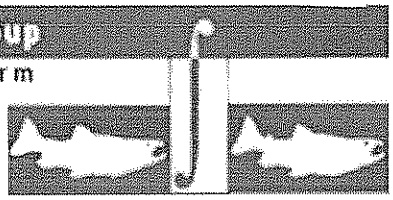
Hatchery Scientific Review Group
Pacific Salmon Hatchery Reform



November 9th, 2012

SUBJECT: ADDITIONAL HSRG PRELIMINARY ANALYSIS OF MANAGEMENT STRATEGIES FOR COLUMBIA RIVER RECREATIONAL AND COMMERCIAL FISHERIES

A sub-committee of the Hatchery Scientific Review Group (HSRG) has done additional preliminary analysis of increased Chinook and Coho production in off channel rearing sites proposed by Oregon and Washington staff under the "Management Strategies for Columbia River Recreational and Commercial Fisheries: 2013 and Beyond". The "All H analyzer" (AHA) was used for the analysis with various assumptions on harvest rates and selective ratios, weir efficiencies, population designations, and production increases in specific locations. These assumptions are provided below.

Additional Assumptions:
Production Increases:
Spring Chinook- short term;
Tongue Point- additional 300K (transfer from Sandy, McKenzie, Clackamas Hatcheries)
Blind Slough- additional 200K (transfer from Sandy, Mckenzie, Clackamas Hatcheries)

Spring Chinook –long-term:
Tongue Point- additional 125K (transfer or new?)
Blind Slough- additional 125K (transfer or new?)

Select Area Bright (SAB) - short term;
North Fork Klaskanine Hatchery- 500K (requires 500K reduction of Tule Fall Chinook at Big Creek Hatchery)

Select Area Bright (SAB) fall Chinook –long-term:
North Fork Klaskanine Hatchery- additional 250K (requires 250K reduction of Tule Fall Chinook at Big Creek Hatchery)

Coho- short term;
Tongue Point-additional 200K (from Sandy Hatchery)
Blind Slough- additional 400k (from CR Gorge)
Deep River- additional 200K (new or transfer?)

Coho- long term;
Tongue Point-additional 500K (new or transfer?)
Blind Slough- additional 500k (new or transfer?)

- Off-Channel Harvest of Returning Hatchery Adults (Total Exploitation Rate-all fisheries)

Young's Bay, Blind Slough, Tongue Point	89% Brights
	91% Springs
	99% Coho
Deep River	89% Springs
	89% Tules
	99% Coho

- Future Mainstem Fisheries Harvest Rates-
  Fall Chinook: 30% HOR-6% NOR;
  Springs Chinook: 15% HOR-5% NOR;
  Coho- 40% HOR-8% NOR

- Trap/Weir Efficiency
  Grays River (Chinook 95%, Coho 80%)

  Elochoman (Chinook and Coho 95%)

  Klaskanine Hatchery (Chinook 85%)

- Lower River Population Designations with pHOS Limits for out of basin strays
  Chinook
    Grays (Contributing, 10%)
    Mill-Abernathy-Germany (Primary, 5%)
    Elochoman (Primary, 5%)

  Coho
    Grays (Primary, 5%)
    Mill-Abernathy-Germany (Contributing, 5%)
    Elochoman (Primary, 5%)
    Big Creek (Primary 5%)

General Observations:

Chinook, Short and Long Term Proposed Production Increases

Increased spring Chinook production described in both the short and long term in off-channel areas do not pose additional risk to pHOS limits for fall Chinook (Tule) populations in the lower river because of the difference in spawn timing between spring and fall Chinook populations and the lack of nearby spring Chinook populations and acceptable habitat.

McKenzie, Clackamas and Sandy Spring Chinook populations:—transfer of spring Chinook from these facilities to lower river release points that have increased harvest rates (off-channel) and increased harvest rates in mainstem fisheries (alternative gear) are expected to reduce hatchery fish on the spawning grounds in their stream of origin. At a minimum, pHOS reductions will be proportionate to the reduction in programs size and additional reductions would be expected from increased harvest rates in the mainstem Columbia River fisheries.

Short and long term SAB Chinook production increases do not pose significant additional risk to Lower River fall Chinook populations as they are proposed to be released from Klaskanine hatchery (located on an upper Young's Bay tributary). This will allow for better homing and removal of un-harvested fish at this facility. In addition, the decrease in Tule fall Chinook from Big Creek Hatchery, required to accommodate this increase would be expected to reduce the level of straying to other watersheds now occurring (assumed to be low).

However, the existing production of SABs from Young's Bay as well as the recently initiated (2009) tule production from Deep River do continue to pose a threat to the Grays River population. These hatchery fish are already harvested at fairly high rates and due to the release locations; (very low in the river) may not be subjected to any additional harvest from increased mainstem fishing rates. The existing temporary Grays River weir does remove straying hatchery fish, but the small size of the Grays population and less than 100% weir effectiveness result in pHOS levels above the maximum allowed for the Grays River population (Contributing, 10%). The Mill- Abernathy- Germany population (Contributing) pHOS levels without a weir currently exceed pHOS levels due to existing production but the proposed increases in SABs is not expected to alter this. The Elochoman population (Primary) is still expected to meet pHOS requirements.

Coho, Short and Long Term Proposed Production Increases

Increased Coho production does not appear to pose significant risks to biologically important Coho populations in the lower Columbia River. Increases in harvest rates in the mainstem fisheries tend to decrease pHOS in natural populations throughout the Region (although some will still exceed standards). This is true of the Grays River, however, the Grays River population remains completely dependent on the existing temporary weir remaining at 85% or higher trapping efficiency. The large Coho production in Deep River net pens (close to Grays River) (without increased HOR harvest rates) generates enough un-harvested fish annually to exceed the pHOS limits for this population by a wide margin. The proposed increases in production coupled with increased harvest rates results in pHOS levels near or just above the maximum allowed for the Grays River population (Primary, 5%). The Mill-Abernathy- Germany population (Contributing), Elochoman River (Primary) and Big Creek (Primary) would appear to benefit from a decrease in pHOS.

Sandy River, and Columbia Gorge Tributary Coho populations-transfer of Coho from these facilities to lower river release points that have increased harvest rates (off-channel) and increased harvest rates in mainstem fisheries (alternative gear) are expected to reduce hatchery fish on the spawning grounds in their stream of origin. At a minimum, pHOS reductions will be proportional to the reduction in programs size and additional reductions would be expected from increased harvest rates in the mainstem Columbia River fisheries.

The general observations above are from our AHA analyses using the assumptions noted. It is critical that monitoring and evaluation occur to verify assumptions of total exploitation rates, harvest differential between HORs and NORs and weir effectiveness. In addition, resulting data obtained must be used in an adaptive management process. Increased selective harvest ratios and higher total harvest rates on hatchery adults (especially tule Chinook and Coho) can have significant effect on pHOS which can provide other management options.

The HSRG hopes you finds this analysis useful and looks forward to the opportunity to work with WDFW/ODFW staff to review other options and assumptions to help meet the harvest and conservation goals of this program.