

**VARIATIONS IN THE PREVALENCE AND INTENSITY OF *MYXOBOLUS CEREBRALIS*
INFECTIONS IN CUTTROT AND RAINBOW TROUT IN THE SOUTH FORK BOISE RIVER**

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Introduction

Whirling disease, caused by *Myxobolus cerebralis*, was first documented in Idaho in 1985 (Elle, 1997). Wild fish sampling and sentinel exposures have since identified its presence in 10 major river drainages. In 1997, the Idaho Department of Fish and Game conducted sentinel testing on the South Fork of the Boise River at two sites below Anderson Ranch Reservoir. Newly emerged rainbow trout (*Oncorhynchus mykiss*) fry were used at both sites, and exposures were conducted for ten days during July. The upper site (just below Anderson Dam) tested negative for the parasite, while 45% of the fish exposed 18km downstream at Danskin Bridge tested positive, exhibiting mild to moderate infection levels (Elle, 1998). The results of the study showed that severity of infection and prevalence of *M. cerebralis* can vary within a small geographic area.

In 1998, we conducted field exposures on the South Fork of the Boise River to further investigate the differences observed in 1997. We revisited the previous sites and increased the sampling area by adding a site downstream and a site between the two 1997 sites. Our objectives were to: 1) determine whether the Anderson site remained negative, 2) test whether there was a difference in disease prevalence among the other sites, 3) determine whether there was a difference in species response between rainbow and cutthroat trout (*O. clarki*), and 4) determine whether newly emerging fry of the same species are more susceptible to the parasite during different months. The last objective may indicate whether a life history including earlier emergence is beneficial in avoiding infection by the parasite. We also wanted to collect information on temperature regimes and aquatic benthic invertebrate communities to determine whether these factors could be correlated with prevalence or intensity of infection.

Methods

We selected four locations within a 25 kilometer section of the SF Boise River downstream of Anderson Ranch Reservoir. The uppermost site, as in 1997, was located approximately 300 meters below Anderson Ranch Dam. The intermediate site chosen between the 1997 sites was located 12.5 kilometers downstream of the Anderson site, just below the Cow Creek inlet. We also repeated exposures at Danskin Bridge, which is 5.6 km below the Cow Creek site. The lowermost site was 7 km downstream of the Danskin, located between the Rock Creek and Trail Creek inlets.

The South Fork of the Boise River is regulated by releases from Anderson Ranch Dam with hypolimnetic flows that averaged approximately 3200 CFS during June and decreased to 1600 CFS in July and August. Hypolimnetic releases resulted in temperature difference between the sites, with the uppermost site remaining colder, averaging daily temperatures ranging from 7.5°C in June and warming slightly during the exposures to an average temperature of 8.3°C during August. During the study, the average daily temperature at Cow Creek was 9.7°C, Danskin averaged 10.2°C, and the Trail Creek average was 10.6°C (Table 1). Diurnal fluctuations varied among the sites, with temperatures at Anderson remaining fairly

