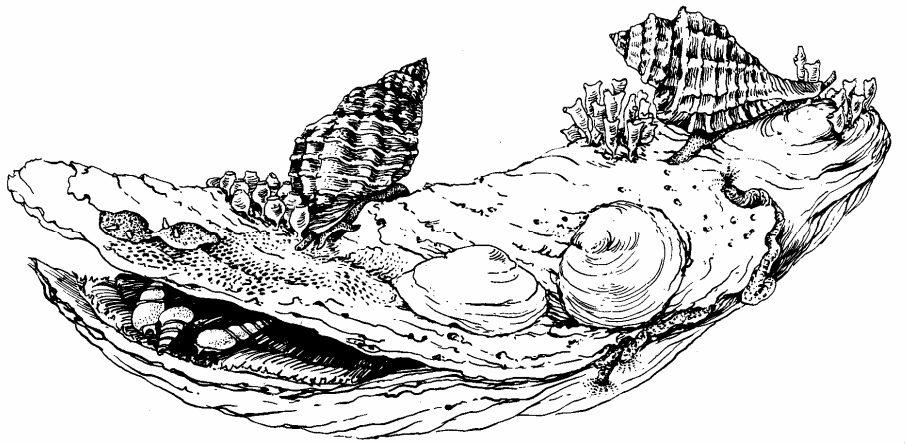
# The Eastern Oyster

*"The abundance of oysters is incredible. There are whole banks of them so that the ships must avoid them … They surpass those in England by far in size, indeed, they are four times as large. I often cut them in two, before I could put them into my mouth. "*

Swiss explorer Francis Louis Michel, 1701

Perhaps no other living creature in the Chesapeake Bay is more well known than the oyster. Early explorers were amazed by the amount of oysters found in Bay waters, and they quickly became famous around the world for their unique flavor. Large adult oysters can filter up to sixty gallons of water in a single day while providing **habitat** for a wide variety of organisms. Unfortunately, the oyster population has been in sharp decline since the late 1800's due to over-harvesting, disease, and habitat loss.

Oysters are among the most prolific reproducers in the world. A single female can produce several hundred million eggs over the course of a lifetime. Oysters spawn near the end of June, when rising water temperatures trigger females to release eggs into the water, where they are met by sperm released from males. Fertilized eggs develop into swimming larvae which, after a few days, settle to the bottom and attach themselves to a hard surface. Usually this surface is another oyster shell. Juvenile attached oysters are called **spat**. As spat grow, their shells increase in size. Once an oyster is three inches long, it can legally be caught and eaten.



*The oyster shell itself provides a hard surface for other organisms to attach to or feed upon. Creatures commonly found clinging to oysters include bryzoa, oyster drills, snails, and barnacles.*

One unique characteristic common to all oyster species is their ability to change gender. At two to three months old, oysters are bisexual. At the end of their first year, most oysters spawn as males. As they grow older, however, many spawn as females, particularly after their second year.

Oysters eat by sucking water into their shells and filtering out small plants called phytoplankton. When this happens, sediments and excess nutrients are also removed from the water. This process greatly improves the water quality of the Bay. According to scientists' estimates, oysters were once so abundant that they filtered the entire water volume of the Chesapeake Bay in only a few days. Today, with only one percent of the

*Illustration courtesy of Alice Jane Lippson, selected from* Life in the Chesapeake Bay, Second Edition.

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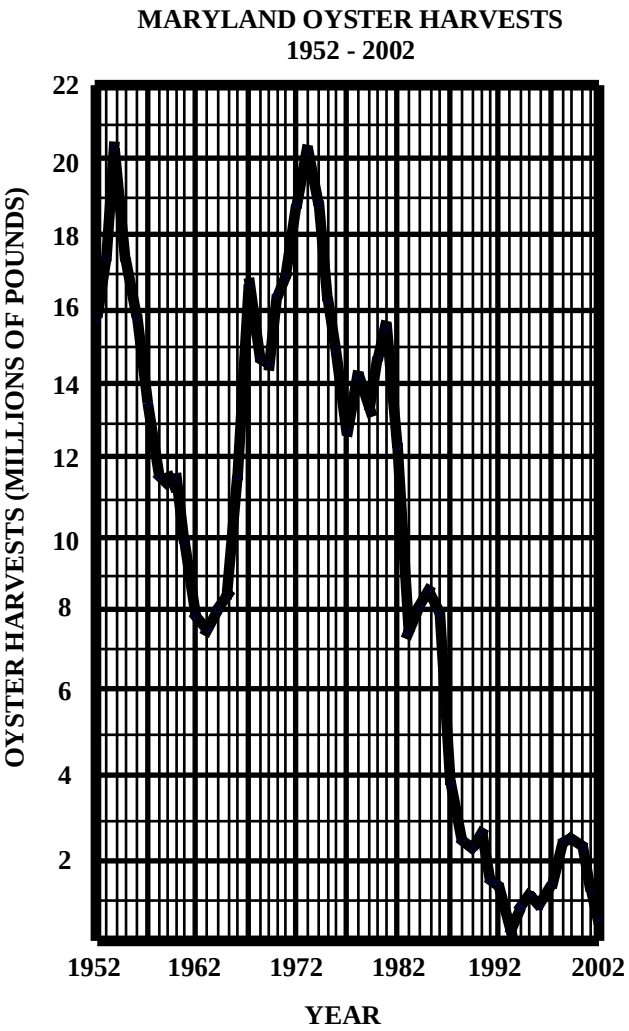


*The line graph above shows the sharp decline in Maryland oyster harvests in the last 50 years. The collapse of the oyster industry has led some scientists to call for introducing a foreign oyster to the Bay.*

historic population remaining, that same process takes over a year.

Several factors have led to the oysters' collapse. Years of over-harvesting greatly depleted the population. Diseases such as **MSX** and "**Dermo**", which attack young oysters, have destroyed what was left. Furthermore, sedimentation caused by land development has covered prime habitat with silt, preventing larval oysters from attaching themselves to a hard surface. Without a hard surface to grow on, juvenile oysters cannot survive.

Many efforts are being made to restore the native oyster population. Private citizens are helping by raising young oysters in specially designed "oyster gardens" which hang from their piers. Artificial oyster bars are being built in areas less susceptible to MSX and Dermo. The Maryland Department of Natural Resources plants seed oysters and shell matter on traditional oyster bars. Despite all of these efforts, the recovery process has been very slow, and in 2001-2002 a severe drought allowed the viruses to spread to the upper Bay, leading to the death of tens of thousands of oysters.

The limited success of restoration efforts has led some scientists to believe that extreme measures need to be taken. In recent years, experiments have been conducted with an Asian oyster (known to scientists as *Crassostrea ariakensis*) that may be introduced into the waters of the Chesapeake Bay in the next few years. The Asian oyster tastes similar to the Eastern oyster, grows more quickly, and appears to be resistant to MSX and Dermo. While many are excited about the promise shown by this oyster, others fear the hidden side effects that are always involved when placing an introduced species into the Bay.

The fate of the native oyster ultimately depends upon our efforts to restore habitat and improve water quality. Perhaps one day we may live to see the incredible abundance of oysters which beheld the first inhabitants of our "Great Shellfish Bay".

**DATA SOURCE**: National Marine Fisheries Service (www.st.nmfs.gov)

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**NAME**: _____ **DATE**: _____

## COMPREHENSION QUESTIONS

**DIRECTIONS**: Read the text on the previous pages, then answer the following questions in complete sentences. Write your answers on the lines.

1. What is a spat?

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2. How do oysters eat?

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3. What are some of the factors that have led to the collapse of the oyster industry?

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4. In your opinion, should a foreign oyster be introduced to the Chesapeake Bay? Give reasons to support your answer.

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