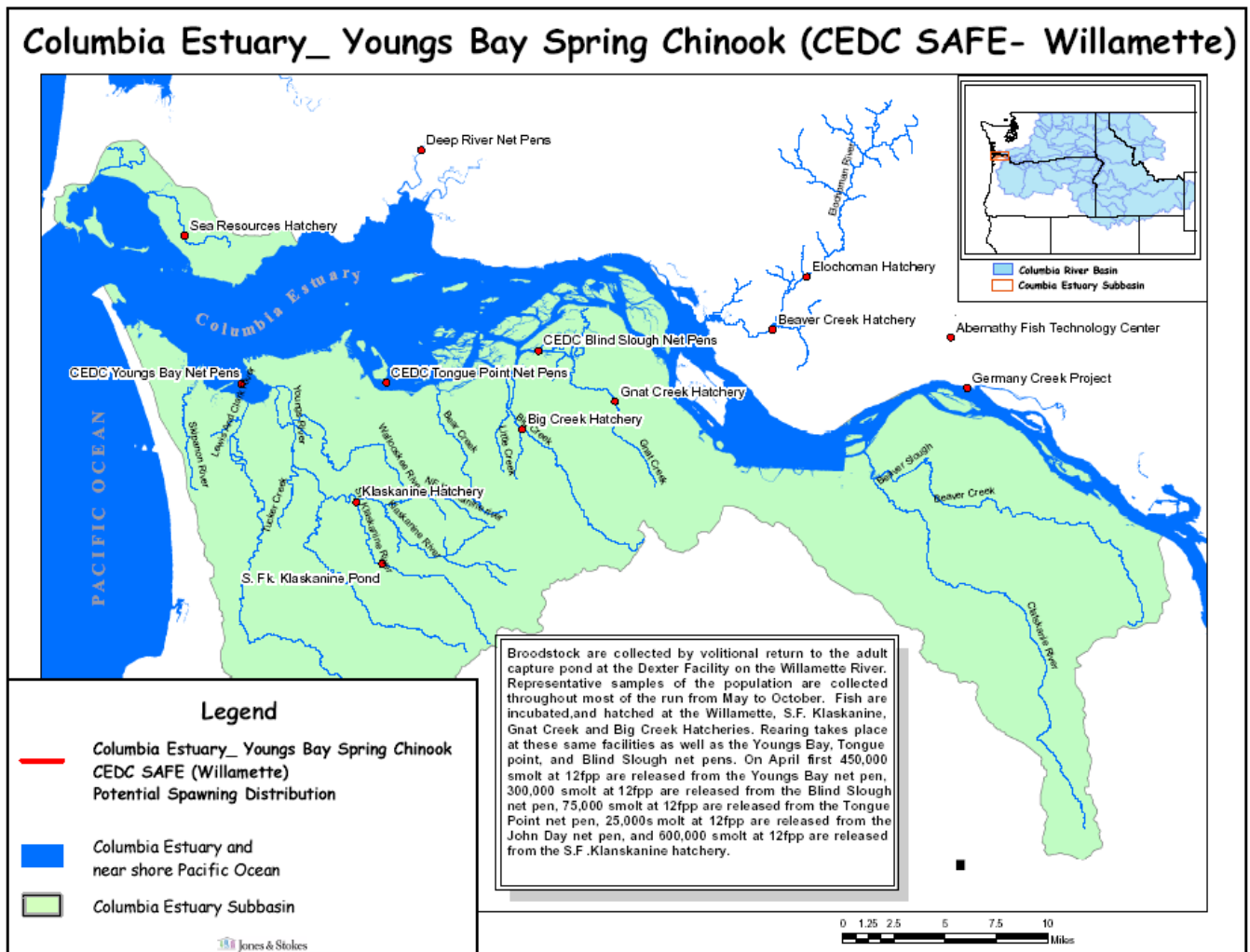


Hatchery Scientific Review Group Review and Recommendations

Youngs Bay Spring Chinook CEDC SAFE Population and Hatchery Program

January 31, 2009



1 Lower Columbia Estuary and Youngs Bay Spring Chinook CEDC SAFE

There is no natural population of spring Chinook in the Columbia Estuary corresponding to this hatchery program. The CEDC Select Area Fishery spring Chinook program utilizes Willamette stock (stock 022 and 024) spring Chinook. The wild population of spring Chinook in the lower Columbia River (LCR) is part of the Lower Columbia River Chinook Evolutionarily Significant Unit (ESU), which contains both fall and spring Chinook. This ESU was listed as threatened under the Endangered Species Act (ESA) in 1999 (Federal Register Notice 1999). These hatchery populations are not considered part of the Lower Columbia River Chinook ESU (Federal Register Notice 2004).

2 Current Conditions

2.1 Current Population Status and Goals

There is no spring Chinook population in this area.

- ESA Status: NA
- Population Description: NA
- Current Viability Rating: NA
- Recovery Goal for Abundance: NA
- Productivity Improvement Expectation: NA
- Habitat Productivity and Capacity (from EDT): NA
- Populations Affected by this Hatchery Population Include: NA

2.2 Current Hatchery Programs Affecting this Population

The Gnat Creek Hatchery Programs are harvest programs used to mitigate the loss of fishing and harvest opportunities resulting from Columbia River Basin hydropower system. For the spring Chinook mid-Willamette stock, eggs received from Willamette Hatchery in October produce 750,000 fingerlings at 25 fish per pound. In early November, 45,000 are transferred to the CEDC Youngs Bay net pens and 300,000 are transferred to the CEDC Blind Slough net pens. All fish are marked (adipose removal) and 25,000 of each group are coded-wire tagged. The remaining 150,000 smolts are reared to a size of 12 fish per pound, then 75,000 are transferred to the CEDC Tongue Point net pens and 75,000 are transferred to the CEDC John Day net pens in mid-March. All fish are marked and 25,000 of each group are coded-wire tagged before transfer. The primary goal of this program is to mitigate for the loss of spring Chinook catch in sport and commercial fisheries in the lower Columbia River select area commercial and sport fisheries.

Estimated number of hatchery strays affecting this population:

- There are no native spring Chinook populations in the region that could be affected by this population (e.g., through straying).

3 HSRG Review

The HSRG has developed guidelines for minimal conditions that must be met for each type of program as a function of the biological significance of the natural populations they affect. For populations of the highest biological significance, referred to as Primary, the proportion of effective hatchery-origin spawners (pHOS) should be less than 5% of the naturally spawning

population, unless the hatchery population is integrated with the natural population. For integrated populations, the proportion of natural-origin adults in the broodstock should exceed pHOS by at least a factor of two, corresponding to a proportionate natural influence (PNI) value of 0.67 or greater. For Contributing populations, the corresponding guidelines are: pHOS less than 10% or PNI greater than 0.5. It is important to note that these represent minimal conditions, not targets. For example, the potential for fitness loss when effective pHOS is 5% is significantly greater than it would be at 3%. For Stabilizing populations we assume the current pHOS or PNI would be maintained.

The HSRG analyzed the current condition and a range of hatchery management options for this population, including the effect of removing all hatchery influence, and arrived at one or more proposed solutions intended to address the manager's goals consistent with the HSRG guidelines for Primary, Contributing, and Stabilizing populations. The solution included in the cumulative analysis is the last option described in the Observations and Recommendation box below.

In order to highlight the importance of the environmental context, two habitat scenarios were considered: current conditions and a hypothetical 10% habitat quality improvement.

See HSRG Observations and Recommendations in the box below for more information.

3.1 Effect on Population of Removing Hatchery

The No Hatchery scenario is intended to look at the potential of the natural population absent all hatchery effects with projected improved fish passage survival in the Snake and Columbia mainstem (FCRPS Biological Opinion May 5, 2008).

Since there is no natural spring Chinook population in the Columbia Estuary, removing hatchery impacts from this program would have no effect on the productivity or natural spawning abundance of any local natural spring Chinook stocks. Harvest contribution of the natural and hatchery populations would go from approximately 4,600 fish to zero.

3.2 HSRG Observations/Recommendations

In the Observations and Recommendation box below we describe elements of the current situation (Observations) that were important to evaluate the natural population and where applicable the hatchery program(s) affecting that population. We also describe a solution (Recommendations) that appeared to be consistent with manager's goals. However, this is not the only solution. In some cases, more than one solution is described.

Summary results of this analysis are presented in Table 1. The adjusted productivity values reported for each alternative incorporate all factors affecting productivity (i.e., habitat quality, hatchery fitness effects, and harvest rates).

Observations

The program currently releases approximately 750,000 smolts. There are no naturally reproducing spring Chinook populations in the Columbia River estuary.

Recommendations

The HSRG recommends that the current program be continued. This program could be increased with minimal biological risks using existing infrastructure. Capacity may be an issue, since all fish are reared elsewhere.

The HSRG recommends that managers continue to implement their apparently successful BKD strategies, which include culling.

Table 1. Results of HSRG analysis of current conditions and HSRG solution for Columbia Estuary Fall Chinook. The light green row indicates the natural population and yellow indicates the segregated hatchery population, if applicable. A 10% habitat improvement is applied to the HSRG Solution to evaluate the additional effect of improved habitat towards conservation objectives.

Alternative	Type and Purpose	Prog Size (/1000)	HOR Recapture	Additional Weir Efficiency	Effective pHOS	PNI	NOS Esc	Adj Prod	Harvest	Hatchery Surplus
Current										
	Seg Harv	850.1	0%						4,594	0
No Hatchery										
HSRG Solution										
	Seg Harv	850.1	90%						4,594	385
HSRG Solution w/ Improved Habitat										
	Seg Harv	850.1	90%						4,594	385