



Name: _____

Date: _____

Keystone species:

Oysters are a Source of Food- Guided Reading

Oysters are a source of food for many marine (ocean) animals - and for people too! Inside their hard shell is a soft and squishy body that is high in nutritional value. Compared to other meats and animal products, oysters are relatively low in calories and high in protein. They are also high in the mineral zinc and the vitamin B12, which supports the immune system and helps the body function properly. In addition to being quite healthy, many people find oysters delicious and fun to eat.



Oysters on the half shell, ready to be eaten!

Why might people choose to eat oysters? Have you ever eaten an oyster?

Animals (other than humans) eat Oysters!

Many other animals, besides humans, rely on oysters as a source of food at different stages in the oysters life cycle. When oyster larvae float around in the water, filter-feeding animals like anemones and jellyfish consume (eat) them. Once the oysters settle on other oysters and become young juvenile oysters (called "spat"), they are eaten by worms and crabs. As oysters grow older and larger, they may be food for larger crabs and fish. Adult oysters that are exposed above water during low tide can be picked off the reef and consumed by a variety of marine birds. Most of these organisms also get energy by eating things other than oysters, too, but they are still a major food source for many different types of animals.

If the oyster population decreased, how do you think that might impact other organisms that depend on oysters as a food source? Why?

Human Consumption of Oysters in New York City

Before New York was colonized by Europeans, the harbor was full of oyster reefs. The Lenape people, who are indigenous to what is now known as New York City, co-existed in relation to the land and the water. Because oysters were so accessible and nutritious, they were a main food source for the Lenape, who harvested oysters in a sustainable way for generations. Historic middens, or piles of empty oyster shells, have been found along the Hudson River, dating back thousands of years.



An oyster cart serving shellfish in NYC and a midden (pile) of harvested oysters from New York Harbor.

After colonization, oysters remained a popular food. Because oysters were so abundant in New York Harbor, New York City even became known as “The Big Oyster” - people harvested them by the thousands. Oysters were so popular and easy to find that people sold them on “oyster carts”, similar to food trucks today.

As New York City’s population grew, the oyster population began to shrink. People took oysters from the water more quickly than the oysters could reproduce, a problem called **overharvesting**. At the same time, unregulated growth, waste and trash from industry filled the waterways with pollution. Development and industry destroyed oysters’ habitat, and water quality in New York Harbor became so bad that it was hard for the oyster population to survive. A species that was once abundant became difficult to find, which meant many marine animals lost a major food source. As a result, those species populations also decreased. Today, oysters are considered **functionally extinct** in New York Harbor - they no longer function as a keystone species.

How has oysters’ role as a food source for people in New York City changed over time?

Restoring Oysters

Even if the oyster population is restored, oysters grown in New York Harbor will still not be a safe food source for humans to eat. This is because of our old and outdated sewage system. When it rains more than 1/10 inch in an hour, raw untreated sewage flows into New York City’s waterways. This is called **Combined Sewage Overflow (CSO)**. The city’s sewage system was not designed to meet the needs of the current large population of the city. Because oysters are filter feeders, pollution in the water ends up in their bodies. The pollution transfers to anything that eats the oyster.

Billion Oyster Project is trying to make New York known as “The Big Oyster” again, but we will need to solve the problem of water pollution before oysters can be a major food source for New Yorkers once more. Today, oysters that people in New York City eat come from oyster farms across the world. These farms are located in areas where the water is safe and tested often so that humans don’t get sick from consuming the oyster. In New York state, there are oysters farms along Long Island where the water is frequently exchanged with water from the ocean.



Oysters in an underwater tray being grown on a farm in Duxbury, MA.

Today, the oyster population is slowly recovering thanks to improved water quality, restoration efforts, careful monitoring of oysters, and regulations (laws) protecting them. There are a few wild oyster populations remaining in New York Harbor, and Billion Oyster Project, along with many partner organizations, is working to restore oyster reefs.

Why is it still not safe for people to eat oysters that grow in New York Harbor?

Sum it up

Record 1-2 takeaways from each group’s “Oysters are...” readings

<u>Shoreline Protectors</u>	<u>Habitat Builders</u>
<u>A Source of Food</u>	<u>Water Clearers</u>

Photo credits:

Curto, Stefania Curto (n.d.). *Billion Oyster Party*. Retrieved August 4, 2025, from <https://www.billionoysterparty.org/>

New York Public Library. (2011, June 1). *History on the Half-Shell: The story of New York City and its oysters*. NYPL. Retrieved August 4, 2025, from <https://www.nypl.org/blog/2011/06/01/history-half-shell-intertwined-story-new-york-city-and-its-oysters>

Schreiber, Kristin (n.d.). *Underwater Oyster Tray*.