What is an Otolith?

An otolith is a bone-like structure in a fish’s inner ear that is used for balance. Because of their otoliths, fish can swim upright.
As a fish grows, so do its otoliths—faster during the summer months and slower in the winter. This difference in speed creates rings like a tree that can be used to tell how old the fish was.

Ohio Sea Grant scientists have also discovered that as a fish's otoliths grow, they absorb chemicals from the environment. Analyzing chemicals in the rings allows scientists to determine where the fish were spending time at different stages of their life history, tracking their movement as they grow. If we know where they hatch, we can determine what places in Lake Erie we should protect.

Chemical Markers

This freshwater drum was 23 years old!
Otoliths are so hard that they don’t break down, even after the rest of the fish decomposes. Because of this, they are often found in the digestive tracts of other animals and even have been found in the remains of 155-million-year-old fossilized fish!

Making History

Otoliths are sometimes called sheepshead, have very large otoliths—about the size of a nickel, with a shape like the letter L on one side. Great Lakes fishermen and sailors called otoliths “lucky stones” and would keep them to ward off storms and other bad luck.

Lucky Stones