

## WASSIP and OPH: how did we get here and what does all this mean?

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### WASSIP

The genesis of the Western Alaska Salmon Stock Identification Program (WASSIP) was the 2003 Board cycle when the pendulum in the decades-old battle between Western Alaska subsistence and commercial fishermen and those in Area M swung back toward Area M. This direction the pendulum swung was often more a composition of the Board of Fish than it was due to any new or better data about which stocks of fish were being caught where.

In response to pleas for help from the federal government, the late Senator Ted Stevens offered to find the resources to settle many of these debates if:

1. The study was rigorous and used state of the art techniques capable of settling the arguments for decades to come; and
2. All parties participated in the process and would be willing to “sign off” on the validity of the results.

An MOU was signed among 10 regional organizations from Chignik to Nome and ADF&G, an Advisory Panel with representatives from each organization was struck, and Senator Stevens found \$5 million. A technical committee of independent experts was also set up to review methods developed by ADF&G, and they reviewed many technical documents produced by ADF&G.

Many years and many millions of dollars later, the final reports from WASSIP were released in 2012. What often goes unnoticed is that WASSIP settled far more debates than it fueled. Around the WASSIP region, many fisheries expected to have high interception rates of non-local stocks did not. In many ways, the initially unveiling of the WASSIP results created many more sighs of disappointment than it created “gotcha” moments, and this across all regional groups.

Probably the starkest, and to many, unexpected result was the stock composition in the recently created Outer Port Heiden (OPH) district on the North Peninsula. This fishery was created to increase exploitation of local stocks but the catches in 2007 and 2008 contained a high proportion of sockeye salmon bound for Bristol Bay.

In the 2012/13 Board of Fisheries cycle, OPH was one area the Board acted on results from WASSIP. The fishery was restricted to within 1.5 miles as part of a compromise between it remaining open and a proposal that it be entirely closed.

### The OPH Study

The genesis for the OPH study was ADF&G agreeing that a “finer scale WASSIP-like” study could determine how effective this partial closure of the OPH section. ADF&G even developed a budget to analyze the samples from this hypothetical study, should groups in Bristol Bay or the North Peninsula want to fund such a study. Just prior to the 2013 fishing season, ADF&G declined to participate but it was too late to mount a third-party effort in 2013.

Subsequently, the Bristol Bay Economic Development Corporation (BBEDC), along with the Bristol Bay Regional Seafood Development Association (RSDA) raised sufficient funds to contract the University of Washington to conduct a sampling program and genetic stock ID program. The genetics would be done by UW's "Seeb Lab", the principals of which (Drs. Jim and Lisa Seeb) were instrumental in getting WASSIP off the ground years earlier when they led ADF&G's Gene Lab. BBSRI was charged with overseeing the contract with UW, and providing input to the study design and analyses.

In the spirit of WASSIP and leveraging the investment of millions of dollars, the UW study set out to determine whether the partial closure of OPH would be effective at reducing the harvest of Bristol Bay bound fish. Specifically, did the mixture of fish closer to shore contain fewer Bay fish?

The OPH study was different from WASSIP in several ways:

1. It was not designed to estimate the stock-specific composition of the commercial fishery harvest in OPH in 2013 and 2014. In part because there was no harvest in the closed portion, and because WASSIP had already established the degree of interception by the fishery. As a result, harvest rates were not computed for stocks captured in the OPH.
2. The numbers of samples analyzed for each of the two years was much greater than was done in WASSIP.
  - a. In 2014 and 2015, 2,871 and 3,497 fish were analyzed compared to 1,112 and 1,167 in 2008 and 2009 WASSIP OPH sampling.
  - b. The larger sampling rate within the OPH district was done to obtain much finer spatial scale (open/closed areas and the northern and southern portions of each) than sought in WASSIP. This increase in spatial scale was in addition to an attempt to achieve a similar temporal scale of WASSIP (early, middle and late season).

As a result of these large sample sizes, the statistical power to detect differences between the stock composition in the open and closed areas of OPH in each of 2014 and 2015 was very high. The inference that there were no differences in each year between open and closed area is robust. Determining whether there were differences between these two areas was the primary objective of the OPH study and it was met unequivocally.

A secondary set of objectives was to further subdivide the open and closed areas (North/South), and examine early, middle and late season composition. Evidence was found in that the composition of Bay bound fish was lower early in the season compared to the middle and late season. This greater stratification of the data reduced sample sizes by strata down from annual sizes of in the thousands, to strata-specific samples of ~300-800 compared to the *annual* open/closed OPH sample sizes of ~1,200-1,700. Samples sizes from the early, middle and late strata from WASSIP ranged from 331-396 fish. As a result, statistical power of the finer scale comparisons have somewhat less statistical power compared to the simpler annual "Open-Closed" comparison.

However, all samples showed a relatively high proportion of Bristol Bay bound fish in the open and closed areas of OPH, across all time and area strata. Therefore, the degree to which there were any *differences* among strata really became meaningless.