

## Hood River Bull Trout

### *Existing Populations*

The Hood River Bull Trout SMU is comprised of two populations, Hood River and Clear Branch (Table 1). Populations are identified according to those defined in the Mount Hood Chapter of the Bull Trout Draft Recovery Plan (USFWS 2004), Ratliff and Howell (1992), and review by ODFW biologists. Genetic analysis shows Hood River bull trout are unique and likely descendants of both coastal and Snake River lineages (Spruell et al. 2003).

**Table 1. Populations, existence status, and life history of the Hood River Bull Trout SMU.**

Exist	Population	Description	Life History
Yes	Hood River	Hood River, Middle Fork Hood River and tributaries	Resident / Migratory
Yes	Clear Branch	Clear Branch above Clear Brand dam incl. Pinnacle Creek	Resident / Migratory

Sandy River is included in this SMU. Although a self-sustaining bull trout population is not present in the Sandy River basin, anglers and ODFW biologists observed migratory bull trout in Sandy River in three instances since 1999. The USFWS considers Sandy River a potential location for recovery (USFWS 2004).

### *Distribution*

Analysis of the distribution criterion is based on 1:100,000 GIS hydrography of bull trout distribution (Hanson 2001, Buchanan et al. 1997) and information summarized in the Mount Hood Chapter of the Bull Trout Draft Recovery Plan (USFWS 2004). These data are primarily based on summer distribution sampling that often represent the most restricted distribution. A population fails the criterion if spawning and juvenile rearing distribution is: 1) less than ten km, 2) not connected to other populations, or 3) occupies less than 50% of the historic distribution when data are available (Table 2). In basins where the GIS hydrography does not depict historical distribution, the results show populations occupy 100% of their historical distribution. Though this is likely accurate for Hood River bull trout, these results should be interpreted with caution, given that historical data are not always available.

Current bull trout distribution in the Hood River SMU, albeit highly fragmented, likely reflects historical distribution (USFWS 2004). Spawning and juvenile rearing distribution is limited to a few tributary streams and portions of mainstem rivers in both populations.

Prior to dam construction, bull trout in Hood River likely functioned as a single population. The construction of Clear Branch Dam in 1969 fragmented bull trout distribution, isolating bull trout above the dam, and partially inundating high quality spawning habitat. In the 1990s attempts to trap bull trout and pass them over the dam were found ineffective (USFWS 2004). The dam prevents opportunities for genetic exchange between populations. Because the Clear Branch population is isolated and has a limited spawning distribution, it is at risk of extinction due to stochastic events and fails the distribution criterion (Table 2).

Bull trout in the Hood River population utilize portions of the Middle Fork Hood River and its tributaries, mainstem Hood River, and Columbia River throughout their life history. Foraging and overwinter rearing occur primarily in Middle Fork Hood and mainstem Hood rivers and periodically the Columbia River. Three Hood River bull trout have been observed in the Columbia River. In each instance fish were tagged at the Powerdale Dam and recovered at Drano Lake in Washington state or downstream in the Columbia River (USFWS 2004).

Spawning activity in Hood River is restricted to just a few locations. Spawning habitat exists in Bear and Compass creeks, Coe Branch, Clear Branch below the dam, and potentially portions of Middle Fork Hood River (USFWS 2004), however, Coe Branch and Compass Creek are glacial streams with a high volume of sand and silt which may compromise spawning success. Recent temperature studies suggest water temperature below Clear Branch Dam may not be suitable for spawning (USFWS 2004). Because documented spawning distribution likely totals less than ten km (R. French, ODFW The Dalles Fish District, personal communication), the Hood River population fails the criterion (Table 2). In basins where the GIS hydrography does not depict historical distribution, the results show populations occupy 100% of their historical distribution. These results should be interpreted with caution, given that historical data may not be available.

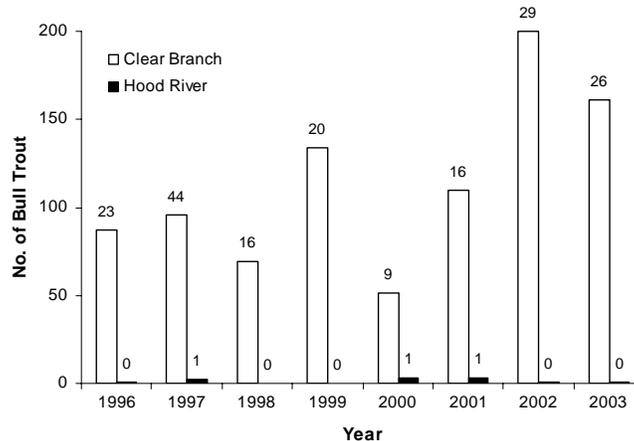
**Table 2. Distribution data used to evaluate Hood River bull trout populations.**

Population	Spawning Distribution (km)	% of Historical	Connected to Other Pops.	Pass/Fail
Hood River	<10	100	Yes	Fail
Clear Branch	8.4	100	No	Fail

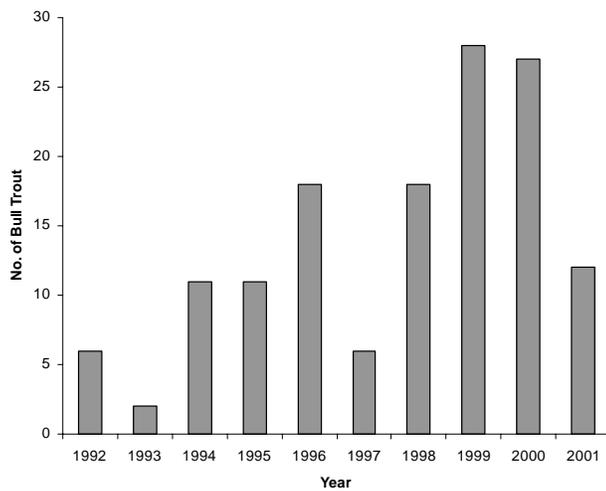
**Abundance**

Populations of bull trout with fewer than 100 spawning adults are considered at risk of inbreeding and fail the interim risk criterion. The sum of interconnected populations also must exceed 1,000 adults to avoid risk of genetic drift (Rieman and Allendorf 2001). Thus an SMU or an isolated population must total greater than 1,000 reproductive adults in order to pass this criterion.

Data are not available to provide a rigorous estimate of abundance for either population. However, night snorkel surveys, redd counts and dam counts all suggest both populations contain less than 100 adults and therefore fail the abundance criterion. A census count of redds for the Clear Branch population (eight km on Clear Branch and Pinnacle Creek) in 2002 and 2003 totaled 13 and 19 redds, respectively (USFWS 2004). USFS biologists have conducted night snorkel surveys in each population since 1996. Results show relative abundance of the Clear Branch population is an order of magnitude greater than the Hood River population (Figure 1) (USFWS 2004). These snorkel data have not been calibrated nor verified with more rigorous estimates of abundance and cannot be expanded to estimate population size. Counts of adult bull trout at the Powerdale Dam also suggest abundance of the Hood River population is precariously low. No more than 30 adults have been captured each year since 1992 (Figure 2) (Olsen 2003).



**Figure 1. Annual peak night snorkel counts for Clear Branch and Hood River populations, 1996-2003. Numeric values represent number of adults (>8 inches) observed. 25% of Clear Branch habitat (0.75 mile) and 40% of Hood River habitat (0.25 mile) is snorkeled each year.**



**Figure 2. Number of adult bull trout captured at Powerdale Dam trap (Hood River population), 1992-2001.**

### *Productivity*

Data are not available to quantitatively assess productivity of populations in the Hood River SMU. In the absence of these data the assessment of the productivity criterion is based on a qualitative evaluation of distribution and abundance, connectivity, life history, habitat quality, and presence of non-native species. A population passes the criterion if it is widely distributed and relatively abundant or if there are indications of an increasing or stable trend in abundance. The expression of a migratory life history, connectivity between populations, and high quality habitat may also be indicative of productive populations. The presence of non-native species may negatively affect productivity and cause a population to fail the criterion if it is limited in other factors. Even though the Clear Branch population is isolated from other populations it passes the productivity criterion (Table 3). The assessment of both populations is subject to uncertainty.

**Table 3. Factors considered in the assessment of the productivity criterion of Hood River bull trout.**

Population	Factors	Pass/Fail
Clear Branch	Although the Clear Branch population is isolated above Clear Branch Dam USFS night snorkel data set indicates the population is stable (Figure 1); large adfluvial adults are fecund and productive; smallmouth bass in Laurence Lake may be impacting the population; introduced rainbow trout serve as a forage base for bull trout.	Pass
Hood River	Very limited distribution and extremely low abundance; migratory life history.	Fail

### *Reproductive Independence*

All populations in the Hood River Bull Trout SMU are native fish sustained by natural production and passed the reproductive independence criterion.

### Hybridization

A population is considered to pass the hybridization criterion if brook trout x bull trout hybrids are rare or non-existent. For most populations the degree of hybridization is not quantified, but professional judgment and the frequency of hybrids encountered during sampling provides a general indication. In cases where little or no information is available and bull trout and brook trout are sympatric, this review assumes hybrids are common.

Although brook trout are present in the Hood River Basin, they are not sympatric with bull trout and not considered a threat (USFWS 2004). Both populations pass the hybridization criterion.

### Assessment Conclusions

Two populations, Clear Branch and Hood River, comprise the Hood River SMU. Historically, bull trout in the Hood River basin functioned as a single population. Construction of the Clear Branch Dam in 1969 fragmented the population and inundated spawning habitat. A lack of passage at the dam prevents mixing among populations. Distribution of both populations is extremely limited and abundance is precariously low. This SMU meets three of the six interim criteria and is classified as “at risk” (Figure 3). Limited data sets and inferences from other information for populations in this SMU provide a qualified level of confidence in the assessment of the interim criteria.

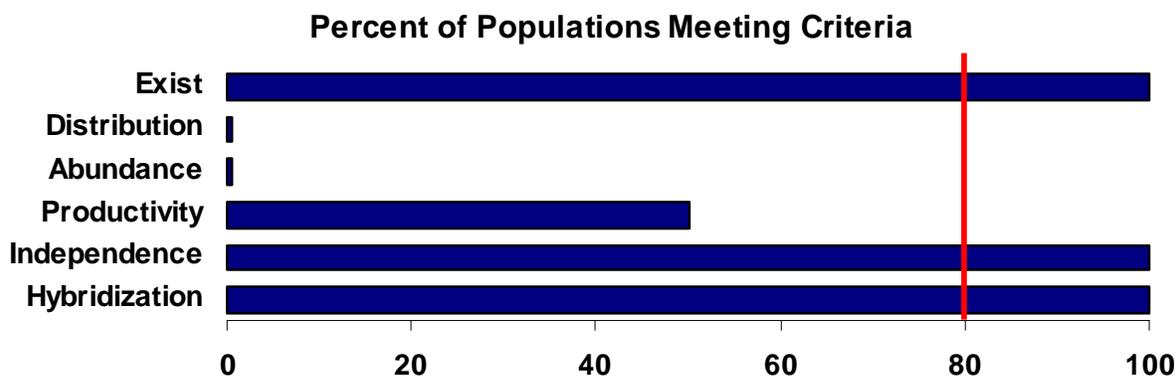


Figure 3. Assessment outcome for each of the six interim criteria with respect to the 80% threshold identified by the NFCP.