

**Retrospective Chinook Salmon
Escapement Estimation to the Skeena
River Using Genetic Techniques.**

Ivan Winther

Fisheries & Oceans Canada
Science Branch, Pacific Region
417-2nd Avenue West
Prince Rupert, British Columbia
V8J-1G8

January, 2012

*A project funded by the Pacific Salmon Commission's Sentinel Stocks Program.
File SSP-2011-2.*

ABSTRACT

Chinook salmon (*Oncorhynchus tshawytscha*) returns to the Skeena River were estimated for twelve (12) years using genetic stock identification techniques on archived scale samples. Genetic analyses of 6,951 Chinook salmon were completed from 7,383 fish sampled at the Tyee Test Fishery over 12 years: 1985 to 1989 inclusive, 1991, 1993, 1997, 1998, 2002, 2004 and 2005. The proportions of Kitsumkalum River Chinook salmon identified in the annual samples were expanded to Skeena wide population estimates using the return of Kitsumkalum Chinook estimated from independent mark-recapture programs. The preliminary estimates of large Chinook salmon returning to the Skeena River as measured at Tyee ranged from 37,893 in 1986 to 146,836 in 2004. The coefficients of variation around the estimates were less than the data standard of 15% in 7 years and were greater than 15% in 5 years.

These results are preliminary as additions and modifications are scheduled for the genetic baseline for Skeena River Chinook salmon populations. The ultimate objective for retrospective and the annual Sentinel Stocks Programs on the Skeena River is to provide aggregate escapement estimates for the complete time series from 1979 to 2013.