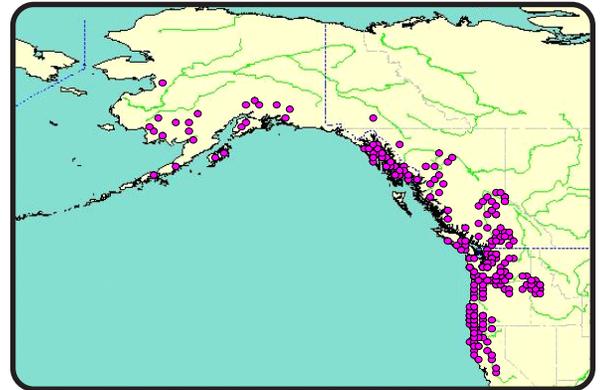




Determining the Origin of Chinook Salmon Harvested in Southeast Alaska Fisheries

Introduction

Commercial and sport fisheries in Southeast Alaska harvest Chinook salmon originating from Alaska, British Columbia, and the Pacific Northwest. Genetic stock identification can provide information about stock composition, which leads to improved ability to manage these fisheries. This method has been used to estimate the composition of commercially harvested Chinook salmon in the Pacific Northwest since the late 1980's and in the Southeast Alaska troll fishery since 1999. Estimates from the troll fishery indicate that the presence of many stocks in the harvest vary seasonally and by age class.



Collections in the Existing Baseline



Sample Collection

Non-lethal tissue samples are collected by Alaska Department of Fish and Game personnel from trollers, seiners, gillnetters and sportfishers as well as from sublegal-sized fish encountered in many of these fisheries. Samplers will clip the axillary process from near the pelvic fin of each fish. This method causes minimal harm to fish destined for release and leaves no undesirable marks on fish destined for processing.



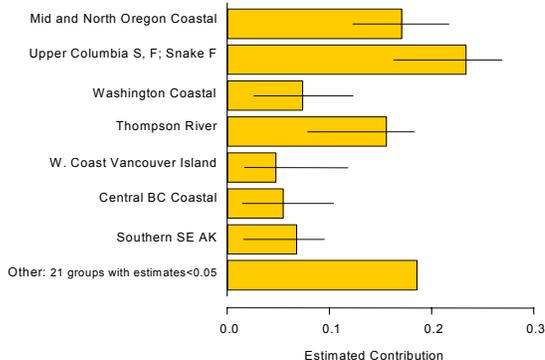
Analysis

DNA analysis of fish tissue is a powerful tool which can be used by Alaska Department of Fish and Game for management of Alaska's fishery resources. Commonly two types of genetic markers are used for genetic stock identification: proteins that are coded by the DNA (allozymes) and direct observation of the DNA (microsatellites and SNPs). A baseline exists of allozyme markers from over 250 representative populations of Chinook salmon from California to Russia. These populations have been combined into 28 broad-scale stock groups for reporting purposes. Currently, this baseline is being updated with the more powerful DNA-based markers. By analyzing these markers in fish sampled from a fishery (in comparison with the distribution of these marks in the baseline) it is possible to identify which stocks were encountered by the fishery.



Results

Genetic stock identification provides an estimate of the relative stock composition of the harvest sampled. For example, in the 1999 summer troll fishery, the largest contributors to the Chinook salmon harvest were the summer and fall stock group from the Upper Columbia and Snake rivers, the Oregon Coastal stock group and the Thompson River stock group.



Stocks in the 1999 Troll Fishery

