

Ref 90413

To: All Interested Parties

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From: Maureen Roche, Mattole Salmon Group

Subject: 1999 Mattole River Summer Steelhead Survey Summary

The 1999 Mattole River Summer Steelhead Surveys took place August 18 through August 31, representing the fourth consecutive year of direct observation counts on the Mattole. The purpose of this survey is to enumerate summer steelhead and identify their preferred holding habitat on the Mattole River. Snorkel observations were conducted on 16 reaches totaling over 39.3 miles with the help of seven divers (Table 2). Dives were concentrated in the main stem and the lowest reaches of Thompson, Bear and Honeydew Creeks. Observations of steelhead were recorded by size class; steelhead over sixteen inches fork length are adult fish, and steelhead from twelve to sixteen inches are half-pounders. Other aquatic species were noted when observed. Human induced influences, such as water intakes and garbage were also noted. Salmonid observations were recorded by species, size and preferred habitat. A total of sixteen (16) adults and eighty-eight (88) half-pounders were observed (Table 1). Air, river and tributary incidental temperatures were noted (Table 3).

The Mattole River watershed includes some of the most remote and wild areas of California's remarkable coast. The local climate is distinguished by stormy, wet winters with average basinwide precipitation of 185 cm (Busby et al. 1988), and mild, dry summers - these conditions play a large role in determining the establishment and distribution of flora and fauna throughout the basin (Day 1996). The human population is scattered throughout the ridges and valleys of the watershed, with diverse lifestyles including ranching, timber harvesting and homesteading. Today, issues of habitat and species loss command the attention of local, state, and federal agencies, community members, and scientists. An understanding and awareness of the watershed's response to human activities, as well as the inherent and economic value of local natural resources, remain incomplete. The summer steelhead survey provides meaningful biological information to fill existing gaps. In addition, trends can be found over the space/time continuum.

This survey was made possible through the cooperative efforts of the Mattole Salmon Group, California Trout, the Petrolia School and the Humboldt Fish Action Council.

Table 1. 1999 Distribution of summer steelhead, juvenile salmon, and western pond turtle observations from headwaters to mouth of mainstem Mattole.

REACH	ADULTS	HALF-LBS	COHO	CHINOOK	TURTLES
1	0	4	682	858	0
2	1	24	65	516	0
3	0	0	170	109	0
4	3	9	0	0	1
5	1	10	0	0	3
6	2	1	0	0	1
7	4	17	0	0	0
8	2	3	0	0	0
9	0	0	0	0	0
10*	0	0	0	0	0
11	0	1	0	0	5
12	0	2	0	0	4
13	1	2	0	0	4
14	0	7	0	0	3
15	2	6	0	0	2
16	0	2	0	0	2
Total	16	88	917**	1483**	25

Notes: * No Access ** Highest density in 10 years

Discussion

As indicated in previous summer steelhead reports (1996-1998 Weseloh), cold water refugia, especially less than 20°C (Welsh 2000) appears to be very important to both adult and juvenile salmonids during summer in the Mattole River basin and has been found to be a limiting factor along with flow. The direct relationship between cold water refugia and salmonid habitat utilization was particularly evident on the lower, warmer reaches. Seeps, springs, and relatively (15° F difference) cold pools (deeper than 6 feet and stratified) were observed throughout the basin, often isolated by stretches of shallow, aggraded, high temperature (greater than 26.5°C) reaches between them. Aestivating (hot hibernation with scant feeding) adult summer steelhead appear to preferentially utilize habitat that includes a long unit downstream of a loud, oxygenating riffle, boulders along the bank with cooler interstices and heavy willow cover instream. There are indications that poachers in the middle Mattole may have taken as many as five summer steelhead this year.

Surveys done in 1943 indicate the presence of over 200 summer steelhead to 24 inches (Erter, 1943). In 1982 only two summer steelhead were recorded in 63 miles of survey (California Department of Fish and Game, 1982 and in 1991 no summer steelhead were found (Day, 1996).

Other Sightings: Precocious male ½ pound steelhead, juvenile steelhead, chinook, coho; stickleback; yellow-legged frogs and tadpoles; 1 bullfrog tadpole; 20 rough-skinned newts; 3 pacific giant salamanders; leech; 25 western pond turtles; 43 western garter snakes; 11 mergansers; American dipper; osprey; kingfisher; 39 freshwater clams; white horsetail worms; and humans.

Garbage: Garbage was ubiquitous.

Human Encounters and Influences: one swimmer and three fisher people were observed in the headwaters. A recently re-surfaced county road adjacent to the upper three reaches had contributed blue rock dust to algae and fish slime coat.

Recommendations:

1. Halt fishing to protect salmonids during thermal stress of summer.
2. Continue attempts to retain large woody debris and provide complex habitat. Make repairs to aging structures so their intended results might be attained.
3. Compare collected temperature data with hobo temperature data, and overlay these with fish distributions on a watershed map.
4. Map cold water refugia.
5. Reestablish riparian forest in effort to provide shade and cooler temperatures, and

- provide source of debris for shaping complex instream habitat.
6. Catalog all water withdrawals and their locations. During hot summer months, with base flows < 19cfs, water removal may affect water temperatures and negatively impact salmonids. Decreased flow may also negatively affect human users.
 7. Follow up identified research needs from Nielsen et al. (1994) and Day (1996).
 8. Future restoration and monitoring projects should be prioritized according to cost effectiveness and protection of vital refugia, and combined with cooperative conservation and management endeavors.
 9. Engage local schools and non-profit organizations in projects to remove garbage each summer.

Table 2. Description of reaches, including beginning and ending points, and total mileage; dive personnel for 1999

4 th Annual Mattole Summer Steelhead Dive, 1999			
	Dive Reaches	Personnel	Mileage
1	Phillips (RM 60.5) to Lost River (RM 58.8)	Maureen Roche*, Daniel Kosmal*	1.7
2	Lost River (58.8) to Stanley Ck. (57.1)	Maureen Roche*, Daniel Kosmal*	1.7
3	Thompson Ck. (58.4+1.3)	Maureen Roche*, Daniel Kosmal*	1.3
4	McKee Ck. (52.8)to Crooks (51)	Maureen Roche*, Danny Gainok*	1.8
5	Crooks (51) to Big Finley Ck. (47.4)	Colum Coyne*, Campbell Thompson	3.6
6	Big Finley Ck. (47.4) to Deer Lick Ck. (45.8)	Colum Coyne*, Danny Gainok*	1.8
7	Bear Ck. (42.9 +.6) to Mattole Canyon Ck.(41)	Maureen Roche*	2.5
8	Honeydew Slide (27) to Woods Ck.(24.1)	Maureen Roche*, Danny Gainok*	2.9
9	Lower Honeydew Ck. (26.5+.6)	Maureen Roche*, Danny Gainok*	.6
10	Woods Ck.(24.1 to Triple Junction High School (21.5)	Not Surveyed	NA
11	Cook Gulch (19.7) to Squaw Ck. (15)	Deva Taylor*, Odessa Wolff	4.7
12	Squaw Ck. (15) to Lindley Bridge (12.6)	Deva Taylor*, Odessa Wolff*	2.4
13	Lindley Bridge (12.6)to Conklin Ck. (7.8)	Deva Taylor*, Odessa Wolff*	4.8
14	Conklin Ck. (7.8) to Hideaway Bridge (5)	Deva Taylor*, Odessa Wolff*	2.8
15	Hideaway Bridge (5) to Stansberry Ck. (1.3)	Deva Taylor*, Odessa Wolff*	3.7
16	Stansberry Ck. (1.3) to Ocean (0)	Deva Taylor*, Odessa Wolff*	3.0
Total	*Denotes prior summer steelhead diving experience. (RM) denotes River Mile (+ denotes tributary mileage)		39.3

Table 3. Incidental temperatures recorded on survey dates, 1999 summer steelhead dive.

Date	Location	RM*	Reach	Time	Tributary	Mattole River	Air
9/23/00	US Phillips	60.6	1	1800	dry	59	60
8/30/00	Big Jackson		1	1700	59		
	Arcanum		1	1600	56		
	Dream		1	1500	58		
	Lost River	58.8	1	1140	59		
	Helen Barnum		1	1140	58		
	Bridge	58.6	1	1130	59		
8/26/00	Stanley	57.1	2	1200	59	62	66
	Baker		2	1315	61		
	Thompson	58.4	2	1500	64	64	
9/23/00	Thompson	58.4+	3	1145	56	56	70
	Yew	58.4+.2	3	1230	55		
	Thompson	58.4+1.3	3	1530	58		70
	McKee	52.8	4	1100	56	56	70
	Bridge		4	1240	55		
	Buck		4	1250	60		
	Trib	50.8	4	1320	62		
	Big Finley	45.8	5	1930	59		
	Bear	42.8	7	1315	64	68	80
	Blue Slide	42	7	1400	60		
	MCC	41	7	1630	Dry	76	72
	Honeydew Slide	27	8	1300		74	78
	Honeydew Creek	26.5	9	1130	66		78
	Woods	24.1	8	1545	66		
	Cook	19.7	11	1125	54	68	
	100 yds DS		11	1200	63		
	Squaw	15	11	1600		72	
	Squaw	15	12	1000	60	62	
	Lindley Bridge	12.6	12	1315		66	
	Lindley	12.6	13	1130		67	
	McGuiness		13	1645	70		
	Conklin	7.8	13	1645	80	75	
	Conklin	7.8	14	1400	70		
	Hideaway	5	14	1640		70	
	Hideaway	5	15	1330		70	
	Drury	3.2	15	1530		68	
	Titus		15	1600	56		
	Mill	2.8	15	1630	56	71	
	Mill	2.8	15	1430	60		
	Jim G.		15		63		
	STB	1.3	16	1330	57		
	50 yd DS		16	1335	62		
	MR	1.3	16	1345		69	
	Lt	1	16	1530		68	

*All temperatures given in degrees Fahrenheit. RM=rivermile (DWR 1973)

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