

MARINE TURTLE TAGGING PROGRAM
TAGGING DATA FOR
NESTING TURTLES AND NETTED & RELEASED TURTLES

1996 Activities Summary

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January 13, 1997

Mote Marine Laboratory Technical Report No. 503.

Suggested reference Foote JJ. 1997. Marine Turtle Tagging Program tagging data for nesting turtles and netted & released turtles: 1996 activities summary. NMFS. FL Dept of Environmental Protection. Mote Marine Laboratory Technical Report no 503. 23 p. and appendices. Available from: Mote Marine Laboratory Library.

TABLE OF CONTENTS

	<u>Page</u>
TABLE OF CONTENTS.	i
LIST OF FIGURES	ii
LIST OF TABLES.	ii
TAGGING DATA FOR NESTING TURTLES.	1
ABSTRACT..	1
INTRODUCTION.	1
LOCATION	1
MATERIALS AND METHODS	2
RESULTS AND DISCUSSION	2
TAGGING DATA FOR REHABILITATED AND RELEASED TURTLES	21
INTRODUCTION.	21
DISCUSSION..	21
TAGGING DATA FOR NETTED AND RELEASED TURTLES	22
INTRODUCTION.	22
MATERIALS AND METHODS	22
RESULTS AND DISCUSSION	23
Appendix A. Data Sheets	
Appendix B. Florida Department of Environmental Protection Marine Turtle Permit	
Appendix C. Capture of QQE610/QQE611 Turtle	
Appendix D. Tagging Data: Rehabilitation (Including Stranding Reports)	
Appendix E. Tagging Data: Netted	

LIST OF FIGURES

	<u>Page</u>	
Figure 1.	All observed turtle nests for 1986 to 1996 ranked by distance above mean high water (top) and histogram of numbers of nests in one meter intervals above mean high water (bottom). Both figures present the same data.	18
Figure 2.	Beach width (bars) and location of nests (symbols) for turtles observed to nest multiple times in 1996.	19

LIST OF TABLES

Table 1.	1996 summary of tagged turtles. FDEP Marine Turtle Permit No. 054. Mote Marine Laboratory.	3
Table 2.	Summary of multiple sightings for turtles in 1996. FDEP Marine Turtle Permit No. 054, Sarasota County, Florida. Mote Marine Laboratory.	9
Table 3.	Combined tagging summary 1986-1996. Turtles sighted more than one season with number of sightings per year. FDEP Marine Turtle Permit Number #054. Mote Marine Laboratory/Sarasota County Natural Resources.	12
Table 4.	Distance above mean high water for nest locations, 1986-1996.	20
Table 5.	Turtles netted and released, 1996. FDEP Marine Turtle Permit #054.	23

TAGGING DATA FOR NESTING TURTLES

ABSTRACT: Tagging studies of nesting marine turtles were completed on 4.2 miles of Casey Key beach, Sarasota County, Florida, between June 1 through July 30, 1996. Mote Marine Laboratory personnel holding a current Marine Turtle Permit (#054) from the Florida Department of Environmental Protection accessed the beach from 9 p.m. until 3 or 4 a.m. nightly during the peak nesting season. One-hundred fifty-nine observances were made of 127 individual tagged *Caretta caretta*. Ninety-seven of these were new tagged individuals. Of these, 18 of the turtles were observed twice, four were observed three times, two were observed four times, and one was observed five times during the two month study period. One turtle, tagged SSM855, was observed nesting three times on Casey Key and once on Venice beach, south of Mote Marine Laboratory (MML) study area. Turtle MML #493 tagged QQEG10/QQE611 in 1990 and resighted three additional times in 1990 was captured in Cuban waters by a Cuban fisherman on March 15, 1996. The fisherman reportedly released the turtle. This turtle was not observed on the nesting beach in MML's study area during the 1996 season. A juvenile *Caretta caretta*, captive-reared at the Cayman Turtle Park, Grand Cayman Island, was captured offshore from Venice six months after it was released from the Cayman Islands. This turtle was tagged with SST040 and internal PIT tag 00-004E-FB47 (read with a Trovan reader); it was then released near the original capture site.

INTRODUCTION

While extensive tagging studies have been conducted on female nesting turtles on the east coast of Florida, few comprehensive tagging studies have been conducted on the west coast of Florida. In 1986, the Sarasota County Natural Resources Department initiated a tagging study on female loggerheads (*Caretta caretta*) during the peak nesting season (June and July) on the most active nesting beach in the Sarasota-Charlotte County area, Manasota Key. Mote Marine Laboratory joined the Sarasota County Natural Resources Department in their efforts in 1987 and began tagging on the second most active beach - Casey Key.

LOCATION

Mote Marine Laboratory's Sea Turtle Conservation and Research Program personnel conduct tagging studies for nesting marine turtles on the southern 4.2 miles of Casey Key beach. Casey Key is located on the Gulf Coast of Florida in Sarasota County. Tagging efforts occur from approximately 750 feet south of FDNR Coastal

Construction Control survey profile monument R-94 south to the Venice Inlet at approximately 750 feet south of monument R-114.

MATERIALS AND METHODS

Tagging surveys were conducted nightly from June 1 through July 30, 1996, with one exception, no tagging personnel surveyed on the night of the Fourth of July. This was due to the presence of large numbers of visitors on the beach shooting fireworks. Surveys were conducted nightly between the hours of 9:00 p.m. and 3 or 4 a.m. Inconel noncorrosive metal tags (manufactured by National Band and Tag, Newport, Kentucky) supplied by the National Marine Fisheries Service were applied to the trailing edge of the right and left front flippers if no previous tags were observed. Data sheets were completed (Appendix A) and copies were left at the nesting site for the beach patrol to retrieve the following morning. The tagging data sheets were cross referenced to the nesting data sheets by the beach patrol.

Principle tagging personnel consisted of Jerris Foote, Marcia Hastings, Sue Hofmann, Jennifer Hunker, David Jenkins, Matt McLeod, Joe Nickelson, Nicole Park, Pat Stolberg, and Vicki Wiese. The above activities and personnel are permitted under the Florida Department of Environmental Protection Marine Turtle Permit #054 (Appendix B).

RESULTS AND DISCUSSION

The above procedures resulted in 159 observations of marine turtles (Table 1). One-hundred twenty-seven (127) individual turtles were observed of which 97 were newly tagged turtles. All turtles observed were *Caretta caretta*; no *Chelonia mydas* turtles were observed during the 1996 season.

Twenty-five (25) turtles were observed on the beach more than one time. Of these, 18 turtles were observed twice, four turtles were observed three times, two were observed four times, and one was observed five times (Table 2).

Resights (1996 only):	TWICE	18
	THREE TIMES	4
	FOUR TIMES	2
	FIVE TIMES	1

The following data represent a combination of the data collected by Mote Marine Laboratory on Casey Key (1987-1996) and that of Sarasota County Natural Resources Department on Manasota Key (1986-1995) located just to the south of Casey Key, also in Sarasota County. Data from Sarasota County for the 1996 tagging

season on Manasota Key were not available for use in this report. During the 1996 season 22 turtles were observed who had been documented nesting in previous seasons (Table 3). Within the boundary of the Casey Key study area, 81.1 percent of the turtles were new turtles, and 18.9 percent were turtles who had returned from previous years. It is important to be aware of the fact that observations of turtles are limited by budget and personnel constraints. It is recognized that all nesting activity cannot be documented and that individual turtles nest on nearby beaches.

Of note are nine loggerhead turtles tagged on Casey Key between 1987 and 1990 who were observed again in 1996. Three of these turtles have been observed nesting on Casey Key and Manasota Key, Six have only been observed nesting on Casey Key.

Turtle MML #99 (PPJ387/PPJ388) was tagged on Casey Key in 1987 where it was observed twice. It was observed on Casey Key twice in 1991, once on Manasota Key in 1993, and once on Casey Key in 1996. Turtle #92 (PPJ366/QQB648) was tagged on Casey Key in 1987, it was observed once on Casey Key in 1989, twice on Casey Key and once on Manasota Key in 1990, and one flipper tag was found on Siesta Key in 1996. The turtle itself was not observed in 1996. Turtle #62 (PPH866/SSM863) was tagged on Casey Key in 1988 where it was observed three times, it was observed again five times in 1996 each time on Casey Key. Turtle #177 (PPS572/QQM973) was tagged on Casey Key in 1988, it was observed once in 1990 and once in 1996, all on Casey Key. Turtle #321 (PPSG15/PPS616) was tagged on Casey Key in 1989 where it was observed a total of three times, it was once in 1996 also on Casey Key. Turtle #393 (QQB699/QQY902) was tagged on Casey Key in 1989 where it was observed once. It was observed four times in 1993, and twice in 1996, all observations were on Casey Key. Turtle #493 (QQEG10/QQE611) was tagged on Casey Key in 1990 where it was observed four times. This turtle has not been observed back in the study area but it was captured in Cuban waters by a Cuban fisherman on March 15, 1996 (Appendix C). It was reportedly released by the fisherman. Turtle #580 (QQE145/SSM864) was tagged on Manasota Key in 1990, it was also observed once on Casey Key in 1990 and was observed once on Casey Key in 1996. Turtle #479 (SSM867/QQB758) was tagged on Casey Key in 1990. It was observed once on Casey Key in 1993, and was observed twice also on Casey Key in 1996.

Turtle shell length and width were measured during the tagging study at each available opportunity. Curved and straight line carapace measurements were taken. For each turtle measured in more than one year the growth per year was calculated. Means of within-year measurements were used to give a single annual size for each turtle. All possible calculations of growth (cm/year) were then made for each turtle. The mean values for all turtles were then calculated after deleting the ten highest and lowest values as possibly inaccurate. The number of observations ranged from 227 to 243 for the different measurements. For straight length, straight width, curved

Table 3. Combined tagging summary 1986-1996. Turtles sighted more than one season with number of sightings per year. FDEP Marine Turtle Permit Number #054. Mote Marine Laboratory/Sarasota County Natural Resources.

MML NO	86	87	88	89	90	91	92	93	94	95	96	YEARS	EMERG
127	2		1									2	3
33	2				1							2	3
257	1			1								2	2
247	1				1							2	2
250	1				1							2	2
261	1				1							2	2
81		5				1						2	6
37		4		2		2				2		4	10
102		3			3							2	6
41		3			1			1				3	5
40		3			1							2	4
77		3			1							2	4
35		3						2				2	5
117		2		2								2	4
80		2		1		2		3		2		5	10
119		2		1		1	1					4	5
36		2			1							2	3
218		2			1							2	3
237		2			1							2	3
229		2				3						2	5
99		2				2		1			1	4	6
100		1		3		4			4			4	12
92		1		1	3						*1	4	6
87		1		1					2			3	4
95		1		1								2	2
47		1			2							2	3
46		1			1							2	2
97		1			1							2	2
105		1				3						2	4
84		1				1			2			3	4
85		1				1						2	2
103		1					3			2		3	6
44		1							1			2	2
104		1							1			2	2
124		1							1			2	2
58			5		1	3						3	9
151			5				1					2	6
51			4			3				1		3	8
148			3		3	5		3		3		5	17
154			3		1							2	4
62			3								5	2	8
68			2		2	2						3	6

- * = Tag found on Siesta Key; turtle not observed.
- ** = Captured and released in Cuban waters.
- ◆ = Incidentally observed on Manasota Key

Table 3. Continued.

<u>MML</u>	<u>86</u>	<u>87</u>	<u>88</u>	<u>89</u>	<u>90</u>	<u>91</u>	<u>92</u>	<u>93</u>	<u>94</u>	<u>95</u>	<u>96</u>	<u>YEARS</u>	<u>EMERG</u>
174			2			4				2		3	8
162			2			3						2	5
144			2				1					2	3
194			1	2								2	3
160			1		2		2		1			4	6
61			1		2							2	3
177			1		1						1	3	3
130			1		1							2	2
135			1		1							2	2
142			1		1							2	2
153			1			2						2	3
178			1			1						2	2
180			1			1						2	2
200			1			1						2	2
52			1				1			1		3	3
73			1				1					2	2
141			1				1					2	2
173			1					1		1		3	3
149			1					1				2	2
182			1					1				2	2
207			1					1				2	2
323				8		4		5		1		4	18
342				4		3						2	7
339				3		1						2	4
0				3			1					2	4
321				3							1	2	4
419				2		2	3			1		4	8
377				2		1		3				3	6
354				2		1			1			3	4
365				2			6					2	8
364				2			3					2	5
385				2			3					2	5
358				2			1					2	3
359				2				2				2	4
368				2						2		2	4
444				1		2		1				3	4
432				1		1		1				3	3
387				1		1						2	2
392				1			2					2	3
350				1			1					2	2
390				1			1					2	2
439				1			1					2	2
464				1			1					2	2

* = Tag found on Siesta Key; turtle not observed.

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Table 3. Continued.

<u>MML</u>	<u>86</u>	<u>87</u>	<u>88</u>	<u>89</u>	<u>90</u>	<u>91</u>	<u>92</u>	<u>93</u>	<u>94</u>	<u>95</u>	<u>96</u>	<u>YEARS</u>	<u>EMERG</u>
393				1				4			2	3	7
462				1				2				2	3
408				1				1				2	2
446				1				1				2	2
454				1					2			2	3
318				1					1			2	2
320				1					1			2	2
407				1					1			2	2
450				1					1			2	2
494					5		1					2	6
493					4						**1	2	5
465					3		2					2	5
548					3			1				2	4
503					2		3					2	5
671					2		1					2	3
469					2			2				2	4
489					2			2				2	4
552					2			2				2	4
512					2				5			2	7
474					2				2			2	4
580					2						1	2	3
421					1		3			2		3	6
577					1		2					2	3
582					1		1		1			3	3
540					1		1					2	2
588					1		1					2	2
597					1		1					2	2
372					1			2				2	3
473					1			2				2	3
598					1			2				2	3
479					1			1			2	3	4
525					1			1				2	2
556					1			1				2	2
564					1			1				2	2
496					1				1	1		3	3
516					1				1			2	2
558					1				1			2	2
591					1				1			2	2
568					1					2		2	3
533					1					1		2	2
605					1						2	2	3
623						4		3		1	3	4	11
471						3		2	1			3	6

- * = Tag found on Siesta Key; turtle not observed.
- ** = Captured and released in Cuban waters.
- ◆ = Incidentally observed on Manasota Key

Table 3. Continued.

<u>MML</u>	<u>86</u>	<u>87</u>	<u>88</u>	<u>89</u>	<u>90</u>	<u>91</u>	<u>92</u>	<u>93</u>	<u>94</u>	<u>95</u>	<u>96</u>	<u>YEARS</u>	<u>EMERG</u>
748						3		1				2	4
210						3				1		2	4
613						2		1				2	3
718						2				2		2	4
636						2				1		2	3
769						2				1		2	3
643						1		3		1		3	5
782						1		3				2	4
793						1		3				2	4
776						1		1	1			3	3
630						1		1				2	2
746						1		1				2	2
768						1		1				2	2
783						1		1				2	2
634						1			1			2	2
692						1				4		2	5
632						1				1		2	2
655						1				1		2	2
672						1				1		2	2
781						1				1		2	2
694						1					1	2	2
1017							4		3			2	7
877							4			5		2	9
821							4			1		2	5
808							3		1	1		3	5
873							3		1			2	4
870							2	2				2	4
853							2		2			2	4
857							2		1			2	3
888							2		1			2	3
851							2			1		2	3
905							2			1		2	3
1014							2			1		2	3
1030							2			1		2	3
896							2				1	2	3
809							1	5				2	6
975							1	1				2	2
886							1		3			2	4
858							1		2			2	3
1048							1		2			2	3
879							1		1			2	2
898							1		1			2	2
841							1			1		2	2

* = Tag found on Siesta Key; turtle not observed.

** = Captured and released in Cuban waters.

◆ = Incidentally observed on Manasota Key

Table 3. Continued.

<u>MML</u>	<u>NO</u>	<u>86</u>	<u>87</u>	<u>88</u>	<u>89</u>	<u>90</u>	<u>91</u>	<u>92</u>	<u>93</u>	<u>94</u>	<u>95</u>	<u>96</u>	<u>YEARS</u>	<u>EMERG</u>
856								1			1		2	2
882								1			1		2	2
885								1			1		2	2
1028								1			1		2	2
1029								1			1		2	2
1034								1			1		2	2
1039								1			1		2	2
1053								1			1		2	2
907								1				2	2	3
823								1				1	2	2
1021								1				1	2	2
1026								1				1	2	2
959									6		4		2	10
958									4			1	2	5
965									4			1	2	5
912									2		1		2	3
935									1		1		2	2
991									1		1		2	2
1104									1		1		2	2
1067									1			1	2	2
1167										3		3	2	6
1224										1		2	2	3
1185										1		1	2	2
1259										1		♦1	2	2

* = Tag found on Siesta Key; turtle not observed.
 ** = Captured and released in Cuban waters.
 ♦ = Incidentally observed on Manasota Key

length and curved width annual growth rates were 0.26, 0.07, 0.02 and -0.08 cm, respectively. These mean values are all well below the precision of the field measuring technique but do support the belief that sexually mature female *Caretta caretta* have reached their maximum size.

To determine the preference for nesting location of individual turtles historic data were accessed in which the distance above the mean high tide was given for each nest. Only turtles observed repeat nesting either within the same year or in different years were included. The actual beach width is unknown. Figure 1 shows the distance above mean high water that turtles nested for all complete data since 1986. The total of nests represented in the graph is 1,763. In the top figure, the nests are ranked to form a curve and in the bottom figure the same data are reduced to a histogram at one meter intervals. The histogram data are presented in tabular form in Table 4 where the percent total and cumulative percents are added. Over 50 percent nested within four meters of the mean high water. Nearly five percent traveled greater than ten meters above mean high water. Note that these data do not take into account the overall width of the beach, and many nests occurred at the most landward possible area where obstructions limited the travel of the turtles.

During 1996 the actual beach width was measured along with the position of the nest on the beach. Of the 44 nests represented in Figure 2, 57 percent occurred from six to 15 meters above the mean high water. In 19 cases nesting occurred at the maximum possible distance from the water line. Excluding those 19 cases and only examining nest locations uninfluenced by barriers, 68 percent of nests were still placed less than 15 meters from mean high water. Three turtles (MML #s 393, 1167, and 1475) nested twice in higher beach areas but several turtles chose nest sites within the season on higher and lower areas (example: MML #s 1452 and 1520). A tendency of individual turtles to choose consistent distances from the shoreline for nesting is inconclusive with these data.

The tag sequence used by Mote Marine Laboratory during the 1996 tagging season includes: SSM855-SSM900, SSN701-SSN800, QQM951-QQM000, and SST001-SST035. (Tag number SST040 was affixed to a rehabilitated and released turtle, see below.) Quite a number of tags were bent using the old tagging pliers, thus NMFS was contacted and a new pair of pliers of the correct size was obtained. Unused tags (bent or lost tag numbers) are: SSM856, 860, 878, 882, and 899, SSN701, 702, 714, 715, 716, 725, 728, 732, 736, 750, 761, 764, 771, 796, QQM952, 953, 962, 978, 979, 984, 985, 996, SST001, 002, 029, 032.

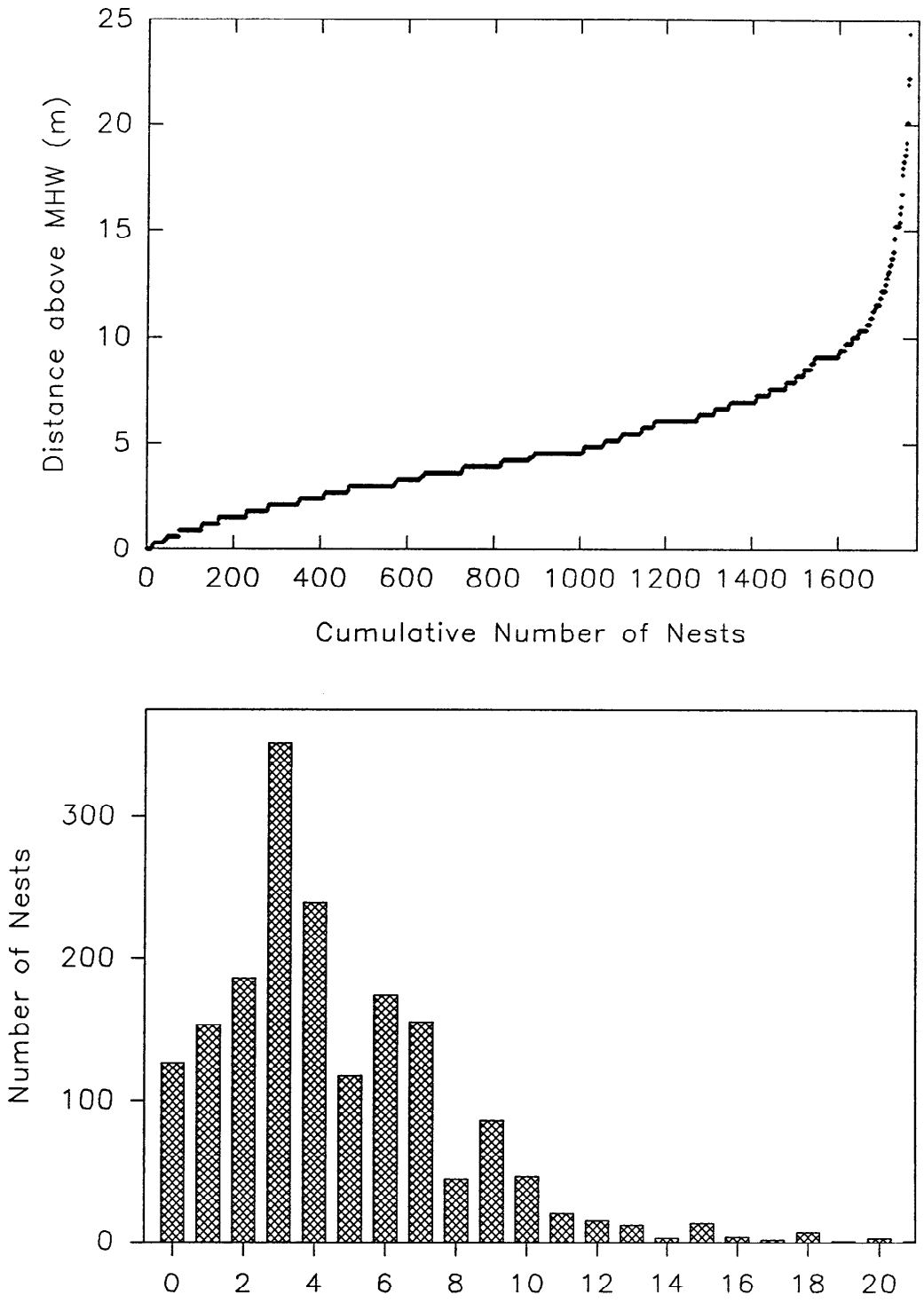


Figure 1. All observed turtle nests for 1986 to 1996 ranked by distance above mean high water (top) and histogram of numbers of nests in one meter intervals above mean high water (bottom). Both figures present the same data.

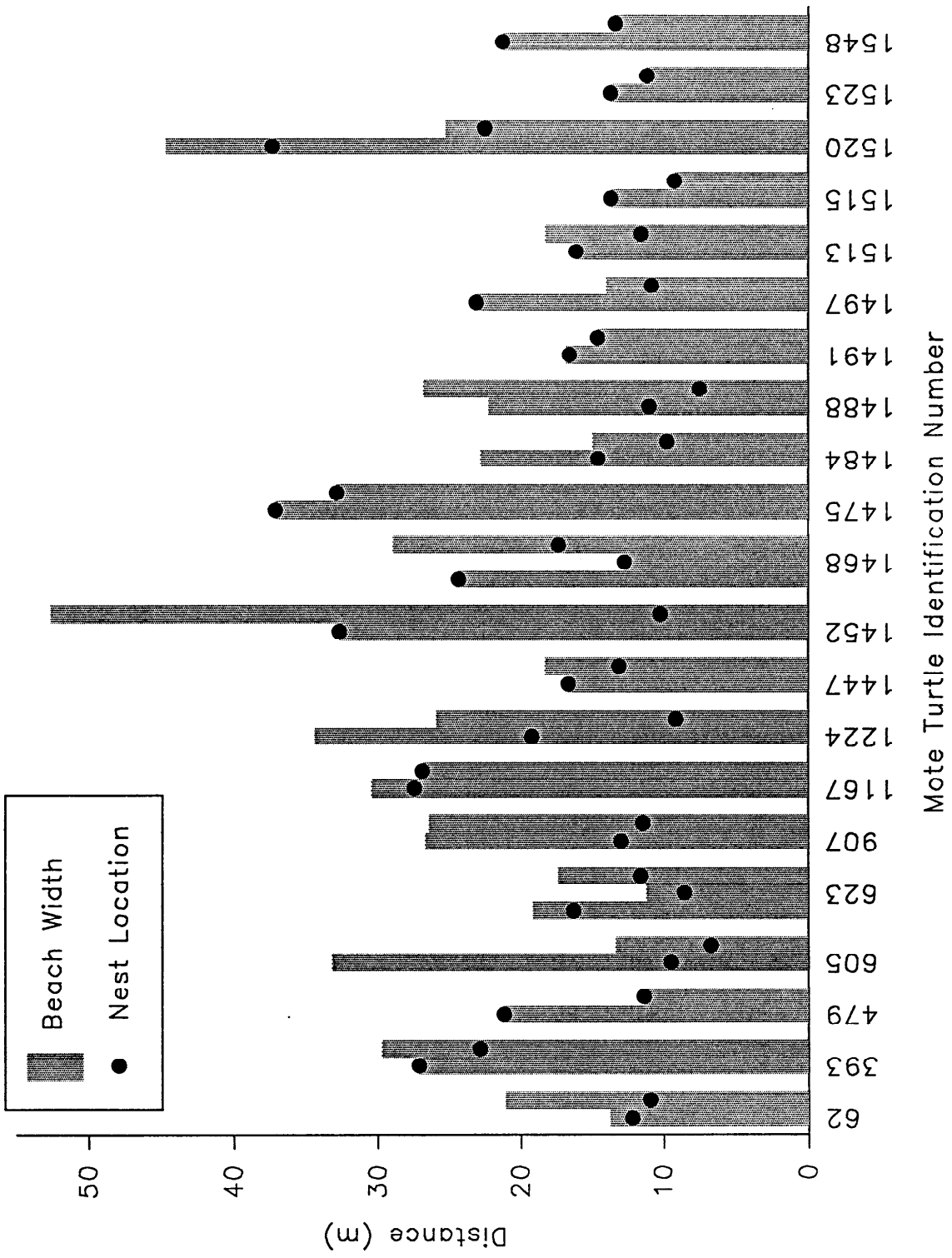


Figure 2. Beach width (bars) and location of nests (symbols) for turtles observed to nest multiple times in 1996.

Table 4. Distance above mean high water for nest locations, 1986-1996.

Meters above MHW (<u>minimum</u>)	Number of <u>Nests</u>	Percent of <u>Total</u>	Cumulative <u>Percent</u>
0	126	7.15	7.15
1	153	8.68	15.83
2	186	10.55	26.38
3	351	19.91	46.28
4	239	13.56	59.84
5	117	6.64	66.48
6	174	9.87	76.35
7	155	8.79	85.14
8	44	2.50	87.63
9	86	4.88	92.51
10	46	2.61	95.12
11	20	1.13	96.26
12	15	0.85	97.11
13	12	0.68	97.79
14	3	0.17	97.96
15	13	0.74	98.70
16	4	0.23	98.92
17	2	0.11	99.04
18	7	0.40	99.43
19	1	0.06	99.49
20	3	0.17	99.66
21	1	0.06	99.72
22	2	0.11	99.83
24	1	0.06	99.89
25	1	0.06	99.94
57	<u>1</u>	<u>0.06</u>	100.00
Total	1,763	100.00	

TAGGING DATA FOR REHABILITATED AND RELEASED TURTLES

INTRODUCTION

Between January 13 and December 12, 1996, Mote Marine Laboratory Sea Turtle Program (STP) personnel holding a FDEP Marine Turtle Permit (#054) responded to five live stranded turtles (Appendix D). These consisted of three *Chelonia mydas*, one *Caretta caretta*, and one *Lepidochelys kempfi*. Of the three *C. mydas*, two died and one was transported to Clearwater Marine Science Center in St. Petersburg, Florida. The juvenile *C. caretta* was tagged and released. The MML STP is continuing to work with the *L. kempfi*, and are cautiously optimistic that this turtle will fully recover from injuries sustained during entanglement by discarded monofilament line and crab trap line and will eventually be able to be tagged and released.

DISCUSSION

On January 13th a large juvenile *Chelonia mydas* was brought to Mote Marine Laboratory by the Florida Marine Patrol. The turtle was found near Nokomis Public Beach, Nokomis, Florida (lat/long = 27 07.15N, 82 28.18W). The straight carapace length was 45.5 cm, straight carapace width was 36.1 cm. This turtle was afflicted with fibropapillomas on its neck, the soft tissue around both front and rear flippers, and both eyes. It was transported to Clearwater Marine Science Center in St. Petersburg, Florida. The rehabilitation, and subsequent tagging and release will be undertaken by the Science Center.

A juvenile (30.3 cm straight carapace length, 24.2 cm straight carapace width) *C. caretta* was picked up by the U.S. Coast Guard on November 2nd, 1996. The turtle was found floating at the surface approximately 12.9 miles offshore from Venice Inlet near an artificial reef at mile marker M-9. The Coast Guard believed the turtle to be in distress and transported it to Mote Marine Laboratory. After evaluation by Dr. Charles Manire DVM, FDEP Marine Turtle Permit #054, and examination of blood values it was determined that the turtle was healthy and had apparently been basking at the surface when it was retrieved. The turtle had a metal flipper tag KY7560 from the Cayman Turtle Park, Grand Cayman B.W.I. on the right front flipper and a tag scar on the left front flipper. Upon consultation with Ken Hydes, General Manager of the Turtle Park, it was found that the turtle had been captive reared at the above location. It had been released on May 20th, 1996 at 10 months of age from Little Cayman. In the intervening six months it had traveled to the pickup location near Venice, Florida, had gained 3.5 pounds and grown 7.2 cm curved carapace length and 6.1 cm curved carapace width (see Appendix E). On November 20, 1996, Inconel flipper tag SST040 (NMFS) was affixed to the left front flipper and a Passive Integrated Transponder Tag (PIT tag) 00-004E-FB47 (read with a Trovan reader) was inserted into the latero-ventral subcutaneous area of the right axillary (arm pit). On

November 21st the turtle was released into the Gulf of Mexico near latitude 27 15.45N, longitude 83 06.993W.

On December 12, 1996, a juvenile *L. kempfi* was brought to Mote Marine Laboratory from approximately seven miles offshore from Longboat Key, Florida. The emaciated turtle, entangled in discarded monofilament line and crab trap lines, had been found by a fisherman who transported the turtle to Mote. The turtle weighs 23 pounds and is 45.6 cm straight carapace length and 43.3 cm straight carapace width. It is currently undergoing rehabilitation at Mote and we are "cautiously optimistic" that the damaged right front flipper can be saved. Tagging and subsequent release will be scheduled in the future.

TAGGING DATA FOR NETTED AND RELEASED TURTLES

INTRODUCTION

During 1993, Mote Marine Laboratory's Center for Shark Research began biological shark surveys along the Gulf of Mexico in Florida state waters. Dr. Charles Manire (DVM) who coordinates the shark surveys is also listed on FDEP Marine Turtle Permit #054 as MML's veterinarian. Occasionally, sea turtles were captured in the nets and released. Because of this, the MML Sea Turtle Conservation and Research Program began working with the shark biologists to document information and tag captured turtles before release.

MATERIALS AND METHODS

The MML Center for Shark Research uses two nets 1) a three to six inch stretch mesh 600 yards long and nine feet deep, and 2) a four and five-eighths inch stretch mesh 400 yards long and nine feet deep. Down time is one hour, less if turtles are observed and the net is continuously monitored. If a turtle is caught in the net, it is carefully removed, photographed, straight line measurements are taken and observations documented. Also documented are the location, water temperature, time, water depth, tide, bottom conditions, and salinity. Copies of the tagging data are included in this report (Appendix E); the originals, which included photographs, were previously submitted to the NMFS/SEFC Cooperative Marine Turtle Tagging program and to the Florida Department of Environmental Protection, Marine Research Institute.

RESULTS AND DISCUSSION

During, 1996 three turtles (one *Chelonia mydas*; two *Lepidochelys kempfi*) were captured, tagged, and released (see Table 5). All three turtles appeared robust and healthy. The *Chelonia mydas* turtle, tagged with flipper tags QQZ740/QQZ749, was captured in six feet of water southwest of Rattlesnake Key in the south end of Tampa Bay, Manatee County (lat/long = 27 32.98N, 82 38.32W). This juvenile turtle weighed 3.6 kg and had a straight carapace length of 29 cm and a straight carapace width of 23.5 cm, the curved carapace length and width were 30 cm and 25.6 cm, respectively.

The second turtle, a *Lepidochelys kempfi*, was flipper tagged with QQZ747/QQZ748. It was captured in six feet of water two kilometers northwest of Anclote Power Plant, Tarpon Springs, Pinellas County (lat/long = 28 12.78N, 82 47.66W). This juvenile turtle weighed 5.8 kg and had a straight carapace length of 33 cm and a straight carapace width of 32 cm, the curved carapace length and width were 34 cm and 35 cm, respectively.

The third turtle, also a *Lepidochelys kempfi*, was flipper tagged with QQZ745/QQZ746. It was captured in 12 feet of water west of the Crystal River area in Levy County (lat/long = 28 57.06N, 82 49.93W). This juvenile turtle weighed 8.9 kg and had a straight carapace length of 38 cm and a straight carapace width of 40 cm, the curved carapace length and width were 39 and 42.5 cm, respectively.

Table 5. Turtles netted and released, 1996. FDEP Marine Turtle Permit #054. Mote Marine Laboratory.

TAG NUMBERS	SPECIES	APPROX. SIZE*	DATE	COUNTY
QQZ740/QQZ749	<i>Chelonia mydas</i>	Juvenile	4/23/96	Manatee
QQZ747/QQZ748	<i>Lepidochelys kempfi</i>	Juvenile	5/01/96	Pinellas
QQZ745/QQZ746	<i>Lepidochelys kempfi</i>	Juvenile	10/10/96	Levy

* Size code classification used is that provided by the Florida Department of Environmental Protection on the Marine Turtle Holding Facility Monthly Report form.

Appendices & Tables

Information available upon request