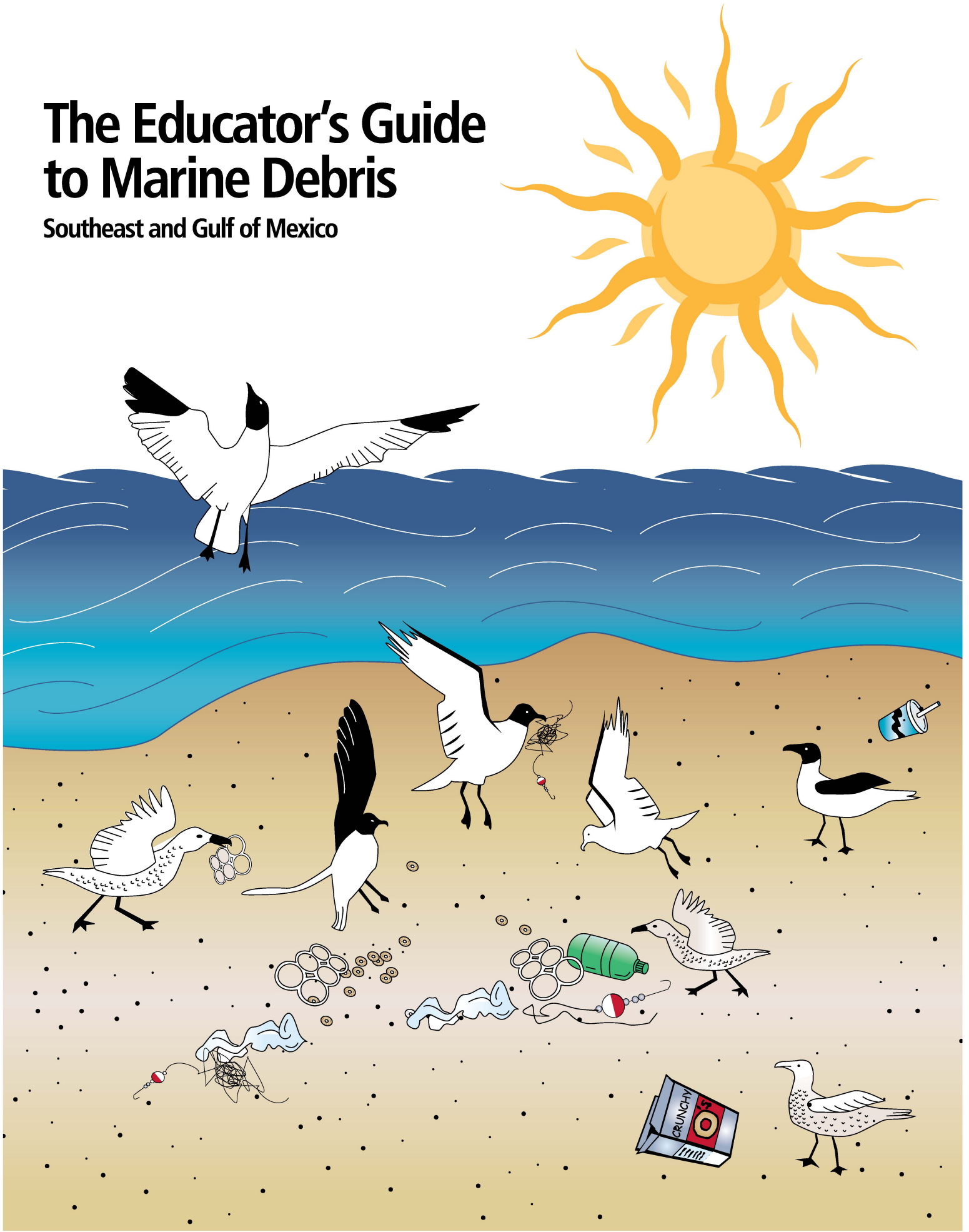
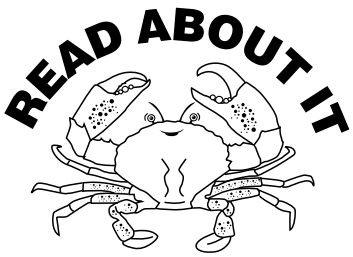
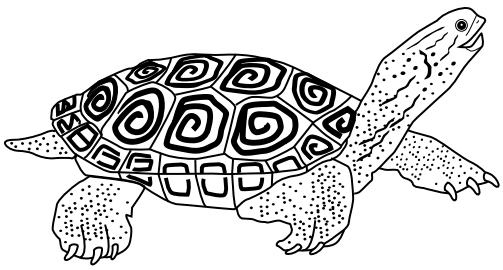
The Educator's Guide to Marine Debris

Southeast and Gulf of Mexico





Diamondback Terrapins: Sentinels of the Salt Marsh

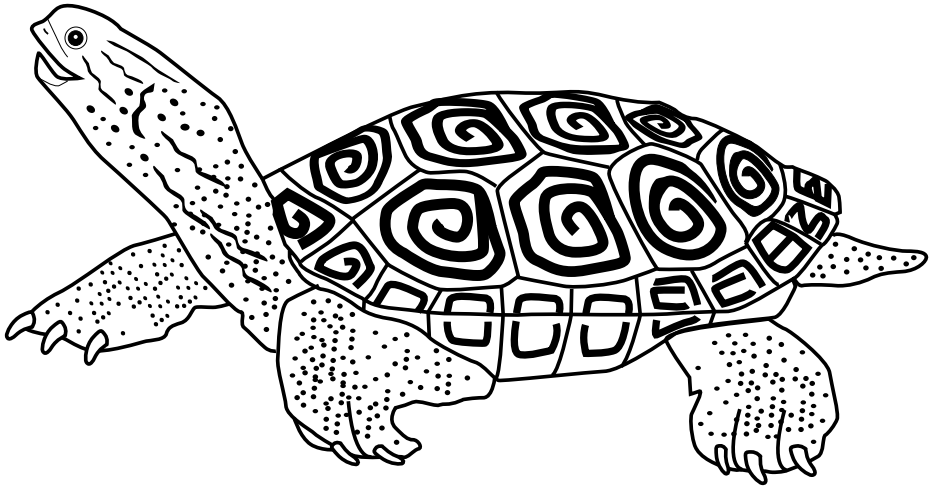


The Diamondback Terrapin (**DBT**) is a species of turtle and the only reptile that lives its whole life in the brackish waters of salt marshes and tidal creeks. DBTs have distinctive black and white skin and fleshy beaks, which look a bit like lips. Females have a carapace length of 8 to 10 inches, while males are smaller.

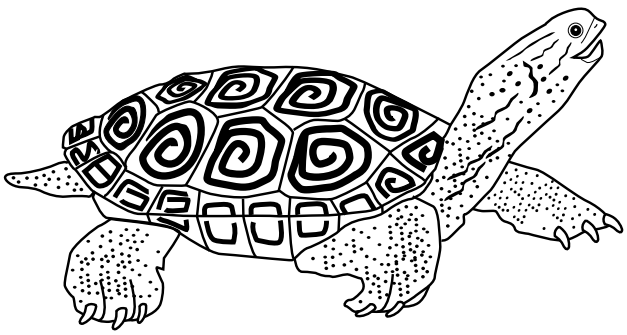
During high tides, **DBTs** crawl into the *Spartina* marsh grass to feed on periwinkle snails, fiddler crabs, and small mollusks. Like all reptiles, **DBTs** have lungs and breathe air. Most people catch glimpses of terrapins when the animals surface to breathe and, sometimes, a person might see a terrapin trying to cross a road.

Years ago, people caught **DBTs** for food. Terrapin stew was so popular that people harvested **DBTs** faster than the animals could reproduce. Terrapin populations declined. However, once terrapin stew was no longer fashionable in the big-city restaurants, the **DBT** population began to recover.

Today **DBTs** face new problems—fewer places to nest, poorer water quality, and crab traps. Diamondback terrapins are inquisitive hunters; and they enter crab traps to eat crabs or the bait. When these crab traps are not checked regularly or have been abandoned, the **DBTs** drown (Figure 1).



Diamondback Terrapin



A large population of diamondback terrapins usually indicates a healthy estuarine ecosystem.

This makes **DBTs** a "**sentinel**" species.

When populations start to decline, that might indicate problems with water quality, overdevelopment, loss of marshes, or other ecosystem troubles.

How can you help diamondback terrapins (**DBTs**)?

(1) If you are a recreational crabber, check your traps regularly and never leave them in the water. Dispose of your old traps in a responsible fashion.

(2) Insert a Bycatch Reduction Device (**BRD**) into the side of the crab trap to make it harder for **DBTs** to enter.

(3) **DBTs** need dry, sandy nesting locations. If you see a female digging a nest, please do not disturb.

For state and regional information about **DBTs**, contact the Diamondback Terrapin Working Group at www.dtwg.org.

Source: Modified from "Turning the Tide on Trash,"Special Issue, *Post and Courier* (Charleston, S.C.), August 29, 2007. Original article by Meg Hoyle, Director of Learning Through Loggerheads and Past President of the Diamondback Terrapin Working Group.

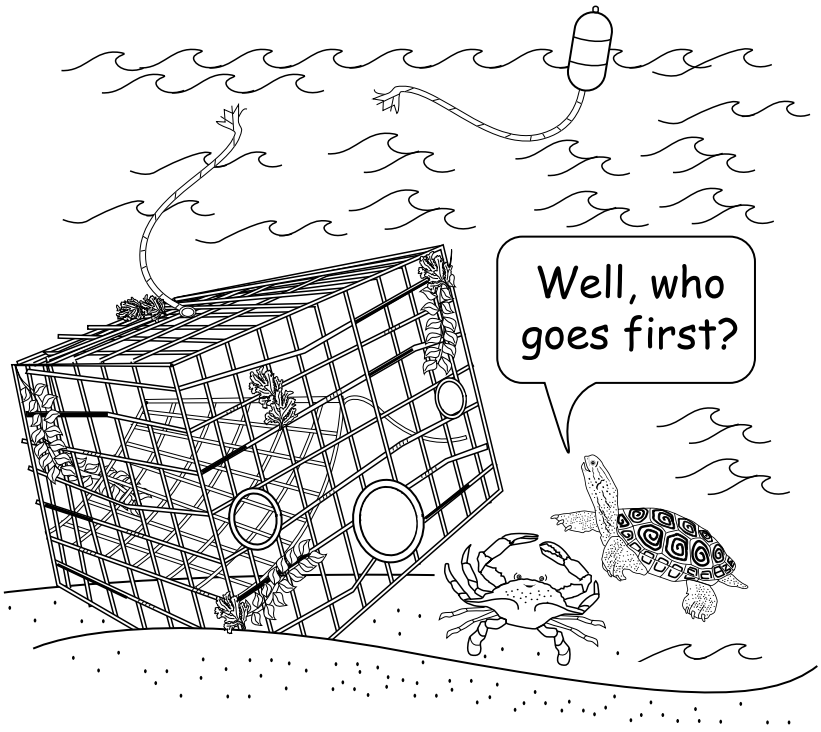


Figure 1. Abandoned crab trap or "ghost pot" that may continue to catch animals.

South Carolina Gets a Grip on Lost Traps

Cruising along the South Carolina waterways, we notice the abundance of football-sized plastic floats, or buoys, in the water. These buoys, a symbol of South Carolina's thriving blue crab industry, locate the spot where crabbers have set their crab traps on the bottom.

In 2007, several thousand recreational crabbers operated in South Carolina and 351 commercial crabbing licenses were sold in the state. That's a lot of people with a lot of traps in the estuarine and tidal creek waters. Responsible crabbers check traps once daily, or more often. Others do not. Some traps get lost when the floats get cut off by boats or during storms.

The problem of lost crab traps does not have an easy answer. The impact of **derelict** and abandoned crab traps can be deadly. Fish, turtles, and even dolphins can be caught. Boat propellers can be ruined when boaters run over the unmarked traps. In a pilot project conducted by the Ashepoo-Combahee-Edisto (ACE) Basin National Estuarine Research Reserve, sidescan sonar was used to locate submerged, **derelict** traps. SCUBA divers marked each location and documented the condition of the trap and any organisms on it or in it.

In an effort to reduce the number of **derelict** traps, the Department of Natural Resources has taken several steps. First, solid floats must be used so that they will not sink if struck by a boat. Non-floating line is also required, as it will sink to the bottom and reduce the number of marine animal and boat entanglements. Traps must be placed outside navigational waters.

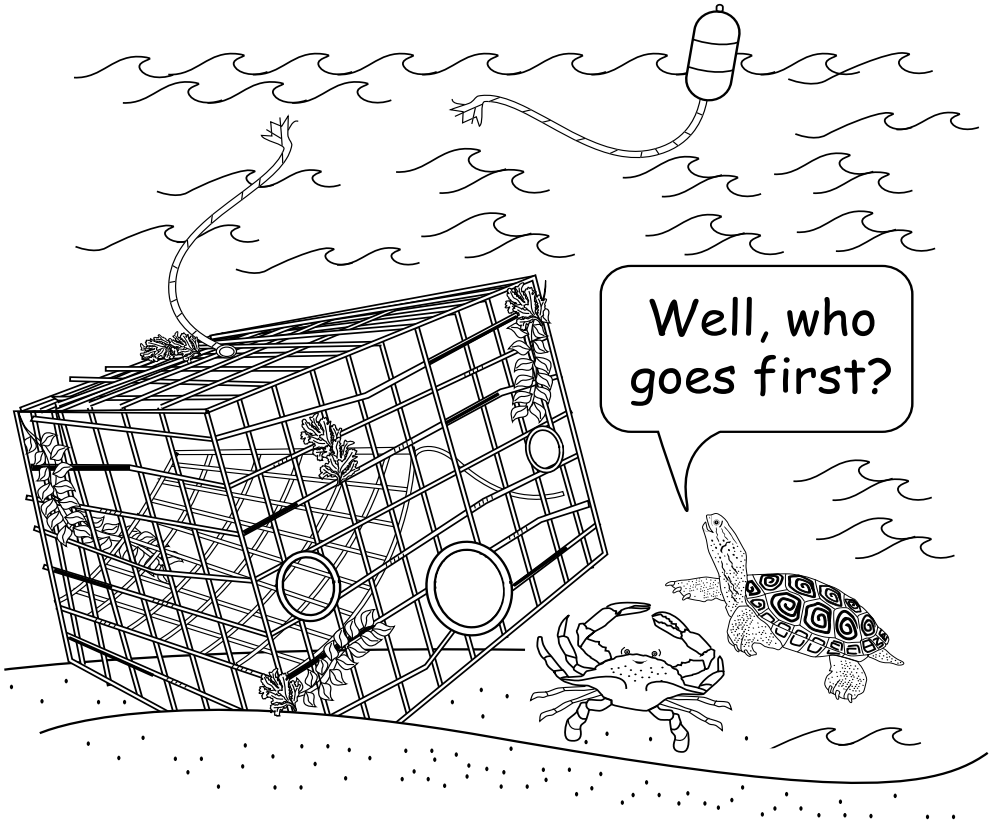
So what does the future hold? Several ideas have been proposed to help with the growing problem of abandoned crab traps, ranging from installing an escape ring for air-breathing animals such as diamondback terrapins to collaborating with other agencies. **Derelict** crab traps could be retrieved, recycled, and reused into beneficial structures for oyster recruitment!

For more information on South Carolina's natural resources, visit www.dnr.sc.gov.

Sidebar: Kattie McMillan, S.C. Department of Natural Resources

Activity | Hold Your Breath

DBTs breathe oxygen and, when resting, can hold their breath for many minutes! However, when stressed or exerting energy, **DBTs** use more oxygen and cannot hold their breath as long. As air-breathing animals, they will drown if trapped in an abandoned crab traps. They try desperately to escape.



Student Reporting Table

	Class Average-Time
Inactive	
Moderately Active	
Highly Active	

Discussion of Observations

1. According to your table, during which exercise can you hold your breath the longest: the inactive, moderately active, or highly active exercise? Why do you think there is a difference?

2. Under what conditions do you think a diamondback terrapin would be able to hold its breath the longest: resting, hunting, or when caught in a trap?

Conclusion: How can you keep **DBTs** out of traps?

Source: Angela Bliss, Adopt-A-Wetland Coordinator, University of Georgia Marine Extension Service

Purpose

To investigate events that may influence how long students can hold their breath under different condition—this simulates a **DBT's** ability to hold its breath.

Objectives

The students will:

- Investigate how long they can hold their breath when inactive and active.
- Relate their findings to an inactive **DBT** and an active **DBT**.

Materials

- Basketball court, or sports field
- Stopwatch

Procedures

1. Students stand in place. Option: Students can work in pairs. Stopwatch ready.

2. Students take and hold a deep breath. Start timing.
   a. As students release breath,record their times. They can sit.
   b. Math: Calculate the class' average length of time for breath-holding.
   c. Record this average in table in inactive row.

3. Students line up, shoulder to shoulder, at one end of the court or field.
   a. Students take in breaths,hold, and walk as far as they can on that breath.
   b. When they are releasing breaths, they stop and record their times.
   c. Math: Calculate the class average and record in table in moderately active row.

4. Have students line up, shoulder to shoulder again, along the end of the court or field.
   a. Time students as they run and scream as long as one breath will allow.
   b. Record times, calculate the class average, and record in highly active row.