

**French Creek Bull Trout:**  
**Analysis of 2006 – 2007 ISEMP Surveys**

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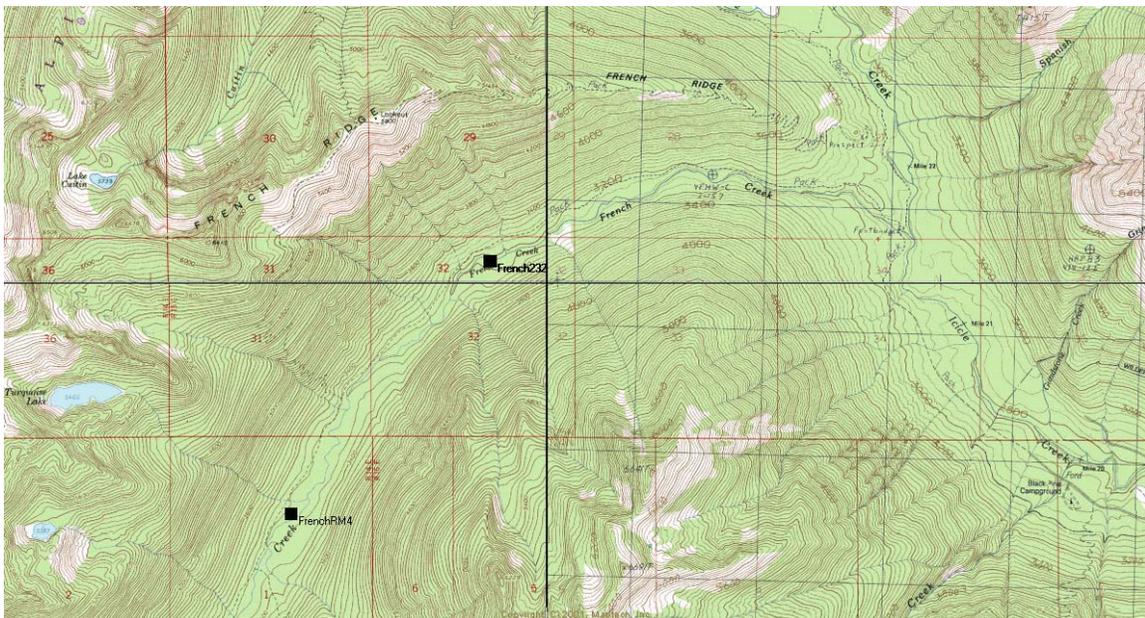
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## Summary

This document contains the Mid-Columbia River Fishery Resource Office analysis of bull trout data collected in French Creek during snorkel surveys conducted by USFS in French Creek for the Integrated Status and Effectiveness Monitoring Program (ISEMP). Sites 232 and RM4 were surveyed during night snorkeling on July 31 and August 1, 2006, and site RM4 was surveyed during day snorkeling on August 16, 2007. During night snorkeling in 2006 at site 232, 20 bull trout were counted and observed density was 0.61 per 100 m<sup>2</sup>, and at site RM4, 64 bull trout were counted and observed density was 2.1 per 100 m<sup>2</sup>. During day snorkeling in 2007 at site RM4, 40 bull trout were counted and observed density was 1.47 per 100m<sup>2</sup>. Using recently published efficiencies to adjust for differences between day and night snorkeling, estimated numbers and total densities at site RM4 were calculated as 193 bull trout (6.2 per 100 m<sup>2</sup>) in 2006 and 320 bull trout (11.8 per 100 m<sup>2</sup>) in 2007. Several size classes of bull trout were present at all sites. Observed and estimated total densities at site RM4 met the criteria of Shepard et al. (1982) for bull trout rearing areas critical to maintaining healthy populations.

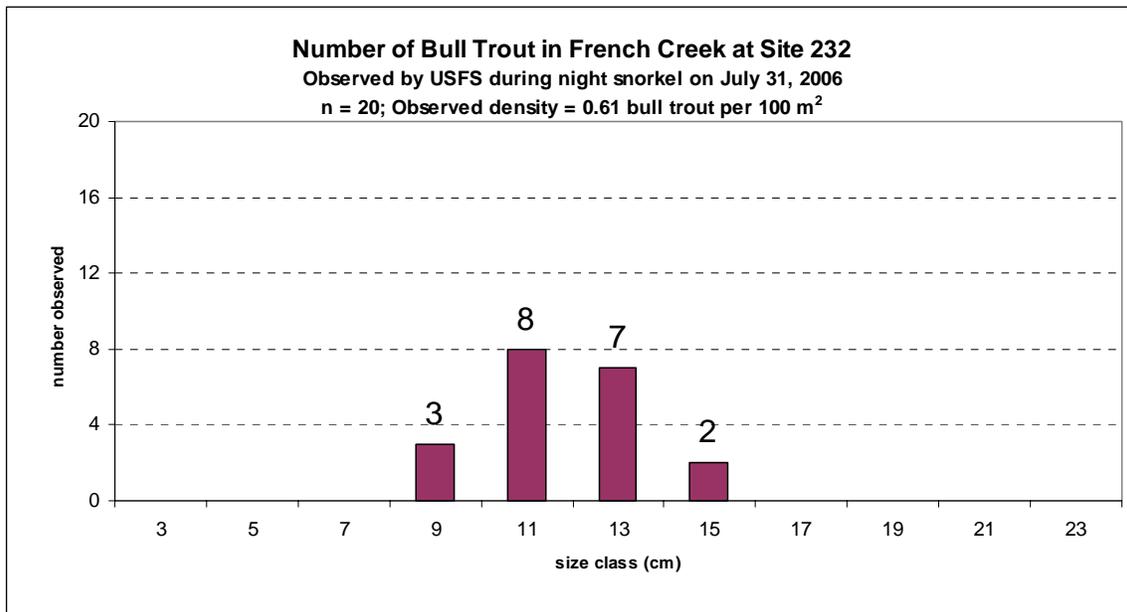
## Results

On July 31 and August 1, 2006, two randomly selected sites in French Creek (rm 21.6 of Icicle Creek) were snorkeled by the Integrated Status and Effectiveness Monitoring Program (ISEMP) team led by the U.S. Forest Service (Figure 1).



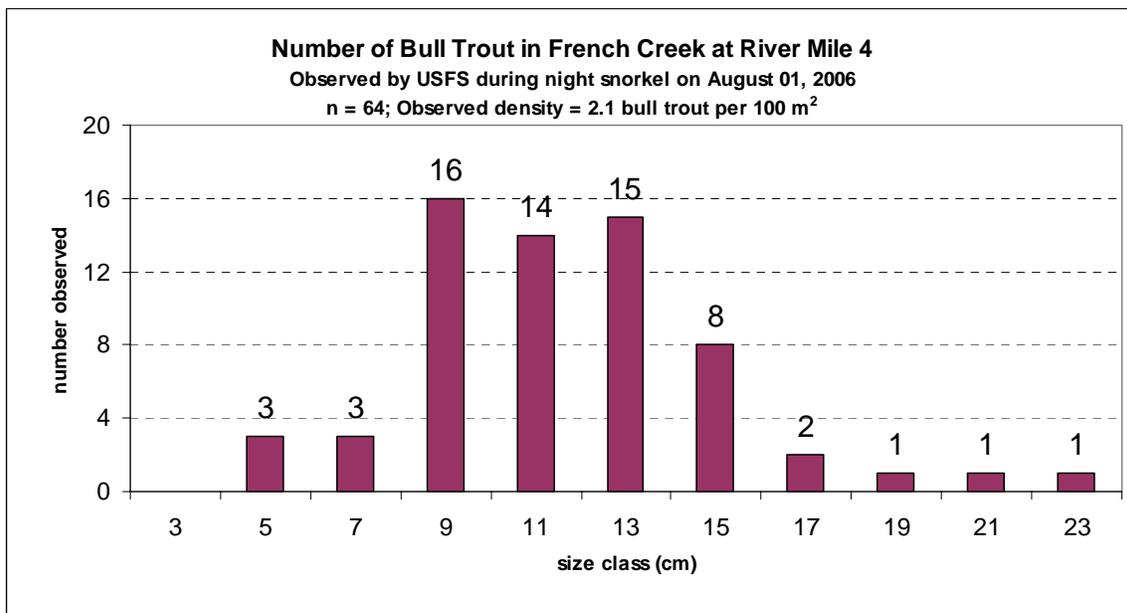
**Figure 1. Map of sites in French Creek surveyed by snorkeling methods during ISEMP monitoring in 2006-2007.**

Twenty bull trout in size classes 9 to 15 cm were observed while snorkeling during night at site 232 (rm 2.3) of French Creek (USFS 2006; Figure 2). The sampling transect was 300 m, average wetted width was 10.9 m, and the area surveyed was 3270 m<sup>2</sup> (WDOE 2007). The density of observed bull trout in the unit was calculated as 0.61 per 100 m<sup>2</sup>.



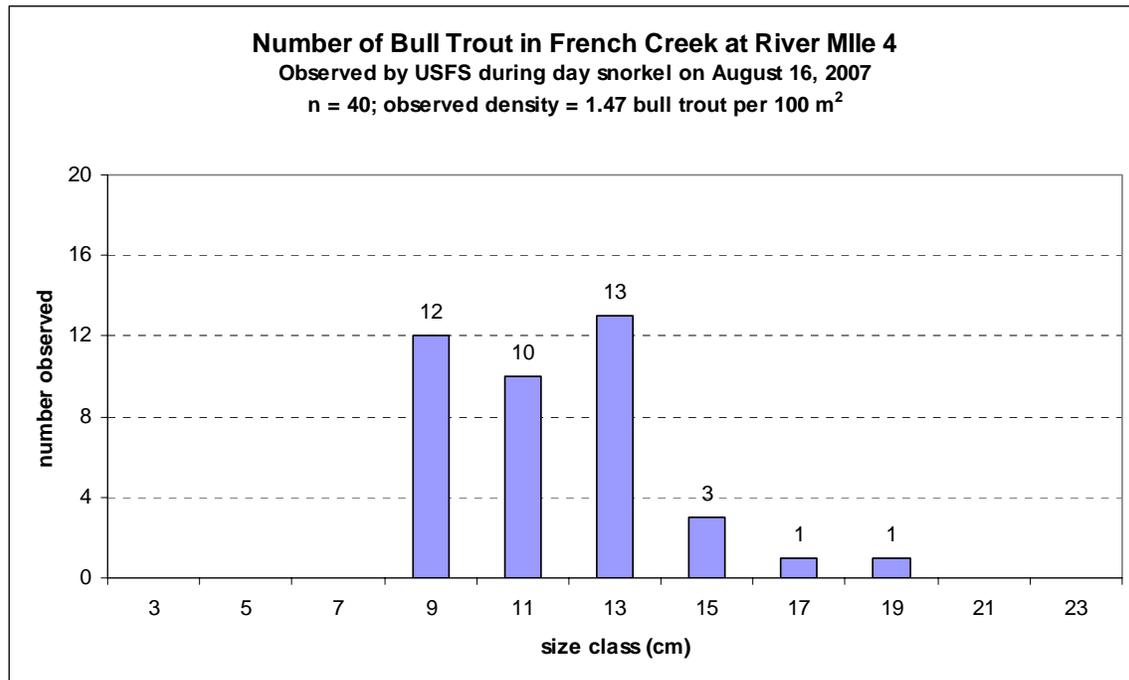
**Figure 2. Numbers and size classes of bull trout observed at site 232 in French Creek during ISEMP monitoring at night on July 31, 2006.**

On August 1, 2006, site RM4 at river mile 4 in French Creek was surveyed by the ISEMP crew (Figure 1). Sixty-four bull trout in size classes 5 to 23 cm were counted while snorkeling at night in the unit (USFS 2006; Figure 3). The sampling transect was 260 m, average wetted width was 11.9 m, and the total area surveyed was 3094 m<sup>2</sup> (WDOE 2007). The density of observed bull trout calculated in this unit was 2.1 per 100 m<sup>2</sup>.



**Figure 3. Numbers and size classes of bull trout observed at site RM4 in French Creek during ISEMP monitoring at night on August 1, 2006.**

On August 16, 2007, site RM4 at river mile 4 in French Creek was surveyed by the ISEMP crew (Figure 1). Forty bull trout in size classes 9 to 19 cm were counted while snorkeling during the day in the unit (USFS 2007; Figure 4). The sampling transect was 240 m, average wetted width was 11.3 m, and the total area surveyed was 2712 m<sup>2</sup> (WDOE 2007). The density of observed bull trout in this unit was 1.47 per 100 m<sup>2</sup>.



**Figure 4. Numbers and size classes of bull trout observed at site RM4 in French Creek during ISEMP monitoring in daytime on August 16, 2007.**

### Discussion

In 2006, the observed bull trout density during night-time surveys at site RM4 of French Creek was 2.1 and in 2007 the observed density during day-time surveys was 1.47 per 100 m<sup>2</sup>. While it may appear the density declined from 2006 to 2007, the time period each survey was conducted was different, preventing a direct comparison between years. However, a recently published study determined the average snorkeling efficiencies for observing bull trout are 12.5% for day and 33.2% for night (Thurow et al. 2006). Applying these efficiencies, the estimated total number of bull trout at site RM4 in 2006 is 193 (64 observed at night/33.2%) and the 2007 estimate is 320 bull trout (40 bull trout observed in day/12.5%), indicating the number of bull trout over the two survey periods at this site actually increased. Using these calculations, the estimated total density of bull trout at site RM4 in 2006 was 6.2 per 100 m<sup>2</sup> and in 2007, 11.8 per 100 m<sup>2</sup>.

Applying the snorkeling efficiencies to the night observations at site 232 in 2006, the estimated number of bull trout present is calculated as 60 bull (20/33.2%) and the estimated total density is 1.84 (0.61/33.2%).

During surveys conducted for a baseline environmental assessment in the Flathead River watershed in Montana, Shepard et al. (1982) considered stream areas where bull trout total densities were greater than 1.5 per 100 m<sup>2</sup> as rearing areas critical to the maintenance of healthy populations. This criteria was used by Brown (1994) who, based on unpublished field survey data at 14 sample sites in 1989, cited 5 areas in the Wenatchee Core Area that met the criteria: White River, Panther Creek, Chiwaukum Creek, and Chiwawa River (2 sites). In 2006 and 2007, observed and estimated total bull trout densities at site RM4 in French Creek met the criteria, indicating it is also a critical rearing area. The estimated number of bull trout at site RM 4 was also high in both years. Although the observed bull trout density at site 232 did not meet the criteria, the estimated total density did, suggesting a good distribution of bull trout across a greater area than just at river mile 4 of French Creek. Additionally, several size classes were observed at all sites and in both years in French Creek, indicating the population structure is distributed over time as well as space. Note that even though bull trout in French Creek are resident and that the areas cited by Brown (1994) all contain migrants, the density in French Creek compares favorably to the other known bull trout strongholds in the Wenatchee Core Area.

Bull trout have been documented near these areas of French Creek since at least 1990, when Brown (1992) captured 7 bull trout “parr” (87-179 mm) during an electro-fishing survey. Notes from the survey indicated the best bull trout habitat was near river mile 3.5, the end of their sampling reach.

The RM4 site is scheduled to be monitored on an annual basis under ISEMP. Additional surveys, using established protocols, should be conducted at randomly chosen sites to further define bull trout densities and distribution in French Creek.

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