

STEP 3 Table: Cedar River Chinook Population Goals and Outcomes (goals in **bold** print are reiterated from WRIA 8 Chinook Conservation Plan)

VSP Parameter	Historic/Template Conditions	Current (Base) Period Conditions	10-year GOALS	Long-term GOALS	Outcomes
Abundance	>15,000 spawner capacity (NOAA 2004); 13,733 (EDT template estimate)	Cedar River – recent average of 481 fish (AUC ¹ estimates, 1988-2006)	<ul style="list-style-type: none"> • Meet co-manager escapement goal of 1,200² naturally spawning adults on Cedar (AUC live count index which corresponds to estimated 1,680 total adults). • Tribal and sport harvest depends upon abundance above this goal. 	<ul style="list-style-type: none"> • Meet WDFW target of 2,000³-8,200 spawners (lower range is MSY⁴, upper range is equilibrium abundance.) 	Tribal treaty and sport harvest opportunity occurs on a consistent basis. Available habitat is fully utilized.
Productivity	EDT template productivity (at origin) modeled at 26.5 r/s. Otherwise assume >3.1 as high productivity consistent with recovery planning.	EDT estimate or estimate from NOAA BRT ⁵ is ≈ 1 . Co-manager estimate = 2.6 returns/ spawner (2004-07). Annual avg. egg-migrant survival rate (1998-2006) = 9.2% (WDFW wild salmonid eval. program)	<ul style="list-style-type: none"> • Maintain or increase growth rate of 2.6 r/s (based on run reconstruction estimates i.e., total production) • 1.5x⁶ (1998-2006) avg. egg to migrant survival rate (i.e., 13.8%) • Short-term target: 3.1 recruits/spawner (run reconstruction estimation method) • ≥ 2 adult returns/spawner 2-4 years out of 10 (redd-redd productivity estimation method) 	<ul style="list-style-type: none"> • Long term egg to migrant survival rate of 12%-20% • 1-3.1 recruits/ spawner⁷ • Maintain adult return/ spawner rate ≥ 10-yr rate 	Spawners are producing optimal numbers of juvenile migrants. The number and proportion of NOR spawners has increased. There is a greater frequency of harvestable abundance.
Spatial Distribution	Proportional use by river mile and tributaries, lake residency.	Spawning and juvenile use was restricted to lower 21.9 miles prior to 2003 Landsburg Dam ladder construction	<ul style="list-style-type: none"> • Convert 1 satellite subarea to core (i.e. Upper Cedar) (complete) • Maintain or expand spawning area (redd) distribution • Expand rearing habitat for fry in the river and flood plain 	<ul style="list-style-type: none"> • Maintain or increase spatial distribution of spawning and rearing areas. • Recapture historic distribution (i.e, proportional use) with no loss of current distribution. 	Population is more resilient to disturbances and is more fully exploiting available habitat
Diversity	Assume $\geq 50\%$ smolt rearing life history and low stray rate from Green or other systems.	Proportion of fry and smolt migrants is skewed to fry migrants. Adult pHOS ⁸ has ranged from 10-34% (years 2004-08).	<ul style="list-style-type: none"> • Increase Cedar instream rearing trajectory from 30% to 40% smolt composition, using a 5-year average. Increase number of smolt migrants while increasing total annual migrants • Decrease spawning composition on Cedar to pHOS $\leq 20\%$ while maintaining overall abundance. 	<ul style="list-style-type: none"> • Increase Cedar instream rearing trajectory to 50% smolt composition without reducing total annual migrants. Consider further reduction in pHOS to <10%. (Proportions will continue to be assessed over time through the Adaptive Management process.) 	Life history diversity reflects expanded habitat opportunities. NORs are increasingly driving population genetics so that genetic risk is minimized

¹ AUC = Area under the curve estimation method.² Plan erroneously stated co-manager goal as 1250.³ Plan erroneously stated co-manager lower goal as 1,000.⁴ MSY = Maximum sustainable yield.⁵ BRT = Biological Review Team.⁶ Plan has goal of 2x current survival rate.⁷ Based on run reconstruction estimation method.⁸ pHOS = proportion of hatchery-origin spawners.