Chinook FRAM Base Period Documentation: External Coded Wire Tag (CWT) Adjustments for Area 10E Treaty Net Fishery

## Background

Insufficient tagging or small sample sizes can introduce bias into calibration calculations of the new FRAM Chinook base period. Following are cases of where this resulted in very problematic exploitation rates along with descriptions of how the bias was addressed.

## Gorst Creek in Sinclair Inlet Net

# Introduction

Gorst Creek stock was not tagged with CWT during base period brood years 2005, 2006 and 2007. Gorst Creek Chinook rearing ponds also experienced a brood failure for the 2005 brood year release group. Gorst Creek is part of the mid-Puget Sound stock aggregate. This stock is represented by coded wire tag groups from Grovers, Issaquah, Soos, and Voights Creek. These stocks are good surrogates for most fisheries, but are inadequate to describe the Sinclair Inlet (10E) net fishery that targets Gorst Creek stock. Without proper stock representation, the entire landed catch in the 10E Tr Net fishery cannot be accounted for by stocks included in the new base period calibration.

From brood year 2008 and later, Gorst Creek Chinook were tagged with CWTs and adipose fin clipped. Grost Cr Chinook are typical Puget Sound fall fingerlings, out migrating to the ocean as subyearlings and returning predominantly as three and four year olds. Therefore stock composition in 10E Tr Net could be reliably estimated for fishing years 2012 to 2015. Based on a CWT analysis of these fishing years, it was determined that the stock comp in 10E Tr Net fishery should be approximately 97% mid-Puget Sound (MPS) stocks.

# Method

***Determining the appropriate stock proportion***

The first step was an RMIS query for all recoveries in the 10E Treaty Net fishery, by recovery location code “3M10510 E”. Another RMIS query was then conducted for all release data associated with the tag codes recovered in 10E Tr Net, including release information for Chinook without CWTs. The release information was used to calculate Production Expansion Factors (PEFs) for the adipose fin clipped, or marked, catch based on release location (table 1). Only subyearling releases and associated recoveries were included. Release location was used for the PEFs because some hatcheries had separate release groups for the CWT portion of the annual releases. The RMIS estimated number of recoveries was further expanded by the PEFs, and the data was examined by year and production unit (MPS, South Puget Sound (SPS), and Hood Canal (HC), table 2).

**Table 1**, PEFs for each tag code recovered in 10E Tr Net from 2012 to 2015



**Table 2a**, Estimated marked catch in 10E Tr Net by production unit and fishing year



**Table 2b**, Estimated marked catch in 10E Tr Net by production unit and fishing year as a percentage of the total marked catch.



***Base Period CWT adjustment***

# Results