

Middle Fork Stanislaus River wild trout management plan

State of California

Department of Fish and Wildlife

Heritage and Wild Trout Program

Central Region

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Executive summary

California Fish and Game Code (Chapter 7.2, Section 1726.4 (b)) states that it is the intent of the Legislature that “the department [specifically, the California Department of Fish and Wildlife (CDFW) Heritage and Wild Trout Program (HWTP)], in administering its existing [heritage and] wild trout program, shall maintain an inventory of all California trout streams and lakes to determine the most suitable angling regulations for each stream or lake. The department shall determine for each stream or lake whether it should be managed as a wild trout fishery, or whether its management should involve the temporary planting of native trout species to supplement wild trout populations that is consistent with this chapter.” Section 1726.4 (b) additionally states that “biological and physical inventories prepared and maintained for each stream, stream system, or lake shall include an assessment of the resource status, threats to the continued well-being of the fishery resource, the potential for fishery resource development, and recommendations, including necessary changes in the allowed take of trout, for the development of each stream or lake to its full capacity as a fishery.”

Furthermore, California Fish and Game Code (Chapter 7.2, Section 1727 (d)) requires that the CDFW “shall prepare and complete management plans for all wild trout waters not more than three years following their initial designation by the commission, and to update the management plan every five years following completion of the initial management plan.” For clarification, wild trout waters, as stated above, represent waters that have been formally designated by the California Fish and Game Commission as Heritage and/or Wild Trout Waters.

Wild Trout Waters are those that support self-sustaining trout populations, are aesthetically pleasing and environmentally productive, provide adequate catch rates in terms of numbers or size of trout, and are open to public angling. Wild Trout Waters may not be stocked with catchable-sized hatchery trout. Heritage Trout Waters are a sub-set of Wild Trout Waters that highlight wild populations of native California trout found within their historic drainages.

In an effort to comply with existing policy and mandates, the HWTP has prepared a fishery management plan (FMP) for the Middle Fork Stanislaus River. This FMP is intended largely as an operations guide for internal planning purposes to communicate management direction to the public, other agencies, and trout angling organizations. This FMP is intended to provide direction and list actions necessary to sustain the recreational fishery for the benefit and enjoyment of the angling public. However, actions associated with this FMP are initiated independently, thus any environmental review/permits needed to implement the actions are separate from the FMP itself.

Resource status

Area description

The Middle Fork Stanislaus River is approximately 48 miles in length from the headwaters, near Sonora Pass, to the Stanislaus River confluence (Tuolumne County). It is impounded at Donnell and Beardsley reservoirs. The Middle Fork Stanislaus converges with the North Fork and South Fork of the Stanislaus upstream of New Melones Reservoir. The California Fish and Game Commission (Commission) designated 4.4 miles of the Middle Fork Stanislaus River, from Beardsley Afterbay Dam to Sand Bar Diversion Dam, as a Wild Trout Water (Figure 1).

Flows in the designated wild trout area are controlled mostly by the Pacific Gas and Electric Company (PG&E) Sand Bar and Spring Gap hydroelectric projects. In average water years, 135 cubic feet per second (cfs) is released through Beardsley Powerhouse and Afterbay Dam into the wild trout area. In below average water years, flows are reduced to 50 cfs. The Spring Gap Project imports approximately 60 cfs of water from the South Fork Stanislaus River into the Middle Fork Stanislaus River, approximately 1.5 miles downstream of Beardsley Afterbay.

The U.S. Forest Service (USFS) Stanislaus National Forest completed its Land Resource Management Plan (LRMP) in 1991 and one component of the plan was evaluation of Wild and Scenic River designation potential for all streams in the forest (USFS 1991). While the study found the section between Beardsley Afterbay and Sand Bar was eligible for consideration as a Wild and Scenic River, it was determined unsuitable due to the possibility of future water development needs in this portion of the drainage. The LRMP instead designated this area for “near-natural” management, which is described as follows:

“Emphasis is placed on providing a natural appearing landscape in a non-motorized setting. Public motorized use is not normally allowed and no timber harvest is scheduled. Wildlife habitat management, watershed protection, dispersed non-motorized recreation, livestock grazing and minerals uses are allowed.”

The area is aesthetically pleasing and anthropogenic impacts are rarely evident. Land management practices are limited in scope and duration. This section meets USFS criteria for the Recreation Opportunity Spectrum class of semi-primitive, non-motorized. Modified timber harvest methods may be employed to enhance recreation or for salvage purposes.

Land ownership/administration

- | | |
|---|---|
| <input checked="" type="checkbox"/> U.S. Forest Service | <input type="checkbox"/> State Parks |
| <input type="checkbox"/> Bureau of Land Management | <input type="checkbox"/> National Parks |
| <input type="checkbox"/> CDFW | <input checked="" type="checkbox"/> Private |
| <input checked="" type="checkbox"/> Other | |

Lands within a 0.5 mile corridor on each side of the river are largely administered by the USFS. Approximately 160 acres are owned by PG&E for the Spring Gap Powerhouse and associated facilities. The Fiberboard Corporation also owns approximately 160 acres within the canyon corridor on the north side of the river. A small parcel of private land is adjacent to the river near the Spring Gap Powerhouse.

Public access

Roadside

Remote/hike-in

Boat

Designations

Wild Trout Water

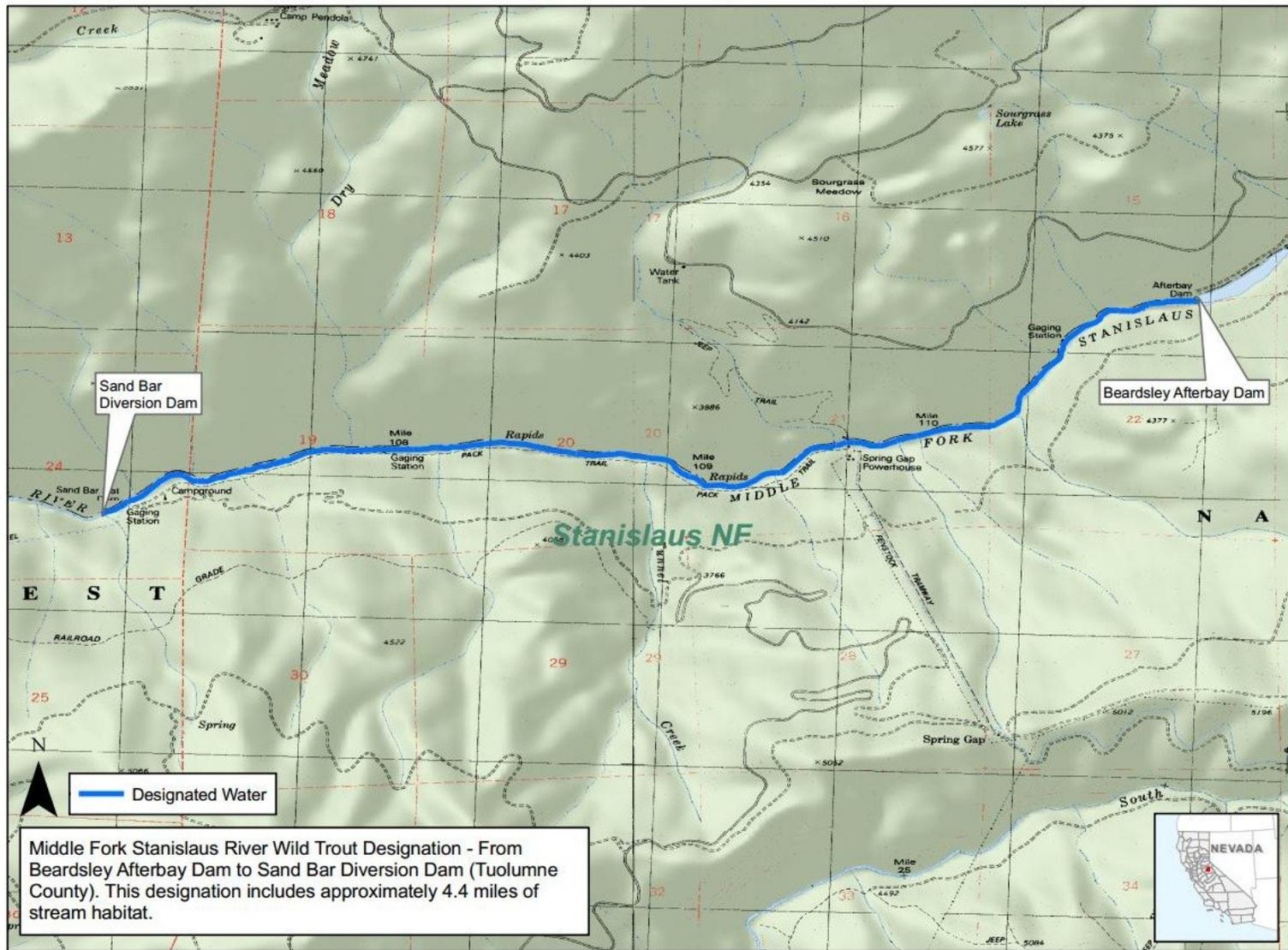
Heritage Trout Water

Federal Wild and Scenic River

Wilderness

Other-

Area map



Middle Fork Stanislaus River Designated Wild Trout Water

Fishery description

Historic Fishery

Prior to construction of the Sand Bar Project, the Middle Fork Stanislaus between Beardsley Reservoir and Sand Bar Dam was renowned as a trophy rainbow trout stream. Construction of Beardsley Dam was completed in 1957, providing a high quality tailwater fishery for nearly 30 years. With the completion of the Sand Bar Flat Powerhouse project in 1984 and accompanying modified flow regime, CDFW (then Department of Fish and Game) initiated a three year pre- (1984–1986) and post- (1987–1989) project trout population monitoring program. Pre-project data indicated declining trout populations, including a 50% decrease in the number of young-of-year fish. This information, along with the following, led CDFW to recommend a regulation change to the Commission:

- increased angler use near and above Sand Bar Dam
- pending flow regime changes (lower)
- compliance with wild trout policy (Fish and Game Code Sec. 1725 et. seq.)

The proposed changes included reducing the daily bag limit from ten to two trout with no gear restrictions from Sand Bar Flat upstream to the USFS foot bridge at Spring Gap. In addition, a two-fish daily bag limit, minimum size limit of 14 inches, and use of barbless, artificial lures only was required from the USFS foot bridge at Spring Gap upstream to Beardsley Dam. The recommended regulation changes were accepted and implemented in March, 1987 and remained in effect through 2012.

Current Fishery

A regulation change was implemented in 2013 to remove size class restrictions within the Wild Trout-designated reach; however, open season, gear restrictions, daily bag and possession limits remained unchanged (Angling regulations section). This regulation change was intended to allow take of smaller trout and reduce harvest of larger trout, potentially enhancing the opportunity to catch bigger fish in the designated wild trout area.

Although the current fishery no longer provides a trophy trout experience, it supports a wild trout fishery with moderate catch rates (>1 fish/hour) and the opportunity to catch larger trout (>14 inches). Angler survey box returns (1992-2014) show catch-per-unit-effort ranged from 0.7 – 1.9 and averaged 1.3 fish/hour (Table 5). Anglers reported catching proportionally more larger trout than documented by electrofishing surveys (Tables 6 and 7). Trout ≥ 14 inches caught by anglers was similar across survey years and ranged from 6.4% - 23.1% of the total catch, with an average of 12.6% (Figure 2). Comparatively, less than 2% of the trout captured during electrofishing surveys were ≥ 14 inches. However, the number of fish ≥ 14 inches captured during electrofishing surveys exhibited a slight upward trend over time, suggesting larger fish may be increasing in the designated reach (Figure 3).

Water source

Spring

Rain

Snow

Tailwater

Gradient

Low (< 2%)

Medium (2-4%)

High (>4%)

N/A

Fish species

Electrofishing surveys indicate three fish species are present in the designated area: coastal rainbow trout (*Oncorhynchus mykiss irideus*), brown trout (*Salmo trutta*) and riffle sculpin (*Cottus gulosus*). Coastal rainbow trout and riffle sculpin are native to the drainage, while brown trout are non-native. One Sacramento sucker (*Catostomus occidentalis*) was observed during a 1993 snorkel survey, but none were captured in electroshocking surveys and they are not considered a viable component of the fish assemblage in this reach. Downstream of the designated reach, between Sand Bar Dam and the confluence with the North Fork Stanislaus River, three other native species are present: Sacramento sucker, Sacramento pikeminnow (*Ptychocheilus grandis*) and California roach (*Hesperoleucus symmetricus*).

Population surveys at Spring Gap (1984-2015) show robust rainbow and brown trout populations, with the majority of fish < 6 inches in length in most years (Tables 1- 4). Coastal rainbow trout <6 inches ranged from 50.6% - 94.9% of the population. Brown trout < 6 inches ranged from 28.3% - 93.3% of the total catch. As noted, larger trout (≥ 14 inches) generally accounted for <2% of the combined rainbow and brown trout population and showed a slight increase across the years surveys were performed.

Common name	Scientific name	Native (Y/N)	Listing status
Coastal rainbow trout	<i>Oncorhynchus mykiss irideus</i>	Y	N/A
Brown trout	<i>Salmo trutta</i>	N	N/A
Sculpin sp.	<i>Cottus sp.</i>	Y	N/A
Sacramento sucker	<i>Catostomus occidentalis</i>	Y	N/A

Fisheries and habitat assessments

Water	Section	Year(s)	Survey type	Reference data/summary report
Middle Fork Stanislaus	1	1984	Multi-pass depletion survey	FISH Database
Middle Fork Stanislaus	2	1984 - 1989, 2001	Multi-pass depletion survey	FISH Database
Middle Fork Stanislaus	3	1984 - 1986, 1988, 1989, 2001	Multi-pass depletion survey	FISH Database
Middle Fork Stanislaus	4	1984 - 1986, 1988, 1989	Multi-pass depletion survey	FISH Database
Middle Fork Stanislaus	5	1984	Multi-pass depletion survey	FISH Database
Middle Fork Stanislaus	6	1984-1989, 1992, 1995, 1998, 2001, 2004, 2007, 2011, 2015	Multi-pass depletion survey	FISH Database
Middle Fork Stanislaus	7	2001	Multi-pass depletion survey	FISH Database

Angler survey data

Angler survey boxes on the Middle Fork Stanislaus River are located at Sandbar Flat, Spring Gap and just below the Beardsley Afterbay Dam.

Water	Date range	Survey type	Reference data/summary report
Middle Fork Stanislaus	2003 - 2014	Angler survey box	FISH Database

Angling regulations

A regulation change was implemented in 2013 for the Middle Fork Stanislaus River from Beardsley Dam downstream to Sandbar Flat. Current regulations are as follow:

From Beardsley Dam downstream to the U.S. Forest Service footbridge at Spring Gap:
Open Season - Last Saturday in April through November 15. Only artificial lures with barbless hooks may be used. Daily bag and possession limit – 2.

From the U.S. Forest Service footbridge at Spring Gap to New Melones Reservoir:
Open Season – Last Saturday in April through November 15. Daily bag and possession limit – 2.

Known stressors

Catastrophic wildfires and associated impacts are the primary potential stressor to this fishery.

New Zealand mudsnails are present in the main-stem Stanislaus River downstream of Tulloch Reservoir and could be transported in wading equipment (boots, guard socks, and/or waders) or angling gear and introduced to nearby waters. If New Zealand mudsnails become established in the wild trout area of the Middle Fork Stanislaus River, it is unknown if or to what extent their presence would affect fish populations and the recreational fishery.

Management

Management goals and objectives

- Fast action (catch rates ≥ 2 fish/hour)
- Trophy (trout ≥ 18 inches)
- Heritage trout
- Other

Management goals are to maintain a wild trout fishery with catch rates greater than one fish per hour and maintain the opportunity to catch large trout (≥ 14 "). The elimination of the size class restriction was intended to maintain the large trout component, but is not expected to affect population dynamics.

Monitoring

Water	Date range (month/year)	Survey type	Survey interval
Middle Fork Stanislaus	2015, 2018,	Multi-pass depletion	Every three

	2021		years
Middle Fork Stanislaus	Continuous	Angler survey box	On-going

Angling regulations

Current angling regulations for the Middle Fork Stanislaus were proposed and adopted to enhance the fishery potential, while maintaining appropriate management strategies in adherence with the CDFW's wild trout policy. The CDFW will continue to monitor the fishery, along with angler satisfaction/preferences, to evaluate past regulatory changes and guide and direct any future regulatory changes, if warranted.

Addressing stressors

The USFS reduces the risk of catastrophic wildfires through land management practices of prescribed burns and mechanical thinning. Public education is an essential component to preventing wildfire. Temporary wildland firefighters are employed each year and assist permanent staff in fire prevention activities and combating wild fires. These actions help prevent and lessen the severity of catastrophic wildfires.

Potential impacts from introduction of New Zealand mudsnails are best mitigated through increasing angler awareness via public outreach. Signs at popular access points should be installed to inform anglers of the possible negative impacts to the fishery and how to minimize risks of inadvertent transport and introduction. The HWTP also intermittently provides guest talks at local angling club meetings, covering a range of topics related to designated waters, including minimizing risks and threats to these quality fisheries.

Adaptive strategies

This FMP provides guidance and management direction for wild trout resources in the Middle Fork Stanislaus River. These management recommendations are based on existing conditions and should be used in accordance with updated information over time. Long-term monitoring of the fishery and associated angler preferences will play a central role in future management prescriptions. Any changes to the prescribed management goals and objectives should be based on updated quantifiable data, stakeholder input, CDFW wild trout policy (Fish and Game Code Sec. 1725 et. seq.), HWTP policy (Bloom and Weaver 2008), the CDFW Strategic Plan for Trout Management (Hopelain and Pert 2003), and collaborative (CDFW Headquarters and Regional) HWTP review.

Table 1. Coastal rainbow trout population estimates (multi-pass depletion electrofishing) for the Middle Fork Stanislaus at Spring Gap (Section #6)

Section number	Year	Section length (ft)	Section average width (ft)	Coastal rainbow Trout			
				Number of coastal rainbow trout Captured in 3-Pass Survey (* = 2-Pass Survey)	Section average weight (g)	Estimated biomass (lb/acre)	Estimated density (fish/mi)
6	1984	355	79.8	415	45.4	56	6827
6	1985	328	79.8	255*	29.2	34.20	5141
6	1986	328	79.0	200	36.2	35.9	4298
6	1987	356	85	284	41.0	39.02	4449
6	1988	356	85	108	46.0	16.05	1631
6	1989	378	94.8	53	57.0	10.23	936
6	1992	378	94.8	35	39.9	3.96	516
6	1995	378	94.8	92	44.1	13.94	1648
6	1998	378	94.8	267*	54.5	45.7	4372
6	2001	408	82.6	690	27.0	62.05	10922
6	2004	300	80.2	582	44.0	123.63	12408
6	2007	300	78.6	961	16.2	69.5	18550
6	2011	363	89.1	403*	21.8	34.69	7796
6	2015	375	84.4	255	19.6	15.2	4759

Table 2. Brown trout population estimates (multi-pass depletion electrofishing) for the Middle Fork Stanislaus at Spring Gap (Section #6)

Section number	Year	Section length (ft)	Section average width (ft)	Brown trout			
				Number of brown trout captured in 3-Pass Survey (* = 2-Pass Survey)	Section average weight (g)	Estimated biomass (lb/acre)	Estimated density (fish/mi)
6	1984	355	79.8	88	98.0	25.7	1458
6	1985	328	79.8	89*	58.7	22.61	1691
6	1986	328	79.0	62	81.3	20.24	1079
6	1987	356	85	488	34.0	56.31	7742
6	1988	356	85	582	28.0	53.83	8988
6	1989	378	94.8	352	58.0	58.12	5224
6	1992	378	94.8	448	62.2	87.49	733
6	1995	378	94.8	113	113.4	38.58	1773
6	1998	378	94.8	48*	148.8	19.14	670
6	2001	408	82.6	369	54.0	63.22	5565
6	2004	300	80.2	509	34.0	76.83	9979
6	2007	300	78.6	297	22.3	29.96	5808
6	2011	363	89.1	118*	57.6	32.5	2764
6	2015	268	84.4	268	38.9	31.6	4801

Table 3. Coastal rainbow trout size class structure for the Middle Fork Stanislaus at Spring Gap (Section #6); years followed by (*) employed two passes and all other years employed three passes during survey

Coastal rainbow Trout								
Year	0 - 6"	6" - 8"	8" - 10"	10" - 12"	12" - 14"	14" - 16"	16" - 18"	18"+
1984	401	32	41	20	5	1	0	0
1985*	198	41	12	2	1	1	0	0
1986	141	17	22	4	1	0	0	0
1987	196	54	20	13	1	0	0	0
1988	61	36	10	1	0	0	0	0
1989	47	1	9	6	1	0	0	0
1992	22	11	1	0	1	0	0	0
1995	62	22	4	1	2	0	1	0
1998*	135	84	32	12	4	0	0	0
2001	524	107	37	20	1	1	0	0
2004	375	143	35	18	5	5	1	0
2007	912	39	6	3	0	1	0	0
2011*	435	67	12	6	2	0	0	1
2015	203	42	7	2	1	0	0	0

Table 4. Brown trout size class structure for the Middle Fork Stanislaus at Spring Gap (Section #6); years followed by (*) employed two passes and all other years employed three passes during survey

Brown trout								
Year	0 - 6"	6" - 8"	8" - 10"	10" - 12"	12" - 14"	14" - 16"	16" - 18"	18"+
1984	64	4	10	5	3	1	1	0
1985*	66	4	14	1	3	0	1	0
1986	17	25	12	6	0	0	0	0
1987	439	8	20	19	1	1	0	0
1988	464	91	20	6	1	0	0	0
1989	225	44	61	18	4	0	0	0
1992	241	114	60	25	4	3	1	0
1995	49	29	13	17	3	1	1	0
1998*	19	9	4	6	8	2	0	0
2001	244	40	56	20	7	2	0	0
2004	429	42	12	18	4	2	0	2
2007	277	12	3	1	2	1	1	0
2011*	118	26	8	3	3	2	1	0
2015	228	23	7	4	0	3	0	3

Table 5. Angler survey box voluntary data form returns (1992 - 2014)

Year	Number of forms analyzed	Total effort reported (hours)	Number of coastal rainbow trout reported caught	Number of brown trout reported caught	Number of trout reported caught	Average catch per unit effort (fish/hour)
1992	293	1305.3	273	1336	1609	1.2
1993	287	1243.8	469	1012	1481	1.2
1994	185	887.3	281	622	903	1.0
1995	165	721.5	184	396	580	0.8
1996	218	976.8	505	475	980	1.0
1997	245	1153.5	732	718	1450	1.3
1998	113	550.5	661	222	883	1.6
1999	275	1211.5	1588	354	1942	1.6
2000	279	1305.5	1538	371	1909	1.5
2001	261	1173.8	974	311	1285	1.1
2002	179	723.0	687	250	937	1.3
2003	109	515.0	518	196	714	1.4
2004	120	551.0	586	218	804	1.5
2005	162	713.0	667	433	1100	1.3
2006	177	830.5	672	392	1064	1.3
2007	34	157.0	138	66	204	0.7
2008	68	272.5	150	53	203	1.3
2009	141	611.3	573	216	789	1.1
2010	53	248.0	184	93	277	1.3
2011	101	392.4	336	148	484	1.2
2012	152	624.3	516	220	736	1.2
2013	82	367.9	387	150	537	1.5
2014	66	264.5	340	157	497	1.9

Table 6. Coastal rainbow trout size class distribution in the designated wild trout reach of the Middle Fork Stanislaus River reported on angler survey box forms (1992-2015)

Year	Coastal rainbow trout total length (inches)								
	< 6"	6" - 7.9"	8" - 9.9"	10" - 11.9"	12" - 13.9"	14" - 15.9"	16" - 17.9"	≥16"	≥18"
1992	16	42	80	62	60	13	N/A	6	N/A
1993	19	53	87	137	117	50	N/A	15	N/A
1994	6	42	89	70	55	13	N/A	10	N/A
1995	7	32	58	35	28	19	N/A	5	N/A
1996	11	60	140	139	105	33	N/A	17	N/A
1997	23	84	149	267	131	37	N/A	8	N/A
1998	53	150	164	179	91	23	N/A	1	N/A
1999	84	291	556	441	150	46	N/A	20	N/A
2000	101	273	500	415	186	44	N/A	19	N/A
2001	100	167	315	252	87	41	N/A	12	N/A
2002	109	167	205	119	53	23	N/A	11	N/A
2003	62	100	126	100	69	52	N/A	9	N/A
2004	66	161	177	118	37	13	N/A	14	N/A
2005	50	116	143	151	110	74	N/A	23	N/A
2006	48	99	152	175	107	61	N/A	30	N/A
2007	15	30	48	33	12	0	N/A	0	N/A
2008	23	63	29	16	13	2	N/A	4	N/A
2009	56	125	154	118	67	30	12	2	9
2010	6	36	53	47	23	15	1	3	0
2011	23	53	50	64	79	44	18	N/A	5
2012	60	120	145	93	53	34	10	N/A	1
2013	59	109	106	52	29	17	6	N/A	3
2014	31	116	79	58	39	3	14	N/A	0

Table 7. Brown trout size class distribution in the designated wild trout reach of the Middle Fork Stanislaus River reported on angler survey box forms (1992-2014)

Brown trout total length (inches)									
Year	< 6"	6" - 7.9"	8" - 9.9"	10" - 11.9"	12" - 13.9"	14" - 15.9"	16" - 17.9"	≥16"	≥18"
1992	60	117	300	442	248	104	N/A	44	N/A
1993	36	79	239	261	211	97	N/A	64	N/A
1994	12	50	140	203	133	50	N/A	34	N/A
1995	9	36	87	87	77	57	N/A	43	N/A
1996	9	36	92	110	107	78	N/A	43	N/A
1997	9	46	94	231	197	105	N/A	35	N/A
1998	13	22	43	41	35	30	N/A	38	N/A
1999	21	30	86	79	70	46	N/A	22	N/A
2000	9	33	93	105	72	41	N/A	18	N/A
2001	25	32	91	78	35	33	N/A	17	N/A
2002	24	43	43	50	41	25	N/A	24	N/A
2003	17	32	47	30	18	32	N/A	20	N/A
2004	16	42	52	49	26	20	N/A	13	N/A
2005	28	35	78	55	104	89	N/A	44	N/A
2006	11	37	65	75	73	80	N/A	51	N/A
2007	6	5	13	16	12	7	N/A	7	N/A
2008	6	6	16	8	4	5	3	4	1
2009	13	34	56	38	26	26	6	1	16
2010	4	6	23	20	24	7	4	4	1
2011	8	7	33	32	23	23	9	N/A	13
2012	18	43	32	38	34	26	23	N/A	6
2013	27	32	36	18	11	9	3	N/A	6
2014	4	30	41	30	10	17	7	N/A	6

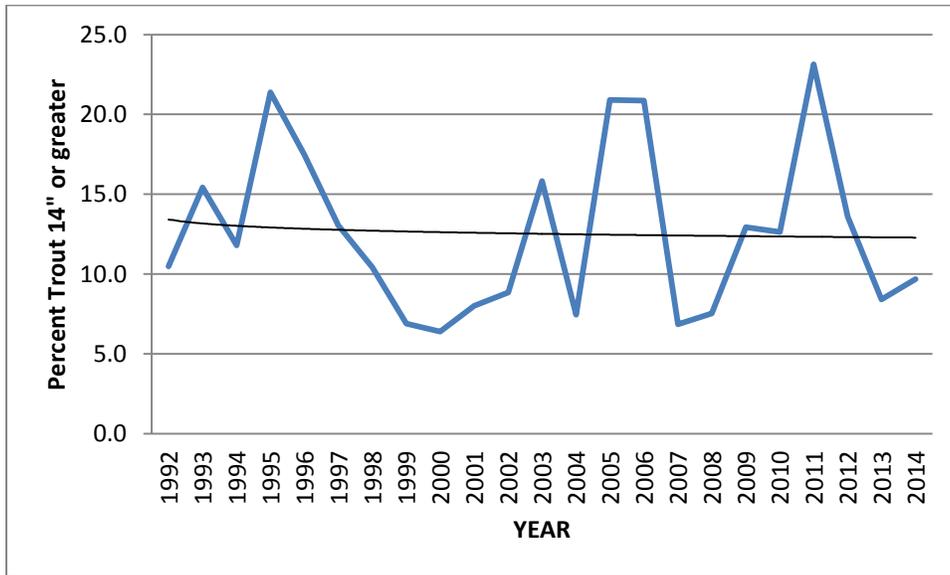


Figure 2. Percentage of trout 14 inches or greater reported caught by anglers within the designated wild trout reach on the Middle Fork Stanislaus River

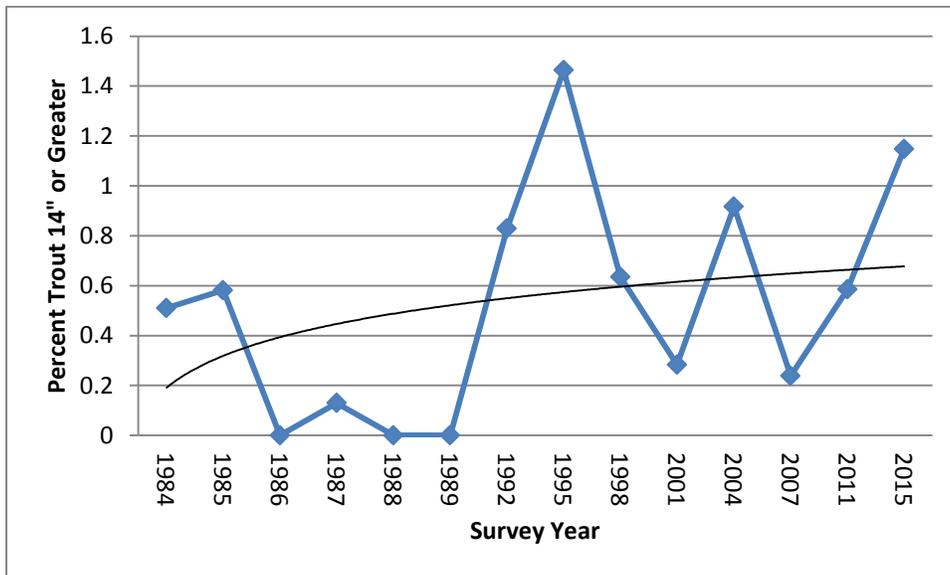


Figure 3. Percentage of trout 14 inches or greater captured in multi-pass depletion electrofishing surveys at Spring Gap (Section 6), Middle Fork Stanislaus River.

Acknowledgements

We would like to thank Jeff Weaver and Stephanie Hogan of the Heritage and Wild Trout Program for their constructive review of this management plan. We would also like to thank Pacific Gas and Electric, USFS, Stanislaus, Merced Fly Fishing Club, Mother Lode Fly Fishing Club and all the volunteers that participated in the collection of fish population data and angler survey data presented in this fisheries management plan.

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