

Appendix A - Recovered Abundance Estimates

The recovered abundance levels for migratory bull trout in the Upper Columbia Recovery Unit were derived by combining redd density values and estimates of potential spawning and rearing habitat in local populations under a recovered condition (Table B1). Redd counts have been conducted in selected areas within the Wenatchee River since 1989. Fishing for bull trout has been prohibited since 1992. Redd counts from 1995 to present were selected to represent census data that excluded the influence of fishing mortality. Since 1995, the Chiwawa River local population complex (including Rock Creek, Chikamin Creek, Phelps Creek, and most recently the mainstem Chiwawa River and Buck Creek) has varied from 492 to 924 adults (246 and 462 redds). Redd density estimates from two areas within the Chiwawa River complex (Rock and Phelps creeks) were selected to develop an achievable recovered abundance range within the recovery unit. Habitat within Rock and Phelps creeks is considered to be in good condition and these populations are generally considered among the most secure in the Wenatchee Core Area. Redd densities in Rock Creek and Phelps Creek are 44 redds per mile and 27 redds per mile, respectively. While the habitat quality in Rock and Phelps creeks is similar, the total amount of available spawning area in Phelps Creek is restricted due to a barrier falls approximately 1 mile upstream from the confluence with the Chiwawa River. The Upper Columbia Recovery Unit Team believes that differences in redd density estimates between these local populations reflects natural variation in these relatively undisturbed stream reaches. These redd density values were then multiplied by the estimated number of available miles of spawning and rearing habitat in each local population to arrive at redd abundance. Finally, a range of recovered adult abundance for each local population was generated using a conservative estimate of two fish per redd.

Extrapolation of redd density estimates from Rock Creek to other local populations within the recovery unit would represent the “best case” scenario for a recovered abundance. Estimates from Phelps Creek would represent a “satisfactory” abundance level. The Upper Columbia Recovery Unit Team recognizes that under a recovered condition, some local populations may not

reach these estimated levels, even after recovery actions have been implemented. The Upper Columbia Recovery Unit Team acknowledges that this approach contains a number of inherent assumptions relative to the productivity of individual local populations. Variation in habitat characteristics in local populations including temperature regimes, instream habitat, as well as other factors will result in variation in recovered abundance estimates. Site specific studies need to be initiated to better refine the productive potential in each local population and recovered abundance estimates in the Upper Columbia Recovery Unit.

Recovered abundance estimates are only for the migratory life-history form. Abundance estimates for the Wenatchee Core Area do not include Icicle Creek. It is unknown whether or not bull trout could pass over the barrier falls on Icicle Creek. After evaluation of the possible passage barrier above the hatchery, recovered abundance estimates may be generated for migratory bull trout in Icicle Creek. Resident bull trout are known to exist in Icicle Creek above the falls. Abundance estimates for resident bull trout in Icicle Creek, and other tributaries, are considered a research need. Local population in the Methow are represented by complexes of spawning tributaries and encompass: Gold Creek (including Crater Creek), Twisp River (including North, West Fork Buttermilk, East Fork Buttermilk, Reynolds, Little Bridge, and War creeks), Beaver Creek (only Bluebuck Creek), Wolf Creek, Goat Creek, Lost River (including Monument Creek and Eureka Lake), Upper Methow River (including Trout, Robinson, and Rattlesnake creeks), Chewuch River (including Lake and Eightmile creeks), and Early Winters Creek (including Huckleberry and Cedar creeks).