

Shasta-Trinity National Forest  
Big Bar Ranger District  
North Fork of the Trinity River

Surveyed August 22-24, 27-30, and September 4-6, 1990.

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North Fork Trinity River Adult Summer  
Steelhead and Spring Chinook Survey, 1990

REF 90428

### Adult Summer Steelhead and Spring Chinook Survey

Approximately 23 miles of this tributary of the upper Trinity River was surveyed by snorkeling. The survey was started in the headwater regions of this drainage in a downstream fashion to avoid chances of multiple counting of individual fish. The East fork of the North fork was not surveyed because previous surveys indicated that summer steelhead and spring chinook did not use this tributary extensively. Surveyed areas are located on the attached map. In addition, percentages of habitat types which adults were found are given (Table 1) along with a correlation analysis of maximum depth of pool habitat and numbers of fish (Figure 1). Depth of pools was visually estimated. The discharge at the mouth of the North Fork was 24.9 cfs on September 7. This value was determined using a Marsh/McBirney flow meter.

### Observations:

#### Section A

About 1/2 mile of stream was surveyed. No adult fish were observed in this section. Very few pools were observed and what pools were present were shallow and offered very little cover. Only juvenile trout and steelhead were observed here.

#### Section B

#### Grizzly Creek

On August 23, the section from where the trail crosses the creek downstream to the mouth was surveyed. Only one adult summer steelhead was observed, and that was in the lower 1/4 mile of the tributary. This tributary lacked deep pools. The water temperature was 54 F at 1200 hrs. Juvenile steelhead and small trout were the only other fish observed in this section.

#### Section C

On August 23, this section was surveyed and resulted in the observation of 28 adult summer steelhead. Twenty-four of these fish were located in one pool. One fish had a fish hook thru it's upper lip.

#### Section D

Seventy-five adult steelhead were observed in this section. The largest numbers of fish were concentrated around Morrisons gulch where the largest and deepest pools were present. The McMasters were seen actively mining with a suction dredge approximately 1/4 mile below the Jorstad Cabin. The water temperature was 63 degrees F at 1500 hrs.

#### Section E

#### Rattlesnake Cr.

On August 22, approximately one mile of Rattlesnake Creek was surveyed and a total of nine adult steelhead were observed. Seven of these fish were located in one pool. This pool was the largest and deepest encountered in this region. The water temperature of this tributary was 63 degrees at 1500 hrs. Juvenile steelhead and small trout were the only other fish observed in this section.

#### Section F

A total of 188 adult summer steelhead were observed. The greatest concentrations of fish were located in the deepest pools. Forty-one fish were observed in one pool which was estimated to have a maximum depth of 12 feet and a length of 50 meters. The pool offered large amounts of cover in the form of bedrock ledges and gigantic boulders. A fishing lure was found in this pool and

I suspect that this pool may get a lot of fishing pressure as the trail is fairly close to the stream at this location. Immediately below this pool, Klamath smallscale suckers were first observed. Another pool about 1/4 mile below Rattlesnake Creek contained 28 fish. A pool immediately below the upper low water trail crossing contained 27 fish, one of which had a blue spaghetti tag attached to its back. This fish was probably tagged by CDFG at the Junction City weir this year or last year (Bill Heubach; Personal Communication, CDFG-Arcata).

#### Section G

On August 27, this section was surveyed and resulted in an observed 24 adult steelhead. No fish were observed in the braided portion of this survey region.

#### Section H

On August 28, this section of the river was surveyed and proved to be extremely difficult to snorkel and count fish because of the gradient and the large boulders which resulted from mass wasting. Thirty-seven adults were recorded in this section. This figure surely underestimates the numbers residing in this dense cover. The water temperature at 0900 hrs was 54 degrees F.

#### Section I

On August 29, a total of 29 adult steelhead were observed.

#### Section J

On August 30, a total of 65 adult steelhead and one spring chinook salmon were observed. Twenty-six of these fish were located in one pool.

#### Section K

On September 4, 80 adult steelhead were observed along with 5 adult spring chinook salmon. In addition, this section of stream was the first area which juvenile chinook salmon were encountered, indicating that adult chinook were capable of migrating at least this far the previous fall, a low water year. This was also recognized as being the first area that spawning gravel was abundant.

#### Section L

On September 5, a total of 18 adult steelhead were observed.

#### Section M

No adult fish were observed although the holding habitat appeared to be quite adequate. Although a barrier was been recorded during previous surveys of the North Fork (1988), adult steelhead and spring chinook were capable of navigating upstream above the first obstructed channel site that the fish would encounter (Just above North Fork Gulch; see map). However, because a freshet occurred on July 17, the resulting increase in stream discharge may have allowed migration of both steelhead and spring chinook salmon beyond this site. This site may represent a barrier at lower flow. It was interesting that below this site was the first area that speckled dace were observed. Some small brown trout were observed below the Helena bridge.

#### Poaching

Some signs of poaching of steelhead were present. Near Raymond Flat two steelhead heads were observed on the bank. Both of these fish would have exceeded the 14 inch size limit.

#### Mining activity

Only two mining parties were observed in the river system above the confluence of the East Fork of the North Fork. One was located in the lower 1/4 mile of Rattlesnake Creek and the other about 1/4 mile below the Jorstad Cabin. The

Rattlesnake Creek mining site had riparian vegetation removed from the water's edge, including some 4 inch in diameter alders. Below the confluence of the East Fork of the North Fork, two different mining parties were observed actively mining. One was at the confluence of the East Fork and the other about 1/2 mile downstream.

#### Diversions

Only one diversion was observed throughout the entire drainage. This was located at Raymond flat and was screened.

#### Results

Adult summer steelhead were found in 10 of the 24 habitat types proposed by McCain et al. (1989), six of which were pool type habitats (Table 1). These pool habitat types accounted for 94.4 % of the adults observed. The predominant pool types encountered were lateral scour pools (LSP-bedrock) and mid-channel pools (MCP-bedrock). These observations also agree with that of the 1988 surveyors. These habitat types accounted for 35 and 39 percent of observed fish, respectively.

A total of 554 adult summer steelhead and six spring chinook were observed in the North Fork of the Trinity River. The greatest concentrations of fish were located in the deepest pools, which was also noted by Freese and Taylor - surveyors in 1979. Although the coefficient of determination did not indicate a strong correlation (0.2), the correlation analysis indicates that there is a positive correlation between depth of pools and numbers of fish they contain (Figure 1). This is intuitively obvious since depth is a form of cover. However, it also appeared that those pools with other forms of cover (boulders, bedrock ledges, and woody debris) were selected as holding areas by adult steelhead.

#### A NOTE:

The North Fork offers excellent water quality. This may be the primary reason why this summer steelhead population size remains fairly constant. Additionally, there is no doubt, that because of the restricted access and the wilderness status of most of this drainage, especially below Hobo Gulch, that poaching and land use activities and their effects on fish are minimized. However, because of the good access afforded above Hobo Gulch, poaching could become a serious problem, especially as the popularity of this region of California increases.

Table 1. A Summary of Numbers of Adult Summer Steelhead and the associated habitat types they were found in the North Fork of the Trinity River, 1990.

Habitat type	Mean depth (Feet)	Number of Hab. types with fish	Number of Adults	Percent
1	-	1	1	0.2
2	-	7	12	2.2
3	-	6	10	1.8
5	5	3	24	4.3
9	5	24	81	14.6
12	7	35	194	35.0
15	-	8	8	1.4
17	6	68	216	39.0
19	5	1	7	1.3
23	3	1	1	0.2
Total		154	554	100%

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North Fork Trinity River Summer Steelhead Counts 1991

No report was prepared in 1991 the following information was compiled from a copy of Todd Sanders' field notes on file at the USFS office in Weaverville.

Reach	Adult Steelhead	Half-pounders
Miners Cabin trail downstream	5	0
Miners Cabin trail to Blacks Flat	11	0
Blacks Flat to Digger Pine Flat	6	0
Digger Pine Flat Raymond Flat	91	0
Raymond Flat to Hobo Gulch	312	9
Grizzley Creek to 1 mile below Rattlesnake Cr.	209	1
1 mile below Rattlesnake Cr. to Hobo Gulch	170	0
Totals	804	10

These counts were conducted over a two week period and in the direction indicated in the Reach description so this count may not be as accurate as in other years.