Fish scales tell a story…

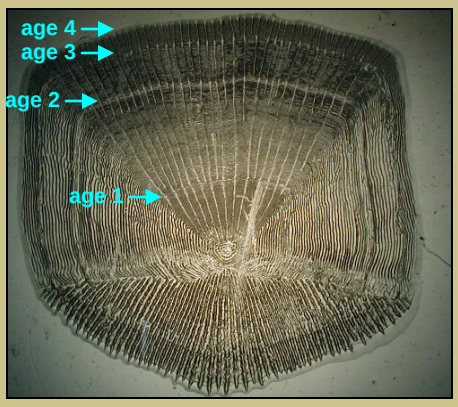
D. Raver, US FWS

Age & Growth

Largemouth bass scale with growth rings marked (12 inches, 2 years old).

Magnifying a fish scale to determine age & growth rates.

Striped bass scale with growth rings marked (18 inches, 4 years old).



For more information on fish age and growth contact:

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The Division of Fish & Wildlife manages the fish populations in Delaware's public ponds, freshwater and tidal streams, inland bays, Delaware River and Bay, and near shore Atlantic Ocean. A critical piece of data needed for good fisheries management is the age distribution and growth history of fish. These can be determined by examining fish scales or other boney parts of a fish such as the otoliths (ear bones) or a section of fin spine (catfish). Division biologists most often use scales because it is a non-lethal method. From 3 to 5 scales are removed from each fish and placed in a coin envelope. Data about each fish is also recorded on the envelope: date, location, species, length, and weight. Sex is also recorded if known.

Scales show the history of the fish in a fashion similar to the rings of a tree. Scales get larger as the fish grows by adding to the outside edge. Because fish are cold-blooded and grow very little during winter, a thicker ring is formed, giving a year mark. Therefore, biologists can use scales to determine the age of many fish species. Fish growth is variable and depends mainly on food supply and water temperature. Typically in Delaware, a 3-year old largemouth bass is about 12 inches, but in a pond with a poor food supply, a 3-year old fish may be only 5 inches long. Scale samples are collected from many fish and averaged as individual fish can show variation in growth.

Because a scale holds the growth history of the fish, it can also be used to determine length at all ages up to the current one. The placement of the winter rings on the scale is proportional to the total length of the fish. For example, if a 3-year old, 12 inch bass had the first ring about halfway from the center to the scale edge, that fish was about 6 inches at one year. If the first ring was about a third of the way from the center, the fish was about 4 inches.

Since the striped bass survey on the Delaware River is conducted during the spring spawning season, sex is easily determined. Often fish growth differs between males and females, as is the case with striped bass. Age and growth data are especially important when managing a fish species, like the striped bass, which migrates in and out of Delaware waters and is targeted by both recreational and commercial fishermen. Fish age and growth information is very important for quality management of Delaware's fish populations.

Using a pocket knife to remove scales from a striped bass.