

Instructions for Sampling Salmon Tissues for DNA Stock Identification

NPAFC Working Group on Stock Identification

1. General Information

Genetic stock identification is one of most reliable methods to estimate the population origins of salmon caught in the ocean. The current genetic markers include microsatellite DNA, mitochondrial DNA and SNPs. As of June 2008 these are applicable mainly to chum, sockeye and Chinook salmon, but genetic baselines for pink, and coho salmon, and steelhead will be available in the near future. All processes begin with tissue sample collection, DNA purification, and PCR amplification of the genetic markers. This guide describes how to collect genetic samples from fresh or frozen salmon.

2. How to Collect Tissue Samples

1. Identify species of salmon or steelhead.
2. Measure body length (tip of snout to fork of tail) and weight for individual salmon (if necessary).
3. Collect scale samples from the preferred area of salmon for age determination (if necessary).
4. Cut a piece of the fin (approximately 2 cm x 2 cm) from each salmon (Figs. 1 & 2). To insure preservation, fin tissue should not exceed 1/4 of the volume of the test tube.
5. Put individual fin tissue into a plastic test tube labeled with a sample number (Fig. 3). Most pen inks dissolve in ethanol, so use a pencil or a laser printer with toner to make the test tube labels.
6. Fill the test tube with 95-100% ethyl alcohol (Fig. 4).
7. Seal the test tube with a screw cap (Fig. 5).
8. Store whole group of samples in a plastic bag labeled with sample information such as species name, date, and place of collection (Fig. 6).
9. Store the samples at room temperature out of the direct exposure to the sun.



Figs. 1-6. Illustrations for sampling tissues from salmon for genetic stock identification (photos: ADF&G)

3. Supplies

- ✓ A pair of scissors
- ✓ A pair of tweezers
- ✓ A pencil
- ✓ Plastic test tubes with screw caps (2-5 ml)
- ✓ Tube holder
- ✓ Ethyl alcohol (95-100% in concentration)
- ✓ Plastic bags (zip type)

4. Contact Points for Sample Analysis

Considerable expertise is required to analyze samples for the stock identification of salmon. Please make contact with one of following working group members for specific DNA analysis.

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