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LAKE & POND MANAGERS

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Collecting Scale Samples

Why age fish?
Collecting age data is a crucial part of any fish management program. Age data allows one to determine rate of growth, age composition (relative year class strength, success of periodic stocking) and mortality rates (angler harvest + natural death). This information is essential for evaluating or determining the need for fish stocking, population control and habitat manipulations. It is also essential information for setting harvest restrictions, such as length limits, bag limits and season lengths.

Methods for determining age
There are three main methods for estimating ages of a population of fish: 1) the empirical approach involves direct observation of known-age or marked fish, 2) the statistical approach involves modal analysis of length frequencies, and 3) the anatomical approach involves determining age from observing annuli in calcified tissues, such as fin spines, bones, otoliths and scales. The anatomical approach is typically the most reliable of the three. The empirical and statistical methods are primarily used to support or validate anatomical aging methods. Among the anatomical aging methods, scale analysis has long been considered the most efficient and practical.

Scale collection
Most temperate gamefish and panfish species can be aged through scale analysis, however only scales from particular areas on a fish's body are suitable for aging. For walleye, white bass and pike species, scales should be taken from the area directly behind the pectoral fin and above the lateral line. For largemouth and smallmouth bass, perch and sunfish species, the area behind the pectoral fin and below the lateral line is best.

Forceps, tweezers or a knife can be used to collect scales. With forceps or tweezers, simply pull individual scales free. With a knife, press the blade perpendicular to the fish and pull scales free in a rearward motion, then slide scales onto the blade with your finger. Collect 6 - 8 scales per fish. Place scales in a small envelope and label with the following information:

- collector
- water body
- date
- species
- length
- sex (if known)

After collection scales need to be pressed flat, or else they will curl up and become difficult to work with. Tightly binding 25 or so envelopes together with a rubber band is usually sufficient.

Setting up a sampling design

If you are making a large catch of fish you may wish to collect age data from a sub-sample of your total catch. To do so you would attempt to collect a certain number of scale samples per length interval. Some biologists simply try to collect ten samples per inch group for gamefish and ten samples per half inch group for panfish. However, this usually results in too many young fish and too few older fish, as there are more age groups per length interval as length increases. A better method involves collecting progressively more samples as length increases. An example which might be used for largemouth bass is:

length interval	number of samples	length interval	number of samples
6.0-6.9	5	15.0-15.9	10
7.0-7.9	5	16.0-16.9	10
8.0-8.9	5	17.0-17.9	15
9.0-9.9	5	18.0-18.9	15
10.0-10.9	5	19.0-19.9	15
11.0-11.9	5	20.0-20.9	15
12.0-12.9	10	21.0-21.9	20
13.0-13.9	10	22.0-22.9	20
14.0-14.9	10	23.0 +	20

In most cases, you will not be able to fill all of the length intervals, but by using such a sampling design as a goal, you can be assured of collecting the best data possible.

Before mailing your samples

Before you pack and ship your scale samples to Cason & Associates, you will need to do the following:

- make sure that all scale envelopes are properly labeled
- organize scale envelopes by species/sex and water body
- include a packing list describing the number of samples by species
- include a note detailing the specific work you would like done
- include any length frequency and weight data if you are having analysis done
- provide a list spelling out any abbreviations you have used
- include a return address and billing address (if different)
- indicate whether or not you would like your samples returned

If you have any further questions or need any assistance, please write or give us a call. Good luck!