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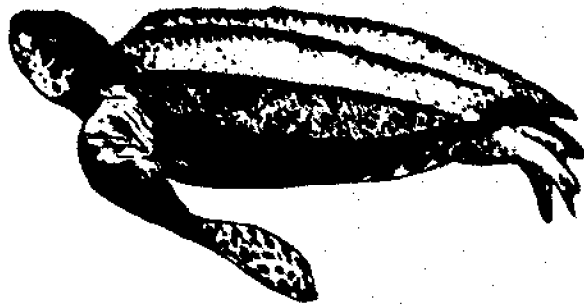


The Sea Turtles of Virginia

with notes on identification and
natural history

Second Revised Edition
Virginia Sea Grant College Program
Virginia Institute of Marine Science
Gloucester Point, Virginia

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natural history

Second Revised Edition
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Introduction



THE SEA TURTLES ARE AMONG the most interesting representatives of Virginia's migratory marine fauna. They include the leatherback (the world's largest living reptile) and four species of hard-shelled sea turtles. The latter are represented by the very large and common loggerhead, the much smaller, less common Atlantic ridley, the rare Atlantic green turtle, and the Atlantic hawksbill, a species for which a single questionable Chesapeake Bay record exists.

All Virginia's sea turtles may be recognized by their flipper-like legs, adaptations for their highly aquatic existence. These animals spend virtually their entire lives in the water, only emerging on beaches to lay eggs.

All five sea turtle species are highly susceptible to annihilation by man, despite their impregnable appearance. All species are considered edible, if not epicurean, by man. Active fisheries for sea turtles have been in existence in the tropics for centuries.

Sea turtles are most vulnerable when they emerge from the sea to bury their eggs in nests on sandy beaches. At such times the adults may be slaughtered for food and thousands of eggs collected to be prepared and eaten in much the same manner as hen's eggs. In many parts of the world sea turtle eggs are believed to possess aphrodisiac qualities. The greatest threats to the survival of all our sea turtles are such human harvesting of females and eggs at nesting beaches, and the physical destruction of beaches by development.

In addition to harvesting by man, the eggs are vulnerable to predation by many other animals including pigs, dogs, coyotes, raccoons, and skunks. If a

nest remains undisturbed the eggs hatch after about sixty days, and the young turtles emerge at night and head for the sea. Natural predation by mammals, birds, fishes, land crabs, and other animals on these hatching turtles can be very high, because the turtles are small, awkward, relatively thin-shelled, and defenseless. Another major threat to turtle survival is shrimp trawling off the southeast U.S. and in the Gulf of Mexico. Many sea turtles captured accidentally in shrimp nets are drowned.

All of Virginia's sea turtle species are protected by Federal law and are listed as "endangered" or "threatened." Consequently, even incidental catches of sea turtles by fishermen must be returned to the water immediately, whether the animals are dead or alive. Federal penalties are severe for molesting sea turtles, or even for collecting the shells, skulls or other parts of dead specimens found awash on beaches. Such specimens should be reported to the nearest representative of the U.S. Fish and Wildlife Service (U.S. Dept. of Interior), or the National Marine Fisheries Service (U.S. Dept. of Commerce). Virginia strandings of sea turtles should be reported to the Virginia Institute of Marine Science sea turtle and marine mammal hotline (804/642-7313).

Acknowledgements

This book is dedicated to the memory of Archie Carr whose contributions to sea turtle research and conservation stand as an inspiration to all who study sea turtles.

Thanks are due to all the people of Virginia who have had enough interest in sea turtles to report strandings to us; particularly to the volunteers in the VIMS stranding network; and to Molly Lutcavage, Richard Byles, Ruthellen Klinger Bowen, Sarah Bellmund, John and Deb Keinath, Bill Jones, Joey Brown, and other young scientists who have labored in the turtle research program over the last ten years. The figures produced in this booklet by Dick Cook were adapted from Martin Michener's superb photographs published in **This Broken Archipelago** by J. D. Lazell, Jr., Ken Dodd formerly of the USFWS Office of Endangered Species, was of great aid in recounting pending legislation and current status of marine turtles on the U.S. List of Threatened and Endangered Wildlife and Plants. Doug Beach, the NMFS Endangered Species Coordinator for the Northeast, has given us invaluable aid, information, and encouragement for many years, as have C. Robert Shoop of the University of Rhode Island, and Peter Lutz of the University of Miami.

Since the first edition of this publication in 1979, marine turtle research at VIMS has grown from occasional collection of data on stranded turtles to a large diverse research program which includes studies on population structure, age, growth, migration, behavior, nesting, and energetics. Much of the work in this integrated program has been and is being done by a dedicated group of graduate students under my direction. Research support has come from the National Marine Fisheries Service, Virginia Highway Department, U.S. Navy, and in recent years primarily from the Virginia Non-game Fund which is supported by voluntary contributions from Virginians, and which is administered by the Virginia Department of Game and Inland Fisheries (VDGIF). Contributions may be sent to the Non-game Fund, VDGIF, 4010 W. Broad Street, Richmond, VA 23230.

Contents

Identification	1
Figures	2

NATURAL HISTORY AND STATUS IN VIRGINIA

Atlantic Leatherback	9
Atlantic Loggerhead10
Atlantic Green Turtle12
Atlantic Hawksbill13
Kemp's Ridley14
Bibliography16
About the Author18
Turtle Stranding Form21

Identification

The leatherback can be distinguished from all other sea turtles because it has no plates (scutes) on its shell and no scales on its head or body as an adult. Instead, the leatherback is covered by skin that appears leathery or rubbery. The carapace (top shell) is distinguished by seven longitudinal ridges. This is our only black marine turtle, although it is often spotted with white on the lower parts of the head, limbs, and body (Fig. 1).

The other four species of sea turtles (Cheloniidae) may be identified by color and scale or plate pattern. The plate pattern on the carapace is important in distinguishing the loggerhead and ridley from the green and hawksbill. The loggerhead and ridley both have an "extra" pair of shoulder plates which touch the nuchal (neck) plate at the leading edge of the carapace. The green and hawksbill do not have these extra shoulder plates, but instead have a larger triangular central (vertebral) plate abutting the nuchal (Fig. 2).

The green turtle may be distinguished from the hawksbill by further examining the plates on the carapace and also by examining the plates on the head between the eyes. The hawksbill has plates on the carapace that broadly overlap one another like shingles on a roof, whereas the plates on the green do not overlap (or do so slightly toward the rear of the shell) (Fig. 2). In addition, the hawksbill (as do the loggerhead and ridley) has 2 pairs (4) of plates on the head between the eyes and the green has only 1 pair (2) (Fig. 3).

The loggerhead may be distinguished from the ridley by color. The loggerhead is reddish brown on top with yellow on the underside of the body, whereas the ridley is grey with some white on the head and limbs. In Virginia most loggerheads seen are large (> 100 lbs.), and most ridleys are small (≤30 lbs.) The loggerhead and ridley may be distinguished further by examining the large plates on the bridge between the upper and lower shells (Fig. 4). The loggerhead usually has 3 large plates (rarely 4) and the ridley has 4 or 5. In addition, ridleys have pores in their bridge plates and loggerheads do not.

FIGURES

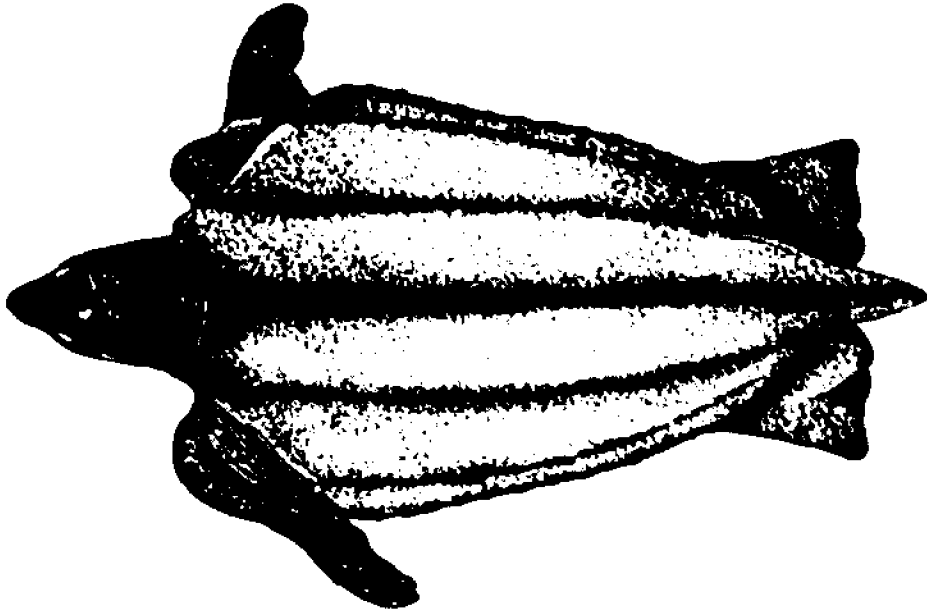
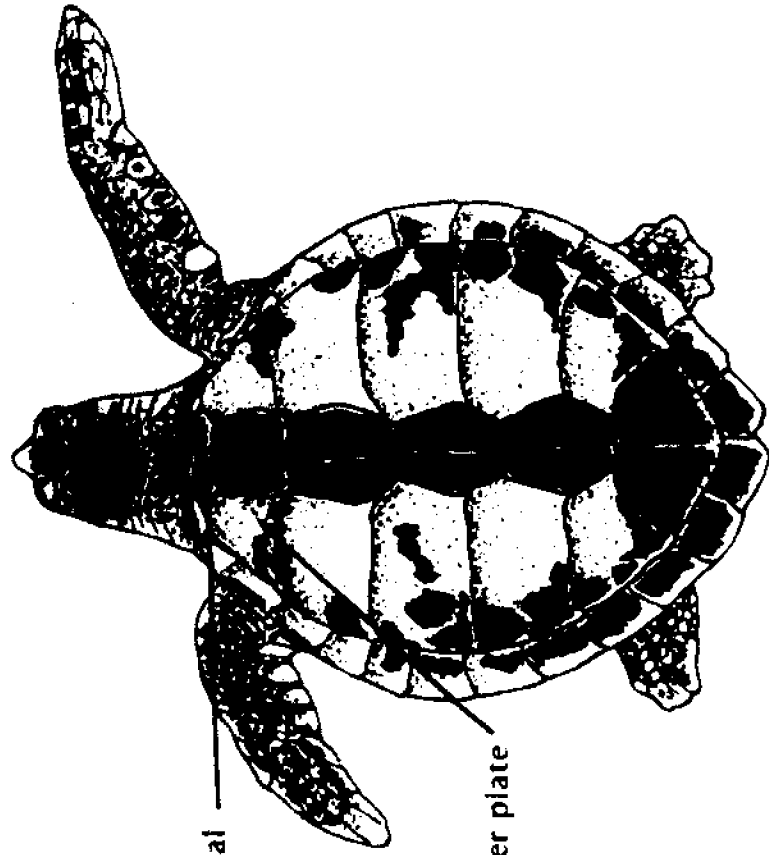
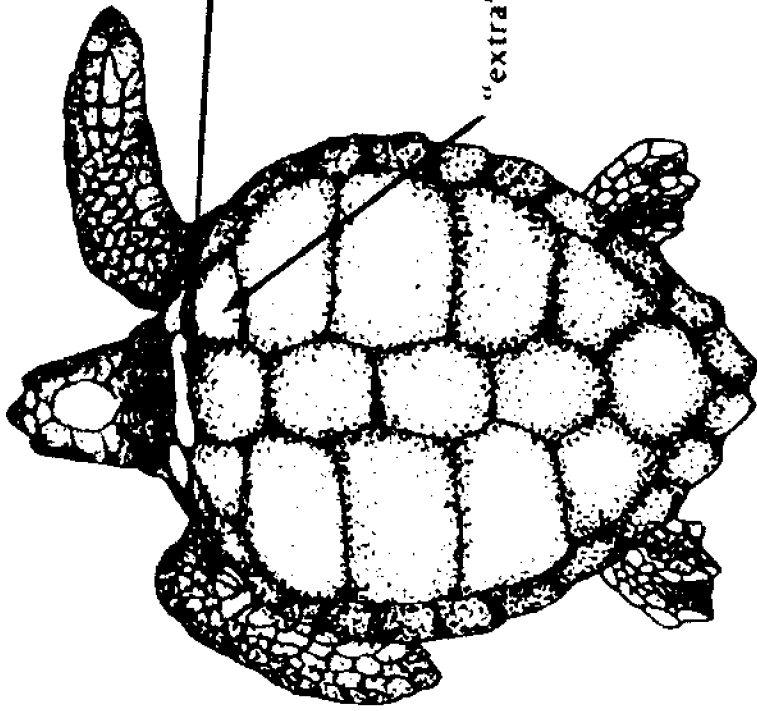


FIGURE 1. Leatherback Turtle: Note that there are no bony plates, and that the leathery shell has longitudinal ridges.

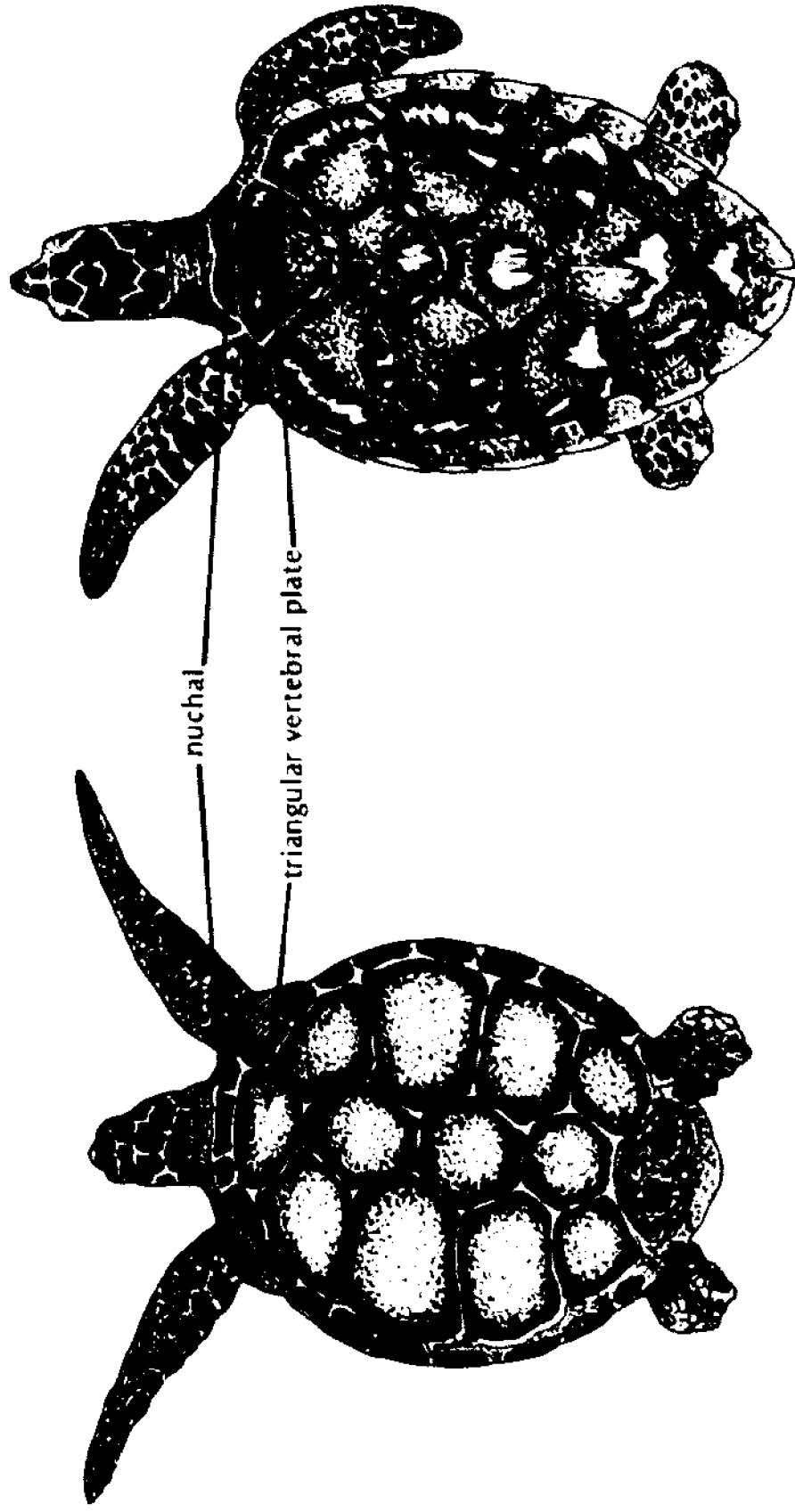


Ridley



Loggerhead

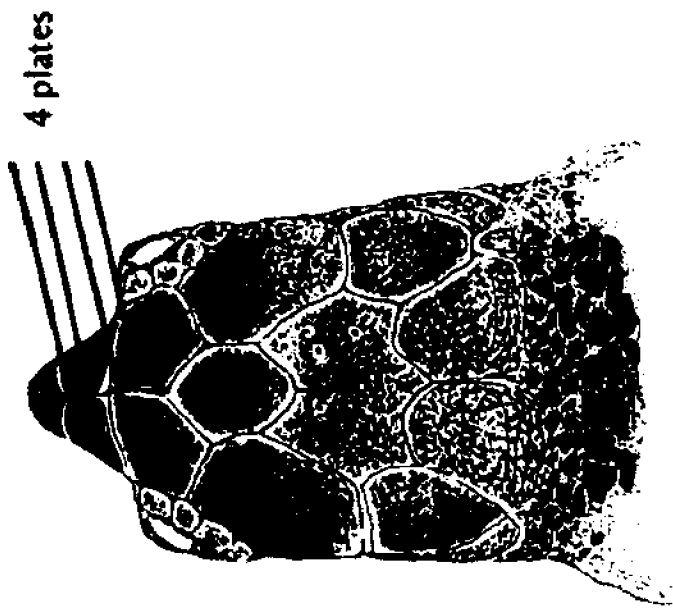
FIGURE 2. Sea Turtles: The Green and Hawksbill have a large triangular vertebral plate whereas the Loggerhead and Ridley have an "extra" pair of shoulder plates touching the nuchal plate.



Green Turtle

Hawksbill

Hawksbill



Green Turtle

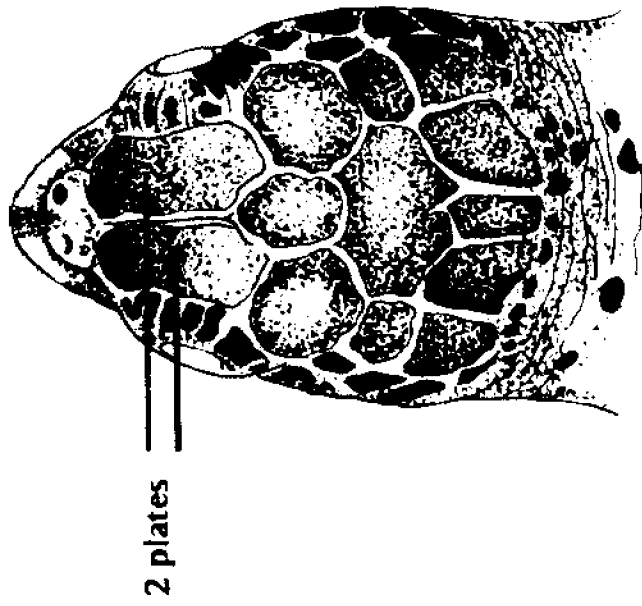


FIGURE 3. The Hawksbill, Ridley, and Loggerhead have two pairs (4) of plates on the front of the head between the eyes, whereas the Green has only one pair (2).

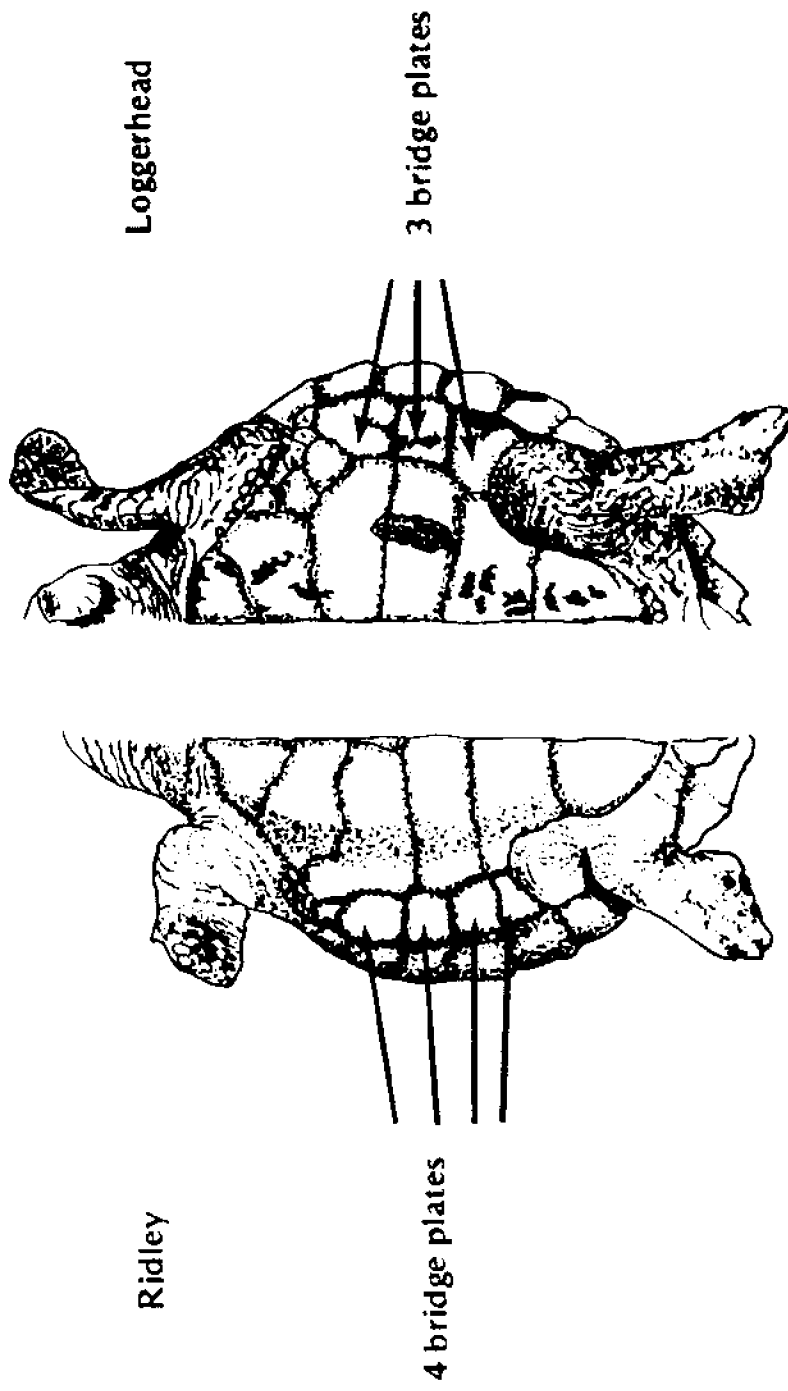


FIGURE 4. The Ridley usually has four bridge plates, whereas the Loggerhead usually has three bridge plates.

Natural History and Status in Virginia¹

¹ Major literature sources for these accounts are Bellmund, 1988; Bellmund et al., 1987; Byles, 1988; Byles and Musick, 1985; Carr, 1955, 1967; Conant, 1975; Ernst and Barbour, 1972; Keinath et al., 1987; Klinger- Bowen, 1988; Lutcavage and Musick, 1985; Musick, et al., 1984; Musick, 1972; and Pritchard, 1979.

Family Dermochelyidae - Leatherback Turtle



ATLANTIC LEATHERBACK

Dermochelys c. coriacea (Linnaeus)

SIZE: This species attains a weight of at least 1,600 lbs. in the Atlantic and may reach a ton. A Pacific specimen has been recorded at 1,900 lbs. Most Virginia specimens examined by Virginia Institute of Marine Science (VIMS) personnel have probably weighed less than 1,000 lbs. Straight line carapace lengths ranged from 34 to 63 inches.

HABITS AND HABITAT: The leatherback is pelagic, spending most of its life in the open ocean. Even so, specimens have been reported from upper Chesapeake Bay and in Virginia estuaries as far upstream as Severn River in the Mobjack Bay system. We usually record 2-4 leatherbacks in Chesapeake Bay each summer. This species is the only turtle known to be warm-blooded and capable of maintaining body temperatures above ambient sea temperatures. Thus, leatherbacks are capable of surviving in cool boreal waters. Apparently, many individuals migrate in summer from the tropics to the productive waters off New England and the Canadian maritime provinces where they feed on the abundant boreal jellyfish *Cyanea capillata*. Similarly, a large leatherback appeared to be feeding on the sea nettle *Chrysaora quinquecirrha* and moon jellyfish, *Aurelia aurita*, in a tide line off Fort Story, just northeast of Cape Henry, Virginia on 29 July 1977. A leatherback was also observed there on 24 August. The same turtle may have been resident for several days in the area where prevailing currents formed a large back eddy which concentrated flotsam, including planktonic jellyfishes. Leatherbacks have often been sighted on aerial surveys in subsequent summers in this same area.

Leatherbacks have been reported to be capable of swimming fast despite their cumbersome appearance. Estimates of 10 knots may not be excessive. The author observed a large leatherback breaching at Triangle Wrecks, 18 mi. NNE of Chesapeake Light Tower, on 29 August 1977. The turtle must have been swimming at considerable speed in order to propel part of its massive body from the water.

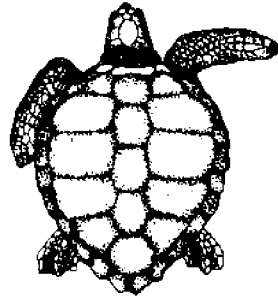
DISTRIBUTION: Worldwide; Atlantic Ocean from Baffin Island to Argentina, including the Gulf of Mexico and Caribbean Sea; occasionally, the Mediterranean Sea. In Virginia it is a summer visitor.

REPRODUCTION: In the western Atlantic the leatherback nests from April through November on beaches in the West Indies, Bahamas, Central America

and Florida, with one nesting reported as far north as North Carolina (Schwartz, 1976).

STATUS: The U.S. List of Endangered and Threatened Wildlife and Plants includes this species as "Endangered."

Family *Cheloniidae* - Sea Turtles



ATLANTIC LOGGERHEAD

Caretta c. caretta (Linnaeus)

SIZE: This species, the largest of the hard-shelled sea turtles, attains a weight of at least 1,000 lbs. and perhaps 1,200 lbs. Most Virginia specimens examined by VIMS personnel have been medium to large juveniles (25-35 inches carapace length; 50-300 lbs.).

HABITS AND HABITAT: The loggerhead is an ubiquitous subtropical marine turtle. It has been observed several hundred miles offshore, yet also penetrates estuaries far up into brackish water. The loggerhead's diet is as catholic as its habitat, and includes jellyfishes, sponges, bivalve mollusks, gastropods, squid, crabs, shrimp, barnacles, fishes, and various sea grasses (*Zostera*, *Thalassia*, and *Sargassum*). In Chesapeake Bay loggerheads feed almost exclusively on horseshoe crabs (*Limulus polyphemus*).

DISTRIBUTION: Atlantic Ocean from Newfoundland south to Argentina and including the Gulf of Mexico, Caribbean, and Mediterranean seas. In Virginia it is by far the most common sea turtle, migrating north around Cape Hatteras in late April or early May, and entering lower Chesapeake Bay in large numbers in late May or early June. In summer, loggerheads become resident in Chesapeake Bay. Individuals establish home ranges of only a few miles in area, usually at the edges of channels where they move with the tide and forage. In autumn, loggerheads migrate out of Chesapeake Bay, usually in October, in response to the first strong cold front and sudden drop in water temperature. Loggerheads seem to prefer temperatures of 18°C or higher, and become torpid and helpless at temperatures of 12°C or less. Loggerheads cannot overwinter in Chesapeake Bay because low water temperatures would be lethal. After leaving Chesapeake Bay in autumn, loggerheads migrate south along the coast to Cape Hatteras which they round in early December. Overwintering areas south of Cape Hatteras are not well known. Some individuals may overwinter on the continental shelf as far south as Cape Canaveral, Florida. Current studies, using satellite transmitters to track the winter distribution of loggerheads, suggest that

some individuals may overwinter pelagically in the Gulf Stream and be carried as far as Bermuda.

REPRODUCTION: In the western Atlantic the loggerhead nests from April through August on beaches in Central America, Mexico, Cuba, the Virgin Islands, and in the U.S. from Florida to Virginia, with isolated accounts of nesting as far north as New Jersey. The most important nesting beaches extend from Florida through South Carolina. Studies of age and growth at VIMS suggest that loggerheads do not mature until reaching about 30 years of age. Nesting in Virginia has been recorded on the barrier islands off the Eastern Shore, and in and near Back Bay Wildlife Refuge and False Cape State Park south of Sandbridge in Virginia Beach. U.S. Fish and Wildlife Service (USFWS) personnel transplanted eggs from the southeast to Wildlife Refuges in Virginia at Assateague Island and Back Bay for several years, but this practice may have been futile. In most years only one or two natural loggerhead nestings are recorded in Virginia.

The most nests ever recorded was six in 1987. The low nesting frequency, despite many miles of protected nesting habitat in Virginia, may be due to two factors. First, sex in sea turtles is determined by the temperature of the nest during incubation. At 29°C, a 50/50 sex ratio is achieved, but at higher temperatures a majority of females is produced. At lower temperatures mostly males are produced. Because of Virginia's location at the northernmost edge of the nesting range, nests may be cooler, and thus may be producing mostly males. Second, hatching loggerheads swim frantically offshore immediately after entering the sea and seek refuge in mats of floating *Sargassum* weed where they avoid predators, feed, and drift with the currents. To the south such habitat is found at the edge of the Gulf Stream relatively close to turtle nesting habitat, but off Virginia such habitat is hundreds of miles away. Therefore, hatchling loggerheads from here would be subjected to high predation for a long period and to falling water temperatures of autumn before they reached the safe haven of *Sargassum* at the edge of the Gulf Stream.

STATUS: The status of the loggerhead is somewhat enigmatic. It is listed as "Threatened" on the U.S. List of Endangered and Threatened Wildlife and Plants. Yet, this species is by far the easiest to manage because the largest nesting colonies are along the East Coast of the U.S. This means resource managers do not have to deal with foreign governments in order to protect the nesting beaches. In fact, many such beaches are already protected by inclusion in the USFWS refuge system, the U.S. Park Service National Seashore system or in preserves managed by the Nature Conservancy. In addition, juvenile loggerheads appear at present to be common off Virginia. It is an unusual day when one or more of these turtles is not sighted by summer boaters off the Virginia Capes. Aerial surveys by VIMS have provided estimates of 5000 to 10,000 loggerheads in Chesapeake Bay each summer.

Conversely, ongoing and projected real estate development in North Carolina, South Carolina, Georgia, and Florida will certainly lead to destructio

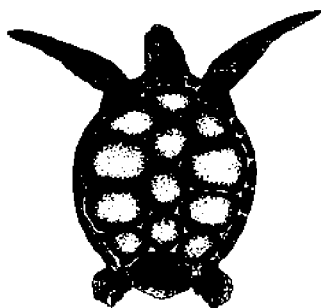
of additional loggerhead nesting beaches. Such development must be strenuously discouraged; not only for the sake of sea turtle survival, but for a host of other reasons associated with the degradation and destruction of delicate and dynamic barrier beach ecosystems. In addition, long-term (20+ years) nesting studies of this species in Georgia indicate that the number of nesting females there is declining at the rate of about 4% per year.

Another point of concern regarding survival of the loggerhead is incidental adult mortality caused by established fisheries. Specifically, the inshore trawl fishery for shrimp and fishes from the Carolinas to Texas often takes loggerheads, thousands of which are drowned in the nets each year. New regulations mandating use of Turtle Exclusion Devices (TEDs) in these areas could reduce sea turtle mortalities substantially if properly implemented. In Virginia about 80 to 120 dead sea turtles are recorded each summer. More than 90% of these are loggerheads, the majority of which strand during the first two weeks in June when the population first enters Chesapeake Bay.

Cause of death is difficult or impossible to determine in most stranded sea turtles because decomposition is far advanced by the time they are examined. Some sea turtles die after being entangled in the leader sections of poundnets. However, all poundnets are not equally lethal to turtles. Those nets set in deep water in areas of strong tidal flow, and constructed of "string" leaders are most dangerous to sea turtles; whereas nets in areas with weaker currents, and small mesh in their leaders capture very few turtles (if any). Only 10-30% of sea turtle mortalities in Virginia are attributable to net entanglement, about 10% are due to turtle collisions with boats, 5% are due to shark bite, and 1% can be attributed to willful human destruction (gun shot, etc.). The cause of most mortalities is undefinable, but many of the turtles examined are extremely emaciated and in poor condition when they first enter the Bay in early June after their long spring migration. Thus, many of the mortalities may be caused by natural parasites or pathogens which easily infect emaciated turtles. Even many of the pound net mortalities may be mitigated by the fact that sick, weak turtles may not be able to avoid these fixed nets during periods of strong tidal flow.

ATLANTIC GREEN TURTLE

Chelona m. mydas (Linnaeus)



SIZE: This species attains a weight of 850 lbs. Records from Chesapeake Bay are juveniles (< 25 lbs.).

HABITS AND HABITATS: The green turtle is a tropical species which undertakes long oceanic migrations but also feeds in shallow areas, particularly in sea grass beds. Normally coming ashore only to nest, green turtles have occasionally been observed "hauled out" basking in the Pacific tropics. Juveniles tend to wander further from the tropics than do adults. Thus, most records from New England and the Middle Atlantic states are of juveniles. In addition, juveniles tend to be more carnivorous (jellyfish, mollusks, and crustaceans) than adults, which feed heavily on the submerged sea grass, *Thalassia* and other marine plants.

DISTRIBUTION: Atlantic Ocean from New England to Argentina, including the Gulf of Mexico and Caribbean Sea. In Virginia the green turtle is rare, and we usually record only one or two juveniles each summer.

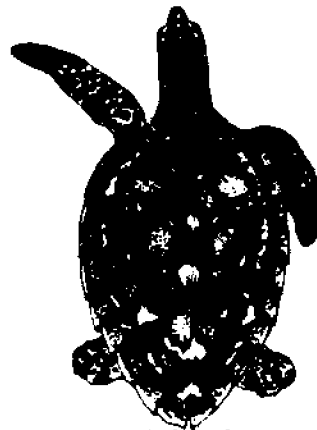
REPRODUCTION: In the western Atlantic the green turtle nests from March to October (peak, May-June) primarily on beaches in the West Indies, the Caribbean shores of South and Central America, and on the Dry Tortugas. Occasional nesting occurs on the coasts of the Gulf of Mexico and Florida.

STATUS: The green turtle is most highly valued for food. Consequently, it has been intensely harvested and depleted throughout its range.

This species is listed as "Endangered" on the U.S. List of Endangered and Threatened Wildlife and Plants. Its rare occurrence in Virginia might suggest that it is extra-limital. However, considering the depleted population levels of the species in the Caribbean, it is probable that juvenile green turtles were at one time more common in Virginia.

ATLANTIC HAWKSBILL

Eretmochelys i. imbricata (Linnaeus)



SIZE: This species attains a weight of 280 lbs., but most individuals are much smaller (approximately 50 lbs.).

HABITS AND HABITAT: The hawksbill tends to be restricted to the tropics more so than any of our other marine turtles. It has been found most often in shallow areas near rocky or coral reefs and in estuaries and lagoons. The hawksbill has been reported to be omnivorous, but tends to include more animal than plant material in its diet. A wide variety of animal food has been recorded, including coral, Portuguese man-of-war, ectoprocts, sea urchins, mollusks, fishes, and crustaceans, but this species feeds primarily on sponges.

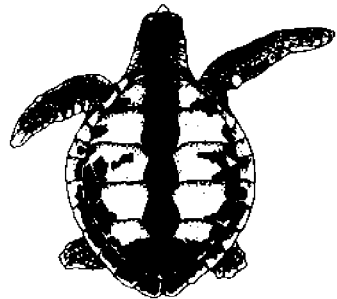
DISTRIBUTION: Atlantic Ocean from Massachusetts through the Gulf of Mexico to southern Brazil. There are no confirmed reports of this species from Virginia, but it is known from a shell labeled only "Chesapeake Bay" in the collections of the Natural History Society of Maryland. There are a few other records from north of Cape Hatteras, including one shell from Massachusetts. Schwartz (1976) has reported four specimens from North Carolina. This species is extra-limital in Virginia, occurring, if at all, as a stray.

REPRODUCTION: In the western Atlantic the hawksbill nests from April through November on beaches from Florida and Mexico through the West Indies and along the Caribbean coasts of South and Central America. A major nesting beach appears to be Mona Island, Puerto Rico.

STATUS: The hawksbill's shell has long provided the "tortoise shell" of commerce. In addition, the eggs and flesh are marketed for food (even though the flesh of some hawksbills has been reported to concentrate toxins from their food). Consequently, the hawksbill has been depleted throughout its range, and is classified as "Endangered" on the U.S. List of Endangered and Threatened Wildlife and Plants.

KEMPS RIDLEY

Lepidocheilus kempii (Garman)



SIZE: This species is our smallest sea turtle, attaining a maximum weight of 110 lbs. Most Virginia specimens are small (< 30 lbs.).

HABITS AND HABITAT: The ridley is a coastal sea turtle, encountered mostly in estuarine habitats. In Virginia it has been taken far into estuaries, including the Ware River (Mobjack system) and York River. The ridley's diet consists mostly of benthic animal matter, including mollusks and crustaceans. In Chesapeake Bay ridleys feed almost exclusively on the blue crab (*Callinectes sapidus*).

DISTRIBUTION: Western Atlantic Ocean from Nova Scotia to Bermuda and Mexico with a few stray juveniles reported from the Eastern Atlantic. In Virginia the ridley is the second most abundant sea turtle, exhibiting seasonal movements similar to those of the loggerhead, arriving in late spring and departing in early autumn. The ridley prefers shallower habitats than does the loggerhead in Chesapeake Bay, and occupies embayments and eelgrass flats 3-12 feet deep. After leaving Chesapeake Bay in autumn, juvenile ridleys migrate south and offshore, but their wintering grounds are unknown. Small

ridleys occur in summer regularly off southern New England (Lazell, 1976) and in Long Island Sound (Beach, personal communication). However, these turtles are a few inches smaller and represent younger year classes than those that occur each summer in Chesapeake Bay. Further research is needed in all these areas to better define seasonal movements and ontogenetic habitat use by ridleys. Previous assumptions that young ridleys found in the Northeast were strays are unfounded. In fact, these productive estuarine habitats north of Cape Hatteras may be important to the life history of this species.

REPRODUCTION: In the western Atlantic the ridley nests from April to August, exclusively on beaches north of Tampico, Mexico at Aldana (Rancho Nuevo). Formerly this species nested by the tens of thousands during the day. These nesting concentrations are called "arribadas" (Spanish word meaning "arrival"). Currently only about 400 mature females nest each summer.

STATUS: The Atlantic Ridley is classified as "Endangered" on the U.S. List of Threatened and Endangered Wildlife and Plants and is the most endangered of all sea turtles. Ridley populations have been depleted by shrimp fishing, nest robbing, and slaughter of nesting females on Mexican beaches where nesting has been so heavily concentrated. A program to transplant eggs from Mexico to Padre Island National Seashore in Texas may aid in the recovery of the Atlantic ridley. The abundance of this species in Virginia is difficult to calculate because it is too small to be seen by aerial survey (as can the loggerhead). However, by examining the ratio of stranded ridleys to loggerheads (ca. 10%) and comparing this to the aerial estimates of loggerhead abundance, the summer population of ridleys in Chesapeake Bay is probably in the hundreds.

Bibliography

(Because this booklet is meant to be used by laymen as well as scientists, the editor has requested that I avoid cluttering the text with citations to original literature sources. Most of these may be found in my 1972 paper, or the other work cited below. J. A. Musick)

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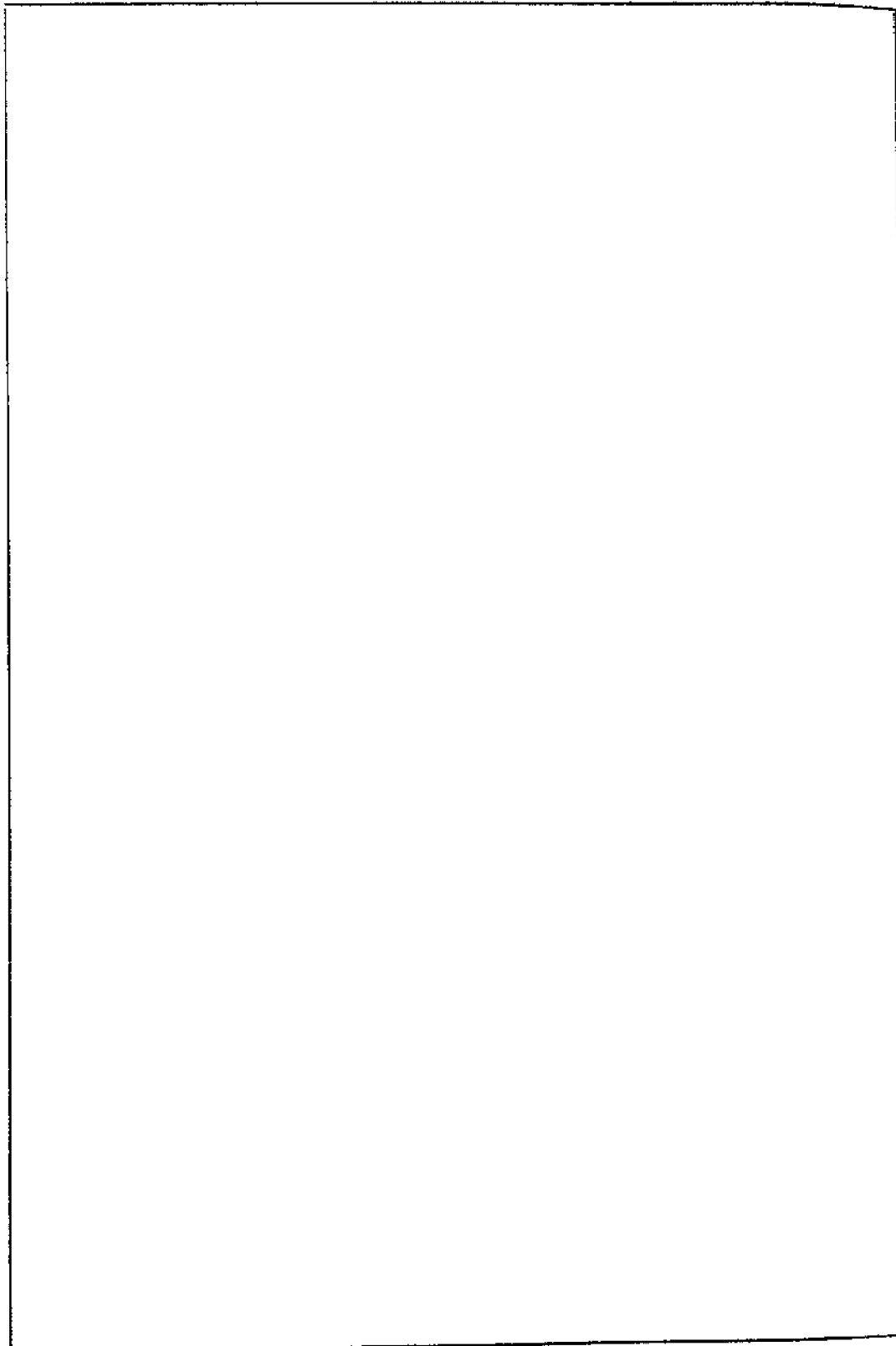
About the Author

Dr. Musick received his academic training from Rutgers (B.A.) and Harvard (M.S., Ph.D.) Universities. He has extensive experience with oceanic and estuarine biota and has been affiliated with VIMS since 1967.

Dr. Musick's recent research has been centered on the ecology of sea turtles, ecology of demersal deep-sea fishes, the biology of deep-sea sharks and the shark-bite threat to deep-sea telephone cables, the biology of the living coelacanth and other primitive fishes, and the management of coastal shark stocks and other coastal fishes.

In addition, Dr. Musick has served as Chief Scientist on major research cruises to the Bahamas, Sargasso Sea, Bermuda, and the Azores and Canary Islands. He has published more than 60 scientific papers and articles and is a member of several scientific societies including the Ecological Society of America, American Fisheries Society, American Society of Ichthyologists and Herpetologists, and the Society for Conservation Biology. Dr. Musick serves on the Board of Directors of the American Elasmobranch Society, and in 1985 was elected a Fellow by the American Association for the Advancement of Science for his contributions to marine ecology, conservation, and graduate education. During the last 20 years Dr. Musick has served as the major professor for 22 successful MA and 17 Ph.D graduates from the School of Marine Science, Virginia Institute of Marine Science, College of William and Mary. Recently Dr. Musick was elected a Fellow by the Explorers Club.

FIELD NOTES AND SIGHTINGS

A large, empty rectangular box with a thin black border, intended for handwritten field notes and sightings. The box occupies most of the page below the title.

VIMS SEA TURTLE STRANDING FORM

It is very important to complete all entries

Species: (circle one) 1) Loggerhead **Reliability:** (circle one) 1) Unsure
2) Ridley 2) Probable
3) Green 3) Sure
4) Leatherback
5) Unknown

Condition: (circle one) 1) Live, healthy 4) Dead, bloated, gray/green skin
2) Live, sick 5) Dead, bones showing, decomposed
3) Dead, slight bloat 6) Dead, bones only, scattered

Date discovered _____ Date examined _____

Examiner's full name, complete address, and phone number _____

Other persons present for exam _____

Specific location of turtle (include county, state, and directions; or map)

If tags are present, indicate numbers (tags can be returned to VIMS or to address on tag) _____

Measurements made with tape measure, over curve (see diagram).

1) Carapace length notch to notch _____ **please indicate units**
2) Carapace length tip to tip _____ (e.g. cm or inches)
3) Carapace width _____

Disposition of carcass (left on beach, buried, where, etc.) _____

Describe wounds _____

Comments _____

(Indicate wounds, abnormalities, etc. on diagram)

Return completed form to: **TURTLES**
Virginia Institute of Marine Science
Gloucester Point, VA 23062

VIMS SEA TURTLE STRANDING FORM (continued)

Draw wounds, abnormalities, tag locations, and epibiota on figure.

1. *Carapace Notch-Notch*
2. *Carapace Tip-Tip*
(longest length)
3. *Carapace Width*
widest width

