

**Washington Department of Fish and Wildlife
Intergovernmental Resource Management**

Date: February 3, 2010
To: Hood Canal Tribal co-managers
From: Kyle Adicks
Subject: **Updated** - Escapement trends in Mid-Hood Canal Chinook & hatchery production changes

Although Mid-Hood Canal Chinook appear to have shown a decreasing trend in escapement over the past several years, the long-term trend is difficult to interpret. Combined Chinook escapement to the Mid-Hood Canal tributaries averaged 138 from 1990 to 1995 (Figure 1). From 1998 to 2001, escapement showed a sharp increase, averaging 452. The mean escapement has fallen since 2001, averaging just 121 fish. Based on a review of hatchery production in the area, it seems likely that changes to production played a role in the spike, and subsequent decrease in escapement to the Mid-Hood Canal streams.

Three hatchery projects that may have contributed to escapement were initiated in the mid 1990's. One of these was the Hamma Hamma supplementation project, which originated with the 1995 brood, with the first adult returns in 1998. The Hamma Hamma project has continued since 1995, and while it has contributed to adult escapement, no change to the project has occurred that would explain the decrease in escapement since 2002.

The other two hatchery projects initiated in the mid 1990's were marine net pen releases at Sund Rock and Pleasant Harbor. These projects released yearling Chinook in varying number between 1995 and 2000 (Table 1). The majority of the adults resulting from these releases would have reached maturity between 1997 and 2002. Because the Mid-Hood Canal tributaries are the closest large streams to the release sites for these programs, they would be a likely location for straying by net pen-origin adults returning to Hood Canal. Although data are limited, coded wire tag recovery data confirm escapement of Chinook from both of these projects into Mid-Hood Canal streams. In addition, scale samples collected from untagged spawners in Mid-Hood Canal streams during the period of increased escapement identified Chinook with yearling hatchery life history patterns.

While the timing of the operation of these marine net pen projects and changes in Mid-Hood Canal Chinook escapement could be coincidental, it seems logical to conclude that net pen strays were at least partially responsible for the increase in escapement between 1998 and 2001, and that the termination of the programs is partially responsible for the decrease since. While it is not possible to quantify this effect, it does temper the perception that the status of this population has declined as significantly as the recent escapement trend alone might indicate.

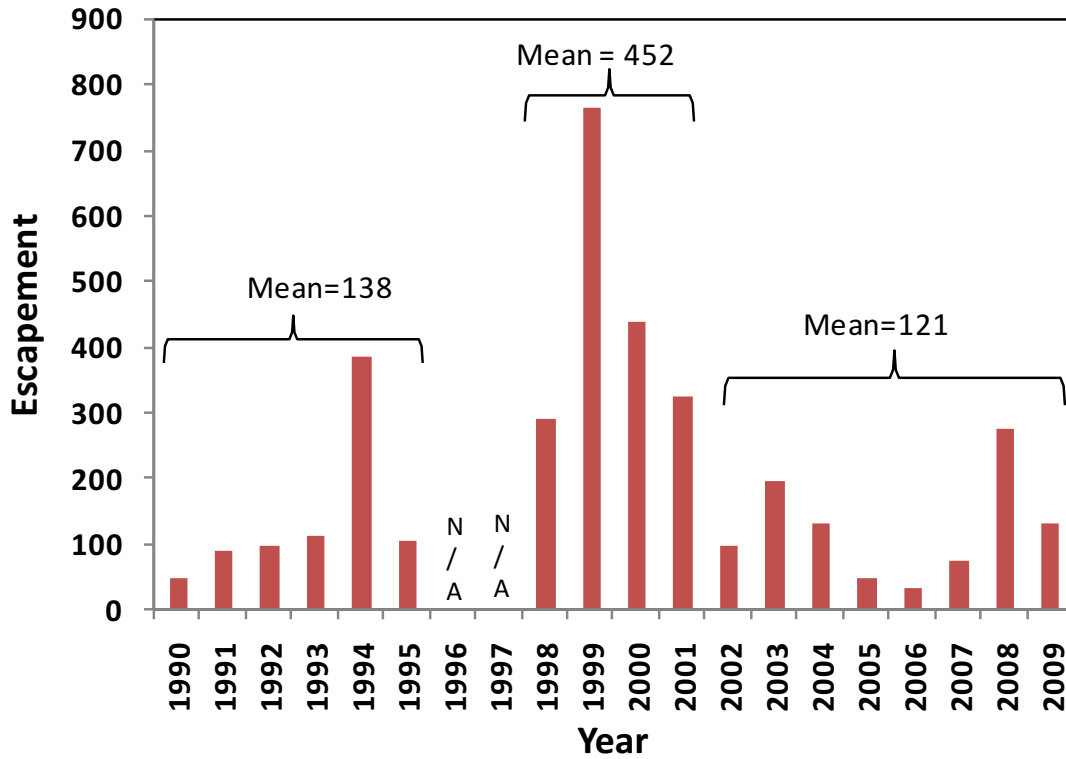


Figure 1. Mid-Hood Canal Chinook Escapement, 1990-2009. Complete estimates are not available for 1996 and 1997.

Table 1. Yearling Chinook releases by marine net pens programs in the Mid-Hood Canal area by year of release, 1994-2001.

Release year	1994	1995	1996	1997	1998	1999	2000	2001
Pleasant Harbor NP	0	14,918	0	14,400	12,400	750	15,000	0
Sund Rock NP	0	144,700	178,000	193,200	106,150	148,000	0	0

Cc: Pat Pattillo, WDFW
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