THE NATIONAL REPORT EL REPORTE NACIONAL

FOR THE COUNTRY OF POR EL PAIS DE

UNITED STATES VIRGIN ISLANDS ISLAS VIRGENES ESTADOUNIDENSES

NATIONAL REPRESENTATIVE / REPRESENTANTE NACIONAL

RALPH BOULON JR.

Western Atlantic Turtle Symposium Simposio de Tortugas del Atlantico Occidental



17-22 July / Julio 1983 San José, Costa Rica USVI National Report, WATS I Vol 3, pages 489-499



WESTERN ATLANTIC TURTLE SYMPOSIUM San José, Costa Rica, July 1983

NATIONAL REPORT FOR THE COUNTRY OF

US VIRGIN ISLANDS

NATIONAL REPORT PRESENTED BY

Ralf Boulon Jr.

The National Representative

Address:

<u>Division of Fish and Wildlife</u>

101 Estate Nazareth

NATIONAL REPORT PREPARED BY

Ralf Boulon Jr., Division of Fish and Wildlife
With assistance from Evonne Small, National Park Service

DATE SUBMITTED: 27 June 1983

Please submit this NATIONAL REPORT no later than 1 December 1982 to:

IOC Assistant Secretary for IOCARIBE % UNDP, Apartado 4540 San José, Costa Rica





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 size and trend, 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. In most cases it was the first time a national sea turtle assessment had been conducted.

Despite the potential value of this information to agencies responsible for conducting stock assessments, monitoring recovery trends, and safeguarding critical habitat in the 21st century, the hand-written National Reports, largely illegible in the published proceedings, have slipped into obscurity. To help ensure the legacy of these symposia, we have digitized the entire proceedings, including the National Reports, plenary presentations and panels, and annotated bibliographies of 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 should be cited:

Boulon, R. Jr. 1984. <u>National Report for the U.S. Virgin Islands</u>, pp.489-499. *In*: Bacon, P., F. Berry, K. Bjorndal, H. Hirth, L. Ogren and M. Weber (Editors), Proceedings of the First Western Atlantic Turtle Symposium, 17-22 July 1983, San José, Costa Rica. Volume III: The National Reports. RSMAS Printing, Miami.

Karen L. Eckert WIDECAST Executive Director June 2009

COUNTRY: U.S. VIRGIN ISLANDS

TABLE 1. GEOGRAPHIC INVENTORY		
Length of Coastline*	277.9 Km	
Km ² of Continental Shelf Area	1,972 Km	
Seaward Extent of Jurisdictions		
Territorial Sea	4.83 Km	
Extended Economic Zone	< 321.8 Km	
Fisheries Jurisdiction	321.8 Km	
Other (Describe) Custom Zone	19.3 Km	
Endangered Species Importation	4.83 Km	
Marine Mammals Jurisdiction	321.8 Km	

^{*} Coastline length is the measurement of the national seaward boundary of a country; i.e., the distance from border to border for a coastal country and the distance around an island country.

		Km of Shoreline				
	Marine Shoreline Characteristics*	Undeveloped	Developed**	Total***		
1. S	Sand Beach (Total)			80		
Α	High Energy (seasonal: November to March)	11.50	1.75			
В	B. Low Energy	47.75	19			
2. R	Reef (exposed) (not included in total shoreline)	23.75		23.75		
3. R	Rocks	****131.9	****25.00	****164.1		
4. C	Cliffs					
5. V	/egetation (Total)					
Α	A. Vines					
В	B. Grasses					
С	C. Mangroves	33.8		33.8		
D	D. Coconut Trees					
Е	. Other Trees or Shrubs					
F	. Marshes					
6. N	Mouths of Lagoons, Rivers, Canals	6.55		6.55		
7. T	otal Shoreline***	232.15	45.75	277.		

^{*} Refer to SEA TURTLE MANUAL (Aerial Survey)

** Human development or use (See MANUAL)

*** Editor's note (2009): Constituent parts do not necessarily sum to total values

^{****} Combined values for "Rocks" and "Cliffs" categories

TABLE 2A. MARINE HABITAT INVENTORY OF BOTTOM TYPES * (supplementary page)

Habitat Bottom Types	Km ² of Habitat			
	Inside 25m (shoreward)	Outside 25m (shoreward)		
1. Sand	3	90.0		
2. Mud	0.2	5.0		
3. Rocks	0.75	3.0		
Submerged Vegetation	0.6	90.0		
5. Reefs (Total)	0.2	188.0		
A. Fringing Reefs		17.0		
B. Patch Reefs	0.2	70.0		
6. Other: Coral & Rocks, vegetation mixed		101.0		

^{*} This information is sketchy at present. An overall review of habitat bottom types on the insular shelves of the U.S. Virgin Islands is unobtainable at the present time.

TABLE 3.1. NESTING BEA			•
List beaches in geographic	sequence. Provide	additional information on	Tollowing page.
Name of Beach	Length In Km	Species Nesting (use abbreviations)*	Months of Recorded Nesting
1. Buck Island	1.2	Cm, D, E	May-October
2. New Fort Beach	0.2	Cm**	May-October
3. Shoy's Beach	2.1	Cm**, D, E	May-October
4. Green Cay Beach	0.2	D, E	May-October
5. Prune Beach	0.8	D, E	May-October
6. Coakley Bay	0.6	D, E	May-October
7. Teague Bay	0.7	Е	May-October
8. Smuggler's Cove	0.2	Cm**, E	May-October
9. Knight Bay	0.4	Cm**	May-October
10. Boiler Bay	0.3	Е	May-October
11. Teytaud's Beach	0.4	Е	May-October
12. East End Bay	0.3	Е	May-October
13. Isaac Bay	0.7	D, E	May-October
14. Jacks Bay	0.7	D, E	May-October
15. Grapetree Bay	0.2	Cm**, E	May-October
16. Turner Hole	1.1	Cm**, E	May-October
17. Rod Bay	0.8	Cm**, E	May-October
18. Robin Bay	1.7	Cm**, E	May-October
19. Halfpenny Bay	0.8	E	May-October
20. Manchioneal Bay	2.1	Cm**, D, E	May-October
21. Can Garden Bay	1.7	Е	May-October
22. Manning's Bay	0.7	Cm**	May-October
23. Sandy Point	5.4	Cm**, D, E	May-October
24. La Grange	0.7	Cm**, E	May-October
25. Sprat Hole	1.1	E	May-October
26. Butler Bay	0.2	Е	May-October
27. Ham's Bay	0.3	Е	May-October
28. Maroon Hole	0.1	Cm**, E	May-October
29. Davis Bay	0.3	Cm**, D, E	May-October
30. North Star	0.3	E	May-October

List beaches in geographic	sequence. Provide	additional information on	following page.
Name of Beach	Length In Km	Species Nesting (use abbreviations)*	Months of Recorded Nesting
31. Cane Bay	0.9	E	May-October
32. Rust Op Twist	0.2	E	May-October
33. Salt River (West)	0.2	Cm**, E	May-October
			· •
Species *	Abbreviation		
Caretta caretta	Сс		
Chelonia mydas	Cm		
Dermochelys coriacea	D		
Eretmochelys imbricata	E		
Lepidochelys kempi	Lk		
Lepidochelys olivacea	Lo		

TABLE 3.2. NESTING BEACH			-
List beaches in geographic sec	uence. Provide	additional information on	following page.
Name of Beach	Length In Km	Species Nesting (use abbreviations)*	Months of Recorded Nesting
Neltieberg Bay	1.2	D, E	June-November
2. Little Hans Lollik	0.04	D, E	July-November
3. Coconut Bay, Hans Lollik	1.00	E	June-November
4. Dry Bay, Hans Lollik	0.04	D, E	July-November
Little Bay Hans Lollik	0.04	E	October
6. Sandy Bay, Inner Brass	0.08	E	June-November
7. Penn Bay	0.07	Е	July-November
8. Caret Bay	0.08	E	July-November
9. Botany Bay	0.06	D, E	July
10. Santa Marie Bay	0.06		July-October
11. Bordeaux Bay	0.05	E	July-September
12. West Cay Bay	0.05	E	July
13. Mandahl Bay	0.07	Е	July
14. Hull Bay	0.04	E	August-September
15. Clucluse Bay	0.04	E	August
16. Dog Island	0.03	Е	November
17. Great St. James Island	0.04	Е	November
Species *	Abbreviation		
Caretta caretta	Cc		
Chelonia mydas	Cm		
Dermochelys coriacea	D		
Eretmochelys imbricata	Е		
Lepidochelys kempi	Lk		
Lepidochelys olivacea	Lo		

TABLE 3.3. NESTING BEAC	H INVENTORY.	St. John and offshore ca	ays
List beaches in geographic se	quence. Provide	additional information on	following page.
Name of Beach	Length In Km	Species Nesting (use abbreviations)*	Months of Recorded Nesting
Caneel Hawksnest	0.208	E	August-October
2. Jumbi Bay	0.101	E	August-October
3. Trunk Bay	0.439	E	July-September
4. Windswept	0.176	Е	June-August
5. Maho Bay	0.214	E	September
6. Francis Bay	0.499	E	July and August
7. Salt Pond Bay	0.208	Е	June-December
8. Greater Lameshure Bay		E	July and August
9. Little Lameshure Bay	0.184	E	May-August
10. Europa Bay		Е	September
11. Eastern Reef Bay	0.245	E	June-September
12. Genti Bay	0.558	E	July-December
13. Western Reef Bay	0.544	Е	June-November
14. Cocoloba Point	0.13	Е	June-November
Species *	Abbreviation		
Caretta caretta	Сс		
Chelonia mydas	Cm		
Dermochelys coriacea	D		
Eretmochelys imbricata	E		
Lepidochelys kempi	Lk		
Lepidochelys olivacea	Lo		

TABLE 3A. NESTING BEACH INVENTORY (Supplementary page)

Please give additional information about each nesting beach identified in Table 3. Include information on color of sand, particle size, beach profile, backbeach vegetation, artificial lighting, etc.

All sand beaches in the Virgin Islands are white carbonate sands composed primarily of *Halimeda* plates, mollusk shell fragments, echinoderm test fragments and coral skeletal fragments. Terrigenous materials are insignificant. Particle sizes almost all fall within the range of 1 to 4 phi. Beach profiles are fairly consistent with some change on the north shore beaches during the winter (Nov. to Mar.) when storm[s] in the North Atlantic produce sea swells of 1 to 3 meters. Beach profiles become steeper in this wave regime and many late nests are subject to inundation.

Backbeach vegetation is also quite uniform throughout the Virgin Islands. The most common vegetation elements are listed below in order of descending commonality:

- 1. Cocoloba uvifera
- 2. Thespesia populnea
- 3. Conocarpus erectus
- 4. Portulaca oleraceae
- 5. Suriana maritime
- 6. Acacia macracantha
- 7. Elaeodendrum xylocarpum
- 8. Guilandia crista
- 9. Sporobolus virginicus

* As the number of beaches in the U.S. Virgin Islands is extremely high, this section is discussed in terms of generalities rather than specifics. Artificial lighting and boating activities may be a problem in the following:

St. John

1. Caneel Hawksnest: lights

2. Trunk Bay: boats

3. Maho Bay: boats and lights

4. Francis Bay: boats

5. Salt Pond Bay: boats

6. Chocolate Hole: boats and lights

St. Thomas

1. Mandahl Bay: lights

2. Hull Bay: boats and lights

3. Great St. James Island: boats

St. Croix

1. New Fort Beach: lights

2. Shoy Beach: lights

3. Teague Bay: lights and boats

4. Smugglers Cove: lights

5. Boiler Bay: lights

6. Grapetree Bay: lights

7. Turner Hole: lights

8. Rod Bay: lights

9. Halfpenny Bay: lights

10. Mannings Bay: airport

11. La Grange: lights (Hess)

12. Sprat Hole: lights and boats

13. Butler Bay: lights

14. Ham's Bay: lights

15. Cane Bay: lights

16. Rust-Op-Twist: lights

17. Turquoise Bay: lights

18. Judith's Fancy: lights

TABLE 4.1. NESTING CEN	SUS FOR EACH VIR	GIN ISLAND NES	TING BEACH. St. (Croix *
Beach	Dates of Data Collection	Dermochelys coriacea	Eretmochelys imbricata	Chelonia mydas**
1. Buck Island	1980-1982	1982: 2	1980: 45 1981: 35 1982: 40-45	
2. New Fort Beach	1976-1978	2-3		3
3. Shoy's Beach	1976-1978	1-2	2-3	
4. Green Cay Beach	1976-1978	2	15	
5. Prune Beach	1976-1978	9	2-3	
6. Coakley Bay	1976-1978	15-20	5-10	
7. Teague Bay	1976-1978		2-3	
8. Smuggler's Cove	1976-1978		2-3	2-3
9. Knight Bay	1976-1978			3-5
10. Boiler Bay	1976-1978		1-3	
11. Teytaud's Beach	1976-1978		1-3	

Beach	Dates of Data	Dermochelys	Eretmochelys	Chelonia
	Collection	coriacea	imbricata	mydas**
12. East End Bay	1976-1978		3	
13. Isaac Bay	1976-1978	1-2	7-8	
14. Jacks Bay	1976-1978	1-2	25	
15. Grapetree Bay	1976-1978		3-5	3-5
16. Turner Hole	1976-1978		1-2	1-2
17. Rod Bay	1976-1978		5	
18. Robin Bay	1976-1978		5	
19. Halfpenny Bay	1976-1978		5	
20. Manchioneal Bay	1976-1978	10	10	10
21. Cane Garden Bay	1976-1978		4-5	
22. Manning's Bay	1976-1978			1-2
23. Sandy Point ***	1981	26+		
	1982	19		
24. La Grange	1976-1978			3-5
25. Sprat Hole	1976-1978		1-2	
26. Butler Bay	1976-1978		1-2	
27. Ham's Bay	1976-1978		1-2	
28. Maroon Hole	1976-1978		5	5
29. Davis Bay	1976-1978	3	3	4
30. North Star	1976-1978		5	
31. Cane Bay	1976-1978		3	
32. Rust Op Twist	1976-1978		3	
33. Salt River (West)	1976-1978		3-5	
34. Turquoise Bay	1976-1978		5	
35. Judith's Fancy	1976-1978		5	
36. Little Bay	1976-1978		?	

Figures for St. Croix may indicate total number of nests due to observers not able to determine number of renestings

^{**} All *Chelonia mydas* identifications are based on crawl width
*** Sandy Point figures for *Dermochelys coriacea* are the result of intensive DWF studies

TABLE 4.2. NESTING CENSUS	FOR EACH VIRGIN	I ISLAND NESTIN	G BEACH. St. Th	omas
Beach	Dates of Data Collection	Dermochelys coriacea	Eretmochelys imbricata	Chelonia mydas*
1. Neltieberg Bay	1979-1981	1979: 1	1979: 4 1980: 3 1981: 1	·
2. Little Hans Lollik	1979-1981	1980: 1	1979: 5 1980: 13 1981: 6	
3. Coconut Bay, Hans Lollik	1979-1981		1979: 8 1980: 10 1981: 3	
4. Dry Bay, Hans Lollik	1979-1981		1979: 15 1980: 23 1981: 12	

5. Little Bay Hans Lollik	1979-1981		1979: 2 1980: 0 1981: 0	
6. Sandy Bay, Inner Brass	1979-1981		1979: 8	
o. Sandy Bay, Illier Brass	1979-1901		1980: 8	
			1981: 6	
7. Penn Bay	1979-1981		1979: 3	
7.1 Cilli Bay	1373 1301		1980: 3	
			1981: 3	
8. Caret Bay	1979-1981		1979: 8	
or eart bay	1070 1001		1980: 2	
			1981: 6	
9. Botany Bay	1979-1981		1979: 0	
, ,		1980: 1	1980: 0	
			1981: 2	
10. Santa Marie Bay	1979-1981		1979: 1	
·			1980: 1	1980: 2
			1981: 0	
11. Bordeaux Bay	1979-1981		1979: 3	
			1980: 8	
			1981: 6	
12. West Cay Bay	1979-1981		1979: 0	
			1980: 2	
			1981: 2	
13. Mandahl Bay	1979-1981		1979: 0	
			1980: 4	
			1981: 0	
14. Hull Bay	1979-1981		1979: 0	
			1980: 0	
			1981: 1	
15. Clucluse Bay	1979-1981		1979: 4	
			1980: 0	
10.0	1001		1981: 2	
16. Dog Island	1981		5	
17. Great St. James Island	1979		6	
* All Chalania manda idtifit	ione oue boood or	ملفام المراد المراد		
 * All Chelonia mydas identificat 	ions are based on cra	wl width		

Beach	Dates of Data Collection	Dermochelys coriacea	Eretmochelys imbricata	Chelonia mydas*
1. Caneel Hawksnest	1980-1982		1980: 2 1981: 1 1982: 0	
2. Jumbi Bay	1980-1982		1980: 5 1981: 0 1982: 4	
3. Trunk Bay	1980-1982		1980: 0 1981: 6 1982: 0	
4. Windswept	1980-1982		1980: 0 1981: 7 1982: 0	

Beach	Dates of Data	Dermochelys	Eretmochelys	Chelonia
	Collection	coriacea	imbricata	mydas*
5. Maho Bay	1980-1982		1980: 0	
			1981: 1	
			1982: 0	
6. Francis Bay	1980-1982		1980: 0	
			1981: 3	
			1982: 0	
7. Salt Pond Bay	1980-1982		1980: 0	
•			1981: 11	
			1982: ?	
8. Greater Lameshure Bay	1980-1982		1980: 0	
•			1981: 0	
			1982: 1	
9. Little Lameshure Bay	1980-1982		1980: 0	
•			1981: 1	
			1982: 4	
10. Europa Bay	1980-1982		1980: 0	
, ,			1981: 0	
			1982: 1	
11. Eastern Reef Bay	1980-1982		1980: 2	
•			1981: 1	
			1982: 3	
12. Genti Bay	1980-1982		1980: 0	
•			1981: 3	
			1982: 0	
13. Western Reef Bay	1980-1982		1980: 0	
-			1981: 1	
			1982: 10	
14. Cocoloba Point	1980-1982		1980: 5	

TABLE 5A. AERIAL BEACH SURVEY SUMMARY (supplementary page)

Give any additional information available from aerial surveys. Information should include ground truth observation if conducted.

See enclosed copy of:

Boulon, Jr., R.H. and D.A. Olsen. 1981. Virgin Islands turtle resources: Aerial census results 1979-1980. Final report to: NMFS NA-79-GA-A-00133 and NA-80-GA-A-00055. 23 pp.

TABLE 6. ESTIMATED POPULATION SIZE OF NESTING FEMALES

Summarize the estimated number of nesting females for the years indicated and describe methods of estimation on the next page.

Species			Yea	ar		
	1982	1981	1980	1979	1978	1977
Caretta caretta						
Chelonia mydas						
Dermochelys coriacea	19 Sandy Point	26 Sandy Point				
Eretmochelys imbricata	10 (St. John) 15 (Buck Island)	14 (St. John) 10 (Buck Island)	7 (St. John) 14 (Buck Island)			
Lepidochelys kempi						
Lepidochelys olivacea						

TABLE 6A. ESTIMATED POPULATION OF NESTING FEMALES (supplementary page)

Please give brief details on methods of estimation for Table 6.

Records were kept for all crawls on beaches on St. John and Buck Island, St. Croix showing the number of nests and the time intervals between crawls. Beaches on St. John are short, ranging from 101 m to 558 m and nesting was sparse enough that by tabulating the number of days between nestings (i.e. two versus 16), one could reasonably estimate the number of nesting females per individual beach. Figures in the table represent totals for each year.

On Sandy Point, nearly total number of leatherbacks were actually observed nesting and tag monitoring gave almost precise number of nesting females per individual beach.

TABLE 7. FORAGING AREAS	SINVENTOR	Υ	
Name of Area (or give coordinates)	Approx. Area (Km²)	Species Foraging (use abbreviations & approx. numbers)	Nature of Evidence (observation, fishery, incidental catch)
1. Francis Bay, St. John	1.5	Cm: 6-7; E: 4-5	Direct weekly observation from a boat and beach.
2. Maho Bay, St. John	1	Cm: 3-4; E: 3-4	Direct weekly observation from a boat and beach.
3. Caneel Bay, St. John	2	Cm: 1-2; E: 4-5	Direct weekly observation from a boat and beach.
4. Cruz Bay, St. John	1	E: 4-5	Direct weekly observation from a boat and beach.
5. Brown Bay, St. John	1	E: 2-3	Direct weekly observation from a boat and beach.
6. Hawksnest Bay	1	Cm: 7; E; 4-5	Direct weekly observation from a boat and beach.
7. Salt Pond Bay, St. John	0.75	E: 3-4	Direct weekly observation from a boat and beach.
8. Magens Bay	4	Cm: 107; E: 57	Mark and recapture estimates using Schnabel population estimator

9. Red Hook , St. Thomas	1.5	Cm: 47	Mark and recapture estimates using Schnabel population estimator					
10. Thatch Cay, St. Thomas	1	Cm: 33	Mark and recapture estimates using Schnabel population estimator					
11. Little St. James Island	1	Cm: 59	Mark and recapture estimates using Schnabel population estimator					
12. Smith Bay, St. Thomas	0.5	Cm: 18	Mark and recapture estimates using Schnabel population estimator					
Species	Abbreviation							
Caretta caretta	Сс							
Chelonia mydas	Cm							
Dermochelys coriacea	D							
Eretmochelys imbricata	E							
Lepidochelys kempi	Lk							
Lepidochelys olivacea	Lo							

TABLE 8. TURTLE SPECIES PRESENT ON FORAGING AREAS.

Please complete one of these tables for each of the areas identified in Table 7. Number each table as enumerated in Table 7 (7-1, 7-2, etc.).

Species		Month											Months of Greatest Activity*
	J	F	M	Α	M	J	J	Α	S	0	N	D	
Caretta caretta													
Chelonia mydas													Approximately equally distributed
Dermochelys coriacea													
Eretmochelys imbricata													Approximately equally distributed
Lepidochelys kempi													
Lepidochelys olivacea													

^{*} Based on a combination of periodic observations and sporadic sampling the overall numbers of turtles present on each foraging area at any one time are approximately the same. No clear peaks in activity are apparent.

TABLE 9. NON-FORAGING				
Please provide any informat	ion avai	lable on the	incidence of turtle	es in offshore areas.
Location (Give Lat. & Long. Coordin	ates)	Date	Species and Est. Nos. (Abbreviations)	Comments
64° 54' W, 18° 26' N		5/8/1979	D: 2	Seen swimming at the surface
Species		viation		
Caretta caretta Chelonia mydas	Cc Cm			
Dermochelys coriacea	D			
Eretmochelys imbricata	E			
Lepidochelys kempi	Lk			
Lepidochelys olivacea	Lo			

Life Stage Unit	Species (abbrev.)	Causes *	Extent of Mortality (% of Unit			
Nests/eggs E		Buck Island, St. Croix (1980- 1981): mongoose predation	50-60% of all nests			
	Е	St. John (1980-81): mongoose, wild dog and beach erosion	23% of the total			
Hatchlings	E	St. John (1981): beach erosion during emergence St. John (1981): Ocypode quadrata ** predation on one hatchling	2.70%			
Juveniles	Е	Found dead on St. Thomas (1974): cause of death unknown				
Adults (in water)	E	Scutes from an approximately 28 kg hawksbill turtle were found in the stomach of a 4 m tiger shark				
Nesting females		None				
Cassina		h h vo vioti o o				
Species		Abbreviation				
Caretta caretta		Cc				
Chelonia mydas		Cm				
		D				
		E				
Lepidochelys kempl Lepidochelys olivac		Lk Lo				

<sup>Natural mortality causes may include: Beach erosion of nests; egg and/or nestling predation by crabs, wild animals, seabirds, etc.; disease; sharks and other predators at sea, etc.
** Editor's note (2009): This binomial was spelled "Ocypode quachatus" in original National Report.</sup>

Nests/eggs Hatchlings Juveniles Adults (in water)	D D	Sandy Point, St. Croix (1981- 1982): beach erosion Sandy Point, St. Croix (1982): crabs, night herons, mongoose; Vehicular compaction	1981: 34 % of nests 1982: 23% of nests 6% 2%				
Juveniles	D	crabs, night herons, mongoose;					
		Vehicular compaction	2%				
Adults (in water)							
Addits (iii water)							
Nesting females							
Species		Abbreviation					
Caretta caretta		Cc					
Chelonia mydas		Cm					
Dermochelys coriacea	a D	D					
Eretmochelys imbricat	ata E	E					
Lepidochelys kempi	Lk	Lk					
Lepidochelys olivacea	a Lo	Lo					
		clude: Beach erosion of nests; egg					

TABLE 10A. NATURAL MORTALITY (Supplementary page for additional biological data)

Please report below, and on additional pages, if necessary, additional data obtained or available such as measurements (length, width, weight) of adult females, adult males, hatchlings, numbers of eggs per nest, hours of nesting, hours and conditions of hatchlings, etc.

St. John Hawksbill Nests

Numbers of undeveloped or sterile eggs ranged from 0-37 and represented 5.9 percent of the eggs in the nests. No distorted, undersized yolkless eggs were found in any of the nests; shells of yolkless eggs were the same size as shells of fully developed eggs.

Mongoose Predation

A total of 15 nests were raided by the exotic mongoose *Herpestes auropunctatus* during the 1980 and 1981 season. Upon physical inspection of the nest area, an estimate was made of the total number of eggs or hatchlings that had been taken by mongooses in 10 of the 15 predations. The total from those 10 nests was at least 663. Contents of the other five nests were completely destroyed by the mongoose, making two counts impossible. If clutch in the five nests was typical of all nests, mongooses took an additional 710 eggs (average clutch size of 142 x 5 nests). The best estimate of total eggs laid in 1980 and 1091 was 8,789. Mongooses, therefore, took 23 percent of the total egg production.

Mongooses dug into nests at three different phases of the nesting cycle: within two to three days of egg deposition, at the time of hatching in the nest cavity, and during the emergence of hatchlings from the sand's surface. Mongooses in the Virgin Islands are predominantly nocturnal feeders; the majority of the predation occurred the morning after the nocturnal primary emergence of the hatchlings. The late emergent or straggler hatchlings still in the nest cavity are probably the usual prey of the mongoose. If a

mass emergence were to occur after dawn, mongoose could consume most, if not all, of the hatchlings from that nest.

Dog Predation

In 1980 protective six-inch-square wire mesh was placed over eight nests on beaches where three nests had been previously totally destroyed by feral and/or domestic dogs. One of the three nests was destroyed 29 days after the eggs were laid indicating that dogs are quite perceptive of turtle scent. Therefore, the enclosures were left in place until after hatching emergence was noted. The wire did not inhibit the emergence of hatchlings.

Meteorological Sources of Mortality

Turtle nest habitats on St. John are narrow strips of sandy land nearly at sea level. These habitats are thus particularly vulnerable to strong sea swells associated with tropical storms during August to November and northern winter storms from November to April. Four nests were inundated and lost in 1980 and one in 1981.

See also report by E. Small on St. John Hawksbill turtle nesting.

For leatherback turtle information, see enclosed report on Leatherback Sea turtle Research in the Virgin Islands.

The remains of a hawksbill turtle were recovered from the stomach of a 12-foot tiger shark caught in 300 fathoms of water off the south coast of St. Thomas. The post vertebral scute measures 15.88 cm.

TABLE 17.1. TURTLE MARICULTURE OPERATIONS. 1981

This table quantifies activities concerned with turtle culture for either conservation, population enhancement experiments, or commercial use. Activities to be included are "headstarting", re-nesting, incubation and release, etc. Prepare separate table for each year of available data.

Species		Ha	tchery Opera	Holding Live Turtles				
	Eggs Collect.	Eggs Hatch	No. Release	Age at Release	No. Retain	No. of Juvs.	Adult Females	Adult Males
Caretta caretta						1		
Chelonia mydas						20		
Dermochelys coriacea								
Eretmochelys imbricata						7		
Lepidochelys kempi								
Lepidochelys olivacea								

TABLE 17.2. TURTLE MARICULTURE OPERATIONS. 1982

This table quantifies activities concerned with turtle culture for either conservation, population enhancement experiments, or commercial use. Activities to be included are "headstarting", re-nesting, incubation and release, etc. Prepare separate table for each year of available data.

Species		Ha	tchery Opera	Hole	ding Live Tu	rtles		
	Eggs Collect.	Eggs Hatch	No. Release	Age at Release	No. Retain	No. of Juvs.	Adult Females	Adult Males
Caretta caretta						1		
Chelonia mydas						26		
Dermochelys coriacea								
Eretmochelys imbricata						7		
Lepidochelys kempi						_		
Lepidochelys olivacea								

TABLE 18. PUBLIC AND PRIVATE INSTITUTIONS CONCERNED WITH TURTLE CONSERVATION / MANAGEMENT / UTILIZATION

Institution or Organization Name And Address	No. of Active Members	Activities in Progress
Division of Fish and Wildlife Service 101 Estate Nazareth St. Thomas U.S. Virgin Islands 00802	6	 Leatherback nesting biology, Sandy Point, Croix In-water hawksbill and green mark and recapture population study
Virgin Islands National Park P.O. Box 7789, St. Thomas U.S. Virgin Islands 00802	2	Hawksbill nesting biology, St. Croix Hawksbill nesting biology, Buck Island

TABLE 19. SANCTUARIES	AND REF	UGES	
Name and Location	Area Km²	Reason(s) for Protection	Type and effectiveness of Enforcement
Virgin Islands National Park St. John U.S. Virgin Islands (Includes beaches and adjacent waters)		U.S. National Park Service	Routine patrols. British V.I. fishermen still occasionally take turtles near St. John
Buck Island Reef National Monument, St. Croix U.S. Virgin Islands (Includes beaches and adjacent waters)		U.S. National Park Service	Routine patrols. Poaching of nests is still a problem.
Proposed St. Thomas Marine Sanctuary (Includes beaches and adjacent waters)		To preserve an area of diverse marine communities	To be patrolled by Department of Conservation and Cultural Affairs enforcement personnel

TABLE 20. REGULATORY AUTHORITY

Indicate all entities with statutory responsibilities (e.g., Fisheries Departments and Ministries, Police, Coast Guard, etc.)

Name and Address of Organization	Budget Allocation to Turtles	No. of Staff Assigned to Turtles	Comments on Levels of Enforcement
National Marine Fisheries Service U.S. V. I. Law Enforcement Division Room 140A Federal Building St. Thomas U.S. Virgin Islands 00801	None specifically identified	1	Highest level in the U.S. Virgin Islands
National Marine Fisheries Service U.S. V. I. Law Enforcement Division Room 140A Federal Building St. Thomas U.S. Virgin Islands 00801	None specifically identified	1	Highest level in the U.S. Virgin Islands
Department of Conservation and Cultural Affairs Bureau of Environment Enforcement No. 86 Estate Frydenhoj St. Thomas U.S. Virgin Islands 00802	None specifically identified	None specifically identified	
Buck Island National Monument P.O. Box 160, Christiansted St. Croix U.S. Virgin Islands 00802	\$4,000	0.3	

TABLE 20A. REGULATORY AUTHORITY (supplementary page)

Please list National, regional, and local legislation concerning turtle management and conservation. List title, date, and stated purpose.

- 1. U.S. Endangered Species Act of 1973. To conserve species of fish, wildlife and plants that are in danger of extinction.
- 2. Virgin Islands Code, Chapter 9A, Title 12, Section 318. To contribute to the preservation of marine turtles in the Caribbean area.

CONSERVATION

§ 315

Ch. 9A

to the Commissioner. Such report shall contain the number of pounds and the value of each kind of edible seafood caught by him with such boat or devices for the twelve (12) months ending on the preceding June 30, and the number and value of the devices, if any, used in such catching or taking and the number of persons employed therein. The Commissioner shall annually, on or before August 15, provide such owner or licensee, upon his application with suitable blank forms for such reports so arranged that each month's catch may be separately recorded thereon; and in filling out such reports, such owner or licensee shall give, so far as practicable, the required results of each month's fishing.

- (b) In lieu of said annual report, the commissioner may require any owner or licensee to submit a monthly report of such facts listed herein as the commissioner may deem advisable.
- (c) The license and/or vessel registration of any person who willfully fails to make a report or willfully makes a false report shall be suspended and a new license or registration shall not be issued until such report is made.

(d) Any person who willfully violates any provision of this section shall be punished by a fine of not less than ten ((\$10) dollars nor more than one hundred (\$100) dollars-Added Nov. 21, 1972. No. 3330, § 2, Sess. L. 1972, p. 496.

§ 316. Closed seasons

- (a) The Commissioner shall announce, at least forty-five (45) days in advance, the beginning of each of the closed seasons prescribed in the regulations issued pursuant to this chapter for the protection of one or more species of fish as herein defined.
- (b) The transportation and sale of a species of fish which is the subject of a closed season shall be allowed up to the seventh day after the commencement of the closed season in order to permit the liquidation of stock caught before the beginning of such closed season.
- (c) The fishing, sale, transportation and utilization of all species not expressly included in the closed season established by rules and regulations hereunder shall be permitted at any time throughout the year. The sale and transportation of canned or otherwise preserved species which have been caught before the beginning of the respective closed season is also permitted -Added Nov. 21, 1972. No. 3330, § 2, Sess. L. 1972, p. 497.

COMMERCIAL FISHING

Ch. 9A T.12 § 319

§ 317. Fish for scientific, educational and breeding purposes

The Department and any other person or organization with the written permission of the Commissioner, may catch or cause to be caught, for scientific or educational purposes or for fish culture, any fish or marine organism, at any time from the Jurisdictional waters of the Territory, and may sell or cause to be sold when not otherwise prohibited by law, all or such part of the catch that has been taken and as may not be necessary for scientific or educational purposes or for fish culture. The proceeds, if any, from these sales shall be deposited in the Fisheries and Wildlife Fund -Added Nov. 21, 1972. No. 3330, § 2, Sess. L. 1972, p. 497.

§ 318. Protection of marine turtles, nests and eggs; penalties

- (a) It is the intent of the Legislature of the Virgin Islands to contribute to the preservation of marine turtles in the Caribbean area, said turtles now being close to extinction.
- (b) It shall be unlawful for any person to take, kill, possess, mutilate or in any way destroy loggerhead, leatherback, hawksbill, ridley or green turtle or any other sea turtle, or take or possess any part thereof while such turtle is on the beaches of the Territory at any time, or to take or to possess any such turtle in the Territorial waters during the months of May through September, inclusive, of each year and at such other times as the Commissioner may by rule and regulation prescribe. It shall be unlawful to import, trade, sell or in any way deal in young sea turtles of any kind; Provided, however, that the Commissioner may issue written permission to any licensed or publicly owned zoo or exhibition of marine life to capture such young turtles for purposes of live exhibition.
- (c) No person may take, possess, disturb, mutilate, destroy, cause to be destroyed, sell, offer for sale, transfer, molest or harass any sea turtle nest or eggs at any time.
- (d) Any person violating any provision of this section is guilty of a misdemeanor and shall upon conviction therefore be punished by a fine not less than one hundred (\$100) dollars nor more than six hundred (\$600) dollars, or by imprisonment for a period not to exceed one (1) year, or by both such fine and imprisonment -Added Nov. 21, 1972. No. 3330, § 2, Sess. L. 1972, p. 498.

§ 319. Lobsters: regulations; penalties

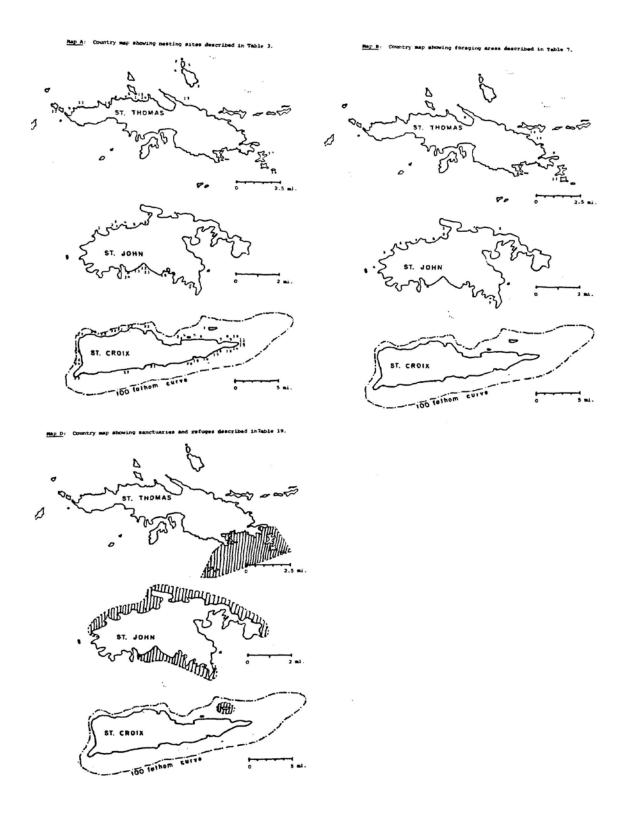
(a) It is the intent of the Legislature of the Virgin Islands to place

List turtle research activities funded with	, 5 a. 6	- 			
Project Title		Date	Name and Address of Institution & Chie		
	Start	End	Investigator		
Leatherback Turtle Nesting Biology, Sandy Point, St. Croix	1981	Ongoing	Division of Fish and Wildlife Service 101 Estate Nazareth St. Thomas U.S. Virgin Islands 00802 Ralf Boulon, Jr.		
In-water Hawksbill and Green Turtle Population Dynamics Study	1981	Ongoing	Division of Fish and Wildlife Service 101 Estate Nazareth St. Thomas U.S. Virgin Islands 00802 Ralf Boulon, Jr.		
Sea Turtle Nesting at the V.I. National Park and Buck Island Reef National Monument	1980	Ongoing	Virgin Islands National Park 1300 Cruz Bay Creek St. John U.S. Virgin Islands 00830 Evonne Small		

REPORTS AND PUBLICATIONS

The following is a list of the major reports and publications concerned with national turtle resources (list author, date, title, and publisher).

- Carr, D. and P.M. Carr. Undated. Survey and reconnaissance of nesting shores and of coastal habitats of marine turtles in Florida, Puerto Rico and the U.S. Virgin Islands. Report to National Marine Fisheries Service.
- 2. Boulon, R.H., Jr. and D.A. Olsen. 1982. Virgin Islands Turtle Resources: Aerial census results 1979-1989. Report to National Marine Fisheries Service. 23 pp.
- 3. Boulon, R.H., Jr, H.O. Hillestad and K. Eckert. 1982. Leatherback sea turtle research in the Virgin Islands: A preliminary analysis of data. Report to U.S. fish and Wildlife Service. 7 pp.
- 4. Boulon, R.H., Jr. ad D.A. Olsen. In prep. Population Biology of Green and Hawksbill turtles in the U.S.V.I based on an in-water tagging study. Report to USFWS-Endangered Species Program.
- Small, E. 1982. Sea turtle nesting at Virgin Islands National Park and Buck Island Reef National Monument, 1980 and 1981. U.S. Department of the Interior, National Park Service, NPS-SER Research/ Resource Management Report. 54 pp.
- 6. Baker, G.S. 1981. Recovery plan for St. Croix population of the Leatherback turtle (*Dermochelys coriacea*). U.S. Fish and Wildlife Service. 20 pp.
- 7. Philibosian, R. 1975. Disorientation of Hawksbill turtle hatchlings, *Eretmochelys imbricata* by stadium lights. Copeia No. 4:824.
- 8. Ogden, J.C. et. al. In Press. Diel foraging patterns in juvenile Green turtles (*Chelonia mydas*) in St. Croix. J. Exp. Mar. Biol. Ecol.
- 9. Towle, E.L. 1978. Report on sea turtle nesting, sighting, eggs and hatchlings for 1978 in the U. S. Virgin Islands and a recommended research methodology for dealing with hatchling disorientation on the beach (with specific reference to Leatherback nests at Sandy Point, St. Croix). Report to National Marine Fisheries Service. 29 pp.



Clockwise from top left: **Map A**. Country map showing nesting sites described in Table 3. **MAP B**. Country map showing foraging areas described in Table 7. **MAP D** (sic). Country map showing sanctuaries and refuges described in Table 19. ¹

¹ Editor's note (2009): Maps and figures are reprinted exactly as they appear in the original WATS I Proceedings (Bacon et al. 1984); we regret the poor quality exhibited in some cases.

THE NATIONAL REPORT REPORTE NACIONAL



AS VIRGENES ESTADOUNIDENSES JNITED STATES VIRGIN ISLANDS



VATIONAL REPRESENTATIVE/REPRESENT

RALPH BOULON



Simposio de Tortugas del Atlantico Occidental Western Atlantic Turtle Symposium



MESTERN ATLANTIC TURTLE SYMPOSIUM

San Jose, Costar Rica July 1983 NATIONAL REPORT FOR THE COUNTRY OF

D.S. Virgin Islands

NATIONAL REPORT PRESENTED BY

Ralf Boulon, Jr. The Mational Representative

Address: Division of Fish and Wildlife

101 Estate Mesareth

St. Thomas, U.S. Virgin Islands

DATE SUBMITTED:

Dewity U.S. Virgin lalands (St. Thomas St. Crois, St. John and Offshore Cays)	•	Summerd Extant of deringletions:	Territorial Sea	Estymbol Ecutosic Zang	Pighertes derfadfetlen321.815	Other (Bascribe) Customs Rose 134a	Endangered Species Importation 4.83 Km Wall 1. GEDMANNIC INVESTIGATION 321.8 Km
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* Countiline lampin is the measurement of the matienal season berndary of a country; i.e., the distance from border to berder for a country country and the distance event on island country.

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		KAR OF HABITAT	KAB LTAT
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.i	4 Submerced Venetation		
	s. Beefs (Total)		
	A. Fringing Roofs		
1	6. Patch Beefs		
•	5. Other		

TABLE 24. HARINE MABITAT INVENTIRET OF BOTTON TIPES

This information is shatchy at present. An oversall review of habitat bottom types on the insular shaives of the U.S. Virgim Telands is understandle at the present time.

	\$	THE OF SHORELINE	
MARINE SACRETINE CHARACTERISTICS*	JADEVELOPED	**034073430	TOTAL
1. Sand Beach (Total)			0.08
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0, Lou Energy	47.75	19.00	
total	23.75	1	23.75
3. Rocks Combined		**	#
tion (Tatal)			
A, Yine*			
B. Gresses			ŧ
C. Hangroves	13.0	1	33.0
E. Other Trees or Strubs			
F. Harshes?			٠.
6. Nouths of legoom, rivers, canals shoreline	8,35	•	3,4
7. Total Shereline	212.15	45.75	277.9

* Refer to SEA TUATLE MANUAL (Aeria) Servey)
TABLE 2. CDISTAL HABITAT INVENTORY OF MANUAL SHORELINE ** NAME Gerelopment of use (See MANUAL)

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NAME OF BEACH	LENGTH IR KH	SPECIES MESTING (Use abbrevistians)*	HOMTHS OF RECORDED HESTING
1, Buck teland	1.2	(h, 0, 5	May to October
Mew Port Beach 2,	.2	P, Chr.	May to October
Shoy's Beach 3.	2.1	D, E, Cm*	May to October
Green Cay Beach	.2	g, 5	May to October
Fruma Beach 5.	=	G, 5	May to October
Coakley Bay	9.	تا . ق	May to October
J. Tengue Bay	٠,	•	May to October
8. Smuggler's Cove	.2	E, Car	May to October
9. Knight Bay	•	Cm*	May to October
Soiler Bay 10,	ŗ.	W	May to October

TAME 3, MESTING BECH INVENTORY
List beaches in geographic suquence.
Provide editional information on following page.

*Raport questionable. Species id on basis of crawi size,

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SPECIES MESTING (Use abbreviations)*

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St. Croix and Offshore Cays (Con't.)

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May to October

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May to October

May to October

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11. Tegrand's Beach	7.		May to October	21. Canegarden Be
Kellt End Bay	.3	843	May to October	Henning's Bay
13, Inne Bay	,	Б, D	May to October	Sandy Point 23.
Jack Bay	,	8, 0	May to October	Le Grange
Grapetrae Bay 15.	۲,	8, Q*	May to October	Sprat Hole
Turner Hole	1.1	R. On*	May to October	Butler May
17. Rod Bery	•	B, Q*	Nay to October	27, Ham's Bay
Robin Say	11	£, C.	May to October	Marcon Hole
Halfpeany Bay	•		May to October	29, Davis Bay
Marchianes! Jay 2.	2.1	E, D. Che*	May to Getaber	Morth Star 16.

MESTIM MEAN INTENTATE SOURCE. List baches in geographic source. Previde additional information on following page.

88. .. 53 Species Abrovistions: Carlos exertis Carlos exertis Enrectellor seriecte transferior periode seriements periode

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AESTIAS AEACH INVENTORY List beaches in geographic sepanator. Previde additional information on following page.

time E 3.

St. Thomas and Offshore Cays

St. Croix and Offshure Cays (Con't.)

HENTIES OF RECOMBED RESTIRE May to October May to October SPECIES NESTING (Uso abbreviations)* à M ~ • ~ Salt River (West) Mast Op Twist BAKE OF BEACH Cana Pay

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MESTING BEACH INVENTORF List beaches in geographic sequence. Previde additional information on following page.

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MESTIME ACACH INTERTORY List beaches in geographic sewence. Provide additional information on fallouting page.

Species Marweistiens:
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John

St. Thomas and Offshore Cays (Con't.)

HONETHS OF RECORDED MESTING

SPECIES NESTING (Use abbreviations)*

FEMELY FE 807

August to Uctober August to October

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July to Septembe

June to August

Beptember

July and August June to December July and August

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\$ 208 May to August

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Saptember

Little Lameshure Bay Greater Lameshure Bay Caneel Hawkanest Salt Pond Bay NUMBER OF BEACH Francis Bay Europa Bay Jumbi Bay Trunk Bay Windswept Maho Bay TABLE 3. ė 35. MONTHS OF RECOMDED HESTING HONDES OF RECORDED RESTING Species Abbreviations:
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Carette Service
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Lettesche (17 Service)
Lettesche (17 Service)
Lettesche (17 Service)
Lettesche (17 Service) June to November August to September July to December June to Septem July to September Hovember August 검 July July SPECIES NESTING (Use abbreviations)* SPECIES MESTIME (Use abbreviations)* MESTING BEACH INVENTORY List beachis in geographic sequence. Pryvide pdittional information on following page. E ENCOR 558 .544 LEMETA IN KH 9 S 6 2 Š 9 ş 6ay Western Reef Bay Zastern Reef Great St. James Island NAME OF BEACH Cluciuse Bay HONE OF BEACH St. John (Con.t.) Genti Bay Mest Cay Bay Bordeaux Bay Mandahl Bay Dog Island Holl Bay ₫ ું

Species Materalistical, Chelonia medis Drimothaly scrinces Primothaly scrinces Lectuckelly implicital Lectuckelly benes MESTING BEACH INVENTORY List beaches in geographic sequence. Provide additional information on following page.

NESTING BEACH INVENTORY (Supplementary page) MALE 3.

Please give seditional information about each masting beach identified in table 3. Include information on color of sand, particle size, beach profile, becidenth vegetation, artificial lighting, etc.

and and beaches in the Virgin Islands are white carbonate sands composed primarily of salaheeds plates, mollusc self-first fragments, echinoters test fragments and coral skeletal fragments. Terrigenous materials are insignificant. Particle sizes almost all fail string the respect of 10 april Beach profiles are faitly consistent with nome change of the morth shore beaches during the consistent with some change of the morth shore beaches during the winter (Nov. to Mar.) when storm in the North Allantic produce see seeils of it to 3 meters. Beach profiles become attempt in this wave regime and many late prats can be subject to inundation.

Backbeach vegetation is also quite uniform throughout the Virgin Islands. The most common vegetation elements are listed below in order of descending commonslity:

June to Novembel

T 30

Cocoloba Point

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- Coccoloba uvifera
- Thespesis populnes
- Conocerpus erectus ÷

Portulace oleracese

- Suriana maritima 'n,
- Acacia mecracenths
- Elasodendrum Kylocarpum
 - Guilandia crista <u>.</u> .
- Sporobolus virginicus

*As the number of beaches in the U.S. Virgin Islands is extremely high, this section will be discussed in terms of generalities in than specifics.

Species Abbreviations:
The United Section
Decimals prints
Decimal prints

MESTING BEACH INVENTORY List banches in geographic sequence. Previes additional information on following page.

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3-492

Dates of Data Collection

1980 to 1982

1960 to 1982

1980 to 1982

1980 to 1982

1980 to 1982

1980 to 1982

1960 to 1982

St. John:

3. Trunk Bey

4. Windswept

6. Francis Bay

7. Selt Fond Bay

9. Little Lameshure

11. Eastern Reef Bay

12. Genti Bey

1. Cancel Markanest

COTIACEA

Eretmochelys imbricata

1980-2 1981-1 1982-0

1980-5 1981-0 1982-4

1980-0 1983-6 1982-0

1980-0 1981-7 1982-0

1980-0 1981-1 1982-0

1980-0 1981-3 1962-0

1980-0 1981-11 1982-7

1980-0 1981-0 1987-1

1960-) 1981-0 1982-4

1980-0 1981-0 1982-1

1980-2 1981-1 1982-3

1900-0 1903-3 1962-0

1980-0 1981-1 1982+10

Chelonia Bydas*

TABL	£ J.	NESTING BEACH INVENTORY (Supplementary page)
		Please give additional information about each meeting beach identified in Table 3. Include information on color of sand, particle size, beach profile, backbeach vegetation, artificial lighting, etc.
	the S	ificial lighting and bosting activities may be a problem blicking: John:
	1.	Candel Hawksnest - lights Trunk Bay - boats Maho Bay - boats and lights Francis Bay - boats
	5.	Francis Bay - boats Salt Pond Bay - boats Chocolate Hole - boats and lights
в.	St.	Thomas:
	1. 2. 3.	Mandahl Bay - lights Hull Bay - boets and lights Great St. James Island - boets

- ts nd lights land boats

St. Croix:

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 Mew Fort Beach lights
 Shoy Beach lights
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 Saugglers Cove lights
 Solier Bay lights
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Table 4 (Con't.)

	Beach	Sates of Data Collection	Dermochelys coriaces	Eretmochelys imbracata	Chelonia Mydas*	14. Coccoloba Pt.	1980 to 1982		1980-5	
Şt.	Croix			·			Table 4 (Con	t.)		
1.	Suck Island	1980 to 1982	1982-2	1980-45 1981-35 1982-40 to	45	Beach	Dates of Data Collection	Dermoche)ys COTIACES	Eretmochelys imbricate	Chelonia Mydal
2.	How Port	1976 to 1970	2-3		3	St. Croix (con't.)				
3.	Shoy Beach	1976 to 1978	1-2	2-3		25. Sprat Sole	1976 to 1978		1-2	
4.	Green Chy	1976 to 1978	2	15	•	26. Butlet Bay	1976 to 1978		1-2	
\$.	Frune Bay	1976 to 1978	•	2-3		27. Home Boy	1976 to 1978		3-2	
6.	Cookiny Bay	1976 to 1978	15-30	\$-10		28. Maroon Nole	1974 to 1978		5	5
7.	Teague Boy	1976 to 1978		2-3		29. Davis Bay	1976 to 1978	3	3	4
8.	Saugglers Cove	1976 to 1978		2-3	2-3	30. Morth Star	1976 to 1978		5	
9.	Knight Bay	1976 to 1979			3-5	31. Cane Bay	1976 to 1978		3	
10.	Soiler Say	1976 to 1978		1-3		32. Must-Op-Twist	1976 to 1978		3	
11.	Teytaud Seach	1976 to 1978		1-3		33. Salt River	1976 to 1978		3-5	
12.	East End Say	1976 to 1978		3		34. Turquoise Bay	1976 to 1978		5	
13.	least Boy	1976 to 1978	1-2	7-8		35. Judith's Fancy	1976 to 1978		5	
14.	Jacks Bey	1976 to 1978	1-2	25		36. Little Bay	1976 to 1978		7	
15.	Graptime May	1976 to 1978		3-5	3-5		•			
16.	Turner Hole	1976 to 1978		1-2	1-2	St. Thomas				
17.	Red Bay	1976 to 1978		5		1. Weltjeberg May	1979 to 1981	1979-1	1979~4 1980~3	
10.	Robin Sey	1976 to 1978 ·		5					1901-1	
19.	Melfpenny Nay	1976 to 1978		5		2. Little Mans Loll	lik 1979 to 1981	1980-1	1979-5 1900-13	
20.	Streetisment Day	1976 to 1978	10	מנ	10			1900-1	1901-6	
21.	Cane Garden Say	1976 to 1978		4-5		3. Coconut Bay, Mans Lellik	1979 to 1981		1979-8 1960-10	
22.	Monnings Bay	1976 to 1978			1-2				1981-3	`,
23.	Sundy Point	7403 7403	36+ 19			4. Dry Boy, Name 10	plisk 1979 to 1981		2979-15 1980-23 1981-12	
34.	LaGrange	1976 to 1978			3-5	5. Little May, Mane Lollik	1979 to 1991		1979-2 1980-0 1981-0	

Table 4 (Con't.)

			A,		
	Seach	Dates of Data Collection	<u>permochelya</u> <u>coriacea</u>	Eretanchelys imbricata	Chelonia Pydar
St.	Thomas (con't.)				
6.	Sandy Bey.	3979 to 1981		1979-8	
	Inner Brass			1985-8	
				1981-6	
٦.	Penn Bay	1979 to 1981		1979-3	
				198()	
				1981-3	
e.	Coret Bay	1979 to 1983		1979-A	
				198	
				1981-6	
9.	Botany Bay .	3979 tc 1981		1979-0	
				198:	
			1981-1	1961-2	
lo.	Santa Merie Bay	1979 to 1981		1979-1	
				1980-1	1980-2
				1981-0	
11.	Bordooux Bay	1979 to 1981		1979- 1	
				Lune H	
				Tant-4	
2.	Ment Cay Bay	1974 to 1981		1974-0	
				1980-2	
				1961->	
3.	Mandahl Bay	1979 to 1981		1979-0	
				1980-4	
				1981-0	
14.	Bull Bey	1979 to 1961		1979-0	
				1960-0	
				1961-1	
5.	Cluciuse Bay	1979 to 1981		1979-4	
				1980-0	
				1961-2	
.6.	Dog Island	1961		5	
	Gt. St. James Island	3 1979		6	

^{* ~} All \underline{C} . mydar identifications are based on crawl width.

YEAR SPECIES	1982	1961	1980	1979	1978	1977
Caretta caretta Chelonia mydas						
Dermochelys cortaces	39' - (Sandy Pt.)	26 - (5andy Pt.)	• ,			
<u>Cretmochelys</u> <u>Impricata</u>	10 (St. J) 15 (Buck 1	14 (St. J) 10 (Buck 1)	1 [St. J] 14 (Buck I)	. ·		
Lendachelys templ						_

TABLE 6. ESTIMATED POPULATIONS OF HESTING FEMALES, Summarize the estimated number of mesting famales for the years indicated and describe methods of estimation on the mext page.

TABLE 5. AEPIAL BEACH SURVEY SUPPLARY (Supplementary page)

Give any additional information available from gerial surveys, Information should include ground truth observation if conducted.

See enclosed copy of

Boulon, Jr., R.H. and D.A. Olsen. 1981. Virgin Islands Turtle Resources: Acrial Census Results 1979-198... Final Report for NMPS Grants NA-79-GA-A-00133 and NA-80-GA-A-00055, 23 pp.

TABLE 6. ESTIMATED POPULATIONS OF MESTERG FEMALES. (Supplementary page)

Please give brief details on methods of estimation for Table 6.

Records were kept for all crawls on beaches on \$1. John and Suck Island, \$1. Croix, showing the number of nests and the time intervals between crawls. Beaches on \$1. John are short, ranging from 101 s to 555 m, and nesting was sparce enough that by tabulating the number of days between nestings (i.e. two versus 16) one could reasonably estimate the number of nesting females per individual beach. Figures in the table represent totals for each year.

On Sandy Point, nearly total number of Leatherbacks were actually observed nesting and tag monitoring gave almost precise number of nesting females.

^{† -} Figures for St. Croix may indicate total number of mests due to observers not able to determine number of remestings.

 $[\]hat{\tau}$ - Sandy Point figures for Leatherhocks are the result of intensive DFM studies.

ANE OF AREA (or give coordinates)	(g.e.) (g.e.)	SPECIES FIREGIAG (Ble abbreviations agerus, numbers)	HATURE OF EVIDENCE (Observation, fishery, incidental catch)	(er give coordinates)
Prancis Bay, St. John 1.	5.1	C.a 6-7 8 - 4-5	Direct weekly observation from a boat and beach.	Salt Pond Bay, St. John 7
Maho Bay, St. John 2.	_ l	C.B.		Magens Bay, St. Thomas
Cabest Bay, St. John 3,	,	C.a 1-2 E -: 4-5-	Direct weekly observation from a boat and beach.	Ned Mock, St. Thomas
Crus hay, St. John 4.		\$	Direct weekly observation from a boat and beach.	Thatch Cay, St. Thomas
Brown hay, St., John S.	! - -	l _	Direct weekly observation from a host and beach.	Little St. Jemes Island
-	-	C.B ? E - 4-5	Direct weekly observation from a boot and beach.	Smith Bay, St. Thomas 12.

MATURE OF EFFICINGE (Abservation, Fishery, Incidental catch)

SPECIES FINACING
(Use abbreviations
for approx. numbers)

PROFES

į

Direct weekly absentation from book and beach.

-

C.M. - 107 E = 57 C.R. = 47

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Mark and Fecapture estimates usin Schnabel Population Estimator Sormala.

Whit and recapture estimates und Schnabel Population Retinator formula.

TABLE 2. FIFTGETH ANENS INVENTORY

TABLE 7. FORMALINS AREAS INVENTORY

Species Abbreviations:
Chelonia weeks
formed by more refraction
formed by more refraction
formed by more cast
formed by more c

Ask and recapture estimates using charles Population Estimator Ormula.

Mark and recepture estimates mail Chambel Population Estimator Ormula

C.m. - 33

C.m. - 59

C.s. - 10

1 5

Wark and recapture estimates usin chambel Population Setimator ormala.

Approximately equality distributed.

HEATEST ACTIVITY

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SPECIES

Carette carette Chelquite medas

HOMIT

Approximately equally distributed.

Eremechelys Imbricate

. OF 1 doche | y h w 1

Demochelys cariacea

releastelys elivaces

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Whistomerian Tublics of Sto.
Please provide any information evallable on the inclinance of turtles in offshore areas. TMRE 9.

35--33

Species thereviations:
chefts are the first that th

7-3 to 12
[MM.E & - DMILE SPECIES PRESENT ON FINANCING WRENS,
Please complete one of these tables for each of the
error identified in Table 7, Number each table as
enumerated in Table 7, Rumber each table as

Based on a combination of persons chearwaitene and sporadic ampling, the overall numbers of barine present on each foregamp area at any one time are approximately the same, Wo clear peaks in estivity are apparent.

				_
LIFE STAGE UNIT	SPECIES (abbrev.)	CAUSES*	EXTENT OF MORTALITY (S. of write)	
	Ŀ	Buck leland, St. Croix (1980-81): Hungouse prudation.	10 VOD-05	į
Nes ts/aggs		St. John (1980-81): mongoose, wild dog and beach erosion 23% of total eegs	23% of total	8 6 8
		St. John (1981): beach erosion during emergence.	12.5	
Recollings	u	st. John (1981): Ocygode guachatus prestion on one hatching.	1	
Juveniles	u	Found dead on St. Thomas beach [1974]. Cause of death withown.		
Adults (in unter)	. u	rouimately 2 stomach of 4	ļ	
	:	libone.		
Nesting females				

MONTALITY ₽.

Natural mortality couses, may include:
Besch aresten of mesti seg and/or
mestise predation by crubs, wild
actuals, see birds, etc.; disease;
theris and other predators at sea;
etc.

358533 Species Abbreviations
Chelants ayels
Wiffichting Collects
Transcolors of Species

additional biological data) į MATURAL MORTALITY (Supplementary may

Plesse report below, and on additional pages if mecessary, additional data obtained or resilable such as messurements integrity, without, weight jor fault ("mailes, adult mailes, hatchiffes, numbers of eggs per nest, hours of mesting, hours and conditions of hatchiffes, etc.

St. John Sawksbill Wests:

Numbers of undeveloped or starile eggs ranged from 0-37 and represented 5.9 percent of the eggs in the nests. No distorted, undersized yolkless eggs were found in any of the nests: shells of yolkless eggs were the same size as shells of fully developed eggs.

Mongoose Predation

A total of 13 neats were raided by the exctic mongoose Prepares auropunctatus during the 1980 and 1981 assan. Upon physical impection of the nest area, an estamste was made of the total number of eggs or hatchlings that had been taken by mongooses to 0 of the 15 predations. The total from those 10 nests was at least 63. Contents of the other five nests were completely destroyed by the mongoose, making two counts impossible. If olitch size in the Eive nests was typical of all nests, mongooses took an additional 710 etchs eggs leverage clutch size of 145 x 5 mests). The best estimate of took 23 percent of the total egg production.

Mongooses dug into nests at three different phases of the nesting cycls: within two to three dyes of egg deposition, at the tise of hatching in the nest cavity, and during the emergence of hatchings from the sand's surface. Mongoose in the Virgin Islands are predominately distral federar; the majority of the predation occurred the morning after the nocturnal primary emergence of the hatchings. The late emergent or strangular hatchings still in the mass searcence must be courselved the mongoose. If a mass searcence of consumants with the late occur after demi, mongoose. If a mass searcence must be occur after demi, mongooses could consume must, if not all, of the hatchings from that nest.

In 1980 protective mix-inch-equare wire mesh was placed over eight nests on beaches where three nests had empreviously totally destroyed by feral and/or domestic dogs. One of the three nests was destroyed 29 days after the eggs were laid indicating that dogs are quite perceptive of tuttle securi. Therefore, the enclosures were laft in place until after hetchling emergence was noted. The wire did not inhibit the emergence of hetchlings.

LIFE STAGE UMET	SPECIES (abbrev.)	CAUSES®	EXTENT OF MORTALETY (% of wett)
Mes 52/eggs	ď	Sandy Point, St. Crois (1981-82). Beach erceion: 1981- 1982-	344 of nest 234 of nest
Metchlings	۵	Sandy Point, St. Croix (1982). Crubs, might harons, mongoods - mongoods - Wahlculas compactions	19
Juvent les		***	ļ
Adults (in vater)			
Mesting females			·

9.

Ratural mortality couses may include: Backs devision of desti; ray and/or mestling predation by crabs, wild animals, see birds, etc.; disease; Sherks and other predators at sea; etc.

Species Abbrevistions:
Cheloris oydes
Uppment of the control of th

338233

for anditional biological data! (Con't.) MATURAL MORTALITY (Supplementary rage Mere 10.

Please report below, and on additional masss of necessary, additional data obtained or realiable such as massurements itempth, without, weight to dathit (man)ss, adult males, hatchlings, numbers of eyes per rest, boars of mesting, hours and conditions of hatchling, etc.

Meteorological Sources of Mortality:

furtle nest habitate on St. John are narrow stripe of sandy land nearly at sea level. These habitats are thus particularly vulnerable to acrong sea swells associated with tropical storms during August to November and northern winter storms from November to April, Four nests were inundated and lost in 1980 and one in 1981.

on St. John Hawksbill also report by E. Small

For Leatherback turile information, see enclosed hisetherback See Turtle Research in the Virgin Islands.

5

The remains of a Mawkabill tuttle were recovered from the stomach of a 12-foot tiger shark caupht in 300 fathoms of water off the abuth goast of St. Thomas. The post vertabral scute measured 15,88 cm.

SPECIES CRUENT OFFENTIONS HOLDING ATTENTIONS CAPACITY MANY TOWARD CAPACITY MANY MANY MANY MANY MANY MANY MANY MAN							ı			
FOREST FOZ NO. ME AT NO. OF ADMY TOWALTS MAY TOWALTS M			HATCH	RY OPERAT	fores		MOLDEN	G LIVE TO	RTLES	
	SPECIES	tres califor	FG2 NATOHO	MD. Petínsia	AGE AT	IN. PFTAINFF	10. OH 18975.	ARULT FFRMLES	MILT.	6
20							٦			Coretta coretta
	 		: 1	•		i	2			Spelmia myths
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	Lanidochelys allvaces									Leptdechelys offusces

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MOLDING LING TURTLES

HATCHERY OFFEATIONS

AGE AT

EGGS HATCHED

TEM 1981

TWINE WARLOLTHE OFDERINGS

This table quantifies actualties concerned with turile collapse for either conservation, paged states embergenes experiences, or conservation and Atlivities to be included are "bendaterting", re-engisting, included and relates, as:

Proper separate table for each year of evellable data.

TABLE 17 -1302

THERE MARIOL THRE OPERATIONS This table quentifies activities concerned with tartle culture for either conservation, possible the enhancement superionity or conservation was possible enhancement superionity or conservation. Activities to be included ore "headtarting", re-nesting included ore frepare separate table for each year of evaluate data.	
The table quentifies activities concern possible quentifies activities concern possible emissioned table for each year of Prepare separate table for each year of	
14 17 - 1	

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INSTITUTION OF ORGANIZATION MORE ARE ADDRESS	ACTION	ACTIVITIES IN PROPIESS
Diricales of Fish and Wildillo 181 Emcés Measth Bt. Thomas, O.S. tirgin Islamb 00000	718	1. Leatherback westing biology, Sandy Point, St. Croix, 2. In-water Hearbill and Green must end recepture population study.
Veryin Initarde Pational Park P.O. Box 7769 . B. Thomas, U.S. Treyin Initards St. Thomas, U.S. Virgin Initards	<u> </u>	1. Mantabill mesting biology, St. Croix. 2. Ranksbill mesting biology, Buck toland.
	Ì	-

TABLE 10, POBLIC AND PRIVATE INSTITUTIONS CONCERNED WITH TURILE CYNSERVATION/PAUMAEMORIANTAUTISATION

MONTA Jumps	gen 13ke	MUTATIONS SO PROTECTION	TIPO V EPECTIVISMO DE LA VIGILANCIA V CLIA- PLÍNIENTO DE LA LEY
Virth lalends National Park St. John, U.S. Virtin Kelands (Includes beaches and adjooms waters)		0.5, Mational Part Service	Poutine patrols. Pritish V.: flabermen till occasionally take turties mear St. John
icant Inland Dang Machineal Monomont St. Crois. U.S. Virgin Inlands (Includes beach and adjacent ambres)		U.S. Matiemal Park Service	Noutine petrels. Posching of nests is still a problem.
Proposed St. Thomas Marine Santhary (Includes wetern and coartines)		To preserve an area of diverse marine communities.	To be patrolled by Department of Commer- vation and Cultural Affairs enforcement personnel.

SAMBIANDS Y REPIETOS Ė 3

NAME AND ADDRESS OF "D'CINEZATEON	RUDGET ALL PCATION 10 TURTLES	NA OF STAFF ASSIGNED TO TURTLES	COMMENTS OR LEVELS OF EUFORCEMENT
Hettonii Merine Fibratical Service U.S.V.I. Law Enfortement Division Boom 140-A, Federal Stilding St. Thomas, U.S. Virgin Islands	hone -pecifically identified.	8 CO	Nighest level in the U.S. Virgin letends
Virgin Islands National Park Box 7789, Charlotte Amain St. Thomas, U.S. Virgin Islands 2000.	814,000	e o	
Chitural Affairs Chitural Affairs Bureau of Environmental Enforcement No. Me Esten Trylands To Thomas, U.S. Varyn Islands	Hone specifically	Hone Hone Pecifically specifically	*
00802	\$4,000		

U.S. Endangered Species Act of 1973. To conserve species of fight widdlife and plantsthat are in danger of extinction.

Varyin Jelands Code, Chapter 9a, Title 13, Settler 118 for to the preservation of marine turtles in the Carlboan area.

~i

Please list Mational, regional, and local legislation concerning turtle management and conservation. List litia, date, and stated ourpose.

REGULATORY AUTHORITY (Supplementary mage)

TABLE 20.

REQUATION ANTHORITY Indicate all antities with statutory responsibilities (e.g., Fisheries Departmenta and Ministeries, Police, Coast Guard, etc.) TABLE 20.

₹

g 317. Hab for releatific, educational and breeding purposes

(c) The Remes and tor weath restriction of any partons who willings that to make a report or willish you make a false report deal to suspended and a see blesser or reprints ilon shall not be seen of the second to the second to make.

1 314. Cheed enterto

(a) The Commissions shall assessed, at least forty-five (43) than the materials of the time of the chosed seasons presented as the wegatherines is long previous to this chapter for the presention of one or more species of this is brette defined.

(b) The transportation and alse at a series of this which is the subject of an elected assessed mild be alserted up to the which is the subject of the deced assessed up to the seventh day after the commencement of the cheef reston in order to parently the liquidation of stock caught before the beginning of such

the includedness of stock taught before the beginning of such the includedness of such closed season.

(c) The fability, sub-transportation and stitlistics of all spectres and cornection becomes fability and measured in the closed measure stitlistics by refers and requisitions becomes fability for providing the state of the cornection of cannot be determined in the percentage species which have been complete before the beginning of the requestive chosen excess in also armitted.—Advised New, 23, 1972, the 3300, 12, 26 and 1, 1972, p. 67.

T.12 \$ 319 COMMERCIAL FIBRING

The Denotement and may obleg powers at equalities as with the graftles permission of the Commissioner, may each or ensus is be caugh, for excellible or educational purposes or to find culture, may fifth or mentice organism at my time, from the jurishes in markers of the Permission and may sell or cause to be such what otherwise problems by too, all or such part of the caugh that has been taken and as may have be necessary but account or each choice or of the folluture. The purposed, if any from than she mail to a force of the first of the Frieders and Wildlife Fried. A lost New, 21, 1972, No. 3,300, § 2, Sees, L. 1972, p. 497.

1316. Protection of marina turtless, north and aggit; pressibles

(a) It is the littent of the Legislature of the Virgin Islands to entiribute to the preservation of marine turtles in the Caribi-sa area, and furtles now being close to estimation.

(b) It shalls be unlevated for any servers to take lift, pears an antifactor or any way destroy any loggetheed, leathers, it, harhaldly riding or green turtle or other sas lattice, or take or preserva may perfect the reservant thereof while and the turtless and when the Perildonial waters during the months of May through Scipicaries. Perildonial waters during the months of May through Scipicaries, effort may by rule and stand holder fines as its Corressivent the impact trade, and are in other fines as its Te Corressivent to inspect may by rule and regulation presentle. It shall be unlimited to impact, trade, and for in any way deal to yourne sea turtles of any bind; Provided, however, That the Commissiones may issue written permission to any literate or publicly owned too or are all than architecture.

of the exhibition.

(1) No person may take, present, distinth, mutifule, deal-or, came to but destroyed, add, after for sola, transfer, medical of harmon and until ented or ergy at may their.

(2) Any person violating any provisions of this section by guilty of a maximum southful present to grain or provisions of the section by guilty of a maximum south through the section by mutified by a time and less than one insudred (\$100\text{Testing or present than six lines and the less than the #. 19K

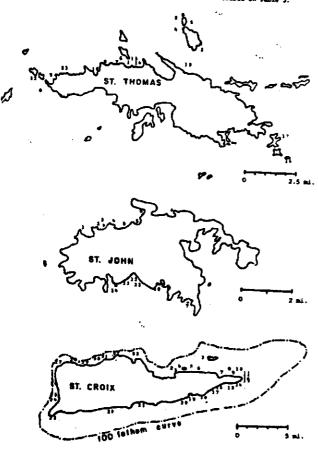
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HARE & AMMERS OF HIGH PUBLISHER A CHIEF PROESTIGATOR 00002 00902 00830 Division of Each and Middler Inj verse aggreech St. Trowas. .S. Virgin islands Malf Brior, Is. Division of fish and wildlife 10) Frace Wasseth St. Trans. 'S. Virgin Islande Raif Pr.(27, 31. Virgin Salands Mational Park Box 110, Time Bay St. John 11S. Virgin Islands Evonne Smill ontobuc Ongoing mpoling € DATES START 1980 1961 1961 Leatherback Turtle Westing Biolody, Sandy Point, St. Craix Bem Turtle Mesting at the V.I. Mations! Park and Buck Island Reef Nations! Monument In-water Hawkshill and Green Turtle Population Dynamics Study Panyeer fine

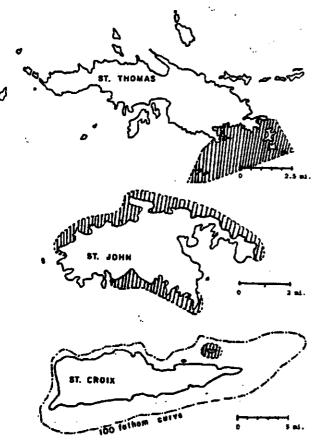
NATIONAL RESEARCH PHOLETS List turtle meranch activities funded within vnor incitus เหมินตรา

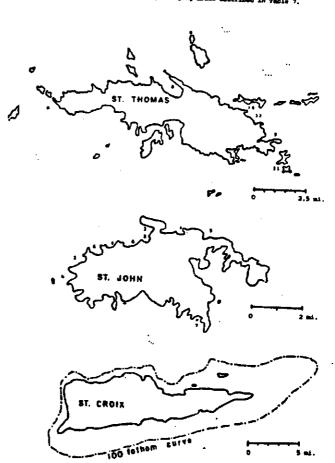
\; ;

CONSERVATION



Mep D: Country map showing sanctuaries and refuges described in Table 19.





REPORTS AND PUBLICATIONS

The following is a list of the major reports and sublications concerned with mailtonal turtle resources (list author, date, title, and publisher).

- Carr, D. and P.W. Corr. Undeted. Survey and recommaissance of menting shore and constal habitats of merine turtles in Floride, Fuerto Rico and the U.S. Virgin Islande. Report to Mational Marine Fisheries Service.
- 2, Boulon, R.B., Jr. and D.A. Glaen. 1982. Virgin Islands Turtle Resources: Acrial census results 1979-1980, Report to National Marine Fisheries Service. 23 pp.
- Boulon, R.M., Jr., H.D. Hillestad, R. Eckart. 1982. Leatherhead see turtle research in the Virgis Islands: A preliminary analysis of data. Report to U.S. Fish and Wildlife Service. 7 pp.
- Boulon, R.H., Jr. and D.A. Cleen. In Prep. Population Biology of Green and Hawksbill turtles in the U.S.V.I. based on an in-water tagging study. Report to USPNE - Endangered Species Program.
- 5. Small, Evonne. 1982. Sea turtle nesting at Virgin Islands National Park and Buck Island Nest Mational Youwent. 1980 and 1981. U.S. Department of the Interior, Mational Park Service, NPS-RER Research/Resource Management Report No. _______54 pp.
- Baker, G.S. 1981. Recovery Plan for St. Croix population of the Laetherback turtle (<u>Dermochelys cocieres</u>). U.S. Fish and wildlife Service, 2D pp.
- Philibosian, R. 1975. Disorientation of Nawkshill turtle hetchlings. <u>Eratmochelys imbricata</u>, by stadium lights. Copela No. 4:824.
- Oyden, J.C., <u>et al</u>. In Press. Biel foreging patterns in juvenile Green turtles (<u>Chelonia mydes</u>) in St. Crois. J. Esp. Mar. Siel. <u>Brel</u>.
- Towle, E.L. 1978. Report on mea turtle nesting, sighting, opps and hetchlings for 1978 in the U.S. Virgin Talands and a recommended research methodology for dealing with hatchling disorientation on the beach (with specific reference to Leatherstein nests at Samdy Polat, St. Croim). Report to Mational Marine Fisheries Service, 29 pp.