

SEA LIFE PARK TURTLE DATA

1970s - 1990s
G.H. BALAZS FILE

PART 1
OF 2

DATA - NOT CHRONOLOGICAL

Flipper tag retention and growth data for young captive hatched
green turtles reared for a year at Sea Life Park

Compiled by George H. Balazs

Size 1 tag No. applied 9/18/84		Size 681 ¹ applied 9/19/85	Straight carapace length (cm)		Tag loss
Left	Right		9/18/84	9/19/85	
63G	61G	8681	5.9	30.9	None
96G	94G	8679	5.6	28.5	None
987K	985K	8682	5.8	31.9	None
106G	104G	8688	5.8	26.1	None
111G	109G	8680	6.0	29.7	None
114G	113G	8683	5.9	29.9	None
126G	122G	8686	5.6	28.9	126G
140G	137G	8678	5.9	29.1	None
50G	52G	8685	8.5	27.5	None
181G	176G	8687	9.6	27.3	None
N742 ¹	¹ N732	8684	5.8	31.2	None

¹Monel alloy tags. All other tags are made of titanium.

Eg Sealife 2.911

Straightline carapace measurements (cm) of 27 green turtles
hatched at Sea Life Park on September 11, 1984

Tag No.		9/19/84
		(8 days old)
Left	Right	27°C

Titanium

56G	55G	5.5
58G	57G	5.8
63G	61G	5.9
68G	66G	5.9
74G	71G	5.7
78G	76G	5.6
84G	81G	5.8
87G	86G	5.6
93G	89G	5.6
96G	94G	5.6
981K	98G	5.6
987K	985K	5.8
102G	101G	6.1
106G	104G	5.8
111G	109G	6.0
114G	113G	5.9
117G	116G	6.0
121G	118G	5.9
126G	122G	5.6
128G	127G	6.0
131G	133G	6.0
140G	137G	5.9

Monel

N312	N298	5.6
N899	N823	5.2
N953	N284	6.0
N700	N974	5.7
N742	N732	5.8

eg. ghd / table

Straight-line carapace measurements (cm) of hatchling green turtles reared at Sea Life Park and the Waikiki Aquarium - G. H. Balazs

Tag No.	Sea Life Park		Tag No.	Waikiki Aquarium
	9/6/84 (43 days old)	9/19/84 (56 days old)		
974K, 305	9.9		395, 396	6.4
976K, 306	8.6		932, 933	6.3
977K, 309	8.2		920, 921	6.3
979K, 310	8.5		850, 851	6.5
980K, 311	9.4		387, 388	6.9
3G, 2G		9.3	379, 380	6.7
8G, 6G		9.0	389, 390	6.8
13G, 10G		9.8	924, 925	6.8
18G, 16G		10.0	579, 580	7.1
22G, 20G		10.0	176, 177	7.0
27G, 25G		10.2	188, 189	6.6
31G, 29G		9.0	887, 888	6.6
35G, 33G		8.7		
39G, 37G		10.1		
42G, 41G		10.3		
46G, 44G		8.5		
50G, 52G		8.5		
150G, 147G		10.0		
159G, 153G		10.8		
163G, 160G		10.0		
168G, 166G		10.3		
174G, 172G		10.4		
181G, 176G		9.6		
186G, 185G		9.3		
191G, 188G		9.5		
198G, 194G		7.7		
202G, 200G		10.0		
208G, 206G		9.7		
211G, 209G		9.0		
217G, 214G		9.0		

3-4 Sense
webbing

FL

SEA LIFE PARK SEA TURTLE DATA

Recorded on 6 September 1984

By George H. Balazs

Tag No. and tagging site	Straight length (cm)		Sex	Remarks
	Total	Notch		
1. 5105 LFL	73.5	73.0	M	
2. 6496 LFL	69.7	68.6	--	3524 imbedded
3. 6498 LFL, R2S	58.7	58.0	--	R2S imbedded. 5608
4. 6495 RFL, 3287 LFL	78.5	77.3	M	
5. 3285 RFL	81.6	80.9	M	
6. 3525 L2S	69.0	68.5	--	
7. 5659 R1-2, 3688 LFL	61.4	61.0	--	Seam graft; 3688 tag new; to Mauna Lani.
8. 2070 RFL, 5817 LFL	84.2	--	F	Blue plastic in LFF.
9. 2985 LFL, 6493 RFL	79.6	--	M	
10. 2061 RFL, 5815 LFL	86.4	--	M	
11. 2071 LFL, 6494 RFL	90.7	--	F	
12. 2062 RFL	85.7	--	F	Honey colored; copulation bites.
13. 3282 LFL, 5816 RFL	94.5	--	F	
14. 2987 RFL	>96	--	F	
15. 2982 RFL	93.4	--	F	
16. 2986 LFL	86.0	--	F	
17. 2499 RFL	79.1	78.5	F	Kahala loaner.
18. None	84.5	--	M	White marks.
19. None	79.1	--	M	
20. 978 R2S 998	43.7	43.7	--	Size 1 tag.
21. 988 R2S	34.5	34.5	--	Size 1 tag.
22. Hawkebill	78.4	74.7	M	
23. Hawkebill	86.5	79.9	F	
24. Hawkebill	80.8	76.8	F	W. Samoa.
25. Loggerhead	80.4	78.5	F	

Five hatchlings - July 1984 Sea Life Park

	<u>Titanium</u>	<u>Monel</u>	<u>Straight length (cm)</u>	<u>Remarks</u>
1.	974 K	305	9.9	
2.	976 K	306	8.6	
3.	977 K	309	8.2	
4.	979 K	310	8.5	Photos.
5.	980 K	311	9.4	

6 - 2.9.1

2.9.1

-26

Straight-line carapace measurements (cm) of hatchling green turtles reared
at Sea Life Park and the Waikiki Aquarium - G. H. Balazs

Tag No.	Sea Life Park		Tag No.	Waikiki Aquarium		
	9/6/84 (43 days old)	9/19/84 (56 days old)		9/14/84 (35 days old)	10/15/84 (66 days)	12/3/84 (114 days)
974K, 305	9.9		N 395, N396	MONEL 6.4	8.0	10.1
976K, 306	8.6		932, 933	TITANIUM 6.3	NOT THERE	
977K, 309	8.2		920, 921	TITANIUM 6.3	left in package 7.8	9.7
979K, 310	8.5		850, 851	TITANIUM 6.5	8.1	10.2
980K, 311	9.4		N 387, N388	MONEL 6.9	8.4	10.4
3G, 2G		9.3	379, 380	MONEL 6.7	7.8	10.0
8G, 6G		9.0	N 389, N390	MONEL 6.8	8.3	10.5
13G, 10G		9.8	924, 925	TITANIUM 6.8	8.3	10.3
18G, 16G		10.0	N 579, N580	MONEL 7.1	8.8	10.8
22G, 20G		10.0	N 176, N177	MONEL 7.0	8.8	11.1
27G, 25G		10.2	N 188, N189	MONEL 6.6	8.3	10.5
31G, 29G		9.0	887, 888	TITANIUM 6.6	7.9	10.3
35G, 33G		8.7				
39G, 37G		10.1				
42G, 41G		10.3				
46G, 44G		8.5				
50G, 52G		8.5				
150G, 147G		10.0				
159G, 153G		10.8				
163G, 160G		10.0				
168G, 166G		10.3				
174G, 172G		10.4				
181G, 176G		9.6				
186G, 185G		9.3				
191G, 188G		9.5				
198G, 194G		7.7				
202G, 200G		10.0				
208G, 206G		9.7				
211G, 209G		9.0				
217G, 214G		9.0				

3-4 Series
copying
0

FL

Eg: Sea Life 2. 911

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hatched at Sea Life Park on September 11, 1984

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Left	Right	27°C

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93G	89G	5.6
96G	94G	5.6
981K	98G	5.6
987K	985K	5.8
102G	101G	6.1
106G	104G	5.8
111G	109G	6.0
114G	113G	5.9
117G	116G	6.0
121G	118G	5.9
126G	122G	5.6
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8. 2070 RFL, 5817 LFL	84.2	--	F	
9. 2985 LFL, 6493 RFL	79.6	--	M	
10. 2061 RFL, 5815 LFL	86.4	--	M	
11. 2071 LFL, 6494 RFL	90.7	--	F	
12. 2062 RFL	85.7	--	F	Honey colored; copulation bites.
13. 3282 LFL, 5816 RFL	94.5	--	F	
14. 2987 RFL	>96	--	F	
15. 2982 RFL	93.4	--	F	
16. 2986 LFL	86.0	--	F	
17. 2499 RFL	79.1	78.5	F	Kahala loaner.
18. None	84.5	--	M	White marks.
19. None	79.1	--	M	
20. 978 R2S	43.7	43.7	--	Size 1 tag.
21. 988 R2S	34.5	34.5	--	Size 1 tag.
22. Hawksbill	78.4	74.7	M	
23. Hawksbill	86.5	79.9	F	
24. Hawksbill	80.8	76.8	F	W. Samoa.
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1.	974 K	305	9.9	
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4.	979 K	310	8.5	Photos.
5.	980 K	311	9.4	

SEA TURTLES MEASURED AT SEA LIFE PARK ON DECEMBER 9, 1983

by

G. H. Balazs

Tag No.	Straight carapace, cm		Notes
	Length	Width	
5659	48.8	-	grafted - from Kewalo
3287, 6495	78.2	-	long tailed male; SLP 1976 hatch?
3525	62.3	49.6	SLP 12-80 hatch
35 ^{ah} , 6496	62.2	49.0	" " "
5105	73.0	55.7	long tailed male; photo; used for Japanese commercial at Waimanalo; SLP 1976 hatch?
5103, 5104	78.8	55.2	male hawksbill "Pomaikai"; 5103 partly crushed
NT	81.6	-	W. Samoan female hawksbill; abcess on right side of neck; SL to notch - 76.9 cm
978, 998	27.7	-	SLP 2-83 hatch; size 1 tags in webbing between scales
988, 989	24.5	-	" " " "
980, 981	21.8	-	" " " " size 1 tags in FL location

GREEN TURTLES MEASURED AND TAGGED AT SEA LIFE PARK ON AUGUST 23, 1983

By

G. H. Balazs

Tag No.	Straight carapace length, cm	
978 R2, 998 L2-3	21.0	hatch SLP 2-10-83
982 L2, 985 R2-3	15.8	
986 RFL, 987 LFL	18.0	
988 R2, 989 L2-3	19.2	

GREEN TURTLE MEASUREMENTS TAKEN AT SEA LIFE PARK ON JUNE 6, 1983

By

G. H. Balazs

Tag No.	Straight carapace, cm		Comments
	Length	Width	
3524, 6496, 550	56.1	x 44.5	
NT	13.4	11.2	hatched at SLP 2-10-83
NT	14.5	11.7	" " "
NT	12.3	10.3	" " "
NT	12.3	10.2	" " "

TAGS APPLIED AT SEA LIFE PARK AND KEWALO BASIN FOR INSTRUCTIONAL PURPOSES

ON APRIL 11-12, 1983

By

G. H. Balazs

	Existing Tag	New Tag Applied	Comments
S.L.P.			
1.	2982 RFL	6492 LFL	female green
2.	2985 LFL	6493 RFL	blue plastic tag on right flipper
3.	2987 LFL	didn't pierce-not applied	female green
4.	2071 LFL	6494 RFL	female green
5.	3287 LFL	6495 RFL	
6.	3524, 550 R	6496 FL	3524 overgrown S-53.5x42.4 C-58.8x51.9 PL-42.2
Kewalo Basin			
1.	5711 R2, 902 L2-3	6497 L3	S-44.4 x 34.5
2.	5608 R2, 515 R3, 815 L1-2	6498 LFL	S-39.1 x 31.8 Close-up photo
3.	5725 L2, 731 L1-2	6499 LFL	S-38.9 x 33.0

3 Dec 82 Sea Life Park

3525 S 47.2 x 38.0
C 50.6 x 45.6

35 -- S 47.2 x 38.3
C 51.0 x 46.2

Both recently transferred to
"Turtle Lagoon"

SEA LIFE PARK SEA TURTLE DATA

RECORDED ON 7 JULY 1982

by
G. H. Balazs

Tag Nos.	Straight carapace length, cm	Sex	Remarks
5105 LFL	67.5	M*	tail > 23 cm past > PC's
3287 LFL	73.2	M*	tail > 17 cm past > PC's
Blue fearing - L distal	79.3	M	RHF partially missing - healing
2987 LFL	97.5	F	clean yellowish colored carapace
2980 RFL	84.9	M	algae on carapace
3282 LFL; 5816 RFL	95.4	F	-
2982 RFL	93.8	F	algae on carapace
2070 RFL; 5817 LFL	84.2	F	algae on carapace
2062 LFL	86.0	F	sparse algae on carapace
2984 RFL	87.7	F	algae on carapace
2071 LFL	90.4	F	moderate algae on carapace
2061 LFL; 5815 RFL	86.1	M	clean carapace
No tags	79.2	M	-
2985 RFL	79.6	M	sparse algae on carapace
3285 RFL	77.2	M*	tail 16 cm past tail
2986 RFL	86.7	F	clean carapace
No tags	80.6	F	captive-reared W. Samoa hawksbill

Sea Life Park Sea Turtle Data
Recorded on 7 July 1982
Page Two

Tag Nos.	Straight carapace length, cm	Sex	Remarks
No tags	86.5	F	Hawaiian hawksbill
5103 LFL; 5104 RFL	75.9	M	Pomaikai Hawaiian hawksbill
3524 LFL ¹	41.6	?	Sea Life Park captive hatch
3525 LFL ¹	40.3	?	" " " " "

Turtle Lagoon:

19 turtles total - 13 adult greens (5 males, 8 females), 3 immature (all apparently males*), and 3 adult hawksbills.

¹Captive-hatched at Sea Life Park in December 1980 (18 months ago); currently being held together in large fiberglass tank.

3-10-82

SLP tag additions -
for demonstration

old
existing

new

2061

5815 LFC

3282

5816 -

2070

5817

SEA LIFE PARK SEA TURTLE
MEASUREMENTS - 17 AUGUST 1981

compiled by
George H. Balazs
Hawaii Institute of Marine Biology

<u>Tag No.</u>	<u>Straight Carapace Measurements</u>	<u>Remarks</u>
5105	59.1 x 45.5	tail lengthening
3287	65.0 x 49.3	tail lengthening
3285	69.1 x 52.2	
POMAIKAI	74.9 x 53.7 plastron - 61.3 tail - 32.8	transferred from Reef Tank to Lagoon

TAGGING TRIAL WITH SIZE 681 INCONEL TAGS
ON 6-MONTH OLD GREEN TURTLES AT SEA LIFE PARK

by

George H. Balazs
Hawaii Institute of Marine Biology

April 5, 1981

NMFS tag numbers	HIMB Inconel tag numbers	Tagging site	<u>Curved</u> length	width
471RFL; 771LFL	3729 RFL	2-3rd scale	20.4	18.4
341RFL; 741LFL	3730 RFL	2nd scale	21.0	19.2

Hatching of a green turtle nest at Sea Life
Park's artificial beach on December 30, 1980

by
George H. Balazs
Hawaii Institute of Marine Biology

Live hatchlings found on Park grounds <0800 h:

hatchling #1 - 54.2 straight carapace length; 30.5 g

hatchling #2 - 54.6 " " " ; 31.1 g

Numerous tracks of hatchlings were present on the artificial beach, but no other animals were recovered. The major exit route from the beach is the basking ramp leading into the pond containing 19 adult and juvenile turtles. Cannibalism of hatchlings very likely occurred.

Results of nest site excavation:

26 hatched egg shells

6 dead embryos, latter stages of development

39 eggs, infertile or early embryonic death

8 eggs, early embryonic death

79 total eggs in clutch

TAGGING DATA FOR SEA TURTLES AT SEA LIFE PARK

by
George H. Balazs
Hawaii Institute of Marine Biology

Tag nos.	Straight carapace measurements, cm		Date	Species	Location
	length	width			
5101*, 5102*	74.5	57.8	11/30/80	<i>Chelonia</i>	Reef tank
5103, 5104*	72.6	51.5	12/30	<i>Eretmochelys</i> (male)	Reef tank
3286, 5105*	51.9	-	12/30	<i>Chelonia</i> **	Pond
3287, 5106*	58.3	-	12/30	<i>Chelonia</i> **	Pond
3726, 5107* 5108*	107.9	84.0	1/5/81	<i>Chelonia</i>	Makai Pier release

* newly applied Inconel 625 tags

** captive hatched at Sea Life Park in 1976

TAGGING DATA FOR SEA TURTLES AT SEA LIFE PARK

by
George H. Balazs
Hawaii Institute of Marine Biology

Tag nos.	Straight carapace measurements, cm		Date	Species	Location
	length	width			
5101*, 5102*	74.5	57.8	11/30/80	<i>Chelonia</i>	Reef tank
5103, 5104*	72.6	51.5	12/30	<i>Eretmochelys</i> (male)	Reef tank
3286, 5105*	51.9	-	12/30	<i>Chelonia**</i>	Pond
3287, 5106*	58.3	-	12/30	<i>Chelonia**</i>	Pond
3726, 5107* 5108*	107.9	84.0	1/5/81	<i>Chelonia</i>	Makai Pier release

* newly applied Inconel 625 tags

** captive hatched at Sea Life Park in 1976

DATA FOR GREEN TURTLES HATCHED FROM ARTIFICIAL BEACH AT SEA LIFE PARK

IN DECEMBER 1980

Compiled by
George H. Balazs
December 12, 1981

<u>Newly applied tag</u>	<u>Straight</u>	<u>Curved</u>	<u>Plastron</u>
3524 Left (between 2nd-3rd scale)	30.1 x 24.6	32.6 x 29.1	24.6
3525 Left (through 2nd scale)	29.9 x 24.1	32.2 x 29.0	24.0

photos
taken

CARAPACE MEASUREMENTS OF SEA TURTLES
AT SEA LIFE PARK, DECEMBER 26, 1980

by

George H. Balazs
Hawaii Institute of Marine Biology

Tag No.	Straight Length (cm)
2071	89.1
2985	79.4
2980	84.4
2986	86.5
2070	83.5
32.83	79.8
2984	87.1
2979	-
3282	95.1
2981	79.0
2987	96.2
2983	78.7
2061	85.1
2060, 2982	93.4
3287	58.3
3286	51.9
3285	62.2
-	86.1 Hawaiian Hawksbill
-	79.3 W. Samoan Hawksbill

SEA LIFE PARK TURTLES

23 November 1979

by

G. H. Balazs

Tag No.	Straight length, cm	Sex	
-	86.0	F	H
2978	78.9	F	H
3282 (new)	94.8	F	G
2985; 2014B (?)	78.8	M	G
2983	78.5	M	G
2061	84.6	M	G
2070; 2009B	83.8	M	G
2979	107	F	G
2987	97.1	F	G
2982; 2060	93.4	F	G
2985; 2012B	78.9	M	G
2071	88.8	F	G
2981; 2020B	79.5	M	G
2984	87.1	F	G
2062	85.5	F	G
Deformed carapace		M	L
3283	79.8	F	L
	Captive hatched green turtles		
3284 <i>miss 4/80</i>	43.7		G
3285	56.3		G
3286	46.8		G
3287	52.9		G
3288 <i>marshall Is</i>	62.0		G
	Reef tank turtles		
Pomaikai	67.1	<i>June 1970 letta - a 3" length of tail</i>	H
-	72.3	<i>since Jan 76 according to letta</i>	G

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SEA TURTLES AT SEA LIFE PARK

16 November 1978

compiled by

George H. Balazs
Hawaii Institute of Marine Biology

Tag Nos.	SL	SW	Sex	Species
2979N*	42 1/2	32 3/4	F	G
201(?) ⁴ ; 2060; 2982N	36 7/8	30 1/2	F	G
2071	35 1/8	28 3/4	F	G
2020; 2069; 2981N	31 3/8	23 7/8	M	G
2013; 911; 2986N	34 1/8	--	F	G
2014; 2985N	31 1/8	24 1/2	M	G
2009; 2070	33	25 3/4	F	G
2987N	38 3/8	30 7/8	F	G
2062	33 7/8	26	F	G
2018; 2061	33 3/8	27	M	G
2984N	34 1/2	28 1/8	F	G
2015; 2983N	31	24 1/2	M	G
2980N	33 1/8	27	M	G
2984N; 2021	34 1/2	38 1/4	F	G
2978N	31	22 7/8	F	H
--	34 1/8	27 1/8	F	H
--	31 1/8	25	F	L

2017?
2071? MHS
from
11/78

*New tag as of this date

TAG NUMBERS AND CARAPACE
MEASUREMENTS OF MARINE TURTLES
AT SEA LIFE PARK

11/8/76

by G. H. Balazs

<u>10/14/75</u> <u>Old Tag Nos.</u>		<u>New Tag Nos.</u>	<u>SL</u>	<u>SW</u>	<u>Tail Length</u> <u>From Plastron</u>
X M193, 905		905, 2015	-	60.6	36.8
X 190, 1505		1505, 2021	87.0	71.1	
hawk		hawk	-	-	
-		2009, 2070 <i>no change</i>	83.8	64.8	
X M687		2019	84.5	68.6	47.6
X 911		911, 2013	-	67.9	
X 0-76, 684		0-76, 684	95.6	77.2	
-	release	2063, 2064	79.1	63.5	
X 195, 1502	release	2057, 2058	80.0	59.4	
-		2016, 2059	97.2	78.0	
X 196, 198, 1506		2017, 2060	93.0	77.5	
X M902		902, 2014	-	58.7	35.6
X 192, 904	release	2067, 2068	79.4	63.8	24 (?)
X M199, 908		2069, 2020	79.4	60.6	40.6
X Y1277, 1507		Y1277, 2062	85.7	66.7	
large green		large green	-	-	
X 200, 1509	release	2065, 2066	73.6	56.8	
X BFT		BFT, 2071	84.8	70.2	
X 177		2018, 2061	80.3	66.0	33.0

SEA TURTLES AT SEA LIFE PARK

16 November 1978

compiled by

George H. Balazs
Hawaii Institute of Marine Biology

Tag Nos.	SL	SW	Sex	Species
2979N*	42 1/2	32 3/4	F	G
X 201 ⁷ (?); 2060; 2982N	36 7/8 93.7	30 1/2	F	G
X 2071	35 1/8 89.2	28 3/4	F	G
X 2020; 2069; 2981N	31 3/8 79.7	23 7/8	M	G
X 2013; 911; 2986N	34 1/8 86.7	--	F	G
X 2014; 2985N	31 1/8 79.1	24 1/2	M	G
2009; 2070	33 83.8	25 3/4	F	G
2987N	38 3/8	30 7/8	F	G
X 2062	33 7/8 86.0	26	F	G
X 2018; 2061	33 3/8 84.8	27	M	G
2984N	34 1/2	28 1/8	F	G
X 2015; 2983N	31 78.7	24 1/2	M	G
2980N	33 1/8	27	M	G
X 2984N; 2021	34 1/2 87.6	38 1/4	F	G
2978N	31	22 7/8	F	H
--	34 1/8	27 1/8	F	H
--	31 1/8	25	F	L

*New tag as of this date

TAG NUMBERS AND CARAPACE
MEASUREMENTS OF MARINE TURTLES
AT SEA LIFE PARK

11/8/76

by G. H. Balazs

<u>10/14/75</u> <u>Old Tag Nos.</u>		<u>New Tag Nos.</u>	<u>SL</u>	<u>SW</u>	<u>Tail Length</u> <u>From Plastron</u>
M193, 905		905, 2015	-	60.6	36.8
190, 1505		1505, 2021	87.0	71.1	
hawk		hawk	-	-	
-		2009, 2070	83.8	64.8	
M687		2019	84.5	68.6	47.6
911		911, 2013	-	67.9	
0-76, 684		0-76, 684	95.6	77.2	
-	release	2063, 2064	79.1	63.5	
195, 1502	release	2057, 2058	80.0	59.4	
-		2016, 2059	97.2	78.0	
196, 198, 1506		2017, 2060	93.0	77.5	
M902		902, 2014	-	58.7	35.6
192, 904	release	2067, 2068	79.4	63.8	24 (?)
M199, 908		2069, 2020	79.4	60.6	40.6
Y1277, 1507		Y1277, 2062	85.7	66.7	
large green		large green	-	-	
200, 1509	release	2065, 2066	73.6	56.8	
BFT		BFT, 2071	84.8	70.2	
177		2018, 2061	80.3	66.0	33.0

SUMMARY OF MARINE TURTLE DATA

COLLECTED AT SEA LIFE PARK, JANUARY AND MARCH, 1975

by G. H. Balazs

<u>Tag Numbers</u>		<u>Sex</u>	<u>Comments</u>
<u>Jan 10, 75</u>	<u>Mar 13, 75</u>		
886, 887	915 ^F -Turned	M-4" tail	
888, 889	972 -T		color differ.
890, 891	891 ^{RF} -T		
892, 893	1501 ^{RF} -T, 1502		mottled
894	894 ^F -Reef tank		
895, 684	684-T (corr.)		
897, 687	687, 1504 ^{LF}	M-11" tail	
898, 699	1505 ^{LF}		
913	?		
899, 900	1506-T		
901, 902	902-T, 1503 ^{LF}		color differ.
903, 904	903 ^F -T, 904-T		color differ.
905, 906	906 ^{LF} -T, 905	M-10" tail	
907, 908	907 ^{LF} -T, 908	M-long tail	
909, 695	973 ^{RF} -T		
910, 911	?		
No tag	No tag	.	large RH-1/2 Miss.
914	1507-T		
696	No tag		Hawksbill
Reef tank	1508 ^{LF} , 1509-T		

on Aug 18, 75 — Some tags observed, algae on shell-pond bottom.

SUMMARY OF MARINE TURTLE DATA COLLECTED
AT SEA LIFE PARK - JANUARY 10, 1975

by G. H. BALAZS

Tag No.	Sex	Carapace Straight line, inches		Carapace Curved line, inches	
		Length	Width	Length	Width
870; 871 ^a	?	20 5/8	16 3/4	21 3/4	19 5/8
872; 873 ^a	?	23 1/4	18 1/4	24 1/2	22
874; 875 ^a	?	19 1/8	15 1/2	20	17 3/4
876; 877 ^a	?	17 5/8	14	18 1/2	16 1/2
878; 879 ^a	?	22 1/2	17 3/4	23 5/8	20 1/4
880; 881 ^a	?	21 1/2	18 1/4	22	20 3/4
882; 883 ^a	?	19 1/4	15 1/2	20	18
884; 885 ^a	?	23 3/8	18 3/8	24 1/2	21 3/4
886; 887	M-4" tail	27	21 1/2	28 1/2	25
888; 889	off. <u>Multi-Flap</u>	28 1/4	22 5/8	29 1/4	26 3/4
890; 891	Turned?	24	19 3/8	25 1/4	22 3/4
892; 893	F off - <u>multi</u>	27 1/4	19 3/4	28 3/4	26
894	?	18	14 3/4	19	17
893; 684 ^{bc}	F	37 1/2	29 3/4	39 1/2	36
897; 687 ^b	X-11" tail	32 3/4	26 1/4	34 1/4	30 7/8
898; 699 ^b	<u>MBS</u>	34 1/8	27	35 1/2	32 1/4
913	F	38 1/4	30 3/4	40	37 1/2
900 ^c	F	36 1/2	29 3/4	38	34 1/2
901; 902	F	25	19 5/8	26 1/4	22 1/2
903; 904 ^c	?	24 1/2	19 3/4	25 1/2	23 1/2
905; 906 ^{cd}	X-10" tail	30 3/4	23 1/2	32 1/4	29
907; 908 ^d	<u>FM - long tail</u>	31	23 1/2	32 1/2	27 1/2
909; 695 ^b	off	32 5/8	25 1/8	34	29 1/4
910; 911 ^e	F	34 1/8	26 3/4	36 1/4	37
No Tag	F	42	32 1/2	43 1/2	39 1/2
614	F	33 1/2	25 5/8	34 3/4	29 1/2
696 ^b	F Hawksbill	34	27 1/4	35 1/2	33

- Released from Makai Pier
- Existing tag from December 6, 1973
- Peeling laminae
- Previous tag no. 700 - found on pool bottom
- Previous tag no. 686 - found on pool bottom

4" 27x2 1/2 28 1/2 x 25

This is 687 → 32 3/4 x 26 1/4 34 1/4 x 30 3/4

30 3/4 x 23 1/2 32 1/4 x 29

700 → 31 x 23 1/2 32 1/2 x 27 1/2

Malachite green

SUMMARY OF MARINE TURTLE DATA

COLLECTED AT SEA LIFE PARK, JANUARY AND MARCH, 1975

by G. H. Balazs

Tag Numbers		Sex	Comments
Jan 10, 75	Mar 13, 75		
886, 887	915 ^F -T	M-4" tail	
888, 889	972 -T		color differ.
890, 891	891 ^{RF} -T		
892, 893	1501 ^{RF} -T, 1502		mottled
894	894 ^F -Reef tank		
895, 684	684-T (corr.)		
897, 687	687, 1504 ^{LF}	M-11" tail	
898, 699	1505 ^{LF}		
913	?		
899, 900	1506-T		
901, 902	902-T, 1503 ^{LF}		color differ.
903, 904	903 ^F -T, 904-T		color differ.
905, 906	906 ^{LF} -T, 905	M-10" tail	
907, 908	907 ^{LF} -T, 908	M-long tail	
909, 695	973 ^{RF} -T		
910, 911	910, 911		
No tag	No tag		large RH-1/2 Miss.
914	1507-T		
696	No tag		Hawksbill
Reef tank	1508 ^{LF} , 1509-T		

SUMMARY OF MARINE TURTLE DATA COLLECTED
AT SEA LIFE PARK - JANUARY 10, 1975

by G. E. BALAZS

Tag No.	Sex	Carapace Straight line, inches		Carapace Curved line, inches					
		Length	Width	Length	Width				
870; 871 ^a	?	20 5/8	52.4	16 3/4	42.5	21 3/4	55.2	19 5/8	49.8
872; 873 ^a	?	23 1/4	59.1	18 1/4	46.4	24 1/2	62.2	22	55.9
874; 875 ^a	?	19 1/8	48.6	15 1/2	39.4	20	50.8	17 3/4	45.1
876; 877 ^a	?	17 5/8	44.8	14	35.6	18 1/2	47.2	16 1/2	41.9
878; 879 ^a	?	22 1/2	57.2	17 3/4	45.1	23 5/8	60.0	20 1/4	51.4
880; 881 ^a	?	21 1/2	54.6	18 1/4	46.4	22	55.9	20 3/4	52.7
882; 883 ^a	?	19 1/4	48.9	15 1/2	39.4	20	50.8	18	45.7
884; 885 ^a	?	23 3/8	59.4	18 3/8	46.7	24 1/2	62.2	21 3/4	55.2
886; 887	M-4" tail	27	68.6	21 1/2	54.6	28 1/2	72.2	25	63.5
888; 889	F	28 1/4	71.8	22 5/8	57.5	29 1/4	74.3	26 3/4	67.9
890; 891	?	24	61.0	19 3/8	49.2	25 1/4	64.1	22 3/4	57.8
892; 893	F	27 1/4	69.2	21	53.3	28 3/4	73.0	26	66.0
894	?	18	45.7	14 3/4	37.5	19	48.3	17	43.2
895; 684 ^{bc}	F	37 1/2	95.3	29 3/4	75.6	39 1/2	100.3	36	91.4
897; 687 ^b	M-11" tail	32 3/4	83.2	26 1/4	66.7	34 1/4	87.0	30 7/8	78.4
898; 699 ^b	F	34 1/8	86.7	27	68.6	35 1/2	90.2	32 1/4	81.9
913	F	38 1/4	97.2	30 3/4	78.1	40	101.6	37 1/2	95.3
899; 900 ^c	F	36 1/2	92.7	29 3/4	75.6	38	96.5	34 1/2	87.6
901; 902	F	25	63.5	19 5/8	49.8	26 1/4	66.7	22 1/2	57.2
903; 904 ^c	?	24 1/2	62.2	19 3/4	50.2	25 1/2	64.7	23 1/2	59.7
905; 906 ^c	M-10" tail	30 3/4	78.1	23 1/2	59.7	32 1/4	81.9	29	73.7
907; 908 ^d	F	31	78.7	23 1/2	59.7	32 1/2	82.6	27 1/2	69.8
909; 695 ^b	F	32 5/8	82.9	25 1/8	63.8	34	86.4	29 1/4	74.3
910; 911 ^e	F	34 1/8	86.7	26 3/4	67.9	36 1/4	92.1	37	94.0
No Tag	F	42	106.7	32 1/2	82.6	43 1/2	110.5	39 1/2	100.3
914	F	33 1/2	85.1	25 5/8	65.1	34 3/4	88.3	29 1/2	74.9
696 ^b	F Hawksbill	34	86.4	27 1/4	69.2	35 1/2	90.2	33	83.8

- a. Released from Makai Pier
- b. Existing tag from December 6, 1973
- c. Peeling laminae
- d. Previous tag no. 700 - found on pool bottom
- e. Previous tag no. 686 - found on pool bottom

SUMMARY OF MARINE TURTLE DATA COLLECTED
AT SEA LIFE PARK - JANUARY 10, 1975

by G. H. BALAZS

17-10-75
 10/10/75
 10/10/75

Tag No.	Sex	Carapace Straight line, inches		Carapace Curved line, inches	
		Length	Width	Length	Width
870; 871 ^a	?	20 5/8	16 3/4	21 3/4	19 5/8
872; 873 ^a	?	23 1/4	18 1/4	24 1/2	22
874; 875 ^a	?	19 1/8	15 1/2	20	17 3/4
876; 877 ^a	?	17 5/8	14	18 1/2	16 1/2
878; 879 ^a	?	22 1/2	17 3/4	23 5/8	20 1/4
880; 881 ^a	?	21 1/2	18 1/4	22	20 3/4
882; 883 ^a	?	19 1/4	15 1/2	20	18
884; 885 ^a	?	23 3/8	18 3/8	24 1/2	21 3/4
886; 887	M-4" tail	27	21 1/2	28 1/2	25
888; 889	F	28 1/4	22 5/8	29 1/4	26 3/4
890; 891	?	24	19 3/8	25 1/4	22 3/4
892; 893	F	27 1/4	21	28 3/4	26
894	?	18	14 3/4	19	17
895; 684 ^{bc}	F	37 1/2	29 3/4	39 1/2	36
897; 687 ^b	M-11" tail	32 3/4	26 1/4	34 1/4	30 7/8
898; 699 ^b	F	34 1/8	27	35 1/2	32 1/4
913	F	38 1/4	30 3/4	40	37 1/2
899; 900 ^c	F	36 1/2	29 3/4	38	34 1/2
901; 902	F	25	19 5/8	26 1/4	22 1/2
903; 904 ^c	?	24 1/2	19 3/4	25 1/2	23 1/2
905; 906 ^c	M-10" tail	30 3/4	23 1/2	32 1/4	29
907; 908 ^d	F	31	23 1/2	32 1/2	27 1/2
909; 695 ^b	F	32 5/8	25 1/8	34	29 1/4
910; 911 ^e	F	34 1/8	26 3/4	36 1/4	37
No Tag	F	42	32 1/2	43 1/2	39 1/2
914	F	33 1/2	25 5/8	34 3/4	29 1/2
696 ^b	F Hawksbill	34	27 1/4	35 1/2	33

- a. Released from Makai Pier
- b. Existing tag from December 6, 1973
- c. Peeling laminae
- d. Previous tag no. 700 - found on pool bottom
- e. Previous tag no. 686 - found on pool bottom

SUMMARY OF MARINE TURTLE DATA COLLECTED

AT SEA LIFE PARK DECEMBER 6, 1973

by G. H. Balazs

MODEL

Tag No.	Sex	Carapace		Carapace	
		Straight Line, Inches		Curved, Inches	
		Length	Width	Length	Width
685 *	F ?	29-1/2	22-1/2	30-1/2	26-3/4
688; 690 *	F ?	28	21-3/4	29-1/2	26-1/4
691 *	F ?	21-1/4	16-1/4	22-1/2	19
692; 701 *	F ?	23-3/4	17-3/4	25	21-1/2
693 *	M	27-1/2	21	28-1/2	24-3/4
694 *	M	26-1/2	21-1/2	28	26
697 *	?	19-1/2	15-1/2	20-1/4	18
698 *	?	23-3/4	19-1/2	25	22-1/4
702 *	F ?	26-3/4	20	28-1/2	24
700	M	30-3/4	23-1/2	32-3/4	27-1/2
699	F	33-3/4	27-1/4	35-1/2	32
696	F (Hawksbill <u>Eretmochelys</u> sp.)	33-3/4	27-1/4	35-3/4	32-3/4
695	F	32-1/2	25-1/4	34	29
687	M	32-1/2	26-1/4	34	31
686	F	34	27	36-1/4	36-1/2
684	F	37-1/4	29-3/4	40	35

* Released from Makai Pier

SUMMARY OF MARINE TURTLE DATA COLLECTED
AT SEA LIFE PARK DECEMBER 6, 1973

by G. H. Balazs

Mopel Tag No.	Sex	Carapace		Carapace	
		Straight Line, Inches		Curved, Inches	
		Length	Width	Length	Width
685 *	F ?	29-1/2 79.9	22-1/2 57.2	30-1/2	26-3/4
688; 690 *	F ?	28 71.1	21-3/4 55.2	29-1/2	26-1/4
691 *	F ?	21-1/4 59.0	16-1/4 41.3	22-1/2	19
692; 701 *	F ?	23-3/4 60.3	17-3/4 45.1	25	21-1/2
693 *	M	27-1/2 69.8	21 53.3	28-1/2	24-3/4
694 *	M	26-1/2 67.3	21-1/2 59.6	28	26
697 *	?	19-1/2 49.5	15-1/2 39.4	20-1/4	18
698 *	?	23-3/4 60.3	19-1/2 49.5	25	22-1/4
702 *	F ?	26-3/4 67.9	20 50.8	28-1/2	24
700 ^{OFF INTANK}	M 905, 906	30-3/4 78.1	23-1/2 59.7	32-3/4	27-1/2
699	F	33-3/4 85.7	27-1/4 69.2	35-1/2	32
696	F (Hawksbill <u>Eretmochelys</u> sp.)	33-3/4 85.7	27-1/4 69.2	35-3/4	32-3/4
695	F	32-1/2 82.6	25-1/4 64.1	34	29
687	M	32-1/2 82.6	26-1/4 66.7	34	31
686 ^{OFF INTANK}	F 910, 911	34 86.4	27 68.6	36-1/4	36-1/2
684	F	37-1/4 94.6	29-3/4 75.6	40	35

* Released from Makai Pier

TAG NUMBERS AND CARAPACE MEASUREMENTS OF MARINE TURTLES AT SEA LIFE PARK

by G. H. Balazs

TAG NO.	12/6/73			1/10/75			3/13/75			10/14/75		
	SL	SW	TAG NO.	SL	SW	TAG NO.	SL	SW	TAG NO.	SL	SW	TAG NO.
M700	78.1	59.7	M905,906	78.1	59.7	M905,906T	77.5	60.3	M193,905	77.5	60.3	
699	85.7	69.2	898,699	86.7	68.6	1505T	86.4	70.2	190,1505	86.4	70.2	
696H	85.7	69.2	696H	86.4	69.2	-	85.7	68.9	-	85.7	68.9	
695	82.6	64.1	909,695	82.9	63.8	973T	82.6	63.5	-	82.6	63.5	
M687	82.6	66.7	M897,687	83.2	66.7	M1504T,687	83.2	68.6	M687	83.2	68.6	
686	86.4	68.6	910,911	86.7	67.9	910,911	86.4	67.3	911	86.4	67.3	
684	94.6	75.6	895,684	95.3	75.6	684T	94.3	76.2	0-76,684	94.3	76.2	
-	-	-	M886,887	68.6	54.6	M915T	-	-	-	-	-	
-	-	-	888,889	71.8	57.5	972T	-	-	-	-	-	
-	-	-	890,891	61.0	49.2	891T	-	-	-	-	-	
-	-	-	892,893	69.2	53.3	1501T,1502	70.8	56.5	195,1502	70.8	56.5	
-	-	-	894	45.7	37.5	894T	-	-	RT	-	-	
-	-	-	913	97.2	78.1	-	96.5	76.8	-	96.5	76.8	
-	-	-	899,900	92.7	75.6	1506T	91.4	76.2	196,198,1506	91.4	76.2	
-	-	-	901,902	63.5	49.8	1503,902T	68.6	53.7	M902	68.6	53.7	
-	-	-	903,904	62.2	50.2	903T,904T	69.2	55.9	192,904	69.2	55.9	
-	-	-	M907,908	78.7	59.7	M907T,908	78.4	60.0	M199,908	78.4	60.0	
-	-	-	914	85.1	65.1	1507T	84.8	70.8	Y-1277,1507T	84.8	70.8	
-	-	-	RT	106.7	82.6	-	-	-	-	-	-	
-	-	-	RT	-	-	1508,1509T	64.8	49.8	200,1509	64.8	49.8	
-	-	-		-	-	BFT	76.8	62.2		76.8	62.2	
-	-	-		-	-	177	73.3	60.0		73.3	60.0	

TAG NUMBERS AND CARAPACE MEASUREMENTS OF MARINE TURTLES AT SEA LIFE PARK

by G. H. Balazs

TAG NO.	12/6/73		1/10/75		3/13/75		10/14/75	
	SL	SW	TAG NO.	SL	SW	TAG NO.	SL	SW
M700	78.1	59.7	M905,906	78.1	59.7	M905,906T	77.5	60.3
699	85.7	69.2	898,699	86.7	68.6	1505T	86.4	70.2
696H	85.7	69.2	696H	86.4	69.2	-	85.7	68.9
695	82.6	64.1	909,695	82.9	63.8	973T	82.6	63.5
M687	82.6	66.7	M897,687	83.2	66.7	M1504T,687	83.2	68.6
686	86.4	68.6	910,911	86.7	67.9	910,911	86.4	67.3
684	94.6	75.6	895,684	95.3	75.6	684T	94.3	76.2
-	-	-	M886,887	68.6	54.6	M915T	-	-
-	-	-	888,889	71.8	57.5	972T	-	-
-	-	-	890,891	61.0	49.2	891T	-	-
-	-	-	892,893	69.2	53.3	1501T,1502	70.8	56.5
-	-	-	894	45.7	37.5	894T	-	-
-	-	-	913	97.2	78.1	-	96.5	76.8
-	-	-	899,900	92.7	75.6	1506T	91.4	76.2
-	-	-	901,902	63.5	49.8	1503,902T	68.6	53.7
-	-	-	903,904	62.2	50.2	903T,904T	69.2	55.9
-	-	-	M907,908	78.7	59.7	M907T,908	78.4	60.0
-	-	-	914	85.1	65.1	1507T	84.8	70.8
-	-	-	NT	106.7	82.6	-	-	-
-	-	-	RT	-	-	1508,1509T	200,1509	49.8
-	-	-	-	-	-	BFT	76.8	62.2
-	-	-	-	-	-	177	73.3	60.0

10 ✓ Straight carapace length data for Hawaiian green turtles in captivity at Sea Life Park

by
 George H. Balazs
 UNIVERSITY OF HAWAII
 Hawaii Institute of Marine Biology
 Coconut Island, P. O. Box 13716, Kaneohe, Hawaii 96741

Tag No.	Sex	13 months (9) 10 Jan. 1975	22 months (13) 14 Oct. 1975	35 months (24) 8 Nov. 1976	59 months 16 Nov. 1978	
905,2015	↓	78.1	77.5	-	78.7	M
1505,2021		85.7	86.4	87.0	87.6	F
687,2019		82.6	83.2	84.5	-	M
911,2013		86.4	86.4	-	86.7	F
684		94.6	94.3	95.6	-	F
1506,2017		-	91.4	93.0	93.7	F
908,2069		-	78.4	79.4	79.7	M
1507,2062		-	84.8	85.7	86.0	F
1502,2057		-	70.8	80.0 (released)	-	F
904,2067		-	69.2	79.4 (released)	-	?
1509,2065		-	64.8	73.6 (released)	-	F
902,2014		-	68.6	-	79.1	M
BFT,2071		-	76.8	84.8	89.2	F
177,2018		-	73.3	80.3	84.8	M

23 Nov. 1979

Straight carapace length data for Hawaiian green turtles in captivity at Sea Life Park

by
 George H. Balazs
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 Hawaii Institute of Marine Biology
 Coconut Island · P. O. Box 1346 · Kaneohe, Hawaii 96741

Tag No.	6 Dec. 1973	13 months (9) 10 Jan. 1975	22 months (13) 14 Oct. 1975	35 months (24) 8 Nov. 1976	59 months 16 Nov. 1978	
905,2015	78.1	78.1	77.5	-	78.7	M
1505,2021	85.7	86.7	86.4	87.0	87.6	F
687,2019	82.6	83.2	83.2	84.5	-	M
911,2013	86.4	86.7	86.4	-	86.7	F
684	94.6	95.3	94.3	95.6	-	F
1506,2017	-	92.7	91.4	93.0	93.7	F
908,2069	-	78.7	78.4	79.4	79.7	M
1507,2062	-	85.1	84.8	85.7	86.0	F
1502,2057	-	69.2	70.8	80.0 (released)	-	F
904,2067	-	62.2	69.2	79.4 (released)	-	?
1509,2065	-	-	64.8	73.6 (released)	-	F
902,2014	-	63.5	68.6	-	79.1	M
BFT,2071	-	-	76.8	84.8	89.2	F
177,2018	-	-	73.3	80.3	84.8	M

TAG NUMBERS AND CARAPACE MEASUREMENTS OF MARINE TURTLES AT SEA LIFE PARK

by G. H. Balazs

12/6/73		1/10/75		3/13/75		10/14/75	
TAG NO.	SL	TAG NO.	SL	TAG NO.	SW	TAG NO.	SW
M700	78.1	M905,906	78.1	M905,906T	59.7	M193,905	60.3
x 699	85.7	898,699	86.7	1505T	58.6	190,1505	70.2
696H	85.7	696H	86.4	-	59.2	HPK	68.9
* 695	82.6	909,695	82.9	973T	63.8	-	63.5
* M687	82.6	M897,687	83.2	M1504T,687	66.7	M687	68.6
* 686	86.4	910,911	86.7	910,911	67.9	911	67.3
684	94.6	895,684	95.3	684T	75.6	0-76,684	76.2
-	-	M886,887	68.6	M915T	54.6	-	-
-	-	888,889	71.8	972T	57.5	-	-
-	-	890,891	61.0	891T	49.2	-	-
-	-	892,893	69.2	1501T,1502	53.3	195,1502	56.5
-	-	894	45.7	894T	37.5	RT - small and back green	-
-	-	913	97.2	-	78.1	-	76.8
-	-	899,900	92.7	1506T	75.6	196,198,1506	76.2
-	-	901,902	63.5	1503,902T	49.8	M902	53.7
-	-	903,904	62.2	903T,904T	50.2	192,904	55.9
-	-	M907,908	78.7	M907T,908	59.7	M199,908	60.0
-	-	914	85.1	1507T	65.1	Y-1277,1507T	70.8

-	NT	82.6	106.7	-	-	-	-
-	RT	-	-	1508,1509T	-	200,1509	49.8
-	-	-	-	-	-	-	62.2

largest green (15)
RT = roof tank
NT = north tank
T = top of shell
Y = yellow

File no. 116

Sea turtles hatched in captivity at Sea Life Park on September 11, 1984
(Compiled by George H. Balazs and Robert G. Forsyth)

Old tags present		Straight carapace length (cm) on 2//5/86 (1 yr 5 mo)	Comments
Size 681	Size 1		
8684	¹ N742, ¹ N732	35.3	
8677	—	36.9	
8686	126G, 122G	35.0	7 central scutes; 5 left lateral scutes
8687	181G, 176G	33.0	
8680	111G	34.7	
8683	114G, 113G	34.4	
8682	987K, 985K	36.7	8 central scutes; 5 right lateral scutes
8681	63G, 61G	35.3	

¹Monel alloy tags. All others made of titanium.

(Continued)

	Straight carapace length (cm)	Sex	Comments
<u>MISCELLANEOUS DATA:</u>			
NNW776, NNW777	54.5 on 2/5/86		Released at Makai Pier 7/11/86.
6914	25.2		Returned from Seattle Aquarium; released Waimanalo Beach 9/23/86.
6915	29.0		Returned from Seattle Aquarium; released Waimanalo Beach 9/23/86.
6916	29.3		Returned from Seattle Aquarium; released Waimanalo Beach 9/23/86.
8682	37.8		Released Makai Pier 3/26/86.
8686	36.9		Released Makai Pier 3/26/86.
9110, 9111, 9112	69.8		Released Hawaii Kai boat ramp 3/6/87—Derby turtle confiscated 2/6/87.
NNW773, NNW774, 9901LH	79.2 on 2/19/87		Released Hawaii Kai boat ramp 3/6/87; adult male.
5101, 5102, 9902	78.2		"Joey" on 2/19/87; release Makai Pier 4/13/87. Formerly in reef tank 11/23/76—72.3 cm 11/30/80—74.5 cm 4/16/86—77.8 cm 4/16/86 moved to Turtle Lagoon but hind flippers bitten off during 1/87.

NNW 753, NNW 754

Released by Steve Kaiser
sometime during 1986; exact
date unknown.

TAGGING AND MEASUREMENT DATA FOR 1987 YEAR-CLASS JUVENILE GREEN TURTLES
 EXAMINED AT SEA LIFE PARK ON FEBRUARY 22, 1988.

Compiled by G. H. Balazs

Tag No.			Straight carapace, cm	
*Existing tag	*New tag applied		Length	Width
RFF	LFF	RFF		
D739	D155	--	19.2	15.3
--	D156	D157	18.3	14.6
**D748	D158	D159	14.7	11.9
--	D160	D161	16.9	13.6
--	D162	D163	17.4	13.5
--	D164	D165	17.9	13.6
--	D167	D166	18.1	13.8
--	D168	D169	18.4	14.1
--	D170	D171	14.3	12.2
D737	D172	--	18.3	14.6
D738	D173	--	17.2	12.9

*All tags applied between the 3rd and 4th scales.

**Tag D748 fell off when handled due to a corroded tip.

□ = 2/24/88

Sea turtles in captivity at Sea Life Park on August 28, 1987
 Compiled by George H. Balazs and Marilyn Major.

Old tags present		New tags 8/28/87		Straight carapace length (cm)	Sex	Comments
Left	Right	Left	Right			
<u>GREEN TURTLES</u>						
2987	NNW751	--	--	96.7	F	NNW751 imbedded.
2062	NNW755 (4-5)	--	--	85.7	F	
NNW756	6494	15096 + white (L)		90.6	90.6 F	Scutes peeling.
NNW759	NNW758, NNW760RH	15,100 + blue (L)		82.8	84.5 IM	Hatched at Sea Life N-83.4 Park 12/80.
5815	2061, NNW761RH	15,096 + red (R)		86.5	86.6 M	
5105	NNW762RH	--	--	74.7	M	
NNW764	NNW763	--	--	84.6	M	"Natural" white marks in carapace.
6498, NNW765LH	5608 (imbedded)	--	--	77.9	IM	Kewalo transfer. 11th marginal left graft (dorsal visible but obscured. RH 1/2 missing.
15101	2499, NNW766RH	--	--	80.7	F	HIMB transferred from Kahala Hilton Hotel; repeatedly seen digging on beach.
5817	2070	15,090		84.4	84.9 F	
3282	--	15,092 orange (RFL)		94.4	94.5 F	
6496, 3524 (severely imbedded)	15102	--	--	84.7	IM	Hatched at Sea Life Park 12/80.
NNW767	3285	--	--	83.2	M	

(Continued)

Old tags present		New tags 8/28/87		Straight carapace length (cm)	Sex	Comments
Left	Right	Left	Right			
15103	15104, NNW768RH	--	--	78.6	M	
3287	6495, NNW769RH	--	--	79.7	M	
2985	6493, NNW770RH	--	--	79.5	M	
2986	NNW771	15,085 Blue (R)	--	86.1	F	Repeatedly involved in 1986 nesting.
--	--	9903	9904	79.0	M	From Vancouver Aquarium 3/20/86.
--	--	9905, 9906LH	--	72.8	M	From Vancouver Aquarium 3/20/86.
NNW775	2982	15,094 Red (L)	--	93.1	F	93.1
15105	2984	--	--	87.0	F	
<u>HAWKSBILLS</u>						
--	NNW752	--	--	81.8	F	1972 Western Samoa.
NNW757	--	--	--	85.5	F	Hawaiian Islands.
D774	D773, D775	--	--	28.7	IM	Customs confiscation to Waikiki Aquarium. SLP reef tank 15.9 on 7/2/86.
<u>LOGGERHEAD</u>						
--	NNW772	--	--	79.7	F	Molokai Channel-left front flipper amputated; eroded and flaking shell.

INFORMATION RELATING TO MARINE TURTLE RELEASES

by G. H. Balazs

*as of
2 June, 76
6/1*

<u>Group</u>	<u>Releases</u>	<u>WAIKIKI AQUARIUM</u>			
A	29 Jan 1973	10	sub-adult greens released from shore adjacent to Aquarium		
B	24 Mar 1973	7	adult and 4 sub-adult greens released at sea off N coast of Niihau		
	<u>Recoveries</u>	<u>Site</u>	<u>Interval (yrs/mos)</u>		<u>Condition</u>
A	28 Nov 1973	Iloili Pt. Molokai	0	10	normal (?)
B	9 Dec 1973	Palaoa Pt. Lanai	0	8	lost wt.-weak
A	20 Jan 1974	Hauula, Oahu	1	0	normal (?)
B	3 June 1974	East Is. FFS	1	2	normal-nesting
A	9 June 1975	Hana, Maui	2	5	normal (?)
21 releases, 5 recoveries					

<u>Group</u>	<u>Releases</u>	<u>SEA LIFE PARK</u>			
C	6 Dec 1973	9	sub-adult greens released at Makapuu		
D	10 Jan 1975	8	sub-adult greens released at Makapuu		
	<u>Recoveries</u>	<u>Site</u>	<u>Interval (yrs/mos)</u>		<u>Condition</u>
D	13 Apr 1975	Kailua Bay	0	3	very weak
C	16 Jan 1976	Trig Is. FFS	2	1	RF limb missing- 2" Increase in shell length
17 releases, 2 recoveries					

1976 GREEN TURTLE

NESTING ACTIVITY AT SEA LIFE PARK

Summarized by

G. H. Balazs
 Hawaii Institute of Marine Biology
 P.O. Box 1346
 Kaneohe, Hawaii 96744

<u>Clutch No.</u>	<u>Date</u>	<u>Activities and findings</u>
	6/18/76	initiation of emergence and excavation on artificial beach
1	7/6	35 eggs found in pond, transferred to styrofoam container; 7/24 examination indicated infertility and decomposition
2	7/12	female #76 deposited 64 eggs in artificial beach, transferred to plastic container; 8/25 examination indicated 20 eggs with small blood spot, remainder infertile
3	7/26	17 eggs found in pond; discarded
4	7/28	female with no tag (light carapace, tattered hind flippers) deposited 107 eggs in artificial beach; clutch divided and transferred into two styrofoam containers; 8/21 examination indicated all infertile
5	8/10	female #2009 deposited 67 eggs in artificial beach; 9/21 examination indicated 3 cm embryo; 10/6 examination indicated 6.5 cm embryo; mongoose destroyed unknown number of eggs 10/25; total of 20 hatchling by 11/3, 5 no development
6	9/20	single hatchling found behind reef tank; 36 shells and 9 infertile eggs found in sand pile, total clutch size-45 ; probably resulted from turtle emerged 7/20; most of emerged hatchlings probably destroyed by mongoose
7	9/20	80 eggs found in pond; infertile; probably resulted from female tagged #2012
8	9/30	female #2009 deposited 114 eggs in artificial beach, transferred to container; 10/24 examination indicated all infertile

1976 GREEN TURTLE NESTING ACTIVITY AT SEA LIFE PARK

-2-

<u>Clutch No.</u>	<u>Date</u>	<u>Activities and findings</u>
9	9/30	female #2009 excavated previously unknown incubating clutch in artificial beach; 24 no development, 5 partial development, 3 unknown, 9 viable and advanced development (transferred to container); total clutch size-41; 9 hatched but destroyed by mongoose on 10/26
10	10/15	42 hatchlings found from previously unknown nest in artificial beach; 23 no development, 7 partial development, 6 unknown (insect destruction), total clutch size-78; 8 released 10/30; 25 released 11/8
11	10/30	14 hatchlings found from previously unknown nest in artificial beach; empty shells suggest 25 actually emerged; 44 no development, 3 partial development, total clutch size-73; 7 released 10/30; 2 released 11/8
12	11/2	49 hatchlings found from previously unknown nest in artificial beach; 14 infertile, 5 partial, total clutch size-78; 25 released 11/4; 24 released 11/8
13	11/5	44 hatchlings found from previously unknown nest in artificial beach; 30 infertile, 12 partial, 3 live hatchlings, total clutch size-89; 41 released 11/5
14	11/24	57 hatchlings found by Pearl factory from previously unknown nest in artificial beach; 21 infertile, 3 partial, total clutch size-81; 57 released 11/24
15	11/30	72 hatchlings found from previously unknown nest in artificial beach; 4 infertile, 1 partial, total clutch size-77; 66 released 11/30
16	12/19	40 hatchlings found from previously unknown nest in artificial beach; 17 no development, 2 partial, 1 hatched but dead, total clutch size-60; 60 released 12/19

Total no. turtles in pool - 19
 adult hawksbill - 1 female
 adult greens - 9 females, 3 males
 sub-adult greens - 4 unknown, 2 male

Maximum no. turtles thought to be involved
 in nestings - 4

1976 GREEN TURTLE NESTING ACTIVITY AT SEA LIFE PARK

-3-

<u>Clutch No.</u>	<u>Eggs</u>	<u>No. Hatchlings Produced</u>	<u>% Hatchling Production</u>	<u>No. live Hatchlings Obtained</u>
1	35 (in water)	0	0	0
2	64	0	0	0
3	17 (in water)	0	0	0
4	107	0	0	0
5	67	<u>>20</u>	<u>>30</u>	20
6	45	36	80	0
7	80 (in water)	0	0	0
8	114	0	0	0
9	41	9	22	0
10	78	42	54	42
11	73	25	34	14
12	68	49	72	49
13	89	47	53	47
14	81	57	70	57
15	77	72	94	72
16	60	40	67	40
Total	1096	397	-	341



University of Hawaii at Manoa

Hawaii Institute of Marine Biology
P.O.Box 1348 • Coconut Island • Kaneohe, Hawaii 96744
Cable Address: UNIHAW
November 12, 1976

MEMORANDUM

To: L. Brongersma
A. Carr
G. S. deSilva
D. Ehrenfeld
H. Hirth
G. Hughes
W. King
N. Mrosovsky
P. Pritchard
I. Uchida

From: George H. Balazs

The purpose of this communication is to inform you of the recent nesting and hatching of captive *Chelonia* at the commercial display facility, Sea Life Park. The attached pages present some of the relevant data collected. In view of the scarcity of such reports, I thought it would be appropriate to disseminate specifics at the earliest possible date. Widespread publicity may possibly result from this occurrence, therefore it will be advantageous for you to be knowledgeable of the facts.

Sea Life Park, located on the Island of Oahu, first opened in 1964 and all turtles on display have been obtained from Hawaiian waters. It is suspected that five of the 12 adult green turtles now at the facility have been in captivity since at least 1967. Unfortunately, no long term records exist on acquisition dates, original sizes, or any other individual details. In December, 1973 I placed identification tags on the turtles and have since been periodically taking measurements, retagging due to corrosion problems, and providing advisory assistance on a cooperative basis.

The history of reproductive activity at Sea Life Park, as I have been able to piece it together, can be summarized as follows.

1. From at least 1967 to December, 1972 turtles were held in a display pool with an accessible artificial sand beach. Sometime between 1967 and 1968 nesting took place on this beach, but no hatchlings resulted.

November 12, 1976

2. After December, 1972 the turtles were permanently moved to a different display pool with no sand beach. In the spring of 1973 a copulating pair was observed. This was followed within several hours by egg deposition directly into the water by the female involved in copulation. The eggs were removed, rinsed with fresh water and buried in the sand, but development did not take place. A copulating pair was again observed a few days later, but it could not be determined if the same animals were involved. Immediately following copulation, the female was transferred to a pool with a sand beach. Within several hours egg deposition again occurred directly into the water. Attempts to incubate these eggs also resulted in no development.
3. In December, 1973 a small sand beach and sloping exit ramp were built into the turtles' display facility. Those of you (GSd, NM, PP, IU) who have visited with me here in Hawaii will undoubtedly remember seeing this facility.
4. During 1974 and 1975 copulation was not observed, although some minor mating attempts by males may have occurred in 1974, and a few moderate attempts took place in 1975.
5. Active, aggressive attempts by males to copulate were first seen in 1976 at about the same time that emergence and nesting activity started (mid-June). Attempts continued until at least late July, but at no time were turtles observed locked together in actual copulation. I personally saw a number of these attempts, and in each case the female clearly rejected the male.

I would be interested to learn of any comments which you may have on this case. In the next few months, I plan to prepare a short paper on these observations and findings for publication in the Journal of the Hawaii Audubon Society.

GHB:ec

1976 GREEN TURTLE

NESTING ACTIVITY AT SEA LIFE PARK

Summarized by

G. H. Balazs
 Hawaii Institute of Marine Biology
 P.O. Box 1346
 Kaneohe, Hawaii 96744

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6	9/20	single hatchling found behind reef tank; 36 shells and 9 infertile eggs found in sand pile, total clutch size-45 ; probably resulted from turtle emerged 7/20; most of emerged hatchlings probably destroyed by mongoose
7	9/20	80 eggs found in pond; infertile; probably resulted from female tagged #2012
8	9/30	female #2009 deposited 114 eggs in artificial beach, transferred to container; 10/24 examination indicated all infertile

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13	11/5	44 hatchlings found from previously unknown nest in artificial beach; 30 infertile, 12 partial, 3 live hatchlings, total clutch size-89; 41 released 11/5
14	11/24	57 hatchlings found by Pearl factory from previously unknown nest in artificial beach; 21 infertile, 3 partial, total clutch size-81; 57 released 11/24
15	11/30	72 hatchlings found from previously unknown nest in artificial beach; 4 infertile, 1 partial, total clutch size-77; 66 released 11/30
16	12/19	40 hatchlings found from previously unknown nest in artificial beach; 17 no development, 2 partial, 1 hatched but dead, total clutch size-60; 60 released 12/19

Total no. turtles in pool - 19
 adult hawksbill - 1 female
 adult greens - 9 females, 3 males
 sub-adult greens - 4 unknown, 2 male

Maximum no. turtles thought to be involved
 in nestings - 4

1976 GREEN TURTLE NESTING ACTIVITY AT SEA LIFE PARK

-3-

<u>Clutch No.</u>	<u>Eggs</u>	<u>No. Hatchlings Produced</u>	<u>% Hatchling Production</u>	<u>No. live Hatchlings Obtained</u>
1	35 (in water)	0	0	0
2	64	0	0	0
3	17 (in water)	0	0	0
4	107	0	0	0
5	67	<u>≥</u> 20	<u>≥</u> 30	20
6	45	36	80	0
7	80 (in water)	0	0	0
8	114	0	0	0
9	41	9	22	0
10	78	42	54	42
11	73	25	34	14
12	68	49	72	49
13	89	47	53	47
14	81	57	70	57
15	77	72	94	72
16	60	40	67	40
Total	1096	397	-	341

INFORMATION SUMMARY ON THE VANCOUVER AQUARIUM GREEN TURTLES

George H. Balazs
Southwest Fisheries Center Honolulu Laboratory
National Marine Fisheries Service, NOAA
Honolulu, Hawaii 96822-2396

Two green turtle, Chelonia mydas, were returned to Hawaii on March 20, 1986 from the Vancouver Aquarium. The turtles had originally been shipped to Vancouver in 1956 by Spencer Tinker, former Director of the Waikiki Aquarium. They were estimated to measure 45-50 cm in straight carapace length at that time. Transport of the turtles both to and from Vancouver was made courtesy of Canadian Pacific Airlines.

The turtles arrived in Hawaii in excellent condition and have been permanently housed at Sea Life Park on Oahu. Numerous color photos were taken of them on March 25th and April 9th. They were double-tagged on April 9th shortly before being moved into the Park's "Turtle Lagoon." Data are as follows:

Tag No.	Straight carapace		Curved carapace	
	Length	Width	Length	Width
NNW 780	78.6	58.3	82.5	69.0
NNW 781				
NNW 782	70.2	56.1	74.0	64.5
NNW 783				

While in Vancouver the turtles were held in an inside display tank with fluorescent lighting. Seawater temperature averaged about 25°C. Feeding occurred twice a week to satiation on a diet of frozen chopped fish.

The dorsal surfaces of the turtles are black, except for cream-colored seams between the scales on the head and flippers. The ventral surfaces are cream-colored or whitish. Upon arrival in Hawaii the turtles were completely free of algae and other fouling growth. However, by April 9th, some algal growth was present on the carapace and dorsal skin surfaces.

The larger turtle is clearly an adult male. Its tail is very thick at the base and measures at least 40 cm in length. The smaller turtle's tail measures only 29 cm and has a considerably smaller diameter to the base. This turtle is either an immature male, or an inter-sex individual. Upon being placed in the Turtle Lagoon, several of the existing male green turtles vigorously mounted this turtle to copulate.

About Kilo i'a

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WAIKIKI AQUARIUM

Kilo i'a

LOOKING AT THE SEA



Hawaiian Turtles in Canada

Throughout the years, sea turtles have been a popular attraction at the Aquarium. Visitors can currently see three species of them while learning about their unique ecology and threats to survival. The 11 inch olive ridley in gallery 1 offers a special treat since this species is seldom seen at such a young age. This particular one was found washed ashore on Moikakai, tangled-up in plastic line. He was sent to the Aquarium 15 months ago, has since been restored to health and is now growing. Sharing the outdoor seal pool is an active adolescent hawksbill, with its longer beak and spiny-edged shell, and a larger male loggerhead who sleeps quietly on the bottom most of the time.

The number of turtles at the Aquarium has waxed and waned over its 79 year history. Green turtles or Honu, the most common of Hawaiian sea turtles, were once heavily exploited for food but are now legally protected. In the past, when a surplus existed from too many donations, turtles were tagged for research and returned to the sea. Some of the green turtles released in this manner were later found happily breeding at French Frigate Shoals, 500 miles up the Hawaiian chain. In 1957, three surplus green turtles left the Aquarium under somewhat novel circumstances

—aboard Canadian Pacific Airlines. This interesting and nearly forgotten story was pieced together from an old newspaper article and recent correspondence with the Vancouver Aquarium where two of the turtles are still living 27 years later. These "high-flying" turtles were sent up to Canada by former Waikiki Aquarium Director, Spencer Tinker to help celebrate the grand opening of the Vancouver Aquarium: Sea turtles don't normally occur off Vancouver, so the gift has provided millions of Canadians the unique opportunity of seeing these amazing reptiles.

It's just possible that these immigrant turtles have set a record for the length of time a green turtle has been kept in captivity. No one really knows just how long they can live, so records like this are helpful. The growth rates are also of interest. During the 27 years, the two turtles, one male and one too small to determine its sex, grew from a shell length of about 19 inches to sizes of 32¼ and 28¼ inches.

If you are ever in Vancouver, please stop by and say Aloha to our old friends!

UH marine biologist George Balazs has been studying Hawaiian sea turtles for the past 17 years and is an active supporter of the Aquarium.

A PROPOSAL TO UNDERTAKE THE BREEDING
OF HAWKSBILL TURTLES IN CAPTIVITY AT SEA LIFE PARK

by

George H. Balazs
National Marine Fisheries Service
and
Hawaii Institute of Marine Biology

March 1981

Background

Three hawksbill turtles (Eretmochelys imbricata, an Endangered Species) are in captivity for commercial display purposes at Sea Life Park on the island of Oahu. The largest of these animals is a female of Hawaiian origin measuring 86 cm in carapace length that has been at the facility since the 1960s. The second largest is a 79-cm female that is the sole survivor of four hawksbill transferred to Sea Life Park by the author during 1974. These four turtles were originally obtained as hatchlings from Western Samoa in March of 1972. The third and smallest hawksbill (73 cm) is a male that was found as a hatchling at Malakahana Bay on Oahu in January of 1975.

The two female hawksbills are presently being held in Sea Life Park's "turtle lagoon" along with 19 green (Chelonia mydas) and two loggerhead (Caretta caretta) turtles. The male hawksbill resides in the Park's reef tank display along with a single 75-cm green turtle. During recent months the male has been repeatedly observed attempting to mate with the green turtle. It is not known if actual copulation has taken place, but such an occurrence is a distinct possibility. The male's tail has exhibited significant lengthening and enlargement, however, the size and characteristics of a fully mature adult have not yet been obtained.

The approximate ages of the three hawksbills are as follows:

86-cm Hawaiian female	>20 years
79-cm Western Samoan female	9 years
73-cm Hawaiian male	6 years

Experimental Procedure

An appropriate time has been reached to undertake a small breeding project with the hawksbills at Sea Life Park. As a first step, each female should be brought together with the male during separate time periods. Considering the smaller and therefore presumably more compatible size, the female from Western Samoa appears to offer the best possibility for copulation taking place. Each female could be alternately introduced into the reef tank display where the male is now located.

Another option would be to transfer the male-female pair to one of the holding tanks situated outside of the Park's display area. It would not be advisable to move the male to the turtle lagoon display due to the presence of relatively large numbers of turtles of different species.

The artificial sand beach associated with the turtle lagoon has been successfully used for nesting and hatchling production by green turtles in both 1976 and 1980. Hawksbills in the wild are generally less discriminating than green turtles in their nesting site requirements. It is therefore reasonable to expect the captive hawksbills at Sea Life Park to use the artificial beach should they become gravid.

The green turtle that has been the focus of the male hawksbill's attention and possible fertilization should eventually be transferred from the reef tank to the turtle lagoon so that access exists to a nesting beach. Although rare, specimens thought to be hybrids of the hawksbill and green turtle have been reported from other areas of the world.

Outcome

The breeding and successful production of hawksbill hatchlings in captivity at Sea Life Park would constitute the first case for this species known to the author. Few facilities that display sea turtles are equipped with a sand beach, consequently, the opportunities for captive breeding are currently very limited. Further achievements in this field by Sea Life Park will promote sea turtle conservation and serve as a model for other marine display facilities.

18

Bellows release of SCP
2-11-85 Captive - hatchling - A-84

10 AM

Moody

2 months
old

T = Tarsus

M = Murel - N prefix

Left TagRight TagStraight Length

1- T 121 (3-4)	Missing	15.5
2- T 208 (FL)	T 206 (FL)	16.8
3- T 58 (3-4)	T 57 (3-4)	12.3
4- T 78 (3-4)	T 76 (3-4)	14.9
5- M 312 (3-4)	M 298 (3-4)	14.3
6- T 198 (FL)	T 194 (FL)	13.6
7- T 117 (3-4)	T 116 (3-4)	15.4
8- T 74 (3-4)	T 71 (3-4)	17.1
9- T 217 (FL)	T 214 (FL)	19.2
10- M 700 (3-4)	M 974 (3-4)	16.9
11- T 181 (3-4)	T 85 (3-4)	16.7
12- T 979 (3-4)	M 310 (3-4)	17.0
13- T 128 (3-4)	T 127 (3-4)	15.2
14- M 953 (3-4)	M 284 (3-4)	15.7
15- T 102 (3-4)	Missing ^(Nin) M E 001 (FL)	17.2
16- T 68 (3-4)	T 66 (3-4)	17.4
17- T 84 (3-4)	T 81 (3-4)	14.9
18- T 133 (3-4)	T 131 (3-4)	15.4

SEA LIFE PARK SEA TURTLE DATA

RECORDED ON 7 JULY 1982

by
G. H. Balazs

Tag Nos.	Straight carapace length, cm	Sex	Remarks
5105 LFL	67.5	M*	tail > 23 cm past > PC's
3287 LFL	73.2	M*	tail > 17 cm past > PC's
Blue fearing - L distal	79.3	M	RHF partially missing - healing
2987 LFL	97.5	F	clean yellowish colored carapace
2980 RFL	84.9	M	algae on carapace
3282 LFL; 5816 RFL	95.4	F	-
2982 RFL	93.8	F	algae on carapace
2070 RFL; 5817 LFL	84.2	F	algae on carapace
2062 LFL	86.0	F	sparse algae on carapace
2984 RFL	87.7	F	algae on carapace
2071 LFL	90.4	F	moderate algae on carapace
2061 LFL; 5815 RFL	86.1	M	clean carapace
No tags	79.2	M	-
2985 RFL	79.6	M	sparse algae on carapace
3285 RFL	77.2	M*	tail 16 cm past tail
2986 RFL	86.7	F	clean carapace
No tags	80.6	F	captive-reared W. Samoa hawksbill

Sea Life Park Sea Turtle Data
Recorded on 7 July 1982
Page Two

Tag Nos.	Straight carapace length, cm	Sex	Remarks
No tags	86.5	F	Hawaiian hawksbill
5103 LFL; 5104 RFL	75.9	M	Pomaikai Hawaiian hawksbill
3524 LFL ¹	41.6	?	Sea Life Park captive hatch
3525 LFL ¹	40.3	?	" " " " "

Turtle Lagoon:

19 turtles total - 13 adult greens (5 males, 8 females), 3 immature (all apparently males*), and 3 adult hawksbills.

¹Captive-hatched at Sea Life Park in December 1980 (18 months ago); currently being held together in large fiberglass tank.

Captive Reared 1-Year Old Green Turtles Released into the
Wild as of September 18, 1981

Location	Date	No. of Turtles
Kauai		
Kilauea Point	9-5-81	20
Maui		
Paia	9-11-81	10
Hawaii		
Hilo Bay	9-11-81	25
Oahu		
Bellows - Waimanalo	9-10-81	15
" "	9-15-81	8
Hanauma Bay	9-9-81	10
Chun's Reef	9-15-81	24
French Frigate Shoals		
Tern Island	9-15-81	9
TOTAL		121

(All from Sea Life Park -
no NMFS turtles remaining
at this facility).

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Kauai		
Kilauea Point	9-5-81	20
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Oahu		
Bellows - Waimanalo	9-10-81	15
" "	9-15-81	8
Hanauma Bay	9-9-81	10
Chun's Reef	9-15-81	24
French Frigate Shoals		
Tern Island	9-15-81	9
TOTAL		121

(All from Sea Life Park -
no NMFS turtles remaining
at this facility).

ALL OBTAINED
AS HATCHLING
FROM FFS

SLP

FREEZE-MARKING EXPERIMENTATION WITH JUVENILE GREEN TURTLES

On 14 April 1981, William Gilmartin and George Balazs carried out a freeze-marking study with four juvenile green turtles being reared under contract at Sea Life Park. These turtles were originally obtained as hatchlings at French Frigate Shoals in September 1980.

The freeze-marking instrument utilized was a copper rod with a contact point measuring approximately 5 mm in diameter. The coolant was liquid nitrogen. After immersion in the coolant for several minutes, the point of the rod was firmly placed against a lateral scute of the carapace. Each of the lateral scutes on all four turtles received a trial mark ranging from 4 to 32 seconds of contact. A total of 32 trial marks was applied (8 lateral scutes per turtle x 4 turtles). The location of the trial mark on each scute, duration of contact, carapace lengths, and tag numbers are presented in the following diagrams. The turtles will be examined at one week intervals to determine extent and duration of depigmentation.

Suggestions for the improved maintenance of green turtles being
reared in captivity at Sea Life Park

Ideas resulting from work experiences at Sea Life Park
on December 30, 1980

by
G.H. Balazs

1. Develop a rapid means of dicing squid and fish in order to assemble a large supply of ready-to-feed food packages. One possibility would be to use a meat band saw, or other suitable piece of butcher's equipment, to slice the frozen blocks of squid and fish. Rental or short-term use of equipment at a butcher shop could be investigated.
2. Consider draining water from tanks at periodic intervals and medicating turtles directly in tank bottom after they skin and shell surfaces have dried. Water-based crystal violet solution could be rapidly sprayed on all turtles using inexpensive pressurized spray apparatus (i.e. herbicide yard sprayer).
3. Apply alcohol-based crystal violet solution to the dried eye lesions of turtles using a cotton swab.
4. Feed predominantly a fish diet during the morning and early afternoon hours and squid during the late afternoon to achieve maximum daily ingestion of foodstuffs.

Carapace measurements and photograph records of Hawaiian green turtles reared at Sea Life Park
 (Source: September 1980, French Frigate Shoals)

By George H. Balazs

Dates	504(104)		648(248)		480(80)		618		643		316(16)		326(26)	
	SL	SW	SL	SW	SL	SW	SL	SW	SL	SW	SL	SW	SL	SW
9/21/80	- - - - - Photographs representative of newly hatched - - - - -													
10/07/80	Photo													Photo
11/04/80	7.4	6.3	8.3	7.3	7.9	6.7	8.4	7.1			8.2	7.2	9.5	7.3
12/30/80	10.4	8.9	11.2	9.8	11.4	9.7	11.6	10.0	Photo					
03/19/81	16.1	13.9	16.3	13.3	17.0	14.0	16.4	14.0	17.3	14.0				

From Bourke
5/3/77

BREEDING OF THE GREEN SEA TURTLE (Chelonia mydas)
AT SEA LIFE PARK, HAWAII

During the period from 1964 to 1973 Sea Life Park acquired 29 adult green sea turtles from various sources around the Hawaiian Islands. These turtles were kept on display in a large artificial pool along with four harbor seals and briefly, four sea lions. Eggs were deposited in the water on four occasions and unsuccessful attempts were made to incubate these eggs. In July 1974 a separate turtle pond with an adjacent artificial beach was built in hopes of initiating a successful breeding program.

FACILITIES

The pond presently housing the adult turtles (5 male, 7 female) is a free formed oval shape approximately 15 x 8m with a maximum depth of 1.5m. The surface is painted with a hard surface copper based antifouling paint. Water flow is variable but averages several hundred gallons per minute. There is a bottom drain and a large scum drain. A 2m wide ramp (3:1 slope) creates an access to the sand beach from the pond. The beach holds twenty cubic meters of crushed coral sand at an average depth of 65cm. This sand contains much more dust than normal beach sand and was very compact before the advent of nesting activities.

The adult turtle diet has consisted of 8kg. of fresh frozen smelt, herring and squid (4:4:1) daily with added multiple vitamins.

NESTING ACTIVITIES

No nesting or laying activities were noted for the first twenty three months from the date the turtles were introduced into the new pond. Attempted copulations, however were occasionally observed.

Beginning 18 June 1976 one or more of the three female turtles presumably involved in the breeding began almost nightly "excursions"

on the sand beach and often escaped into the park grounds. The first clutch of the 1976 season was laid in the water on 6 July. On 12 July a clutch of eggs was deposited in a nest on the beach and subsequently removed to an incubation chest.

ARTIFICIAL INCUBATION

Eggs were obtained for artificial incubation by digging and removing them from the nest after the female had completed the nest and returned to the pond. In one instance an unsuccessful attempt was made to incubate eggs laid in the water.

Incubation methods are modified from those given by Simon (1975). Eggs were placed in a styrofoam chest. The chests had a 5cm layer of damp washed silicone sand and holes in the bottom to drain any excess water. Up to 64 eggs were stacked in each container and covered with a layer of damp paper towels. The chests were stored at ambient room temperature (25-29°C). One clutch was kept on top of a warm incubator. This clutch, although fertile, did not survive, possibly due to overheating. Eggs were checked every 2-4 days and moisture added to prevent desiccation. Eggs were soft and usually dimpled on one side when laid. Fertile eggs became firm and turgid within 2 days. Care was taken not to move or rotate turgid eggs. Hatchlings were removed to a clean incubation chest for 3-5 days until their yolk was completely absorbed.

NATURAL INCUBATION

On four occasions "escape" adult turtles were led to a sand pile 50m away and behind a building in hopes that they would find this sand suitable for nesting, but on none of these occasions did the turtles lay eggs. However an unchaperoned escape turtle evidently found this sand pile and laid a nest. This sandpile was in direct sunlight most of the day and was kept moist by a slight leak in an adjacent salt water holding tank. Only one

hatchling was obtained from this clutch. The remaining hatchlings were undoubtedly destroyed by mongoose. This unexpected hatching was the first indication of what was to come.

The majority of turtles hatched from 8 previously undetected nests in the artificial beach between 9PM and midnight. All of these nests were in a 10m² section of the artificial beach farthest from the pond. Hatchlings appeared to crawl towards the brightest light source and were often discovered scrambling clustered around a foot-path light.

Fertility of any unhatched eggs was determined by the presence of a blood spot or dead embryo.

RELEASE OF HATCHLINGS

After the first several successful clutches from the artificial beach hatchlings were released, usually the same night as their emergence, on one of the two nearby isolated sandy beaches. Turtles were placed on the beach at the high-wave mark. On all occasions they oriented immediately toward the brightest area in the sky and scrambled toward it. Most of the hatchlings were in the water in less than a minute (est.). Hatchlings kept for a greater length of time (up to 7 days) before their release were much slower entering the water. Being larger and more robust they had difficulties righting themselves when overturned by a wave.

RAISING HATCHLINGS IN CAPTIVITY

Forty Six hatchlings were kept in captivity. They were noted to accept food within 24 hours but did not actively feed until they were 2-4 days old. They were fed a diet of chopped smelt, squid, fresh frozen euphausiids, spinach, and Trout Chow four times daily. They were also noted to graze on the filamentous green algae growing on the sides and bottom of their tank. weight gain is plotted in figure 1. Twenty four of these turtles were released on 29 April, '77 from a slowly moving boat 200m offshore the island of Lanai

near Manele Bay. The turtles were given a metal fore-flipper tag. Each was also injected with an antigen tag developed by Dr. Benedict of the Univ. of Hawaii Microbiology staff. Ten turtles from clutch #5 remain in captivity, four of them at Sea Life Park.

Rearing hatchlings in captivity brought problems of overcrowding and identification. As the hatchlings grew larger they required greater holding tank area. If overcrowded they would nip at one another causing wounds. This obviously could lead to a reduction of the victim's swimming ability. At least one hatchling died from the effects of severe bites, and several were noted to have lost weight during recovery. Identification of hatchlings by marking their shells with "indelible" ink was unsuccessful. The fading of the ink and the dark coloration of the turtles shells necessitated remarking every three days, which soon became intolerable. Four turtles of known parentage (clutch #5) were given small flipper tags when they were about 8cm shell length. These tags have worked quite well.

DISCUSSION

Several problems have been encountered during this breeding season. Not the least of these was the awkward time (night) of both nesting and hatching. Female turtles were often not detected until they had wandered over a considerable territory after escaping the artificial beach. On at least eight occasions turtles nested on the beach without being observed. Hatchling turtles emerging from the beach often spread out rapidly necessitating flashlight search parties. On each of these occasions at least one hatchling was not found until the following morning, often up to 50m away from the nest.

A number of false nestings occurred, usually when the female dug through

the sand to the hard substrate below. The females tended to dig their nests at the far end of the sand patch away from the pool. On one occasion a previously unknown clutch was dug up by a nesting turtle. Considering the number of unknown nests in the small beach it is curious that this did not occur more than once.

Before the next breeding season the artificial beach will be reconstructed to eliminate some of the above problems. By lengthening the beach it will be possible to erect successive barriers as each clutch is laid. The depth of the sand is being increased to at least one meter. The rock boarder around the artificial beach will be raised to prevent adult turtles from escaping. A baby turtle trap is being designed that will attract hatchlings to a lighted box into which they will hopefully crawl and be protected from predators. Other light sources are being eliminated from the view of the emerging hatchlings.

Survival of fertile eggs from the artificial incubators was low primarily due to predation by insects and mongoose. Temperature and humidity in the ambient temperature room could not be controlled to optimize hatching time. These problems should be eliminated with the construction of an appropriated chamber to control these variables.

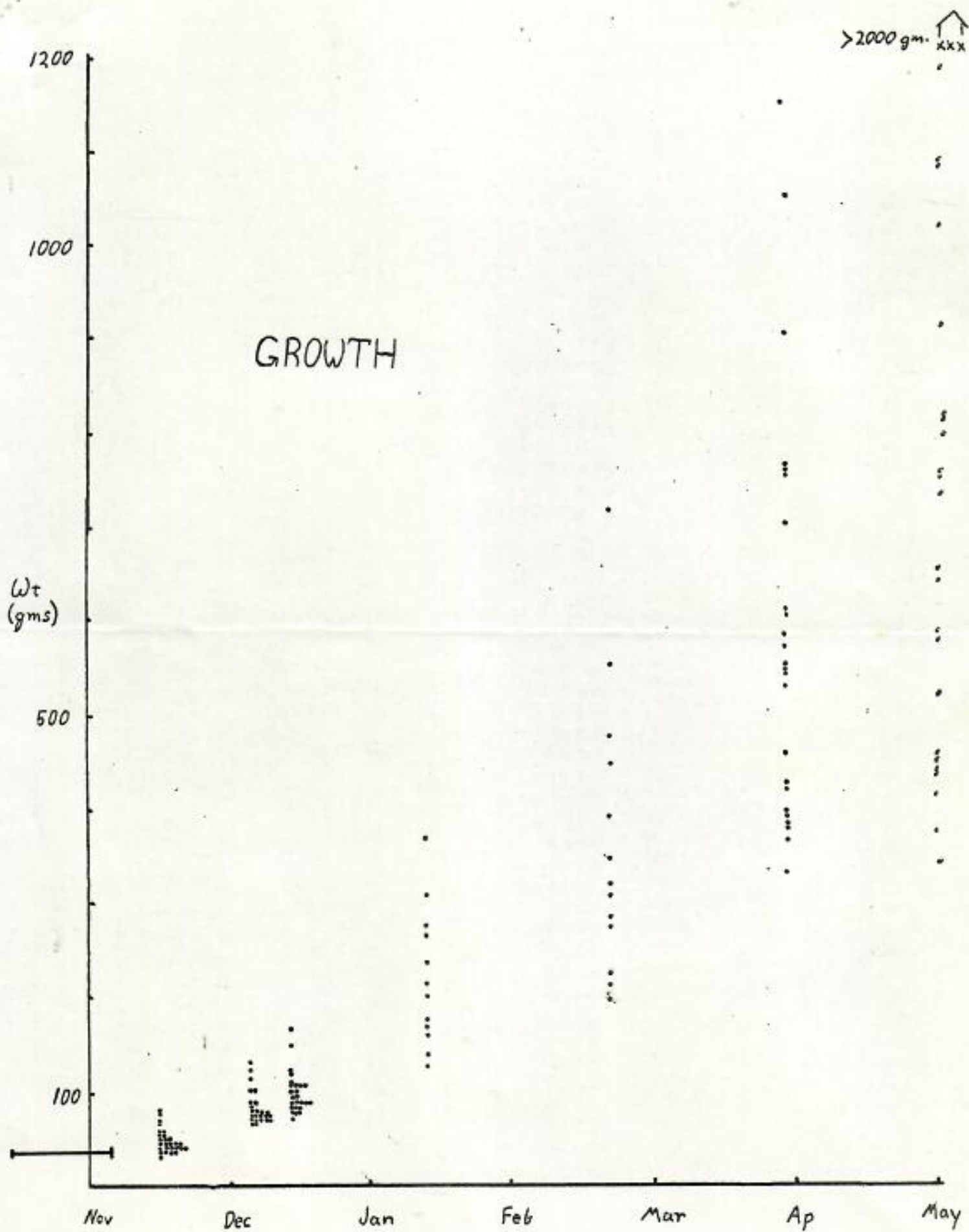
SUMMARY

17 clutches by no more than 3 female turtles produced 1163 eggs, 455 of which were definitely fertile, to produce 398 hatchlings, 343 of which survived at least one day. Of these surviving turtles, 295 were released immediately into the ocean and 46 were kept. After 6 months 12 turtles had died, 24 were tagged and released and 10 remain in captivity, four of these at Sea Life Park.

1976 TURTLE HATCHINGS

Clutch #	Date Laid	Date Hatched	Total Eggs	Nonfertile	Fertile	Hatchlings Produced	Hatchlings Obtained	Artificial Incubation	Nest in Beach	Eggs in Pond	% Prdctn.
1	6 July		35	35	0	0	0	X		X	0
2	12 July		64	44	20	0	0	X			0
3	26 July		17	?	?	0	0			X	0
4	28 July		107	107	0	0	0	X			0
5	10 Aug	3 Nov	67	25	220	20	20	X		33	<P<80
6		20 Sept	45	9	36	36	1		X		80
7	20 Sept		80	80	0	0	0			X	0
8	30 Sept		114	114	0	0	0	X			0
9		25 Oct	41	24	12	9	0	X			22
10		15 Oct	79	29	50	43	43		X		54
11		30 Oct	73	45	28	25	14		X		34
12		2 Nov	78	14	54	49	49		X		72
13		5 Nov	89	30	59	47	47		X		53
14		24 Nov	81	21	60	57	57		X		70
15		30 Nov	77	4	73	72	72		X		94
16		19 Dec	60	17	43	40	40		X		67
17		21 Dec	35	85	0	0	0		X		0
TOTALS			1163	653	455	398	343				29.3

- (2) Incubated on top of heat source.
 (4) Clutch divided in two. One incubator in a constant T° room.
 (5) Unknown # of eggs destroyed by mongoose.
 Eggs laid by female #2009
 Four hatchlings sent to Vancouver, 4 to waikiki, 4 kept at SLP.
 (6) Hatched from sand pile behind Reef Tank building
 (9) Excavated during nesting of clutch #
 Destroyed by mongoose.
 (10) Insect destruction in nest.
 (13) 3 hatchlings found still in nest.
 (17) Found when beach excavated.



all RFL

SEA LIFE PARK

9-18-84

955-8300

89

size 681
9-19-85

New Hatchlings

MOST RECENT HATCH -
R (on 9/11/84)

TUESDAY

Being held in rectangular Aquarium
under cover

SEA WATER =
FILE 78°F
SEA LIFE PARK

Code letters
stamped
on tag

SL → mm

	Titanium	↓ 1	55 G	56 G	55
		2	57 G	58 G	58
8681		3	61 G	63 G	59
		4	66 G	68 G	59
		5	71 G	74 G	57
		6	76 G	78 G	56
		7	81 G	84 G	58
		8	86 G	87 G	56
		9	89 G	93 G	56
8679		10	94 G	96 G	56
		11	98 G	981 K	56
8682		12	985 K	987 K	58
	Monet	13	N 298	N 312	56
		14	N 823	N 899	52 small & dark PL
		15	N 284	N 953	60
8684		16	N 974	N 700	57
	Titanium	17	N 732	N 742	58
		18	101 G	102 G	61
	9/20	19	104 G	106 G	58
8688		20	109 G	111 G	60
8680		21	113 G	114 G	59
8683		22	116 G	117 G	60
		23	118 G	121 G	59
8686		24	122 G	126 G	56
		25	127 G	128 G	60
		26	133 G	131 G	60
8678		27	137 G	140 G	59

27°C
9/20

Crack
seen
at first
1" of
100
(7 centials)

(want to) due to crack
more on one side

88

SEA LIFE PARK

80° F - outside

9-18-84

TUESDAY

TITANIUMS

↓

	R	Left	SL, cm
1.	26g	39g	9.3
2.	69g	89g	9.0
3.	109g	139g	9.8
4.	169g	189g	10.0
5.	209g	229g	10.0
6.	259g	279g	10.2
7.	299g	319g	9.0
8.	339g	359g	8.7
9.	379g	399g	10.1
10.	419g	429g	10.3
11.	449g	469g	8.5
12.	529g	509g	8.5

① covered
 ② off center
 ③ point bands backward

78° F Hatchlings

④ shape of flaps

⑤ some LIGHT number impressions

⑥ "Thin" metal?

8685

Above is a composite of July & Aug. hatches -
 Turtles are now blind large
 round fiber tank - black interior -

TITANIUM

9/20/84

	R	L	SL, cm
13.	147g	150g	10.0
14.	153g	159g	10.8
15.	160g	163g	10.0
16.	166g	168g	10.3
17.	172g	174g	10.4
18.	176g	181g	9.6
19.	185g	186g	9.3
20.	188g	191g	9.5
21.	194g	198g	7.7
22.	200g	202g	10.0
23.	206g	208g	9.7

Full

29° C

	R	L	SL
24.	209g	211g	9.0
25.	214g	217g	9.0

clean
 empty

8687

J. H. ...

Sea turtles hatched in captivity at Sea Life Park on September 11, 1984
(Compiled by George H. Balazs and Robert G. Forsyth)

Old tags present		Straight carapace length (cm) on 2//5/86 (1 yr 5 mo)	Comments
Size 681	Size 1		
8684	¹ N742, ¹ N732	35.3	
8677	—	36.9	
8686	126G, 122G	35.0	7 central scutes; 5 left lateral scutes
8687	181G, 176G	33.0	
8680	111G	34.7	
8683	114G, 113G	34.4	
8682	987K, 985K	36.7	8 central scutes; 5 right lateral scutes
8681	63G, 61G	35.3	

¹Monel alloy tags. All others made of titanium.

Sea turtles in captivity at Sea Life Park on January 27, 1986
 Compiled by George H. Balazs and Robert G. Forsyth

Old tags present		New tags 1/27/86			Straight carapace length cm 2/5/86	Sex	Comments
Left	Right	Left	Right	Right hind			
<u>GREEN TURTLES</u>							
2987	--	--	NNW751	--	96.7	F	NNW751 imbedded
998 (imbedded)	N978 (removed)	NNW754	NNW753	--	58.4	IM	Hatched at Sea Life Park 2/83. Six central scutes
2062	--	--	NNW755	--	85.5	F	
--	6494	NNW756	--	--	90.5	F	
--	--	NNW759	NNW758	NNW760	77.2	IM	Hatched at Sea Life Park 12/80
5815	2061	--	--	NNW761	86.2	M	
5105	--	--	NNW762	--	74.2	M	
--	--	NNW764	NNW763	--	84.5	M	Natural white marks in carapace
6498	5608 (imbedded)	--	--	NNW765	70.8	IM	Kewalo transfer. 11th marginal left graft
--	2499	15101	--	NNW766	80.3	F	HIMB transferred from Kahala Hilton Hotel
5817	2070	--	--	--	84.4	F	
3282	5816	--	--	--	94.6	F	

26 IN REEF TANK

See further in directory at the Life Tank on January 17, 1968
Compiled by George E. Balazs and Robert G. Foxworth

Comments	Sex	Stratigraphic Location on TAGS	New tags 1/27/68		Old tags (removed)	
			Right	Left	Right	Left
						OTHER TAGS
Included	F	26.7	---	---	---	2607
Matched at the Life Tank 1/28/68. Old original number	M	26.4	---	2675 2676	1676 (removed)	266 (included)
	F	26.2	---	---	---	2602
	F	26.2	---	2676	2676	---
Matched at the Life Tank 1/28/68	M	27.2	2676 2676	2676 2676	---	---
	M	26.2	2676	---	---	2602
	M	26.2	---	---	---	2602
Matched with tags in cage	M	26.2	---	2676 2676	---	---
Matched with original left ear	M	26.8	2676	---	---	2606 (included)
Matched from labels left on head	F	26.2	2676	2676	---	2606
	F	26.4	---	---	---	2607
	F	26.8	---	---	---	2602

Old tags present		New tags 1/27/86			Straight carapace length cm 2/5/86	Sex	Comments
Left	Right	Left	Right	Right hind			
6496, 3524 (imbedded)	--	--	15102	--	78.6	IM	Hatched at Sea Life Park 12/80
--	3285	NNW767	--	--	82.2	M	
--	--	15103	15104	NNW768	79.0	M	
3287	6495	--	--	NNW769	79.5	M	
2985	6493	--	--	NNW770	79.9	M	
2986	--	--	NNW771	--	84.2	F	
--	--	NNW774	NNW773	--	79.2	M	
--	2982	NNW775	--	--	93.4	F	
--	2984	15105	--	--	87.2	F	
--	--	NNW777	NNW776	--	54.5	IM	Hatched at Sea Life Park 2/83
<u>HAWKSBILLS</u>							
--	--	--	NNW752	--	81.7	F	1972 Western Samoa
--	--	NNW757	--	--	85.8	F	Hawaiian Islands
5103	5104	--	--	--	79.3	M	Hawaiian Islands- Pomaikai
--	--	--	--	--	22.9	IM	Makapuu
<u>LOGGERHEAD</u>							
--	--	--	NNW772	--	80.0	F	Molokai Channel-left front flipper amputated

Sea turtles hatched in captivity at Sea Life Park on September 11, 1984
(Compiled by George H. Balazs and Robert G. Forsyth)

Old tags present		Straight carapace length (cm) on 2//5/86 (1 yr 5 mo)	Comments
Size 681	Size 1		
8684	¹ N742, ¹ N732	35.3	
8677	--	36.9	
8686	126G, 122G	35.0	7 central scutes; 5 left lateral scutes
8687	181G, 176G	33.0	
8680	111G	34.7	
8683	114G, 113G	34.4	
8682	987K, 985K	36.7	8 central scutes; 5 right lateral scutes
8681	63G, 61G	35.3	

¹Monel alloy tags. All others made of titanium.

Green turtles released into the wild by Sea Life Park
(compiled by G. Balazs 5/26/87)

Tag No.	Straight carapace length, cm	Curved carapace length, cm	Date of release and location	Comments
9110, 9111, 9112	--	69.8	3/6/87 Hawaii Kai boat ramp	NMFS confiscated from Derby residence 2/9/87
9901 (new), NW 773, NW _____	79.2	--	3/6/87 Hawaii Kai boat ramp	Adult male; portion of right hind missing but healed.
5101, 5102 9902 (new)	78.2	--	4/13/87	Most of hind flippers chewed off. "Joey" formerly in Reef tank.

Kewaco

31

2-14-83
MONDAY

12 HATCHINGS From SLIP
found in lagoon 2-10-83

2nd Scale Right - just past "white trim"

TAG NOS.

1. 684
2. 686
3. 687
4. 688
5. 689
6. 690

Webbing between 2nd-3rd Right (in further thru pad on underside surface)

7. 691
8. 692
9. 693 (mistake - went thru 3rd-4th R)
10. 694
11. 695
12. 696

(All died at Kewaco eventually)

8-22-83

MONDAY

USCG Seizure

109

Fat sample taken for R. Achermann.

1st stomach - full of bright green fresh sodium.

2nd stomach - mostly a red filament - digestive action obvious.

Samples of algae saved for ID.

All other remains discarded in dumpster.

8-23-83

TUESDAY MORNING

SEA LIFE PARK - applied tags

to FEB 1983 captive HATCHLING TURTLES

(NMF5 NBIC SIZE #1 INSCRIPTION)

(979 2nd scale Right
998 2-3rd web L

S-21.0 cm

(982 2nd ^{scale} Left
985 2-3rd web R

S-15.8 cm

(986 R-Flap
987 L-Flap

S- 18.0 cm

(988 2nd ^{scale} R
989 2-3rd web L

S- 19.2 cm

3 photos taken for Steve

"This week" (corner of Cooke & King
715 S. King
Suite 325
silent "T"

67

7-13-84

Cardace Charlot 526-1702

(2 dozen copies Mamma Jani, she will
sell when they are ready to be
picked up)

15-18 JULY - PUNALOU

20-22 JULY - MAUI VACATION

7/23
Monday

Talked to Terry Is. -
John can't find tagging flies -
tagged a turtle under the building -
haven't seen them since then.

Call from Woodside 293-8661

GO
OUT
THERE -
TURTLE
BAY, HI

7/22 KAHUKU
Friday or Sat. - hatching tracks

Hatch
could be
from same
turtle

[female
dug last Thursday - track along beach & dug -
unknown if eggs were laid]

7/23/84 Sea Life Park - This morning

"35" hatchlings
11 eggs didn't hatch

Saw one early in
the morning, so dug
out the entire
batch -
PLAN TO KEEP
HATCHING FOR
AWHILE

MR. ULRICH -
TURTLE BAY HILTON
CONTACT FOR LAGOON -
LOGOS

74

FILE LEAVE FOR
CHRISTMAS HOLIDAYS8-7²Call Mr. Hoop 329-8981
(Charge to HINB)~~7~~ ~~10~~ ~~1984~~ AUG. KIHOLEO

8/13/84

SCP Steve Kaiser cottage - 259-7622
Monday indicated that another
nest hatched last Friday

8/15/84

only 9 live ^{~ 17 embryos}
hatchlings - lots of early ^{possibly 7}
developed but dead embryos. ^{hatchling lost}
^{or killed}
= 33 TOTAL- Need note to Seattle Aquarium
- 3 live Feb 84 hatch turtles recently put in
Lagoon - 2 small toys on each turtle when visited ~ 2
weeks ago

8/13

Call from John Fairfax - Kahala -
Mon. Gold-patterned turtle laying
now - ~ 6 total so far.

8/14

3 *Aerobilia* from Laysan
TUES in to An. Sci. this date
948-8779see
p. 30

Kahala

Hilton

visited with Dr. Whitton

total

John says 16 now.
1 ♂ blind left eye (old Kahala)
Received - 17 eggs for freezing and
later analysis. John saysTel.
7342211

and talked to man with gill net 4" set by yacht club; took it out before a turtle got in - seen in area,

9-11
TUES. Call from Jeannette ^{from Mother-in-law's home} ~~Houma~~ 845-8656
Said that before the 1946 tidal wave "Kauila" food springs was where we now set net - used to wash clothes; beach & road was in front (seaward) of pad.

Professor Bernabe Santelices
Laboratorio de Zoología
Instituto de Ciencias ←
(Biológicas)
Pontificia
Universidad Católica de Chile
Casilla 114-D
Santiago, Chile

9/12/84
WED. Steve Kaiser ^{SLP} reports that 9/11
27 hatchlings and 29 rotten
(no embryos visible) ^{∴ low fertility??} were
found at Sea Life Park beach.
Hatchlings will be kept and
reared.

STRES
FLANNA

29)

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88

SEA LIFE PARK

80° F - outside

9-18-84
TUESDAY

① # covered

78° F Hatchlings

TITANIUMS

② all 3-45

③ off center

④ point bands backward

⑤ shape of pliers

↓

R Left

SL, cm

⑥ some LIGHT NUMBER IMPRESSIONS

⑦ "Thin" metal?

1.	2G, 3G	9.3
2.	6G, 8G	9.0
3.	10G, 13G	9.8
4.	16G, 18G	10.0
5.	20G, 22G	10.0
6.	25G, 27G	10.2
7.	29G, 31G	9.0
8.	33G, 35G	8.7
9.	37G, 39G	10.1
10.	41G, 42G	10.3
11.	44G, 46G	8.5
12.	52G, 50G	8.5

Above is a composite of July & Aug. hatches -
Turtles are now blind large
round fiber tank - black interior -
behind reef tank

TITANIUM
9/20/84

13.	147G	150G	10.0
14.	153G	159G	10.8
15.	160G	163G	10.0
16.	166G	168G	10.3
17.	172G	174G	10.4
18.	176G	181G	9.6
19.	185G	186G	9.3
20.	188G	191G	9.5
21.	194G	198G	7.7
22.	200G	202G	10.0
23.	206G	208G	9.7

Fall
FLS29° C
R L C SL

24.	209G	211G	9.0
25.	214G	217G	9.0

clean
withTitanium
9/20

SEA LIFE PARK

9-18-84

955-8300

C.S.

89

New Hatchlings

MOST RECENT HATCH

R (on 9/11/84)

TUESDAY

Being held in rectangular Aquaria
under coverSEA WATER =
78°F

STADIUM

			SL	mm
↓	1	55G	56G	55
	2	57G	58G	58
	3	61G	63G	59
	4	66G	68G	59
	5	71G	74G	57
	6	76G	78G	56
	7	81G	84G	58
	8	86G	87G	56
	9	89G	93G	56
	10	94G	96G	56
	11	98G	981K	56
	12	985K	987K	58

MONEY

↓	13	N 298	N 312	56
	14	N 823	N 899	52
	15	N 284	N 953	60
	16	N 974	N 700	57
	17	N 732	N 742	58

small & dark PL

STADIUM

↓	18	101G	102G	61
	19	104G	106G	58
	20	109G	111G	60
	21	113G	114G	59
	22	116G	117G	60
	23	118G	121G	59
	24	122G	126G	56
	25	127G	128G	60
	26	133G	131G	60
	27	137G	140G	59

Crack
seen
at first
"1" of
100

(7 centrals)

SL

9 9.0

9 9.0

(want to) due to crack
more in one side

Summary of hatchling Hawaiian green turtles produced at Sea Life
Park's captive breeding facility

Compiled by

George H. Balazs
Southwest Fisheries Center Honolulu Laboratory
National Marine Fisheries Service, NOAA
Honolulu, Hawaii 96822-2396

July 24, 1987

Date	Number of live hatchlings surviving >1 day
12/30/80	2
2/10/83	12
7/23/84	35
8/10/84	9
9/11/84	27
6/18/86	46
6/25/86	36
6/28/86	38
7/10/86	46
7/22/86	53
8/04/86	73
8/16/86	73
8/28/86	67
7/18/87	13
<u>Yearly totals</u>	
1976*	343
1977-79	0
1980	0
1981-82	2
1983	12
1984	71
1985	0
1986	432
1987	13 (to date)
Total - 873	

*See Bourke, R. E., G. Balazs, and E. W. Shallenberger
1977. Breeding of the green sea turtle (Chelonia mydas)
at Sea Life Park, Hawaii. Drum and Croaker (New England
Aquarium), October:4-9.



Sept. 1, 1987

Mr Henry M. Sakuda
Director, Division of Aquatic Resources
State of Hawaii
1151 Punchbowl Street
Honolulu
HI 96813

Dear Mr Sakuda:

In response to your letter of August 17, 1987, I have enclosed the expired collecting permit No. 87-18, along with the Vancouver Aquarium's final report.

The three green sea turtles have grown rapidly, more than doubling their weight in the year here on exhibit. I have spoken with Steve Kaiser, Curator at Sea Life Park, and he will be in touch with your department. As per the previous permit No. 87-18 the Vancouver Aquarium wishes to return the turtles to Hawaii for release by the National Marine Fisheries Service. We then plan to acquire 4 juveniles (hatched 1987 at Sea Life Park) under the same criteria with release planned within 2 years of acquisition.

It has been of great educational value to have these animals on exhibit with accompanying graphics describing the endangered status of this species. The Vancouver Aquarium is grateful for the cooperation of the Division of Aquatic Resources in obtaining permits for this "Head Start" program.

Sincerely,

K. Gilbey Hewlett
Curator

KGH/mb

cc Steve Kaiser, Sea Life Park
George Balazs, National Marine Fisheries Service

TAGGING AND MEASUREMENT DATA FOR 1987 YEAR-CLASS JUVENILE GREEN TURTLES
 EXAMINED AT SEA LIFE PARK ON FEBRUARY 22, 1988.

Compiled by G. H. Balazs

Tag No.			Straight carapace, cm	
*Existing tag	*New tag applied		Length	Width
RFF	LFF	RFF		
D739	D155	--	19.2	15.3
--	D156	D157	18.3	14.6
**D748	D158	D159	14.7	11.9
--	D160	D161	16.9	13.6
--	D162	D163	17.4	13.5
--	D164	D165	17.9	13.6
--	D167	D166	18.1	13.8
--	D168	D169	18.4	14.1
--	D170	D171	14.3	12.2
D737	D172	--	18.3	14.6
D738	D173	--	17.2	12.9

*All tags applied between the 3rd and 4th scales.

**Tag D748 fell off when handled due to a corroded tip.

January 27, 1989 P/SWC2:GRB

Mr. Steve Kaiser
Sea Life Park
Waimanalo, HI 96795

Dear Steve,

For your records, the measurements on the two 1988 captive hatched green turtles that I hand-carried on January 17, 1989 to the Steinhart, Aquarium are as follows

Turtle	#1(cm)	#2(cm)
Straight carapace length	11.9	11.1
Straight carapace width	10.2	9.1
Curved carapace length	12.7	12.0
Curved carapace width	11.5	10.6
Plastron length	10.0	9.3
Head width	2.5	2.4

By copy of this letter, I want to recommend that curved carapace length be routinely taken at Steinhart, along with body weight that is currently part of their growth monitoring procedure.

I was impressed with the high level of care and concern shown for the turtles at Steinhart. I am sure they will be a valuable addition to the educational efforts of the aquarium.

I look forward to seeing the turtles again here in Hawaii when they have outgrown their facilities.

Sincerely,

George S. Balazs
Zoologist

cc: Tom Tucker
Pete Brown

Table -- Tag numbers and carapace lengths of 23 green turtles (13 females, 8 males, 2 immature), 1 hawksbill, and 1 loggerhead in Sea Life Park's "Turtle Lagoon" on April 21, 1989. (Compiled by George H. Balazs and Barry K. Choy.)

Existing tags		Tag applied		Total (in cm)		Notes
Left	Right	Left	Right	Straight length	Notched length	
2987 ^a	NNW751			96.5	--	Female
2986 ^a	NNW771			85.9	--	Female (crack, 1st lat. right)
NNW775	2982 ^a			93.0	--	Female
	8687 ^a			63.5	63.3	Two size 1 tags
	2061 ^a			86.8	--	Male
NNW756 ^a	--			90.7	--	Female (peeling scutes)
5105 ^a	NNW762			74.9	--	Male
5817	2070 ^a			84.2	--	Female
15103 ^a	15104			78.8	--	Male
NNW759 ^a /5100	NNNW758			88.3	86.4	Female; foam
--	8680 ^a			65.9	65.5	Reddish carapace
3282 ^a	15092			94.4	--	Female; orange plastic
NNW764	NNW763			84.6	--	Male
--	--	Y32	Y33 ^a	79.4	--	Male
15101	2499 ^a			80.9	--	Female
2985 ^a	6493			79.4	--	Male
15105	2984 ^a			86.8	--	Female (?)
3287 ^a	6495			80.3	78.9	Male
NNW772 ^a				80.0	78.6	Loggerhead
NNW767	3285 ^a			83.0	81.7	Female

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--	--	Y34 ^a	85.5	--	Female
9905 ^a			74.4	--	Male
6498 ^a	5608		81.2	80.3	Female; brown and gold carapace
	NNW752 ^a		81.7	78.2	Hawksbill
6496 ^a	15102		88.9	87.1	Female

^aTag number engraved in carapace with Dremel Moto-tool.

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DAYS OF TURTLE HATCHINGS

9/15/89

DATE	NUMBER OF HATCHLINGS
12/30/80	2
2/10/83	12
7/23/84	35
8/10/84	9
9/11/84	27
6/18/86	46
6/25/86	36
6/28/86	38
7/10/86	46
7/22/86	53
8/04/86	73
8/16/86	73
8/28/86	67
7/18/87	13
7/25/87	20
8/08/87	36
6/28/88	79
9/24/88	8
7/04/89	54
7/16/89	24
7/17/89	2
7/20/89	2
7/24/89	2
7/25/89	6
7/26/89	1
7/31/89	59
8/03/89	7
8/13/89	2
8/14/89	24
8/28/89	52
9/12/89	49
9/15/89	2

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YEARLY TOTALS OF TURTLE HATCHINGS

9/15

YEAR	NUMBER OF HATCHLINGS
1976	343
1977-79	0
1980	2
1983	12
1984	71
1985	0
1986	432
1987	69
1988	87
1989 (AS OF DATE)	286

TOTAL- 1302