

INVESTIGATIONS INTO SPAWNING SURVEYOR OBSERVER EFFICIENCY AND ADULT SALMONID MOVEMENT IN THE PRAIRIE CREEK WATERSHED, HUMBOLDT COUNTY, CALIFORNIA.

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This project builds on previous adult salmonid escapement research conducted by the California Cooperative Fisheries Research Unit in the Prairie Creek basin, Northern California. The main objectives of this study are two-fold: 1) Monitor/quantify adult salmonid movement within the study areas in the Prairie Creek watershed using PIT tags and fixed PIT interrogation technology, and evaluate the effects of various environmental factors on movement; 2) Quantify efficiency of observers conducting spawning surveys for spawning salmonids in the Prairie Creek watershed using a dual tag approach coupled with fixed PIT interrogation technology, and evaluate the effects of various environmental factors on observer efficiency. This research will be conducted over the 2007/2008 and 2008/2009 spawning seasons.



Study Design

A resistance panel weir will be used to intercept upstream migrating adult salmonids. For the 2007/2008 spawning season, the weir will be installed on Prairie Creek just upstream of Streeflow Creek. For the 2008/2009 spawning season, the weir on Prairie Creek will be operated, and a weir will be installed and operated on Lost Man Creek, just upstream from the confluence of Lost Man and Prairie creeks. Passive Integrated Transponder (PIT) interrogation stations (consisting of a PIT reader/datalogger connected to an array of two loop antennae stretched across the stream channel at each site) will be installed below the weir and across all major tributaries entering the main channel above the weir site. The effect of these interrogation stations will be an interrogation system that will allow 1) monitoring tagged spawner movement in the study area, and 2) determination of general location of tagged spawners in the study area at any given moment.

Adult salmonids intercepted at the weir will receive Passive Integrated Transponder (PIT) tags. In addition, Chinook salmon (*Oncorhynchus tshawytscha*) and coho salmon (*O. kisutch*) will receive externally visible Peterson disc tags. Spawning surveys will be conducted at 14 day intervals (or as weather/flows permit), and surveyors will record information regarding observations of live fish, carcasses, and redds. When possible, live fish will be identified to species and as having a Peterson disc tag or not. The numbers of tagged fish observed on a survey will be compared to the number of tagged fish expected to be in the survey area at the time of the survey (from PIT antenna data), and the ratio of the two will represent observer efficiency.

Analysis

Environmental data will be collected throughout each spawning season. These data will include stream discharge/turbidity, water temperature, ambient air temperature, precipitation amounts, and a measure of light intensity near the stream edge. Statistical models incorporating combinations of these environmental variables will be constructed for the movement and observer efficiency datasets, and the corrected Akaike Information Criterion will be used to identify the model that best describes the data using the fewest possible parameters.

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