

## Smith River Volunteer Adult Trout and Salmon Surveys Summer 2016

*Prepared on behalf of the Smith River Alliance by:*

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Photo: Darrell Warnock

### **Introduction**

The 719 square mile Smith River basin is designated as a salmon stronghold, a wild and scenic river as well as a National Recreation Area. The river has exceptional water quality and clarity providing an ideal setting to learn to identify, observe and count adult salmonids. Annually each summer the Smith River Alliance conducts a volunteer fish count with the objective of consistently and accurately counting adult salmonids in the Smith River. These data then contribute to a long term data set, which dates back to 1988, used to monitor trends in the abundance of adult salmonids within the Smith River. These surveys were first performed by California Department of Fish and Wildlife (CDFW) contractors in 1988. The U.S. Forest Service then intermittently conducted surveys from 1989 to 1999. Since 2000, the Smith River Alliance has led organization, training, and reporting for these surveys. Survey efforts are focused on the South Fork Smith River which has the longest continuous data set. With sufficient volunteers, additional surveys are conducted on the Middle Fork and North Fork of the Smith River. This report highlights the results from surveys conducted on July 30, 2016 and how these counts compare to those from past years survey efforts.

## Survey Methods

During the summer when flows are low and water clarity is high groups of 3-5 individuals conduct a snorkel survey along a continuous river stretch (reach) ranging from 1 – 3.25 miles while floating downstream through all pool habitats. All adult salmonids including coastal cutthroat trout (*Oncorhynchus clarki clarki*), summer steelhead (*Oncorhynchus mykiss*), steelhead half-pounders, spring Chinook salmon (*Oncorhynchus tshawytscha*), and rainbow trout (*Oncorhynchus mykiss*), as well as Klamath smallscale suckers (*Catostomus rimiculus*) observed during the survey are counted.

All new participating volunteers are trained on and practice proper survey methods, fish identification and measurement techniques prior to the survey. Training held on July 29<sup>th</sup>, 2016 taught volunteers to employ skills to reduce the probability of double counting fish as well as how to safely navigate hazards present in the river. Each survey crew was assigned a lead in charge of data recording and reporting and to ensure accurate and safe navigation of the assigned survey reach. Each group also included a surveyor skilled at diving to ensure areas of cover such as boulders, logs, and ledges were thoroughly investigated for hiding fish. Surveying members are taught to watch for fleeing fish while another surveyor dives. Groups are taught to communicate by vocalizing and pointing to ensure fish are not doubled counted. All surveys are conducted between 9:30 and 5:00 pm during the optimal lighting conditions.

Only fish lacking juvenile parr marks are counted during a survey. Coastal cutthroat trout are counted by dividing them into two groups, small (< 12") and large (> 12") individuals. Summer steelhead are divided into adults ( $\geq 16$ ") and half-pounders (12" – 15"). Also counted are spring Chinook salmon > 16", rainbow trout over 10", and Klamath small scale suckers > 12". Volunteers are taught to identify juvenile Coho salmon although juvenile salmonids are not a focus of the survey effort. Lastly, all amphibians and western pond turtles are also recorded.

## Results

With the help of 60 volunteers, 14 reaches were surveyed across 27.81 miles on July 30, 2016. The South Fork was surveyed from Buck Creek to Craig's beach covering 19.73 miles. The Middle Fork was surveyed from Panther Flat campground to Oregon Hole Gorge covering 8.08 miles. A total of 1107 coastal cutthroat trout, 15 summer steelhead, 19 steelhead half-pounders, 2 spring Chinook salmon, 65 rainbow trout, and 39 Klamath smallscale suckers were observed across all surveys (Table 1). One of the two summer steelhead observed on the Middle Fork from Panther Flat to the confluence of the North Fork lacked an adipose fin signifying it was a hatchery fish. Water temperature was found to be 23.5° C with a specific conductance of 135 at 18:00 at Rock Creek Ranch.

No juvenile Coho salmon were observed during surveys, however CDFW observed juvenile Coho salmon in the South Fork of the Smith River upstream of Harrington Creek in July 2016 during juvenile salmon summer spatial structure surveys. Six coastal giant salamanders (*Dicamptodon tenebrosus*) were observed, three of which were dead. In recent years there have been observations of multiple dead salamanders. Therefore, one specimen that was in good condition and located at a retrievable depth was collected for CDFW to conduct a necropsy on. Sixty-six rough skinned newts (*Taricha granulosa*) were counted on the Middle Fork while none were observed in the South Fork. Lastly, American bullfrog (*Rana catesbeiana*) tadpoles were observed in the Middle Fork in the survey reach from Panther Flat to the confluence of the North Fork. While the species has been observed within the basin at Rattlesnake Lake this is the first known observation of the species in the river.

This year's total count of cutthroat per mile was higher on the South Fork than the Middle Fork and appears to be average to above average when compared to past years (figure 1). There were more small cutthroat per mile than large cutthroat per mile on both the South Fork and the Middle Fork (Figure 2, Figure 3), again with densities of both size classes either at average or above average when compared to past years data. Density of summer steelhead was found to be slightly higher on the South Fork compared to the Middle Fork and was relatively average when compared to past years densities (Figure 4).

## **Acknowledgements**

We thank the Del Norte Resource Advisory Council for providing financial support of this event helping to teach the community of the beauty of the Smith River National Recreation Area and the native wild fish. We thank Alexandre Kids Eggs, Ocean Air Farms, North Coast COOP, Eureka Natural Foods, Sacred Ground Coffee, Ramon's Bakery, COSTCO, and Casa Lindra for helping to keep our volunteers fed and energized throughout the event. We thank volunteers John Deibner-Hanson, Sarah Burstein, Alessandro Broido and Glenn Kubacki for helping with the Friday training. Thank you to all crew leads, Sylvia Gwozdz, Amanda Piscitelli, Sunny Bourdon, Sarah Burstein, Glenn Kubacki, Iris Koski, Gustavo Porras, Alessandro Broido, Samantha Kannry, John Deibner-Hanson, Nick Van Vleet, Tara Dettmar, Jeff Borum, and Zac Reinstein. Lastly we thank all the volunteers who contributed in the fish count, ran shuttles, and helped in the kitchen, this event would not be possible without your participation.

Reach	Reach Top	Reach Bottom	Length (miles)	Cutthroat <12"	Cutthroat >12"	Rainbow Trout	Summer Steelhead	Half Pounder	Spring Chinook	Sucker	Crew Lead	Crew #
SF 2	Secret Stairs	Craigs Beach	2.04	4	12	2	0	0	0	0	S. Gwozdz	3
SF 3	Little Jim Flat	Secret Stairs	2.79	19	16	3	0	0	0	13	A. Piscitelli	4
SF 4	Sand Camp Rock Creek	Little Jim Flat	1.62	56	44	1	1	1	0	0	S. Bourdon	4
SF 5	Ranch	Sand Camp Rock Creek	1.08	36	22	1	0	0	0	0	S. Burstein	4
SF 6	Gordon Creek Rattlesnake	Ranch	1.78	37	43	14	0	0	0	4	G. Kubacki	5
SF 7	Creek	Gordon Creek Rattlesnake	1.49	75	36	0	3	0	1	1	I. Koski	4
SF 8	Steven's Bridge Hurdygurdy	Creek	1.12	37	24	0	3	0	0	1	G. Porras	4
SF 9	Creek	Steven's Bridge Hurdygurdy	1.21	61	56	0	1	3	0	0	A. Broido	4
SF 10	Indian Bar McCleandon	Creek	2.16	63	35	1	0	0	0	0	S. Kannry	3
SF 11	Ford	Indian Bar McCleandon	3.25	82	48	19	1	0	0	5	J. Deibner-Hanson	3
SF 12	Buck Creek	Ford	1.20	30	23	4	2	0	0	0	N. Van Vleet	3
<b>South Fork Total</b>			<b>19.73</b>	<b>500</b>	<b>359</b>	<b>45</b>	<b>11</b>	<b>4</b>	<b>1</b>	<b>24</b>		
MF 1	Mary Adam's Bridge	Oregon Hole Gorge	2.99	28	18	0	0	1	0	5	T. Dettmar	3
MF 2	North Fork	Mary Adam's Bridge	2.61	67	40	3	2	0	1	9	J. Borum	3
MF 3	Panther Flat	North Fork	2.47	47	48	17	2	14	0	1	Z. Reinstein	4
<b>Middle Fork Total</b>			<b>8.08</b>	<b>142</b>	<b>106</b>	<b>20</b>	<b>4</b>	<b>15</b>	<b>1</b>	<b>15</b>		
<b>Total Counts</b>			<b>27.81</b>	<b>642</b>	<b>465</b>	<b>65</b>	<b>15</b>	<b>19</b>	<b>2</b>	<b>39</b>		

Table 1. Complete counts of fish observed across the South Fork (SF) and Middle Fork (MF) Smith River during the volunteer fish count on July 30, 2016.

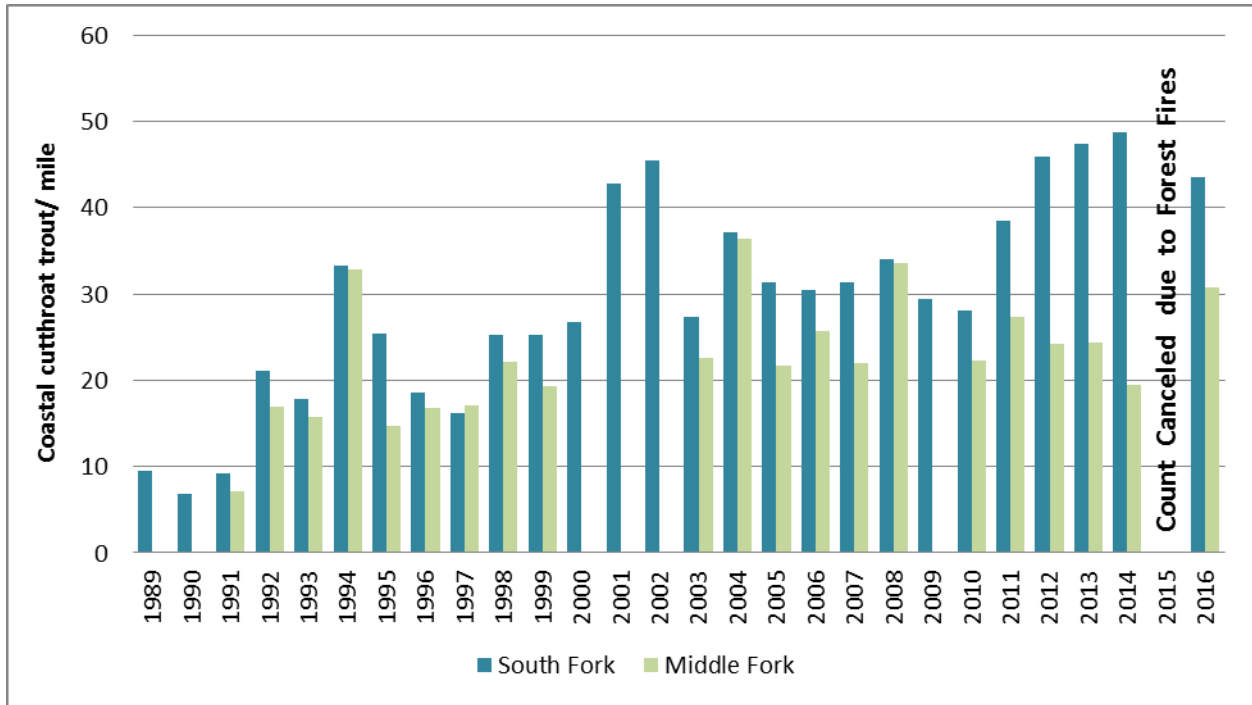


Figure 1. Density of total coastal cutthroat trout counted per mile based on miles of river surveyed in the South Fork and Middle Fork Smith River from 1989 to 2016.

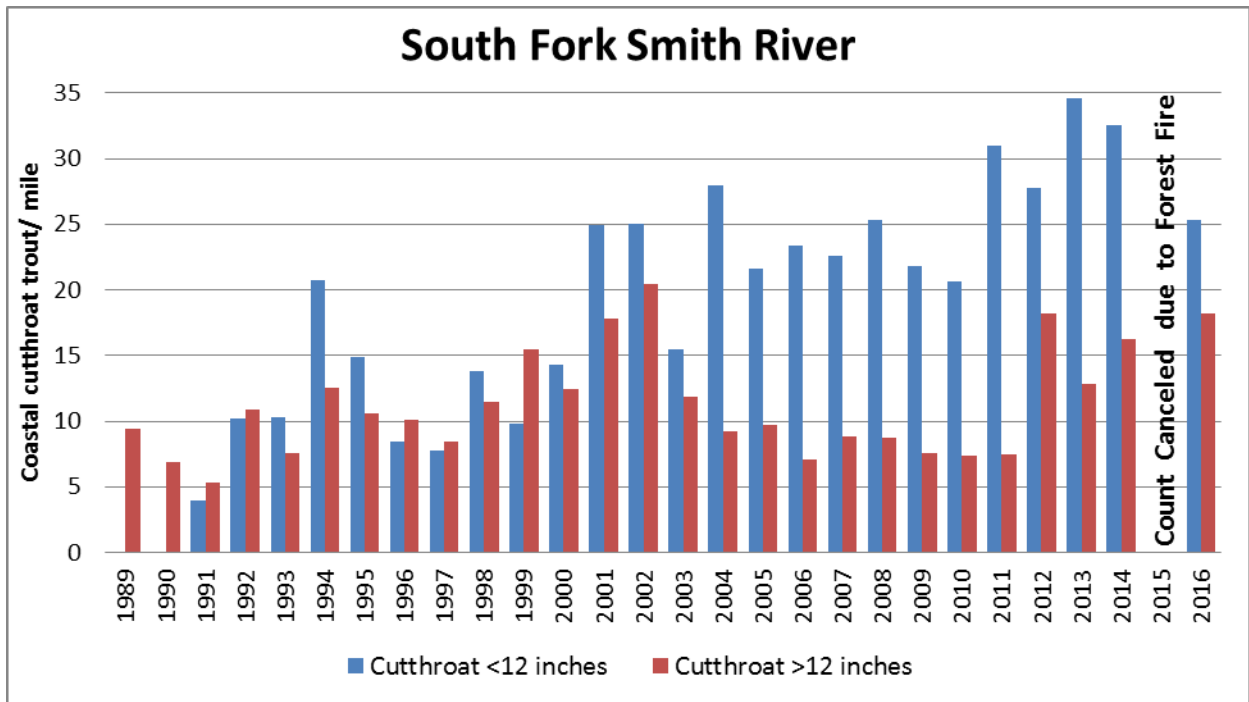


Figure 2. Density of small (<12") and large (>12") coastal cutthroat trout based on counts per mile of river surveyed on the South Fork Smith River from 1989 to 2016.

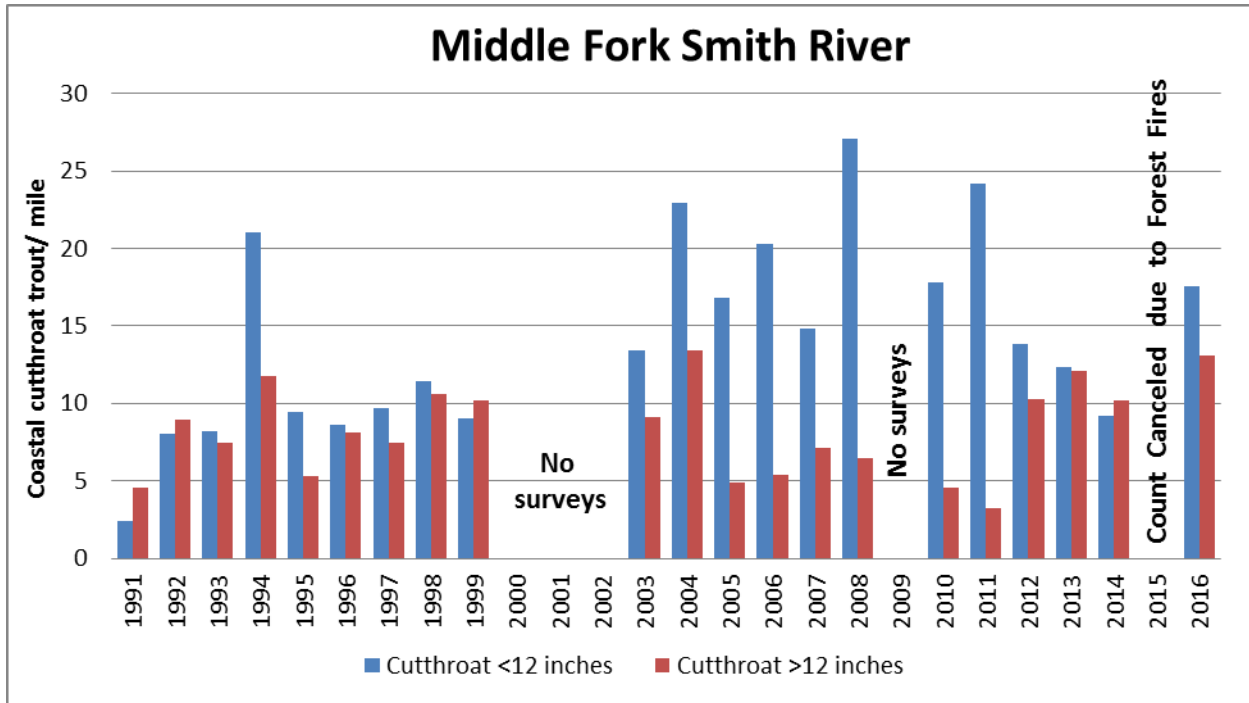


Figure 3. Density of small (<12”) and large (>12”) coastal cutthroat trout based on counts per mile of river surveyed on the Middle Fork Smith River from 1989 to 2016.

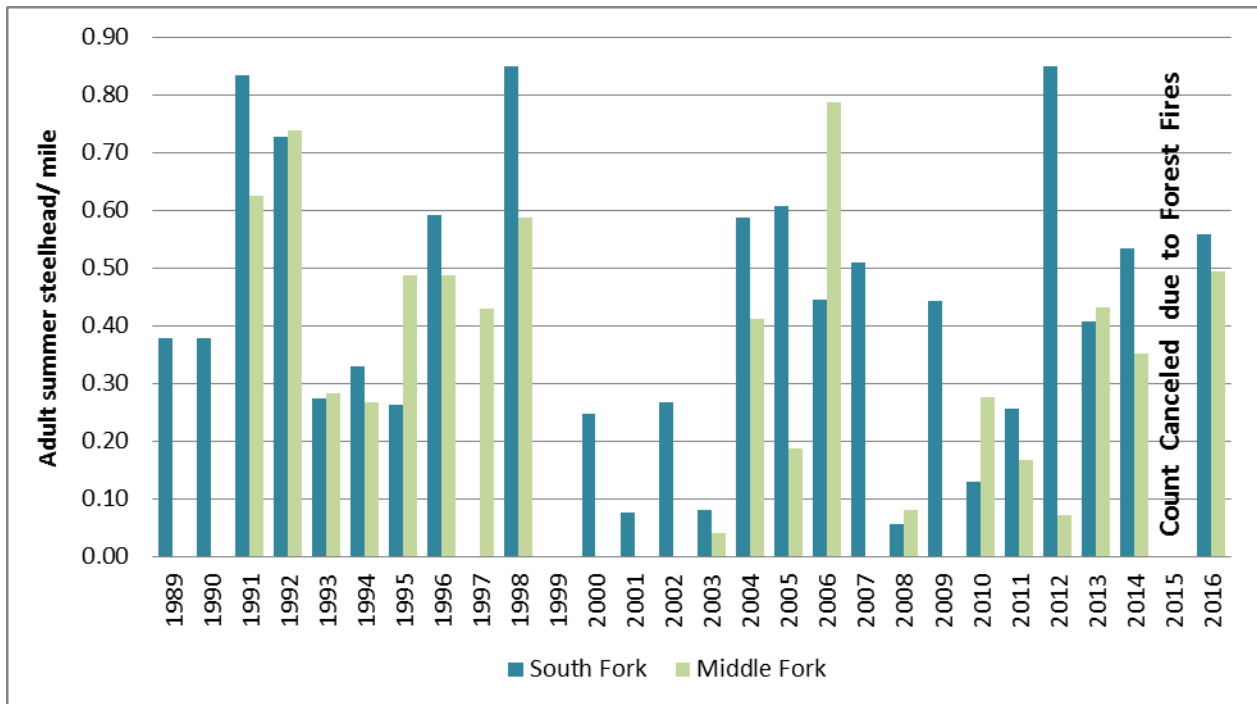


Figure 4. Density of adult summer steelhead (>16”) based on total counts per mile surveyed along the South Fork and Middle Forks of the Smith River during surveys conducted from 1989 to 2016.

## Appendix

Year	SF Miles	Cutthroat <12"	Cutthroat >12"	Chinook salmon	Steelhead trout	Steelhead half- pounder	Rainbow trout	Klamath smallscale sucker
1982	25	NA	91	11	5	NA	NA	NA
1989	13.2	NA	125	2	5	NA	NA	NA
1990	13.2	NA	91	11	5	NA	NA	NA
1991	9.6	38	51	1	8	0	0	0
1992	11	112	120	1	8	3	0	0
1993	14.6	150	111	17	4	6	13	0
1994	15.2	315	190	8	5	11	32	0
1995	15.2	226	161	21	4	4	19	5
1996	15.2	128	154	38	9	0	0	0
1997	8.9	69	75	1	0	0	17	0
1998	15.3	212	175	3	13	5	3	0
1999	13.6	133	211	0	0	1	3	0
2000	8.1	116	101	1	2	2	2	1
2001	13.2	329	235	2	1	1	6	5
2002	15	375	307	14	4	2	19	8
2003	24.5	378	290	14	2	12	29	0
2004	13.6	380	126	12	8	0	39	0
2005	24.7	535	240	2	15	20	61	0
2006	24.7	578	174	11	11	10	43	0
2007	17.7	400	156	3	9	0	17	0
2008	17.7	448	155	2	1	0	9	0
2009	22.6	494	171	5	10	0	58	0
2010	23	474	170	0	3	0	34	0
2011	19.5	604	145	5	5	0	64	0
2012	21.2	589	385	2	18	0	142	0
2013	12.3	425	158	0	5	3	15	0
2014	13.12	427	213	2	7	2	5	0
2016	19.73	500	359	2	11	4	45	24

Appendix A. Summary of counts from all summer adult fish surveys in the South Fork (SF) Smith River.

<b>Year</b>	<b>MF Miles</b>	<b>Cutthroat &lt;12"</b>	<b>Cutthroat &gt;12"</b>	<b>Chinook salmon</b>	<b>Steelhead trout</b>	<b>Steelehead half-pounder</b>	<b>Rainbow trout</b>	<b>Klamath smallscale sucker</b>
1991	17.6	43	81	7	11	0	0	0
1992	17.6	142	157	1	13	21	0	0
1993	17.6	145	132	6	5	2	15	0
1994	11.2	236	132	2	3	7	134	0
1995	22.6	213	120	3	11	7	81	9
1996	22.6	195	183	14	11	9	0	8
1997	14	136	104	1	6	8	27	16
1998	10.2	117	108	2	6	9	56	0
1999	13.6	123	139	2	0	5	16	0
2003	24.5	329	223	17	1	4	97	0
2004	14.6	335	196	2	6	0	86	0
2005	10.7	180	52	3	2	7	26	0
2006	17.8	361	96	0	14	7	45	0
2007	6	89	43	0	0	0	5	0
2008	12.4	336	80	0	1	0	24	0
2010	14.5	258	66	0	4	0	79	0
2011	18	435	58	0	3	1	50	0
2012	13.7	190	141	0	1	0	11	0
2013	11.6	143	140	2	5	0	70	0
2014	11.38	105	116	1	4	2	5	0
2016	8.08	142	106	1	4	15	20	15

Appendix B. Summary of counts from all summer adult fish surveys in the Middle Fork (MF) Smith River.