

STREAM INVENTORY REPORT

Unnamed Tributary to Harmonica Creek

WATERSHED OVERVIEW

Refer to the map of Harmonica Creek for the location of the unnamed tributary to Harmonica Creek.

The unnamed tributary is a tributary to Harmonica Creek, a tributary to Bear River, which drains to the Pacific Ocean. It is located in Humboldt County, California. The unnamed tributary's legal description at the confluence with Harmonica Creek is T01S R01E S29. Its location is 40.3506 degrees north latitude and 124.0917 degrees west longitude. The unnamed tributary is an intermittent stream according to the USGS Bull Creek 7.5 minute quadrangle. The unnamed tributary drains a watershed of approximately 0.9 square miles. Summer base runoff is approximately 0.6 cubic feet per second (cfs) at the mouth. Elevations range from about 1,870 feet at the mouth of the creek to 2,540 feet in the headwater areas. Mixed hardwood forest dominates the watershed. The watershed is entirely privately owned and is managed for timber production. Vehicle access exists via Mattole Road to Pole Line Road.

HABITAT INVENTORY RESULTS AND DISCUSSION

The habitat inventory of July 7, 1997 was conducted by David Jones (WSP/AmeriCorps) and Bill Malinowski (WSP/AmeriCorps). The total length of the stream surveyed was 1,497 feet.

Flow was estimated to be 0.6 cfs during the survey period.

The unnamed tributary to Harmonica Creek is an A3 channel type for the entire 1,497 feet of stream surveyed. The suitability of A3 channel types for fish habitat improvement structures is as follows: Good for bank-placed boulders, fair for low-stage weir; opposing wing-deflectors; and log cover, and poor for medium-stage weir; boulder clusters; single wing-deflectors; and log cover.

The water temperatures recorded on the survey day July 7, 1997 ranged from 56 to 59 degrees Fahrenheit. Air temperatures ranged from 69 to 72 degrees Fahrenheit. This is a good water temperature range for salmonids, but water temperatures during warm summer months are lacking. For a more complete and accurate water temperature profile 24-hour temperatures need to be monitored throughout the warm summer months.

Based on the total length of this survey, Level II habitat units consisted of 67% flatwater units, 20% pool units, and 14% riffle units. The pools are relatively deep, with eight of the 13 pools having a maximum depth greater than two feet.

Three of the 13 pool tail-outs measured had embeddedness ratings of 3 or 4. Two had an embeddedness rating of 1. Cobble embeddedness of 25% or less, a rating of 1, is considered best for the needs of salmon and steelhead. In the unnamed tributary, sediment sources should be

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mapped and rated according to their potential sediment yields, and control measures should be taken.

The mean shelter rating for pools was low with a rating of 54. The shelter rating in the flatwater habitats was 0. A pool shelter rating of approximately 100 is desirable. Log and root wad cover structures in the pool and flatwater habitats are needed to improve both summer and winter salmonid habitat.

Eight of the 13 pool tail-outs measured had gravel or small cobble as the dominant substrate. This is generally considered good for spawning salmonids.

The mean percent canopy density for the stream was 66%. This is a relatively percentage of canopy, since 80 percent is generally considered optimum in north coast streams.

The percentage of right and left bank covered with vegetation was moderate at 68% and 74%, respectively. In areas of stream bank erosion or where bank vegetation is at unacceptable levels, planting endemic species of coniferous and deciduous trees, in conjunction with bank stabilization, is recommended.

Steelhead were observed through Habitat Unit #016, 1,112 feet upstream from the mouth.

BIOLOGICAL INVENTORY RESULTS

One site was electrofished on July 8, 1997 in the unnamed tributary to Harmonica Creek. The units were sampled by David Jones (WSP/AmeriCorps) and Bill Malinowski (WSP/AmeriCorps).

The first site sampled included Habitat Units #002-#004, a series of pools, runs, and a riffle 30 feet from the confluence with Harmonica Creek. This site had an approximate length of 91 feet. The site yielded five age 1+ plus steelhead/rainbow trout and two age 2+ steelhead/rainbow trout.

RECOMMENDATIONS

- 1) Unnamed tributary to Harmonica Creek should be managed as an anadromous, natural production stream.
- 2) The limited water temperature available suggest that the maximum temperatures are within the acceptable range for juvenile salmonids. To establish more complete and meaningful temperature regime information, 24-hour monitoring during the July and August temperature extreme period should be performed for three to five years.
- 3) Where feasible, design and engineer pool enhancement structures to increase the number of pools. This must be done where the banks are stable or in conjunction with stream bank armor to prevent erosion.

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- 4) Increase woody cover in the pools and flatwater habitat units. Most of the existing cover is from boulders. Adding high quality complexity with woody cover is desirable and in some areas the material is at hand.
- 5) Inventory and map sources of stream bank erosion and prioritize them according to present and potential sediment yield. Identified sites, like the site at 1249', should then be treated to reduce the amount of fine sediments entering the stream.
- 6) Active and potential sediment sources related to the road system need to be identified, mapped, and treated according to their potential for sediment yield to the stream and its tributaries.
- 7) Increase the canopy on the unnamed tributary to Harmonica Creek by planting willow, alder, redwood, and Douglas fir along the stream where shade canopy is at unacceptable levels. The reaches above this survey section should be inventoried and treated as well, since the water flowing here is affected from upstream. In many cases, planting will need to be coordinated to follow bank stabilization or upslope erosion control projects.
- 8) Spawning gravel on the unnamed tributary is limited to relatively few reaches. Crowding and/or superimposition of redds have been observed during winter surveys. Projects should be designed at suitable sites to trap and sort spawning gravel in order to expand redd site distribution in the stream.
- 9) There are several log debris accumulations present on the unnamed tributary that are retaining large quantities of fine sediment. The modification of these debris accumulations is desirable, but must be done carefully, over time, to avoid excessive sediment loading in downstream reaches.
- 10) There are at least two sections where the stream is being impacted from cattle trampling the riparian zone and defecating in the water. Alternatives should be explored with the grazer and developed if possible.

PROBLEM SITES AND LANDMARKS

The following landmarks and possible problem sites were noted. All distances are approximate and taken from the beginning of the survey reach.

Position Comments:
(ft):

- | | |
|------|---|
| 0' | Start of survey at confluence with Harmonica Creek. Channel type is A3. |
| 105' | 1.8' high plunge. |

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- 815' Right bank tributary contributing half the flow. It is accessible to salmonids.
- 1028' 3' high plunge. Log debris accumulation measures 44' long x 21' wide x 6' high and is retaining 5' of gravel.
- 1199' 2' high plunge.
- 1497' End of survey. No fish seen for 300 feet upstream of the end of survey. There is also a large slide measuring 120' long and 200' high that is contributing sediment to the channel, and the water seems to go underneath.