The Mighty Oyster

Oysters are one of the most important creatures in the Chesapeake Bay, and in Virginia. They have been here so long that their scientific name, *Crassostrea virginica*, has the word Virginia in it. Unfortunately, people don’t seem to understand how important they are to the bay. From 1850 to 2005, oyster populations have plummeted, now being 1% of what they used to. The declining population hurts the Chesapeake Bay’s overall health. This is caused by problems like habitat loss, overharvesting, and disease.

An oyster’s main job is to filter out drifting sediments, chemical contaminants, and nutrients in the water along with their food. Two of the chemicals that oysters filter out, phosphorus and nitrogen, can be dangerous if there is too much in the water. Algae feed on these, and if there is too much, the algae begins to grow out of control. These are called algae blooms, and if one of these happen, they cause lethal, oxygen-deprived dead zones, where nothing can live because the algae absorbed all the oxygen out the water. Oysters are the main preventers of these, as one acre of oyster reef can absorb 543 pounds of nitrogen in a year. While one of the main goals of the oysters is to filter, like any living being they need to reproduce.

Oysters start with the males releasing sperm into the water in the warm summer months. In response, the generally older females release eggs into the water. The two join together and create a fertilized egg, which becomes a trochophore, a tiny unattached clear larva. The next stage of growth is the pediveliger, where a ‘foot’ comes out of its shell to drag it along the floor. During that stage, they find a suitable place to stay, where they attach and become spat. This is
the final stage, and once they are old enough to reproduce, they will become adult oysters, which is when they start to have some issues.

Two huge problems oysters face are habitat loss and overharvesting. The reefs that oysters live in are being destroyed so people can build structures, and oysters are having trouble finding places to attach. Boats and cars accidentally release oil and other toxins into the water, poisoning the reefs. Overharvesting has been a problem since the seventeenth century. In the 1800s, people used dredges to harvest over 1.5 million bushels of oysters a year. In 2000, there were over 20 million bushels harvested. It has become one of Virginia’s largest industries. Both habitat loss and overharvesting level oyster reefs and make it harder for oysters to reproduce since there are less of them.

In addition, diseases are a giant problem for oysters. There are two main diseases: dermo and MSX. Dermo disease is an intracellular parasite that was once thought to be caused by a fungus, *Dermocystidium marinum*, but is now known to be caused by a single cell protozoan parasite, *Perkinsus marinus*. It infects the blood cells and is diagnosed by the destruction of tissues in the oyster. MSX is also a single-celled protozoan parasite, *Haplosporidium nelsoni*, or multinuclear sphere X. It is commonly shown as a multinucleated cell (more than one nucleus) which ranges from 5 to 100 µm (micrometers) in diameter and can occasionally form spores. Early versions of the disease are found in the oyster’s gills. While most people can’t do much about these diseases, there are some things that we can do to help.
To help, people can stop using fertilizer, as it is the main contributor to nitrates and phosphates in the water. You can plant trees or other plants with large root systems to soak up chemicals before they even get to the water. If you eat oysters, donate the shells to help make artificial oyster reefs. If you have a deck, purchase an oyster shelf for oysters to attach to. Properly dispose of plastics and other waste instead of just leaving it somewhere. Everyone can do something, so join in on the fight to save our oysters!