

Northern British Columbia Winter Chinook Troll stock composition from DNA

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ABSTRACT

Fisheries & Oceans Canada has managed the Northern British Columbia (NBC) troll fishery since 1995 to reduce impacts on Chinook salmon (*Oncorhynchus tshawytscha*) stocks from the West Coast of Vancouver Island (WCVI). These constraints have reduced the fishery to the last half of June, parts of July, and occasionally parts of September. This has reduced fishing opportunities and made it difficult for the NBC AABM fisheries to attain the full TAC. Interest in resuming the winter fishery that occurred from 2001 to 2005 has increase as it would allow more fishing opportunities and take advantage of higher prices. DNA analyses of tissues collected from a proposed winter fishery would have allowed for estimates of stock specific impacts in the fishery. These data would be critical to the assignment of Chinook mortalities for the purposes of specific stock management. While there was interest in the fishery, no vessels participated in the fishery and resulted in zero catch which prevented the collection of DNA samples and ultimately stock composition analysis.

INTRODUCTION

The commercial troll fishery in Northern British Columbia (NBC) is managed within the aggregate abundance based management (AABM) regime described in the Pacific Salmon Treaty (PST - 1999). The Haida Gwaii (formerly Queen Charlotte Islands) sport fishery is also included within the regime and receives a priority allocation. The troll fishery typically harvests more Chinook salmon than the sport fishery when operating in the absence of domestic constraints.

DNA data are used to estimate fishery impacts on Chinook salmon stocks. Chinook salmon stock composition data are used in-season to manage fisheries to avoid stocks of concern. Stock definition is essential to the ultimate objectives of defining stock specific fishery impacts and productivity estimates to ensure that Chinook salmon stocks are perpetuated. This methodology is critical for protecting Canada's domestic concerns for weak stocks on the West Coast of Vancouver Island (WCVI).

Fisheries management constraints designed to reduce fishery impacts on WCVI Chinook have reduced the fishery to the last half of June, parts of July, and occasionally parts of September. This has reduced fishing opportunities and made it difficult for the NBC AABM fisheries to attain the full TAC. Interest in resuming the winter fishery that occurred from 2001 to 2005 has increase as it would allow more fishing opportunities and take advantage of higher prices. DNA analyses of tissues collected from a proposed winter fishery would allow for estimates of stock specific impacts in the fishery. These data would be critical to the assignment of Chinook mortalities for the purposes of specific stock management (e.g. WCVI Chinook salmon or local concerns for Yakoun River or Kwinamass River Chinook salmon) and for accounting of Nisga'a Treaty entitlements.

The objective of this project was to collect and analyze DNA tissues from Chinook captured during a winter fishery proposed for the period between October 1 and December 31, 2012. This would improve Chinook salmon stock composition information for the return to winter NBC troll fisheries.

METHODS

The winter troll fishing plan was to open portions of northern British Columbia during October through December. A limited TAC of 2000 pieces was set for this fishery, which would be included in the 2013 AABM Chinook TAC. The proposed DNA sampling and analysis methods would have followed those defined by Winther & Beacham (2006) and Winther (2007).

RESULTS

The Northern British Columbia Area F Troll Winter fishery opened on October 18 and then closed on December 31. There was zero participation in the fishery likely due to poor winter sea conditions. The zero catch prevented the sampling of Chinook and collection of DNA for the purposes of stock composition analysis.

DISCUSSION

Chinook stock composition data is critical for exploring new troll fishing opportunities in northern British Columbia. DNA stock composition methods have been proven to be an effective tool to estimate fishery impacts on Chinook stocks (Winther, 2007). This data is important for in-season management of troll fisheries to avoid stocks of concern. Unfortunately, DNA samples were not collected in 2012, as there was no participation and no catch in the winter troll fishery. Very little Chinook stock complex information currently exists for the winter months. Development of new troll fishing opportunities is dependent on improving our understanding of Chinook distribution and timing and the effects of the NBC troll fishery on individual stocks.

REFERENCES

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