MEMO

TO: Co-manager Technical Team

FROM: Base Period Work Group

DATE: July 2, 2019

RE: Model Stock Proportion for Areas 3/4 Sport and Treaty Troll

**BACKGROUND**

The FRAM model uses a constant Model Stock Proportion (MSP) to distribute the impacts in a fishery over the stocks in the model.

*Catch\_of\_ModelStocksf = TotalCatchf \* MSPf*

The MSPs for all pre-terminal fisheries were re-evaluated for the recent Chinook base period update (first implemented in 2017). The two preferred sources for MSP are Genetic Stock Identification (GSI) and the Chinook Technical Committee Model (CTC Model). Unfortunately, GSI information was only available for the Area 3/4 non-treaty troll fishery. We could not use CTC values, because Oregon and Washington coded wire tags are combined in the calculation of the CTC values. Using a “FRAM derived MSP” (La Voy, 2015) was undesirable, because of the large variance associated with the calculation. Additionally, the FRAM calibration derived MSP of 73% was deemed too low, given our understanding of the stocks encountered in this fishery. The base period work group decided to instead use a hybrid method of GSI and FRAM calibration derived values for the first official base period. The MSP was calculated as GSI MSP from the Area 3/4 non-treaty troll fishery multiplied by the ratio of FRAM derived MSP for T Troll to FRAM derived MSP for Non-treaty Troll.

*MSPT\_Troll = GSINT\_Troll \**

*MSPT\_Troll*  = 0.9851 \* = 0.9214

Although subsequent base period updates resulted in changes of the NT to T ratio, the MSP for Treaty Troll remained unchanged. Updating above calculation for round 6.2 of the base period would have resulted in an MSP of 0.9875.

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| **History of Treaty Troll Model Stock Proportions** | | | | |
| **Round** | **MSP NT** | **MSP T** | **GSI** | **New T MSP** |
| 6.2 | 0.7322 | 0.7338 | 0.9851 | 0.9873 |
| 5 | 0.7144 | 0.7187 | 0.9851 | 0.9910 |
| 4.1 | 0.7696 | 0.7201 | 0.9851 | 0.9217 |

**PROPOSAL**

The base period work group proposes to use the GSI derived MSP of **0.9851** for treaty troll and non-treaty sport because of the following reasons:

* The GSI derived MSP is based on a sound study (Moran, Dazey, & La Voy, 2017).
* We have no reason to believe that the treaty troll fishery should encounter fewer non-model stocks than the non-treaty fishery.
* A constant GSI derived MSP simplifies modeling, because it does not need to be re-calculated with each new round of base period updates.
* The sport fishery has the same size limit and a similar spatial distribution as the treaty troll fishery.

**RECOMMENDATION**

A GSI study to evaluate the stock composition of the treaty troll fishery could be used to update the MSP in the future.

# **BIBLIOGRAPHY**

La Voy, L. (2015). *Report for the 2015 Salmon Methodology Review on the Fishery Regulation.* Portland: PFMC.

Moran, P., Dazey, J., & La Voy, L. (2017). Genetic Mixture Analysis Supports Recalibation of the Fishery Regulation Assessment Model. *Fisheries*.