

Application of Mixed-Stock Analysis for Yukon River Fall Chum Salmon, 2007

Here we report interim results for genetic mixed-stock analysis (MSA) of Yukon River chum salmon harvested from the Pilot Station sonar and Mountain Village test fisheries in 2007; this is a continuation of previous work by Flannery et al. (2007). Fall chum salmon did not outnumber summer chum salmon until the first week of August, two to three weeks after the start of the fall management season. Overall, the largest contribution to the 2007 fall chum salmon return came from the U.S. border region (33.0%).

Contributions of fall chum salmon from other regions were: Tanana 28.3%, Canada mainstem 18.4%, Canada Porcupine 3.0%, White 17.1%, and Teslin 0.2%. As in previous years, the abundance estimates derived from combining the results from genetic and sonar estimates continued to be less than those from the escapement and harvest estimates. This disparity increased in 2007 (and 2006) when compared to the results from 2004 and 2005. Some discrepancy between the methods is expected due to the effects of experimental error associated with escapement projects and the fact that on average at least 5% of the fall chum salmon run likely passes Pilot Station after the sonar stops operating for the season at the end of August. Moreover, the level of agreement between the methods appears to be related to the run timing in a given year. There is better agreement between the methods when the timing of the fall run is normal (as in 2004 and 2005). When the fall run is late (as in 2006 and 2007) the genetic/sonar estimates are expected to be lower, relative to the escapement/harvest estimates, because fish returning after operations cease are obviously not counted by the sonar. Furthermore, it is likely that when the fall run is late, some escapement projects are counting summer chum salmon as fall chum salmon because of geographic and temporal overlap between the seasonal races, especially in the Tanana River.

Key Words: chum salmon, Yukon River, mixed-stock analysis, microsatellites.

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