ABSTRACT

TITLE:	Changes in Age Class Distribution of Salmo Trutta Due to Disease and Flow Trends in the Dolores River Since the Construction of Mcphee Dam
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ABSTRACT: A 20 year annual age class analysis of the brown trout (Salmo trutta) on the Dolores River was used to analyze the impacts of disease on the brown trout population. The historical data used the Seber and Le Cren 2-pass electro fishing sampling method. River flow values are strongly related to population. The Dolores, being a regulated river, has very predictable seasonality in annual flow cycles. Regional drought between 2001 and 2004 led to peak flows below 200 cfs compared to 1900 cfs average peak during non-drought years. Looking at the size class distributions, age classes where formed accordingly and then compared annually to flow rates. Older longer fish start to decrease in number after the introduction of whirling disease. The 3 to 4 yr old fish were linearly correlated to average flow events (R2=0.4462). The values that were more than 1 standard deviation away from the linear estimation were 1993, 1994, 1996, 1998, and 2008. These dates as expected were in some relation to disease events in the river system. Change in flow from the previous year was also linearly related to changes in fish population. The 3 and 4 year old fish had a direct relationship to one another (R2=0.2156). This was opposed to the 0 year fish having an inverse relationship to flow (R2=0.1866). Fish in the outlier years can also be connected to years after the presence of whirling disease. The over welling effect of whirling disease had major effects on the survival of older fish. Over all the data suggests that flow and disease had a major effect on the loss of older age class fish in years after the presence of whirling disease.