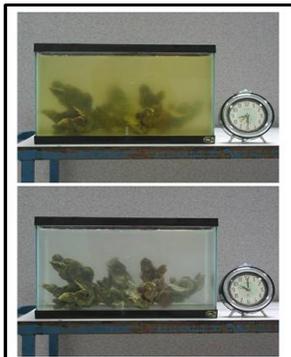


March-April 2010 Creature Feature: The American Oyster



Intertidal oyster reefs protect adjacent marsh grass from erosion as well as providing complex 3-dimensional structure which provides habitat to hundreds of other species. **Photo courtesy of SCDNR.**

The American or eastern oyster (*Crassostrea virginica*) is an important reef-building bivalve with a geographic range from New Brunswick, Canada south to the Gulf of Mexico. This oyster is highly valued commercially as well as ecologically in estuarine and intertidal environments. In the Southeastern United States, the American oyster is found in the intertidal zone - an area that is influenced by daily tidal fluctuations - and includes bays, tidal creeks, estuaries, and sounds.



A single oyster can filter two gallons of water an hour - up to 25 gallons a day! Dense assemblages of oysters and associated filter feeders control phytoplankton blooms and improve water quality. Photo courtesy of SCDNR.

Often referred to as a keystone species, the encrusting American oyster creates a unique habitat for both commercially and ecologically important marine species including jellyfish, crabs, shrimp and fish that depend on both larval and adult oysters as a food source. American oyster reefs provide habitat for hundreds of marine species -- more than 303 species depend upon oyster reefs in North Carolina alone! [Additionally, oysters filter feed, which improves water quality of the surrounding ecosystems.](#) The absence of this naturally occurring filtration system would result in waters that are too heavily populated with phytoplankton and can result in phytoplankton blooms or harmful algal blooms (HABs). HABs can result in a decline in oxygen concentrations and a significant change in water chemistry, often leading to the death of fish, shrimp and other aquatic species.

Reproduction is triggered when water temperatures become greater than 68 degrees Fahrenheit. Male oysters release sperm into the surrounding water, which triggers female oysters to release eggs. This form of reproduction is known as broadcast spawning, whereby an egg is fertilized in the water column. The egg becomes free-swimming

(planktonic) only six hours after fertilization and remains planktonic for three weeks. Prior to cementing itself to a hard substrate and developing into an adult, the oyster larvae develops a "foot" that provides it with mobility while looking for a good place to settle. Newly attached oysters are referred to as "spat." The preferred substrate for settlement is the shell of other oysters, thus assuring close proximity to other

oysters, a necessity for broadcast spawners. [Click here to learn more about the developmental stages of oyster spat.](#)

Human activity, in combination with naturally occurring factors, has greatly depleted the oyster numbers along our coastline. Overharvesting, habitat destruction, coastal development and oyster disease are among some of the factors adversely affecting the American oyster population. In the Chesapeake Bay, oyster population densities have declined to 1% of the population prior to 1850. [South Carolina Oyster Restoration and Enhancement \(SCORE\)](#), the [South Carolina Department of Natural Resources \(SCDNR\) Oyster Recycling and Restoration Program](#), [UGA's Marine Extension Service \(MAREX\) Shellfish Research Laboratory](#), [North Carolina's Oyster Reef Stimulus Project](#), and [the Oyster Recovery Partnership](#) are among several organizations and initiatives aimed to increase American Oyster populations along the Southeast coastline.



SCORE is increasing oyster habitat by depositing old oyster shells along South Carolina's coast to provide a substrate for recruiting free-swimming oyster larvae. [With help from local volunteers, SCORE and the South Carolina Department of Natural Resources \(SCDNR\) have built over 188 new oyster reefs at 35 reef sites along South Carolina's coastline.](#) According to Nancy Hadley, SCORE program coordinator, SCDNR's shell recycling program recovered 15,000 bushels of shell in 2009, but this is less than 15% of the shells which should be available and is only about 20% of what SCDNR needs to replenish the beds. "Where is the other 85% of the shell?" asks biologist Nancy Hadley with SCDNR. "We need that shell, it is critical to the future of the oyster resources." For more information on how you can help SCORE and SCDNR in their efforts to restore the American oyster population in South Carolina, please visit their websites provided below.

Additional Resources on the American Oyster:

[South Carolina Oyster Restoration and Enhancement \(SCORE\)](#)

[South Carolina Department of Natural Resources \(SCDNR\) Oyster Recycling and Restoration Program](#)

[SCDNR's Sea Science: Oysters and Clams](#)

[ACE Basin Species Gallery: The American Oyster](#)

[Maryland Sea Grant book: The Eastern Oyster Chapter 2: General Anatomy](#)

[University of Maryland Sea Grant Program: Marine Science Education Project on the American Oyster](#)

For any questions regarding the American oyster, please contact the SCDNR at www.dnr.sc.gov. For more information on the SCORE program, contact Nancy Hadley, biologist and coordinator for South Carolina Oyster Restoration and Enhancement (SCORE) program of the South Carolina Department of Natural Resources (SCDNR): Hadleyn@dnr.sc.gov.

March-April 2010 Creature Feature description written by Brittney Marshall, COSEE SE and edited by Nancy Hadley, SCDNR and Elizabeth Vernon Bell, COSEE SE