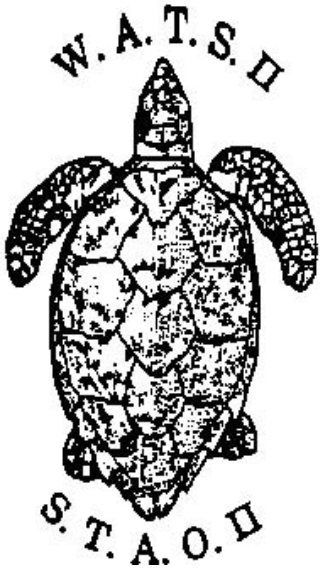

WATS II REPORT / DATA SET

National Report to WATS II for Puerto Rico

G. Cintron and B. Cintron

16 October 1987

WATS2 087

WIDECAST
Wider Caribbean Sea Turtle Conservation Network

With a grant from the U.S. National Marine Fisheries Service, WIDECAST has digitized the databases and proceedings of the **Western Atlantic Turtle Symposium (WATS)** with the hope that the revitalized documents might provide a useful historical context for contemporary sea turtle management and conservation efforts in the Western Atlantic Region.

With the stated objective of serving "as a starting point for the identification of critical areas where it will be necessary to concentrate all efforts in the future", the first Western Atlantic Turtle Symposium convened in Costa Rica (17-22 July 1983), and the second in Puerto Rico four years later (12-16 October 1987). WATS I featured National Reports from 43 political jurisdictions; 37 presented at WATS II.

WATS I opened with these words: "The talks which we started today have the multiple purpose of bringing our knowledge up to date about the biological peculiarities of the marine turtle populations of the western Atlantic; to know and analyse the scope of the National Reports prepared by the scientific and technical personnel of more than thirty nations of the region; to consider options for the orderly management of marine turtle populations; and in general to provide an adequate forum for the exchange of experiences among scientists, administrators, and individuals interested in making contributions for the preservation of this important natural resource."

A quarter-century has passed, and the results of these historic meetings have been lost to science and to a new generation of managers and conservationists. Their unique importance in providing baseline data remains unrecognized, and their potential as a "starting point" is neither known nor appreciated.

The proceedings document what was known at the time concerning the status and distribution of nesting and foraging habitat, population sizes and trends, mortality factors, official statistics on exploitation and trade, estimated incidental catch, employment dependent on turtles, mariculture operations, public and private institutions concerned with conservation and use, legal aspects (e.g. regulations, enforcement, protected areas), and active research projects.

Despite the potential value of this information to agencies responsible for conducting stock assessments, monitoring recovery trends, safeguarding critical habitat, and evaluating conservation successes in the 21st century, the National Reports submitted to WATS II were not included in the published proceedings and, until now, have existed only in the private libraries of a handful of agencies and symposium participants. To help ensure the legacy of these symposia, we have digitized the entire proceedings – including National Reports, plenary presentations and panels, species synopses, and annotated bibliographies from both meetings – and posted them online at http://www.widecast.org/What/RegionalPrograms.html.

Each article has been scanned from the original document. Errors in the scan have been corrected; however, to be true to the original content (as closely as we can discern it), potential errors of content have not been corrected. This article can be cited (with the number of pages based on the layout of the original document) as:

Cintron, G. and B. Cintron. 1987. National Report to WATS II for Puerto Rico. Prepared for the Second Western Atlantic Turtle Symposium (WATS II), 12-16 October 1987, Mayagüez, Puerto Rico. Doc. 087. 56 pages.

Karen L. Eckert
WIDECAST Executive Director
June 2009

INTRODUCTION

On July 1983 the first Western Atlantic Turtle Symposium was held in Costa Rica with the primary objective of assembling a regional sea turtle data base. The discussions, reports and the information presented at that meeting showed that sea turtle populations are undoubtedly in a very precarious state throughout the region. We are faced with the need to salvage a rapidly diminishing resource, a resource depleted by many years of neglect, lack of management, severely exploited and now threatened by the encroachment of man on its nesting and developmental habitats. A depleted resource challenged by dramatically increased presence and depredation by man as well as natural predators and stressors. Obviously the task cannot be easy. It requires a concerted effort. Since the sea turtle resource is shared by the inhabitants of the region, sea turtle conservation, management and research efforts must also be shared and coordinated. This was the philosophy that motivated the First WATS Symposium: through regional collaboration attain the recuperation of the severely depleted stocks and manage them for the welfare of the inhabitants of the region.

In this meeting we will have to discuss and assess the progress made in these last four years in terms of management, recuperation of stocks and research. In this review we will try to summarize briefly the progress made in each of these areas. Unfortunately we must also report lack of progress, and in some instances it appears that we are no better off than four years ago, and very possibly worse. We shall see.

RESEARCH AND CONSERVATION

In the area of sea turtle research and management, at least we can report significant progress since WATS I. The U.S. Fish and Wildlife Service, the Earthwatch Programs, the Department of the Navy and the Department of Natural Resources, as well as Yale University and the University of Georgia can share credit for studies completed or well under way. We can summarize only the most significant findings here.

1. Aerial Surveys

In a one-year study of sea turtles and manatees centered on Roosevelt Roads Naval Station from March 1984-March 1985, Rathbun et al. conducted monthly over-flights of coastal waters of Puerto Rico and Vieques Island (Tables 1, 2 and Fig. 1). They reported most abundant turtle sightings during September-November. Observations made from a low-flying plane indicated that *Chelonia mydas* was the species most frequently sighted. Ninety-four percent of the animals sighted were small, under 60 cm and over 50% of the sightings were made along the north coast of Puerto Rico. No olive ridley turtles were sighted. In addition to greens, hawksbills, leatherbacks and loggerheads were seen, but over 60% of animals spotted could not be identified to species. Around Roosevelt Roads and Vieques, where over-flights were done weekly, turtles were most abundant near Sun Bay and the southwest corner of Vieques, along the north coast of Isla Piñero, the east shore of Ensenada Honda and Pelican Cove (all part of the Roosevelt Roads Naval Station).

Rathbun et al. also included an appendix on poaching. The shell of one butchered hawksbill was found on a beach within the naval station in February 1985. during the aerial surveys, over one hundred large mesh nets suitable for turtling were observed, with as many as thirty-seven such nets seen in a single over-flight (Fig. 2). Nets were placed offshore of capes or reefs, blocking the entrance to lagoons or coves, or simply provided with decoys to attract male turtles. The map included in their report indicates net sightings are frequent near Cabo Rojo, around Punta Higuero, in the northeast and southwest of Fajardo, off the south shores of Vieques and Culebra, and off southeastern Puerto Rico from Jabos Bay east and north to Palmas del Mar area. Appendix 7 to this report, written by Tom Carr, also reports turtle meat was for sale surreptitiously at $4-$8 per pound in many coastal communities. Carr reported finding carcasses or

fragments of sea turtles on many offshore cays and Mona Island, with more found on Mona than anywhere else.

2. Mona Island Nesting and Foraging Studies

Beginning in the summer of 1984, and continuing to the present, the Department of Natural Resources has had the good fortune to be able to host sea turtle research studies for the first time since the mid-1970s. The 1984 study, carried out by Molly Olson of Yale University, reported 151 hawksbill nests. The 1985 and 1986 surveys were carried out by Anastasis Kontos of the University of Georgia and have been continued during the summer of 1987. Mona's beaches (Fig. 3) are used by green turtles and leatherbacks, at least during some years, but the bulk of nesting turtles are hawksbills. Mona Island's beaches are recognized as probably the most important single hawksbill nesting and foraging area in our part of the Caribbean. During 1985, 97 nests were observed, of which 11 were leatherback nests, one was a green turtle nest, and 85 were hawksbill nests. During 1986, all 68 nests observed were hawksbill nests (Table 3). During the last two summers, nest loss to feral pig predation has been very high on Mona, with a total of 14 nests lost to pigs during 1986 and 36 lost to the same cause in 1985. During the 1987 season, total nest counts are down. Of a total of 35 hawksbill nests laid so far this year, 25 have been lost, all but one to feral pigs. Obviously, some more energetic pig control measures are needed on Mona. Turtles are still being taken in the water at Mona, and this year one nest was robbed by humans during a long vacation weekend when many visitors were on the island.

Sea turtle nesting statistics from 1974 are roughly in agreement with 1984-1986 data if we make allowances for normal year to year variation in nesting reported in the literature on hawksbills. (Researcher A. Kontos disagrees; she feels that the data from 1985-1987 may indicate a real decline). We feel that the presence of management and research personnel on Mona all year probably does as much as anything to discourage human predation on this island. Human take of turtles still occurs sporadically on Mona, though less openly than elsewhere in Puerto Rico. Since Mona supports the largest nesting aggregation of hawksbill turtles anywhere in Puerto Rican waters, it is of particular importance to strengthen protection, enforcement and predator control measures here.

3. DNR Turtle Management and Conservation Program

During the 1985 and 1987 nesting season, Mr. Robert Matos of the Reserves and Refuges division of the Commonwealth Forest Area of DNR has been involved along with colleagues and volunteers. In a major nest rescue and tagging effort centered on known leatherback beaches in northern and eastern Puerto Rico. Here, on the main island, the most important predator is man, and it quickly became obvious that it would be necessary to relocate all nests to fenced and patrolled area if any hatching success were to be measured. A turtle hatchery was built by Humacao Wildlife Refuge in 1985 and used to incubate all eggs. During the first year 706 yolked eggs from 9 leatherback nests produced 354 hatchlings, for a success rate of 52.6%. This is especially impressive if we remember that the natural success rate of nests on unprotected beaches is very close to 0% since nesting females are generally intercepted, the nests excavated and the adults butchered for meat and oil.

Until the present time, the 1987 season has covered four beaches in northeast Puerto Rico (plus the leatherback season on Mona). The beaches covered are: Piñones Forest; Paulina Beach in Luquillo-Fajardo; Humacao Beach on the east coast; and Los Tubos Beach in Vega Baja. Nesting was most intense on Paulina Beach where nine nests were relocated to the hatchery, two hatched naturally on the beach, and two were poached, for a total of thirteen nests. This year 91 hatchlings were produced at Piñones, 407 at Paulina, and 147 at Humaco for a total of 645 leatherback hatchlings. An additional 189 hawksbill turtle hatchlings were released after incubation in the hatchery at Humaco, and a second clutch is still incubating there and is due to emerge in November.

A map (Fig. 4) shows confirmed turtle nesting beaches in Puerto Rico. We are aware of the objections to hatcheries and head-starting turtles, but given the extremely great risk of total loss of unprotected nests to poaching and the difficulty of patrolling the literally hundreds of kilometers of our beaches effectively, we feel it is the only feasible solution now until effective educational and enforcement programs can assure that natural nests will be left to develop *in situ*.

The leatherback study shows that the nesting chronology of leatherbacks in mainland Puerto Rico is similar to that reported at St. Croix and on Culebra.

4. Research and Conservation on Culebra

Studies of nesting of leatherbacks turtles, based on Refuge Manager John Taylor's observations of leatherback tracks, began on Culebra in the early 1980s. An intensive conservation program was started by the U.S. fish and Wildlife Service and the Earthwatch programs in the spring of 1984 with graduate students Kathy Hall of the University of Puerto Rico and Tony Tucker of the University of Georgia gathering statistics, making behavioral observations and directing volunteers. The Earthwatch-sponsored intensive beach patrols terminated at the end of the nesting season 1987. On the basis of the saturation tagging program, we now know that two beaches on the northern coast of Culebra, Brava and Resaca, are the most important to leatherback nesting in all of Puerto Rico. Brava, 1.25 km long, and Resaca, 1 km long, average about 20 nesting leatherback females each year. The season extends from February to July (Fig. 5; Table 4; Appendix 2). An estimated 120-160 nests are laid each season. Poaching of these nests, once heavy, has been reduced to virtually zero by the human presence on these beaches. Hawksbill and green turtles also nest on Culebra in very reduced numbers. Tucker estimates 0-3 green turtle nests per year on one beach (Brava) and about 12-20 hawksbill turtle nests distributed over the offshore islands of Culebrita, Cayo Luis Pena, and the south beach of Cayo Norte. (All but the latter are part of a federal refuge).

LEGISLATION

Since the WATS meeting in San Jose, we can report progress on the regulatory front. First, at the end of 1984 the Puerto Rico Fisheries Act (Ley de Pesca) was amended to prohibit the use of turtle nets (defined as nets with a stretched mesh size larger than a certain minimum) in Puerto Rico's territorial waters. Since our territorial waters extend three marine leagues offshore (about 10.3 miles), this amount should give our enforcement personnel sufficient authority to confiscate turtle nets even if the fishermen are not present.

In September of 1985, the Commonwealth Threatened and Endangered Species Regulation went into effect. This regulation is virtually a copy of the U. S.. Endangered Species Act regulations. There are some differences, however; since our regulation takes its authority from the Department of Natural Resources Organic Act which defines violations as a misdemeanor offense; the fine set by the penal code is $50-$500 per offense, at the discretion of the presiding judge. The Department may, however, hold administrative hearings and issue fines of up to $5,000 without going to court. Yet, our law enforcement officials, the DNR rangers, can by law only prosecute for violations committed in their presence; in other words, they have to see someone taking turtles in order to be able to intervene. Also, since violation is a misdemeanor, our Rangers cannot search inside boats, or inside refrigerators or food lockers without a search warrant, and to get one they need to present reasonable evidence to a magistrate that a crime is being committed or about to be committed. Thus, the Fisheries Act amendment is very important since the mere presence of the net in the water is a violation and we can confiscate them. Since each net represents a considerable investment to a fisherman, their loss is economically painful and thus the risk of confiscation may be a significant deterrent.

Unfortunately, until consumers are educated, there will be demand for turtle meat in some local restaurants, and there will be fishermen willing to risk violating the law, especially since at

this time prosecution is ineffective at best. Education on endangered species matters in general and sea turtles in particular has not been a priority item. We feel that intensive and extensive education about turtles and laws protecting them (e.g., why they are endangered; why it is bad to eat turtle meat; and what the potential penalties could be) is the only way we can reduce consumer demand for turtle products. In some ways we are lucky since turtle has long since ceased to be a major protein source for low-income groups, and therefore we can appeal to public conscience. Although our management staff has begun an educational drive in public schools in areas near the beaches they patrol, we still need to educate the judiciary (many judges don't even know turtle fishing is against the law, and usually sentence violators to minimum fines or even dismiss charges). We also need to educate the relatively well-heeled customers who are creating the demand for turtle meat in seaside restaurants. In Puerto Rico, as in Europe, turtle meat is purely a luxury item, an exotic specialty to enjoy with special friends on a weekend outing.

SETBACKS

On February 15,1985, the 350 foot long car and passenger ferry "A. Regina", of Panamanian registry, ran aground off Mona Island in prime sea turtle habitat. Efforts by the owners to remove the vessel in condition suitable for returning it to service soon failed, and it was abandoned. The wreck caused extensive damage to the reefs and littered the beaches, designated critical nesting habitat, with oil and debris. At the present time, in spite of concerted efforts by DNR and several environmental groups, the wreck remains aground; it is now in danger of breaking up and causing greater environmental damages.

We were surprised and discouraged by the lack of response of federal agencies entrusted with protection of sea turtle populations after this wreck. We were even more surprised by the reluctance or even refusal of some of these agencies to cooperate with the Commonwealth in developing a strategy for the resolution of this issue, or at least a mitigation plan to reduce damages.

Some lessons can be learned from the "A. Regina" experience regardless of its outcome. Certainly, the federal government needs to learn to make use of the Marine Turtle Recovery Team and other sea turtle experts who would have advised on specific matters related to habitat needs. The habitat damage assessment prepared by NOAA was done in a total vacuum, and not circulated adequately for discussion or review. As a result the document did not provide clear guidelines or directives, nor did it even point out where more data needed to be collected.

The "Regina" incident stimulated us to collect data on Mona's reefs, including the sediment environment, that we might otherwise not have had. We hope that, through this meeting, we may be able to renew our efforts of coordination aimed at protecting and restoring the habitat of Mona's endangered turtles. We also believe that this meeting might be an appropriate forum to discuss planning for environmental contingencies related to sea turtles and their habitats.

CONCLUSIONS

Integrated management of sea turtles requires a combination of habitat protection, enforcement of laws and regulations and education. Only a Commonwealth-level Sea Turtle Management Plan that considers local agency capabilities and local legal and human resources can assign responsibilities, tasks and budget within the realm of pragmatically achievable goals and objectives. Law enforcement should, in our opinion, be based on maximum visibility and interaction with the public (in other words, deterrence, rather than undercover operations and elaborate and costly secret operations). It is relatively easy to mount a marine patrol with uniformed officers, especially since the DNR also now enforces boating safety laws and can and must board boats regularly. Education efforts must be directed to include sport divers, commercial fishermen, local judiciary, DNR Rangers, and local police, as well as school children.

The state police force can also enforce DNR laws, and there are 10,000 policemen, compared to only about 150 DNR Rangers. We have not used the media most effective in reaching people: television and radio. We must identify reporters sensitive to environmental issues and provide them with well prepared materials. We have not mounted a campaign in local restaurants.

Finally, we must manage our own lands where turtles nest more actively to control land-based poaching and depredation of nests. This includes active feral animal control. Perhaps we should pay pig hunters on Mona a special bounty for each jaw they can turn in, or maybe we need to bring in professional feral pig hunters.

Production of this management plan, including strategies for achieving each goal and a timetable and target milestones should be top priority for Puerto Rico after WATS II.

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Notes:

1. WATS II report for the Dominican Republic shows that 1,193 kg of turtle meat were exported to Puerto Rico in 1986.
2. Turtle take in Mona is estimated to be >100 animals per year on the basis of net sightings. The figure for illegal take in mainland Puerto Rico must be several times that amount; probably >500 turtles per year are illegally taken. Turtle meat is sold at $8.00 to $25.00 per pound; eggs are sold at $1.00 to $1.50 each.
3. Shells from hawksbill turtles are being illegally exported to the Dominican Republic. Dominican officials are finding these products in the trunks of cars transported on the ferry that runs between Mayagüez and San Pedro de Macorís.

REFERENCES

Hall, Kathleen V. 1987. Sea Turtle Stranding Data for Puerto Rico. Sea Grant Program, University of Puerto Rico, Mayaguez Campus, Department of Marine Sciences, Mayaguez, P.R.

Hall, Kathleen V. and Anton D. Tucker. 1986. Leatherback turtle (*Dermochelys coriacea*) nesting in Culebra, Puerto Rico in 1985. 26 p.

Kontos, Anastasia. 1987. 1986 Annual summary. Estimation of sea turtle abundance and nesting success on Mona Island, Puerto Rico. Institute of Ecology, University of Georgia, Athens, GA. 22 p.

Matos, Robert. 1987. Sea Turtle Hatchery Project with specific reference to the leatherback turtle (*Dermochelys coriacea*). Humacao, Puerto Rico, 1986. 24 p.

Rathbun, Galen B., Thomas Carr, Nicole Carr and Charles A. Woods. 1985 (DRAFT). The distribution of manatees and sea turtles in Puerto Rico with emphasis on Roosevelt Roads Naval Station. Report to Naval Facilities Engineering Command, Norfolk, Va. 83 pp (Appendices on turtle poaching by Thomas Carr.)

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Note:

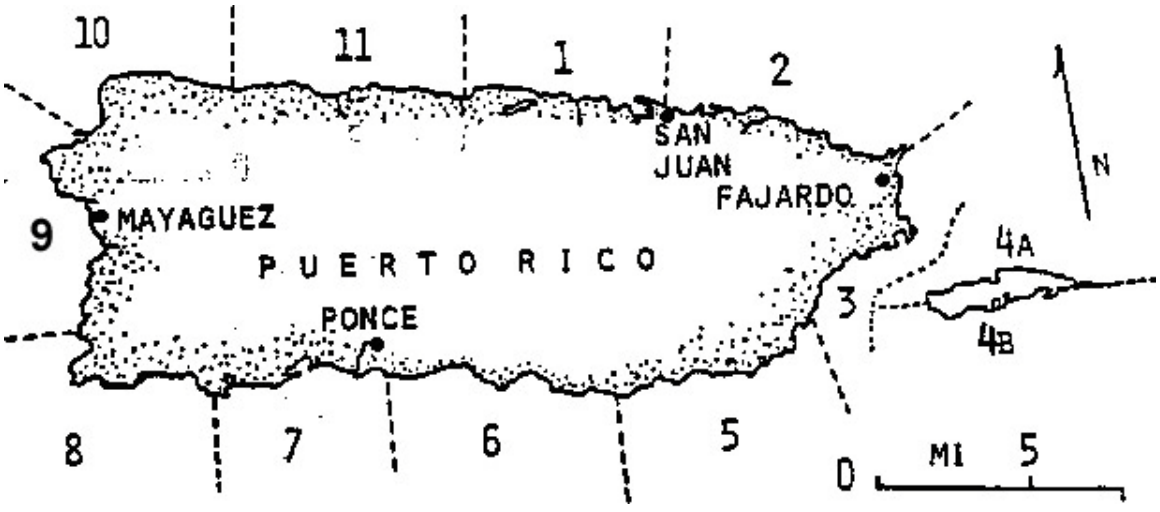
Updates on the 1987 nesting season were provided directly to the State Representative by the following persons: Kathleen Hall (stranding reports and aerial survey), Thomas Carr (aerial survey and poaching), A. Nieves and A. Kontos (Mona Island), R. Matos, H. Orta, P.J. Rivera and B. Pinto (mainland Puerto Rico). Additional information on poaching and sale of turtle meat was provided by M. Canals, A. Kontos and A. Nieves.

TABLE I. DISTRIBUTION OF SEA TURTLES AROUND PUERTO RICO BY COASTAL SEGMENT * Data compiled from twelve monthly aerial surveys from March 1984 through March 1985.

Coastal Segment Number	Sea Turtles Sighted per Segment Based on Total of (410)	Aver. No. Sea Turtles Sighted Per Survey with (Standard Deviation)	Percent Sea Turtles Sighted of Grand Total (410)	Percent Small Sea Turtles Sighted of Total Small (387)	Percent Large Sea Turtles Sighted of Total Large (23)
1	69	5.3 (3.6)	15.6	15.4	17.4
2	49	4.1 (3.1)	12.0	12.4	4.3
3	51	4.3 (4.9)	12.4	11.9	21.7
4a **	21	1.9 (2.0)	5.1	5.2	4.3
4b **	21	1.9 (3.1)	5.1	4.9	8.7
5	12	1.0 (1.0)	2.9	3.1	0
6	16	1.3 (1.1)	3.9	4.1	0
7	21	1.8 (2.1)	5.1	4.7	13.0
8	27	2.3 (2.6)	6.6	6.7	4.3
9	22	1.8 (1.7)	5.4	5.4	4.3
10	49	4.1 (4.2)	12.0	12.7	0
11	57	4.8 (5.2)	13.9	13.4	21.7

* *Editor's note (2009):* Rows and columns were transposed from the original report to accommodate spacing in this table.

** Only eleven aerial surveys were completed in these segments due to U.S. Navy restrictions.



Source: Rathbun et al., 1985.

Editor's note (2009): Maps and figures are reprinted exactly as they appear in the original document; we regret the poor quality exhibited in some cases.

TABLE II. DISTRIBUTION OF SEA TURTLES BY COASTAL SEGMENT AT ROOSEVELT ROADS NAVAL STATION AND VIEQUES ISLAND, PUERTO RICO.
Data compiled from forty-nine (49) weekly aerial surveys from March 1984 through March 1985.

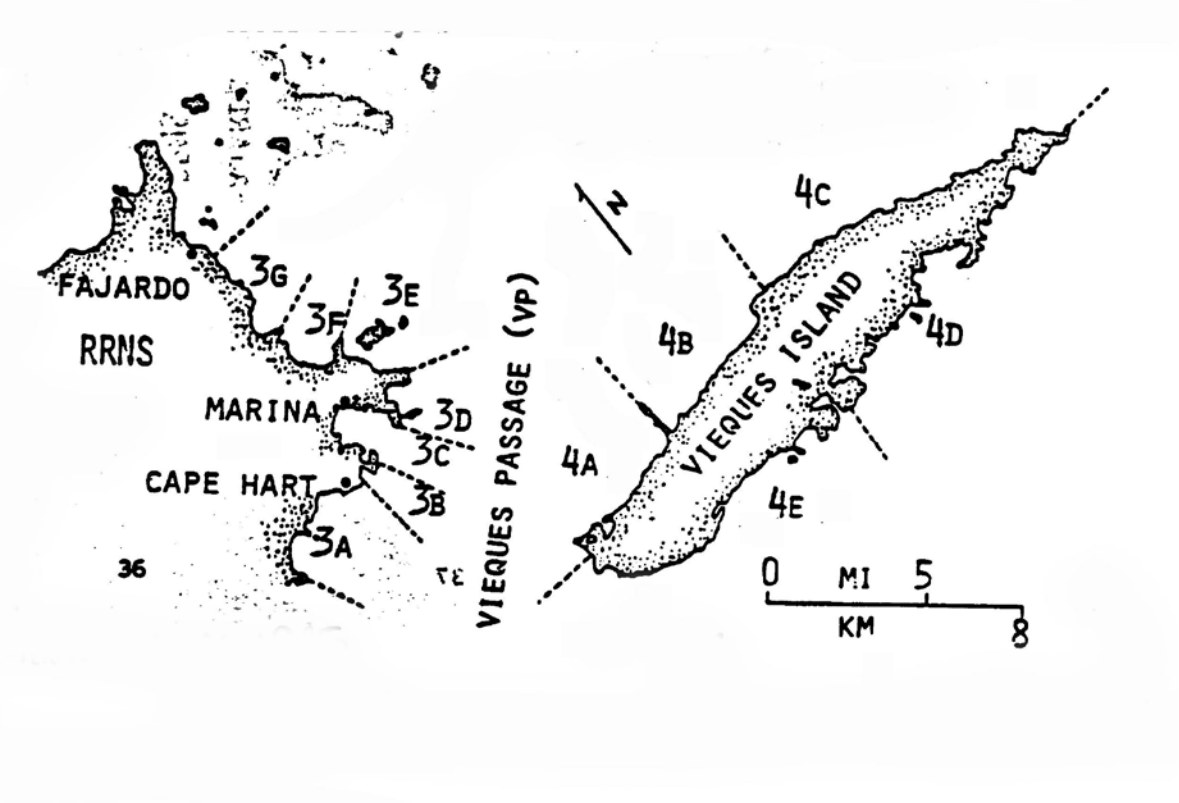
	Coastal Segment						
	3a	3b	3c	3d	3e	3f	3g
Total No. of Surveys	49	49	49	49	49	49	49
Sea Turtles Sighted per Segment Based on Total of (632)	18	77	82	41	95	20	16
Aver. No. Sea Turtles Sighted Per Survey with (Standard Deviation)	0.4 (0.7)	1.6 (2.2)	1.7 (1.5)	0.8 (1.1)	1.9 (1.9)	0.4 (0.7)	0.3 (0.7)
Percent Sea Turtles Sighted of Grand Total (632)	22	12.2	13.0	6.5	15.0	3.2	2.5
Aver. Small Sea Turtles Sighted per Survey	0.4	1.4	1.3	0.8	1.9	0.4	0.3
Aver. Large Sea turtles Sighted per Survey	0	0.1	0.3	0.04	0.04	0.02	0
Aver. Cm Sea turtles Sighted per Survey	0.08	0.4	0.5	0.4	0.9	0.1	0.1
Aver. Ei Sea turtles Sighted per Survey	0	0.02	0.02	0.08	0.2	0.04	0

	Coastal Segment					
	VP	4a	4b	4c *	4d *	4e
Total No. of Surveys	49	49	49	18	18	[--?--] ***
Sea Turtles Sighted per Segment Based on Total of (632)	0	50	40	24	49	
Aver. No. Sea Turtles Sighted Per Survey with (Standard Deviation)	0 (0)	1.0 (0.9)	0.8 (1.5)	1.3 (1.9)	2.6 (2.80	[--?--] [--?--]
Percent Sea Turtles Sighted of Grand Total (632)	0	7.9	6.3	3.8	7.8	[--?--]
Aver. Small Sea Turtles Sighted per Survey	0	1.0	0.7	1.2	2.6	[--?--]
Aver. Large Sea turtles Sighted per Survey	0	0.06	0.1	0.2	0.1	[--?--]
Aver. Cm Sea turtles Sighted per Survey **	0.1	0.2	0.2	0.2	0.8	[--?--]
Aver. Ei Sea turtles Sighted per Survey **	0	0.2	0.08	0.2	0.2	[--?--]

* Only 18 of the scheduled aerial surveys in these segments were completed due to U.S. Navy restrictions

** Cm = *Chelonia mydas*; Ei = *Eretmochelys imbricata*

*** *Editor's note (2009):* Throughout the ms, the editor has used "[--?--]" to indicate that the corresponding text in the original document is indecipherable.



Source: Rathbun et al., 1985.

TABLE 3. DISTRIBUTION OF NESTS BY BEACH
Nesting Activity on Mona 1974, 1984, 1985 and 1986

Beaches	Location	Approx. Size (km)	1974	1984	1985	1986
Sardinera Las Mujeras *	W/Southwest	3.2	47	58	38	26
Carabinero	Southwest	0.15	01	03	05	01
U Beaches (1-8)	Southwest	0.2	43	36	23	15
Uvero	Southwest	1.1	35	27	14	16
Caigo Peqeño	South	0.05	01	Not surveyed	01	00
Caigo o No Caigo	South	0.3	00	05	04	01
Pozo	South	0.3	04	Not surveyed	05	04
Brava	Southeast	0.25	32	12	02	01
Los Ingleses	East	1.4	06	04	03	01
Pajaros						
Escalera	Northeast	0.05	04	Not surveyed	0	00
Carmelita	Northwest	0.02	07	06	02	03
Unnamed beach between Playa Carmelita & Playa Sardinera	West	0.081	---	---	---	01
Total *Eretmochelys imbricata* nests			159	151	85	68
Total nests (1974 June-Jan), (1985 April-Nov)			180	151	97	68
Total *Chelonia mydas* nests			3		01	00
Total *Dermochelys coriacea* nests					11	00

* Study area includes 3.2 km of continuous beach from Playa Sardineria west through Playa Las Mujeras. Southwest beach areas included are Punta Arenas, Punta Toro, Playa Carite. Source: Kontos, 1985.

TABLE 4. DISTRIBUTION OF LEATHERBACK ACTIVITIES OCCURRING ON ALL CULEBRA, PUERTO RICO BEACHES, 1985

Beach	Nests	False Crawls	Undetermined	%
Brava	79	12	0	56
Resaca	40	17	1	36
Este (Culebrita)	---	---	7	4
Zoni	---	---	5	3
Flamenco	0	1	0	1
Totals	119	30	13	100

Source: Hall and Tucker, 1986.

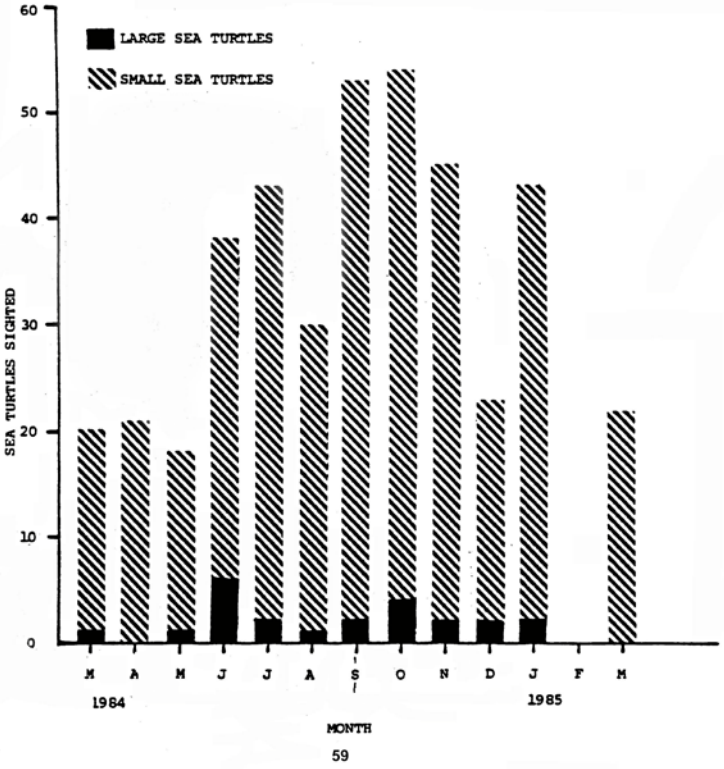


Figure 1. Total sea turtles sighted per month on 12 coastal surveys around Puerto Rico. The February survey was delayed until early March. Source: Rathbun et al., 1985.

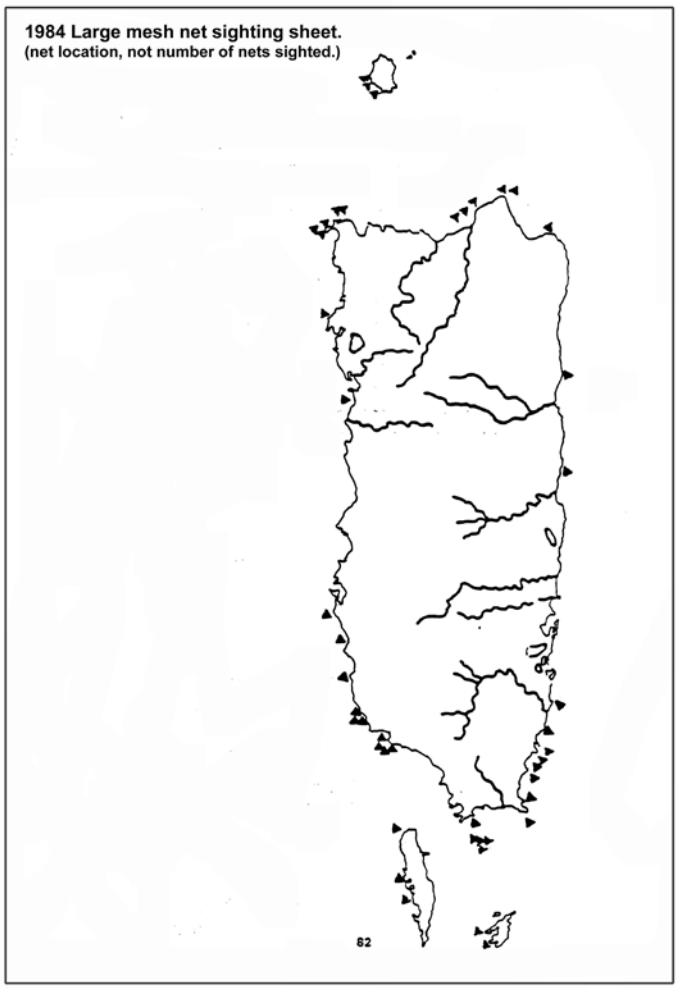


Figure 2. 1984 large mesh gillnet sighting sheet. (Net location not number of nets sighted). Source: Rathbun et al., 1985.

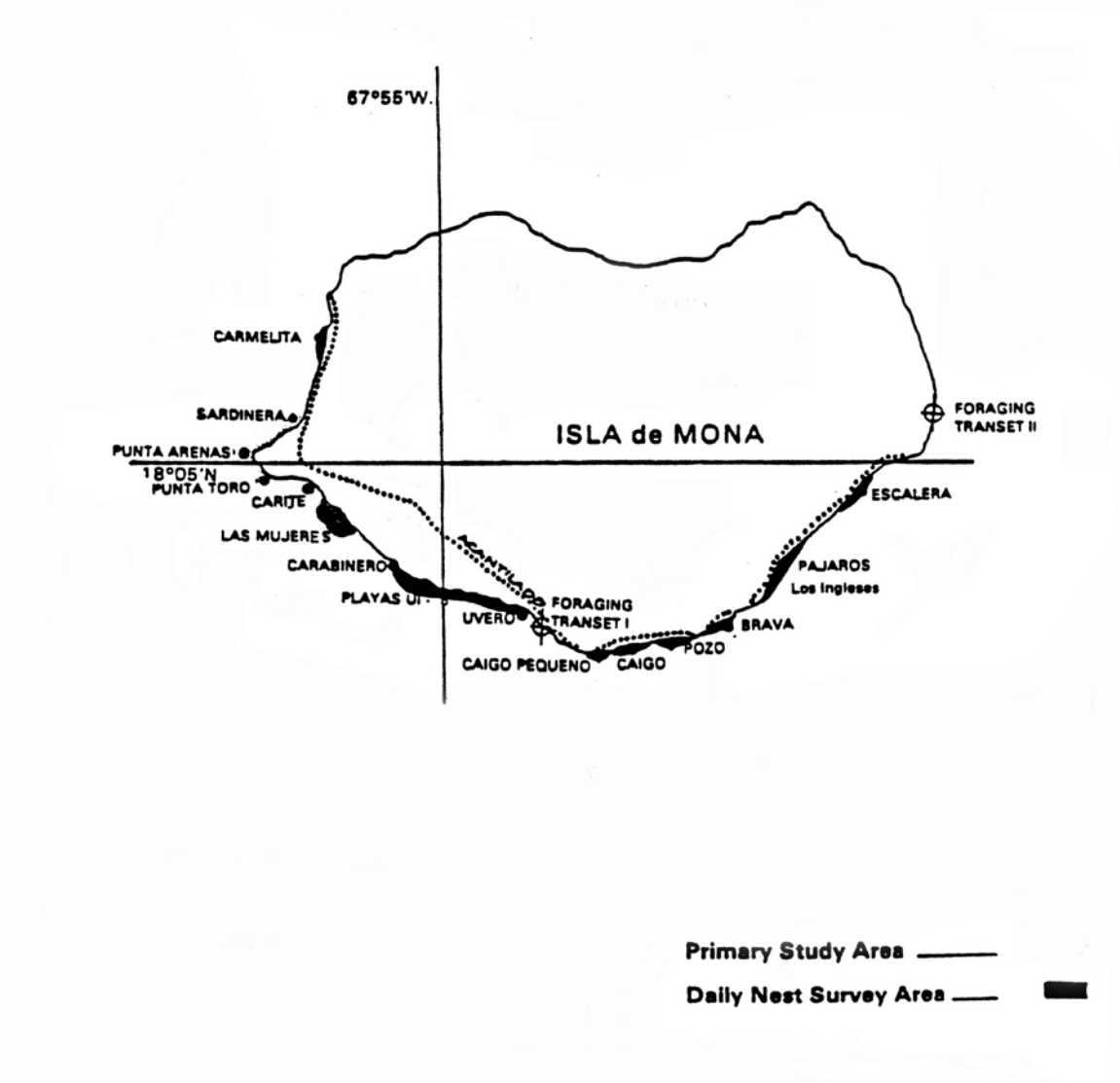
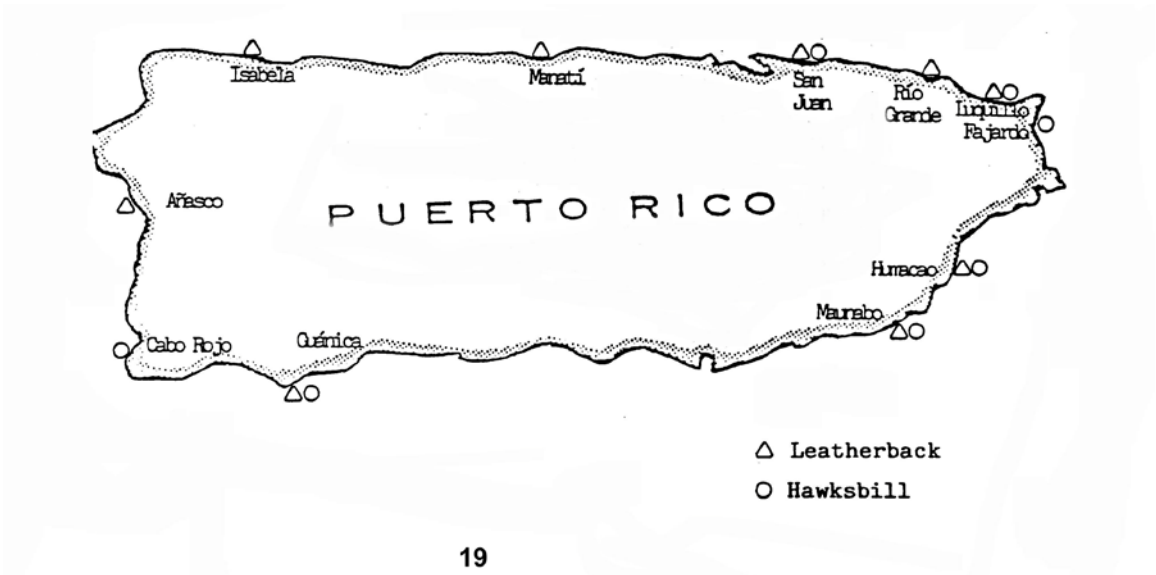


Figure 3. Map delineating Study Area and Daily Nest Survey Area. Source: Kontos, 1987.



19

Figure 4. Localities on the island where nesting of sea turtles has been recorded or reported. Source: Matos, 1987.

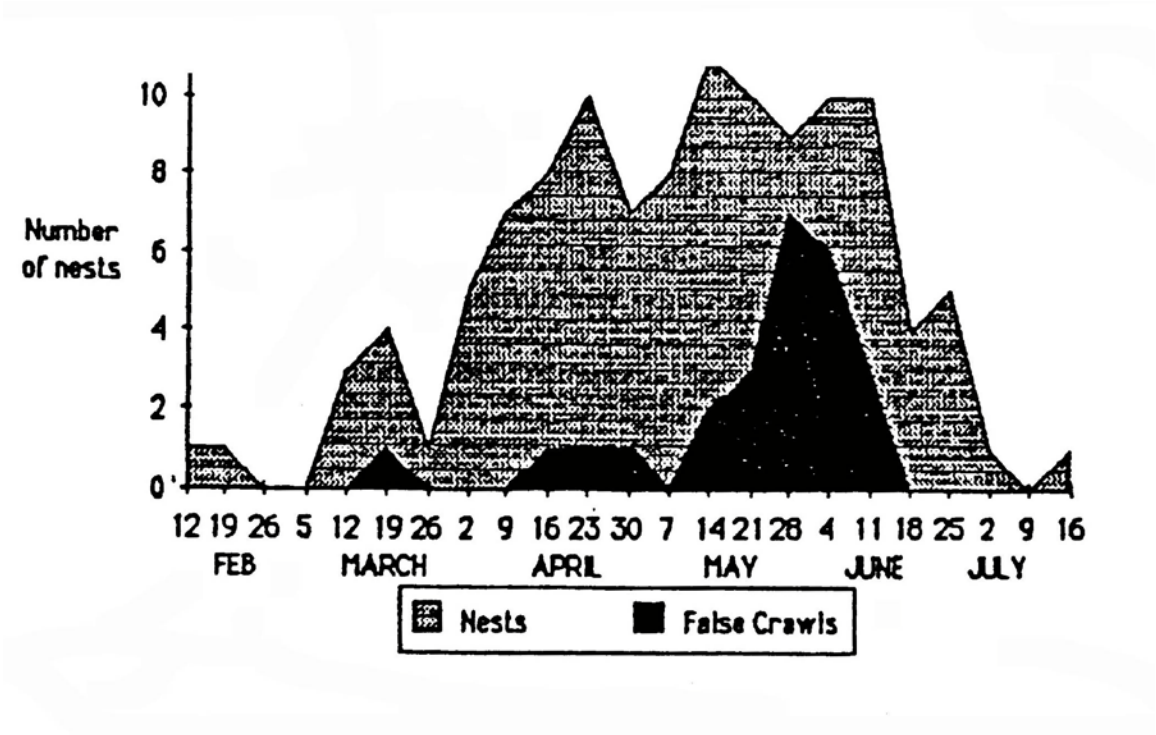


Figure 5. Leatherback activities at Culebra, P.R., 1985. Source: Hall and Tucker, 1986.

APPENDIX 1

Note

On 26 December 1984, two fisherman from my neighborhood (Fortuna) came to my house to ask if I wanted to buy turtle meat. I said no, for the time being. I questioned the two men in the presence of six other men (all local fishermen) for about two hours. By the end of our discussion, all the men there agreed that between the three of then (the men who called themselves turtle fishermen) a total of 129 turtles had been taken this year. The turtles were taken in nets or spear fished. Most of the turtles were immature greens, but hawksbills and one adult female leather-back with eggs were also taken. Fortuna is one of many small fishing villages which occur throughout Puerto Rico. If what I have found in Fortuna occurs in even a portion of those other villages, the number of sea turtles being taken must be mind boggling.

Source: Rathbun et al., 1985.

Distribution of letter:

Archie Carr, University of Florida, Gainesville
Ricardo Cots, U.S. Fish & Wildlife Service, Puerto Rico
Paul Gertler, U.S. Fish & Wildlife Service, Puerto Rico
Jorge Pinero, Chelonia Society, Puerto Rico
Secretary, Puerto Rico Dept. of Natural Resources
Frank Wadsworth, Natural History Society, Puerto Rico

APPENDIX 2

United States Department of the Interior
FISH AND WILDLIFE SERVICE

July Report-1987 Sea Turtle Activity
Culebra National Wildlife Refuge

The following information is a monthly summary of leatherback turtle (*Dermochelys coriacea*) activity as of 1 August, 1967. Personnel involved in data compilation were the Earthwatch expedition staff, Earthwatch volunteer research teams, the Caribbean Islands refuge staff, and many local and off-island volunteers. Nightly beach patrols on Playas Resaca and Brava were concluded on July 6.

We have observed 25 females nesting this year. Nesting season lasted from 14 February until 18 July. The following table summarizes the monthly nesting activities occurring on each beach with cumulative seasonal totals included in parentheses.

Beach	Nests	Did Not Lay	False Crawls	Total Activities
Brava	10 (90)	0 (3)	0 (6)	10 (104)
Reseca	1 (79)	1 (11)	1 (13)	1 (104)
Zoní	0 (7)	0 (0)	0 (2)	0 (9)
Culebrita	0 (1)	0 (0)	0 (0)	0 (1)
Flamenco	0 (1)	0 (0)	0 (0)	0 (1)
Totals	11 (184)	1 (14)	1 (21)	13 (219)

Tony Tucker/ Teresa Tallevast

By the end of July, 87 nests had emerged and been excavated. Nest excavation revealed that 4,519 viable hatchlings successfully made it to the ocean. Mean hatching rate for these nests was 78.9% with a range of 30.2% to 100%. Very little predation has been observed by either ghost crabs or night herons. Several nests invaded by roots of *Ipomea pes-caprae* have had significantly lessened nest success. Nest loss due to tidal inundation was largely avoided with the translocation of eight nests on Resece and two on Bravo. Two nests were lost to freshwater inundation on Breve. Evidence of human poaching has been very low, with only three nests known to have been poached.

Over 238 individuals have contributed 10,048 volunteer work hours since the beginning of this season.

Tony Tucker/ Teresa Tallevast

SEA TURTLE STRANDING AND SALVAGE NETWORK-STRANDING REPORT

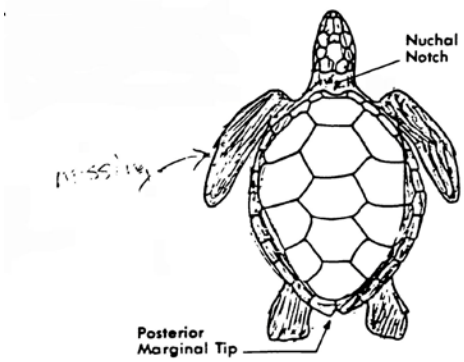
Please print and fill in all applicable blanks. Use codes below. Measurements may be straight line (caliper) and/or over the curve (tape measure). Measure length from the center of the nuchal notch to the tip of the most posterior marginal. Measure width at the widest point of carapace. Circle the Units Used. See diagram below. Please give a specific location description. Include latitude and longitude.

Observer's full name: Ronald X. Childs
Stranding date: 10 July 1985
Address / affiliation: USFWS, P.O. Box 196, Culebra, Puerto Rico 00645
Area Code / Phone number: 809-742-3880
Species: Cm Turtle number by day: 01
Reliability of I.D. (Circle): Unsure Probable Positive
Species verified by State Coordinator? (Circle) Yes No
Sex: (Circle): Female Male Undetermined
How was sex determined?
State, Country: Puerto Rico, Culebra Archipelige
Location (be specific and include closest town): Coast Guard dock on south side of Culebra, Culebra Archipelago, Puerto Rico
Latitude: 18˚ 19' 6'' N Longitude: 65˚ 13' 50'' W
Condition of Turtle (use codes): 5 (butchered) Final disposition position of turtle (use codes): 8
Tag Number(s) (include tag return address and disposition of tag):
Remarks (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propeller damage, papillomas, epizoa, etc.); continue on back if necessary

Turtle was freshly butchered, guts floating on shore. CCL estimated since carapace was removed with machete, shortening by approximately 6 cm

Measurements (circle units)
- Straight length (cm/in):_____
- Straight width (cm/in): _____
- Curved length (cm/in): est. 74 cm
- Curved width (cm/in): _____

Mark wounds, abnormalities, and tag locations



Codes

Species

Cc = Loggerhead Ei = Hawksbill
Cm = Green Lk = Kemp's ridley
Dc = Leatherback Un = Unknown

Condition of Turtle

0 = Alive
1 = Fresh dead
2 = Moderately decomposed
3 = Severely decomposed
4 = Dried carcass
5 = Skeleton, bones only

Final Disposition of Turtle

1 = Painted, left on beach
2 = buried: on beach / off beach
3 = Salvaged specimen: all / part
5 = Pulled up on beach or dune
6 = Alive, released
7 = Alive, taken to holding facility
8 = Painted, disposed of at sea

SEA TURTLE STRANDING AND SALVAGE NETWORK-STRANDING REPORT

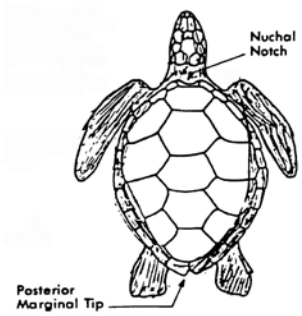
Please print and fill in all applicable blanks. Use codes below. Measurements may be straight line (caliper) and/or over the curve (tape measure). Measure length from the center of the nuchal notch to the tip of the most posterior marginal. Measure width at the widest point of carapace. Circle the Units Used. See diagram below. Please give a specific location description. Include latitude and longitude.

Observer's full name: Anton D. Tucker
Stranding date: 04 September 1985
Address / affiliation: USFWS, P.O. Box 196, Culebra, Puerto Rico 00645
Area Code / Phone number: 809-742-3880
Species: Ei Turtle number by day: 01
Reliability of I.D. (Circle): Unsure Probable (Positive)
Species verified by State Coordinator? (Circle) Yes (No)
Sex: (Circle): (Female) Male Undetermined
How was sex determined? Presence of eggs
State, Country: Puerto Rico, Culebra Archipelige
Location (be specific and include closest town): Middle of Playa Este, Isla Culebrita, Culebra, Puerto Rico
Latitude: 18˚ 19' 05'' N Longitude: 65˚ 13' 30'' W
Condition of Turtle (use codes): 0 Final disposition position of turtle (use codes): 3, 5
Tag Number(s) (include tag return address and disposition of tag): None, no tag scars
Remarks (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propeller damage, papillomas, epizoa, etc.); continue on back if necessary

Skull disarticulated and will be prepared as voucher specimen for Culebra NWR. Columella bones taken by Tucker as evidence of shark attack; no premarks. Carcass bloated and with meat swelling out of wounds in neck and shoulder. Unable to tell whether this is a spear fishing fatality or not. I necropsied this female and there were mature shelled eggs. Ectobiota. 5-6 large barnacles located in middle of carcass.

Measurements (circle units)
- Straight length (cm/in): _____
- Straight width (cm/in): _____
- Curved length (cm/in): 92.0 cm
- Curved width (cm/in): 81.00 cm

Mark wounds, abnormalities, and tag locations



Codes

Species
Cc = Loggerhead Ei = Hawksbill
Cm = Green Lk = Kemp's ridley
Dc = Leatherback Un = Unknown

Condition of Turtle
0 = Alive
1 = Fresh dead
2 = Moderately decomposed
3 = Severely decomposed
4 = Dried carcass
5 = Skeleton, bones only

Final Disposition of Turtle
1 = Painted, left on beach
2 = buried: on beach / off beach
3 = Salvaged specimen: all / (part)
5 = Pulled up on beach or dune
6 = Alive, released
7 = Alive, taken to holding facility
8 = Painted, disposed of at sea

SEA TURTLE STRANDING AND SALVAGE NETWORK-STRANDING REPORT

Please print and fill in all applicable blanks. Use codes below. Measurements may be straight line (caliper) and/or over the curve (tape measure). Measure length from the center of the nuchal notch to the tip of the most posterior marginal. Measure width at the widest point of carapace. Circle the Units Used. See diagram below. Please give a specific location description. Include latitude and longitude.

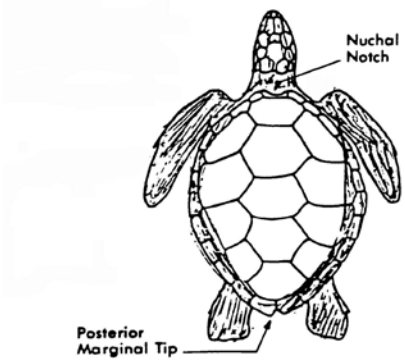
Observer's full name: Anton D. Tucker
Stranding date: 15 October 1985
Address / affiliation: USFWS, P.O. Box 196, Culebra, Puerto Rico 00645
Area Code / Phone number: 809-742-3880
Species: Ei Turtle number by day: 01
Reliability of I.D. (Circle): Unsure Probable (Positive)
Species verified by State Coordinator? (Circle) Yes (No)
Sex: (Circle): (Female) Male Undetermined
How was sex determined? Gonad exam on necropsy
State, Country: Puerto Rico, Culebra Archipelige
Location (be specific and include closest town): Middle of Playa Flamenco, Culebra, Puerto Rico
Latitude: 18˚ 19' 50'' N Longitude: 65˚ 19' 00'' W
Condition of Turtle (use codes): 0 Final disposition position of turtle (use codes): 3, 8
Tag Number(s) (include tag return address and disposition of tag): None
Remarks (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propeller damage, papillomas, epizoa, etc.); continue on back if necessary

Found floating head down in Flamenco Bay, severely weakened and emaciated. Died in possession of USFWS. Necropsied by Tucker; skull columellas and stomach intestinal contents saved.

Measurements (circle units)
- Straight length (cm/in):39.5 cm
- Straight width (cm/in): 28.0 cm
- Curved length (cm/in): 41.5 cm
- Curved width (cm/in): 33.0 cm

Weight (kg/lb): 15 lb

Mark wounds, abnormalities, and tag locations



Codes

Species

Cc = Loggerhead Ei = Hawksbill
Cm = Green Lk = Kemp's ridley
Dc = Leatherback Un = Unknown

Condition of Turtle

0 = Alive
1 = Fresh dead
2 = Moderately decomposed
3 = Severely decomposed
4 = Dried carcass
5 = Skeleton, bones only

Final Disposition of Turtle

1 = Painted, left on beach
2 = buried: on beach / off beach
3 = Salvaged specimen: all / (part)
5 = Pulled up on beach or dune
6 = Alive, released
7 = Alive, taken to holding facility
8 = Painted, disposed of at sea

SEA TURTLE STRANDING AND SALVAGE NETWORK-STRANDING REPORT

Please print and fill in all applicable blanks. Use codes below. Measurements may be straight line (caliper) and/or over the curve (tape measure). Measure length from the center of the nuchal notch to the tip of the most posterior marginal. Measure width at the widest point of carapace. Circle the Units Used. See diagram below. Please give a specific location description. Include latitude and longitude.

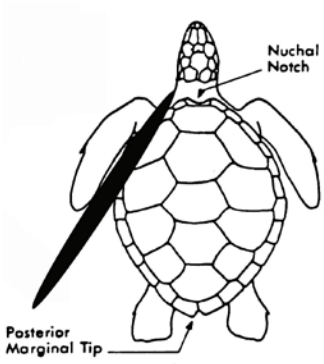
Observer's full name: Abram X Peña (finder); turned in to Anton D. Tucker
Stranding date: 24 November 1985
Address / affiliation: USFWS, P.O. Box 196, Culebra, Puerto Rico 00645
Area Code / Phone number: 809-742-3880
Species: Cm Turtle number by day: 01
Reliability of I.D. (Circle): Unsure Probable (Positive)
Species verified by State Coordinator? (Circle) (Yes) No
Sex: (Circle): (Female) Male Undetermined
How was sex determined? Gonads examined during necropsy
State, Country: Puerto Rico, Culebra Archipelige
Location (be specific and include closest town): 1 mi west of Punta Tamarindo, Culebra, Puerto Rico, found entangled on reef in 50 feet of water by divers
Latitude: 18˚ 19' 20'' N Longitude: 65˚ 21' 00'' W
Condition of Turtle (use codes): 1 Final disposition position of turtle (use codes): 3, 8
Tag Number(s) (include tag return address and disposition of tag): None

Remarks (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propeller damage, papillomas, epizoa, etc.); continue on back if necessary

Kapok strand from a discarded lifejacket became wrapped around left front flipper. Turtle eventually drowned when strand became entangled on coral. Healthy animal; fresh *Thalassia* in gut.

Measurements (circle units)
Straight length (cm/in):70.5 cm
Straight width (cm/in): _____
Curved length (cm/in): 76.25 cm
Curved width (cm/in): _____
Weight (kg/lb): 90 kg

Mark wounds, abnormalities, and tag locations



Codes

Species
Cc = Loggerhead Ei = Hawksbill
Cm = Green Lk = Kemp's ridley
Dc = Leatherback Un = Unknown

Condition of Turtle
0 = Alive
1 = Fresh dead
2 = Moderately decomposed
3 = Severely decomposed
4 = Dried carcass
5 = Skeleton, bones only

Final Disposition of Turtle
1 = Painted, left on beach
2 = buried: on beach / off beach
3 = Salvaged specimen: all / (part)
5 = Pulled up on beach or dune
6 = Alive, released
7 = Alive, taken to holding facility
8 = Painted, disposed of at sea

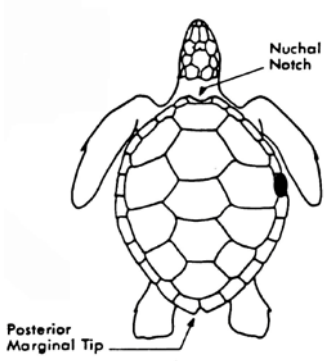
SEA TURTLE STRANDING AND SALVAGE NETWORK-STRANDING REPORT

Please print and fill in all applicable blanks. Use codes below. Measurements may be straight line (caliper) and/or over the curve (tape measure). Measure length from the center of the nuchal notch to the tip of the most posterior marginal. Measure width at the widest point of carapace. Circle the Units Used. See diagram below. Please give a specific location description. Include latitude and longitude.

Observer's full name: Ivan Lopez / Jasmin Detres
Stranding date: 23 January 1986
Address / affiliation: Department of Marine Science, University of Puerto Rico, Mayaguez, Puerto Rico 00708
Area Code / Phone number: 809-899-2482 (Marine Lab)
Species: Ei Turtle number by day: 01
Reliability of I.D. (Circle): Unsure Probable (Positive)
Species verified by State Coordinator? (Circle) (Yes) No
Sex: (Circle): Female Male (Undetermined)
How was sex determined?
State, Country: Puerto Rico
Location (be specific and include closest town): Found in shallow water near mangroves, north of Isla Guayacán, La Parguera
Latitude: 17˚ 58' 00'' N Longitude: 67˚ 4.7' W
Condition of Turtle (use codes): 1, 5 (butchered) Final disposition position of turtle (use codes): 3
Tag Number(s) (include tag return address and disposition of tag):

Remarks (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propeller damage, papillomas, epizoa, etc.); continue on back if necessary

Only the carapace was found.

Measurements (circle units)	Codes
Straight length (cm/in):_____ Straight width (cm/in): _____ Curved length (cm/in): 44.8 cm Curved width (cm/in): 40.0 cm Mark wounds, abnormalities, and tag locations  	Species Cc = Loggerhead Ei = Hawksbill Cm = Green Lk = Kemp's ridley Dc = Leatherback Un = Unknown Condition of Turtle 0 = Alive 1 = Fresh dead 2 = Moderately decomposed 3 = Severely decomposed 4 = Dried carcass 5 = Skeleton, bones only Final Disposition of Turtle 1 = Painted, left on beach 2 = buried: on beach / off beach 3 = Salvaged specimen: (all) / part 5 = Pulled up on beach or dune 6 = Alive, released 7 = Alive, taken to holding facility 8 = Painted, disposed of at sea

SEA TURTLE STRANDING AND SALVAGE NETWORK-STRANDING REPORT

Please print and fill in all applicable blanks. Use codes below. Measurements may be straight line (caliper) and/or over the curve (tape measure). Measure length from the center of the nuchal notch to the tip of the most posterior marginal. Measure width at the widest point of carapace. Circle the Units Used. See diagram below. Please give a specific location description. Include latitude and longitude.

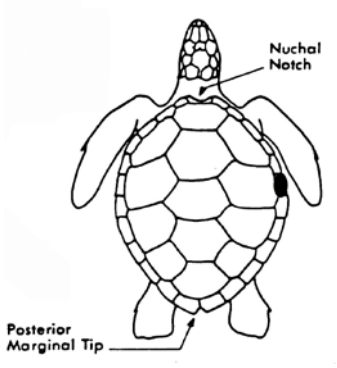
Observer's full name: Ivan Lopez / Jasmin Detres
Stranding date: 23 January 1986
Address / affiliation: Department of Marine Science, University of Puerto Rico, Mayaguez, Puerto Rico 00708
Area Code / Phone number: 809-899-2482 (Marine Lab)
Species: Ei Turtle number by day: 02
Reliability of I.D. (Circle): Unsure Probable (Positive)
Species verified by State Coordinator? (Circle) (Yes) No
Sex: (Circle): Female Male (Undetermined)
How was sex determined?
State, Country: Puerto Rico
Location (be specific and include closest town): Found in shallow water near mangroves, north of Isla Guayacán, La Parguera
Latitude: 17˚ 58' 00'' N Longitude: 67˚ 4.7' W
Condition of Turtle (use codes): 1, 5 (butchered) Final disposition position of turtle (use codes): 3
Tag Number(s) (include tag return address and disposition of tag):

Remarks (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propeller damage, papillomas, epizoa, etc.); continue on back if necessary

An old dent in 2nd right costal area. Carapace with many barnacles (max. 4 cm). Only the carapace was found.

Measurements (circle units)
Straight length (cm/in):_____
Straight width (cm/in): _____
Curved length (cm/in): 44.8 cm
Curved width (cm/in): 40.0 cm

Mark wounds, abnormalities, and tag locations



Codes

Species
Cc = Loggerhead Ei = Hawksbill
Cm = Green Lk = Kemp's ridley
Dc = Leatherback Un = Unknown

Condition of Turtle
0 = Alive
1 = Fresh dead
2 = Moderately decomposed
3 = Severely decomposed
4 = Dried carcass
5 = Skeleton, bones only

Final Disposition of Turtle
1 = Painted, left on beach
2 = buried: on beach / off beach
3 = Salvaged specimen: (all) / part
5 = Pulled up on beach or dune
6 = Alive, released
7 = Alive, taken to holding facility
8 = Painted, disposed of at sea

SEA TURTLE STRANDING AND SALVAGE NETWORK-STRANDING REPORT

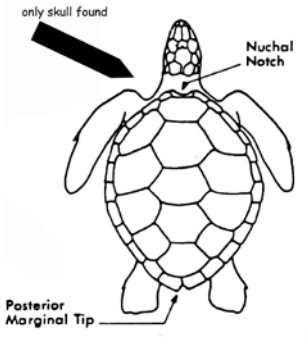
Please print and fill in all applicable blanks. Use codes below. Measurements may be straight line (caliper) and/or over the curve (tape measure). Measure length from the center of the nuchal notch to the tip of the most posterior marginal. Measure width at the widest point of carapace. Circle the Units Used. See diagram below. Please give a specific location description. Include latitude and longitude.

Observer's full name: Christopher Cutler
Stranding date: 18 February 1986
Address / affiliation: USFWS, Box 510, Boqueron, Puerto Rico 00622
Area Code / Phone number: 809-851-7279
Species: Cm Turtle number by day: 01
Reliability of I.D. (Circle): Unsure Probable (Positive)
Species verified by State Coordinator? (Circle) (Yes) No
Sex: (Circle): Female Male (Undetermined)
How was sex determined?
State, Country: Puerto Rico
Location (be specific and include closest town): In mangroves, 300 m south of salt evaporates near Bahia Sucia, Boqueron
Latitude: 17˚ 56.8' N Longitude: 67˚ 11.8' W
Condition of Turtle (use codes): 5 (upper skull) Final disposition position of turtle (use codes): 3
Tag Number(s) (include tag return address and disposition of tag):
Remarks (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propeller damage, papillomas, epizoa, etc.); continue on back if necessary

Fishing net fragments next to skull.

Measurements (circle units)
Straight length (cm/in):_____
Straight width (cm/in): _____
Curved length (cm/in): _____
Curved width (cm/in): _____
SLL skull: 11.8 cm
SLW skull: 6.8 cm

Mark wounds, abnormalities, and tag locations



Codes

Species
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Cm = Green Lk = Kemp's ridley
Dc = Leatherback Un = Unknown

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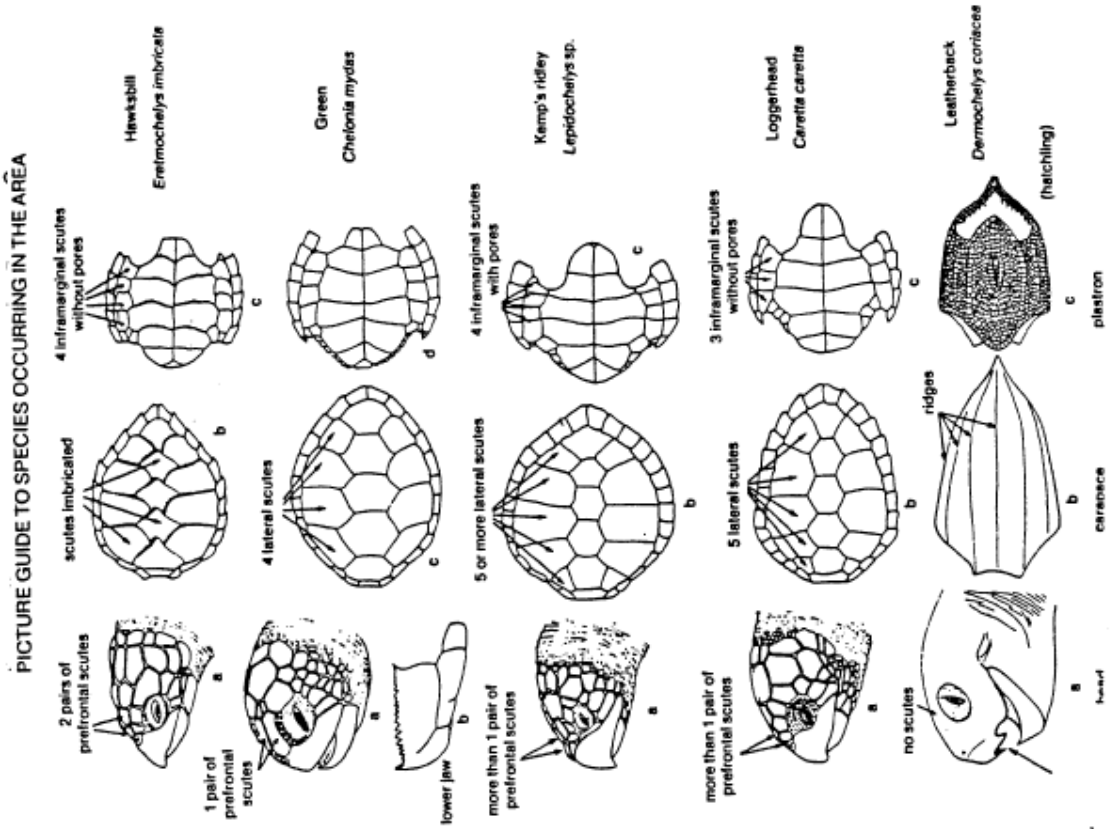
2 = buried: on beach / off beach
3 = Salvaged specimen: (all) / part
5 = Pulled up on beach or dune
6 = Alive, released
7 = Alive, taken to holding facility
8 = Painted, disposed of at sea



- Stomach + gut frozen, head frozen, frozen samples of liver, kidney, lung, h trachea, + ovaries for Virological + Toxicological exam.

RETURN TO :

KATHY HALL
PUERTO RICO STSSN COORDINATOR
UNIVERSITY OF PUERTO RICO
DEPT. OF MARINE SCIENCES
MAYAGUEZ, PR 00708

APPENDIX 4

WATS II SEA TURTLE SURVEY DATA FORM

TABLE I. NESTING BEACH SURVEY: Puerto Rico Sea Turtle Hatchery Project

COUNTRY: Puerto Rico STATE: _____ NAME OF BEACH: Humacao
NAME OF OBSERVER: Robert Matos DATE:_____ TIME- START/STOP: _____
DISTANCE SURVEYED: _____

Nest Number	1	Natural nest	2	3	4	Natural nest	Natural nest
1. Time	27/28 April 1987 06:00	15 April 1987	07/08 May 1987	11/12 June 1987	19 September 1987	April 1987	April 12 1987
2. Species *	Dc	Dc	Dc	Ei	Ei	Dc	Dc
3. Tag Number: N = New 0 = Old	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4. Carapace Length: (S/C) Units cm or inches	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5. Number of Eggs	85	Poached	82	169	221	127	90
6. Emergence Date	27 June 1987	N/A	09 July 1987	04 August 1987	November 1987	10 June 1987	10 May 1987
7. Number of Hatchlings	26	N/A	18	139	N/A ?	71	32
8. Erosion Danger?(Y/N)	Yes	Yes	Yes	No	No	No	Yes
9. Nest Protected?(Y/N)	Yes	No	Yes	Yes	Yes	No	No
10. Nest Relocated to Hatchery (Y/N)	Yes	No	Yes	Yes	Yes	No	No
11. Number of Eggs to Hatchery? (Y/N)	Yes 85	N/A	82	1 broken 168	221	N/A	N/A
12. Number of Eggs Harvested	None	All	None	None	None	None	None
13. Number of Eggs Depredated	None	N/A	None	None	None	1 hatchling	None
14. Number of Head-start Eggs	85	N/A	82	139	221	N/A	N/A
15. Females Harvested?(Y/N)	No	No	No	No	No	N/A	No

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk = *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Unknown

Humacao Beach: June 2 and 18 – Ei nest poached.

APPENDIX 4

WATS II SEA TURTLE SURVEY DATA FORM

TABLE I. NESTING BEACH SURVEY: Puerto Rico Sea Turtle Hatchery Project

COUNTRY: Puerto Rico STATE: _____ NAME OF BEACH: Luquillo (Paulina)
NAME OF OBSERVER: Robert Matos DATE:_____ TIME- START/STOP: _____
DISTANCE SURVEYED: _____

Nest Number	Natural nest	1	2	3	4	5	6
1. Time	26 April 1987		07/08 May 1987	16 May 1987	16 May 1987	17 May 1987	18 May 1987
2. Species *	Dc	Dc	Dc	Dc	Dc	Dc	Dc
3. Tag Number: N = New 0 = Old	N/A	D-4726 D-4828	N/A	D-4732 D-4276	D-4726 D-4728	N/A	N/A
4. Carapace Length: (S/C) Units cm or inches	N/A	110 cm	NA	141 cm	110 cm	N/A	N/A
5. Number of Eggs	131	134	119	88	130	116	106
6. Emergence Date	25 June 1987	30 June 1987	08July 1987	14 July 1987	17July 1987	17July 1987	15 July 1987
7. Number of Hatchlings	44	18	43	17	34	29	32
8. Erosion Danger?(Y/N)	No	Yes	Yes	Yes	Yes	Yes	Yes
9. Nest Protected?(Y/N)	No	Yes	Yes	Yes	Yes	Yes	Yes
10. Nest Relocated to another beach site (Y/N)	No	No	No	No	No	No	No
11. Number of Eggs to Hatchery? (Y/N)	No	134	119	88	130	116	106
12. Number of Eggs Harvested	None	None	None	None	None	None	None
13. Number of Eggs Depredated	2	None	None	None	None	None	None
14. Number of Head-start Eggs	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15. Females Harvested?(Y/N)	Unknown	No	No	No	No	N/A	No

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk = *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Unknown

APPENDIX 4

WATS II SEA TURTLE SURVEY DATA FORM

TABLE I. NESTING BEACH SURVEY: Puerto Rico Sea Turtle Hatchery Project *(continued)*

COUNTRY: Puerto Rico STATE: _____ NAME OF BEACH: Luquillo (Paulina)
NAME OF OBSERVER: Robert Matos DATE:_____ TIME- START/STOP: _____
DISTANCE SURVEYED: _____

Nest Number	7	8	9	Natural nest	Natural nest	Natural nest
1. Time	26 May 1987	27 May 1987	04 July 1987	16 June 1987	21 April 1987	25 June 1987
2. Species *	Dc	Dc	Dc	Dc	Dc	
3. Tag Number: N = (New) 0 = Old	N/A	N/A	D-4732 B-4276	N/A	N/A	N/A
4. Carapace Length: (S/C) Units cm or inches	N/A	N/A	141 cm	N/A	N/A	N/A
5. Number of Eggs	129	116	100	105	Poached	Poached
6. Emergence Date	22 July 1987	22 July 1987	29 August 1987	13 August 1987	N/A	N/A
7. Number of Hatchlings	37	55	43	55	N/A	N/A
8. Erosion Danger?(Y/N)	Yes	Yes	Yes	Yes	Yes	Yes
9. Nest Protected?(Y/N)	Yes	Yes	Yes	No	No	No
10. Nest Relocated to another beach site (Y/N)	No	No	No	No	No	No
11. Number of Eggs to Hatchery? (Y/N)	129	116	100	105	N/A	N/A
12. Number of Eggs Harvested	None	None	None	None	All	N/A
13. Number of Eggs Depredated	None	None	None	None	All	N/A
14. Number of Head-start Eggs	N/A	N/A	N/A	N/A	N/A	N/A
15. Females Harvested?(Y/N)	No	No	No	No	Unknown	N/A

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk = *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Unknown

APPENDIX 4

WATS II SEA TURTLE SURVEY DATA FORM

TABLE I. NESTING BEACH SURVEY: Puerto Rico Sea Turtle Hatchery Project

COUNTRY: Puerto Rico STATE: _____ NAME OF BEACH: Piñones
NAME OF OBSERVER: Robert Matos DATE:_____ TIME- START/STOP: _____
DISTANCE SURVEYED: _____

1. Time	24 April 1987	21 March 1987	27 April 1987	08 May 1987	17 May 1987	28 May 1987	June 1987
2. Species *	Dc	Dc	Dc	Dc	Dc	Dc	Dc
3. Tag Number: N = New 0 = Old	N/A	N/A	N/A	B-4293 B-4294	B-4293 B-4294	B-4293 B-4294	N/A
4. Carapace Length: (S/C) Units cm or inches	N/A	N/A	NA	165.1 cm (65 in) **	Same turtle	Same turtle	N/A
5. Number of Eggs	N/A	N/A	2 yolks were found	129	108	129	N/A
6. Emergence Date	N/A	N/A	N/A	05 July 1987	14July 1987	24July 1987	N/A
7. Number of Hatchlings	N/A	N/A	N/A	36	33	22	N/A
8. Erosion Danger?(Y/N)	N/A	Yes	Yes	Yes	Yes	Yes	N/A
9. Nest Protected?(Y/N)	N/A	No	No	Yes	Yes	Yes	N/A
10. Nest Relocated to Hatchery (Y/N)	N/A	No	No	Yes	Yes	Yes	N/A
11. Number of Eggs to Hatchery? (Y/N)	N/A	N/A	N/A	129	108	129	N/A
12. Number of Eggs Harvested	N/A	All	All	None	None	None	N/A
13. Number of Eggs Depredated	N/A	N/A	N/A	None	None	None	N/A
14. Number of Head-start Eggs	N/A	N/A	N/A	129	108	129	N/A
15. Females Harvested?(Y/N)	Yes	Unknown	Unknown	No	No	N/A	Found dead entangled in a piece of net

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk = *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; UK=Unknown

** *Editor's note (2009):* Value in original report expressed only in inches. Editor added the metric value (165.1 cm).

APPENDIX 4

WATS II SEA TURTLE SURVEY DATA FORM

TABLE I. NESTING BEACH SURVEY: Puerto Rico Sea Turtle Hatchery Project

COUNTRY: Puerto Rico STATE: _____ NAME OF BEACH: Tubos (Vega Baja) (Paulina)
NAME OF OBSERVER: Robert Matos DATE:_____ TIME- START/STOP: _____
DISTANCE SURVEYED: _____

Nest Number		
1. Time	12 May 1987	24 April 1987
2. Species *	Dc	Dc
3. Tag Number: N = New 0 = Old	N/A	N/A
4. Carapace Length: (S/C) Units cm or inches	N/A	N/A
5. Number of Eggs	Poached	116
6. Emergence Date	N/A	June 1987
7. Number of Hatchlings	N/A	N/A
8. Erosion Danger?(Y/N)	Yes	Yes
9. Nest Protected?(Y/N)	No	No
10. Nest Relocated to another beach site (Y/N)	No	No
11. Number of Eggs to Hatchery? (Y/N)	N/A	N/A
12. Number of Eggs Harvested	All	N/A
13. Number of Eggs Depredated	N/A	N/A
14. Number of Head-start Eggs	N/A	N/A
15. Females Harvested?(Y/N)	Unknown	Unknown

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk = *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Unknown

APPENDIX 4

WATS II SEA TURTLE SURVEY DATA FORM

TABLE I. NESTING BEACH SURVEY: Puerto Rico Sea Turtle Hatchery Project

COUNTRY: Puerto Rico STATE: _____ NAME OF BEACH: Mona Playa Mujeres (Paulina)
NAME OF OBSERVER: T. Nieves / Robert Matos DATE:_____ TIME- START/STOP: _____
DISTANCE SURVEYED: _____

Nest Number			
1. Time	24 May 1987	07 May 1987	
2. Species *	Dc	Dc	
3. Tag Number: N = New 0 = Old	D-4737 D-4738	D-4737 D-4738	
4. Carapace Length: (S/C) Units cm or inches	N/A	N/A	
5. Number of Eggs	False Crawl	120	
6. Emergence Date	False Crawl	None; eggs were washed	
7. Number of Hatchlings	False Crawl	None; eggs were washed	I estimated that this turtle laid about 3 to 4 nests in the entire season R. Matos
8. Erosion Danger?(Y/N)	N/A	Yes	
9. Nest Protected?(Y/N)	N/A	Yes	
10. Nest Relocated to another beach site (Y/N)	N/A	Yes	
11. Number of Eggs to Hatchery? (Y/N)	N/A	N/A	
12. Number of Eggs Harvested	N/A	None	
13. Number of Eggs Depredated	N/A	None	
14. Number of Head-start Eggs	N/A	N/A	
15. Females Harvested?(Y/N)	No	No	

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk = *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Unknown

TABLE II. AERIAL AND GROUND SURVEY SUMMARY DATA FORM

COUNTRY: Puerto Rico STATE: Fajardo BEACH/ZONE : San Miguel (Las Paulinas)

DISTANCE SURVEYED: 3 km

DATE: 03 June 1987 OBSERVER: K. Hall Circle one: AERIAL OR GROUND

Species *	Cc	Cm	Dc	Ei	Lk	Lo	Uk
Total No. of Fresh Nests							1
Total No. of Old Nests							
Total No. of Fresh False Crawls							
No. No. of Nests Disturbed							

Please provide below a brief description of how the survey or observation was completed. Particularly indicate interval between survey days and why this interval was selected and if survey dates were timed to occur the day/night after high (spring tide).

Survey completed from US Coast guard H-65 Dolphin helicopter. One observer flying at 45.7 m - 61 m ** (150-200 ft) and 60-90 k.

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk = *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Unknown

** *Editor's note (2009):* Value in original report expressed only in feet. Editor added the metric values.

TABLE II. AERIAL AND GROUND SURVEY SUMMARY DATA FORM

COUNTRY: Puerto Rico STATE: Fajardo BEACH/ZONE : El Convento (Las Paulinas)

DISTANCE SURVEYED: 2.5 km

DATE: 03 June 1987 OBSERVER: K. Hall Circle one: AERIAL OR GROUND

Species *	Cc	Cm	Dc	Ei	Lk	Lo	Uk
Total No. of Fresh Nests							
Total No. of Old Nests							3
Total No. of Fresh False Crawls							
No. No. of Nests Disturbed							

Please provide below a brief description of how the survey or observation was completed. Particularly indicate interval between survey days and why this interval was selected and if survey dates were timed to occur the day/night after high (spring tide).

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk = *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Unknown

TABLE II. AERIAL AND GROUND SURVEY SUMMARY DATA FORM

COUNTRY: Puerto Rico STATE: Guayama BEACH/ZONE : Puerto Patillas

DISTANCE SURVEYED: 7 km

DATE: 03 June 1987 OBSERVER: K. Hall Circle one: AERIAL OR GROUND

Species *	Cc	Cm	Dc	Ei	Lk	Lo	Uk
Total No. of Fresh Nests							
Total No. of Old Nests							1
Total No. of Fresh False Crawls							
No. No. of Nests Disturbed							

Please provide below a brief description of how the survey or observation was completed. Particularly indicate interval between survey days and why this interval was selected and if survey dates were timed to occur the day/night after high (spring tide).

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk = *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Unknown

TABLE II. AERIAL AND GROUND SURVEY SUMMARY DATA FORM

COUNTRY: Puerto Rico STATE: Rincon BEACH/ZONE : Tres Hermanos

DISTANCE SURVEYED: 2.5 km

DATE: 03 June 1987 OBSERVER: K. Hall Circle one: AERIAL OR GROUND

Species *	Cc	Cm	Dc	Ei	Lk	Lo	Uk
Total No. of Fresh Nests							
Total No. of Old Nests			1				
Total No. of Fresh False Crawls							
No. No. of Nests Disturbed							

Please provide below a brief description of how the survey or observation was completed. Particularly indicate interval between survey days and why this interval was selected and if survey dates were timed to occur the day/night after high (spring tide).

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk = *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Unknown

TABLE II. AERIAL AND GROUND SURVEY SUMMARY DATA FORM

COUNTRY: Puerto Rico STATE: Rincon BEACH/ZONE : Tres Hermanos

DISTANCE SURVEYED: 2.5 km

DATE: 04 June 1987 OBSERVER: K. Hall Circle one: AERIAL OR (GROUND)

Species *	Cc	Cm	Dc	Ei	Lk	Lo	Uk
Total No. of Fresh Nests							
Total No. of Old Nests			4				
Total No. of Fresh False Crawls							
No. No. of Nests Disturbed							

Please provide below a brief description of how the survey or observation was completed. Particularly indicate interval between survey days and why this interval was selected and if survey dates were timed to occur the day/night after high (spring tide).

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk = *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Unknown

TABLE II. AERIAL AND GROUND SURVEY SUMMARY DATA FORM

COUNTRY: Puerto Rico STATE: Rincon BEACH/ZONE : Anasco

DISTANCE SURVEYED: 1.5 km

DATE: 07 July 1987 OBSERVER: K. Hall Circle one: AERIAL OR (GROUND)

Species *	Cc	Cm	Dc	Ei	Lk	Lo	Uk
Total No. of Fresh Nests							
Total No. of Old Nests			1				
Total No. of Fresh False Crawls							
No. No. of Nests Disturbed							

Please provide below a brief description of how the survey or observation was completed. Particularly indicate interval between survey days and why this interval was selected and if survey dates were timed to occur the day/night after high (spring tide).

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk = *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Unknown

TABLE II. AERIAL AND GROUND SURVEY SUMMARY DATA FORM

COUNTRY: Puerto Rico STATE: Rincon BEACH/ZONE : Anasco

DISTANCE SURVEYED: 1.5 km

DATE: 07 July 1987 OBSERVER: K. Hall Circle one: (AERIAL) OR GROUND

Species *	Cc	Cm	Dc	Ei	Lk	Lo	Uk
Total No. of Fresh Nests				1			
Total No. of Old Nests							
Total No. of Fresh False Crawls							
No. No. of Nests Disturbed							

Please provide below a brief description of how the survey or observation was completed. Particularly indicate interval between survey days and why this interval was selected and if survey dates were timed to occur the day/night after high (spring tide).

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk = *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; UK=Unknown

FORMATO DE DATOS PARA
TORTUGAS MARINAS DE STAO II

TABLA III. INVENTARIO DE ANIDACION EN LAS PLAYAS *

Liste las playas en secuencia geográfica. Provea información adicional en otra hoja. Por favor liste cada especie que ocurre in la playa en una nueva línea aunque el mes sea el mismo.

PAÍS: Commonwealth of Puerto Rico (U.S.) ANOTADOR: B. Cintron; O. Cintron; R. Matos; A. Kantos; A Tucker

Nombre de la Playa	Longitud en km	Especies Anidando **	Meses de Máxima Anidacion	Meses de Anidacion
1. Culebra Island	2.5			
• Playa Brava + Resaca		Cm: (1)	Unknown	February-July
		Dc: (120-160 nests /year	April-June	February-July
• Offshore cays: Culebrita, Luis Pena, & Cayo Norte		Cm: (2 nests / yr);	Unknown	Unknown
		Ei: (12-20 nests/ yr)	August-October	All year
2. Vieques Island	?	Dc: (unknown numbers)	April-June	February-July
		Ei: (not surveyed on foot since 1982)	Unknown	All year
3. Caja de Muertos Island (Ponce) S. Beach	0.8	Ei: (?) 5 nests / year. (Now under survey)	Unknown	Unknown

* Note: Puerto Rica data are estimates of average numbers per year for Culebra and the main island.
** Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk = *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Desconocido

FORMATO DE DATOS PARA
TORTUGAS MARINAS DE STAO II

TABLA III. INVENTARIO DE ANIDACION EN LAS PLAYAS *

Liste las playas en secuencia geográfica. Provea información adicional en otra hoja. Por favor liste cada especie que ocurre in la playa en una nueva línea aunque el mes sea el mismo.

PAÍS: Commonwealth of Puerto Rico (U.S.) ANOTADOR: B. Cintron; A Tucker; R. Matos; A. Kantos

Nombre de la Playa	Longitud en km	Especies Anidando **	Meses de Máxima Anidacion	Meses de Anidacion
4. Mona Island (see attached Table for details)	7.1	Playa Mujeres Cm: (0-3 nests/yr)	---	---
		Dc: (0-11 nests /year)	April-May	February-July
		Ei: (70-150 nests / yr)	September-October	February-December (almost all year)
5. Mainland Puerto Rico				
• Humacao	2	Dc (1-15 nests) Ei (2)	April-June	March-July
• Paulina (Luquillo-Fajardo)	1	Dc (4-15)	April-June	March-July
• Piñones	2	Dc (~ 6 nests)	April-June	March-July
• Manatí (Los Tubos)		Dc (I nest in 1987)	April-June	March-July

* Note: Puerto Rica data are estimates of average numbers per year for Culebra and the main island.
** Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk=*Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Desconocido

FORMATO DE DATOS PARA
TORTUGAS MARINAS DE STAO II

TABLA III. INVENTARIO DE ANIDACION EN LAS PLAYAS *

Liste las playas en secuencia geográfica. Provea información adicional en otra hoja. Por favor liste cada especie que ocurre in la playa en una nueva línea aunque el mes sea el mismo.

PAÍS: Commonwealth of Puerto Rico (U.S.) ANOTADOR: B. Cintron; O. Cintron; R. Matos

Nombre de la Playa	Longitud en km	Especies Anidando **	Meses de Máxima Anidacion	Meses de Anidacion
Isabela	---	Dc (No. Unknown)	Unknown	March-July
Añasco	---	Dc (No. Unknown)	Unknown	March-July
Combate (Cabo Rojo)	---	Ei (No. Unknown)	September-October (probably)	All year
Guánica (Ballena Beach)	1.5	Dc (No. Unknown) ***	---	---
		Ei (No. Unknown) ***	---	---

* Note: Puerto Rica data are estimates of average numbers per year for Culebra and the main island.
** Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk=*Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Desconocido
*** Tracks and shells of butchered turtles found on this beach in 1986.

Annotator's note: Almost any sandy beach is potential Ei nesting habitat. There are about 275 miles of such beach in Puerto Rico and the offshore cays.

FORMATO DE DATOS PARA
TORTUGAS MARINAS DE STAO II

TABLA III. INVENTARIO DE ANIDACION EN LAS PLAYAS *

Liste las playas en secuencia geográfica. Provea información adicional en otra hoja. Por favor liste cada especie que ocurre in la playa en una nueva línea aunque el mes sea el mismo.

PAÍS: Commonwealth of Puerto Rico (U.S.) ESTADO: Culebra ANOTADOR: K. Hall

Nombre de la Playa	Longitud en km	Especies Anidando **	Meses de Máxima Anidacion	Meses de Anidacion
Brava	1.2	Dc	April-June	March-July
Resaca	1.0	Dc	April-June	February-July
		Ei		February-June ?
Flamenco	0.8	Dc		April, May
Negra	0.1	Ei		May
Zoni	1.2	Cm		June
		Dc		March, May, June
		Ei		June
Tortola	0.1	Dc		July
Cayo Norte	1.0	Ei		
Este	0.6	Ei		April, June
Tortuga	0.6	Dc		June
		Ei		
Cayo Norte		Dc		

* Note: Puerto Rica data are estimates of average numbers per year for Culebra and the main island.
** Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk=*Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Desconocido

FORMATO DE DATOS PARA
TORTUGAS MARINAS DE STAO II

TABLA III. INVENTARIO DE ANIDACION EN LAS PLAYAS *

Liste las playas en secuencia geográfica. Provea información adicional en otra hoja. Por favor liste cada especie que ocurre in la playa en una nueva línea aunque el mes sea el mismo.

PAÍS: Commonwealth of Puerto Rico (U.S.) ESTADO: ANOTADOR: K. Hall

Nombre de la Playa	Longitud en km	Especies Anidando **	Meses de Máxima Anidacion	Meses de Anidacion
Surfer's	0.2	Ei		November, January
Tres Hermanos	2.5	Dc		
Ballena	1.5	Dc		
Tamarindo	1.0	Ei		
Mala Pascua	2.0	Ei		May
Palmas del Mar	2.25	Ei		July

* Note: Puerto Rica data are estimates of average numbers per year for Culebra and the main island.
** Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk=*Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Desconocido

FORMATO DE DATOS PARA
TORTUGAS MARINAS DE STAO II

TABLA III. INVENTARIO DE ANIDACION EN LAS PLAYAS *

Liste las playas en secuencia geográfica. Provea información adicional en otra hoja. Por favor liste cada especie que ocurre in la playa en una nueva línea aunque el mes sea el mismo.

PAÍS: Commonwealth of Puerto Rico (U.S.) ESTADO: Caja de Muertos ANOTADOR: K. Hall

Nombre de la Playa	Longitud en km	Especies Anidando *	Meses de Máxima Anidacion	Meses de Anidacion
Coast Guard		Ei		
Uvero		Ei		July
Pelicano		Ei		
Larga		Ei		May, July

* Note: Puerto Rica data are estimates of average numbers per year for Culebra and the main island.
** Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk=*Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Desconocido

WATS II SEA TURTLE DATA FORM

TABLE IV. MORTALITY

COUNTRY: Puerto Rico STATE: YEAR: 1985 OBSERVER: K. Hall

Date **	Species *	Sex	Length (cm)	Weight	# Eggs	Locality	Cause
10 July 1985	Cm	Uk	74.0 (c) ***			Culebra	DC
04 Sept 1985	Ei	F	92.0 (c)			Culebra	S
15 Oct. 1985	Ei	F	41.5 (c)	6.8 kg (15 lb)		Culebra	S
12 Nov. 1985						Cabo Rojo	DC
24 Nov. 1985	Cm	F	76.2 cm (c)	90 kg		Culebra	S

Comments:

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk= *Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Unknown

** *Editor's note (2009):* Editor listed dates and attendant information in increasing chronological order; this order differs from the original report.

*** Estimated.

WATS II SEA TURTLE DATA FORM

TABLE IV. MORTALITY

COUNTRY: Puerto Rico STATE: YEAR: 1986 OBSERVER: K. Hall

Date **	Species *	Sex	Length (cm)	Weight	# Eggs	Locality	Cause
23 Jan. 1986	Ei	Uk	71.0 (c)			Parguera	DC
23 Jan. 1986	Ei	Uk	44.8 (c)			Parguera	DC
18 Feb. 1986	Cm	Uk				Cabo Rojo	DC
09 July 1986	Cm	M	117.0 (c)			San Juan	S
12 July 1986	Ei	F	47.3 (c)			Culebra	S
12 July 1986	Ei	Uk				Aguadilla	DC
16 July 1986	Cm	Uk				Culebra	DC
26 July 1986	Cm	Uk	74.0 (c)			Mona	DC
16 Aug. 1986	Cm	Uk				Mona	DC
18 Aug. 1986	Ei	Uk				Mona	DC
23 Aug. 1986	Ei	Uk				Mona	DC
23 Aug. 1986	Ei	Uk				Mona	DC
23 Aug. 1986	Ei	Uk				Mona	DC
25 Aug. 1986	Dc	F	156.0 (c)			Fajardo	DC
28 Aug. 1986	Ei	Uk	23.8 (s)			Culebra	S
22 Sept. 1986	Ei	F	88.5 (c)			Mona	Natural death on beach
18 Oct. 1986	Cm	Uk	25.3 (c)			Isabela	S

Comments:

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk=*Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Unknown

** *Editor's note (2009)*: Editor listed dates and attendant information in increasing chronological order; this order differs from the original report.

WATS II SEA TURTLE DATA FORM

TABLE IV. MORTALITY

COUNTRY: Puerto Rico STATE: YEAR: 1987 OBSERVER: K. Hall

Date **	Species *	Sex	Length	Weight	# Eggs	Locality	Cause
27 April 1987	Cm	Uk	65.5 cm (c)			Parguera	S
18 May 1987	Cm	Uk				Culebra	DC
04 Aug. 1985	Ei	F	71.1 cm (28.0 in) (c)			Cabo Rojo	S

Comments:

* Cc=*Caretta caretta*; Cm=*Chelonia mydas*; Dc=*Dermochelys coriacea*; Ei=*Eretmochelys imbricata*; Lk=*Lepidochelys kempi*; Lo=*Lepidochelys olivacea*; Uk=Unknown

** *Editor's note (2009):* Editor listed dates and attendant information in increasing chronological order; this order differs from the original report.

WATS II REPORT/DATA SET

National Report to WATS II for Puerto Rico

G. Cintron and B. Cintron

16 October 1987

WATS2 087

NATIONAL REPORT: PUERTO RICO, G. CINTRÓN AND B. CINTRON

On July 1983 the first Western Atlantic Turtle Symposium was held in Costa Rica with the primary objective of assembling a regional sea turtle data base. The discussions, reports and the information presented at that meeting showed that sea turtle populations are undoubtedly in a very precarious state throughout the region. We are faced with the need to salvage a rapidly diminishing resource, a resource depleted by many years of neglect, lack of management, severely exploited and now threatened by the encroachment of man on its nesting and developmental habitats. A depleted resource challenged by dramatically increased presence and depredation by man as well as natural predators and stressors. Obviously the task cannot be easy. It requires a concerted effort. Since the sea turtle resource is shared by the inhabitants of the region, sea turtle conservation, management and research efforts must also be shared and coordinated. This was the philosophy that motivated the First WATS Symposium: through regional colaboration, attain the recuperation of the severely depleted stocks and manage them for the welfare of the inhabitants of the region.

In this meeting we will have to discuss and assess the progress made in these last four years in terms of management, recuperation of stocks and research. In this review we will try to summarize briefly the progress attained in each of these areas. Unfortunately we must also report lack of progress, and in some instances it appears that we are no better off than four years ago, very possibly worse, we shall see.

RESEARCH AND CONSERVATION PROJECTS

In the area of sea turtle research and management, at least, we can report significant progress since WATS I. The U.S. Fish and Wildlife Service, the Earthwatch Programs, the Department of the Navy and the Department of Natural Resources, as well as Yale University and the University of Georgia, can share credit for studies completed or well under way. We can summarize only the most significant findings here.

1. Aerial surveys. In a one-year study of sea turtles and manatees centered on Roosevelt Roads Naval Station from March 1984 - March 1985, Rathbun et al. conducted monthly overflights of coastal waters of Puerto Rico and Vieques Island. They reported most abundant turtle sightings during September-November. Observations made from a low-flying plane indicated that Chelonia mydas was the species most frequently sighted. Ninety-four percent of the animals sighted were small, under 60 cm, and over 50% of the sightings were made along the north coast of Puerto Rico. No olive ridley turtles were sighted. In addition to greens, hawksbills, leatherbacks and loggerheads were seen, but over 60% of animals spotted could not be identified to species. Around Roosevelt Roads and Vieques, where overflights were done weekly, turtles were most abundant near Sun Bay and the southwest corner of Vieques, along the north coast of Isla Pinero, the east shore of Ensenada Honda and Pelican Cove (all part of the Roosevelt Roads Naval Station). (Tables 1 & 2, Fig 1)

Rathbun et al. also included an appendix on poaching. The shell of one butchered hawksbill was found on a beach

within the naval station in February, 1985. During the aerial surveys, over one hundred large mesh nets suitable for turtling were observed, with as many as thirty-seven such nets seen in a single overflight (FIG. 2). Nets were placed offshore of capes or reefs, blocking entrances to lagoons or coves, or simply provided with decoys to attract male turtles. The map included in their report indicates net sightings are frequent near Cabo Rojo, around Punta Higuero, in the northeast between Loiza and Fajardo, around offshore cays northeast and southeast of Fajardo, off the south shores of Vieques and Culebra, and off southeastern Puerto Rico from Jobos Bay east and north to the Palmas del Mar area. Appendix 7 to this report, written by Tom Carr, also reports turtle meat was for sale surreptitiously at $4-6. per pound at many coastal communities. Carr reported finding carcasses or fragements of sea turtles on many offshore cays and Mona Island, with more found on Mona than anywhere else.

2. Mona Island nesting and foraging studies. Beginning in the summer of 1984, and continuing to the present, the Department of Natural Resources has had the good fortune to be able to host sea turtle research studies, for the first time since the mid-1970's. The 1984 study, carried out by Molly Olson of Yale University, reported 151 hawksbill nests. The 1985 and 1986 surveys were carried out by Anastasia Kontos of the University of Georgia, and have been continued during summer 1987. Mona's beaches (FIG. 3) are used by green turtles and leatherbacks, at least during some years, but the bulk of nesting turtles are hawksbills. Mona

Island's beaches are recognized as probably the most important single hawksbill nesting and foraging area in our part of the Caribbean. During 1985, 97 nests were observed, of which 11 were leatherback nests, one was a green turtle nest and 85 were hawksbill nests. During 1986, all 68 nests observed were hawksbill nests (TABLE 3) During the last two summers nest loss to feral pig predation has been very high on Mona, with a total of 14 nests lost to pigs during 1986 and 36 lost to the same cause during 1985. During the 1987 season, total nest counts are down. Of a total of 35 hawksbill nests laid so far this year, 25 have been lost, all but one to feral pigs. Obviously, some more energetic pig control measures are needed on Mona. Turtles are still being taken in the water at Mona, and this year one nest was robbed by humans during a long vacation weekend when many visitors were on the island.

Sea turtle nesting statistics from 1974 are roughly in agreement with 1984-86 data, if we make allowances for normal year to year variation in nesting reported in the literature on hawksbills. (Researcher A. Kontos disagrees; she feels that data from 1985-7 may indicate a real decline). We feel that the presence of management and research personnel on Mona all year probably does as much as anything to discourage human predation on this island. Human take of turtles still occurs sporadically on Mona, though less openly than elsewhere in Puerto Rico. Since Mona supports the largest nesting aggregation of hawksbill turtles anywhere in Puerto Rican waters it is of particular

importance to strengthen protection, enforcement and predator control measures here.

3. DNR Turtle Management and Conservation Program. During the 1986 and 1987 nesting seasons, Mr. Robert Matos of the Reserves and Refuges Division of the Commonwealth Forest Area of DNR has been involved, along with colleagues and volunteers, in a major nest rescue and tagging effort centered on known leatherback beaches in northern and eastern Puerto Rico. Here, on the main island, the most important predator is man, and it quickly became obvious that it would be necessary to relocate all nests to a fenced and patrolled area if any hatching success were to be measured. A turtle hatchery was built at Humacao Wildlife Refuge in 1986 and used to incubate all eggs. During the first year, 706 yolked eggs from 9 leatherback nests produced 354 hatchlings, for a success rate of 52.6%. This is especially impressive if we remember that the natural success rate of nests on unprotected beaches is very close to 0%, since nesting females are generally intercepted, the nests excavated and the adult butchered for meat and oil.

Until the present time, the 1987 season has covered four beaches in northeast Puerto Rico (plus leatherback season on Mona). Beaches covered are: Pinones forest, Paulina Beach in Luquillo-Fajardo, Humacao beach on the East Coast, and Los Tubos beach in Vega Baja. Nesting was most intense on Paulina beach, where nine nests were relocated to the hatchery, two hatched naturally on the beach, and two were poached, for a total of thirteen nests. This year 91 hatchlings were produced in Pinones, 407 in Paulina, and 147

in Humaco, for a total of 645 leatherback hatchlings. An additional 139 hawksbill turtle hatchlings were released after incubation in the hatchery at Humaco, and a second clutch is still incubating there and due to emerge in November.

A map (Fig. 4) shows confirmed turtle nesting beaches in Puerto Rico. We are aware of the objections to hatcheries and head-starting turtles, but given the extremely great risk of total loss of unprotected nests to poaching and the difficulty of patrolling the literally hundreds of kilometers of our beaches effectively, we feel it is the only feasible solution now and until effective educational and enforcement programs can assure that natural nests will be left to develop in situ.

The leatherback study shows that the nesting chronology of leatherbacks in mainland Puerto Rico is similar to that reported at St.Croix and on Culebra.

4. Research and Conservation on Culebra. Studies of nesting of leatherback turtles, based on Refuge Manager John Taylor's observation of leatherback tracks, began on Culebra in the early 1980's. An intensive conservation program was started by the U.S.Fish and Wildlife Service and the Earthwatch programs in spring of 1984, with graduate students Kathy Hall of the University of Puerto Rico and Tony Tucker of the University of Georgia gathering statistics, making behavioral observations and directing volunteers. The Earthwatch-sponsored intensive beach patrols terminated at the end of the nesting season of 1987. On the basis of the saturation tagging program, we now know that two beaches of

the north coast of culebra, Brava and Resaca, are most important to leatherback nesting in all of Puerto Rico. Brava, 1.25 km long, and Resaca, 1 km long, average ab out 20 nesting leatherback females each year. The season extends from February to July (Fig 5; Table 4; App 2). An estimated 120-160 nests are laid each season. Poaching of these nests, once heavy, has been reduced to virtually zero by the human presence on these beaches.

Hawksbill and green turtles also nest on Culebra in very reduced numbers. Tucker estimates 0-3 green turtle nests per year, on one beach (Brava), and about 12-20 hawksbill turtle nests, distributed over the offshore islands of Culebrita, Cayo Luis Pena, and the south beach of Cayo Norte (all but the latter are part of a federal refuge). Hawksbills have been observed nesting at any month of the year.

LEGISLATION

Since the WATS meeting in San Jose, we can report progress on the regulatory front. First, at the end of 1984, the Puerto Rico fisheries Act (Ley de Pesca), was amended to prohibit the use of turtle nets (defined as nets with a stretched mesh size larger than a certain maximum) in Puerto Rico's territorial waters. Since our territorial waters extend three marine leagues offshore (about 10.3 miles), this amendment should give our enforcement personnel sufficient authority to confiscate turtle nets, even if the fishermen are not present.

In september of 1985, the Commonwealth Threatened and Endangered Species Regulation went into effect. This

regulation is virtually a copy of the U.S. Endangered Species Act regulations. There are some differences, however: since our regulation takes its authority from the Department of Natural Resources organic act, which defines violations as a misdemeanor offense, the fine set by the penal code is $50-500 per offense, at the discretion of the presiding judge. The Department may, however, hold administrative hearings and issue fines of up to $5,000 without going to court. Yet, our law enforcement officials, the DNR rangers, can by law only prosecute for violations committed in their presence-- in other words, they have to see someone taking turtles in order to be able to intervene. Also, since violation is a misdemeanor, our Rangers cannot search inside boats, or inside refrigerators or food lockers without a search warrant, and to get one they need to present reasonable evidence that a crime is being committed or about to be commited to a magistrate. Thus, the importance of the Fisheries Act amendment: since the mere presence of the net in the water is a violation, we can confiscate them. Each net represents a considerable investment to a fisherman, their loss is economically painful and thus the risk to confiscation may be a significant deterrent.

Unfortunately, until consumers are educated, there will be demand for turtle meat in some local restaurants, and there will be fishermen willing to risk violating the law, especially since at this time prosecution is ineffective at best.

Education on endangered species matters in general and sea turtles in particular has not been a priority item. We feel that intensive and extensive education about turtles and laws protecting them-- why they are endangered, why it is bad to eat turtle meat, and what the potential penalties could be--is the only way we can reduce consumer demand for turtle products. In some ways we are lucky, since turtle has long since ceased to be a major protein source for low-income groups, so at least we can appeal to public conscience. Although our management staff has begun an educational drive in public schools in areas near the beaches they patrol, we still need to educate the judiciary (many judges don't even know turtle fishing is against the law, and usually sentence violators to minimum fines or even dismiss charges!). We also need to educate the relatively well-heeled customers who are creating the demand for turtle meat in seaside restaurants. In Puerto Rico, as in Europe, turtle meat is purely a luxury item--an exotic specialty to enjoy with special friends on a weekend outing.

SETBACKS

On February 15,1985, the 350 foot long car and passenger ferry "A. Regina", of Panamanian registry, ran aground off Mona Island in prime sea turtle habitat. Efforts by the owners to remove the vessel in condition suitable for returning it to service soon failed, and it was abandoned. The wreck caused extensive damage to the reefs and littered the beaches, designated critical nesting habitat, with oil and debris. At the present time, in spite of concerted efforts by DNR and several environmental

groups, the wreck remains aground; it is now in danger of breaking up and causing greater environmental damages.

We were surprised and discouraged by the lack of response of federal agencies entrusted with protection of sea turtle populations after this wreck. We were even more surprised by the reluctance or even refusal of some of these agencies to cooperate with the Commonwealth in developing a strategy for the resolution of this issue, or at least a mitigation plan to reduce damages.

Some lessons can be learned from the "A. Regina" experience regardless of its outcome. Certainly, the federal government needs to learn to make use of the Marine Turtle Recovery Team and other sea turtle experts who would have advised on specific matters related to habitat needs. The habitat damage assessment prepared by NOAA was done in a total vacuum, and not circulated adequately for discussion or review. As a result the document did not provide clear guidelines or directives, nor did it even point out where more data needed to be collected.

The "Regina" incident stimulated us to collect data on Mona's reefs, including the sediment environment, that we might otherwise not have had. We hope that, through this meeting, we may be able to renew our coordination efforts aimed at protecting and restoring the habitat of Mona's endangered turtles. We also believe that this meeting might be an appropriate forum to discuss planning for environmental contingencies related to sea turtles and their habitats.

CONCLUSIONS

Integrated management of sea turtles requires a combination of habitat protection, enforcement of laws and regulations and education. Only a Commonwealth-level Sea Turtle Management Plan that considers local agency capabilities and local legal and human resources can assign responsibilities, tasks and budget within the realm of pragmatgically achievable goals and objectives. Law enforcement should in our opinion be based on maximum visibility and interaction with the public (in other words, deterrence, rather than undercover operations and elaborate and costly secret operations). It is relatively easy to mount a marine patrol with uniformed officers, especially since the DNR also now enforces boating safety laws and can and must board boats regularly. Education efforts must be directed to include sport divers, commercial fishermen, local judiciary, DNR Rangers, and local police, as well as school children. The state police force can also enforce DNR laws, and there are 10,000 policemen, compared to only about 150 DNR Rangers. We have not used the media most effective in reaching people: television and radio. We must identify reporters sensitive to environmental issues and provide them with well prepared materials. We have not mounted a campaign in local restaurants.

Finally, we must manage our own lands where turtles nest more actively to control land-based poaching and depredation of nests. This includes active feral animal control. Perhaps we should pay pig hunters on Mona a special bounty for each jaw they can turn in, or maybe we need to bring in professional feral pig hunters.

Production of this management plan, including strategies for achieving each goal and a timetable and target milestones should be top priority for Puerto Rico after WATS II.

NOTE: (1) WATS II REPORT FOR THE DOMINICAN REPUBLIC SHOWS THAT 1,193 KG OF TURTLE MEAT WERE EXPORTED TO PUERTO RICO IN 1986.

(2) TURTLE TAKE IN MONA IS ESTIMATED TO BE >100 ANIMALS/YR ON THE BASIS OF NET SIGHTINGS. THE FIGURE FOR ILLEGAL TAKE IN MAINLAND P.R. MUST BE SEVERAL TIMES THAT AMOUNT. PROBABLY >500 TURTLES/YR ARE ILLEGALLY TAKEN. TURTLE MEAT IS SOLD @ 8.00 TO 25.00 DOLLARS/POUND. EGGS ARE SOLD @ $1 - 1.50 EACH.

(3) SHELLS FROM HAWKSBILL TURTLES ARE BEING ILLEGALLY EXPORTED TO THE DOMINICAN REPUBLIC. DOMINICAN OFFICIALS ARE FINDING THESE PRODUCTS IN THE TRUNKS OF CARS TRANSPORTED IN THE FERRY THAT RUNS BETWEEN MAYAGUEZ AND SAN PEDRO DE MACORIS.

References

Hall, Kathleen V. 1987. Sea Turtle Stranding Data for Puerto Rico. Sea Grant Program, University of Puerto Rico, Mayaguez Campus, Department of Marine Sciences, Mayaguez, P.R.

Hall, Kathleen V. and Anton D. Tucker. 1986. Leatherback turtle (Dermochelys coriacea) nesting in Culebra, Puerto Rico in 1985. 26 p.

Kontos, Anastasia. 1987. 1986 Annual summary. Estimation of sea turtle abundance and nesting success on Mona Island, Puerto Rico. Institute of Ecology, University of Georgia, Athens, GA. 22 p.

Matos, Robert. 1987. Sea Turtle Hatchery Project with specific reference to the leatherback turtle (Dermochelys coriacea). Humacao, Puerto Rico, 1986. 24 p.

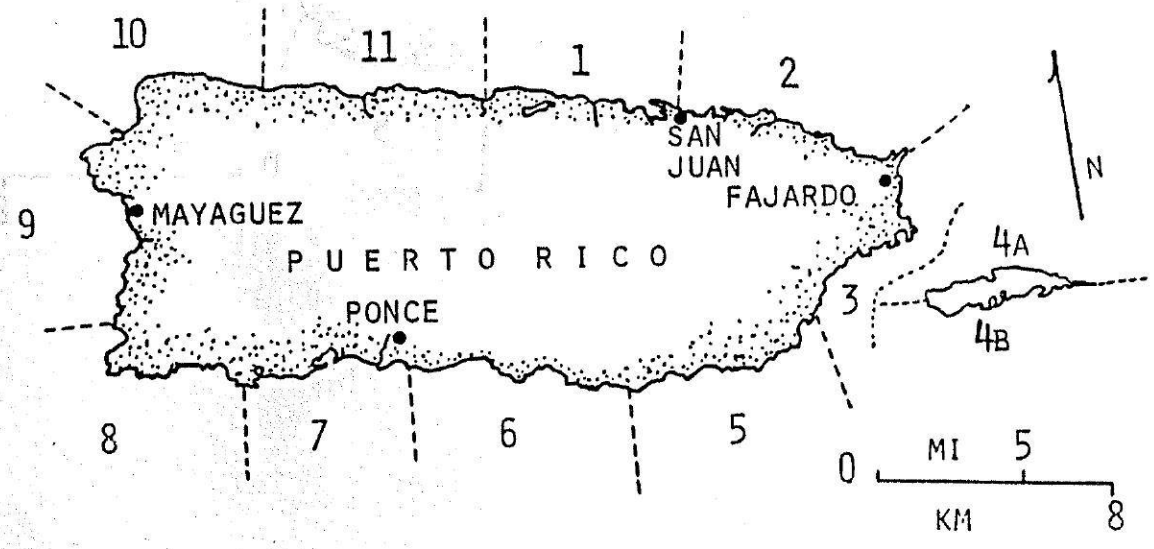
Rathbun, Galen B., Thomas Carr, Nicole Carr and Charles A. Woods. 1985 (DRAFT). The distribution of manatees and sea turtles in Puerto Rico with emphasis on Roosevelt Roads Naval Station. Report to Naval Facilities Engineering Command, Norfolk, Va. 83 pp (Appendices on turtle poaching by Thomas Carr.)

NOTE : Updates on the 1987 nesting season were provided directly to the State Representative by the following persons: Kathleen Hall (stranding reports and aerial survey), Thomas Carr (aerial survey and poaching), A. Nieves and A. Kontos (Mona Island), R. Matos, H. Orta, P.J. Rivera and B. Pinto (mainland Puerto Rico). Additional information on poaching and sale of turtle meat was provided by M. Canals, A. Kontos and A. Nieves.

Table 1. Distribution of sea turtles around Puerto Rico by coastal segment. Data compiled from twelve monthly aerial surveys from March 1984 through March 1985. Abbreviations for species: CM=Chelonia mydas, EI=Eretmochelys imbricata, DC=Dermochelys coriacea, C=Caretta caretta.

	COASTAL SEGMENT											
	1	2	3	4a*	4b*	5	6	7	8	9	10	11
Total sea turtles sighted (410)	64	49	51	21	21	12	16	21	27	22	49	57
Aver. no. sea turtles sighted per survey (standard deviation)	5.3 (3.6)	4.1 (3.1)	4.3 (4.9)	1.9 (2.0)	1.9 (3.1)	1.0 (1.0)	1.3 (1.1)	1.8 (2.1)	2.3 (2.6)	1.8 (1.7)	4.1 (4.2)	4.8 (5,2)
Percent sea turtles sighted of grand total (410)	15.6	12.0	12.4	5.1	5.1	2.9	3.9	5.1	6.6	5.4	12.0	13.9
Percent small sea turtles sighted of total small (387)	15.5	12.4	11.9	5.2	4.9	3.1	4.1	4.7	6.7	5.4	12.7	13.4
Percent large sea turtles sighted of total large (23)	17.4	4.3	21.7	4.3	8.7	0	0	13.0	4.3	4.3	0	21.7

*Only eleven aerial surveys were completed in these segments due to U.S. Navy restrictions.

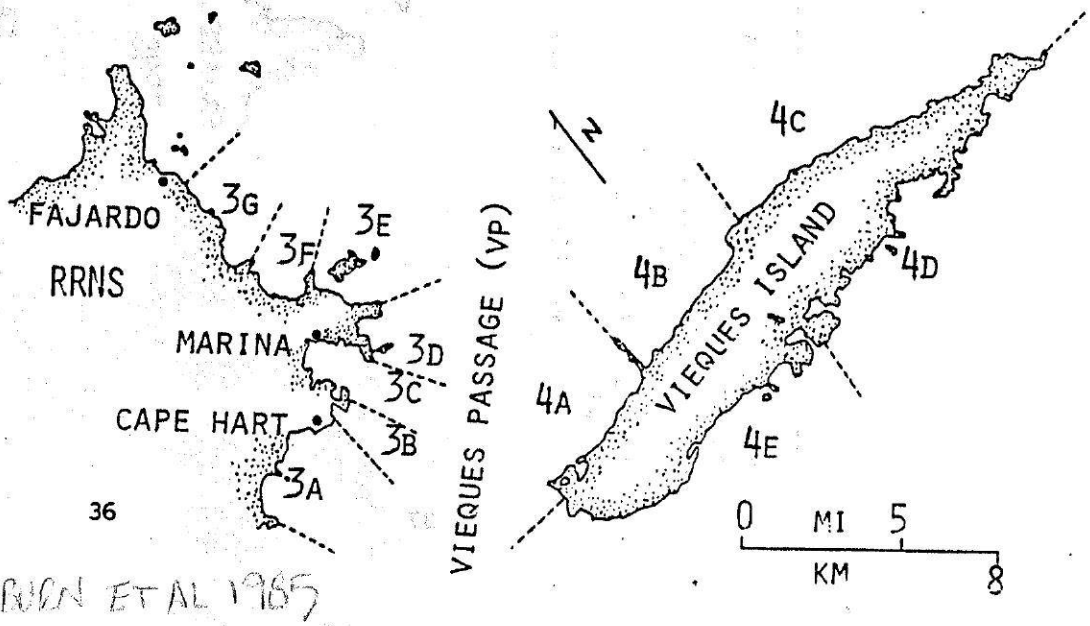


SOURCE: RATHBUN ET AL 1985

Table 2. Distribution of sea turtles by coastal segment at Roosevelt Roads Naval Station and Vieques Island, Puerto Rico. Data compiled from 49 weekly aerial surveys from March 1984 through March 1985. Abbreviations for species: CM=Chelonia mydas, EI=Eretmochelys imbricata, DC=Dermochelys coriacea, CC=Caretta caretta, VP=Vieques Passage.

	COASTAL SEGMENT												
	3a	3b	3c	3d	3e	3f	3g	VP	4a	4b	4c*	4d*	4
Total no. of surveys	49	49	49	49	49	48	49	49	49	49	18	18	4
Total sea turtles sighted (632)	18	77	82	41	95	20	16	0	50	40	24	49	12
Aver. no. sea turtles sighted per survey (standard deviation)	0.4 (0.7)	1.6 (2.2)	1.7 (1.5)	0.8 (1.1)	1.9 (1.9)	0.4 (0.7)	0.3 (0.7)	0 (0)	1.0 (0.9)	0.8 (1.5)	1.3 (1.9)	2.6 (2.8)	2 (2.
Percent sea turtles sighted of grand total (632)	2.8	12.2	13.0	6.5	15.0	3.2	2.5	0	7.9	6.3	3.8	7.8	19
Aver. small sea turtles sighted per survey	0.4	1.4	1.3	0.8	1.9	0.4	0.3	0	1.0	0.7	1.2	2.6	2.
Average large sea turtles sighted per survey	0	0.1	0.3	0.04	0.04	0.02	0	0	0.06	0.1	0.2	0.1	0.
Average CM sea turtles sighted per survey	0.08	0.4	0.5	0.4	0.9	0.1	0.1	0.1	0.2	0.2	0.2	0.8	0.
Average EI sea turtles sighted per survey	0	0.02	0.02	0.08	0.2	0.04	0	0	0.2	0.08	0.2	0.2	0.

*Only 18 of the scheduled aerial surveys in these segments were completed due to U.S. Navy restrictions.



SOURCE: RATHBUN ET AL 1985

Table 3. Distribution of Nests by Beach
Nesting Activity on Mona 1974, 1984 1985, 1986

Beaches	Location	Approx. Size (KM)	1974	1984	1985	1986
*Sardinera-Las Mujeras	W/Southwest	3.2	47	58	38	26
Carabinero	S. West	.15	01	03	05	01
U Beaches (1-8)	S. West	.2	43	36	23	15
Uvero	S. West	1.1	35	27	14	16
Caigo Peqeño	South	.05	01	Not surveyed	01	00
Caigo o No Caigo	South	.3	00	05	04	01
Pozo	South	.3	04	Not surveyed	05	04
Brava	Southeast	.25	32	12	02	01
Los Ingleses/ Pajaros	East	1.4	06	04	03	01
Escalera	Northeast	.05	04	Not surveyed	0	00
Carmelita	Northwest	.02	07	06	02	03
Unnamed beach between Playa Carmelita and Playa Sardinera	West	.08l	--	--	--	01
Total *Eretmochelys imbricata* nests (1974, 1984, 1985, 1986)			159	151	85	68
Total Nests (1974 June-Jan.)(85 April-Nov.)			180	151	97	68
Total *Chelonia mydas* nests			3		01	00
Total *Dermochelys coriacea* nests					11	00

*Study area includes 3.2 km of continuous beach from Playa Sardineria west through Playa Las Mujeras. Southwest beach areas included are Punta Arenas, Punta Toro, Playa Carite.

SOURCE: KONTOS 1985

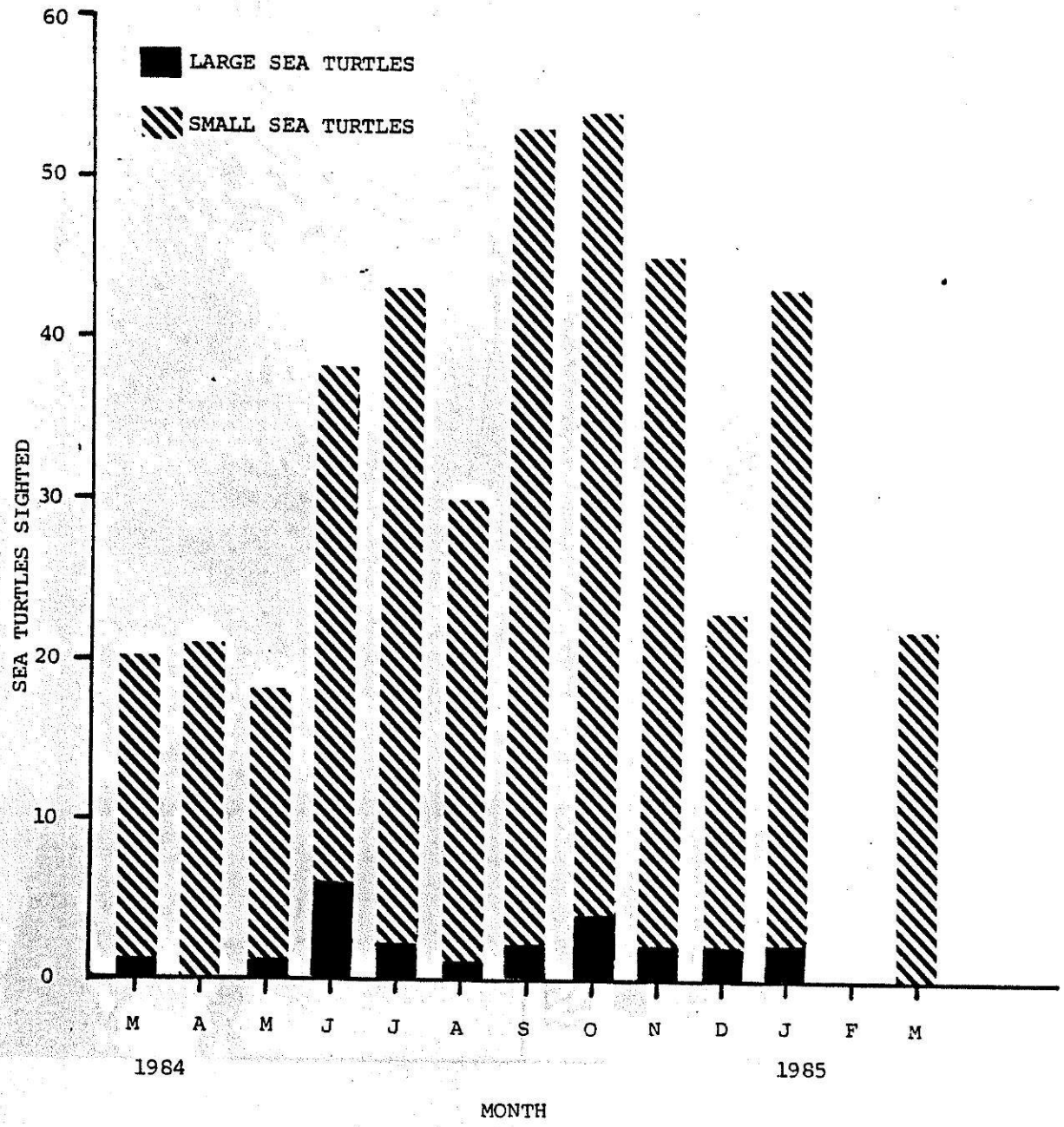
BEACH	NESTS	FALSE CRAWLS	UNDETERMINED	%
Brava	79	12	0	56
Resaca	40	17	1	36
Este (Culebrita)	--	--	7	4
Zoni	--	--	5	3
Flamenco	0	1	0	1
Totals	119	30	13	100

TABLE 4. Distribution of leatherback activities occurring on all Culebra, P.R. beaches, 1985.

SOURCE HALL AND TUCKER 1986

Figure 22 1

Total sea turtles sighted per month on 12 coastal aerial surveys around Puerto Rico. The February survey was delayed until early March.



SOURCE RATHBUN ET AL 1985

FIGURE 2

1984 LARGE MESH NET SIGHTING SHEET.

(net location not number of nets sighted)

SOURCE RATHBUN ET AL 1985

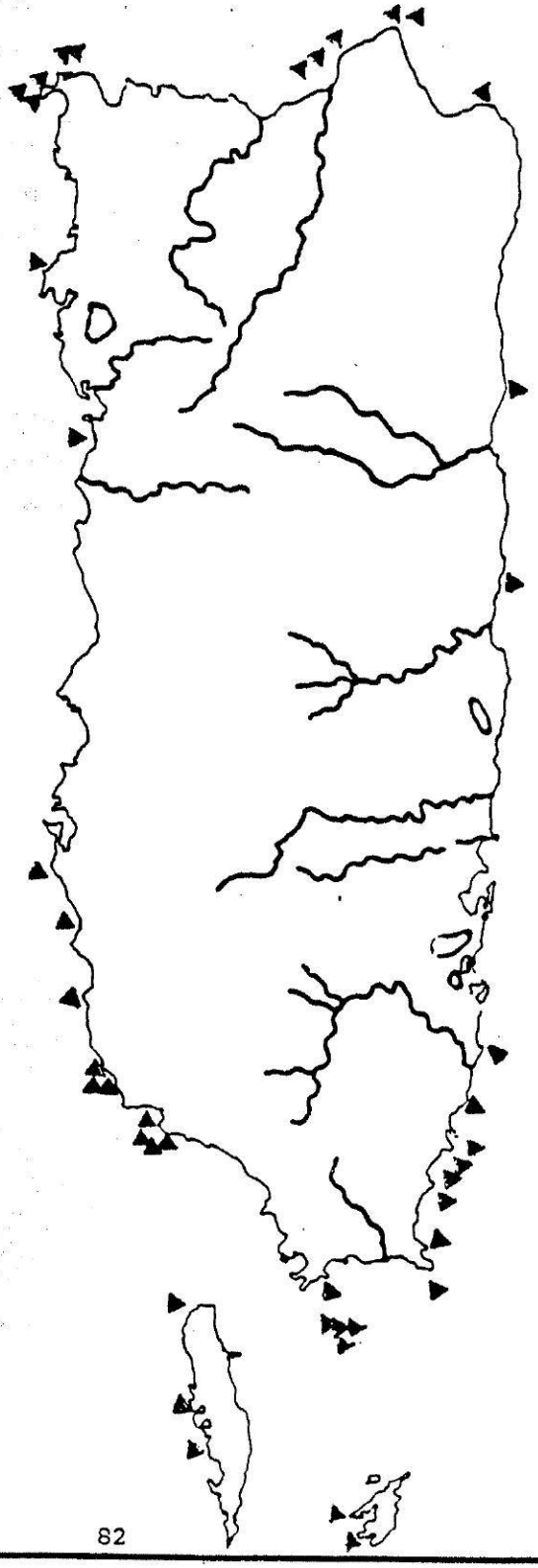
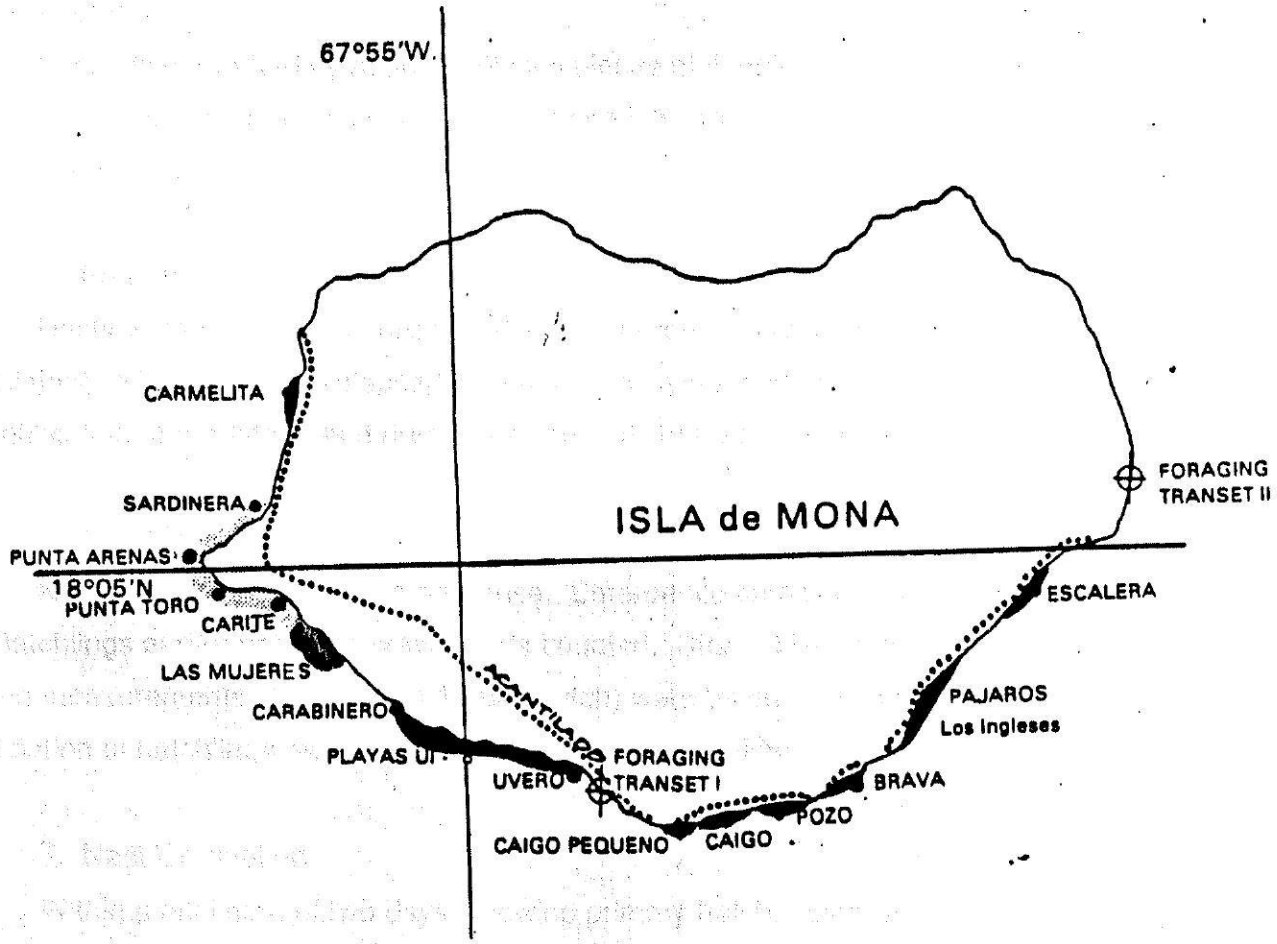


Figure 3.

Map Deliniating Study Area and Daily Nest Survey Area



SOURCE: KONTOS 1987

FIGURE 4: LOCALITIES ON THE ISLAND WHERE NESTING OF SEA TURTLES HAS BEEN RECORDED OR REPORTED.

△ Leatherback

○ Hawksbill

SOURCE: MATOS 1987

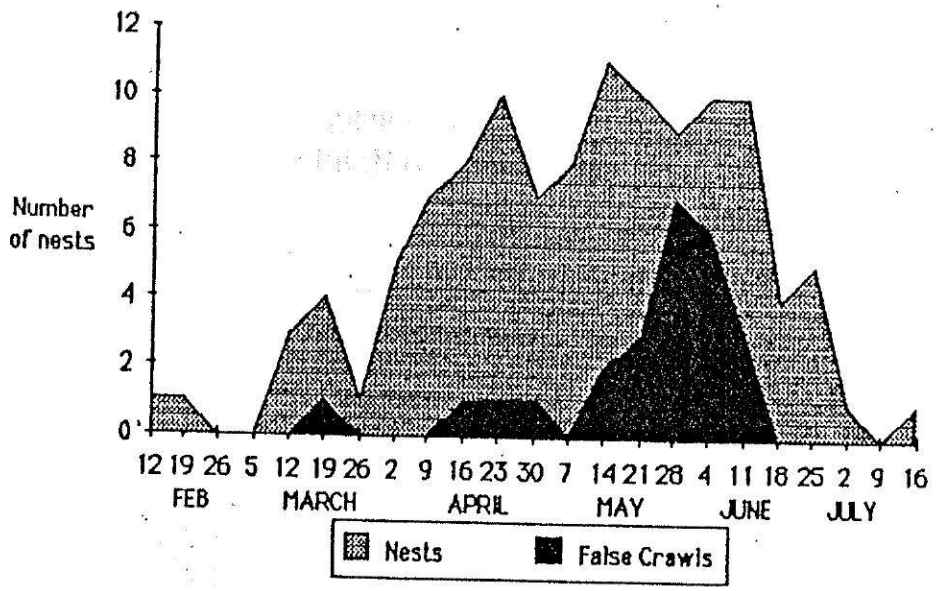


FIGURE 5. Leatherback activities at Culebra, P.R., 1985.

SOURCE HALL AND TUCKER 1986

Appendix 1

NOTE

On 26 December, 84, two fisherman from my neighborhood (Fortuna) came to my house to ask if I wanted to buy turtle meat. I said no, for the time being. I questioned the two men in the presence of six other men (all local fishermen) for about two hours. By the end of our disscusion, all the men there agreed that between three the of them (the men who called themselves turtle fishermen) a total of 129 turtles had been taken this year. The turtles were taken in nets or spearfished. Most of the turtles were immature Greens, but Hawksbills and one adult female Leatherback with eggs were also taken. Fortuna is one of many small fishing villages which occur thoughout Puerto Rico. If what I have found in Fortuna occurs in even a portion of those other villages, the number of sea turtles being taken must be mind boggling.

SOURCE: ROTHBUN ET AL 1985

Distribution of letter: Archie Carr, University of Florida, Gainesville
Ricardo Cote, U.S. Fish & Wildlife Service, Puerto Rico
Paul Gertler, U.S. Fish & Wildlife Service, Puerto Rico
Jorge Pinero, Chelonia Society, Puerto Rico
Secretary, Puerto Rico Dept. of Natural Resources
Frank Wadsworth, Natural History Society, Puerto Rico

United States Department of the Interior
FISH AND WILDLIFE SERVICE

Appendix 2

July Report - 1987 Sea Turtle Activity
Culebra National Wildlife Refuge

The following information is a monthly summary of leatherback turtle (Dermochelys coriacea) activity as of 1 August, 1987. Personnel involved in data compilation were the Earthwatch expedition staff, Earthwatch volunteer research teams, the Caribbean Islands refuge staff, and many local and off-island volunteers. Nightly beach patrols on Playas Resaca and Brava were concluded on July 6.

We have observed 25 females nesting this year. Nesting season lasted from 14 February until 18 July. The following table summarizes the monthly nesting activities occurring on each beach with cumulative seasonal totals included in parentheses.

Beach	nests	did not lay	false crawls	total activities
Brava	10(90)	0(3)	0(6)	10(104)
Resaca	1(79)	1(11)	1(13)	3(104)
Zoní	0(7)	0(0)	0(2)	0(9)
Culebrita	0(1)	0(0)	0(0)	0(1)
Flamenco	0(1)	0(0)	0(0)	0(1)
total	11(184)	1(14)	1(21)	13(219)

By the end of July, 87 nests had emerged and been excavated. Nest excavation revealed that 4519 viable hatchlings successfully made it to the ocean. Mean hatching rate for these nests was 78.9 % with a range of 30.2 to 100%. Very little predation has been observed by either ghost crabs or night herons. Several nests invaded by roots of *Ipomea pescaprae* have had significantly lessened nest success. Nest loss due to tidal innundation was largely avoided with the translocation of eight nests on Resaca and two on Brava. Two nests were lost to freshwater innundation on Breva. Evidence of human poaching has been very low with only three nests known to have been poached.

Over 238 individuals have contributed 10048 volunteer work hours since the beginning of this season.

Tony Tucker / Teresa Tallevast

Tony Tucker/Teresa Tallevast

Appendix 3

SEA TURTLE STRANDING AND SALVAGE NETWORK - STRANDING REPORT

PLEASE PRINT CLEARLY AND FILL IN ALL APPLICABLE BLANKS. Use codes below. Measurements may be straight line (caliper) and/or over the curve (tape measure). Measure length from the center of the nuchal notch to the tip of the most posterior marginal. Measure width at the widest point of carapace. **CIRCLE THE UNITS USED.** See diagram below. Please give a specific location description. **INCLUDE LATITUDE AND LONGITUDE.**

Observer's Full Name Ronald X. Childs Stranding Date 85 (year) - 07 (month) - 10 (day)

Address / Affiliation USFWS Po Box 190 Culebra, PR 00645

Area Code / Phone Number 809 - 742 - 3882

Species CM Turtle Number By Day 01

Reliability of I.D.: (CIRCLE) Unsure Probable (Positive) Species Verified by State Coordinator? Yes☒ No☐

Sex: (CIRCLE) Female Male (Undetermined) How was sex determined? _____

State Puerto Rico ~~County~~ Culebra Archipelago

Location (be specific and include closest town) Coast Guard dock on S. side Culebrita, Culebra Archipelago, Puerto Rico

Latitude 18° 19' 0" N Longitude 65° 17' 50" W

Condition of Turtle (use codes) 1, 5 (butchered) Final Disposition of Turtle (use codes) 8* (see note*)

Tag Number(s) (include tag return address and disposition of tag) _____

Remarks (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propellor damage, papillomas, epizoa, etc.) continue on back if necessary

Turtle was freshly butchered, guts floating on shore. CCL estimated since carapace was removed immediately, shortening by approx 6 cm.

MEASUREMENTS: CIRCLE UNITS

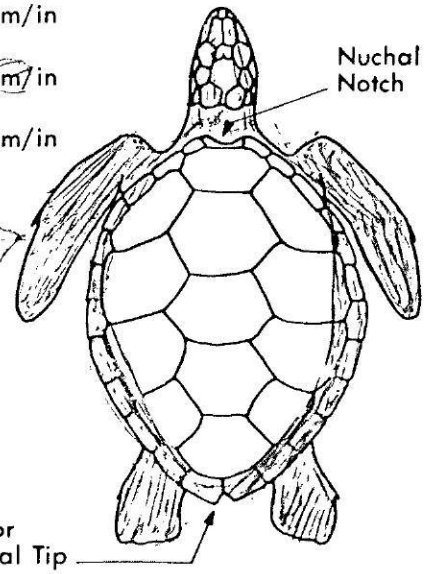
Straight Length _____ cm/in

Straight Width _____ cm/in

Curved Length est. 74.0 (cm)/in

Curved Width _____ cm/in

Mark wounds, abnormalities, and tag locations



CODES:

SPECIES:
- CC = Loggerhead
- CM = Green
- DC = Leatherback
- EI = Hawksbill
- LK = Kemp's ridley
- UN = Unidentified

CONDITION OF TURTLE:
- 0 = Alive
- 1 = Fresh dead
- 2 = Moderately decomposed
- 3 = Severely decomposed
- 4 = Dried carcass
- 5 = Skeleton, bones only

FINAL DISPOSITION OF TURTLE:
- 1 = Painted, left on beach
- 2 = Buried: on beach / off beach
- 3 = Salvaged specimen: all / part
- 4 = Pulled up on beach or dune
- 5 = Unpainted, left on beach
- 6 = Alive, released
- 7 = Alive, taken to a holding facility
- 8 = Painted, disposed of at [illegible]

SEA TURTLE STRANDING AND SALVAGE NETWORK - STRANDING REPORT

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Observer's Full Name Anton D. Tucker Stranding Date 85 (year) - 09 (month) - 04 (day)

Address / Affiliation USFWS Fr Pox 190 Culebra, PR 00645

Area Code / Phone Number 809-742-3582

Species EI Turtle Number By Day 01

Reliability of I.D.: (CIRCLE) Unsure Probable (Positive) Species Verified by State Coordinator? Yes☐ No☒

Sex: (CIRCLE) (Female) Male Undetermined How was sex determined? presence of eggs

State Puerto Rico ~~County~~ Culebra Archipelago

Location (be specific and include closest town) middle of Playa Este, Isla Culebrita. Culebra, Puerto Rico

Latitude 18° 19' 05" N Longitude 65° 13' 36" W

Condition of Turtle (use codes) 2 Final Disposition of Turtle (use codes) 5, 3

Tag Number(s) (include tag return address and disposition of tag) none, no tag scars

Remarks (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propellor damage, papillomas, epizoa, etc.) continue on back if necessary

Skull disarticulated and will be prepared as voucher specimen for Culebra NWR; columella bones taken by Tucker. No evidence of shark attack, no prop marks, carcass bloated and w/meat swelling out of wounds in neck & shoulder →

MEASUREMENTS: CIRCLE UNITS

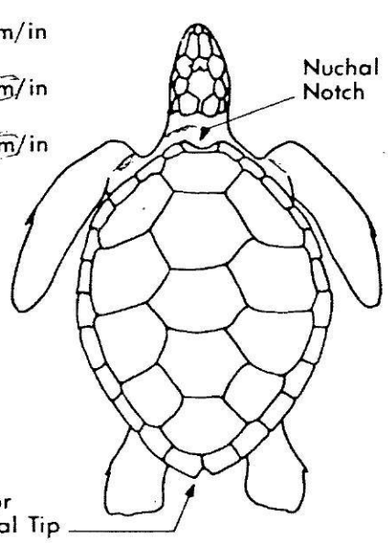
Straight Length _____ cm/in

Straight Width _____ cm/in

Curved Length 92.0 (cm)/in

Curved Width 81.0 (cm)/in

Mark wounds, abnormalities, and tag locations



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CONDITION OF TURTLE:
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- 5 = Skeleton, bones only

FINAL DISPOSITION OF TURTLE:
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- 4 = Pulled up on beach or dune
- 5 = Unpainted, left on beach
- 6 = Alive, released
- 7 = Alive, taken to a holding facility

Upon examination this is a sport-fishing fatality or not. Necropsied one ♀ and there were mature shelled eggs inside. Estimate ~ 5 to 6 large barnacles located in middle of carapace.

SEA TURTLE STRANDING AND SALVAGE NETWORK - STRANDING REPORT

PLEASE PRINT CLEARLY AND FILL IN ALL APPLICABLE BLANKS. Use codes below. Measurements may be straight line (caliper) and/or over the curve (tape measure). Measure length from the center of the nuchal notch to the tip of the most posterior marginal. Measure width at the widest point of carapace. **CIRCLE THE UNITS USED.** See diagram below. Please give a specific location description. **INCLUDE LATITUDE AND LONGITUDE.**

Observer's Full Name Anton D. Tucker Stranding Date 85 (year) - 10 (month) - 15 (day)

Address / Affiliation USFWS Fe Box 190 Culebra PR 00645

Area Code / Phone Number 809 - 742 - 3882

Species EI Turtle Number By Day 01

Reliability of I.D.: (CIRCLE) Unsure Probable (Positive) Species Verified by State Coordinator? Yes☐ No☒

Sex: (CIRCLE) (Female) Male ~~(Undetermined)~~ How was sex determined? gonad exam on necropsy

State Puerto Rico County Culebra Archipelago

Location (be specific and include closest town) middle of Playa Flamenco, Culebra, P.R.

Latitude 18° 19' 50" N Longitude 65° 19' 0" W

Condition of Turtle (use codes) 2 Final Disposition of Turtle (use codes) 3, 8*

Tag Number(s) (include tag return address and disposition of tag) none

Remarks (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propellor damage, papillomas, epizoa, etc.) continue on back if necessary

Found floating had come in Flamenco Bay severly weakened + emaciated, died in possession of USFWS. Necropsied by Tucker - skull, columellas, and stomach intestinal contents saved.

MEASUREMENTS: CIRCLE UNITS

Straight Length 39.5 (cm)/in

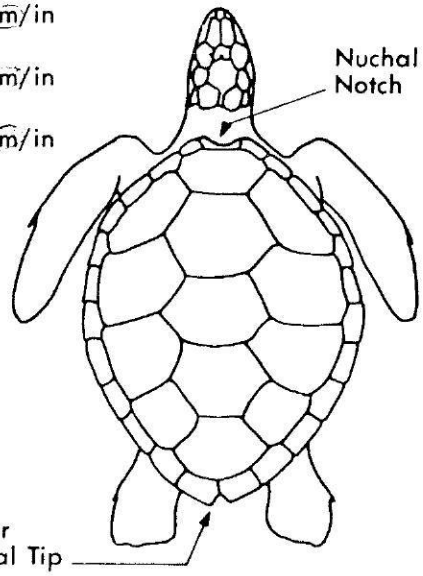
Straight Width 28.0 cm/in

Curved Length 41.5 cm/in

Curved Width 33.0 cm/in

Weight - 15 lbs.

Mark wounds, abnormalities, and tag locations



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FINAL DISPOSITION OF TURTLE:
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- 2 = Buried: on beach / off beach
- 3 = Salvaged specimen: all / (part)
- 4 = Pulled up on beach or dune
- 5 = Unpainted, left on beach
- 6 = Alive, released
- 7 = Alive, taken to a holding facility

*3 = Burned, exposure of at sea

SEA TURTLE STRANDING AND SALVAGE NETWORK - STRANDING REPORT

PLEASE PRINT CLEARLY AND FILL IN ALL APPLICABLE BLANKS. Use codes below. Measurements may be straight line (caliper) and/or over the curve (tape measure). Measure length from the center of the nuchal notch to the tip of the most posterior marginal. Measure width at the widest point of carapace. **CIRCLE THE UNITS USED.** See diagram below. Please give a specific location description. **INCLUDE LATITUDE AND LONGITUDE.**

Observer's Full Name Abram X. Peña (finder) / Anton D. Tucker (turned in to) Stranding Date 85 (year) - 11 (month) - 24 (day)

Address / Affiliation USFWS Po Box 190 Culebra, PR 00645

Area Code / Phone Number 809 - 742 - 3880

Species CM Turtle Number By Day 01

Reliability of I.D.: (CIRCLE) Unsure Probable (Positive) Species Verified by State Coordinator? Yes☒ No☐

Sex: (CIRCLE) (Female) Male Undetermined How was sex determined? gonads examined at necropsy

State Puerto Rico ~~County~~ Culebra Archipelago

Location (be specific and include closest town) 1 mi. W. of Punta Tamarindo, Culebra, PR found entangled on reef in 50' water by divers

Latitude 18° 19' 20" N Longitude 65° 21' 00" W

Condition of Turtle (use codes) 1 Final Disposition of Turtle (use codes) 3, 8*

Tag Number(s) (include tag return address and disposition of tag) none

Remarks (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propellor damage, papillomas, epizoa, etc.) continue on back if necessary

Kapok strand from a discarded life jacket became wrapped around left front flipper. Turtle eventually drowned when strand became entangled on coral. Healthy animal, fresh Thalassia in gut.

MEASUREMENTS: CIRCLE UNITS

Straight Length 70.5 (cm)/in

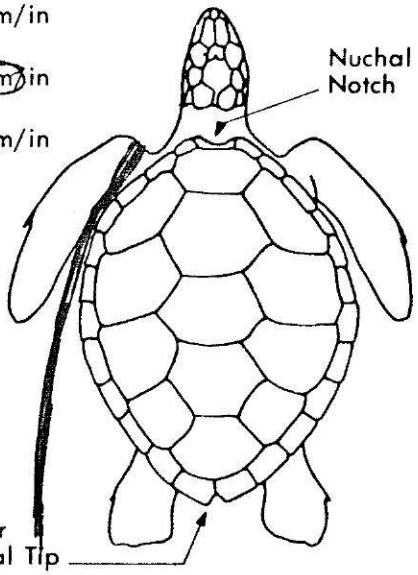
Straight Width _____ cm/in

Curved Length 76.2 (cm)/in

Curved Width _____ cm/in

weight 90 kg

Mark wounds, abnormalities, and tag locations



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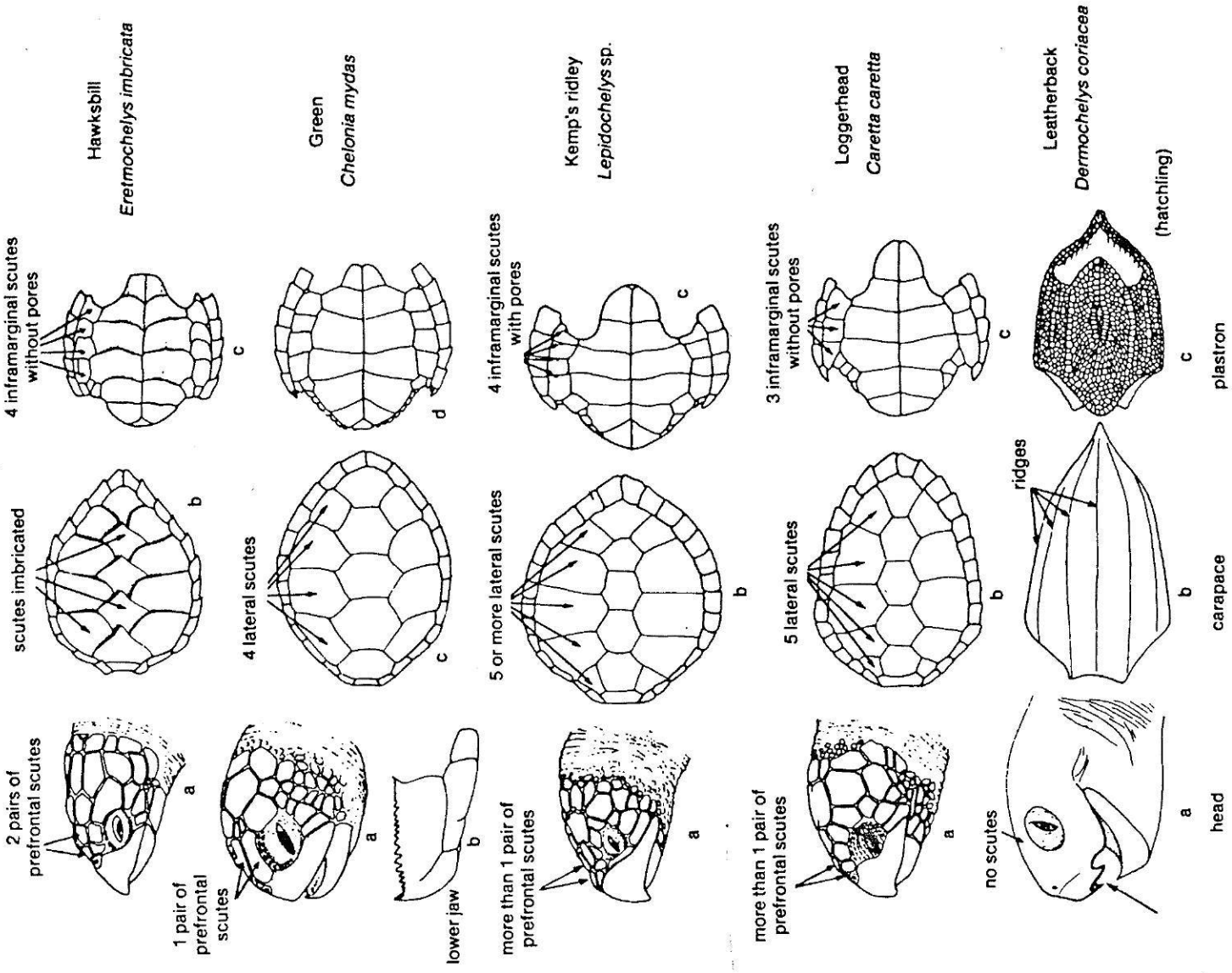
- 4 = Pulled up on beach or dune
- 5 = Unpainted, left on beach
- 6 = Alive, released
- 7 = Alive, taken to a holding facility
- * 8 = Painted, disposed of at sea

PICTURE GUIDE TO SPECIES OCCURRING IN THE AREA



stomach + gut frozen, head frozen, frozen samples of liver, kidney, lung, heart, trachea, + ovaries for Virological + Toxicological exam.

RETURN TO :

KATHY HALL
PUERTO RICO STSSN COORDINATOR
UNIVERSITY OF PUERTO RICO
DEPT. OF MARINE SCIENCES
MAYAGUEZ, PR 00708

SEA TURTLE STRANDING AND SALVAGE NETWORK - STRANDING REPORT

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Observer's Full Name Ivan Lopez / Jasmin Detres Stranding Date 86 (year) - 01 (month) - 23 (day)

Address / Affiliation Dept. Marine Science Univ. Puerto Rico Mayagüez, P.R. 00708

Area Code / Phone Number (809) 899-2482 (Marine Lab)

Species EI Turtle Number By Day /

Reliability of I.D.: (CIRCLE) Unsure Probable (Positive) Species Verified by State Coordinator? Yes☒ No☐

Sex: (CIRCLE) Female Male (Undetermined) How was sex determined? _____

State Puerto Rico County _____

Location (be specific and include closest town) Found in shallow water near mangroves, north of Isla Guayacán, La Parguera

Latitude 17° 58.0' Longitude 67° 4.7'

Condition of Turtle (use codes) 1, 5 (butchered) Final Disposition of Turtle (use codes) 3

Tag Number(s) (include tag return address and disposition of tag) _____

Remarks (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propellor damage, papillomas, epizoa, etc.) continue on back if necessary

Only carapace was found.

MEASUREMENTS: CIRCLE UNITS

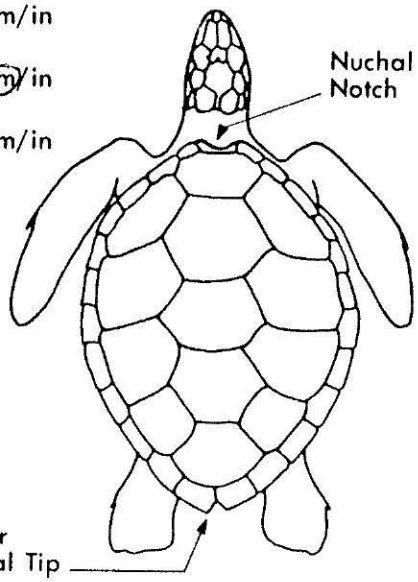
Straight Length _____ cm/in

Straight Width _____ cm/in

Curved Length ~~40.0~~ 44.8 (cm)/in

Curved Width 40.0 cm/in

Mark wounds, abnormalities, and tag locations



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- 5 = Unpainted, left on beach
- 6 = Alive, released
- 7 = Alive, taken to a holding facility

SEA TURTLE STRANDING AND SALVAGE NETWORK - STRANDING REPORT

PLEASE PRINT CLEARLY AND FILL IN ALL APPLICABLE BLANKS. Use codes below. Measurements may be straight line (caliper) and/or over the curve (tape measure). Measure length from the center of the nuchal notch to the tip of the most posterior marginal. Measure width at the widest point of carapace. **CIRCLE THE UNITS USED.** See diagram below. Please give a specific location description. **INCLUDE LATITUDE AND LONGITUDE.**

Observer's Full Name Ivan Lopez / Jasmin Oetres Stranding Date 86 - 01 - 23 (year - month - day)

Address / Affiliation Dept. Marine Science Univ. of Puerto Rico Mayaguez, P.R. 00708

Area Code / Phone Number (809) 899-2482 (Marine Lab)

Species EI Turtle Number By Day 2

Reliability of I.D.: (CIRCLE) Unsure Probable (Positive) Species Verified by State Coordinator? Yes☒ No☐

Sex: (CIRCLE) Female Male (Undetermined) How was sex determined? _____

State Puerto Rico County _____

Location (be specific and include closest town) Found in shallow water near mangroves, north of Isla Guayacán, La Parguera

Latitude 17° 58.0' Longitude 67° 4.7'

Condition of Turtle (use codes) 4,5 (butchered) Final Disposition of Turtle (use codes) 3

Tag Number(s) (include tag return address and disposition of tag) _____

Remarks (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propellor damage, papillomas, epizoa, etc.) continue on back if necessary

An old dent in 2nd right costal area. Carapace with many barnacles (max. 4 cm). Only the carapace was found.

MEASUREMENTS: CIRCLE UNITS

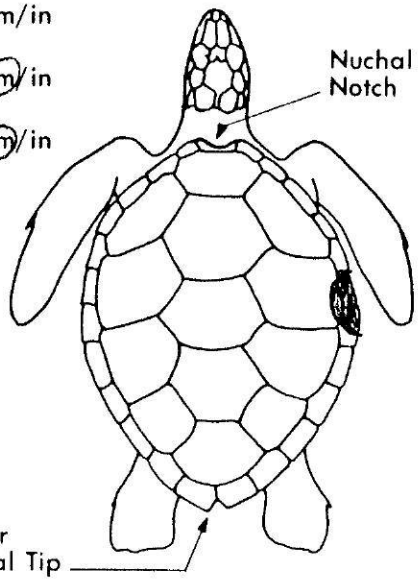
Straight Length _____ cm/in

Straight Width _____ cm/in

Curved Length 71.0 (cm)/in

Curved Width 63.0 (cm)/in

Mark wounds, abnormalities, and tag locations



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SEA TURTLE STRANDING AND SALVAGE NETWORK - STRANDING REPORT

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Observer's Full Name Christopher R. Cutler Stranding Date 86 (year) - 02 (month) - 18 (day)

Address / Affiliation USFWS Box 510 Boqueron, PR 00622

Area Code / Phone Number (809) 851-7297

Species CM Turtle Number By Day 1

Reliability of I.D.: (CIRCLE) Unsure Probable (Positive) Species Verified by State Coordinator? Yes ☒ No ☐

Sex: (CIRCLE) Female Male (Undetermined) How was sex determined? _____

State Puerto Rico County _____

Location (be specific and include closest town) In mangroves 300m S. of salt evaporites near Bahia Sucia, Boqueron

Latitude 17° 56.8' Longitude 67° 11.8'

Condition of Turtle (use codes) 5 (upper skull) Final Disposition of Turtle (use codes) 3

Tag Number(s) (include tag return address and disposition of tag) _____

Remarks (note if turtle was involved with tar or oil, gear or debris entanglement, wounds or mutilations, propellor damage, papillomas, epizoa, etc.) continue on back if necessary

Fishing net fragments next to skull

MEASUREMENTS: CIRCLE UNITS

Straight Length _____ cm/in

Straight Width _____ cm/in

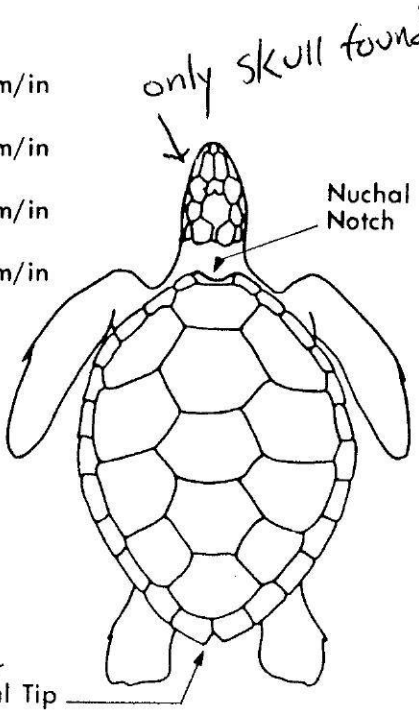
Curved Length _____ cm/in

Curved Width _____ cm/in

SLL skull 11.8 cm

SLW " 6.8 cm

Mark wounds, abnormalities, and tag locations



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- 7 = Alive, taken to a holding facility

Appendix 4

WATS II SEA TURTLE SURVEY DATA FORM

TABLE I. NESTING BEACH SURVEY: P.R SEA TURTLE HATCHERY Project

COUNTRY Puerto Rico STATE _____ NAME OF BEACH HUMACAO

NAME OF OBSERVER ROBERT MATOS DATE _____ TIME START/STOP _____ DISTANCE SURVEYED _____

ART. Nest Number	(1)	NATURAL NEST	(2)	(3)	(4)	NATURAL NEST	NATURAL NEST
1. Time	27/28 APRIL 87	APRIL 15/87	MAY 7/8 87	JUNE 11/12 87	SEPT 87	APRIL 87	APRIL 87
2. Species*	Dc	Dc	Dc	Ei	Ei	Dc	Dc
3. Tag Number N = New O = Old	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4. Carapace Length (S/C) Units cm or inches	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5. Number of Eggs	85	POACHED	82	169	221	127	90
6. Emergence Date	JUNE 27, 87	N/A	JULY 9, 1987	AUGUST 1, 87	NOV. 87	JUN 10 87	MAYNO. 87
7. Number of Hatchlings	26	N/A	18	139	N/A ?	71	32
8. Erosion Danger?(Y/N)	Yes	Yes	Yes	NO	NO	NO	Yes
9. Nest Protected?(Y/N)	Yes	NO	Yes	Yes	Yes	NO	NO
10. Nest Relocated to HATCHERY ~~another beach site~~ (Y/N)	Yes	NO	Yes	Yes	Yes	NO	NO
11. Number of Eggs to Hatchery? (Y/N)	Yes 85	N/A	82	168 (1 BROKEN)	221	N/A	N/A
12. Number of Eggs Harvested	NONE	ALL	NONE	NONE	NONE	NONE	NONE
13. Number of Eggs Depredated	NONE	N/A	NONE	NONE	NONE	1 hatchling	NONE
14. Number of Head-start Eggs	85	N/A	82	139	221	N/A	N/A
15. Females Harvested?(Y/N)	NO	NO	NO	NO	NO	N/A	NO

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivavea; UK = Unknown

HUMACAO Beach June 18 (E.i.) Nest Poached
June 2 (E.i.) Nest Poached

WATS II SEA TURTLE SURVEY DATA FORM

TABLE I. NESTING BEACH SURVEY:

COUNTRY Puerto Rico STATE _____ NAME OF BEACH Luquillo (Paulina)

NAME OF OBSERVER Robert Mates DATE _____ TIME START/STOP _____ DISTANCE SURVEYED _____

P.R. SEA TURTLE HATCHERY PROJECT

Nest Number	NATURAL NEST	(1)	(2)	(3)	(4)	(5)	(6)
1. Time	None 25 27		May 7/8	MAY 16	MAY 16	May 17	May 16
2. Species*	D.C.	D.C.	D.C.	D.C.	D.C.	D.C.	D.C.
3. Tag Number N = New O = Old	N/A	D-4726 D-4728	N/A	B-4732 B-4276	D-4726 D-4728	N/A	N/A
4. Carapace Length (S/C) Units cm or inches	N/A	110 cm	N/A	141 cm	110 cm	N/A	N/A
5. Number of Eggs	131*	134*	119*	88*	130*	116*	106*
6. Emergence Date	June 25	June 30	July 8	July 14	July 12	July 12	July 15
7. Number of Hatchlings	44	18	93	17	34	29	32
8. Erosion Danger?(Y/N)	NO	Yes	Yes	Yes	Yes	yes	yes
9. Nest Protected?(Y/N)	NO	Yes	Yes	Yes	Yes	yes	Yes
10. Nest Relocated to another beach site (Y/N)	NO	NO	NO	NO	NO	NO	NO
11. Number of Eggs to Hatchery? (Y/N)	NO	134	119	88	130	116	106
12. Number of Eggs Harvested	NONE	NONE	NONE	NONE	NONE	NONE	NONE
13. Number of Eggs Depredated	2	NONE	NONE	NONE	NONE	NONE	NONE
14. Number of Head-start Eggs	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15. Females Harvested?(Y/N)	UNKNOWN	NO	NO	NO	NO	NO	NO

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivavea; UK = Unknown

131/44 134/18 119/93 88/17 130/34 116/29 106/32

WATS II SEA TURTLE SURVEY DATA FORM

TABLE I. NESTING BEACH SURVEY: Cont. Luquillo (Playa)

COUNTRY Puerto Rico STATE _____ NAME OF BEACH _____

P.R. SEA TURTLE HATCHERY PROJECT

NAME OF OBSERVER Robert Mates DATE _____ TIME START/STOP _____ DISTANCE SURVEYED _____

Nest Number	(7)	(8)	(9)	NATURAL NEST	NATURAL NEST	NATURAL NEST
1. Time	MAY 26	MAY 27	JULY 4	JUNE 16	APRIL 21	JUNE 25
2. Species*	D.C.	D.C.	D.C.	D.C.	D.C.	D.C.
3. Tag Number N = (New) O = Old	N/A	N/A	B-3233 B-3236	O/A	N/A	N/A
4. Carapace Length (S/C) Units cm or inches	N/A	N/A	141 cm	N/A	N/A	N/A
5. Number of Eggs	129	116	100	105	POACHED	POACHED
6. Emergence Date	JULY 22	JULY 22	AUG. 29	AUG 18	N/A	N/A
7. Number of Hatchlings	37	55	43	55	N/A	N/A
8. Erosion Danger?(Y/N)	YES	YES	YES	YES	YES	YES
9. Nest Protected?(Y/N)	YES	YES	YES	NO	NO	NO
10. Nest Relocated to another beach site (Y/N)	NO	NO	NO	NO	NO	NO
11. Number of Eggs to Hatchery? (Y/N)	129	116	100	105	N/A	N/A
12. Number of Eggs Harvested	NONE	NONE	NONE	NONE	ALL	N/A
13. Number of Eggs Depredated	NONE	NONE	NONE	NONE	N/A	N/A
14. Number of Head-start Eggs	N/A	N/A	N/A	N/A	N/A	N/A
15. Females Harvested?(Y/N)	NO	NO	NO	NO	UNKNOWN	N/A

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivavea; UK = Unknown

WATS II SEA TURTLE SURVEY DATA FORM

TABLE I. NESTING BEACH SURVEY:

COUNTRY Puerto Rico STATE _____ NAME OF BEACH PIÑONES

P.R.SEA TURTLE HATCHERY PROJECT

NAME OF OBSERVER ROBERT MATOS DATE _____ TIME START/STOP _____ DISTANCE SURVEYED _____

Nest Number	N/A	NATURAL NEST	NATURAL NEST	(1)	(2)	(3)	N/A
1. Time	April 24 87	MARCH 31	April 30 87	MAY 8, 87	MAY 17 87	MAY 28 87	JUNE 87
2. Species*	D.C.	D.C.	D.C.	D.C	D.C	D.C	Cm
3. Tag Number N = (New) O = Old	N/A	N/A	N/A	B-9293 B-9294	B-9293 B-9294	B-9293 B-9294	N/A
4. Carapace Length (S/C) Units cm or inches	N/A	N/A	N/A	65 inches	SAME TURTLE	SAME TURTLE	N/A
5. Number of Eggs	N/A	N/A	3 yolkless eggs were found	*129	*108	*129	N/A
6. Emergence Date	N/A	N/A	N/A	JULY 5	JULY 19	JULY 29	N/A
7. Number of Hatchlings	N/A	N/A	N/A	36	33	22	N/A
8. Erosion Danger?(Y/N)	N/A	YES	YES	YES	YES	YES	N/A
9. Nest Protected?(Y/N)	N/A	NO	NO	YES	YES	YES	N/A
10. Nest Relocated to Hatchery ~~another beach site (Y/N)~~	N/A	NO	NO	YES	YES	YES	N/A
11. Number of Eggs to Hatchery? (Y/N)	N/A	N/A	N/A	129	108	129	N/A
12. Number of Eggs Harvested	N/A	ALL	ALL	NONE	NONE	NONE	N/A
13. Number of Eggs Depredated	N/A	N/A	N/A	NONE	NONE	NONE	N/A
14. Number of Head-start Eggs	N/A	N/A	N/A	129	108	129	N/A
15. Females Harvested?(Y/N)	YES	UNKNOWN	UNKNOWN	NO	NO	NO	FOUND DEAD WASHED IN A PIECE OF NET.

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivavea; UK = Unknown

129 108 129
36 33 22

WATS II SEA TURTLE SURVEY DATA FORM

TABLE I. NESTING BEACH SURVEY:

COUNTRY Puerto Rico STATE _____ NAME OF BEACH Tubos (Vega Baja) P.R. SEA TURTLE Hatchery Project

NAME OF OBSERVER Robert Matos DATE _____ TIME START/STOP _____ DISTANCE SURVEYED _____

Nest Number							
1. Time	MAY 12	April 24					
2. Species*	D.C.	D.C.					
3. Tag Number N = New O = Old	N/A	N/A					
4. Carapace Length (S/C) Units cm or inches	N/A	N/A					
5. Number of Eggs	POACHED	N/A					
6. Emergence Date	N/A	June 07					
7. Number of Hatchlings	N/A	N/A					
8. Erosion Danger?(Y/N)	YES	[illegible]					
9. Nest Protected?(Y/N)	NO	[illegible]					
10. Nest Relocated to another beach site (Y/N)	NO	NO					
11. Number of Eggs to Hatchery? (Y/N)	N/A	N/A					
12. Number of Eggs Harvested	ALL	N/A					
13. Number of Eggs Depredated	N/A	N/A					
14. Number of Head-start Eggs	N/A	N/A					
15. Females Harvested?(Y/N)	UNKNOWN	UNKNOWN					

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivavea; UK = Unknown

WATS II SEA TURTLE SURVEY DATA FORM

TABLE I. NESTING BEACH SURVEY:

COUNTRY Puerto Rico STATE _____ NAME OF BEACH Mona Playa Mojon

P.R. SEA TURTLE Hatchery Project

NAME OF OBSERVER T. Nieves DATE _____ TIME START/STOP _____ DISTANCE SURVEYED _____

R. Matos

Nest Number							
1. Time	May 24	May 7					
2. Species*	D.C.	D.C.					
3. Tag Number N = New O = Old	D-9737 D-9738	D-9737 D-9738	I	Es	Hanate		
4. Carapace Length (S/C) Units cm or inches	N/A	N/A		That	This	Turtle	
5. Number of Eggs	false crawl	120 Eggs were washed more	Laid	About			
6. Emergence Date							
7. Number of Hatchlings	N/A		3	To	4		
8. Erosion Danger?(Y/N)	N/A	yes					
9. Nest Protected?(Y/N)	N/A	yes	Nests	in			
10. Nest Relocated to another beach site (Y/N)	N/A	yes	The	entire			
11. Number of Eggs to Hatchery? (Y/N)	N/A	N/A	season.				
12. Number of Eggs Harvested	N/A	none					
13. Number of Eggs Depredated	N/A	none			R. Matos		
14. Number of Head-start Eggs	N/A	N/A					
15. Females Harvested?(Y/N)	no	no					

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivavea; UK = Unknown

Note: Puerto Rico Data are estimates of Average numbers per year for Culebra and Main Island

FORMATO DE DATOS PARA
TORTUGAS MARINAS DE STAO II

Tabla III. INVENTARIO DE ANIDACION EN LAS PLAYAS

Liste las playas en secuencia geográfica. Provea información adicional en otra hoja. Por favor liste cada especie que ocurre en la playa en una nueva línea aunque el mes sea el mismo.

PAIS U.S. ESTADO ~~Commonwealth of~~ Puerto Rico ANOTADOR B. Cintrón / G. Cintrón, R. Matos / A. Kontos / A. Tucker

NOMBRE DE LA PLAYA	LONGITUD EN KM.	ESPECIES ANIDANDO	MESES DE MAXIMA ANIDACION	MESES DE ANIDACION
(1) Culebra Island				
a) Playa Brava + Resaca	2.5	DC, CM(1) DC: 120-160 nests/yr	DC ~~MAR~~ July April - June	FEB ~~MAR~~ - JUL
b) Offshore Cays:		Ei 12-20 nests/yr	Aug - Oct	All year
Culebrita, Luis Peña & Cayo Norte		CM 2 nests/yr	unknown	unknown
(2) Vieques Island	?	DC (unknown numbers; not surveyed on foot since 1982)	DC April - June	Same as Culebra
		Ei	Ei Unknown	All Year
(3) Caja de Muertos Island (Ponce) S. Beach	0.8	Ei (?) 5 n/year (now under survey)	Unknown	unknown

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; = Lepidochelys olivacea = Uk = Desconocido

FORMATO DE DATOS PARA
TORTUGAS MARINAS DE STAO II

Tabla III. INVENTARIO DE ANIDACION EN LAS PLAYAS

Liste las playas en secuencia geográfica. Provea información adicional en otra hoja. Por favor liste cada especie que ocurre en la playa en una nueva línea aunque el mes sea el mismo.

PAIS U.S. COMMONWEALTH ~~ESTADO~~ PUERTO RICO ANOTADOR B. Conlan (K. Kontos) (R. Nados).

NOMBRE DE LA PLAYA	LONGITUD EN KM.	ESPECIES ANIDANDO	MESES DE MAXIMA ANIDACION	MESES DE ANIDACION
(4) Mona Island	7.1	DC (Playa Mujeres) (0-11 nests/year)	ABRIL-MAY	FEB-JULY
(See attached Table		EI (70-150 nests/year)	Sept-Oct	Feb-Dec (almost all year)
for details)		CM (0-3 nests/yr)	—	—
(5) Mainland Puerto Rico				
Humacao	2	DC (1-15 nests) EI (2)	DC/MAAH April - June	DC March - July
Paulina (Luquillo-Fajardo)	1	DC (4-15)	" "	" "
			" "	" "
Piñones	2	DC (~6 nests)	" "	" "
Manatí (Los Tubos)		DC (1 nest in 1987)	" "	" "

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; = Lepidochelys olivacea = Uk = Desconocido

FORMATO DE DATOS PARA
TORTUGAS MARINAS DE STAO II

Tabla III. INVENTARIO DE ANIDACION EN LAS PLAYAS

Liste las playas en secuencia geográfica. Provea información adicional en otra hoja. Por favor liste cada especie que ocurre en la playa en una nueva línea aunque el mes sea el mismo.

PAIS U. S. ESTADO Commonwealth Puerto Rico ANOTADOR Cintrón / Matos /

NOMBRE DE LA PLAYA	LONGITUD EN KM.	ESPECIES ANIDANDO	MESES DE MAXIMA ANIDACION	MESES DE ANIDACION
Isabela	—	Dc (# unknown)	unknown	march - july
Añasco	—	Dc (# unknown)	unknown	" "
Combate (Cabo Rojo)	—	Ei (# unknown)	probably Sept - Oct.	all year
Guánica (Ballena Bch)	1.5	*Dc (# unknown)	—	—
		*Ei (# unknown)	—	—
		*Tracks and shells of		
		butchered turtles found on		
		this beach in 1986		
Compiler's note: almost	any	sandy beach is potential	Ei nesting habitat. There are about	
		275 miles of such beaches in Puerto Rico and	offshore cays.	

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; = Lepidochelys olivacea = Uk = Desconocido

WATS II SEA TURTLE DATA FORMS

TABLE II. AERIAL AND GROUND SURVEY SUMMARY DATA FORM

COUNTRY PR STATE Fajardo BEACH/ZONE San Miguel (Las Paulinas) DISTANCE SURVEYED 3 km

DATE: 87/06/03 OBSERVER: K. Hall Circle one: (AERIAL) OR GROUND

Species*	Cc	Cm	Dc	Ei	Lk	Lo	Uk
Total no. of fresh nests							1
Total no. of old nests							
Total no. of fresh false crawls							
No. of nests disturbed							

Please provide below a brief description of how the survey or observation was completed. Particularly indicate interval between survey days and why this interval was selected and if survey dates were timed to occur the day/night after high (spring tide): Surveys completed from US Coast Guard H-65 Dolphin helicopter. One observer flying at 150-200 ft. and 60-90 K.

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivacea; Uk = Unknown

WATS II SEA TURTLE DATA FORMS

TABLE II. AERIAL AND GROUND SURVEY SUMMARY DATA FORM

COUNTRY PR STATE Fajardo BEACH/ZONE El Conuco (Las Paulinas) DISTANCE SURVEYED 2.5 Km

DATE: 87/06/03 OBSERVER: K. Hall Circle one: (AERIAL) OR GROUND

Species*	Cc	Cm	Dc	Ei	Lk	Lo	Uk
Total no. of fresh nests							
Total no. of old nests							3
Total no. of fresh false crawls							
No. of nests disturbed							

Please provide below a brief description of how the survey or observation was completed. Particularly indicate interval between survey days and why this interval was selected and if survey dates were timed to occur the day/night after high (spring tide):

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivacea; Uk = Unknown

WATS II SEA TURTLE DATA FORMS

TABLE II. AERIAL AND GROUND SURVEY SUMMARY DATA FORM

COUNTRY PR STATE Guayama BEACH/ZONE Puerto Patillas DISTANCE SURVEYED 7 Km

DATE: 87/06/03 OBSERVER: K. Hall Circle one: (AERIAL) OR GROUND

Species*	Cc	Cm	Dc	Ei	Lk	Lo	Uk
Total no. of fresh nests							
Total no. of old nests							1
Total no. of fresh false crawls							
No. of nests disturbed							

Please provide below a brief description of how the survey or observation was completed. Particularly indicate interval between survey days and why this interval was selected and if survey dates were timed to occur the day/night after high (spring tide):

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivacea; Uk = Unknown

WATS II SEA TURTLE DATA FORMS

TABLE II. AERIAL AND GROUND SURVEY SUMMARY DATA FORM

COUNTRY PR STATE Rincon BEACH/ZONE Tres Hermanos DISTANCE SURVEYED 2.5 Km

DATE: 87/06/03 OBSERVER: K. Hall Circle one: (AERIAL) OR GROUND

Species*	Cc	Cm	Dc	Ei	Lk	Lo	Uk
Total no. of fresh nests							
Total no. of old nests			1				
Total no. of fresh false crawls							
No. of nests disturbed							

Please provide below a brief description of how the survey or observation was completed. Particularly indicate interval between survey days and why this interval was selected and if survey dates were timed to occur the day/night after high (spring tide):

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivacea; Uk = Unknown

WATS II SEA TURTLE DATA FORMS

TABLE II. AERIAL AND GROUND SURVEY SUMMARY DATA FORM

COUNTRY PR STATE Rincon BEACH/ZONE Tres Hermanos DISTANCE SURVEYED 2.5 km

DATE: 87/06/04 OBSERVER: K. Hall Circle one: AERIAL OR (GROUND)

Species*	Cc	Cm	Dc	Ei	Lk	Lo	Uk
Total no. of fresh nests							
Total no. of old nests			4				
Total no. of fresh false crawls							
No. of nests disturbed							

Please provide below a brief description of how the survey or observation was completed. Particularly indicate interval between survey days and why this interval was selected and if survey dates were timed to occur the day/night after high (spring tide):

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivacea; Uk = Unknown

WATS II SEA TURTLE DATA FORMS

TABLE II. AERIAL AND GROUND SURVEY SUMMARY DATA FORM

COUNTRY PR STATE Rincon BEACH/ZONE Añasco DISTANCE SURVEYED 1.5 km

DATE: 87/07/07 OBSERVER: K. Hall Circle one: AERIAL OR (GROUND)

Species*	Cc	Cm	Dc	Ei	Lk	Lo	Uk
Total no. of fresh nests							
Total no. of old nests			1				
Total no. of fresh false crawls							
No. of nests disturbed							

Please provide below a brief description of how the survey or observation was completed. Particularly indicate interval between survey days and why this interval was selected and if survey dates were timed to occur the day/night after high (spring tide):

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivacea; Uk = Unknown

WATS II SEA TURTLE DATA FORMS

TABLE II. AERIAL AND GROUND SURVEY SUMMARY DATA FORM

COUNTRY PR STATE Aguadilla BEACH/ZONE Anasco DISTANCE SURVEYED 45 Km

DATE: 87/07/07 OBSERVER: K. Hall Circle one: (AERIAL) OR GROUND

Species*	Cc	Cm	Dc	Ei	Lk	Lo	Uk
Total no. of fresh nests				1			
Total no. of old nests							
Total no. of fresh false crawls							
No. of nests disturbed							

Please provide below a brief description of how the survey or observation was completed. Particularly indicate interval between survey days and why this interval was selected and if survey dates were timed to occur the day/night after high (spring tide):

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivacea; Uk = Unknown

WATS II SEA TURTLE SURVEY DATA FORM

TABLE III. NESTING BEACH INVENTORY

List Beaches in geographic sequence. Provide additional information on an attached page. Please list each species that occurs on beach on a separate line even if months of occurence are the same.

COUNTRY PR STATE Culebra RECORDER K. Hall

NAME OF BEACH	LENGTH IN KM	SPECIES NESTING	MONTHS PEAK NESTING	MONTHS RECORDED NESTING
Brava	1.2	Dc	April - June	March - July
Resaca	1.0	Dc	April - June	Feb. - July
Resaca	1.0	Ei		Feb. June
Flamenco	2.8	Dc		April May
Media	1.0	Ei		May
Zoni	1.2	Ei		June
Zoni	1.2	Cm		June
Zoni	1.2	Dc		March May June
Tortola	0.1	Dc		July
Cayo Norte	1.0	Ei		

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; = Lepidochelys olivacea = Uk = Unknown

TABLE III. NESTING BEACH INVENTORY

List Beaches in geographic sequence. Provide additional information on an attached page. Please list each species that occurs on beach on a separate line even if months of occurence are the same.

COUNTRY PR STATE Culebra RECORDER K. Hall

NAME OF BEACH	LENGTH IN KM	SPECIES NESTING	MONTHS PEAK NESTING	MONTHS RECORDED NESTING
Isla	3+	Ei		April, June
Flamenco	4.6	Dc		June
Tamarindo	.6	Cm		
Cayo [illegible]		Dc		

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; = Lepidochelys olivacea = Uk = Unknown

TABLE III. NESTING BEACH INVENTORY

List Beaches in geographic sequence. Provide additional information on an attached page. Please list each species that occurs on beach on a separate line even if months of occurence are the same.

COUNTRY PR STATE _____ RECORDER K. Hall

NAME OF BEACH	LENGTH IN KM	SPECIES NESTING	MONTHS PEAK NESTING	MONTHS RECORDED NESTING
Surfers	0.2	Ei		Dec. Jan
Tres Hermanos	2.5	Dc		
Ballena	1.5	Dc		
Tamarindo	1.0	Ei		
Mata Rosca	2.0	Ei		May
Palmas Del Mar	2.25	Ei		- July

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; = Lepidochelys olivacea = Uk = Unknown

WATS II SEA TURTLE SURVEY DATA FORM

TABLE III. NESTING BEACH INVENTORY

List Beaches in geographic sequence. Provide additional information on an attached page. Please list each species that occurs on beach on a separate line even if months of occurence are the same.

COUNTRY PR STATE Caja de Muertos RECORDER K. Hall

NAME OF BEACH	LENGTH IN KM	SPECIES NESTING	MONTHS PEAK NESTING	MONTHS RECORDED NESTING
Coast Guard		Ei		
Vivero		Ei		July
Pelicano		Ei		
Larga		Ei		May, July

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; = Lepidochelys olivacea = Uk = Unknown

TABLE IV. MORTALITY

COUNTRY BR STATE _____ YEAR 86 OBSERVER K. Hall

Date	*Species	Sex	Length	Weight	# Eggs	Locality	Cause
86/08/12	Cm	U				Mona	DC
86/01/26	Cm	U	74.0 C CM			[illegible]	DC
86/10/18	Cm	U	25.3 C CM			Isabela	S
86/04/22	Ei	F	88.5 C CM			Mona	natural death on beach
86/02/08	Ei	U	23.8 S CM			Culebra	S
86/05/25	Dc	F	156.0 C CM			Fajardo	DC
86/08/23	Ei	U				Mona	DC
86/08/25	Ei	U				Mona	DC
86/08/23	Ei	U				Mona	DC
86/08/18	Ei	U				Mona	DC

Comments:

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivacea; Uk = Unknown

WATS II SEA TURTLE DATA FORM

TABLE IV. MORTALITY

COUNTRY PR STATE _____ YEAR 87 OBSERVER K. Hall

Date	*Species	Sex	Length	Weight	# Eggs	Locality	Cause
87/08/4	Ei	F	28.0 c inches			Puerto	S
87/05/18	Cm.	U				Culebra	DC
87/04/27	Cm	U	65.5 cm			Culebra	S

Comments:

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivacea; Uk = Unknown

TABLE IV. MORTALITY

COUNTRY PR STATE _____ YEAR 86 OBSERVER K. Hall

Date	*Species	Sex	Length	Weight	# Eggs	Locality	Cause
86/07/6	Cm	U				Culebra	DC
86/01/12	Ei	F	42.3 C CM			Culebra	S
86/07/09	Cm	M	97.0 C CM			San Juan	S
86/02/12	Cm	U				Culebrita	DC
86/01/23	Ei	F	73 C CM			Fajardo	DC
86/01/23	Ei	U	44.8 C CM			Fajardo	DC
86/07/12	Ei	U				Aguadilla	DC

Comments:

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivacea; Uk = Unknown

TABLE IV. MORTALITY

COUNTRY PR STATE _____ YEAR 85 OBSERVER K. Hall

Date	*Species	Sex	Length	Weight	# Eggs	Locality	Cause
85/9/24	Cm	F	76.2 c cm	90 Kg		Culebra	?
85/10/15	Ei	F	41.5 c cm	15 Lb.		Culebra	?
85/07/04	Ei	F	92.0 c cm			Culebra	?
85/07/10	Cm	U	?*			Culebra	?
85/11/12						Cabo Rojo	DC

Comments: * estimated

*Cc = Caretta caretta; Cm = Chelonia mydas; Dc = Dermochelys coriacea; Ei = Eretmochelys imbricata; Lk = Lepidochelys kempi; Lo = Lepidochelys olivacea; Uk = Unknown