

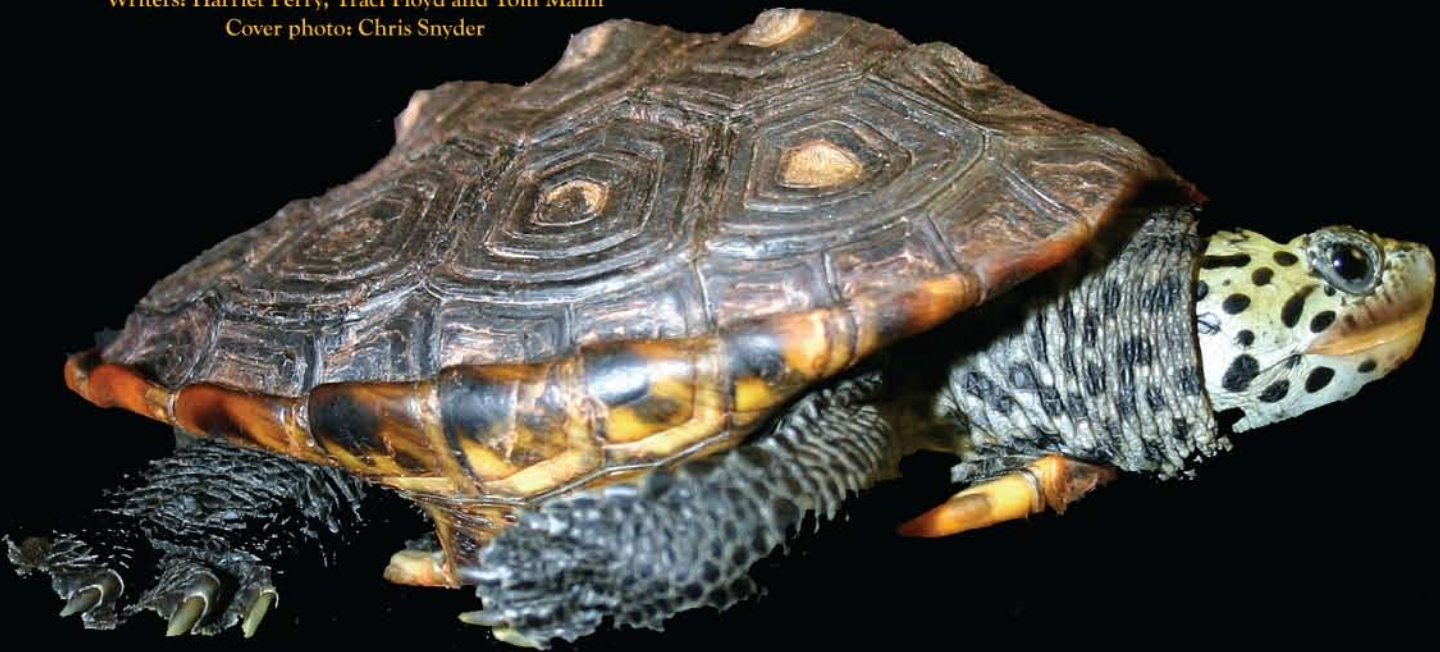
The Center for Fisheries Research and Development at the Gulf Coast Research Laboratory in Ocean Springs conducts research and development in support of marine fisheries for the state of Mississippi. Fisheries research has been an integral part of the mission of the laboratory since its creation in 1947.

Diamondback TERRAPIN

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For additional copies: marine.education@usm.edu or 228.818.8890

Writers: Harriet Perry, Traci Floyd and Tom Mann
Cover photo: Chris Snyder



Center for Fisheries Research and Development
of
The University of Southern Mississippi
Gulf Coast Research Laboratory
703 East Beach Drive
Ocean Springs, MS 39564
228.872.4200 • www.usm.edu/gcrl



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THE DIAMONDBACK TERRAPIN

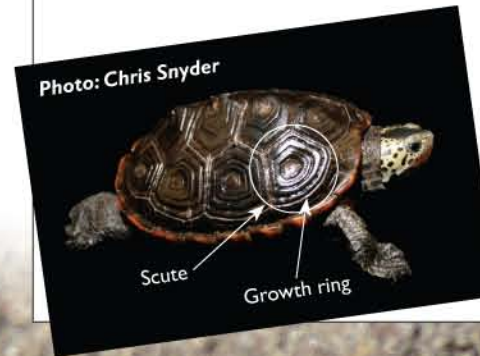
The diamondback terrapin, *Malaclemys terrapin*, is the only turtle in North America that lives mainly in salt marshes, estuaries and tidal creeks. The feet are large, webbed and have strong claws that aid the turtles in swimming and climbing. The name "diamondback" is derived from the fact that the concentrically arranged growth rings on each of the scales or scutes of the carapace (upper shell) are particularly conspicuous, at least in younger turtles. Each growth ring is a circular ridge bounded by narrow troughs that are formed during the winter when the animal is not growing. These ridges become less conspicuous in older animals, and may completely disappear, due to periodic shedding of the outermost layers of the scutes and to abrasion. Growth rings become very small after the terrapins reach sexual maturation (about year

three in males, and between six to eight in females). The color of the carapace varies ranging from gray or brown to nearly black. The skin color is pale turquoise to dark gray with a stippling of fine or large black to bluish-black spots. The lateral and posterior margins of the carapace are often somewhat upturned (revolute). The plastron or underbelly is usually yellow or greenish gray in color.

There is a large difference in size between male and female terrapins. Adult males have an average midline carapace length of about 4.75 inches (range four to five inches). Females are much larger, with an average midline carapace length of 7.25 inches (range six to eight inches). The heads of females are also disproportionately enlarged; mean head width is 1.75 inches, but ranges from 1.5 to two inches or larger.

NESTING

In Mississippi, terrapins typically build nests above the high tide mark on beaches along the erosional shoreface of the mainland coast and on Deer and Cat islands. Beaches may be comprised of sand, a mixture of sand and shell, or even predominantly shell. Most nests are placed on beaches backed by marshes; the marsh provides habitat for hatchlings.



reach sexual maturation (about year



TERRAPIN EGG IN NEST

Photo: The Wetlands
Institute, New Jersey

THE GENDER OF TERRAPINS IS DETERMINED BY THE TEMPERATURE OF THE NEST: *The warmer the nest, the more females produced.*

Nesting beaches may range from “pocket” beaches several yards long to more extensive beaches several hundred yards long with partial shade and small bushes. Mating occurs in the water, and a female may lay several clutches of eggs from a single mating.

Females nest from April to August with a nesting peak in June. Females typically nest more than once each year, but the frequency of nesting in Mississippi is not currently known. Each female usually produces from four to 15 eggs with an average of eight per clutch that hatch within 60-80 days. Hatching time will vary with season and average temperature but will typically be two to 2.5 months.

Hatchlings, upon

emerging from the nest, usually move into the vegetative cover of the high marsh instead of into nearby open water. Terrapins do not guard the nest and most nests are raided by predators, including raccoons, speckled kingsnakes, fish-crows, feral hogs and possibly sea-gulls. Since terrapins live a relatively long time, have low mortality rates as adults, and lay many eggs during a reproductive lifetime, populations can generally sustain relatively high levels of nest predation and high mortality rates of juveniles.

FEEDING

Foraging habitat for larger juveniles and adults includes salt marshes and their associated bayous and tidal channels. Diamondback terrapins appear to prefer bays and marshes with soft mud sediments as opposed to firmer, sand-floored marshes. Their primary food consists of periwinkles, bivalves and other mollusks, and crustaceans such as fiddler crabs

and small blue crabs. Since the heads of mature females are so large, they can eat much larger and heavier-shelled prey than males. Juveniles less than two years old live in the upper marsh landward of nesting beaches. These areas often have wrack deposits that provide cover for young terrapins and often have freshwater pools. They forage on tiny crustaceans, mollusks and insects.

Terrapins brumate (hibernate) beneath mud or sand, often in shallow bays, from late November through February. They may reemerge during warm intervals and may also become dormant during particularly hot weather in the summer.

UNIQUE TRAITS

The terrapin subspecies found in Mississippi is the Mississippi diamondback terrapin (*Malaclemys terrapin pileata*). It ranges from the panhandle of Florida to western Louisiana and is distinguished from other terrapin subspecies to the east and west by the presence, generally, of dark pigment on the upper mandible, and an elongate diamond-shaped patch on the top of the head. Head-enlargement of females is most pronounced in the Mississippi subspecies, and the top of the shell and legs are often dark.

In young terrapins, the posterior-most portion of the keel extending along the center of the carapace is characterized by one or two expanded vertebral knobs. These knobs are not seen on terrapins along the eastern seaboard.

SURVIVAL CONCERNS

Although terrapins can live to be 40 years old, most die in the hatchling stage. Terrapin populations in all states face significant natural and man-made threats to their survival. They are harvested commercially in some states and protected in others. In Mississippi, terrapins are designated as a non-game species in need of management and are monitored as a species of special concern. Major causes of terrapin population declines have been identified as over-harvest and loss or alteration of habitat. Incidental capture in fishing gear such as trawls and crab traps also contributes to the



Photo: Tom Mohrman

mortality of terrapins.

Programs to reduce the capture of terrapins in fishing gear have been implemented in many states. Installation of turtle excluder devices in crab traps fished in terrapin habitats will reduce accidental drowning of turtles and have been shown to improve crab catch. These devices consist of 1.75 x 4 inch rectangles of coated, stiff wire clipped into the access funnels of crab traps. These improve catch efficiency of crab traps while simultaneously minimizing by-catch of terrapins and other species. Rectangles of these dimensions would exclude approximately 98.4% of terrapins. A 2 x 4 inch device would exclude 80% of terrapins.

“Ghost fishing,” unintentional destruction of terrapins and other species by derelict and abandoned crab traps, can be reduced by removal of such traps from shallow coastal waters. In the Gulf of Mexico, successful regional and state programs to remove derelict crab traps have been implemented, and thousands of these traps have been removed from Gulf waters. Survival of terrapins will require the protection and restoration of important terrapin habitat and the adoption of fishing practices that reduce the incidental catch of these turtles.

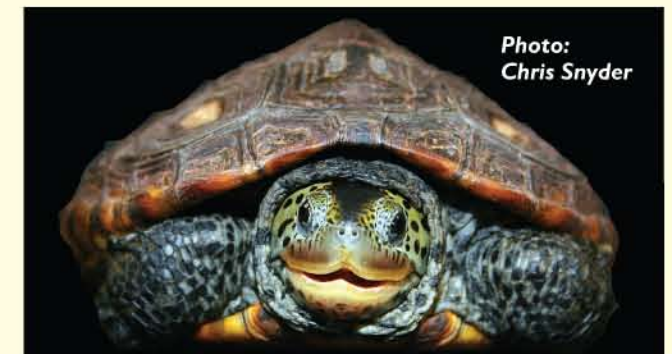


Photo: Chris Snyder



Photo: Christina Watters

NEW JERSEY HATCHLINGS
Photo: Christina Watters

