Walla Walla Bull Trout

Existing Populations

The Walla Walla Bull Trout SMU is comprised of two populations, one in each of Mill Creek and the Upper Walla Walla River (Table 1). Populations were identified according to those defined in the Umatilla - Walla Walla Chapter of the Bull Trout Draft Recovery Plan (USFWS 2004). Both populations express resident and migratory life history strategies.

Table 1. Populations, existence status, and life history of the Walla Walla Bull Trout SMU.

Exist	Population	Description	Life History
Yes	Walla Walla Complex	North and South Fork Walla Walla Rivers	Resident/ migratory
Yes	Mill	Upper Mill Creek and tributaries	Resident/ migratory

The Touchet River basin, a subbasin of the Walla Walla River in Washington, contains three bull trout populations, South Fork, Wolf Fork, and North Fork. These populations are thought to be isolated from the Walla Walla Complex and Mill populations (USFWS 2004) as a function of poor water quality and inhospitable habitat in the lower Touchet River. Populations in Washington are considered to be "depressed" (USFWS 2004) but are not evaluated in this status review.

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 Umatilla-Walla Walla Chapter of the Bull Trout Draft Recovery Plan (USFWS 2004). These data are primarily based on summer distribution sampling that often represents 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 historic distribution data are denoted on GIS. In basins where the GIS hydrography does not depict historical distribution, the results show populations occupy 100% of their historical range. Though this is likely accurate for Walla Walla River bull trout, these results should be interpreted with caution since historical data are not always available.

Spawning, juvenile rearing, and resident bull trout distribution in the Walla Walla SMU occurs in the upper reaches of the North Fork and South Fork Walla Walla rivers and Mill Creek, and exceeds ten km in both populations (Table 2). The majority of the spawning distribution within the Walla Walla Complex occurs in the South Fork Walla Walla River and its tributaries upstream of Bear Creek. Spawning activity in the upper North Fork Walla Walla River is minimal and sporadic; only eight redds were observed in 2002 and none in surveys conducted since (USFWS 2004, ODFW John Day Watershed District office, unpublished data). Spawning activity in Mill Creek occurs primarily upstream of Paradise Creek.

Bull trout in both populations have access to large rivers and migratory corridors; however connectivity between populations is poor. Low flow conditions, high water temperatures, and diversion dams in the Walla Walla River and lower Mill Creek hinder the ability of bull trout to move between populations from late spring through fall. Adult bull trout rear and overwinter in the mainstem Walla Walla River upstream of the Oregon/Washington border (USFWS 2004). Occasional sightings of bull trout have occurred downstream of the Mill Creek confluence.

Recent observations of bull trout moving up the Bennington Lake Diversion Dam ladder, suggests movement from downstream of the town of Walla Walla, presumably from Yellowhawk Creek (T. Bailey, ODFW John Day Watershed District Office, personal communication). Although connectivity between populations in the SMU and to the Columbia River is poor, intermixing is possible. Both populations pass the distribution criterion (Table 2).

Table 2. Distribution data used to evaluate Walla Walla bull trout populations.

Population	Spawning Distribution (km)	% of Historical	Connected to Other Pops	Pass/Fail
Walla Walla Complex	45.9	100	Yes	Pass
Mill	34.8	100	Yes	Pass

Abundance

The Bull Trout Draft Recovery Plan (USFWS 2004) provides estimates of the number of adult bull trout in each population based on average redd counts between 1994 and 2003 and a 2.3 fish per redd expansion factor (USFWS 2004, Dunham et al. 2001, Ratliff et al. 1996). These estimates are used to assess the abundance criterion (Table 3). 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

Table 3. Estimated adult abundance of Walla Walla bull trout populations (USFWS 2004).

Population	Estimated Adult Abundance	Pass/Fail
Walla Walla Complex	989	Pass
Mill	480	Pass

Both populations exceed 100 spawning adults, are considered not at risk of inbreeding depression, and pass the abundance criterion. The total number of adults within the SMU exceeds 1000 adults minimizing the negative effects of genetic drift; however, connectivity between these populations must improve to fully avoid these genetic risks.

Productivity

The assessment of the productivity criterion was evaluated based on trends of abundance over the past five years. A population passes the criterion if trends appear stable or increasing. A decreasing trend is cause for a population to fail the criterion. Trends in abundance for the Walla Walla SMU populations were evaluated using data sets of annual census redd counts. This review recognizes the difficulties associated with characterizing population trend using redd counts, given the inherent variability in redd detection and sources of statistical error (Dunham et al. 2001, Maxell 1999, Rieman and Myers 1997). The evaluation of the productivity criterion based on apparent population trend is made with caution and subject to uncertainty.

Annual redd count data indicates an stable trend in abundance both in the Walla Walla Complex and Mill Creek over the past five years (USFWS 2004, ODFW John Day Watershed District office, unpublished data, USFWS 2004, Sankovich et al. 2003, 2004, Hemmingsen et al. 2002) (Figure 1). Based on these data, both populations pass the productivity criterion.

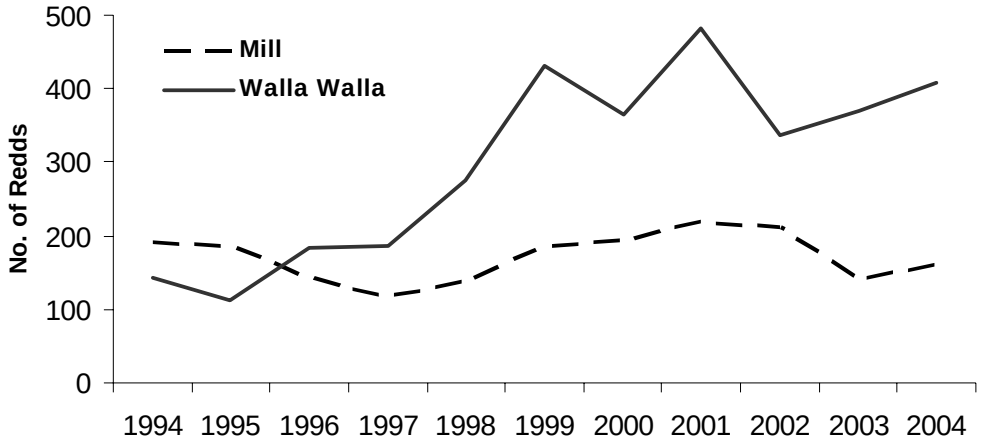

Figure 1. Trends in total redd counts for Walla Walla Complex and Mill populations.

Reproductive Independence

All populations in the Walla Walla Bull Trout SMU are native fish sustained by natural production and pass the reproductive independence criterion.

Hybridization

Brook trout are not present in the Walla Walla basin and not considered a threat to bull trout. Both populations pass the hybridization criterion.

Assessment Conclusions

The Walla Walla Bull Trout SMU consists of two populations, one in each of upper Walla Walla River and Mill Creek. Three additional populations not considered in this assessment are present in Touchet River, a tributary of the Walla Walla River in Washington. Bull trout in both Oregon populations express a fluvial life history strategy and are relatively abundant and productive. High quality spawning habitat is extensive in the upper reaches of Mill Creek and Walla Walla River, however connectivity between populations is poor from late spring to fall. Both populations pass all six interim criteria and the SMU is classified as "not at risk" (Figure 2). 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.

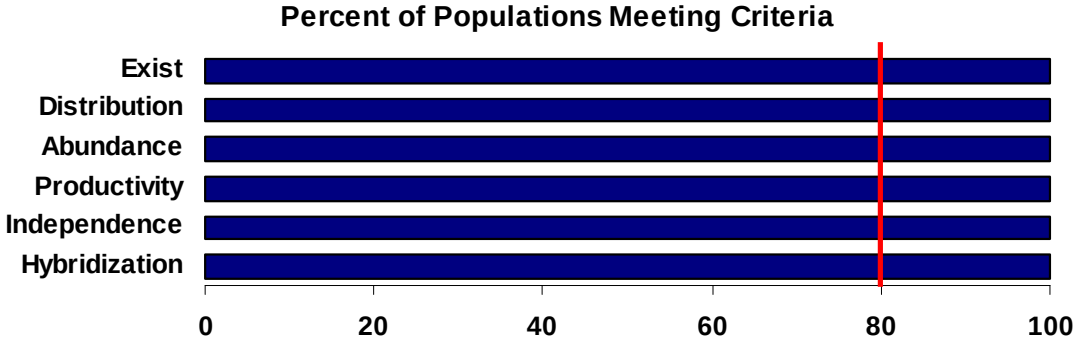

Figure 2 Assessment outcome for each of the six interim criteria with respect to the 80% threshold identified by the NFCP.