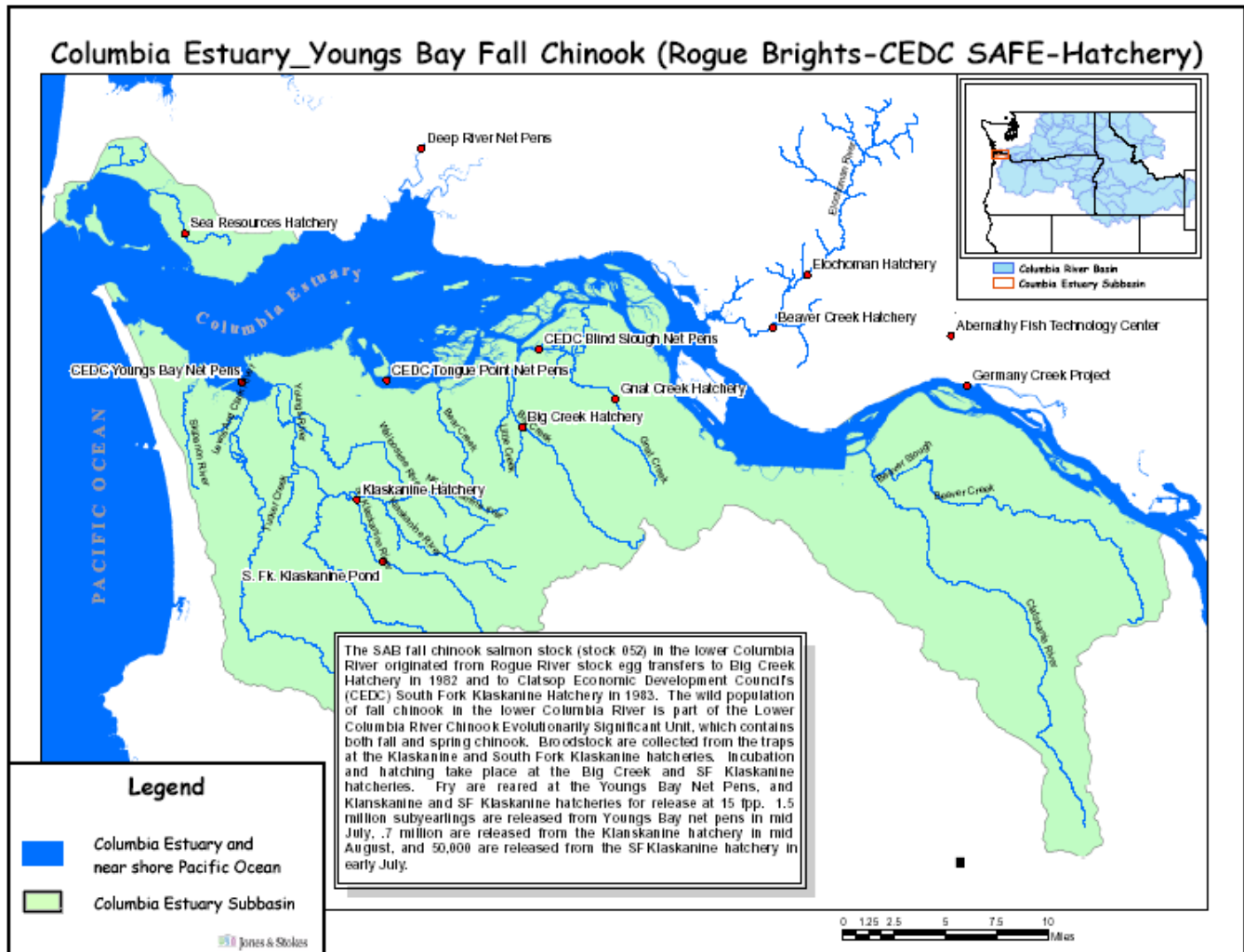


Hatchery Scientific Review Group Review and Recommendations

Columbia Estuary-Youngs Bay Fall Chinook (Rogue Brights-CEDC SAFE-Hatchery) Population and Hatchery Programs

January 31, 2009



1 Columbia Estuary-Youngs Bay Fall Chinook (Rogue Brights-CEDC SAFE-Hatchery)

There is no natural population corresponding to the CEDC- Select Area Bright fall Chinook hatchery population, because it was derived from out-of-basin (Rogue River) stock. Native fall Chinook in Oregon tributaries of the lower Columbia River are almost all tule fall Chinook, with the exception of bright stock fall Chinook produced in the Sandy River. Small, scattered, naturally spawning fall Chinook populations are observed in small Oregon tributaries, with the largest numbers in Big Creek and Plympton Creek, where a significant portion of the natural spawning is comprised of hatchery-produced tule fall Chinook. Small numbers of tule fall Chinook spawn in Youngs Bay tributaries in some years (HGMP 2005).

2 Current Conditions

2.1 Current Population Status and Goals

The Columbia Estuary Fall Chinook (CEDC- Select Area Brights) program is a segregated harvest program to provide harvest of high-quality hatchery-produced salmon released from and returning to select areas (mainly Youngs Bay) with minimal interception of other non-select area stocks.

- ESA Status: This hatchery population is not listed.
- Population Description: The hatchery population was derived from out-of-ESU Rogue River stock and is not part of an ESU. It is located within the geographic boundaries of the threatened lower Columbia River Chinook ESU.
- Current Viability Rating: None
- Recovery Goal for Abundance: None
- Productivity Improvement Expectation: None
- Habitat Productivity and Capacity: NA
- Populations Affected by this Hatchery Population Include: Fall Chinook utilizing North and South Forks of the Klaskanine River, Youngs River, Lewis and Clark River, Youngs Bay, and the Columbia River and estuary downstream of Youngs Bay.

2.2 Current Hatchery Programs Affecting this Population

The Select Area Brights fall Chinook program originated from Rogue River stock egg transfers to ODFW's Big Creek Hatchery in 1982 and to Clatsop Economic Development Council's (CEDC) facility in 1983. Broodstock for this program is collected by several methods, including volitional return of adults to both Klaskanine and South Fork Klaskanine hatcheries and active collection of adults in tidewater sections of Youngs Bay tributaries. Incubation occurs at Big Creek and South Fork Klaskanine hatcheries. Rearing occurs at Big Creek and Klaskanine hatcheries and in the Youngs Bay net pens. Fish are released from Klaskanine and South Fork Klaskanine hatcheries and from Youngs Bay net pens.

- This segregated harvest program annually releases approximately 1.1 million sub-yearling smolts.
- The estimated productivity of the hatchery population is about 10 R/S.
- There is no natural population component, so there is no natural escapement.

- Average harvest contribution is 8,064 adults.
- Hatchery returns slightly exceed broodstock needs.
- The HGMP for this program reports an average stray rate of 1.5% for Klaskanine Hatchery releases. ODFW managers indicated to the HSRG that this value may be a substantial underestimate of the actual stray rate.

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).

Impacts to natural spawning populations will be described in the Youngs Bay tributaries fall Chinook population report. Harvest contribution of the natural and hatchery populations would go from approximately 8,100 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 incorporates all factors affecting productivity (i.e., habitat quality, hatchery fitness effects, and harvest rates).

Observations

This large segregated program (1.2 million smolts) makes a significant contribution to harvest, but contributes heavily to out-of-basin straying. The hatchery population was derived from out-of-ESU Rogue River stock and is not part of an ESU. It is located within the geographic boundaries of the threatened lower Columbia River Chinook ESU.

While the HSRG sees little room for improvement in this population, it strongly cautions managers that this program is using out-of-ESU stocks in an area where they do not naturally occur. Switching production from Rogue River Brights to a Columbia River tule stock would be consistent with HSRG principles.

Recommendation

Continue the current 1.2 million Rogue Brights fall Chinook segregated harvest hatchery program. Increase production to 3.3 million with the addition of 2.1 million fish from Washougal tule production. Develop a reliable estimate of the stray rate for this program and a rigorous monitoring program to assess impacts to native stocks.

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 Youngs Bay 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	1,174.1	10%						8,064	100
No Hatchery										
HSRG Solution										
	Seg Harv	3,342.9	10%						25,088	71
HSRG Solution w/ Improved Habitat										
	Seg Harv	3,342.9	10%						25,088	71