



Swan River at Muggins Gulch

Fishery Survey Report

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On September 20, 2016, CPW Aquatics staff, along with Summit County personnel, conducted a fish population survey on a section of the Swan River downstream of the Muggins Gulch road crossing (right).

The purpose of the survey was to quantify the fish population in an area immediately downstream of the Swan River Restoration Project being undertaken on Summit County Open Space property. This information will help inform reasonable expectations for the biological potential of the stream reach within the restoration project. Also, earlier in the year the construction had created a large amount of turbidity downstream of the project, to the extent that there were questions as to whether or not the ecology of the stream was being impacted in that area. This survey found no evidence of such impacts.



Location of Swan River survey reach

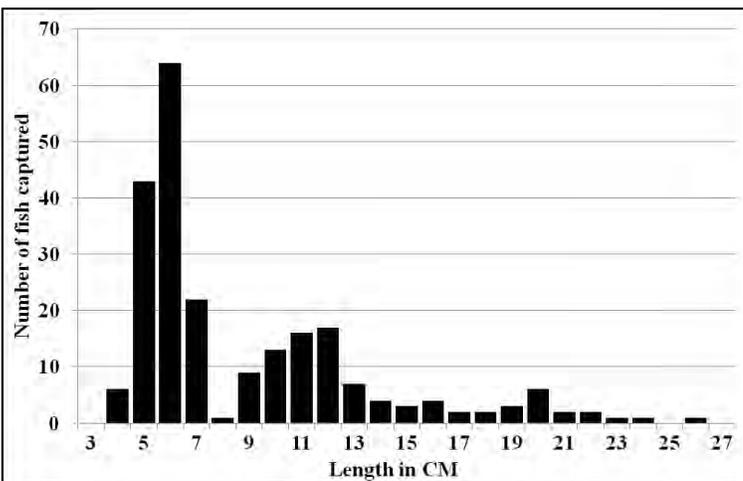
The reach that we surveyed was 464 feet in length and averaged 15.8 feet in wetted width. This was a free-flowing section bounded on both ends by beaver pond complexes. The upstream terminus of the reach was a beaver dam. We used two backpack electrofishers to conduct a two-pass depletion estimate of the total fish population within that reach. All fish were measured. A subset of the fish were weighed, and all fish were returned to the water immediately upon completion of data collection.

We captured 229 brook trout and 152 mottled sculpin in the survey reach. The brook trout ranged from 46 mm (1.8”) to 269 mm (10.6”) in length, and averaged 94 mm (3.7”). The size distribution of the brook trout is displayed in the figure below. The reason for the small average size is apparent in the graph—the size distribution of the fish in the reach was heavily skewed toward juvenile fish. The group of fish in the 6 cm range are Age-0 fish, born in 2016, while the next size group, averaging 11-12 cm, are Age-1 fish, born in 2015. Because this reach was in the midst of a beaver pond complex, it is likely that if it were possible to accurately sample the fish within the nearby beaver ponds, one would find a greater representation of adult fish. However, it is extremely difficult to accurately survey the fish population in a beaver pond.

Body condition of the brook trout that were weighed was good, averaging a relative weight (a measure of “plumpness”) of 97.6%. This indicates that this population has ample prey items to support it.

Mottled sculpin are a small native fish species and are an important indicator of stream health. They ranged in size from 45 mm (1.8”) to 134 mm (5.3”), with an average length of 80 mm (3.1”). This was actually the highest density mottled sculpin population that we have found to date anywhere upstream of Dillon Reservoir. In comparison, neighboring French Gulch has no mottled sculpin. Interestingly, there are also no mottled sculpin in the Swan River basin upstream of the stream habitat restoration site. It will be fascinating to observe whether the stream work will allow them to expand their range upstream in the coming years.

Our catch rates produced population estimates of 242 total brook trout in the reach, or 2,759 fish per mile, and 189 mottled sculpin, or 2,154 fish per mile. While this is not a trophy fishery by any means, it is clearly a prolific and healthy one. In the future, we will continue to monitor this site, as well as additional sites within the habitat improvement reach after construction is complete.



Size distribution of brook trout captured