

Diamondback Terrapins

And Bycatch Reduction Devices

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Terrapins

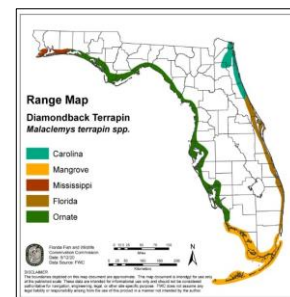
Diamondback terrapins are turtles in the Family Emydidae, which includes the familiar pond turtles (cooters and sliders), map turtles, chicken turtles, and box turtles. They differ in that their skin is light in color with dark markings (stripes, bars, or spots). Skin colors vary from dark grey to bluish to almost white. They have raised concentric rings on the scutes of their carapace (giving them their “diamondback” name). They also prefer brackish water, being the only turtle to reside in estuaries. Terrapins are found in salt marshes and mangrove swamps from Cape Cod, Massachusetts, to Brownsville, Texas. Throughout their range, terrapins have various state-level protections. In Florida, they are a Species of Greatest Conservation Need and cannot be collected from the wild. Females are larger (straight-line carapace lengths around 23.8 cm), have wider heads (for mature females), and have shorter tails than the smaller males (14.0 cm straight-line carapace lengths).



A biologist measures a terrapin carapace.
Photo Credit: Molly O'Connor

Terrapins have strong site fidelity spending their lives near a particular marsh. They spend their days basking and feeding on shellfish. Mollusks are particular favorites, but they will consume crustaceans and even fish if the opportunity presents itself. They aggregate for breeding in

early spring and begin to lay eggs in April in Florida. They prefer to nest during daylight hours on sunny days. In areas where the tidal range is high, they prefer to nest as close to the high tide as possible. Females will lay multiple clutches in a season, and the average number of eggs per clutch in Florida is around seven. In Florida, incubation is usually between 55-97 days, with a mean of 69 days. Hatchlings may remain in the nest for a few days before emerging and are known to over winter in the nest. Sex is determined by the egg's temperature during incubation, with the cooler eggs becoming males. It is believed they can live between 20-40 years.



Terrapin range in Florida by species.
Photo Credit: FWC

Five of the seven subspecies are found in Florida, three of them only occur in Florida. They include the Carolina Terrapin (*Malaclemys terrapin centrata*), ranging from Jacksonville to Volusia County. The Florida East Coast Terrapin (*M.t. tequesta*) ranges from Volusia County south to Miami-Dade. The Mangrove Terrapin (*M.t. rhizophorarum*) is found in the Florida Keys and the lower portion of the Everglades. The Ornate Terrapin (*M.t. macrospilota*) ranges

from the Everglades to Choctawhatchee Bay in the panhandle. The Mississippi Terrapin (*M.t. pileata*) is only found in the Pensacola Bay area. It should be noted that the reported distribution of these subspecies often changes based on new survey information, and a complete genetic assessment is underway which will help researchers better understand terrapins in Florida. It should be noted that the reported distribution of these subspecies often changes based on new survey information, and a complete genetic assessment is underway which will help researchers better understand terrapins in Florida.

The Reason for the New BRD Rule

Incidental bycatch of diamondback terrapins in wire crab pots has been an issue in the Mid-Atlantic states for decades. One report noted nearly 3,000 terrapins incidentally captured in commercial crab pots over a year in South Carolina². Another study found a capture rate of 0.17 terrapins/trap/day, suggesting that crab traps may drown between 15-75% of the terrapin population each year in that study area in Maryland³.

Researchers developed and tested wire bycatch reduction devices (BRDs) of different sizes to respond to this issue. One study looked at BRDs at 4x10 cm, 4.5x12 cm, and 5x10 cm⁴. The smaller BRD did not capture terrapins but reduced the number of marketable-sized crabs. The 4.5x12 cm BRD had the best crab fishery and terrapin conservation results and was recommended for use in Maryland.

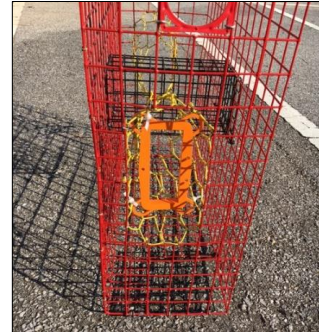
In Florida, drownings of terrapins in crab pots are not as common as in the mid-Atlantic states; however, the abundance of the animal in Florida is much lower. Due to this, it was decided that BRDs would be an effective tool in conserving the small populations in the state.

Beginning 1 March 2023, the Florida Fish and Wildlife Commission (FWC) will require either rigid 2x6 in (5x15 cm) funnel openings or 2x6 in BRDs on all recreational crab traps within state waters.

Where to Get a BRD?

Bycatch Reduction Devices are available at select UF IFAS County Extension offices.

- To find the nearest participating UF IFAS Extension Office, visit:
<https://sfyl.ifas.ufl.edu/find-your-local-office/>



BRD installed on crab pot.
Photo Credit: Rick O'Connor

Learn More About FWC Blue Crab Rules

- <https://myfwc.com/fishing/saltwater/recreational/blue-crab/>

References

- Butler, J.A., Seigel, R.A., Mealey, B.K. 2006. *Malaclemys terrapin* – diamondback terrapin. In: Meylan, P.A. (Ed.). *Biology and Conservation of Florida Turtles*. Chelonian Research Monographs No.3 pp. 279-296.
- Bishop, J.M. 1983. Incidental Capture of Diamondback Terrapin by Crab Pots. *Estuaries* 6, 426-430. <https://doi.org/10.2307/1351402>.
- Roosenburg, W.M., Cresko, W., Modesitte, M., Robbins, M.B. 1997. Diamondback Terrapin (*Malaclemys terrapin*) Mortality in Crab Pots. *Conservation Biology*; vol 11(5) pp. 1166-1172.
- Roosenburg, W.M., Green, J.P. 2000. Impact of A By Catch Reduction Device on Diamondback Terrapin and Blue Crab Capture in Crab Pots. *Ecological Applications*; vol 10(3) pp.882-889.