McWHINNEY CREEK

INTRODUCTION

A physical fish habitat inventory was completed on McWhinney Creek on July 5, 1990 by Gregg Moody, Michele Long, and Steve Holzerland, California Conservation Corps (CCC), Technical Advisors. The objective of this survey was to collect baseline data as to the habitat available to anadromous salmonids and determine if stream restoration/enhancement work is warranted.

WATERSHED OVERVIEW

McWhinney Creek is a tributary to the North Fork Elk River, a tributary to Humboldt Bay, in Humboldt County, California (Figure 1). The legal description at the confluence with the North Fork Elk River is T4N R1E S34. The total length of the stream surveyed was 781.3 feet. The survey was stopped due to a large log debris accumulation covering the stream bed for several hundred feet. The total length of the stream measured from a USGS quad is 1.2 miles. The watershed area of Bridge Creek is 1.32 sq. miles. It is a first order stream.

The entire watershed is a second growth redwood forest, under the ownership of the Pacific Lumber Company and is managed for timber production. There are no roads paralleling the stream. Access is from the main haul road paralleling the North Fork Elk River.

METHODS

McWhinney Creek was habitat typed using the 24 habitat types classification (Mc Cain et al). The methodology follows the draft California Stream Restoration Manual (Flosi et al. In preparation). Channel typing was conducted according to the classification system of Rosgen (1985). Electrofishing was conducted to determine species composition and distribution.

The minimum length of measured habitat unit was as long as the mean channel wetted width. Channel measurements were accomplished with range finders and tape measures. Habitat type measurements included mean length, mean width, mean depth, and maximum depth (to the nearest 0.1 foot). Depth of the pool tail crest at each pool habitat unit was measured at the thalweg.

A shelter rating was calculated for each habitat unit by multiplying shelter value and percent cover. A shelter value of 1 (low), 2 (medium), or 3 (high) was given according to the shelter complexity. An estimate on percent cover within each habitat unit was recorded. At each habitat unit 100% of the cover was classified into nine cover types.

The dominant and sub-dominant substrate was estimated using seven size classes of substrate composition and recorded for all habitat units. Embeddedness was optically estimated at the tail out of pool habitat units as 0 - 25% (value 1), 26 - 50% (value 2), 51 - 75% (value 3), 76 - 100% (value 4).

An estimate of the percent canopy was recorded for each habitat unit. The percent right and left bank covered with vegetation, and the dominant vegetation sub-type was estimated.

Time and temperature were recorded at every tenth habitat unit.

RESULTS

* ALL TABLES AND GRAPHS ARE LOCATED IN THE BACK OF THIS REPORT *

Ten of the 24 habitat types were identified, including four units that were dry. The physical habitat data is summarized in Table 1A. The most frequent habitat types by percent occurrence were low gradient riffles 24.14%, lateral scour pools - log 17.24%, mid-channel pools 13.79%, and dam pools 13.79% (Graph 1).

Table 2A summarizes the riffle, flatwater, and pool habitat types. Pools make up 55.17% of the habitat types by percent occurrence, and 61.95% of the total length. Riffle habitat types make up 24.14% by percent occurrence, and 11.24% of the total length. Flatwater habitat types were 6.9% by percent occurrence and 9.6% of the total length (Graph 2 and 3).

Table 3A summarizes the pool habitat types. Scour pools occurred most often at 43.75% and comprised 34.92% of the total length (Graph 4). Backwater pools had the highest mean shelter rating at 155, main channel pools at 150, and scour pools at 148.57.

Table 4A is a summary of maximum pool depths by pool habitat types. The

maximum depth for 6 of the 16 pools was between 1 and 2 feet. Two of the pools had a maximum depth of over 4 feet.

Table 5A is a summary of the dominant substrate by habitat type. Silt/clay was the dominant substrate in 68% of the units.

Table 6A summarizes mean percent cover by habitat type. The majority of the cover consisted of small and large woody debris and undercut banks.

McWhinney Creek is a B5 channel type.

Streambank stability was good. Table 1A summarizes mean percent right and left bank cover and mean percent canopy per habitat type. For the entire stream reach surveyed, the mean percent right bank cover was 88%. The mean percent left bank cover was 89%. The streambank composition consisted of grass 52%, bare soil 23%, coniferous trees, primarily logs, 19%, brush 2%, and bedrock/rock 2% . The mean percent canopy was 82%.

For the 16 pools, the pool tail embeddedness was estimated. Eight pool tail outs or 50% had a value of 1, one pool tail out had a value of 2, and seven pool tail outs or 44% had a value of 3.

Air temperature ranged from 61 to 62 degrees fahrenheit. Water temperature ranged from 52 to 56 degrees fahrenheit.

Within the 781 feet surveyed are three log debris accumulations. All had gravel accumulations behind them creating subsurface flow.

ELECTROFISHING RESULTS

Electrofishing was completed on August 6, 1990 by Gary Flosi (DFG), Gregg Moody and Steve Holzerland (CCC). Two pool habitats were sampled. The results are as follows:

The first unit was a mid-channel pool approximately 62 feet from the confluence of the North Fork Elk River and below the first debris accumulation. The fish found consisted of 2 coho salmon ranging from 59 to 79 mm, and 1 stickleback.

The second unit was a plunge pool approximately 134 feet from the confluence of the North Fork Elk River. A total of 3 coho ranging from 59 to 79 mm were

found.

RECOMMENDATIONS

McWhinney Creek should be managed as an anadromous, natural production stream.

The log debris accumulations should be modified to allow for fish passage. This should be done carefully, leaving as much of the woody debris cover as possible for the coho. This must be done over a period of years to allow the silt and clay accumulated behind the log debris to wash out a little at a time, lessening the impact of the sediment downstream.