20 (1/2 in)

HONOLULU LABORATORY
Southwest Fisheries Center
2570 Dole Street
Honolulu, HI 96822-2396

SUMMARY OF 143 GREEN TURTLES TAGGED AND RESIGHTED AT PALAAU, MOLOKAI, 4-7 JULY 1989.

Compiled by George H. Balazs, Bill Puleloa, and Ed Medeiros

Inconel tag No.	Plastic tag No.	Straight length (cm) standard/notch	Curved carapace length (cm)	Notation
4-5 July 1989, Site A (77 turtles)				
Y-355*,56		52.4	56.0	
Y-357*,58		55.3	60.0	
Y-359*,60		65.6	71.0	Healed indent in right carapace
Y-361*,62		54.9/~~54.4~~	58.0	
Y-363*,64		56.9/~~56.7~~	61.0	
Y-365*,66		60.4/~~60.1~~	65.5	
Y-367*,68		59.8/~~59.4~~	64.0	
Y-369*,70		45.7/~~44.8~~	48.0	
Y-371*,72		47.9/~~47.3~~	51.0	
Y-373*(3-4),74		45.6/~~45.4~~	48.5	
(Y-375*,76,77(H))		67.7/~~67.0~~	73.0	
Y-378*,79		59.2/~~59.0~~	63.0	
Y-380*,81		54.2/~~56.0~~	58.5	
Y-382*,83(H),84	BBA401	73.0/~~72.7~~	80.0	
9877*,78	Gr-Hz	61.7	67.0	a
Y-385*,86,87(H)		68.7/~~68.6~~	74.5	LH 1/4 missing
Y-388*,89,90(H)	BBA402	74.3/~~74.0~~	80.0	
Y-391*,92		65.1/~~64.9~~	71.0	
Y-393*,94	BBA403	72.8/~~72.3~~	78.5	
Y-395*,96		66.6/~~66.4~~	71.0	
Y-397*,98	BBA404	72.1	76.5	
Y-399*,400		72.1/~~71.2~~	77.5	LFF 3/4 missing
6109*,Y-401	BBA405	85.3/~~85.1~~	91.5	Adult male w/small *Lepas*; tagged 6/82 East Is., FFS
Y-402*,03	BBA406	75.9	81.0	PC's freshly factured
Y-404*,05		69.1	73.5	
Y-412*,13		75.1/~~74.9~~	79.5	
Y-414*,15		64.1	68.0	Carapace disfigurement
Y-416*,17		50.9/~~50.5~~	55.0	Y416 close to edge
Y-418*,19		57.4/~~57.3~~	61.5	
Y-420*,21	BBA407	62.8/~~62.3~~	68.0	
Y-422*,23(3-4)		62.9/~~62.7~~	67.0	TMR LFL
Y-424*,425		60.4	65.5	
Y-426*,27	BBA408	69.3/~~68.7~~	76.0	
10873*,74		63.1/62.9	68.0	b
Y-428*,29		55.4	55.0	

Continued.--Summary of turtles at Palaau, Molokai.

Inconel tag No.	Plastic tag No.	Straight length (cm) standard/notch	Curved carapace length (cm)		Notation
9492*,93		54.0/~~53.7~~	58.5		c
6682*,83		48.5	52.0	2	d; TMR-neck
Y-407*,08		51.4/~~51.1~~	55.5		
9415,16		55.0/~~54.4~~	58.5		e
Y-410,11(3-4)		50.1/~~49.8~~	53.5	1	TMR-RFL, neck
Y-406,09		56.5/~~56.1~~	60.5		
Y-430,31		57.8	63.0		
10789,90		46.2/45.8	50.0		f
Y-432,33		48.5/~~48.2~~	51.5	1	TMR-eyes and RFL
Y-434,35		45.7/~~45.5~~	47.5		
Y-436,37		42.7/~~42.2~~	45.0		
Y-438,39		43.9/~~43.2~~	47.0		
Y-440,41		44.2	47.0		PC's missing-healed
Y-442,43		62.3	66.0		
Y-444,45		52.9/~~52.4~~	56.0		
Y-446,47		62.9/~~62.7~~	67.5		
Y-448,49		71.7/~~71.4~~	77.5		
Y-450,51		46.9/~~46.4~~	49.5		
Y-452,53		67.9	73.0		
Y-454,55		64.1	68.0		
Y-456,57		57.8	62.5	2	TMR-eye; carapace indentation
Y-458,59		58.5/~~58.3~~	62.0		10th marg. piece missing
Y-460,61		46.8/~~46.5~~	50.0		
7908,09		61.3	65.5	1	g; TMR-eyes
Y-462,63		67.5	72.0		
Y-464,65		49.3/~~48.9~~	52.5		
Y-466,67		60.6	65.5		
Y-468,69		57.8	61.2		
10785,86	Ye-Bf	62.4/62.3	65.0		h
Y-470,71		55.7/~~54.3~~	59.0		Fractured PC-healed
Y-472,73		61.1	65.0		
Y-474,75		55.9/~~55.7~~	60.0		
Y-476,77		52.7/~~52.4~~	55.5		
Y-478,79		66.3	70.5		
Y-480,81		69.7/~~69.4~~	75.5		
Y-482,83		66.0	71.5	4	Massive TMR
Y-484,85		49.2	53.0		
Y-486,87		52.9/~~52.8~~	57.0		
Y-488,89		51.7	57.5		Healed injury to PC
Y-490,91		61.1/~~60.0~~	65.0		
Y-492,93		61.1	65.0		
Y-494,95		54.5/~~54.2~~	58.5		

Continued.--Summary of turtles at Palaau, Molokai.

Inconel tag No.	Plastic tag No.	Straight length (cm) standard/notch	Curved carapace length (cm)	Tumor Score	Notation
5-6 July 1989, Site A (38 turtles)					
Y-496*,(3-4),97		43.2/~~42.9~~	45.0	3	Massive TMR; photos
Y-498*,99		55.2/~~54.7~~	59.0		
Y-500*,01		61.7	66.5		
Y-502*	BBA409	69.7/~~69.0~~	75.0		
Y-503*,04		51.7/~~51.6~~	55.0		
Y-505*,06		57.2/~~57.0~~	61.5		
Y-507*,08		55.1/~~54.9~~	59.0		
8525*,26	BBA410	55.7/~~55.6~~	60.5		
Y-509*,10		65.5/~~65.2~~	70.5		
Y-511*,12		58.9/~~58.8~~	63.5		
Y-513*,14		50.5/~~50.1~~	53.5		
Y-515*,16		58.0/~~57.5~~	62.0		
Y-517*,18	BBA411(FL)	70.3	74.5		
Y-519*,20(3-4)	BBA412(FL)	67.3	72.5		
Y-521*,22	BBA413	77.1	83.5		
Y-523*,24	BBA414	60.8/~~59.9~~	65.5		LH deformed
Y-525*,26	BBA415	69.4	75.0		
Y-527*,28	BBA416	59.4/~~59.2~~	63.5		
Y-529*,30		52.4/~~52.1~~	56.0		
Y-531*,32		57.5/~~56.9~~	56.5		7 centrals, 5 L laterals
Y-533*,34	BBA417	80.7	86.5		LH amputated; 31 cm tail, male
Y-535*,36		56.0	60.5		
Y-537*,38	BBA418	66.2	71.0		
Y-539*,40		50.0/~~49.9~~	54.5		
Y-541*,42	BBA419	62.6/~~62.5~~	68.0		
Y-543*,44	BBA420	64.3/~~64.0~~	69.0		
Y-545*,46	BBA421	63.8/~~63.5~~	68.0		
Y-547*,48	BBA422	65.7/~~65.6~~	70.5		TMRS-eyes, flippers
Y-549*,50	BBA423(FL)	73.4/~~73.3~~	79.5		
Y-551*	BBA426	64.4/~~64.0~~	70.5	3	
Y-552*,53		49.3	52.5		
Y-554*,55		40.7/~~40.4~~	43.0		Left eye "brow" missing
Y-556*	BBA427(FL)	56.0/~~55.0~~	61.0		3 large barnacles removed
Y-557*,58		52.3	56.0		
Y-559*	BBA428	53.7/~~53.4~~	57.5		
Y-560*,61		49.6/~~49.5~~	52.5		
Y-562*,63		53.0/~~52.8~~	56.0		
Y-564*,65		59.9/~~59.6~~	64.0		

Continued.--Summary of turtles at Palaau, Molokai.

Inconel tag No.	Plastic tag No.	Straight length (cm) standard/notch	Curved carapace length (cm)	Notation
6-7 July 1989, Site G (27 turtles)				
6414,15	BBA429	71.0	76.0	2 j; TMR-eyes, flippers
Y-566(H)				
Y-567*,68	BBA424	64.7/~~64.4~~	69.0	
Y-569*,70	BBA430	77.7/~~77.4~~	83.0	
Y-571*,72	BBA431	63.5/~~63.3~~	68.0	
Y-573,74		44.1/~~43.9~~	47.0	
9603*,04	BBA432	64.9/~~64.7~~	69.0	k
Y-575*,76		57.7/~~57.5~~	62.0	
Y-577*,78	BBA433	68.2/~~67.9~~	73.5	
Y-579*,80		52.7/~~52.4~~	57.0	
7932*,Y-581	BBA434	72.5/~~72.3~~	77.5	l
Y-582*,83		53.8/~~53.3~~	58.0	
Y-584*,85		56.4/~~56.3~~	60.0	
Y-586*,87		59.1/~~59.0~~	62.5	3 Massive TMR; photos
Y-588*,89	BBA440	69.3/~~68.6~~	74.5	
Y-590*,91		54.5/~~54.2~~	58.0	
Y-592*,93	BBA425	66.6/~~66.5~~	71.0	Healed indent to L marg.
Y-594*,95	BBA435	48.8/~~48.7~~	52.0	Engraved L; photos
Y-596*,97	BBA436	63.7/~~63.4~~	69.0	
9163*,64	BBA437	56.3/~~55.7~~	61.5	
9165*,66	BBA438	60.8/~~60.5~~	65.6	6 centrals
9167*(3-4),68	BBA439	69.5	75.0	1 TMR-eyes, flippers
9169*,70	BBA441	65.8	70.5	
9171*,72,73(H)		70.7/~~70.6~~	76.5	
Y-598*,99	BBA443	89.3/~~89.0~~	95.0	Female w/healing; mating wounds; LFL tag tear; HF = 34.5 x 20.0
Y-600(H)				
9174*,75	BBA444 (3S)	81.0	86.0	2 TMR; shark scratches? Noise when breathing; HF = 34.0 x 18.5
9176*,77	BBA445 (3S)	65.0/~~64.6~~	70.5	1 TMR-eye
9178*,80,81(H)	BBA446 (3S)	76.9	83.5	

* = Engraved into 1st lateral right scute using a Dremel "free-wheeler" tool. Spherical bit used 5 and 6 July. Cylindrical bit used 7 July.

BBA = Plastic Dalton Riese tags (colored blue) supplied by NMFS Miami. Prepunched and applied in webbing between 3d and 4th scales of left front flipper, except as noted otherwise.

TMR - Fibropapillomas on 14 (9.8%) of the 143 turtles handled.

a-1 = 12 (8.4%) Palaau tag resightings of the 143 turtles handled.

Summary of 13 green turtles captured at Palaau, Molokai
28 Feb.-2 Mar. 1990.

Compiled by

George Balazs, Bill Puleloa, and Ed Medeiros

Inconel tag no.	Carapace length (cm) standard	notch	curved	Carapace width (cm) Standard	Curved	Notation
28 Feb-1 Mar 1990, Site A (1 turtle)						
Y601,02, 03(H)	74.8	74.6	79.5	56.3	70.5	2 TMR-eye & tail
1-2 Mar 1990, Site C (12 turtles)						
Y604,05(3-4)	40.5	39.9	43.0	35.1	40.0	--
Y606,07(3-4)	39.2	38.8	41.5	33.3	38.5	White PL
Y608,09(3-4)	42.5	41.9	45.0	--	40.0	--
Y610,11	55.1	54.6	60.0	54.6	53.0	--
Y612,13,14(H)	63.9	63.9	68.0	49.5	60.0	TMR-eyes
Y615,16,18(H)	63.7	63.7	68.0	49.2	60.5	L&R FL's gone
Y619,20,21(H), 22(3-4)	84.4	84.3	90.0	--	--	male?
Y623,24(3-4) 625(H)	80.9	80.8	86.0	59.2	73.0	TMR-RFL & eye
Y626,27,28(H)	78.9	78.9	83.0	62.4	77.5	6 centrals
Y630,31(3-4) 32(H)	60.0	59.9	65.0	49.7	56.5	TMR-eyes & FF's
Y634,35,36(H)	83.9	83.9	88.5	66.7	81.0	3 TMR-eyes, jaw, FF's
7240(9292) (Y633H)	68.6	68.3	73.5	54.4	66.0	tag recapture

[This turtle originally tagged by Bill Puleloa and Ed Medeiros at Site C on 5/16/84, 5.75 years ago. Measurements: Standard length was 46.5 cm (growth of 3.8 cm/yr) and curved length was 49.0 cm (growth of 4.3 cm/yr.)]

Notes: Of 13 turtles captured, 5 (38.5%) had tumors.
3/1/90 Site A seawater = 68°F
3/2/90 Site C seawater = 72°F

Balazs 5: molok5.09

Green turtles captured and tagged at Palaau, Molokai on May 8-10, 1990

(* = tag resighting).

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Tag no.	Straight carapace (cm) length	notch	width	Curved carapace (cm) length	width
Site A, 5/8/90					
Y685, Y686	63.6	63.4	50.5	68.0	60.5
Y687, Y688, Y689	78.1	77.9	60.0	84.0	75.0
Y690, Y691	43.7	43.5	34.8	46.0	41.5
Y369*, Y370*	46.7	45.9	38.0	49.5	45.0
Y692, Y693	42.6	42.0	35.0	45.0	41.5
Y694, Y695, Y696 Tumors	71.8	71.5	57.5	77.0	71.0
Y412*, Y413*, (Y697)	76.5	76.1	57.4	81.5	72.0
Y699, Y698, Y700	70.4	70.4	53.8	75.5	64.5
Y751, Y752	61.4	60.9	50.4	66.5	61.0
Y753, Y754, Y755	78.3	77.9	61.4	85.0	79.5
Y756, Y757 Tumors	62.2	61.9	48.1	66.0	58.0
Y758, Y759	58.5	58.3	46.6	63.0	55.5
Y760, Y761	63.6	63.2	50.7	68.0	62.5
Y762, Y763	61.4	61.4	48.8	66.0	58.5
Y764, Y765	49.7	49.5	40.7	53.0	47.5
Y766, Y767	48.4	47.6	37.9	52.0	46.0
Y769, Y768, Y770	72.1	72.1	56.4	77.0	70.0
Y771, Y772	68.2	68.2	50.9	72.0	64.0
Y773, Y774	65.1	64.8	50.2	70.5	62.0

Y773, Y774	65.1	64.8	50.2	70.5	62.0

Tag no.	Straight carapace (cm) length	notch	width	Curved carapace (cm) length	width
Site A, 5/8/90, Con't.					
Y775, Y776	60.2	60.2	47.1	64.5	57.0
Y777, Y778	62.1	62.1	49.8	69.0	64.0
Y779, Y780	65.1	65.1	51.8	69.0	63.5
Y781, Y782	62.0	62.0	51.2	67.0	63.0
Y783, Y784	52.9	52.9	42.1	57.0	51.0
Y785, Y786	66.7	66.3	51.0	72.0	64.0
Y787, Y788 Tumors	54.8	54.6	44.7	58.5	53.5
Y790, Y789	63.3	63.0	48.9	68.0	61.0
Y791, Y792	50.2	50.2	40.3	50.4	49.0
10926*, 10925*	59.2	59.2	45.4	63.0	56.0
Y793, Y794	55.9	55.2	43.1	60.0	52.5
Y795, Y796	68.4	68.4	54.9	73.5	68.5
Y510*, Y509*	67.2	66.9	52.4	73.0	65.0
Y797, Y798	55.4	55.3	43.6	59.5	52.0
Y799, Y800	56.6	56.6	44.9	61.0	57.0
Y801, Y802 Tumors	62.0	61.9	49.9	65.5	61.0
Y803, Y804, Y805	70.2	70.2	56.4	76.0	70.0
Y806, Y807, Y808 Tumors	84.6	84.6	63.7	91.5	85.0
Y809, Y810	75.9	75.9	58.5	81.5	71.5
Y811, Y812	56.2	56.0	44.1	60.0	53.5
Y813, Y814	63.2	63.2	52.1	68.0	61.5
Y815, Y816	68.2	68.1	53.4	73.5	63.5

Tag no.	Straight carapace (cm) length	notch	width	Curved carapace (cm) length	width
Site A, 5/8/90, Con't.					
Y443*, Y442*	63.7	63.6	52.5	68.0	66.5
Y817, Y818	43.5	43.0	35.4	46.5	40.5
Y819, Y820	62.1	62.1	48.1	67.0	58.5
Y821, Y822	65.4	65.4	48.8	71.0	60.0
Y823, Y824	51.5	51.2	41.4	55.5	51.5
9884*, 9885*	43.0	42.3	35.4	46.0	40.5
Site A, 5/9/90					
6462*, 6461*, (Y825) Tumors	77.3	76.9	59.7	82.0	75.5
Y826, Z31	39.7	39.2	35.0	42.0	40.0
Y827, Y828, Z30	72.4	72.3	57.0	77.5	69.5
Site G, 5/10/90					
Y829, Z32	36.8	36.3	29.0	39.0	34.5

TOTAL: 51 Turtles
7 Tag resightings (14%)
6 With tumors (12%)

Seawater temperature: Site A = 74°F
Site G = 78°F

36 Green turtles captured and tagged
at Site B, Palaau, Molokai, July 2-3, 1990
(* = tag resighting)

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Tag no.	Straight carapace (cm) Length	Notch	Width	Curved carapace (cm) Length	Width
Y914, Y915, Z91 tumors	70.7	70.3	55.0	78.0	71.0
Y916, Y917 Z92 tumors	55.5	54.8	43.9	60.0	56.0
*7227, 7228 Z93 tumors	63.0	62.8	49.6	68.0	60.0
Y918, Z94	54.6	54.4	42.7	58.0	52.0
Y919, Y920 Z95	59.2	59.0	46.4	64.0	55.0
Y921, Z96 tumors	61.9	61.8	47.1	67.0	60.0
Y922, Z97	40.2	39.7	32.4	42.0	38.5
Y923, Z98	46.0	45.8	37.0	50.0	44.5
Y924, Z99	51.0	50.8	39.4	55.0	48.5
Y925, Y926, Z100	83.1	82.7	65.5	90.0	85.5
Y927, Z86	57.1	56.8	43.5	61.0	50.5
Y928, Z87	56.6	56.6	46.0	61.0	55.0
Y929, Z88	54.7	54.6	42.2	59.5	53.0
Y930, Z89	53.0	52.7	40.6	57.0	48.0
Y931, Z90	51.5	49.8	40.4	56.0	50.5
Y932, Y933 Z161 tumors	71.1	70.9	53.6	76.5	65.5

Tag no.	Straight carapace (cm) Length	Notch	Width	Tumor score	Curved carapace (cm) Length	Width
~~*Y428, Y429 (Z162)~~	~~56.9~~	~~56.5~~	~~42.5~~		~~61.0~~	~~52.5~~
Y934, Z163	53.7	53.5	43.7		57.5	52.0
*10931, 10932 (Z164) tumors	56.6	--	46.8		61.0	58.5
Y935, Z165	58.9	58.5	47.7		63.0	56.5
*8519, 8520 (Z166)	62.4	61.6	47.3		67.5	58.0
*Y452, Y453 (Z167)	70.1	69.9	55.7		76.0	68.0
*10940, 10941 10942 tumors	71.9	71.6	54.5		77.0	68.0
Y936, Z169 tumors	55.9	55.5	43.6		60.0	52.5
Y937, Y938, Z170	68.3	68.3	53.3		75.5	66.5
Y939, Y940 Z160 tumors	68.7	68.6	54.4		73.0	66.5
Y941, Y942, Z159	69.1	68.9	53.2		74.0	66.5
Y943, Z158	53.5	53.4	42.7		58.0	50.0
Y944, Z157 tumors	55.4	54.8	41.9		59.0	52.5
Y945, Z156	47.8	47.3	40.0		51.5	47.0
Y946, Z155	63.2	63.2	50.1		68.5	63.5
Y947, Z154 tumors	51.7	51.5	39.0		56.0	50.0
*7239, 9564 (Z153)	56.7	--	45.4		61.0	50.0

should be 10933

Tumors now, but not earlier when orig. tagged, 7/10/88

Tumors now but not earlier when orig. tagged 7/10/89

Tag no.	Straight carapace (cm) Length	Notch	Width	Curved carapace (cm) Length	Width	Score
Y948, Z152	49.0	48.9	41.1	52.5	47.0	
Y949, Z151	47.8	47.4	38.7	50.0	45.0	3 TMR
Y950, Z150	51.7	51.5	42.5	55.0	48.0	3 TMR

Total: 36 turtles
13 (36.1%) with tumors
7 (19.4%) tag resighting

Seawater temperature = 78° F

36grnt.ghb

82 green turtles captured and tagged
at Site F, Palaau, Molokai, July 9-11, 1990

by
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Tag no.	Straight carapace (cm)			Curved carapace (cm)	
	Length	Notch	Width	Length	Width
Y952, Z149	43.4	43.0	34.2	47.5	41.0
Y953, Z148	46.7	46.5	37.9	49.5	43.5
Y954, Y955	46.5 (LFL missing/healed)	46.3	37.2	49.0	42.0
Y956, Z147	56.5 (tumors)	56.5	43.5	59.5	52.0
Y957, Z146	50.4	50.2	39.7	53.5	48.0
Y958, Z145	48.6 (tumors)	48.4	37.9	51.0	46.0
Y959, Z144	48.9	48.7	39.1	52.0	46.0
Y960, Z143	47.0	46.9	37.7	50.0	45.0
Y961, Z142	49.4	48.9	39.9	52.5	45.5
Y962, Y963, Z141	63.6	63.5	51.7	67.5	62.0
*8521, 8522, (Z140)	48.5	48.3	37.4	51.5	45.5
Y964, Z139	51.0	50.6	40.5	54.5	47.5
Y965, Z138	49.2	48.8	40.5	--	--
Y966, Z137	57.0 (tumors)	56.9	44.4	62.0	54.0
Y967, Z136	54.0	54.0	40.9	58.0	52.0
Y968, Z135	41.9	41.7	32.9	44.5	39.5
*Y817, Y818	43.8	43.6	34.9	47.0	41.0

A:82GRNT.G/HB

82 green turtles captured and tagged at Site F, Palaau, Molokai, July 9-11, 1990.--Continued.

Tag no.	Straight carapace (cm)			Curved carapace (cm)	
	Length	Notch	Width	Length	Width
Y969, Z134	38.1 (blind in left eye)	37.7	30.5	40.5	36.5
Y970, Y971, Z133	67.5	67.1	52.7	73.0	67.0
*6533, 6534, Z132	72.5 (tumors, including RFL)	72.3	55.6	78.0	74.5
Y972, Z131	50.7	50.6	41.6	54.0	49.0
Y973, Z130	67.8	67.4	54.0	73.0	64.5
Y974, Z129	47.3	47.3	38.4	50.5	44.5
Y975, Z128	65.4 (tumor)	65.0	52.4	70.5	63.0
Y976, Z127	52.5	52.3	40.3	56.5	49.5
Y977, Z126	53.9	53.8	41.9	58.5	51.5
Y979, Z125	53.8	53.1	42.1	57.0	50.5
*7792, 7793, (Z124)	57.4	57.4	44.1	61.5	51.5
Y980, Z123	52.4 (tumors)	52.2	42.5	56.0	50.0
Y981, Y982, Z122	56.2 (bump on right eye)	56.0	43.1	60.0	53.5
Y983, Z121	46.9	46.6	35.6	50.0	43.0
Y984, Z120	52.9	52.7	41.2	57.0	49.0
Y985, Z119	61.9	61.9	50.0	67.5	62.0
Y986, Z118	61.7	61.6	46.6	65.5	55.5
Y987, Z117	51.3	51.2	40.4	55.0	49.0
Y988, Z116	57.9	57.8	44.1	62.5	55.5

82 green turtles captured and tagged at Site F, Palaau, Molokai, July 9-11, 1990.--Continued.

Tag no.	Straight carapace (cm)			Curved carapace (cm)	
	Length	Notch	Width	Length	Width
Y989, Z115	55.0 (tumor on right eye)	55.0	44.4	59.0	53.0
Y990, Y991	70.4	70.2	52.4	76.5	65.5
Y992, Y993	71.6 (tumors)	71.5 (possibly male)	54.4	77.0	65.0
Y994, Y995, Z114	86.5 (tumors)	86.4 ("maturing male")	66.9	93.0	80.5
Y996, Z113	57.6	57.5	45.7	62.5	56.0
Y997, Y998, Y999	74.8 (tumors)	74.6	59.9	81.5	74.5
N326, Z111	46.8	46.6	38.4	50.0	49.0
N327, Z112	42.9 (bumps on right eye)	42.7	34.9	45.5	40.0
N328, Z110	39.6	39.2	34.8	41.0	40.0
N329, Z109	49.1	48.8	38.2	52.0	46.0
N330, N331, Z108	65.5	65.3	51.0	70.0	60.5
*9444, 9445 (Z107)	54.8	54.6	43.8	59.0	51.0
N332, N333, (Z106)	66.2	66.0	50.9	70.5	64.0
N334, Z105	60.0	60.0	47.6	63.0	57.0
*9440, 9441 (Z104)	63.7	63.5	51.1	68.0	61.0
N335, Z103	64.3 (tumor)	64.3	49.0	70.0	61.0
N336, N337 Z102	62.2 (tumors)	62.0	50.5	65.5	58.8

82 green turtles captured and tagged at Site F, Palaau, Molokai, July 9-11, 1990.--Continued.

Tag no.	Straight carapace (cm)			Curved carapace (cm)	
	Length	Notch	Width	Length	Width
N338, Z101	58.1	58.1	48.1	63.0	58.5
N339, N340	55.8	55.7	44.6	60.5	52.5
N341, N342, Z171	65.4	65.3	53.9	70.0	65.5
N343, N345 Z172	61.6 (tumors)	61.6	47.2	65.5	56.0
*6743, (N346), (Z173)	72.1	71.8	58.0	77.5	71.0
N347, Z174	61.8	61.6	45.8	66.5	59.5
*7937, 7938 (Z175)	68.0 (tumors, including RFL)	67.8	52.6	72.5	64.5
N348, Z176	58.7	57.9	46.7	63.0	56.5
N349, N350, Z177	65.8	65.6	51.2	71.0	62.5
N351, Z178	57.3	56.9	45.3	61.5	54.0
*8842, (Z179)	66.6 (tumors, including LFL-photo w/E. Medeiros)	66.3	51.8	71.0	61.5
N352, Z180	50.0	49.9	40.5	53.5	47.5
N353, Z181	55.0 (healed notch at LFL)	54.8	46.2	58.0	53.5
N354, Z182	48.6 (tumors)	48.4	37.2	51.5	45.0
N356, N357	54.8 (bump on left eye)	54.7	43.8	59.5	54.5
N358, Z183	50.5	50.3	41.3	53.5	49.0
*9450, 9451	52.5	52.4	42.3	55.5	50.5
N360, Z184	48.6	48.4	38.6	51.0	45.0

82 green turtles captured and tagged at Site F, Palaau, Molokai, July 9-11, 1990.--Continued.

Tag no.	Straight carapace (cm)			Curved carapace (cm)	
	Length	Notch	Width	Length	Width
N362, Z185	45.4	45.3	36.3	47.5	43.0
N363, Z186	44.0 (blind in left eye)	43.8	45.1	47.0	41.0
N364, N365, Z187	58.0	57.8	47.5	62.0	55.0
N366, Z188	52.3	52.1	41.5	55.0	50.0
N367, Z189	34.4	34.2	28.6	36.5	33.0
N368, Z190	50.3	50.0	40.2	53.0	48.0
N369, Z191	42.1	41.8	34.5	44.0	41.0
N370, Z192	45.5	45.5	37.3	48.0	42.5
N371, Z193	53.9	53.9	43.7	58.0	51.5
N372, Z194	49.5	49.0	39.6	52.5	48.0
N373, Z195	49.2	49.0	38.6	52.5	46.5

*10 (12.2%) of the 82 turtles captures were tag resightings.

16 (19.5%) of the 82 turtles captured had tumors (fibropapillomas).

-Seawater temperature at Site F = 82° F
-Seawater temperature nearshore 1m depth = 92° F

Tags not applied (malfunctions) = Y978, N344, N355, N359 and N361.

Necropsy conducted on 45.2 cm turtle found comatose, but unsuccessful in resuscitation, on 7/9 - 7/10/90.

Summary of 13 green turtles captured at Palaau, Molokai
28 Feb.-2 Mar. 1990.

Compiled by

George Balazs, Bill Puleloa, and Ed Medeiros

Inconel tag no.	Carapace length (cm) standard	notch	curved	Carapace width (cm) Standard	Curved	Notation
28 Feb-1 Mar 1990, Site A (1 turtle)						
Y601,02, 03(H)	74.8	74.6	79.5	56.3	70.5	TMR-eye & tail
1-2 Mar 1990, Site C (12 turtles)						
1 Y604,05(3-4)	40.5	39.9	43.0	35.1	40.0	
2 Y606,07(3-4)	39.2	38.8	41.5	33.3	38.5	White PL
3 Y608,09(3-4)	42.5	41.9	45.0	--	40.0	--
4 Y610,11	55.1	54.6	60.0	54.6	53.0	--
5 Y612,13,14(H)	63.9	63.9	68.0	49.5	60.0	TMR-eyes
6 Y615,16,18(H)	63.7	63.7	68.0	49.2	60.5	L&R FL's gone
7 Y619,20,21(H), 22(3-4)	84.4	84.3	90.0	--	--	male?
8 Y623,24(3-4) 625(H)	80.9	80.8	86.0	59.2	73.0	TMR-RFL & eye
9 Y626,27,28(H)	78.9	78.9	83.0	62.4	77.5	6 centrals
10 Y630,31(3-4) 32(H)	60.0	59.9	65.0	49.7	56.5	TMR-eyes & FF's
11 Y634,35,36(H)	83.9	83.9	88.5	66.7	81.0	TMR-eyes, jaw, FF's
12 7240(9292) (Y633H)	68.6	68.3	73.5	54.4	66.0	tag recapture

[This turtle originally tagged by Bill Puleloa and Ed Medeiros at Site C on 5/16/84, 5.75 years ago. Measurements: Standard length was 46.5 cm (growth of 3.8 cm/yr) and curved length was 49.0 cm (growth of 4.3 cm/yr.)]

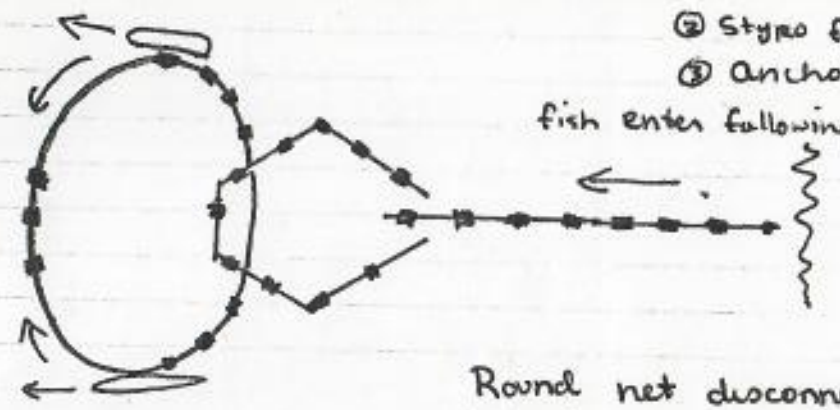
I'm finally getting around to these!! Am assumming these figures are reversed... right?? Bill

Notes: Of 13 turtles captured, 5 (38.5%) had tumors.
3/1/90 Site A seawater = 68°F
3/2/90 Site C seawater = 72°F

Trap net set of of Pongiamotu Island

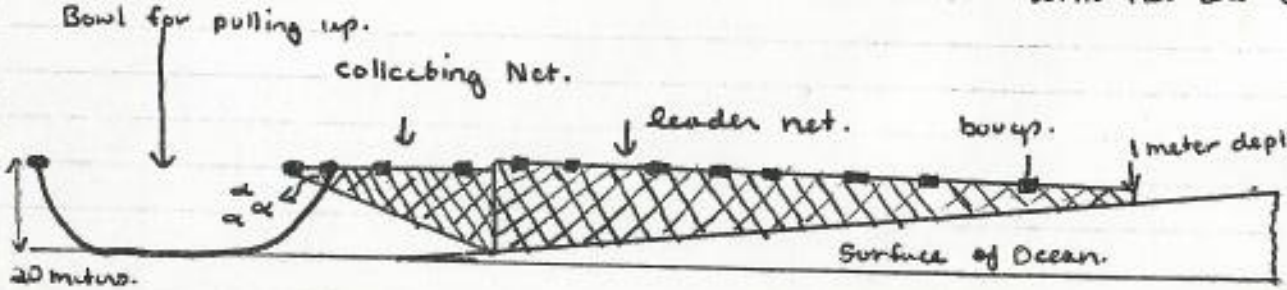
Top View.

Material Used ① 1/8 inch Neb
② Styro form Bouys.
③ anchoring lines.



Round net disconnects. and is pulled into two boats pulling net in with troped fish and turtles (anything that swims in)
Approximately 20% of fish coming in contact with net are caught.

Side View.



Brian Hickson

July 21, 1988 F/SWC2

Mr. Ed Medeiros
P. O. Box 1216
Kaunakakai, Molokai, HI 96748

Dear Ed,

Once again I want to thank you for your excellent work during our recent turtle tagging effort at Palaau. We ended up with a spectacular 13% tag resighting rate, which now provides good data for making a reliable estimate of population size. In addition, the 16 tagged turtles recaptured provided a wealth of growth data. The average increase for these turtles was 7/8 of an inch per year in carapace length. A summary of the results has been enclosed for your information. Based on these findings, the single adult female we captured had to have been at least 28 years old. This assumes that a 15 inch juvenile is about 3 years old when it first recruits to Palaau from high-seas pelagic habitat.

I wanted to confirm in writing that your invoice for five days of services should be for $1,650. I'll likely be in Japan when the paperwork is processed. I am therefore providing a copy of this letter to our program leader to prevent any unnecessary delays in your payment.

I also want to confirm that you will be compensated for your time, on a "per-turtle" basis, when tagged turtles are recaptured and remeasured incidental to your normal fishing efforts. Several self-addressed postpaid envelopes have been enclosed for use in providing me with the tag numbers, curved carapace length, and location of capture. Also, a simple count of the total number of turtles incidentally caught per netting day would be useful in further computing tag recovery rates.

We are still interested in purchasing some of the older panels of your bullpen net for experimental use here on Oahu. If and when you decide to sell, please give me a firm price quotation. I personally have no idea what used gear like this should sell for. You are in the best position to determine a fair price.

The photo of you and Diane with the turtle turned out excellent. I'm having a 5 X 7" print made and will send it to you as soon as I return from Japan.

Sincerely,

George H. Balazs
Zoologist

Enclosures

GHB:gr
bcc: GHB
HL

July 26, 1988 F/SWC2:GHB

Mr. Walter Ritte
Department of Business and
Economic Development
Kaunakakai, Molokai, HI 96748

Dear Walter,

Many thanks for your letter of July 11, 1988 inviting me to participate in your forthcoming program entitled "Our Reef." I am pleased to say that I will be able to attend and present a summary of results of our green turtle tagging research at Palaau. If a formal title is needed, it should be as follows: "Overview of cooperative research on Hawaii's threatened Honu at Palaau."

Best regards,

Sincerely,

George H. Balazs
Zoologist

GHB:ey
cc: Balazs
HL

I'll be back from Japan in time to attend this program. They want a 20 min. slideshow overview of the tagging work on Molokai. I believe it would be worthwhile for NMFS to accept. Geo

JOHN WAIHEE
GOVERNOR
ROGER A. ULVELING
DIRECTOR
MURRAY E. TOWILL
DEPUTY DIRECTOR
BARBARA KIM STANTON
DEPUTY DIRECTOR

DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT

...250 HIDPED

OK
WGG

Mr. George Balazs
2570 Dole Street
Honolulu, 96822

Dear Mr. Balazs:

We would like to invite you to a program on Molokai entitled "OUR REEF", which will be held on August 8, 1988.

We would like to hear about your turtle tagging program and its relationship to our reefs on Molokai.

We have also invited the Department of Land and Natural Resources, the County of Maui and the Marine Options Program of the University of Hawaii.

The program will begin at 7:00 pm at the Mitchell Pauole Center.

We do hope you will be able to attend.

Yours truly,
Walter Ritte
Walter Ritte
Kaunakakai, 96748
Phone Number: 553-3553 call

Title:

George—
Cost? $?
RT Airfare = $45.00
Hotel = 40.00
1 Dinner, 1 Breakfast = 15.00
estimate $100.
No rental car...
All on foot...

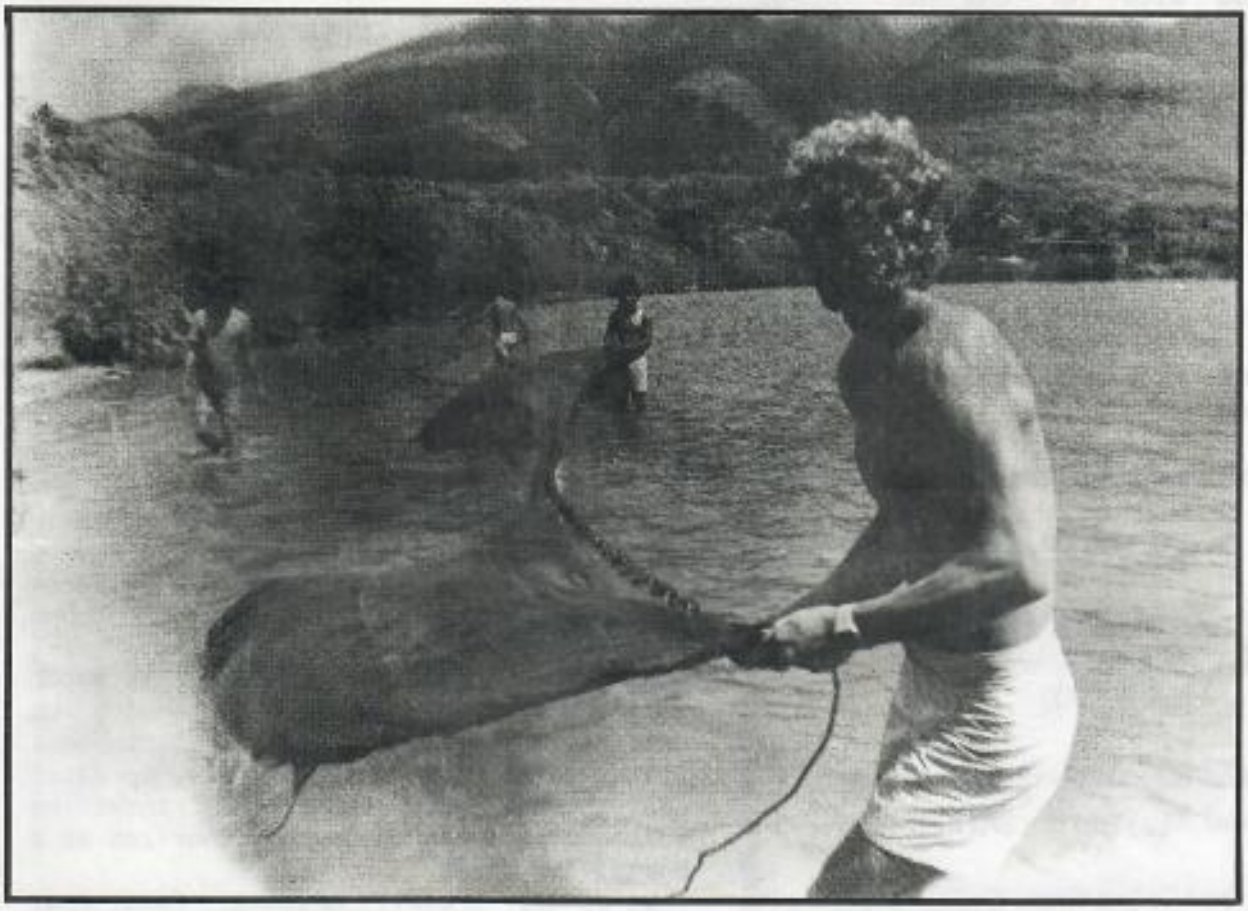
Listen carefully and you will hear...

Seawords

News of the Marine Option Program
Seawords
September 1, 1988
University of Hawaii
Vol. III No. 9

Hawaiian fishpond, mangroves and "the Beast"

MOPers tackle Molokai shores



Students of the MOP Molokai Project take a fish survey through the use of a seine net at Ualapu'e fishpond, on the southeast coast of Molokai. Left to right: Leif Adachi, Kalani Ulii, and Mel Esteron (all from Molokai High School), and MOP student Todd McDonough (WCC). -Photo by Lani Teshima

by Lani Teshima

Some MOP students were looking for the Sunday paper in a grocery store in Kaunakakai on the island of Molokai--but the paper hadn't arrived yet.

"When will you get it in?" asked a MOP student.

"Wheneva!" replied the woman behind the counter.

This Molokai, with its easy and laid-back atmosphere, was the site for a MOP survey project that ran from July 25 through August 10.

Molokai representative of the state Department of Business and Economic Development, Walter Ritte, Jr., originally requested the project.

See "Molokai" page 3

Molokai

from page 1

Department of Oceanography graduate student Keith Bigelow led the project, which was broken up into three sections: a survey of the mangroves that grow on Molokai; a survey of a potential fisheries management area at Moanui on the southeast coast of the island; and a survey of the Ualapu'e fishpond west of Moanui.

The mangrove survey took the most time, with the students spending 10 days trudging through the foliage. Its purpose was to see if mangroves could be a viable economic resource on Molokai.

Maui MOP students Cheryl Rosenfeld, Peter Ravetto and Robert Lohle measured the density of the mangroves, marking them off in 10-meter radius patches, and counted those that were larger than three inches in diameter.

Their task was particularly difficult because of the prickly branches, roots, decomposing leaves and stagnant water. In addition, the leaves and branches in the forests filtered out most sunlight.

"All the little branches in the mangroves scratch up your skin. By the last day of the survey, I got smart and wore sweatpants," said Rosenfeld.

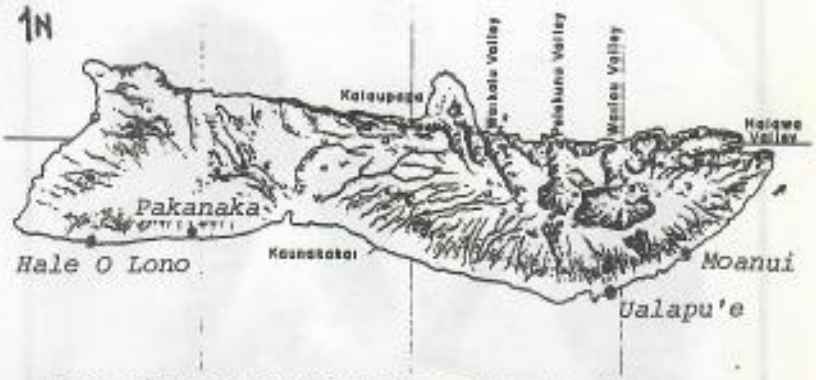
"The mangroves are the worst thing in the world, especially when you have to walk through it," said Molokai High School junior Leif Adachi, one of three students from Molokai who helped in the survey. Along with Adachi were Mel Esteron and Kalani Ulii.

"All the little branches in the mangroves scratch up your skin. By the last day of the survey, I got smart and wore sweatpants."

"All the kids -- they deserve badges of courage for going into the mangroves," said Ritte.

While the Maui MOP students trudged in the thickets, Hilo MOPer Kimber Alspach took water samples around the mangroves, and Windward MOP students George Stender, Todd McDonough and Carolyn Wong tested the sediment to determine its source and transport.

Mangroves were not the only things the Windward students saw during their survey.



Map adapted from Volcanoes in the Sea: The Geology of Hawaii by Gordon A. Macdonald and Agatin T. Abbott. University of Hawaii Press, 1970.

"We were at Pakanaka (on south Molokai) doing a sediment transect in thigh-deep water, when Carolyn (Wong) pointed at something and said, 'What's that?'" said McDonough.

"'That's a shark!' I said. About 20 feet away was this black tip shark about five feet long. What could I do? I turned around and started walking back."

Because of the abundance of fish, the area is known as a "breeding ground" for hammerheads and blacktips, McDonough said.

"We saw sharks at every station at the site, and we saw lots of green sea turtles, too," he said.

The abundance of fish in areas such as Pakanaka could have a direct correlation to the density of the mangroves there, Rosenfeld said.

"The roots of the mangroves hold a lot of silt and keep it from going out into the reef area," she said. "That keeps the water cleaner and increases the fish population. You can actually see the difference in water quality. The offshore area near thick mangroves is cleaner than the area with less or no mangroves."

However, some residents of Molokai see the mangroves as a problem because they are difficult to manage and have a rapid growth rate. One of the main local complaints is that mangroves cut off access to beaches and fishing areas. For example, many of the 50+ Hawaiian fishponds along the shores of Molokai have been encroached upon by mangroves, some having been completely surrounded by them, causing the water to stagnate.

See "Molokai" page 4

Molokai

from page 3

Walter Ritte, Jr. (center) talks with Maui MOP students Cheryl Rosenfeld and Peter Ravetto at the Hawaiian fishpond in Ualapu'e. -Photo by Lani Teshima

The students also spent a day at Ualapu'e surveying a Hawaiian fishpond. They took water samples, looked at the fish population (using a seine net), and measured the rock wall along the makai rim of the pond.

The baseline survey was conducted as part of a project that will attempt to revitalize Ualapu'e as a working fishpond.

Carol Wyban, who is the consultant to the DBED for this revitalization project, said the fishpond was in relatively good shape.

"And fortunately, right now, the mangroves are okay -- they can be managed," she said.

Getting the fishpond ready for production would include such things as filling the holes in the walls and removing the predators in the water. Predators include the barracuda, and at Ualapu'e, some stinging jellyfish.

"It hurt way more than Man-o-War. It was like 'Aaaaaaaa! Get out of the water!'"

While taking water samples in the middle of the pond, Esteron and Stender were stung by what they suspected to be Cassiopeia medusa, a type of jellyfish.

"It hurt way more than Man-O-War. It was like 'Aaaaaaa! Get out of the water!'" said Stender. He was stung around his ankles, while Esteron suffered stings over his legs and thighs. Fortunately, neither of them required serious medical attention.

For three days, the students also conducted surveys along permanent sites at Moanui.

To get there, the students rode for 40 minutes on "the Beast," a county vehicle that was an old Army weapons carrier. "The Beast" had been issued for MOP use during the project.

Appropriately named by the MOPers, "the Beast" was painted government-issue yellow, looked like a combination of a school bus, a farm tractor and a pick-up truck.

Upon arrival on the first day at Moanui, the MOP students were approached by a local fisherman who told them he had sighted a dead Hawaiian monk seal on the beach. The MOP students walked up to the beach, where the seal was indeed lying on the sand.

"The first MOP project that saw a monk seal, I bet."

"I was thinking, 'Great, a dead monk seal, what a way to start the day,'" said Rosenfeld. "But then the seal looked up and saw us, and swam away!"

"The first MOP project that saw a monk seal, I bet," added Bigelow.

The students pounded six metal stakes in the substrate to mark their permanent transect sites. The sites were in shallow water near the shore.

The Windward MOP students conducted fish surveys, the Maui MOP students surveyed the substrate and Alspach mapped the area. The surge was strong, and it took all three Maui MOPers to conduct the grid quadrat survey.

The grid quadrat method uses a one-meter square frame of PVC pipe that has a grid of smaller squares marked off across the frame with fishing line. The students laid the grid on the substrate, and counted the per cent cover of the different types of substrate.

See "Molokai" page 5

Molokai

from page 4

Left to right: MOP students Carolyn Wong (WCC) and Kimber Alspach (Hilo) prepare for a windy ride on "the Beast." -Photo by Lani Teshima

"Robert (Lohle) held down the grid while Cheryl (Rosenfeld) took notes on the slate," said Ravetto. "Then I had to take Cheryl's fins and hold them still to keep her from getting moved around in the surge."

The Windward MOPers used the modified Brock survey technique to count the fish. In this method, two students swam parallel to each other along either side of a 100-meter transect line. They noted the fish species, the number, and estimated size of the fishes, which they recorded on underwater slates.

According to McDonough, most of the fish they surveyed were juveniles because their sites were in shallow water.

At around 7 p.m. on the eve of Monday, August 8, the MOP students went into the town of Kaunakakai to the Mitchell Pauole Community Center to participate in a community meeting hosted by Ritte.

MOP Director Sherwood Maynard and Sea Grant Director Jack Davidson had both flown in for the meeting, the topic of which was introduced as "Our Coral Reefs" by Ritte.

Besides Maynard and Davidson, others who spoke included George Balazs from the National Marine Fisheries Service, who talked about the turtle tagging project on Molokai; Division of Aquatic Resources representative Bill Puleloa, who explained the different branches of the state Department of Land and Natural Resources; and Wyban, who talked of the development of the Ualapu'e fishpond.

Bigelow also talked about the MOP project.

County of Maui Councilman Pat Kawano welcomed the speakers to the island of Molokai, and Maui County Department of Economic Development representative Bill Ikeda, spoke about a pilot program on Maui with Chinese catfish aquaculture using senior citizens.

Ken Leber from the Oceanic Institute at Makapuu spoke of the institute's fish stock enhancement program, and how the the fish in the program could be grown in the Hawaiian fishponds on Molokai.

The community turnout was small, and the meeting lasted until about 9 p.m.

The tiger shark was around 450 pounds.

The MOPers didn't spend all their time at work, however. On one of the days there, they chartered a fishing boat for a morning and went trolling for aku.

Wong caught the largest fish, reeling in a 15-pound aku.

"It was the first time I ever went fishing, too! I couldn't believe it!" she said.

Besides aku, however, there was another big fish that came near the boat; a tiger shark.

"We were about 10 miles south of Hale o Lono, trolling for aku," said Stender. "We were draining the tank that we kept the fish in, and that's when the shark came. It was tailing us -- about three feet behind our boat!" The tiger shark was around 450 pounds. Fortunately, no one was in the water at the time.

The day after the community meeting, on Tuesday, the project participants rode on "the Beast" to the north shore of the island for the first time. Accompanied by MOP Special Projects Coordinator, Steve Russell, they went to Mo'omomi for some training diving. It was the first time during the project that the MOP students were able to dive in deeper, clearer waters.

That afternoon, they went to Kawakiu Bay on the northwest side of Molokai for the second dive of their day.

See "Molokai" page 9

"Did you say you're studying mangoes?"

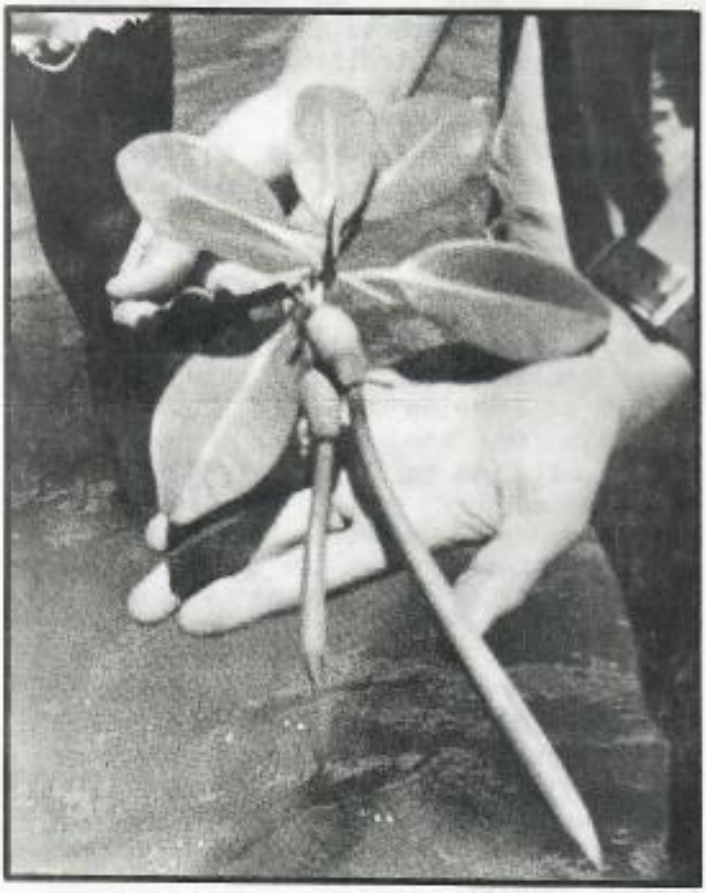
What are mangroves, anyway?

by Lani Teshima

With all this talk about mangroves in the MOP Molokai project, one wonders: What are mangroves, anyway?

According to the 15th edition of Encyclopedia Britannica (copyright 1986, Chicago), mangroves are:

"Any of certain shrubs and trees, of the families Rhizophoraceae, Verbenaceae, Sonneratiaceae, and Arecaceae (Palmae), that grow in dense thickets or forests along tidal estuaries, in salt marshes, and on muddy coasts and characteristically have prop roots--i.s., exposed, supporting roots. The term mangrove also applies to thickets and forests of such plants. Respiratory or knee roots (pneumatophores) are characteristic of many species; they project above the mud and have small openings through which air enters, passing through the soft, spongy tissue to the roots beneath the mud.



Shown here is an example of what mangrove seeds look like. The "long embryonic root" extends from the seed to plant itself in the water.
-Photo by Lani Teshima

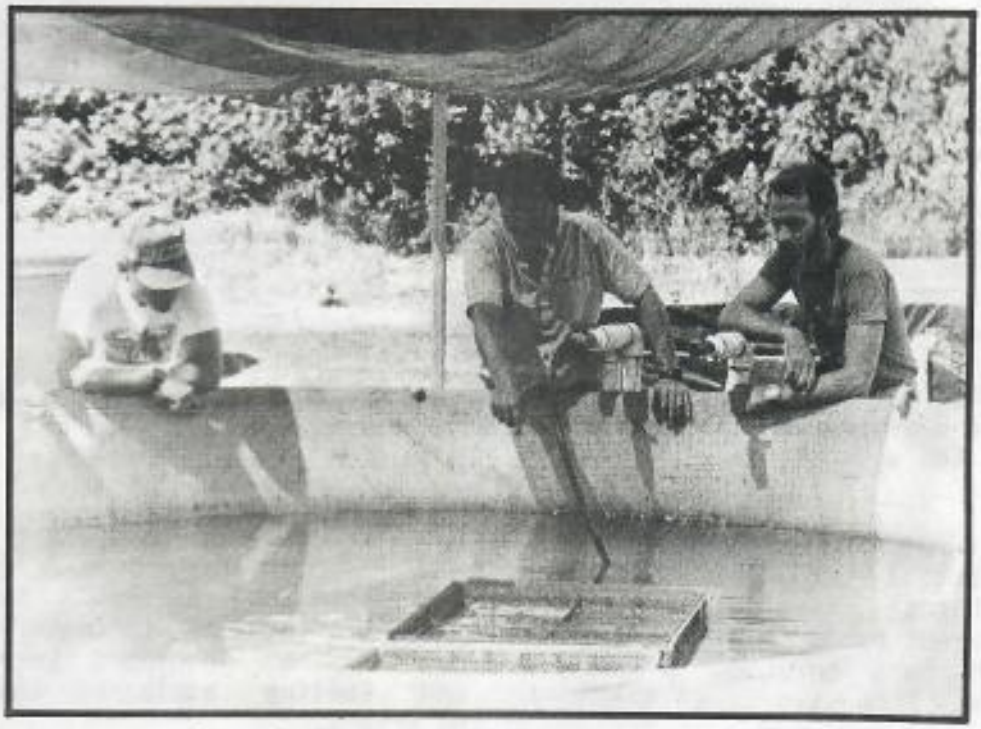
MOP Molokai Project Coordinator, Keith Bigelow and Peter Ravetto (MCC) examine some mangroves growing along the shoreline of Molokai.
-Photo by Lani Teshima

"The trunks and branches of the common mangrove are typical of the growth habit of all mangroves. They constantly produce adventitious roots, which, descending in arched fashion, strike at some distance from the parent stem and send up new trunks. While the fruit is still attached to the parent branch, the long embryonic root emerges from the seed and grows rapidly downward. When the seed falls, the young root is in the correct position to be driven into the mud; the plant being thus rooted, the shoot makes its appearance. The young root may grow to such a length that it becomes fixed in the mud before the fruit separates from the parent tree.

"The common mangrove grows to about nine meters (30 feet) tall. The leaves are five to 15 centimeters (two to six inches) long, opposite, oval or elliptic, and smooth edged; they are thick, have leathery surfaces, and are borne on short stems."

MOP field trip

Students trek to Windward and North Shore



Aquaculture engineer Jim Ebeling (center) of MRTC shows MOP student Lee Halverson (WCC, left) and MOP Special Projects Coordinator, Steve Russell a tank filled with freshwater prawns (Macrobrachium rosenbergii). -Photo by Rodney Jacques.

by Rodney Jacques

A group of MOP students, staff and guests met Saturday, July 23 at the Marine Sciences Building to start the first fieldtrip of the summer to Windward Oahu, to visit the Mariculture Research and Training Center (MRTC), and conduct a beach ecology hike over the Kahuku plain.

MRTC, formerly Aquatic Farms of Kaneohe, was developed as a research, development and demonstration facility by its former owners.

The facility was obtained in 1986 through a donation from the estate of Beatrice Parrent and has been undergoing a transformation to become an integral part of the UH aquaculture program. MRTC is located on Kaneohe Bay , on 22 acres of agricultural land. It is administered by the Hawaii Institute of Marine Biology (HIMB).

MRTC consists of 12 earthen ponds (0.4 to 1.8 acres), seawater and freshwater wells, tanks, laboratory, offices, shop, computer lab and residence.

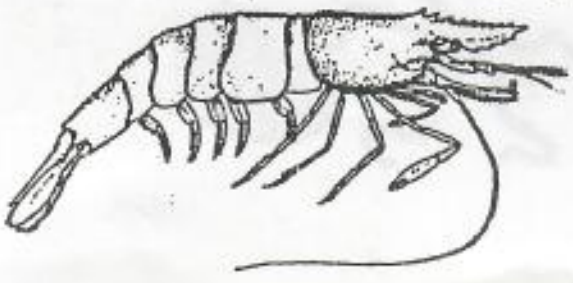
Aquacultural engineer Jim Ebeling met the group upon their arrival. He conducted the tour of the facility and gave insights into the aquaculture operation. He explained that the major thrust of the research, development, and training is focused on marine shrimp culture.

Areas given special emphasis in a semi-intensive pond culture system are; broodstock maturation, spawning, larviculture, nutrition, nursery operations and management practices. The center also raises and monitors Chinese catfish, channel catfish, freshwater prawns, Chinese carps, oysters, clams and seaweeds.

The first stop of the tour was at the workshop area, which is the center of activity. The workshop is where MRTC personnel have made progress in constructing a first-rate facility by painting, building tanks, repairing equipment, and doing carpentry. Other improvements include a new lab and a computer room.

"You have to be a jack-of-all-trades to operate an aquaculture farm," said MOP Director Sherwood Maynard on the facelift MRTC personnel have made on the farm.

See "Field trip" page 8



Field trip

from page 7

The rest of the tour consisted mainly of grow-out ponds. The first, a polyculture pond, held channel and Chinese catfish, tiger prawns, grass carp, tilapia and shrimp. Ebeling used a lever type of net to capture specimens for viewing, and to discuss the potential for future fish types to be introduced.

Not only humans but also birds exploit the pond. Hawaiian coots, black-necked stilts (an endangered species), black-crowned night herons and ducks feed at the pond. The birds pose no problem, except when the fish or shrimp are juveniles, and are susceptible to being eaten. The black-crowned night heron is the leading predator of the aquaculture farm.

"It's like going to a picnic," said Steve Russell, MOP Special Project Coordinator, of the birds' feeding habits. "Texas fish grow-out ponds have to be protected by mesh nets to stop birds from gorging themselves," he said.

Ebeling also talked about the technical aspects of aquaculture farming. Two prominent technical problems are the amount of dissolved oxygen (D.O.) in the water, and pH (hydrogen ion concentration in gram atoms per litre). D.O. is introduced into the ponds by mobile paddle wheels that churn constantly and bring atmospheric air into the water. This is important because fish and plants compete for the same oxygen at night.

pH monitoring of is also crucial. The acidity of the pond water is an indicator of the ion exchange, which is fundamental to physiological processes. Computers used by MRTC staff constantly monitor these two conditions as well as meteorological factors (solar radiation, rain, wind, temperature and dewpoint) to control the pond environments.

Field trip participant Franc Conin tries his hand at throwing a net into a shrimp pond at MRTC.
-Photo by Rodney Jacques

The MOP students had a chance to participate, using a throw net to capture tiger prawns. The specimens were examined, and Ebeling explained the anatomy of the prawns.

The tour was followed by a question-and-answer session with Ebeling. He told the group about jobs (most MRTC employees are from the University of Hawaii system), training, academics, international workshops, and the center's future. MRTC expects to expand its operation in areas of research, facilities and training with cooperation from HIMB to lead the way in aquaculture.

After the fieldtrip, the MOP students took a lunch break at Kualoa Beach Park, for a little rest and relaxation under a big, shady kiawe tree. After cleaning up the area, everyone loaded into the cars for the trip to Kahuku. Many participants, who rarely venture out of Honolulu, were impressed by the scenery of the eastern coast of Oahu. Upon arrival at the end of Marconi Road in Kahuku, the group unloaded the cars for the beach ecology hike, the second part of the fieldtrip.

Led by Rodney Jacques, MOP Student Coordinator, the fieldtrip participants headed toward an airfield used during World War II.

The purpose of the hike was to discuss the formation of the Kahuku Plain and its geological development.

See "Field trip" page 9

Field trip

from page 8

The Kahuku Plain used to be a fringing coral reef. Sedimentation from the mountains forms the back half of the plain with dead corals filling the middle. The plain has undergone transformation by wave and wind erosion to produce a set of coastal dunes that run parallel to the shore. These dunes were formed by dead corals being crushed and ground up on the beach then being deposited on the dunes by the force of the prevailing trade winds.

The group left the airfield and observed the four different transitional zones on the way to the beach. Zone 1 was the dunes, which were covered by plants (morning glory) to catch the sand; Zone 2, the beach where calcium carbonate is initially deposited from the ocean; Zone 3, the wave bench, where larger particles are settling; and Zone 4, the reef, where live and dead corals could be seen.

After the discussion, the group meandered down the beach observing salt deposits dried out pools, and crabs, shells, dead corals, fishes and geological formations.

At the end of the field trip, the participants returned to their cars for the ride back to the university. After the field trip was over, the group broke up and visited areas such as Maleakahana Beach Park, the Mormon Temple in Laie, Laie Point, Kaneohe Bay and Kawainui March.

The participants for the MOP field trip were: MOP Director Sherwood Maynard, Maalaea Project Coordinator Steve Russell, MOP Student Coordinator Rodney Jacques, Mary Roney, Bob Dickerson, Lori Quigley, Lee Halverson and Franc Cronin.

Molokai

from page 5

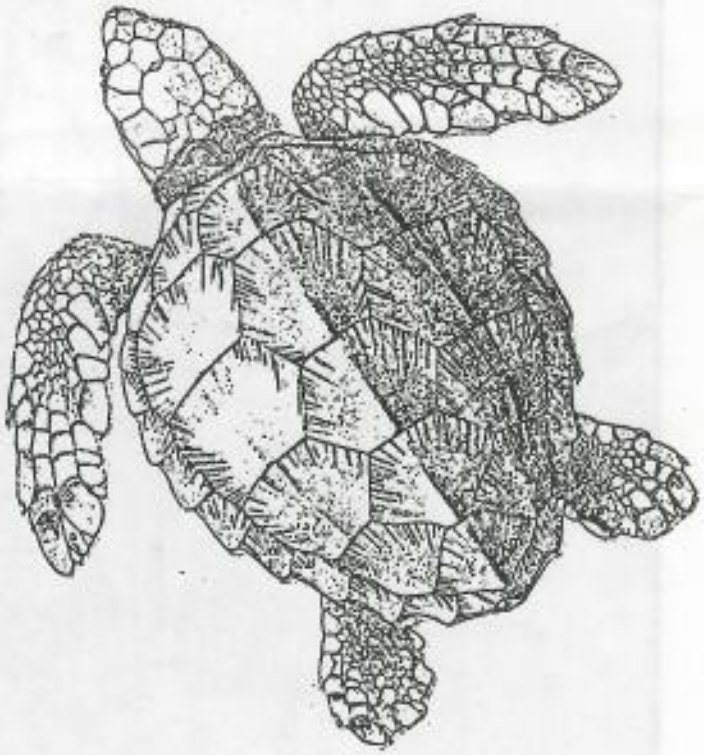
Access to the second dive site meant driving through a golf course and over unpaved roads that were little more than wide trails. The dry landscape and kiawe bushes made the area look more like a West African savanna than Molokai. It was all the more appropriate for the MOP students to be riding on "the Beast."

They spent the evening packing and finishing data write-ups. For their entertainment, the MOPers tossed their sole frisbee in the quiet neighborhood of Molokai.

The final morning began early for the students, who began collapsing their tents on the grounds of the Queen Liliuokalani Children's Center. The students left to the airport in separate groups, depending on the schedule of their flights.

"I'll be happy to get home," said Rosenfeld, who said she couldn't wait to fly to Maui after having to live in a tent and having to share one bathroom (between eight) for over two weeks.

The final report for the MOP Molokai survey will be due on October 1.



Of Interest

Letter to MOP

This is a letter recently received from Manoa MOP student Alan Tomita, who was in Alaska.

Dear MOP:

How's things in MOP going? I'm up in Alaska at Hobart Bay, if you didn't already know. The season just ended with the last guests leaving yesterday. Mark Mitsuyasu and I will be home on the 27th.

Hobart is a pretty nice place. Salmon fishing isn't good this year but lots of halibut and dungeness crab. Lots of nice scenery and wild life.

I'm sending you a clipping of a Juneau newspaper that I got. I'm sure the name sounds familiar and thought you might like to see it (the clipping about Ken Krumal is available at the Manoa MOP office, MSB 229).

Got to go. See ya in Honolulu soon.

Alan Tomita
August 22, 1988.

BML fall schedule

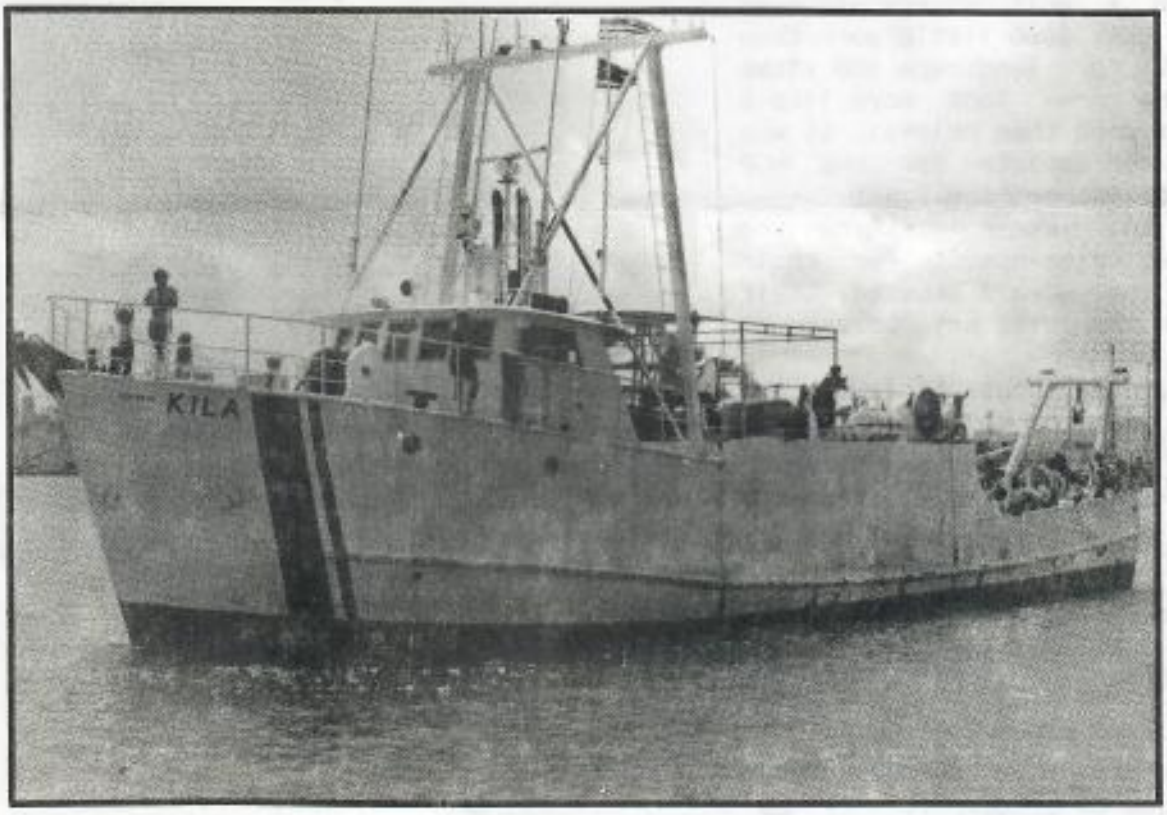
The Blue-Water Marine Lab (BML) is again offering half-day marine science cruises for upper elementary through secondary classes from late October to early November 1988.

The standard three-hour Introductory Oceanography Cruise aboard the UH R/V Kila provides practice with sampling and analysis of plankton, benthos, water quality and sediments. Navigation and seamanship comprise a fifth activity area.

Each class, ideally made up of 30 students and one teacher, will be charged a flat rate of $225 for the 8 to 11 a.m. cruise, and $175 for the noon to 3 p.m. cruise. Each cruise can accommodate two such classes.

Cruises from Snug Harbor on Oahu will be on October 31 through November 4, November 7, 9 and 10, November 14 through 18, and November 21 through 23.

If you would like to book a cruise, or would like more information, call 923-9741 by October 14.



The R/V Kila

Photo by James Gonser

Of Interest

TORCH meeting in Moilili

The Oahu chapter meeting of TORCH (The Ocean Recreation Council of Hawaii) will be held Tuesday, September 20 at the McCully/Moiliili Public Library at 2211 S. King St. at 7 p.m.

Items to be covered include the nomination of a 1988-1989 Oahu board, plus presentations by John Clark and George Wilkins on "Downtown's Beach and Honolulu Harbor Ferry Proposal," Jan Auyong and Chris Woolaway's report on current projects with Sea Grant Extension Service, and a TORCH status report from Terry O'Halloran, president of the state Board of Directors.

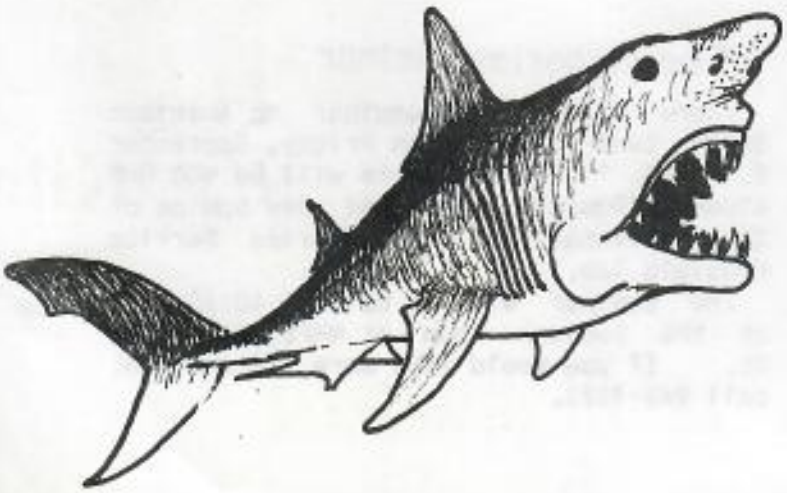
There will also be a public discussion on infrastructure, user conflicts and shore-access problems on Oahu.

Welcome new Manoa MOPers!

We would like to welcome our new Manoa MOP students who have joined us since this summer. They are:

Elizabeth Weston, Psychology
Heather Campbell, Biology
Lori Quigley, Biology
Christina Tobias, Dance & Ethnology
Julie Kushima, Psychology & Counseling
Barney Nietschmann, Biology
Robert Miller, Biology & Zoology
Betsy Reynolds, Biology & Phys. Ed.
Howell Simons, Sociology
Rondell Howell, Zoology.

Welcome to MOP!



New project: help sought

Jim Parrish of the Hawaii Cooperative Fisheries Research Unit now has at least two new research projects in the formulation stage with work that will be involving marine coastal resources. The work may range from detailed studies of mobile invertebrates to the assessment of fish communities, fish recruitment, etc.

There will be extensive field work, probably on more than one island, and some lab work as well.

There will be various positions available, for research assistantships, short-term hire, student help and others.

Although there is nothing concrete on the projects yet, if you would like to get involved, Dr. Parrish would like to hear from you at 948-8350, or drop by his office at Edmondson 165A.

MOP Alumni update

The following is an update on MOP alumni.

Norman Nakamura has recently relocated to the San Diego area, where he is working for the U.S. Department of Agriculture as Plant Protection and Quarantine Officer on the San Ysidro border area.

Barbara Lee has enrolled at UH Manoa this fall to undertake a Master's program in the College of Education. She will continue to work for NELH at their Honolulu office. Barb designed and chaperoned a display on Hawaii's marine education (including MOP), which was exhibited at the annual meeting of the National Marine Educators' Association at UC Santa Cruz this July. She will be featured in an article about Sea Grant marine education programs in an upcoming issue of Oceanus magazine.

Geoff Saint has moved back to the mainland and enrolled in a music degree program at Millikin University in Decatur, Illinois.

MOP alumna Athline Clark has been selected as the new Outdoor Recreation Coordinator at the UH Manoa Bureau of Student Activities.

Alumnus Scott Shultis has a new job as activities coordinator aboard the recently refurbished SS Monterey, which is about to enter interisland cruise service in Hawaii.

Of Interest

Boat rides for young 'uns

Sea Grant Extension Service and Roberts Hawaii have combined to bring Hawaii's school children a chance to take a cruise -- on a boat.

Roberts Hawaii is offering two one-hour educational tours from Honolulu Harbor, aboard the Keana and the Alii Kai. Both are Coast Guard-approved vessels.

One tour focuses on the harbor and related shoreline industries. The second utilizes Keana's glass bottom, and explores the shoreline and underwater reefs from Honolulu Harbor.

Cruises are conducted seven days a week, and cost $3 per person. Additionally, the Extension Service has available pre- and post-excursion teacher information packets for the two tours.

Those who would like more information can call Chris Woolaway or Tess Manibog at 948-8191.

Aquaculture program offered

UH Hilo will be establishing a new program for those interested in obtaining a B.S. in agriculture with a speciality in aquaculture.

The program will begin this fall, and there will be two new courses available.

The first is AG 394N, Water Quality and Aquatic Productivity. The course will cover water quality and aquatic productivity as it relates to aquaculture and fisheries. The class will be offered from 10 to 10:50 a.m. on Mondays and Wednesdays, with a Wednesday lab session from 2:40 to 5:10 p.m.

The second class, Ag 394P, Introduction to Fish Population Dynamics, will cover the basic concepts in the study of growth and mortality, and recruitment in fish populations with an emphasis on the similarities between natural and culture systems. The class will be held from 8 to 8:50 a.m. on Wednesdays and Fridays, with a Friday lab session from noon to 2:30 p.m.

MOP would like to welcome the instructor, Kevin Hopkins, to the UH system. This is the first time he will be teaching the courses at UH Hilo.

Those who are interested in this new program may contact the UH Hilo College of Agriculture at 933-3393 for more information.

Chinese catfish video

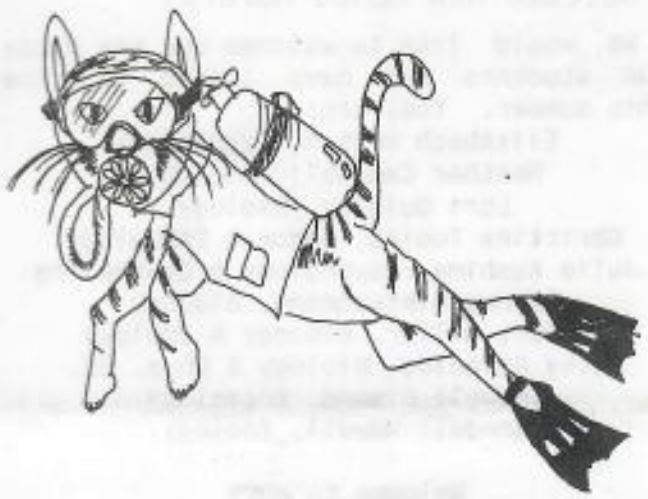
There is a new training video for those interested in Chinese catfish.

Entitled "Induced Spawning Techniques of the Chinese Catfish," this video was produced by Sea Grant Extension Service and MRTC.

The video includes lessons on how to select catfish for breeding, how to induce spawning using hormone injections, and how to determine when eggs are ready to be fertilized.

The video costs $30 for Hawaii residents and $45 for addresses outside Hawaii, with postage and handling included in the cost.

If you would like to order your video, or would like more information, call 948-8191, or write to: "MRTC Video," Catfish Video, UH Sea Grant Extension Service, 1000 Pope Road, MSB 205, Honolulu, HI 96822.



Tuna fisheries seminar

There will be a seminar on American Samoa tuna fisheries on Friday, September 2, 1988. The speakers will be WCC MOP alumnus Russell Ito, and Ray Sumida of the National Marine Fisheries Service Honolulu lab.

The seminar will be held at 10:30 a.m. at the Seminar Room at NMFS, 2570 Dole St. If you would like more information, call 943-1221.

Of Interest

Dive with UH Aquanauts

For those who would like to scuba dive, but have difficulty finding the opportunity, the UH Aquanauts Scuba and Snorkel Club offers club dives every Saturday.

Members pay a $5 fee for the semester, and can participate in the Saturday club dives. If you don't have a dive buddy or need transportation to dive sites, the Aquanauts might be the solution.

Authorized members serve as safety divers for all club dives.

The club is open to anyone wanting to get to the ocean. The club is also popular with snorkelers.

The club publishes a newsletter, Aquanotes, and sponsors weekly underwater hockey sessions at the Manoa pool.

If you would like to go on a club dive, show up at 8 a.m. any Saturday at the "Sinclair Circle" on University Avenue. Sinclair Circle is the site of the express bus stop next to the Sinclair Library.

Underwater hockey

The UH Aquanauts Scuba and Snorkel Club sponsors underwater hockey every Sunday night from 7 to 9 p.m. at the Manoa Recreation Center swimming pool.

The sport has been gaining fans and popularity here in Hawaii for the past year. All you need to participate are mask, fins and snorkel. There is no fee to play.

For more information, call Sheila at 947-9305.

Volunteers needed

The Waikiki Aquarium is looking for volunteers to be one of its School Support Interpreters. If you would like to become an aquarium docent, there is a new aquarium volunteer class beginning September 12. The classes will meet Mondays, Wednesdays and Fridays from 9 a.m. to noon. For more information, call the Waikiki Aquarium Volunteer Program at 923-9741.

Paddling & Fishing at UH Manoa

The UH Manoa College of Continuing Education and Community Service is offering two noncredit courses that may of interest.

The first class, "Paddling Hawaii" (course number RSRCP9211) will include slides, lectures, demonstrations of equipment and water practice. Other things will include selection of craft; equipment for shelter, sleeping, navigation, clothing, photography; preparation of compact, portable haute cuisine; safety; evaluation of coastal areas by season and difficulty. A guide book will be included in the course fee.

The class will be meeting at UH Manoa Watanabe 114 on Thursdays from October 6 through 27 from 7 to 9:45 p.m. (plus two field trips on Sunday, October 16 and 30 from 9 a.m. to 1 p.m.). The course fee is $75. It will be taught by Audrey Sutherland, who has authored the book, Paddling My Own Canoe.

The second course, entitled "Pacific Shorefishing" (course number RSRCF9211) is for novice and amateur fishermen who would like to fish but don't know where to begin. Topics include rods, reels, lures and techniques. Hands-on practice will be an integral part of the course, and materials will be provided. Bring brown bag lunch and fishing gear.

The class will be meeting at UH Manoa Holmes 247 on Friday, September 30 from 6:30 to 9 p.m., Saturday, October 1 from 9 a.m. to noon, Sunday, October 2 from 9 a.m. to 3 p.m.. The course fee is $45, plus a $10 lab fee payable to the instructor at the first class session.

The class will be taught by Mike Sakamoto, known for his Mike Sakamoto's Fishing Tales show on KGMB TV.

Enrollment is limited for both classes. If you would like more information on how to register, call 948-8400.

MOP Calendar

September

1 (Th): SEMINAR: "IMPLEMENTATION OF HAWAII State Water Code" with Michael J. Chun, President of Kam Schools and Commissioner of the Commission on Water Resources Management. 3 p.m. at UH Manoa Watanabe 420. Sponsored by UH Water Resources Research Ctr.

1 (Th): DEADLINE TO NOTIFY STEVE RUSSELL FOR Maalaea Project.

2 (F): LAST DAY TO REGISTER, ADD, CHANGE Classes, UHM.

2 (F): AMERICAN SAMOA TUNA FISHERIES SEMINAR @ NMFS Honolulu Lab, 10:30 a.m. Call 943-1221 for more info.

2 (F): OAHU MOP COOKOUT AT SANS SOUCI BEACH, Waikiki. Starts 5:30 p.m. Potluck. Call Rodney to help @ 948-6000.

2 (F): POSTMARK DATE FOR REGULAR Registration for Graduate Record Exam on October 8, 1988.

3-7: POSTMARK DATES FOR LATE REGISTRATION for GRE on Oct. 8, 1988. Add $10 late charge.

4 (S): PBS TV 4 P.M. WIND SURFING "REGATTAS Excursions." 5:30 p.m.: "Nautilus: 500 Million Years Under the Sea. 7 p.m. CONSERVING AMERICA: "the Wetlands."

5 (M): HOLIDAY: LABOR DAY.

5 (M): 19TH ANNUAL WAIKIKI ROUGHWATER SWIM. From the Hilton Rainbow Tower to the Kaimana Beach Hotel: 2.384 miles (3.84 kilometers). Deadline for entry is August 22. Call 523-4182 or 396-4008 for more information.

6 (T): MARINE TECHNOLOGY SOCIETY MEETING/ Cookout, Tour and Demonstration @ HURL Pier (Makapu'u), $10/person. RSVP Susan Wilson @ 259-8871.

7 (W): PBS TV 10 P.M.: ON SHIFTING SANDS; focuses on controversy of Presque Isle, Pennsylvania's conflict between environmentalists, developers, recreationalists and the force of nature.

7 (W): TOLE MOUR ON MAIDEN VOYAGE FROM Portland to San Francisco. See August Seawords Of Interest for more info.

8 (Th): PBS TV 7:30P.M.- WILD AMERICA: "ANIMAL Oddities."

10 (S): WORKSHOP ON TROUT AND CHANNEL Catfish, sponsored by Sea Grant & MRTC, in Hilo. Call 948-8191 for more info.

11 (S): PBS TV 4 P.M.-WIND SURFING, "FREE Style Stunts and Custom Boards."

12 (M): WAIKIKI AQUARIUM DOCENT PROGRAM Volunteer class begins, 9 a.m. to noon. Call 923-9741 for more info.

14 (W): TOLE MOUR ON MAIDEN VOYAGE FROM SAN Francisco to Honolulu.

14 (W): PBS TV 10:30-SEA TURTLES' LAST DANCE Looks at the causes of a drastic reduction of sea turtles and efforts by environmentalists and scientists to save them.

14 (W): OPEN WATER SCUBA CLASS WITH ALAN Hong. Sign up at MOP 948-8433.

17 (S): PRIMARY ELECTION -- VOTE!!!

18 (S): PBS TV 4 P.M. WIND SURFING: "GETTING Started in Wind Surfing." 7 p.m.-THE INFINITE VOYAGE: "To the Edge of the Earth" examines research in little-known regions of the earth, including remote lava caves in the Galapagos Islands.

19 (M): PBS TV 8 P.M. - NATIONAL GEOGRAPHIC Special, "Treasures from the Past" looks at group that restores pieces of the past, including the oldest working square-rigged sailing ship in the world.

20 (T): TORCH MEETING AT McCULLY/MOILIILI Library. See Of Interest.

22 (Th): PBS TV 10 P.M.- HAWAIIANS: "The Time of Ao", three parter on Hawaiian people. First is on ancient Hawaiians.

23 (F): PBS TV 10 P.M. - HAWAIIANS: "Innocence Betrayed," looks at Western contact from Capt. Cook to Mahele. Part 2.

25 (S): PBS TV 4 P.M., WIND SURFING; "Steering, Tacking and Rules of the Board."

29 (Th): PBS TV 9 P.M. - VOYAGE OF REDISCOVERY With the Hokule'a. 10 p.m.: HAWAIIANS: "Hold Fast!" looks at 20th century Hawaiian cultural revival. Part 3, conclusion.

October

1 (Sa): MOP MOLOKAI PROJECT FINAL REPORT Due.

8-10: MOP MAALAEA BAY PROJECT ON MAUI, LED by MOP Maalaea Project Coordinator Steve Russell.

10 (M): HOLIDAY: DISCOVERER'S DAY.

14 (F): DEADLINE TO SIGN UP FOR BML CRUISES. See Of Interest.

15 (Sa): MOP ALUMNI ASSOC. MEETING @ WAIKIKI Aquarium, evening. Call Annie Orcutt @ 948-8191 for more info.

22 (Sa): "GET THE DRIFT AND BAG IT" Statewide beach clean-up. Contact the state Litter Control Office @ 548-3400.

22 (Sa): SEA CREATURES AND CRAFTS; "SEA Lions and Seals" a class for 6 to 8 year-olds at Sea Life Park. 1:30 to 4 p.m. $10 fee. Call 259-7933 for more info.

29 (Sa): KEIKI AND ADULT EXPLORATIONS, a class at Sea Life Park for kids and adults. Call 259-7933 for more info.

31 (M): HALLOWEEN.

31 (M): FIRST DAY OF BML FALL CRUISES ABOARD R/V KILA.

31 (M): POSTMARK DATE FOR REGULAR GRE Registration for the December 10 testing date.

.....Denotes MOP activities.

University of Hawaii at Manoa
Marine Option Program
1000 Pope Rd. Rm. 229
Honolulu, HI 96822
Address Correction
Requested

NONPROFIT ORG.
U.S. Postage
PAID
Honolulu, HI
Permit No. 278

George Balazs
National Marine Fisheries Service
2570 Dole Street
CAMPUS MAIL

John Waihee
Governor

NEWS RELEASE

Department of Land and Natural Resources
Division of Aquatic Resources
Henry M. Sakuda - 548-4002

June 28, 1989

The Department of Land and Natural Resources announced today that Governor John Waihee signed into law Act 174, which amends Section 188-29 of the Hawaii Revised Statutes (HRS) to establish a minimum mesh size for fish traps made with rigid or stiff material.

The purpose of having minimum mesh sizes for nets and traps is to allow smaller-sized individual organisms to escape, grow to maturity, and spawn at least once before being caught. Hence, from the standpoint of resource conservation, Act 174 has merit.

Act 174 amends Section 188-29, HRS to:

1. separate minimum mesh size of traps with flexible netting material (such as cotton, linen, nylon, etc.) from rigid or stiff materials (such as plastic, wire, plastic-coated wire, etc.)
2. set new minimum mesh size for rigid or stiff materials of not less than one-inch wide by two-inch long;
3. allow registration of existing wire or plastic-coated wire traps with two-inch stretched mesh with the Department of Land and Natural Resources by October 1, 1989, to continue use until June 30, 1994; and
4. prohibit in State waters, traps of stiff material with mesh size less than one-inch wide by two-inch long after June 30, 1994.

Accordingly, pursuant to Act 174, fishermen that operate in State waters with fish traps, lobster traps, and shrimp traps made with stiff material should inquire about the registration since only registered wire traps of two-inch stretched mesh or larger size mesh will be allowed use after October 1, 1989 until June 30, 1994.

To register your traps, or for information, fishermen must, by October 1, 1989, contact the Division's office on Oahu at 1151 Punchbowl Street, Room 330, Honolulu, (telephone 548-4002) or Hawaii at 75 Aupuni Street, Hilo (telephone 961-7501), or Maui at 70 South High Street, Room 201, Wailuku (telephone 244-2072), or Lanai/Molokai at Hoolehua (telephone 567-6696), or Kauai at 3060 Eiwa Street, Lihue (telephone 245-4400).

Trap registration forms made available by the Division should be filled by the fishermen and returned to the Division for follow-up verification and registration.

In summary, fishermen that use traps with stiff material using two-inch stretched mesh in State waters are affected and must register their traps with the Division of Aquatic Resources.

Fish traps of stiff material with mesh size of one-inch wide by two-inches long or larger do not need to be registered.

The Department solicits the cooperation of trap fishermen in implementing the new law.

☆U.S. G.P.O. 1981-765-012/1151 REG. #6

FORM CD-14 (2-76) Prescr. by DAO 214-2 — U.S. DEPT. OF COMM. — TRANSMITTAL SLIP	DATE 6/10
TO: George	REF. NO. OR ROOM, BLDG.
FROM: Bill.	REF. NO. OR ROOM, BLDG.

ACTION

☐ NOTE AND FILE	☐ PER OUR CONVERSATION
☐ NOTE AND RETURN TO ME	☐ PER YOUR REQUEST
☐ RETURN WITH MORE DETAILS	☐ FOR YOUR APPROVAL
☐ NOTE AND SEE ME ABOUT THIS	☐ FOR YOUR INFORMATION
☐ PLEASE ANSWER	☐ FOR YOUR COMMENTS
☐ PREPARE REPLY FOR MY SIGNATURE	☐ SIGNATURE
☐ TAKE APPROPRIATE ACTION	☐ INVESTIGATE AND REPORT

COMMENTS:

(Is it possible?)
See John L. about "OK" to buy used equip from a fisherman!
– Will Ed be calling you with a price – any way to determine net value, other than price Ed puts on it? — Return letter. TX

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center Honolulu Laboratory
2570 Dole St. • Honolulu, Hawaii 96822-2396

June 8, 1987 F/SWC:GHB

MEMORANDUM FOR: William G. Gilmartin

FROM: George H. Balazs

SUBJECT: Results of recent turtle tagging at Palaau, Molokai, with fisherman Ed Medeiros

Service order 40-JJNF-7-070 issued to Ed Medeiros was fulfilled during the period June 2-4, 1987 when Robert Forsyth and I traveled to Molokai to tag green turtles incidentally caught during "bullpen" net fishing. A total of 27 turtles were captured, 4 of which had been previously tagged in the same general area over the past 4 years. One of these turtles that measured only 52 cm was extensively afflicted with tumors over its eyes and front flippers. No tumors were present on the animal when it was last seen 3 years ago. Ed Medeiros indicated that several other turtles with tumors had recently been captured and released, in contrast with past years when none had ever been found. From these observations, it would appear that the incidence of this disease is increasing in range within Hawaii, as well as in magnitude.

Our turtle tagging work on Molokai in collaboration with Ed Medeiros and State Aquatic Biologist Bill Puleloa constitutes the most cost efficient, productive and worthwhile research of green turtles in foraging pastures that we have initiated in the main Hawaiian Islands. In spite of this fact, due to travel restrictions and funding constraints we have only been able to visit Molokai to do this work about once every 18 months. It would be highly advantageous to increase this field schedule to three times a year. I hope that this will be possible next fiscal year.

On a related note, Ed Medeiros is planning to construct new panels of bullpen net to replace some of his existing gear. He plans to sell the older nets which, due to numerous small holes, are now much less efficient at herding fish. However, the nets are still very effective for herding and live-capture of turtles. Ed wanted to know if we would be interested in purchasing these nets. As yet, no price has been quoted. I want to recommend that we seriously consider buying the nets for the following reasons: 1) they have considerable potential for use in turtle research activities at several select sites here on Oahu; and 2) if someone else purchases them for commercial fishing on Molokai, the new owner may not be nearly as charitable toward sea turtles as Ed has been in releasing them from his net. Ed's bullpen net is somewhat unique to Hawaii in that there are only two like it in the entire State.

MEMORANDUM

TO: ALAN HOLT, AUDREY NEWMAN, DAVID ROLPH, GEORGE BALAZ, BILL PULELOA

CC: NATHAN IGNACIO, JOAN AIDEM, DR. RICHARD AND MRS. RUTH LANGER

FROM: ED MISAKI

DATE: JAN 5, 1989

SUBJ: 1988 SUMMER TURTLE NESTING MONITORING REPORT

We had confirmed turtle nestings and hatchlings this season beginning with the first sighted adult tracks on July 4th and culminating with the last hatchlings tracks around October 25th.

On November 23, 1988, Bill Puleloa, Joan Aidem, David Rolph and I went out to the turtle nest to try to recover evidendce (egg shells) for further confirmation of the turtle hatch. We dug up three nest quite extensively but were unsuccessful in finding the egg shells. November 23rd's effort also ended this years monitoring efforts.

There was a total of 6 sets of tracks and 10 pits in 4 separate areas. There was one confirm sighting of a hatchlings (dug out of the nest 10/9) and signs of 3 separate hatches.

Joan Aidem and Dr. Richard Langer (volunteers) did the majority of the daily monitoring. Both made about 40 visits each to the nesting sights to monitor activity. Joan Aidem kept detailed notes of each of her visits. Her notes will be filed with this report. Her notes will be made available upon request.

Bill Puleloa (DLNR Division of Aquatics) coordinated this years monitoring efforts. All sightings were first reported to Bill and he coordinated efforts to visit the nesting areas to confirms the sightings. Bill will be putting together a report of this years monitoring activities.

George Balaz (National Marine Fisheries Service) has been our official Consultant/Director of this monitoring effort and will continue to be unless informed otherwise by George.

I helped with contacting all the parties involved, authorizing the passes and distributing the keys. I believed we all learned a tremendous amount this year and our roles are becoming better defined. I want to thank all of you and I look forward to next years hatching season.

George,
Are there any recommendations for this program?

Memorandum

To: Alan Holt, George Balazs, Bill Puleloa, Joan Aidem, Dr. Richard and Mrs. Ruth Langer
From: Ed Misaki
Date: May 5, 1987
Subj: 1987 May to August Turtle Nesting Monitoring at Kawaaloa Bay, Moomomi

---

The purpose of this memo is to familiarize all of you as to: the people and agencies involved; monitoring scheme; training and duties; and public relation about this exciting and important program.

1. Name of Participants

George Balazs, Zoologist
Marine Mammals and Endangered Species Program
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii 96822 Phone: 943-1221

Bill Puleloa, Aquatice Biologist
DLNR, Division of Aquatic Resources
P.O. Box 248
Kualapuu, Hawaii 96757 Phone: 567-6696 wk
553-3778 hm

Joan Aidem, Naturalist
General Delivery
Kaunakakai, Hawaii 96748 Phone: 553-5641

Dr. and Mrs. Richard Langer
P.O. Box 789
Kaunakakai, Hawaii 96748

Ed Misaki, Manager Molokai Preserves
The Nature Conservancy of Hawaii
P.O. Box 40'
Kualapuu, Hawaii 96757 Phone: 567-6680

Alan Holt, Directory of Science and Stewardship
The Nature Conservancy of Hawaii
1116 Smith Street #201
Honolulu, Hawaii 96817 Phone: 537-4508 wk
528-3793 hm

2. Monitoring Scheme:

A. We will begin making weekly spot checks beginning as soon as pssible. Between the four of us on Molokai we should be

able to check every other day. Bill and I will take the lead on this initial checking. However (Joan/Langers), please let us know the days that you would be able to make checks. Everyone should keep notes on negative sightings as well as positive sightings.

B. When a positive sighting is made, draw a sketch of the tracks as well as the nest site. Describe in detail the nest site. Report to either Bill or myself so we can contact George. If George or Bill determinds that it is a "false crawl", then we will monitor for renesting the next couple of nights. A "false crawl" is when the female turtle make the treck to the nesting site but for some reason does not lay her clutch. She normally will try again the next night. Otherwise, if it is determind that she has successfully nested a clutch, then we will plan to monitor 10 to 15 days later for 4 to 5 consecutive nights. According to George, Green turtles averages about 2 clutches a year with a 10 to 15 day interval. George will fly over to train and conduct the initial night monitoring sessions.

C. We will continue to monitor over the course of the nesting season with George partipating less in the night session as we get better as a team. All information and data will be handed over to George and the National Marine Fisheries Service.

3. Training and Duties: George and Bill will provide the training that is needed in the handling of the turtles and the recording of the data. I will coordinate time schedules, vehicles, keyes and access to the site. Joan/Langers we need you especially on the night watching duties.

4. Public Relations: We need to be very low-keyed about this monitoring project as human disturbance can distract the turtles form nesting. Please be very discrete about the entire project.

I look forward to working with all of you. Let's hope for the best!

7/3
Dr. Langer - "nesting 3 days old"
All the way to veg line, same place as last time (1986)

MEMORANDUM

TO: GEORGE BALAZ, BILL PULELOA, JOAN AIDEM, DR. RICHARD AND MRS. RUTH LANGER

CC: ALAN HOLT

FROM: ED MISAKI

DATE: JUNE 30, 1988

SUBJ: 1988 SUMMER TURTLE NESTING MONITORING AT KAWAALOA BAY, MOOMOMI

Its that time of the year to look for turtle nestings. Hopefully there will be nestings this year. I've included part of last years memo to refamiliarize you with the people involved and the monitoring scheme. Bill, Joan, and the Langers, I've included calenders for you to fill out and send back to me so I can coordinate monitoring dates.

1. Name of Participants

George Balaz, Zoologist
Marine Mammals and Endangered Species Program
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii 96822 Phone: 943-1221
395-6409

Bill Puleloa, Aquatice Biologist
DLNR, Division of Aquatic Resources
P. O. Box 248
Kualapuu, Hawaii 96757 Phone: 567-6696 wk
553-3778 hm

Joan Aidem, Naturalist,
General Delivery
Kaunakakai, Hawaii 96748 Phone: 553-5641

Dr. and Mrs. Richard Langer
P. O. Box 789
Kaunakakai, Hawaii 96748 Phone: 567-6545
553-5353

KAREN

Ed Misaki, Molokai Preserves Manager
The Nature Conservancy of Hawaii
P. O. Box 40
Kualapuu, Hawaii 96757 Phone: 567-6680

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A. We will begin making weekly spot checks beginning as soon as pssible. Between the four of us on Molokai we should be able to check every other day. Bill and I will take the lead on this initial checking. However (Joan/Langers), please let us know the days that you would be able to make checks. Everyone should keep notes on negative sightings as well as positive sightings.

B. When a positive sighting is made, draw a sketch of the tracks as well as the nest site. Describe in detail the nest site. Report to either Bill or myself so we can contact George. If George or Bill determinds that it is a "false crawl", then we will monitor for renesting the next couple of nights. A "false crawl" is when the female turtle make the treck to the nesting site, but for some reason does not lay her clutch. She normally will try again the next night. Otherwise, if it is determind that she has successfully nested a clutch, then we will plan to monitor 10 to 15 days later for 4 to 5 consecutive nights. According to George, Green turtles averages about 2 clutches a year with a 10 to 15 day interval. George will fly over to train and conduct the initial night monitoring sessions.

C. We will continue to monitor over the course of the nesting season with George partipating less in the night session as we get better as a team. All information and data will be handed over to George and the National Marine Fisheries Service.

3. Training and Duties: George and Bill will provide the training that is needed in the handling of the turtles and the recording of the data. I will coordinate time schedules, vehicles, keys and access (written passes) to the site. Joan/Langers we need you especially on the night watching duties.

4. Public Relations: We need to be very low-keyed about this monitoring project as human disturbance can distract the turtles form nesting. Please be very discrete about the entire project.

I look forward to working with all of you again this year. Let's hope for the best!

Balazs 5 : tag508.10

Tagged green turtles resighted at Palaau, Molokai, May 8-10, 1990

by
George H. Balazs, Bill Puleloa and Ed Medieros
National Marine Fisheries Service Honolulu Laboratory
2570 Dole Street
Honolulu, HI 96822-2396

Tag no.	Date orig. tagged	Interval (yr)	Straight length (cm) original	Straight length (cm) 5/90 and (increase)	Curved length (cm) original	Curved length (cm) 5/90 and (increase)
Y369-70	7/89	0.8	45.7	46.7 (1.0)	48.0	49.5 (1.5)
Y412-13	7/89	0.8	75.1	76.5 (1.4)	79.5	81.5 (2.0)
10925-26	7/88	1.8	56.3	59.2 (2.9)	59.5	63.0 (3.5)
Y509-10	7/89	0.8	65.5	67.2 (1.7)	70.5	73.0 (2.5)
Y442-43	7/89	0.8	62.3	63.7 (1.4)	66.0	68.0 (2.0)
9884-85	6/87	2/9	40.6	43.0 (2.4)	43.0	46.0 (3.0)
6461-62	10/82	7.6		77.3	68.5	82.0 (13.5)

Tagged and untagged green turtles with fibropapillomas captured at Palaau, Molokai, June 1987-July 1990

George H. Balazs

Study Dates	Turtles encountered for the first time		Turtles encountered already tagged		Total	
	N	No. and % with tumors	N	No. and % with tumors	N captured	No. and % with tumors
6/87	23	0 (0.0%)	4	1 (25.0%)*	27	1 (3.7%)
7/88	109	5 (4.6%)	16	1 (6.2%)*	125	6 (4.8%)
7/89	130	11 (8.5%)	12	3 (25.0%)	142	14 (9.9%)
3/90	12	5 (41.7%)	1	0 (0.0%)	13	5 (38.5%)
5/90	44	5 (11.4%)	7	1 (14.3%)	51	7 (13.7%)
7/90	100	23 (23.0%)	17	6 (35.3%)*	117	29 (24.8%)
3-year total	418	49 (11.7%)	57	12 (21.1%)	475	62 (13.1%)

*Includes the following turtles (tag numbers) with fibropapillomas at one or more of the tag sites, in addition to those growing at other locations:

6/87 6698, 6699
7/88 7835, 7836
7/90 6533, 6534; 7937, 7938; 8842

Balazs 5 : tag508.10

Tagged green turtles resighted at Palaau, Molokai, May 8-10, 1990

by
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National Marine Fisheries Service Honolulu Laboratory
2570 Dole Street
Honolulu, HI 96822-2396

Tag no.	Date orig. tagged	Interval (yr)	Straight length (cm) original	Straight length (cm) 5/90 and (increase)	Curved length (cm) original	Curved length (cm) 5/90 and (increase)
Y369-70	7/89	0.8	45.7	46.7 (1.0)	48.0	49.5 (1.5)
Y412-13	7/89	0.8	75.1	76.5 (1.4)	79.5	81.5 (2.0)
10925-26	7/88	1.8	56.3	59.2 (2.9)	59.5	63.0 (3.5)
Y509-10	7/89	0.8	65.5	67.2 (1.7)	70.5	73.0 (2.5)
Y442-43	7/89	0.8	62.3	63.7 (1.4)	66.0	68.0 (2.0)
9884-85	6/87	2/9	40.6	43.0 (2.4)	43.0	46.0 (3.0)
6461-62	10/82	7.6		77.3	68.5	82.0 (13.5)

*Growth rates for tag resightings at Palaau.

	Tag No.	Initial straight carapace length, (cm)	Recapture interval, (yr/mo)	Growth rate, (cm/yr)
a	9884-85	40.6	1-1	0.65 (1/4 in)
b	9589-90	47.0	1-10	1.69 (5/8 in)
c	7947, 49	51.9	3-3	2.74 (1-1/16 in)
d	9877-78	57.4	1-1	2.22 (7/8 in)
e	7945-46	38.8	3-3	2.80 (1-1/16 in)
f	9874-75	54.0	1-1	2.03 (3/4 in)
g	7835-36	68.6	3-0	1.20 (1/2 in)

	Tag No.	Initial straight carapace length, (cm)	Recapture interval, (yr/mo)	Growth rate, (cm/yr)
h	6539-40	40.5 (curved meas.)	5-9	2.96 (1-1/8 in)
i	8527-28	48.8	3-0	2.43 (1 in)
j	9486-87	57.0	2-9	1.71 (5/8 in)
k	8543-44	51.8	3-0	2.59 (1 in)
l	8601, 8650	40.6	3-3	2.00 (3/4 in)
m	8519-20	49.0	3-0	2.53 (1 in)
n	7825-26	39.6	3-0	2.43 (1 in)
o	7875, 7926	56.5	3-3	1.78 (3/4 in)
p	8531-32	58.7	3-0	3.43 (1-3/8 in)
	Mean -	50.7	31 months	2.15 (7/8 in)
	range -	38.8-68.6	13-39 mo	0.65-3.43

Summary of green turtles tagged and resighted at Palaau, Molokai
11-15 July 1988.

Compiled by George H. Balazs
Southwest Fisheries Center Honolulu Laboratory
2570 Dole Street
Honolulu, Hawaii 96822-2396

Inconel tag No.	Colored plastic tag No.	Straight carapace length, (cm)	Curved carapace length, (cm)	Notation
7/11-12/88 Site A (19 turtles with 3 tag resightings)				
10756-58	gr-HF-b1	93.9	100.5	female; tumor
10759-60	gr-HG-b1	67.2	72.0	
10762-63	gr-HB-b1	75.2	80.5	
10764-65	gr-HD-b1	64.6	69.0	
10766-67	gr-HJ-b1	62.8	67.0	
10768-69	or-PM-b1	54.7	58.0	
10770-71	--	43.4	46.5	
*9884-85	--	41.3	44.0	a
10772-73	--	48.9	52.0	
10774-75	--	44.7	47.5	stomach sampled
10776-77	--	47.5	51.0	
*9589-90	--	50.1	54.5	b
10778-80	rd-AW-b1	75.7	81.0	
*7947, 49	--	60.8	65.5	c
10781-82	gr-HR-b1	67.0	71.5	
10783-84	--	45.4	48.5	
10785-86	ye-BF-b1	59.6	64.5	stomach sampled
10787-88	--	48.9	52.5	
10789-90	--	42.7	45.0	

Inconel tag No.	Colored plastic tag No.	Straight carapace length, (cm)	Curved carapace length, (cm)	Notation
7/12-13/88 Site A (19 turtles with 3 tag resightings)				
10791-92	gr-HP-bl	62.1	66.0	
10793, 95	--	50.6	53.5	
10796-97	gr-HK-bl	63.2	67.0	
10799-800	gr-HM-bl	61.3	66.5	
10801-02	gr-HW-bl	59.9	64.0	
10803, 05	--	54.4	58.5	
*9877-78	gr-HZ-bl	59.8	64.5	d
10806-07	gr-HY-gr	59.8	64.0	
*7945-46	--	47.9	50.5	e
10808-09	--	54.1	57.5	
10810-11	gr-HU-gr	66.3	71.5	
10812-13	or-PR-rd	62.7	69.0	
10814-15	ye-BA-or	61.6	65.5	
10816-17	--	43.5	46.3	
10818-19	or-PG-or	53.3	57.0	tumors; stomach sampled
10820-21	--	51.2	48.5	
10822-23	--	39.7	42.0	
10824-25	--	49.7	53.0	
*9874-75	--	56.2	60.0	mortality; f

Inconel tag No.	Colored plastic tag No.	Straight carapace length, (cm)	Curved carapace length, (cm)	Notation
7/13-14/88 Site E (65 turtles with 8 tag resightings)				
10826-28	rd-AB-or	74.7	78.5	
10829-30	rd-AG-or	68.0	72.5	
*7835-36	or-PB-or	72.2	77.0	tumors; g
10831-32	--	59.8	64.5	
10833-34	ye-BD-or	68.1	73.5	
10835-36	--	47.7	51.0	
10837-38	--	48.5	52.5	
10839-40	--	53.4	57.5	
10841-42	or-PW-rd	62.1	67.0	
*6539-40	--	54.0	57.5	h
10843-44	ye-BJ-rd	69.3	75.5	tumors
10845-46	ye-BS-rd	67.4	72.5	
*8527-28	--	56.1	59.5	i
10847-48	--	49.7	53.0	
*9486-87	ye-BL-rd	61.7	66.5	j
*8543-44	ye-BW-rd	59.6	65.5	k
10849-50	--	60.6	65.0	
10851-52	ye-BZ-rd	62.9	67.5	
10853-54	--			
10855-56	ye-BU-b1	73.7	79.0	

Inconel tag No.	Colored plastic tag No.	Straight carapace length, (cm)	Curved carapace length, (cm)	Notation
10857-58	--	52.5	56.5	
10859-60	--	49.3	53.0	
10861-62	--	56.8	59.0	healed notch
10863-64	--	51.1	54.5	6 centrals
10865-66	--	56.3	61.5	
10867-68	ye-BG-rd	72.5	78.0	
10869-70	--	51.4	54.0	
10873-74	--	61.2	65.5	
*8601, 8650	--	47.1	50.5	1
10875-76	--	56.8	60.5	
10877-78	--	56.3	60.5	
10879-80	ye-BP-rd	63.4	69.0	
10881-82	--	53.6	58.0	
10883-84	--	54.5	58.0	
10885-86	--	50.7	53.5	
10887-88	--	52.5	56.5	
10889-90	--	52.7	57.0	
10891-92	ye-BK-rd	64.2	69.5	
10893-94	--	48.7	52.0	
10895-96	--	60.1	65.0	
10897-98	--	54.0	58.0	
10899-900	--	40.9	43.5	

Inconel tag No.	Colored plastic tag No.	Straight carapace length, (cm)	Curved carapace length, (cm)	Notation
10901-02	--	40.4	43.0	
10903-04	ye-BR-bl	72.7	78.5	
10905-06	--	46.0	49.5	
10907-08	--	46.8	50.0	
10909-10	--	57.1	60.5	
10911-12	--	57.9	62.0	
*8519-20	--	56.6	62.0	m
*7825-26	--	46.9	50.0	n
10915-16	--	62.7	67.5	
10917-18	--	62.1	67.5	
10919-20	ye-BM-rd	69.4	76.0	
10921-22	--	60.2	65.0	tumors
10923-24	ye-BY-rd	72.1	78.0	tumors
10925-26	--	56.3	59.5	
10927-28	ye-BN-rd	74.7	81.0	
10929-30	--	45.4	48.0	hawksbill
10931, 33	--	54.4	58.5	
10934-36	--	65.9	71.0	
10932, 37	--	59.4	64.0	
10938-39	--	63.0	69.0	
10940-42	--	69.4	75.0	

Inconel tag No.	Colored plastic tag No.	Straight carapace length, (cm)	Curved carapace length, (cm)	Notation
7/14-15/88 Site E (23 turtles with 2 tag resightings)				
10943-44	--	45.1	48.5	
10945-46	--	55.1	58.0	
10947-48	--	48.7	53.0	
10949-50	wh-MW-or	65.4	69.5	
10951-52	--	57.6	62.5	
10953-54	--	46.0	49.0	
10955-56	--	41.5	43.5	
10957-59	--	57.0	61.5	
10960-61	--	50.5	53.0	
*7875, 7926	wh-MY-or	62.3	67.5	o
10962-63	--	47.1	49.5	
10964-65	--	50.2	53.5	
10966-67	--	53.0	56.0	healed notch
10968-69	--	49.0	51.5	
10970-71	--	55.5	58.5	
10972-73	--	53.7	57.5	
10974-75, 11000	wh-MP-or	80.1	86.5	
10976-77	wh-MD-or	65.5	70.0	
*8531-32	wh-MM-or	69.0	74.0	p
--	wh-MK-or	57.2	61.0	
10978-79	wh-MB-or	63.1	67.5	

Inconel tag No.	Colored plastic tag No.	Straight carapace length, (cm)	Curved carapace length, (cm)	Notation
10980-81	wh-MR-or	65.4	70.5	
10982-83	wh-MG-or	65.0	70.5	
7/11/88 (5 captive-reared Sea Life Park green turtles released at Palaau)				
D156, D157 (10751)	--	26.8	--	
D171 (10752)	--	21.8	--	
D166, D167 (10753)	--	24.1	--	pc's partly missing
D164, D165 (10754)	--	25.9	--	
D158, D159 (10755)	--	21.7	--	

*Growth rates for tag resightings at Palaau.

	Tag No.	Initial straight carapace length, (cm)	Recapture interval, (yr/mo)	Growth rate, (cm/yr)
a	9884-85	40.6	1-1	0.65 (1/4 in)
b	9589-90	47.0	1-10	1.69 (5/8 in)
c	7947, 49	51.9	3-3	2.74 (1-1/16 in)
d	9877-78	57.4	1-1	2.22 (7/8 in)
e	7945-46	38.8	3-3	2.80 (1-1/16 in)
f	9874-75	54.0	1-1	2.03 (3/4 in)
g	7835-36	68.6	3-0	1.20 (1/2 in)

	Tag No.	Initial straight carapace length, (cm)	Recapture interval, (yr/mo)	Growth rate, (cm/yr)
h	6539-40	40.5 (curved meas.)	5-9	2.96 (1-1/8 in)
i	8527-28	48.8	3-0	2.43 (1 in)
j	9486-87	57.0	2-9	1.71 (5/8 in)
k	8543-44	51.8	3-0	2.59 (1 in)
l	8601, 8650	40.6	3-3	2.00 (3/4 in)
m	8519-20	49.0	3-0	2.53 (1 in)
n	7825-26	39.6	3-0	2.43 (1 in)
o	7875, 7926	56.5	3-3	1.78 (3/4 in)
p	8531-32	58.7	3-0	3.43 (1-3/8 in)
	Mean -	50.7 38.8-68.6	31 months 13-39 mo	2.15 (7/8 in) 0.65-3.43

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SUMMARY OF 143 GREEN TURTLES TAGGED AND RESIGHTED AT PALAAU, MOLOKAI, 4-7 JULY 1989.

Compiled by George H. Balazs, Bill Puleloa, and Ed Medeiros

Inconel tag No.	Plastic tag No.	Straight length (cm) standard/notch	Curved carapace length (cm)	Notation
4-5 July 1989, Site A (77 turtles)				
Y-355*,56		52.4	56.0	
Y-357*,58		55.3	60.0	
Y-359*,60		65.6	71.0	Healed indent in right carapace
Y-361*,62		54.9/54.4	58.0	
Y-363*,64		56.9/56.7	61.0	
Y-365*,66		60.4/60.1	65.5	
Y-367*,68		59.8/59.4	64.0	
Y-369*,70		45.7/44.8	48.0	
Y-371*,72		47.9/47.3	51.0	
Y-373*(3-4),74		45.6/45.4	48.5	
Y-375*,76,77(H)		67.7/67.0	73.0	
Y-378*,79		59.2/59.0	63.0	
Y-380*,81		54.2/56.0	58.5	
Y-382*,83(H),84	BBA401	73.0/72.7	80.0	
9877*,78	Gr-Hz	61.7	67.0	a
Y-385*,86,87(H)		68.7/68.6	74.5	LH 1/4 missing
Y-388*,89,90(H)	BBA402	74.3/74.0	80.0	
Y-391*,92		65.1/64.9	71.0	
Y-393*,94	BBA403	72.8/72.3	78.5	
Y-395*,96		66.6/66.4	71.0	
Y-397*,98	BBA404	72.1	76.5	
Y-399*,400		72.1/71.2	77.5	LFF 3/4 missing
6109*,Y-401	BBA405	85.3/85.1	91.5	Adult male w/small *Lepas*; tagged 6/82 East Is., FFS
Y-402*,03	BBA406	75.9	81.0	PC's freshly factured
Y-404*,05		69.1	73.5	
Y-412*,13		75.1/74.9	79.5	
Y-414*,15		64.1	68.0	Carapace disfigurement
Y-416*,17		50.9/50.5	55.0	Y416 close to edge
Y-418*,19		57.4/57.3	61.5	
Y-420*,21	BBA407	62.8/62.3	68.0	
Y-422*,23(3-4)		62.9/62.7	67.0	TMR LFL
Y-424*,425		60.4	65.5	
Y-426*,27	BBA408	69.3/68.7	76.0	
10873*,74		63.1/62.9	68.0	b
Y-428*,29		55.4	55.0	

Continued.--Summary of turtles at Palaau, Molokai.

Inconel tag No.	Plastic tag No.	Straight length (cm) standard/notch	Curved carapace length (cm)	Notation
9492*,93		54.0/53.7	58.5	c
6682*,83		48.5	52.0	d; TMR-neck
Y-407*,08		51.4/51.1	55.5	
9415,16		55.0/54.4	58.5	e
Y-410,11(3-4)		50.1/49.8	53.5	TMR-RFL, neck
Y-406,09		56.5/56.1	60.5	
Y-430,31		57.8	63.0	
10789,90		46.2/45.8	50.0	f
Y-432,33		48.5/48.2	51.5	TMR-eyes and RFL
Y-434,35		45.7/45.5	47.5	
Y-436,37		42.7/42.2	45.0	
Y-438,39		43.9/43.2	47.0	
Y-440,41		44.2	47.0	PC's missing-healed
Y-442,43		62.3	66.0	
Y-444,45		52.9/52.4	56.0	
Y-446,47		62.9/62.7	67.5	
Y-448,49		71.7/71.4	77.5	
Y-450,51		46.9/46.4	49.5	
Y-452,53		67.9	73.0	
Y-454,55		64.1	68.0	
Y-456,57		57.8	62.5	TMR-eye; carapace indentation
Y-458,59		58.5/58.3	62.0	10th marg. piece missing
Y-460,61		46.8/46.5	50.0	
7908,09		61.3	65.5	g; TMR-eyes
Y-462,63		67.5	72.0	
Y-464,65		49.3/48.9	52.5	
Y-466,67		60.6	65.5	
Y-468,69		57.8	61.2	
10785,86	Ye-Bf	62.4/62.3	65.0	h
Y-470,71		55.7/54.3	59.0	Fractured PC-healed
Y-472,73		61.1	65.0	
Y-474,75		55.9/55.7	60.0	
Y-476,77		52.7/52.4	55.5	
Y-478,79		66.3	70.5	
Y-480,81		69.7/69.4	75.5	
Y-482,83		66.0	71.5	Massive TMR
Y-484,85		49.2	53.0	
Y-486,87		52.9/52.8	57.0	
Y-488,89		51.7	57.5	Healed injury to PC
Y-490,91		61.1/60.0	65.0	
Y-492,93		61.1	65.0	
Y-494,95		54.5/54.2	58.5	

Continued.--Summary of turtles at Palaau, Molokai.

Inconel tag No.	Plastic tag No.	Straight length (cm) standard/notch	Curved carapace length (cm)	Notation
5-6 July 1989, Site A (38 turtles)				
Y-496*,(3-4),97		43.2/42.9	45.0	Massive TMR; photos
Y-498*,99		55.2/54.7	59.0	
Y-500*,01		61.7	66.5	
Y-502*	BBA409	69.7/69.0	75.0	
Y-503*,04		51.7/51.6	55.0	
Y-505*,06		57.2/57.0	61.5	
Y-507*,08		55.1/54.9	59.0	
8525*,26	BBA410	55.7/55.6	60.5	
Y-509*,10		65.5/65.2	70.5	
Y-511*,12		58.9/58.8	63.5	
Y-513*,14		50.5/50.1	53.5	
Y-515*,16		58.0/57.5	62.0	
Y-517*,18	BBA411(FL)	70.3	74.5	
Y-519*,20(3-4)	BBA412(FL)	67.3	72.5	
Y-521*,22	BBA413	77.1	83.5	
Y-523*,24	BBA414	60.8/59.9	65.5	LH deformed
Y-525*,26	BBA415	69.4	75.0	
Y-527*,28	BBA416	59.4/59.2	63.5	
Y-529*,30		52.4/52.1	56.0	
Y-531*,32		57.5/56.9	56.5	7 centrals, 5 L laterals
Y-533*,34	BBA417	80.7	86.5	LH amputated; 31 cm tail, male
Y-535*,36		56.0	60.5	
Y-537*,38	BBA418	66.2	71.0	
Y-539*,40		50.0/49.9	54.5	
Y-541*,42	BBA419	62.6/62.5	68.0	
Y-543*,44	BBA420	64.3/64.0	69.0	
Y-545*,46	BBA421	63.8/63.5	68.0	
Y-547*,48	BBA422	65.7/65.6	70.5	TMRS-eyes, flippers
Y-549*,50	BBA423(FL)	73.4/73.3	79.5	
Y-551*	BBA426	64.4/64.0	70.5	
Y-552*,53		49.3	52.5	
Y-554*,55		40.7/40.4	43.0	Left eye "brow" missing
Y-556*	BBA427(FL)	56.0/55.0	61.0	3 large barnacles removed
Y-557*,58		52.3	56.0	
Y-559*	BBA428	53.7/53.4	57.5	
Y-560*,61		49.6/49.5	52.5	
Y-562*,63		53.0/52.8	56.0	
Y-564*,65		59.9/59.6	64.0	

Continued.--Summary of turtles at Palaau, Molokai.

Inconel tag No.	Plastic tag No.	Straight length (cm) standard/notch	Curved carapace length (cm)	Notation
6-7 July 1989, Site G (27 turtles)				
6414,15 Y-566(H)	BBA429	71.0	76.0	j; TMR-eyes, flippers
Y-567*,68	BBA424	64.7/64.4	69.0	
Y-569*,70	BBA430	77.7/77.4	83.0	
Y-571*,72	BBA431	63.5/63.3	68.0	
Y-573,74		44.1/43.9	47.0	
9603*,04	BBA432	64.9/64.7	69.0	k
Y-575*,76		57.7/57.5	62.0	
Y-577*,78	BBA433	68.2/67.9	73.5	
Y-579*,80		52.7/52.4	57.0	
7932*,Y-581	BBA434	72.5/72.3	77.5	l
Y-582*,83		53.8/53.3	58.0	
Y-584*,85		56.4/56.3	60.0	
Y-586*,87		59.1/59.0	62.5	Massive TMR; photos
Y-588*,89	BBA440	69.3/68.6	74.5	
Y-590*,91		54.5/54.2	58.0	
Y-592*,93	BBA425	66.6/66.5	71.0	Healed indent to L marg.
Y-594*,95	BBA435	48.8/48.7	52.0	Engraved L; photos
Y-596*,97	BBA436	63.7/63.4	69.0	
9163*,64	BBA437	56.3/55.7	61.5	
9165*,66	BBA438	60.8/60.5	65.6	6 centrals
9167*(3-4),68	BBA439	69.5	75.0	TMR-eyes, flippers
9169*,70	BBA441	65.8	70.5	
9171*,72,73(H)		70.7/70.6	76.5	
Y-598*,99 Y-600(H)	BBA443	89.3/89.0	95.0	Female w/healing; mating wounds; LFL tag tear; HF = 34.5 x 20.0
9174*,75	BBA444 (3S)	81.0	86.0	TMR; shark scratches? Noise when breathing; HF = 34.0 x 18.5
9176*,77	BBA445 (3S)	65.0/64.6	70.5	TMR-eye
9178*,80,81(H)	BBA446 (3S)	76.9	83.5	

* = Engraved into 1st lateral right scute using a Dremel "free-wheeler" tool. Spherical bit used 5 and 6 July. Cylindrical bit used 7 July.

BBA = Plastic Dalton Riese tags (colored blue) supplied by NMFS Miami. Prepunched and applied in webbing between 3d and 4th scales of left front flipper, except as noted otherwise.

TMR = Fibropapillomas on 14 (9.8%) of the 143 turtles handled.

a-1 = 12 (8.4%) Palaau tag resightings of the 143 turtles handled.

Table 1.--Growth rates of 12 tagged green turtles resighted at Palaau, Molokai, 4-7 July 1989.

	Tag No.	Initial straight length (cm)	Recapture interval (yr/mo)	Growth rate (cm/yr)
a	9,877-78	57.4	2-1	2.06
b	10,873-74	61.2	1-0	1.90
c	9,492-93	41.5	3-9	3.33
d	6,282-83	40.5	5-3	1.52
e	9,415-16	43.6	4-0	2.85
f	10,789-90	42.7	1-0	3.50
g	7,908-09	56.7	4-2	1.10
h	10,785-86	59.6	1-0	2.80
i	8,525-26	44.7	4-0	2.75
j	6,414-15	(66.5 curved)	6-10	(1.39)
k	9,603-04	57.5	2-6	2.96
l	7,932	64.0	4-3	2.00
Mean		53.0	40 mo	2.35
Range		40.5-64.0		1.10-3.33 (15/16 in/yr)

Summary of 13 green turtles captured at Palaau, Molokai
28 Feb.-2 Mar. 1990.

Compiled by

George Balazs, Bill Puleloa, and Ed Medeiros

Inconel tag no.	Carapace length (cm) standard	notch	curved	Carapace width (cm) Standard	Curved	Notation
28 Feb-1 Mar 1990, Site A (1 turtle)						
Y601,02, 03(H)	74.8	74.6	79.5	56.3	70.5	TMR-eye & tail
1-2 Mar 1990, Site C (12 turtles)						
Y604,05(3-4)	40.5	39.9	43.0	35.1	40.0	--
Y606,07(3-4)	39.2	38.8	41.5	33.3	38.5	White PL
Y608,09(3-4)	42.5	41.9	45.0	--	40.0	--
Y610,11	55.1	54.6	60.0	54.6	53.0	--
Y612,13,14(H)	63.9	63.9	68.0	49.5	60.0	TMR-eyes
Y615,16,18(H)	63.7	63.7	68.0	49.2	60.5	L&R FL's gone
Y619,20,21(H), 22(3-4)	84.4	84.3	90.0	--	--	male?
Y623,24(3-4) 625(H)	80.9	80.8	86.0	59.2	73.0	TMR-RFL & eye
Y626,27,28(H)	78.9	78.9	83.0	62.4	77.5	6 centrals
Y630,31(3-4) 32(H)	60.0	59.9	65.0	49.7	56.5	TMR-eyes & FP's
Y634,35,36(H)	83.9	83.9	88.5	66.7	81.0	TMR-eyes, jaw, FF's
7240(9292) (Y633H)	68.6	68.3	73.5	54.4	66.0	tag recapture

[This turtle originally tagged by Bill Puleloa and Ed Medeiros at Site C on 5/16/84, 5.75 years ago. Measurements: Standard length was 46.5 cm (growth of 3.8 cm/yr) and curved length was 49.0 cm (growth of 4.3 cm/yr.)]

Notes: Of 13 turtles captured, 5 (38.5%) had tumors.
3/1/90 Site A seawater = 68°F
3/2/90 Site C seawater = 72°F

Summary of 13 green turtles captured at Palaau, Molokai
28 Feb.-2 Mar. 1990.

Compiled by

George Balazs, Bill Puleloa, and Ed Medeiros

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1-2 Mar 1990, Site C (12 turtles)						
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Y606,07(3-4)	39.2	38.8	41.5	33.3	38.5	White PL
Y608,09(3-4)	42.5	41.9	45.0	--	40.0	--
Y610,11	55.1	54.6	60.0	54.6	53.0	--
Y612,13,14(H)	63.9	63.9	68.0	49.5	60.0	TMR-eyes
Y615,16,18(H)	63.7	63.7	68.0	49.2	60.5	L&R FL's gone
Y619,20,21(H), 22(3-4)	84.4	84.3	90.0	--	--	male?
Y623,24(3-4) 625(H)	80.9	80.8	86.0	59.2	73.0	TMR-RFL & eye
Y626,27,28(H)	78.9	78.9	83.0	62.4	77.5	6 centrals
Y630,31(3-4) 32(H)	60.0	59.9	65.0	49.7	56.5	TMR-eyes & FF's
Y634,35,36(H)	83.9	83.9	88.5	66.7	81.0	TMR-eyes, jaw, FF's
7240(9292) (Y633H)	68.6	68.3	73.5	54.4	66.0	tag recapture

[This turtle originally tagged by Bill Puleloa and Ed Medeiros at Site C on 5/16/84, 5.75 years ago. Measurements: Standard length was 46.5 cm (growth of 3.8 cm/yr) and curved length was 49.0 cm (growth of 4.3 cm/yr.)]

Notes: Of 13 turtles captured, 5 (38.5%) had tumors.
3/1/90 Site A seawater = 68°F
3/2/90 Site C seawater = 72°F

Balazs 5: molok5.08

Green turtles captured and tagged at
Palaau, Molokai on May 8-10, 1990
(* = tag resighting).

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Tag no.	Straight carapace (cm) length	notch	width	Curved carapace (cm) length	width
Site A, 5/8/90					
Y685, Y686	63.6	63.4	50.5	68.0	60.5
Y687, Y688, Y689	78.1	77.9	60.0	84.0	75.0
Y690, Y691	43.7	43.5	34.8	46.0	41.5
Y369*, Y370*	46.7	45.9	38.0	49.5	45.0
Y692, Y693	42.6	42.0	35.0	45.0	41.5
Y694, Y695, Y696 Tumors	71.8	71.5	57.5	77.0	71.0
Y412*, Y413*, (Y697)	76.5	76.1	57.4	81.5	72.0
Y699, Y698, Y700	70.4	70.4	53.8	75.5	64.5
Y751, Y752	61.4	60.9	50.4	66.5	61.0
Y753, Y754, Y755	78.3	77.9	61.4	85.0	79.5
Y756, Y757 Tumors	62.2	61.9	48.1	66.0	58.0
Y758, Y759	58.5	58.3	46.6	63.0	55.5
Y760, Y761	63.6	63.2	50.7	68.0	62.5
Y762, Y763	61.4	61.4	48.8	66.0	58.5
Y764, Y765	49.7	49.5	40.7	53.0	47.5
Y766, Y767	48.4	47.6	37.9	52.0	46.0
Y769, Y768, Y770	72.1	72.1	56.4	77.0	70.0
Y771, Y772	68.2	68.2	50.9	72.0	64.0
Y773, Y774	65.1	64.8	50.2	70.5	62.0

.773, Y774	65.1	64.8	50.2	70.5	62.0

Tag no.	Straight carapace (cm) length	notch	width	Curved carapace (cm) length	width
Site A, 5/8/90, Con't.					
Y775, Y776	60.2	60.2	47.1	64.5	57.0
Y777, Y778	62.1	62.1	49.8	69.0	64.0
Y779, Y780	65.1	65.1	51.8	69.0	63.5
Y781, Y782	62.0	62.0	51.2	67.0	63.0
Y783, Y784	52.9	52.9	42.1	57.0	51.0
Y785, Y786	66.7	66.3	51.0	72.0	64.0
Y787, Y788 Tumors	54.8	54.6	44.7	58.5	53.5
Y790, Y789	63.3	63.0	48.9	68.0	61.0
Y791, Y792	50.2	50.2	40.3	50.4	49.0
10926*, 10925*	59.2	59.2	45.4	63.0	56.0
Y793, Y794	55.9	55.2	43.1	60.0	52.5
Y795, Y796	68.4	68.4	54.9	73.5	68.5
Y510*, Y509*	67.2	66.9	52.4	73.0	65.0
Y797, Y798	55.4	55.3	43.6	59.5	52.0
Y799, Y800	56.6	56.6	44.9	61.0	57.0
Y801, Y802 Tumors	62.0	61.9	49.9	65.5	61.0
Y803, Y804, Y805	70.2	70.2	56.4	76.0	70.0
Y806, Y807, Y808 Tumors	84.6	84.6	63.7	91.5	85.0
Y809, Y810	75.9	75.9	58.5	81.5	71.5
Y811, Y812	56.2	56.0	44.1	60.0	53.5
Y813, Y814	63.2	63.2	52.1	68.0	61.5
Y815, Y816	68.2	68.1	53.4	73.5	63.5

Tag no.	Straight carapace (cm) length	notch	width	Curved carapace (cm) length	width
Site A, 5/8/90, Con't.					
Y443*, Y442*	63.7	63.6	52.5	68.0	66.5
Y817, Y818	43.5	43.0	35.4	46.5	40.5
Y819, Y820	62.1	62.1	48.1	67.0	58.5
Y821, Y822	65.4	65.4	48.8	71.0	60.0
Y823, Y824	51.5	51.2	41.4	55.5	51.5
9884*, 9885*	43.0	42.3	35.4	46.0	40.5
Site A, 5/9/90					
6462*, 6461*, (Y825) Tumors	77.3	76.9	59.7	82.0	75.5
Y826, Z31	39.7	39.2	35.0	42.0	40.0
Y827, Y828, Z30	72.4	72.3	57.0	77.5	69.5
Site G, 5/10/90					
Y829, Z32	36.8	36.3	29.0	39.0	34.5

TOTAL: 51 Turtles
7 Tag resightings (14%)
6 With tumors (12%)

Seawater temperature: Site A = 74°F
Site G = 78°F

36 Green turtles captured and tagged
at Site B, Palaau, Molokai, July 2-3, 1990
(* = tag resighting)

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	Straight carapace (cm)			Curved carapace (cm)	
Tag no.	Length	Notch	Width	Length	Width
Y914, Y915, Z91 tumors	70.7	70.3	55.0	78.0	71.0
Y916, Y917 Z92 tumors	55.5	54.8	43.9	60.0	56.0
*7227, 7228 Z93 tumors	63.0	62.8	49.6	68.0	60.0
Y918, Z94	54.6	54.4	42.7	58.0	52.0
Y919, Y920 Z95	59.2	59.0	46.4	64.0	55.0
Y921, Z96 tumors	61.9	61.8	47.1	67.0	60.0
Y922, Z97	40.2	39.7	32.4	42.0	38.5
Y923, Z98	46.0	45.8	37.0	50.0	44.5
Y924, Z99	51.0	50.8	39.4	55.0	48.5
Y925, Y926, Z100	83.1	82.7	65.5	90.0	85.5
Y927, Z86	57.1	56.8	43.5	61.0	50.5
Y928, Z87	56.6	56.6	46.0	61.0	55.0
Y929, Z88	54.7	54.6	42.2	59.5	53.0
Y930, Z89	53.0	52.7	40.6	57.0	48.0
Y931, Z90	51.5	49.8	40.4	56.0	50.5
Y932, Y933 Z161 tumors	71.1	70.9	53.6	76.5	65.5

Tag no.	Straight carapace (cm)			Curved carapace (cm)	
	Length	Notch	Width	Length	Width
*Y428, Y429 (Z162)	56.9	56.5	42.5	61.0	52.5
Y934, Z163	53.7	53.5	43.7	57.5	52.0
*10931, 10932 (Z164) tumors	56.6	--	46.8	61.0	58.5
Y935, Z165	58.9	58.5	47.7	63.0	56.5
*8519, 8520 (Z166)	62.4	61.6	47.3	67.5	58.0
*Y452, Y453 (Z167)	70.1	69.9	55.7	76.0	68.0
*10940, 10941 10942 tumors	71.9	71.6	54.5	77.0	68.0
Y936, Z169 tumors	55.9	55.5	43.6	60.0	52.5
Y937, Y938, Z170	68.3	68.3	53.3	75.5	66.5
Y939, Y940 Z160 tumors	68.7	68.6	54.4	73.0	66.5
Y941, Y942, Z159	69.1	68.9	53.2	74.0	66.5
Y943, Z158	53.5	53.4	42.7	58.0	50.0
Y944, Z157 tumors	55.4	54.8	41.9	59.0	52.5
Y945, Z156	47.8	47.3	40.0	51.5	47.0
Y946, Z155	63.2	63.2	50.1	68.5	63.5
Y947, Z154 tumors	51.7	51.5	39.0	56.0	50.0
*7239, 9564 (Z153)	56.7	--	45.4	61.0	50.0

Tag no.	Straight carapace (cm) Length	Notch	Width	Curved carapace (cm) Length	Width
Y948, Z152	49.0	48.9	41.1	52.5	47.0
Y949, Z151	47.8	47.4	38.7	50.0	45.0
Y950, Z150	51.7	51.5	42.5	55.0	48.0

Total: 36 turtles
13 (36.1%) with tumors
7 (19.4%) tag resighting

Seawater temperature = 78° F

36grnt.ghb

Seven tagged green turtles resighted at Site B, Palaau, Molokai, July 2-3, 1990

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Tag no.	Date orig. tagged	Interval (year)	Straight length (cm)		Curved length (cm)	
			Original	7/90 and (increase)	Original	7/90 and (increase)
*7227, 28 (Z93)	5/9/84 Kaumana Pt.	6.2	44.5	63.0 (18.5)	47.5	68.0 (20.5)
Y428, 29 (Z162)	7/5/89 Site A	1.0	55.4	56.9 (1.5)	--	61.0 (--)
10931, 32 (Z164)	7/14/88 Site E	2.0	54.4	56.6 (2.2)	58.5	61.0 (2.5)
8519, 20 (Z166)	7/16/85 (7/88) Site D	5.0	49.0	62.4 (13.4)	53.0	67.5 (14.5)
Y452, 53 (Z167)	7/5/89 Site A	1.0	67.9	70.1 (2.2)	73.0	76.0 (3.0)
*10940, 41, 42 (Z168)	7/14/88 Site E	2.0	69.4	71.9 (2.5)	75.0	77.0 (2.0)
*7239, 9564 (Z153)	5/16/84 (3/86) Site G	6.2	40.0	56.7 (16.7)	42.0	61.0 (19.0)

*Small tumors present when examined 7/90.

7grnt.ghb

82 green turtles captured and tagged at Site F, Palaau, Molokai, July 9-11, 1990

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Tag no.	Straight carapace (cm)			Curved carapace (cm)	
	Length	Notch	Width	Length	Width
Y952, Z149	43.4	43.0	34.2	47.5	41.0
Y953, Z148	46.7	46.5	37.9	49.5	43.5
Y954, Y955	46.5 (LFL missing/healed)	46.3	37.2	49.0	42.0
Y956, Z147	56.5 (tumors)	56.5	43.5	59.5	52.0
Y957, Z146	50.4	50.2	39.7	53.5	48.0
Y958, Z145	48.6 (tumors)	48.4	37.9	51.0	46.0
Y959, Z144	48.9	48.7	39.1	52.0	46.0
Y960, Z143	47.0	46.9	37.7	50.0	45.0
Y961, Z142	49.4	48.9	39.9	52.5	45.5
Y962, Y963, Z141	63.6	63.5	51.7	67.5	62.0
*8521, 8522, (Z140)	48.5	48.3	37.4	51.5	45.5
Y964, Z139	51.0	50.6	40.5	54.5	47.5
Y965, Z138	49.2	48.8	40.5	--	--
Y966, Z137	57.0 (tumors)	56.9	44.4	62.0	54.0
Y967, Z136	54.0	54.0	40.9	58.0	52.0
Y968, Z135	41.9	41.7	32.9	44.5	39.5
*Y817, Y818	43.8	43.6	34.9	47.0	41.0

A:82GRNT.GHB

82 green turtles captured and tagged at Site F, Palaau, Molokai, July 9-11, 1990.--Continued.

Tag no.	Straight carapace (cm)			Curved carapace (cm)	
	Length	Notch	Width	Length	Width
Y969, Z134	38.1 (blind in left eye)	37.7	30.5	40.5	36.5
Y970, Y971, Z133	67.5	67.1	52.7	73.0	67.0
*6533, 6534, Z132	72.5 (tumors, including RFL)	72.3	55.6	78.0	74.5
Y972, Z131	50.7	50.6	41.6	54.0	49.0
Y973, Z130	67.8	67.4	54.0	73.0	64.5
Y974, Z129	47.3	47.3	38.4	50.5	44.5
Y975, Z128	65.4 (tumor)	65.0	52.4	70.5	63.0
Y976, Z127	52.5	52.3	40.3	56.5	49.5
Y977, Z126	53.9	53.8	41.9	58.5	51.5
Y979, Z125	53.8	53.1	42.1	57.0	50.5
*7792, 7793, (Z124)	57.4	57.4	44.1	61.5	51.5
Y980, Z123	52.4 (tumors)	52.2	42.5	56.0	50.0
Y981, Y982, Z122	56.2 (bump on right eye)	56.0	43.1	60.0	53.5
Y983, Z121	46.9	46.6	35.6	50.0	43.0
Y984, Z120	52.9	52.7	41.2	57.0	49.0
Y985, Z119	61.9	61.9	50.0	67.5	62.0
Y986, Z118	61.7	61.6	46.6	65.5	55.5
Y987, Z117	51.3	51.2	40.4	55.0	49.0
Y988, Z116	57.9	57.8	44.1	62.5	55.5

82 green turtles captured and tagged at Site F, Palaau, Molokai, July 9-11, 1990.--Continued.

Tag no.	Straight carapace (cm) Length	Notch	Width	Curved carapace (cm) Length	Width
Y989, Z115	55.0 (tumor on right eye)	55.0	44.4	59.0	53.0
Y990, Y991	70.4	70.2	52.4	76.5	65.5
Y992, Y993	71.6 (tumors)	71.5 (possibly male)	54.4	77.0	65.0
Y994, Y995, Z114	86.5 (tumors)	86.4 ("maturing male")	66.9	93.0	80.5
Y996, Z113	57.6	57.5	45.7	62.5	56.0
Y997, Y998, Y999	74.8 (tumors)	74.6	59.9	81.5	74.5
N326, Z111	46.8	46.6	38.4	50.0	49.0
N327, Z112	42.9 (bumps on right eye)	42.7	34.9	45.5	40.0
N328, Z110	39.6	39.2	34.8	41.0	40.0
N329, Z109	49.1	48.8	38.2	52.0	46.0
N330, N331, Z108	65.5	65.3	51.0	70.0	60.5
*9444, 9445 (Z107)	54.8	54.6	43.8	59.0	51.0
N332, N333, (Z106)	66.2	66.0	50.9	70.5	64.0
N334, Z105	60.0	60.0	47.6	63.0	57.0
*9440, 9441 (Z104)	63.7	63.5	51.1	68.0	61.0
N335, Z103	64.3 (tumor)	64.3	49.0	70.0	61.0
N336, N337 Z102	62.2 (tumors)	62.0	50.5	65.5	58.8

82 green turtles captured and tagged at Site F, Palaau, Molokai, July 9-11, 1990.--Continued.

Tag no.	Straight carapace (cm)			Curved carapace (cm)	
	Length	Notch	Width	Length	Width
N338, Z101	58.1	58.1	48.1	63.0	58.5
N339, N340	55.8	55.7	44.6	60.5	52.5
N341, N342, Z171	65.4	65.3	53.9	70.0	65.5
N343, N345 Z172	61.6 (tumors)	61.6	47.2	65.5	56.0
*6743, (N346), (Z173)	72.1	71.8	58.0	77.5	71.0
N347, Z174	61.8	61.6	45.8	66.5	59.5
*7937, 7938 (Z175)	68.0 (tumors, including RFL)	67.8	52.6	72.5	64.5
N348, Z176	58.7	57.9	46.7	63.0	56.5
N349, N350, Z177	65.8	65.6	51.2	71.0	62.5
N351, Z178	57.3	56.9	45.3	61.5	54.0
*8842, (Z179)	66.6 (tumors, including LFL-photo w/E. Medeiros)	66.3	51.8	71.0	61.5
N352, Z180	50.0	49.9	40.5	53.5	47.5
N353, Z181	55.0 (healed notch at LFL)	54.8	46.2	58.0	53.5
N354, Z182	48.6 (tumors)	48.4	37.2	51.5	45.0
N356, N357	54.8 (bump on left eye)	54.7	43.8	59.5	54.5
N358, Z183	50.5	50.3	41.3	53.5	49.0
*9450, 9451	52.5	52.4	42.3	55.5	50.5
N360, Z184	48.6	48.4	38.6	51.0	45.0

82 green turtles captured and tagged at Site F, Palaau, Molokai, July 9-11, 1990.--Continued.

Tag no.	Straight carapace (cm)			Curved carapace (cm)	
	Length	Notch	Width	Length	Width
N362, Z185	45.4	45.3	36.3	47.5	43.0
N363, Z186	44.0 (blind in left eye)	43.8	45.1	47.0	41.0
N364, N365, Z187	58.0	57.8	47.5	62.0	55.0
N366, Z188	52.3	52.1	41.5	55.0	50.0
N367, Z189	34.4	34.2	28.6	36.5	33.0
N368, Z190	50.3	50.0	40.2	53.0	48.0
N369, Z191	42.1	41.8	34.5	44.0	41.0
N370, Z192	45.5	45.5	37.3	48.0	42.5
N371, Z193	53.9	53.9	43.7	58.0	51.5
N372, Z194	49.5	49.0	39.6	52.5	48.0
N373, Z195	49.2	49.0	38.6	52.5	46.5

*10 (12.2%) of the 82 turtles captures were tag resightings.

16 (19.5%) of the 82 turtles captured had tumors (fibropapillomas).

-Seawater temperature at Site F = 82° F
-Seawater temperature nearshore 1m depth = 92° F

Tags not applied (malfunctions) = Y978, N344, N355, N359 and N361.

Necropsy conducted on 45.2 cm turtle found comatose, but unsuccessful in resuscitation, on 7/9 - 7/10/90.

Tumor turtles and Molokai

TMR = Tumors
Largest 93.9 cm
Smallest 43.2 cm

Tag No.	Date	Location	Straight length cm
10756-58	7/11-7/12/88	Site A	93.9
10818-19	7/12-7/13/88	Site A	53.3
7835-36	7/13-7/14/88	Site E	72.2
10843-44	7/13-7/14/88	Site E	69.3
10921-22	7/13-7/14/88	Site E	60.2
10923-24	7/13-7/14/88	Site E	72.1
Y-422,23(3-4)	7/4-7/5/89	Site A	62.9
6682*,83	7/4-7/5/89	Site A	48.5
Y-410,11(3-4)	7/4-7/5/89	Site A	50.1
Y-432,33	7/4-7/5/89	Site A	48.5
Y-456,57	7/4-7/5/89	Site A	57.8
7908,09	7/4-7/5/89	Site A	61.3
Y-482,83	7/4-7/5/89	Site A	66.0
Y-496*,(3-4),97	7/5-7/6/89	Site A	43.2
Y-547*,48	7/5-7/6/89	Site A	65.7
6414,15, Y566(H)	7/6-7/7/89	Site G	71.0
Y-586*,87	7/6-7/7/89	Site G	59.1
9167*(3-4),68	7/6-7/7/89	Site G	69.5
Y-600(H), 9174*,75	7/6-7/7/89	Site G	81.0
* = insect			
Y601,02,03(H)	2/28-3/1/90	Site A	74.8
Y612,13,14(H)	3/1-3/2/90	Site C	63.9
Y623,24(3-4),625(H)	3/1-3/2/90	Site C	80.9
Y630,31(3-4),32(H)	3/1-3/2/90	Site C	60.0
Y634,35,36(H)	3/1-3/2/90	Site C	83.9
Y694, Y695, Y696	5/8/90	Site A	71.8
Y756, Y757	5/8/90	Site A	62.2
Y787, Y788	5/8/90	Site A	54.8
Y801, Y802	5/8/90	Site A	62.0

only 11 *stunned turtles first paper recaps 13 (7-2/7-3-90)

Tag No.	Date	LOCATION	STRAIGHT LENGTH CM
Y806, Y807, Y808	5/8/90	SITE A	84.6
6462, 6461, (Y825)	5/9/90	SITE A	77.3
Y914, Y915, Z91	7/2-7/3/90	SITE B	70.7
Y916, Y917, Z92	7/2-7/3/90	SITE B	55.5
7227, 7228, Z93	7/2-7/3/90	SITE B	63.0
Y921, Z96	7/2-7/3/90	SITE B	61.9
Y932, Y933, Z161	7/2-7/3/90	SITE B	71.1
10931, 10932, Z164	7/2-7/3/90	SITE B	56.6
10940, 10941, 10942	7/2-7/3/90	SITE B	71.9
Y936, Z169	7/2-7/3/90	SITE B	55.9
Y939, Y940, Z160	7/2-7/3/90	SITE B	68.7
Y944, Z157	7/2-7/3/90	SITE B	55.4
Y947, Z154	7/2-7/3/90	SITE B	51.7
Y956, Z147	7/9-7/11/90	SITE F	56.5
Y958, Z145	7/9-7/11/90	SITE F	48.6
Y966, Z137	7/9-7/11/90	SITE F	57.0
6533, 6534, Z132	7/9-7/11/90	SITE F	72.5
Y975, Z128	7/9-7/11/90	SITE F	65.4
Y980, Z123	7/9-7/11/90	SITE F	52.4
Y989, Z115	7/9-7/11/90	SITE F	55.0
Y992, Y993	7/9-7/11/90	SITE F	71.6
Y994, Y995, Z114	7/9-7/11/90	SITE F	86.5
Y997, Y998, Y999	7/9-7/11/90	SITE F	74.8
N335, Z103	7/9-7/11/90	SITE F	64.3
N336, N337, Z102	7/9-7/11/90	SITE F	62.2
N343, N345, Z172	7/9-7/11/90	SITE F	61.6
7937, 7938, Z175	7/9-7/11/90	SITE F	68.0
8842, Z179	7/9-7/11/90	SITE F	66.6
N354, Z182	7/9-7/11/90	SITE F	48.6

Tag No.	Date	Location	Straight Length
9176, 75	6-7 July '89	Site G	65.0

RALADO (4)

TAGS	SL	DESCRIPTION	SCORE
Y956	✓ 56.5		1
Y958	✓ 48.6		1
Y966	✓ 57.0		1
6533-34 POL	✓ 72.5		2
Y975	✓ 65.4		1
Y980	✓ 52.4		1
Y989	✓ 55.0		1
Y992-3	✓ 71.5 (6)		2

Y994-5 ✓	86.5		4
Y997-99 ✓	74.8		1
N335 Z103 ✓	643		1
N336-7 Z108 ✓	62.2		2
N343 Z172 N345 ✓	61.6		2
7937-38, Z175	68.0		1
8842, Z179	66.6	Phtos w/ ED (poster)	3
N354, Z182 ✓	48.6	#2 Leye #1 right eye	2

PACHAU

TAG NO.	Straight Length	Tumos Score
1987 6698, 6699 (Rec)	52.1	3

1988↓

10,756-58 ✓ 93.9 1

10,818-19 ✓ 53.3 2

7835-36 (Rev) ✓ 72.2 3

10,843-44 ✓ 69.3 2

10,921-22 ✓ 60.2 2

10,923, 10924 ✓ 72.1 3

1989↓

Y422-23 ✓ 62.9 1

553-5702 (2)

6682,83 98.5

Y410-11	✓ 50.1		1
Y432-33	✓ 48.5		1
Y456-57	✓ 62.5	= CL 57.8-SL	2
7908-09 Poc	✓ 61.3		1
Y482-83	✓ 66.0		4
Y496 Y497	43.2		3
Y551	64.4		2
6414-15 Poc	✓ 71.0		2
Y586-87	✓ 59.1		3
9167-68	✓ 69.5		1
9174-75	✓ 81.0		2

Y547-48 65.7

9176-77	65.0	1
2/28-3/2/90 ↓		
Y601-02 ✓	74.8	2
Y612-14 ✓	63.9	1
Y623-25 ✓	80.9	1
Y630-32 ✓	60.0	1
Y634-36 ✓	83.9	3
Y694-96 ✓	71.8	1
Y756-57 ✓	62.2	1

(3)

Y787-88	54.8	2
Y801-Y802	62.0	2
Y806-08	84.6	3
6461-62 (Rec) 4825	77.3	2
Y914-15	70.7	2
Y917, 4916	55.5	1
7227-28 (Rec)	63.0	1
Y921	61.9	1
Y932-33	71.1	1

10931-32	56.6	1
10940-42	71.9	1
Y936	55.9	1
Y939-40	68.7	1
Y944	55.4	1
Y947	51.7	1
Y949	47.8	3
Y950	51.7	3

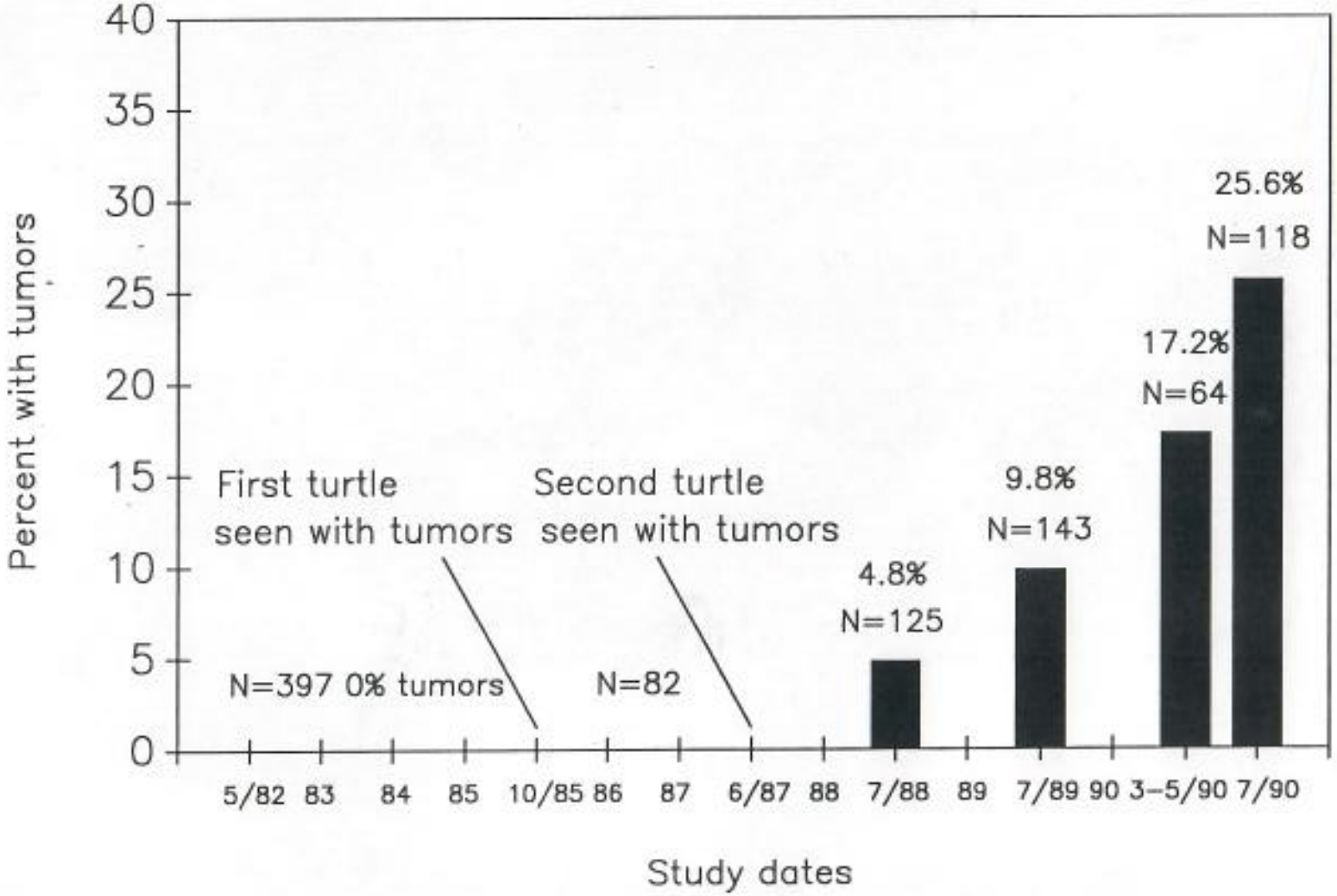
From: GeorgeBalazs:Honolulu:NMFS
  To: JOANNENAKAGAWA
Subj: Justification for Molokai trip.

The work with turtles we are doing on Molokai represents our best available effort and ability to track the scope and magitude of the fibropapilloma (tumor) disease now epidemic in the Hawaiian green turtle population. It is critical that this monitoring work continue uninterrupted, especially at least during the first two months of the 1st quarter, because the data are critically needed for the turtle tumor workshop our lab is convening 4-6 December 1990. In addition, the Hawaiian Sea Turtle Recovery Plan designates the highest priority to researching the scope, magtitude, nature and etiology of the fibropapilloma problem.

In short, this is highly critical research, underfunded at present, that is essential to meeting NOAA's responsibilities for the recovery of sea turtles listed under the Endangered Species Act. To delay, or impede this work by not allowing it to process will significantly deteriorate our research results.

Thank you for your consideration of this request.

Tumor Incidence In Green Turtles Residing In Nearshore Habitat Along The Southern Coast of Molokai



Summary of green turtles tagged and resighted off the south shore of Molokai, Hawaii, 1982-90.

by

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Study dates	Study site	Total No. captured	No. newly tagged	No. tag resighting	Total No. tagged in population to date
5/19/82	Pahiomu (E)	4	4	0	4
8/30 - 8/31/82	Palaau (W) (west)	4	4	0	8
9/1/82	Palaau (W)	1	1	0	9
9/3/82	Palaau (W) (east)	16	16	0	25
9/13/82	Pukoo-Kupeke (E)	1	1	0	26
9/21/82	Kaluaapuhi (W)	2	2	0	28
10/19 - 10/20/82	Palaau (W) (west)	26	25	1 (9/3/82)	53
10/21/82	Kaunakakai (W)	1	1	0	54
10/26/82	Ualapue (E)	7	7	0	61
1/11/83	Kawela (E)	4	4	0	65
1/14/83	Kawela (E)	1	1	0	66
1/25 - 1/28/83	Kamalo (E)	11	9	2 (5/19/82)	75
2/8/83	Puhaloa/Ualapue (E)	1	1	0	76
2/26/83	Kawela Panahaha (W)	2	2	0	78
4/20/83	Pahiomu/ Kamahuehue (W)	3	2	1 (5/19/82)	80
5/6/83	Kamalo (E)	5	4	1 (1/25/83)	84

Green turtles, Molokai, 1982-90.--Continued.

Study dates	Study site	Total No. captured	No. newly tagged	No. tag resighting	Total No. tagged in population to date
6/4/83	Ualapue (E)	2	2	0	86
6/30 - 7/1/83	Kawela (E)	8	8	0	94
7/7/83	Makolelau (E)	4	4	0	98
9/6/83	Pahiomu (E)	1	1	0	99
9/7/83	Kawela Panahaha (E)	1	1	0	100
11/1/83	Palaau (W)	1	1	0	101
11/16/83	Kipapa (E)	1	1	0	102
11/17/83	Kakahaia (E)	2	2	0	104
12/17/83	Kanukauawa (E)	1	1	0	105
12/20/83	Palaau (Pakanaka) (W)	7	7	0	112
1/5 - 1/6/84	Palaau (W) (Kawela release)	5	5	0	117
1/17/84	Ualapue (E)	2	2	0	119
1/20/84	Kawela (E)	2	2	0	121
1/26/84	Kawela (E)	1	1	0	122
1/28/84	Kawela (E)	3	3	0	125
2/7/84	Palaau (W) (K'K release)	1	1	0	126
2/8 - 2/9/84	Palaau (W) (east)	3	2	1 (9/3/82)	128
2/11/84	Palaau Biomass (W) (K'K release)	5	4	1 (9/1/82)	132
2/23/84	Kawela Panahaha (E)	4	4	0	136
2/24/84	Pahiomu (E)	2	2	0	138

Green turtles, Molokai, 1982-90.--Continued.

Study dates	Study site	Total No. captured	No. newly tagged	No. tag resighting	Total No. tagged in population to date
3/24/84	Palaau (W) (east)	1	0	1 (2/11/84)	138
4/4/84	Palaau (W)	4	4	0	142
4/12 - 4/13/84	Kakahaia (E)	4	2	2 (7/7/83 9/7/83)	144
4/14/84	Kanukuawa (E)	3	3	0	147
4/25 - 4/26/84	Palaau Biomass (W)	6	5	1 (1/28/83)	152
5/5/84	Kolo Wharf (W)	10	10	0	162
5/9/84	Kolo Wharf (W)	2	2	0	164
5/10 - 5/11/84	Palaau Biomass (W)	5	5	0	169
5/16/84	Palaau (W) (east)	10	8	2 (10/19/82 - 2/8/84)	177
10/7/84	Kawela (E)	1	1	0	178
10/17/ - 10/18/84	Kawela (E)	3	3	0	181
10/20/84	Kanukuawa (E)	1	1	0	182
4/3/85	Palaau (W) (K'K release)	2	2	0	184
4/11/85	Pakanaka Palaau (W) (K'K release)	12	12	0	196
4/23/85	Palaau (W) Site A	8	5	3 (8/30/82 1/5/84 1/6/84)	201
4/24 - 4/25/85	Palaau (W) Site B	39	38	1 (4/11/85)*	239

Green turtles, Molokai, 1982-90.--Continued.

Study dates	Study site	Total No. captured	No. newly tagged	No. tag resighting	Total No. tagged in population to date
4/26/85	Palaau (W) Site C (K'Kai release)	3	3	0	242
4/30/85	Palaau Biomass (W) (Kawela release)	1	1	0	243
5/7 - 5/9/85	Palaau Biomass (W)	9	7	2 (5/16/84 1/6/84)	250
5/19 - 5/20/85	Palaau Biomass (W) (Kawela release)	5	4	1 (4/25/84)	254
5/23, 5/31, and 6/2/85	Palaau (W) Waiakane (hand captures)	4	4	0	258
6/14 - 6/17/85	Kawela (E)	5	4	1 (1/11/83)	262
6/28 - 6/29/85	Kawela (E)	6	5	1 (4/25/85)	267
7/11/85	Palaau (W) (K'K release)	16	15	1 (9/3/82)	282
7/16/85	Palaau (W) Site D	10	10	0	292
7/17 - 7/18/85	Palaau (W) Site E	36	32	4 (4/24/85 4/25/85)	324
7/19/85	Palaau (W) Site F	38	37	1 (7/11/85)	361
8/15/85	Kawela (E)	1	1	0	362
8/25/85	Kawela (E)	1	1	0	363
8/30/85	Kawela (E) Panahaha	5	5	0	368
10/3/85	Palaau (W)	20	19	1 (9/3/82)	387

Green turtles, Molokai, 1982-90.--Continued.

Study dates	Study site	Total No. captured	No. newly tagged	No. tag resighting	Total No. tagged in population to date
10/16/85	Palaau (W) (west)	14	10[b]	4 9/3/82 10/19/82 4/26/85 10/3/85	397
1/6/86	Kawela (E) Kanoa	2	2	0	399
3/5/86	Palaau (W) (east)	19	16	3 9/3/82 12/20/83 5/16/84	415
5/1/86	Palaau (E) Waiakane (hand captured)	3	3	0	418
7/13/86	Kawela (E) Kanoa	1	1	0	419
9/19/86	Palaau (W) Site A	12	9	3 9/3/82 7/11/85 10/2/85	428
2/24/87	Palaau (W)	3	3	0	431
4/9/87	Pukoo (E) (Strand)	1	1	0	432
6/3/87	Palaau (W) Site A	10	9	1[c] 4/25/84 5/19/85	441
6/4/87	Palaau (W) Site C	17	14	3 9/3/82 10/19/82 7/11/85 9/19/86	455
11/17 - 11/18/87	Kawela (E)	4	4	0	459
1/23/88	Kawela (E) Kanoa	1	1	0	460

Green turtles, Molokai, 1982-90.--Continued.

Study dates	Study site	Total No. captured	No. newly tagged	No. tag resighting	Total No. tagged in population to date
2/5/88	Kawela (E)	4	3	1 (7/7/83)	463
2/19/88	Kawela (E) Panahaha	8	7	1 (8/30/85)	470
2/20/88	Kawela (E) Kanoa	1	1	0	471
2/23 - 2/24/88	K'Kai (W) (Kawela release)	3	3	0	474
3/1/88	K'Kai (W) (Kawela release)	2	2	0	476
3/8/88	Kawela (E)	1	1	0	477
3/10/88	Kawela (E)	2	2	0	479
7/11/88	Palaau (W) (east) (SLP release)	(5)	(5)	--	--
7/12 - 7/13/88	Palaau (W) Site A	38	32	6[d] (dates for resightings not listed hereafter)	511
7/14 - 7/15/88	Palaau (W) Site E	87	77	10	588
8/27- 8/30/88	Kawela (E)	4	4	0	592
6/10/89	Kawela (E)	1	0	1[e]	592
7/5 - 7/6/89	Palaau (W) Site A	115	106	9[f]	698
7/7/89	Palaau (W) Site G	27	24	3	722
7/9/89	Palaau (W)	1	1[g]	0	723
8/30/89	Kaluaaha (E)	1	1[h]	0	724

Green turtles, Molokai, 1982-90.--Continued.

Study dates	Study site	Total No. captured	No. newly tagged	No. tag resighting	Total No. tagged in population to date
11/14 - 11/15/89	Kawela (E)	9	9[i]	0	733
3/1/90	Palaau (W) Site A	1	1	0	734
3/2/90	Palaau (W) Site C	12	11	1	745
5/8 - 5/9/90	Palaau (W) Site A	50	43	7	788
5/10/90	Palaau (W) Site G	1	1	0	789
7/2 - 7/3/90	Palaau (W) Site B	36	29	7	819
7/9 - 7/11/90	Palaau (W) Site F	82	72[j]	10	890

NOTE: E - capture made east of Kaunakakai Wharf; W - capture made west of Kaunakakai wharf.

[a]Tag resighting 7939, 7940 also reported "caught in gillnet at Palaau" during early May 1989. Tags mailed to HIMB.

[b]First turtle ever seen at Palaau with tumors. Newly tagged 9523 on this date (10/16/85).

[c]Second turtle seen at Palaau with tumors. Previously tagged 6698, 6699 at Palaau on 4/25/84 without tumors. Recaptured at Palaau and released at Kawela on 5/19/85 without tumors.

[d]Tag resighting 9874, 9875 originally tagged 6/87 at Palaau found comatose in bullpen 7/14/88.

[e]Tag resighting (8624,8625) originally tagged at Kawela 6/29/85 found dead with tumors and left front flipper amputated.

[f]Adult male 6109 originally tagged at French Frigate Shoals 6/82 and 6/89 ("nesting") not included.

[g]Adult male 7154 originally tagged at French Frigate Shoals 6/83 resighted and considered "newly tagged" to Molokai population.

[h]Tumors. Found entangled in discarded gillnet. Tagged 9182, 9183 and released.

[i]Three turtles with tumors (non-Palaau).

[j]Comatose juvenile found among turtles on deck not included.

Total No. tagged E = 128
Total No. tagged W = 762

Juvenile hawksbill also captured on 7/14/88.

DISC A:10GRNT.GHB

Ten tagged green turtles resighted at Site F, Palaau, Molokai, July 9-11, 1990

by
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Tag no.	Date orig. tagged	Interval (year)	Straight length (cm)		Curved length (cm)	
			original	7/90 and (increase)	original	7/90 and (increase)
Y817-18	5/90 (site A)	0.2	43.5	43.8 (0.3)	46.5	47.0 (0.5)
*6533-34 (Z132)	10/19/82 (site A)	7.8	--	72.5 (--)	62.5	78.0 (15.5)
7792-93 (Z124)	7/17/85 (site F)	5.0	52.9	57.4 (4.5)	55.5	61.5 (6.0)
8521-22 (Z140)	7/16/85 (site F)	5.0	39.7	48.5 (8.8)	42.5	51.5 (9.0)
9444-45 (Z107)	7/19/85 (site F)	5.0	47.4	54.8 (7.4)	51.0	59.0 (8.0)
9440-41 (Z104)	7/19/85 (site F)	5.0	55.9	63.7 (7.8)	59.5	68.0 (8.5)
6473 (N-346) (Z173)	10/20/82 (site A)	7.8	--	72.1 (--)	63.5	77.5 (14.0)
*7937-38 (Z175)	4/11/85 (outside Pakanaka Pond)	5.25	57.5	68.0 (10.5)	61.5	72.5 11.0
*8842 (Z179)	7/11/85 (Kaunakai Dock)	5.0	56.5	66.6 (10.1)	60.0	71.0 (11.0)
9450-51	7/19/90 (site F)	5.0	45.1	52.5 (7.4)	48.0	55.5 (7.5)

*fibropapillomas present

Seven tagged green turtles resighted at Site B, Palaau, Molokai, July 2-3, 1990

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Tag no.	Date orig. tagged	Interval (year)	Straight length (cm)		Curved length (cm)	
			Original	7/90 and (increase)	Original	7/90 and (increase)
*7227, 28 (Z93)	5/9/84 Kaumana Pt.	6.2	44.5	63.0 (18.5)	47.5	68.0 (20.5)
Y428, 29 (Z162)	7/5/89 Site A	1.0	55.4	56.9 (1.5)	--	61.0 (--)
10931, 32 (Z164)	7/14/88 Site E	2.0	54.4	56.6 (2.2)	58.5	61.0 (2.5)
8519, 20 (Z166)	7/16/85 (7/88) Site D	5.0	49.0	62.4 (13.4)	53.0	67.5 (14.5)
Y452, 53 (Z167)	7/5/89 Site A	1.0	67.9	70.1 (2.2)	73.0	76.0 (3.0)
*10940, 41, 42 (Z168)	7/14/88 Site E	2.0	69.4	71.9 (2.5)	75.0	77.0 (2.0)
*7239, 9564 (Z153)	5/16/84 (3/86) Site G	6.2	40.0	56.7 (16.7)	42.0	61.0 (19.0)

*Small tumors present when examined 7/90.