Theme

Natural Resources

Historic Resource
Bivalve, New Jersey

Goal
To understand when and how Bivalve became the “Oyster Capital of the World.”

Objective
The students will gain insight into how the bustling communities surrounding the Shipping Sheds appeared in the 1920s and evaluate changes that have occurred to Bivalve and its industries.

Skills

NJ Core Curriculum Content Standards
Science
5.1 A. Understand Scientific Explanations;
5.3 Life Science A. Organizations; D. Heredity and Reproduction

Social Studies
6.1 B. Geography, People and Environment, esp. B. 5, 6, 7, and 9; 6.1 C. Economics, Innovation and Technology, esp. C. 5, 10, 15; 6.1 D. History, Culture and Perspectives, D. 15; 6.1.12 B. a, b; 6.1.12 C a, b, c;
6.3 Active Citizenship in the 21st Century

Language Arts
RH 8.2, 4, 7; RST 6-8.3, 4, 7, 9; SL 4.1, 2

Vocabulary
Bivalve  bushel  community  Dermo
dredging  ecosystem  habitat  MSX
oyster  shucking

Background
From the earliest days of Native American settlement on its shores, the Delaware Bay has been a highly productive source of seafood. One the most important of the Bay’s resources was the American or Eastern oyster (Crassostrea virginica). The Lenni Lenape, the local Native American tribe, used the oyster for many purposes. They were a food source; the shells were used as utensils and decoration; and oysters were even used as money, or wampum, for trade. Ancient shell piles, called middens, are the only kitchen waste products to have endured hundreds and thousands of years and stand as a testament to the use of oysters by early peoples. Oyster shells have been found up to 30cm in length (almost one foot) in such middens!
With the coming of European settlers, oystering increased dramatically. Initially settlers collected shellfish for their own personal consumption, but commercial harvesting arose as towns and markets grew. Laws to regulate overfishing were passed as early as 1719 (NJ) and 1812 (DE), but they had little effect. In 1775 (NJ), a law was passed that prohibited the burning of whole oysters for lime, as it was a “great waste” that endangered the entire oyster bed community. Further laws were passed with “An Act for the Preservation of Clams and Oysters” in 1846 (NJ) and an act in 1830 (DE) “legalizing and protecting the planting of seed oysters in creeks, ditches, and ponds.” Oysters grew and reproduced naturally in the upper seedbeds on the Delaware Bay and were transported down the Bay in the spring, where predation was heavier, but the water was better suited for the oysters to grow fat and tasty for the fall/winter harvest.

In 1880, an exceptionally good year, 2.4 million bushels of oysters were harvested (shipped in shell), but by 1950 that number had dropped to around 1 million bushels. The economic significance was staggering — a multi-million dollar industry built around the oyster. At the height of the fishery, more than 500 vessels (schooners and other types) and 4,000 people worked in commercial oystering in Cumberland County. Many others were involved in processing, shipping, blacksmithing, and other industries dependent on the oyster.

The practice of shipping oysters whole was banned around 1927 after an outbreak of typhoid fever was blamed on the Delaware Bay oysters. Later, the true source of the epidemic was identified as milk from Chicago, but by then the practice of shucking (removing oyster from shell) was in place. An almost exclusively African American migrant work force was imported from the Chesapeake Bay to work as shuckers in the packinghouses. They were also assimilated into the crews of the oyster boats. The workers lived in deplorable conditions in company towns such as Shellpile. They were seasonal workers and returned to their homes along the Chesapeake. Eventually, many workers and their families settled permanently in the Bayshore Region.

The oyster industry began suffering from overfishing as well as a bad economy during the Great Depression. World War II and a shortage of manpower brought changes to the industry in the form of mechanization and the use of motors to replace sails in order to harvest oysters. The use of motors to propel the schooner hulls added safety and convenience as well as efficiency of the work force.

In 1957 the Delaware Bay oyster industry collapsed when a mysterious protozoan (single-cell organism) known as MSX starting killing oysters. Within two years catches had dropped by 90-95%. MSX prefers warmer, salty water so the losses in the upper seedbeds were not as severe.

Once vibrant and thriving communities like Shellpile and Bivalve collapsed as some became ghost towns. Across the river lie the remains of Maurice River.

This community, like Bivalve, had shipping sheds serviced by the Pennsylvania Railroad, businesses and housing.

Although oysters slowly developed a slight resistance to MSX, another disease called Dermo hit in 1990. Like MSX, Dermo thrives in warmer, saltier waters, but does exist in cooler water with lower salinity. Both continue to plague the oyster industry, but Rutgers University Haskin Shellfish Research Lab in Bivalve continues extensive research and, with the Shellfish Council, management techniques.
In 2004, the Bayshore Center at Bivalve purchased seven of the remaining original 30 sheds with funds from the Cumberland County Empowerment Zone. By 2011, the sheds were restored to their 1920s appearance with funds provided by the New Jersey Historic Trust and New Jersey Department of Transportation.

In 2007, 71 boats participated in the oyster harvest, bringing in nearly 81,000 bushels over the course of the season. Since the seed beds were reopened in 1996, an average of 71,000 bushels have been harvested annually. Under the current system, the Department of Environmental Protection, under the advice of the Shellfish Council, sets the number of oysters that may be harvested in a year. While these numbers don’t come close to the old oystering days, when anywhere from 500,000 to 2,000,000 bushels might be harvested annually, it is a definite improvement over periods in the late eighties and early nineties when seed beds were sometimes closed completely. Efforts have also been made to produce strains of oysters that are resistant to parasites MSX and Dermo, but the costs involved with planting these strains are prohibitive.

The Delaware Bay Oyster Restoration Task Force is a collaboration of government, industry, academic and non-profit organizations. Aside from physically managing and restoring the bay’s oyster beds, they work to promote the Delaware Bay oyster and raise awareness about impacts to the bay and the oysters therein.

Materials
Desks or chairs arranged in a circle

Procedure
Have students research the roles of organizations that are members of the Delaware Bay Oyster Restoration Task Force, committee members and local elected officials. Allow as many students to participate as possible. Additional roles may include members of the press and media or concerned citizens who have personal issues to discuss. All students should be prepared to define their role and contribution on paper prior to the discussion.

Activity One
Students will play the roles of community leaders and members of the Delaware Bay Oyster Restoration Task Force. Students will determine if there are currently public and private monies available for funding a restoration project in the Bay.

Or

Activity Two
Students will conduct a town meeting to discuss whether a 200-unit condominium should be placed on the Maurice River to help Bivalve in its revitalization.

Members of the Delaware Bay Oyster Restoration Task Force:
The Partnership for the Delaware Estuary
U.S. Army Corps of Engineers
New Jersey Department of Environmental Protection
Delaware Department of Natural Resources Research Laboratory
Delaware River Basin Commission
Delaware State University’s College of Agriculture and Related Sciences
The Delaware River and Bay Authority
Cumberland Empowerment Zone Corporation
Delaware Bay Section of the Shell Fisheries Council
Delaware Shellfish Advisory Council
Commercial Township, New Jersey
How did Bivalve become the “Oyster Capital of the World”?

Vocabulary

Bivalve  bushel  community  Dermo
dredging  ecosystem  MSX  oyster
shucking

The Delaware Bay has been a highly productive source of seafood. One of the most important of the bay’s resources was the American or Eastern oyster (Crassostrea virginica). The Lenni Lenape, the local Native American tribe, used the oyster for many purposes. They were a food source; the shells were used as utensils and decoration; and oysters were even used as money, or wampum, for trade.

With the coming of European settlers, oystering increased dramatically. Laws to regulate overfishing were passed as early as 1719. Many people were involved in processing, shipping, blacksmithing, and other industries such as the railroad, depended on the oyster.

Oysters were dredged from the bottom of the Delaware Bay and then left in floats along the Maurice River. This practice was banned around 1927 after an outbreak of typhoid was blamed on Delaware Bay oysters. Floating was replaced by shucking (removing oysters from their shells). An African American migrant workforce was brought from the Chesapeake Bay to work as shuckers in the packing houses. They lived in deplorable conditions in towns such as Shellpile.

Did you know?

• During the Great Depression the oyster industry suffered from overfishing and a bad economy.

• During World War II, a shortage of manpower brought changes with mechanization and the use of motors to replace sails.

• In 1880, 2.4 million bushels of oysters were harvested, but by 1950 that number had dropped to around 1 million bushels.

• At the height of the fishery, more than 500 vessels (schooners and other boats) and 4,000 people worked in commercial oystering in Cumberland County.

• The MSX parasite appeared in 1957 and killed 95% of the oysters.

• Dermo parasite appeared in the early 1990s.

Once vibrant and thriving communities like Shellpile and Bivalve collapsed as some became ghost towns. Across the river lie the remains of Maurice River. This community, like Bivalve, had shipping sheds serviced by the Pennsylvania Railroad, businesses and housing. Rutgers University Haskin Shellfish Research Lab in Bivalve continues extensive research and, with the Shellfish Council, management techniques.
In 2007, 71 boats participated in the oyster harvest, bringing in nearly 81,000 bushels over the course of the season. The Department of Environmental Protection, under the advice of the Shellfish Council, sets the number of oysters that may be harvested in a year. While these numbers don’t come close to the old oyster days, it is an improvement over periods in the late 1980s and early 1990s when oyster seed beds were sometimes closed. Effort have also been made to produce strains of oysters that are resistant to the parasites MSX and Dermo, which kill oysters.

The Delaware Bay Oyster Restoration Task Force is a collaboration of government, industry, academic and non-profit organizations. They manage and restore the bay’s oyster beds, work to promote the Delaware Bay oyster, and raise awareness about impacts to the bay and the oysters.

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**Procedure**

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**Activity One**

Play the roles of community leaders and members of the Delaware Bay Oyster Restoration Task Force. You will determine if there are currently public and private monies available for funding a restoration project in the Bay.

**Or**

**Activity Two**

Conduct a town meeting to discuss whether a 200-unit condominium should be placed on the Maurice River to help Bivalve in its revitalization.

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**Members of the Delaware Bay Oyster Restoration Task Force:**

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- New Jersey Department of Environmental Protection
- Delaware Department of Natural Resources Research Laboratory
- Delaware River Basin Commission
- Delaware State University’s College of Agriculture and Related Sciences
- The Delaware River and Bay Authority
- Cumberland Empowerment Zone Corporation
- Delaware Bay Section of the Shell Fisheries Council
- Delaware Shellfish Advisory Council
- Commercial Township, New Jersey

Oyster Shipping Sheds located in Bivalve, NJ.