Mad River Summer Steelhead Dive Summary
2018

Boulder Roughs of the 'Grand Canyon' on the Mad River. Photo by Jacob Pounds of Blue Lake Rancheria and Mad River Alliance.

Mad River Alliance
April 2019

Background and Purpose

Direct observation dive surveys to quantify the number of adult summer-run steelhead have been implemented on the Mad River since 2013. This survey is designed to implement a single-focused effort to count adult and 1/2-pound summer-run steelhead to identify change in run size between 2013 to present while also supplementing historical data collected between 1980–2008. This report summarizes methods and results from 2018. Results from prior years can be found at madriveralliance.org.

Goals of the 2018 survey included the following:

1. Obtain a count of summer-run steelhead from R.W. Matthews Dam to the Kadle Hole (0.5 mile upstream of the Highway 101 bridge), 74.4 miles total.
2. Obtain private property access to reaches of the river near Pilot Creek that have not been surveyed in several years.
3. Provide dive training to community volunteers so they may learn surveying techniques and effective data collection.

Methods

In 2018, surveys were conducted on July 24 (between R. W. Matthews Dam and Highway 36), and August 02-04 (Deer Creek to the Kadle Hole). Surveyors included trained volunteer snorkelers from Blue Lake Rancheria, Mad River Alliance, Bureau of Land Management, California Department of Fish and Wildlife, Green Diamond Resource Company, Wiyot Tribe, United States Forest Service, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Timberland Resources Company, AmeriCorps Watershed Stewards Program, and several community individuals.

The direct observation survey area includes approximately 75-mile stretch of river between R.W. Matthews Dam and the Kadle Hole, which encompasses the mainstem Mad River where summer-run steelhead have been historically been found. In 2018, about 74% of the survey area was monitored (54.8 river miles of the 75 miles). Surveys excluded 20.6 miles due to (1) deteriorated river access points and locked gates on river access roads and (2) perceived safety issues that stem from the proliferation of cannabis farms in remote areas of Humboldt and Trinity County. However, it is important to note that these non-surveyed areas (20.6 river miles) are above the known uppermost anadromous flow barrier (Humbug Creek Barrier), at most flows.

Results

The results of the 2018 survey documented 147 adult (≥ 16 inches fork length) and 109 half-pounder (< 16 inches fork length) summer-run steelhead (Table 1, Figure 1). This resulted in an encounter rate of 3 adult steelhead per mile which was the lowest rate since MRA initiated surveys in 2013 (Table 1).

No adult summer-run steelhead were counted above the upper Humbug Creek flow barrier, which leads us to believe that summer-run steelhead did not migrate upstream of the barrier prior to the 2018 survey. Although rainfall was in the "above normal" range for the water year, low rainfall and lack of snowpack/snowmelt after April 2018 lead to early low-flow conditions and is believed to have limited upstream passage. Presence of other species included Pacific lamprey and lamprey redds, freshwater mussels, western pond turtles, garter snakes, and Sacramento suckers.

Table 1. Mad River summer-run steelhead dive survey results 1980–2017.

Year	Miles Surveyed	Adults				Half-Pounders				Grand Total	Total Adults and Half-Pounders Per Mile
		Live	Dead	Total	Total per mile	Live	Dead	Total	Total per mile		
1980[p]	17.9	0	0	0	0	0	0	0	0	0	0
1981[p]	17.5	2	0	2	0	0	0	0	0	2	0
1982[p]	32.4	167	0	167	5	0	0	0	0	167	5
1983[p]	22.8	31	0	31	1	0	0	0	0	31	1
1984[p]	14.1	111	0	111	8	0	0	0	0	111	8
1985[p]	14.8	52	0	52	4	0	0	0	0	52	4
1986[p]	7.8	10	0	10	1	0	0	0	0	10	1
1987[p]	20.2	18	0	18	1	0	0	0	0	18	1
1988[p]	10.6	60	0	60	6	0	0	0	0	60	6
1989[p]	10.6	20	0	20	2	0	0	0	0	20	2
1990[p]	10.6	33	0	33	3	0	0	0	0	33	3
1991[p]	14.7	59	0	59	4	0	0	0	0	59	4
1992[p]	10.6	34	0	34	3	0	0	0	0	34	3
1993[p]	10.6	48	0	48	5	0	0	0	0	48	5
1994[p]	51.6	305	0	305	6	166	0	166	3	471	9
1995[p]	66.6	541	1	542	8	10	0	10	0	552	8
1996[p]	60.7	427	1	428	7	19	0	19	0	447	7
1997[p]	66.6	292	5	297	4	12	0	12	0	309	5
1998[p]	57	191	0	191	3	20	0	20	0	211	4
1999[p]	46.4	82	0	82	2	15	0	15	0	97	2
2000[p]	53.5	170	0	170	3	62	0	62	1	232	4
2001[p]	12.5	194	0	194	16	583	0	583	47	777	62
2002[p]	19.7	185	0	185	9	80	0	80	4	265	13
2003[p]	18.7	483	0	483	26	5	0	5	0	488	26

Year	Miles Surveyed	Adults				Half-Pounders				Grand Total	Total Adults and Half-Pounders Per Mile
		Live	Dead	Total	Total per mile	Live	Dead	Total	Total per mile		
2004[p]	5.8	209	0	209	36	9	0	9	2	218	38
2005[p]	5.6	211	0	211	38	10	0	10	2	221	39
2006	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-
2008[p]	5.1	110	0	110	22	20	0	20	4	130	25
2009	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-
2013	50	280	0	280	6	28	0	28	1	308	6
2014	53.1	322	0	322	6	92	0	92	2	414	8
2015	47.2	336	0	336	7	222	0	222	5	558	12
2016	46.5	187	0	187	4	29	0	29	1	216	5
2017	46.5	151	0	151	3	40	0	40	1	191	4
2018	54.8	147	0	147	3	109	0	109	1	256	5

' [p] ' = Data is provisional from 1980–2008, as it has not been checked since entered into the database.

' - ' = No data available; no survey conducted.

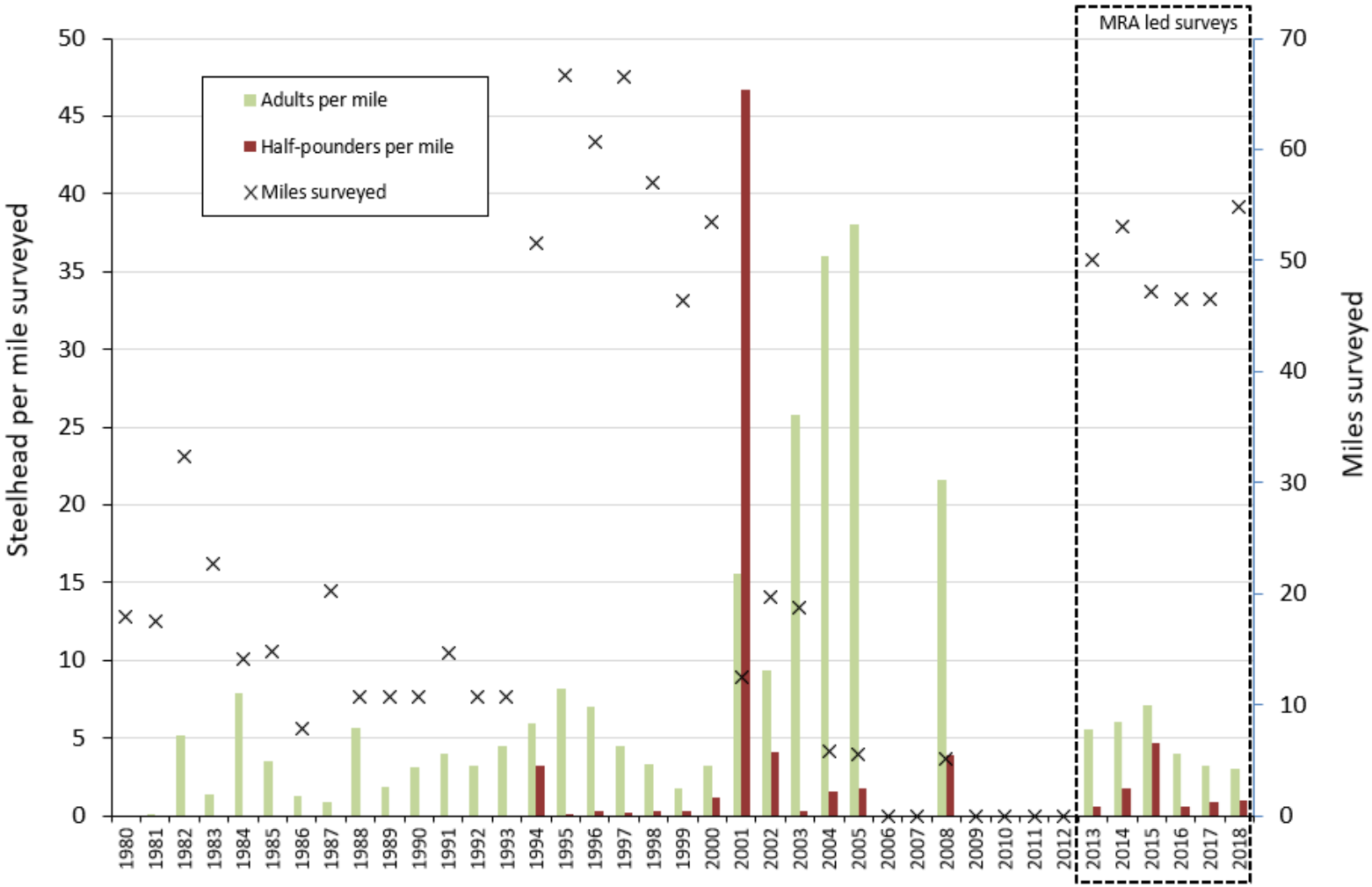

Figure 1. Summer steelhead counts between 1980–2018.

Recommendations for Future Surveys

Goals for the 2019 summer steelhead dive surveys include the following:

1. Survey the entire river from R.W. Matthews Dam to the Kadle Hole;
2. Survey all reaches within a few days;
3. Rely on trained and experienced divers for the most strenuous and difficult reaches (H and I);
4. Produce annual summary reports detailing survey effort, including distance surveyed, total count, participating entities, other observations, and considerations for future years.

Prior to the 2015 dives, the group discussed using data from the CDFW-operated Adaptive Resolution Imaging Sonar (ARIS) sonar camera to target survey dates, with the idea that survey dates will be conducted after the entire run has entered the river. Although this practice has not been implemented, comparing survey data to ARIS sonar counts near the Humboldt Bay Municipal Water District facility can be one way to determine if trends in dive counts parallel the ARIS-observed run size. Dive counts would then be used as an index of adult summer-run steelhead population abundance and to assess in-stream distribution. If resources become available, comparing these data could be an effective way of truthing run size and dive observation.

Acknowledgements

This effort would not be possible without the generous assistance and participation from all volunteers and surveyors who dedicated time towards planning and implementing this survey and creating and editing this report to ensure safety and success for all involved. We would also like to acknowledge the private landowners and associated land managers who helped facilitate crucial access points in remote stretches of the river. Thank you to all of the following volunteers and stakeholders including those listed below for being a critical part of this survey and reporting effort: Abel Brumo, Andrew Goldman, Caroline Hall, Dan Mar, Deja Malone-Persha, Eddy Koch, Ishan Vernalis. Jacob Pounds, Jeremy Heidrick, Josh Koepke, Jon P, Karen Kenfield, Karlee Jewel, Lauren Dusek, Michael Zontos, Michelle Gilroy, Natalynne Delapp-Hinton, Nathan Sailor, Nick Robinson, Pat Righter, Ryan Hinton, Steve Gough, Steve Harrison, Tim Nelson, Whelan Gilkerson, and Zane Ruddy.