

Fall River Wild Trout Management Plan

2013-2018

State of California

Natural Resources Agency

Department of Fish and Wildlife



by

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Region 1- Northern

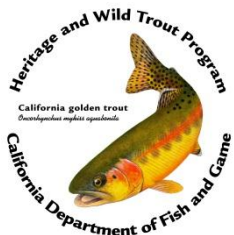


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Executive Summary

California Fish and Game Code (Chapter 7.2, Section 1726.4 (a)) states that “it is the intent of the Legislature that the department [specifically, the Department of Fish and Wildlife (CDFW) Heritage and Wild Trout Program (HWTP)], in administering its existing [heritage and] wild trout program, shall conduct a biological and physical inventory of all California trout streams and lakes to determine the most suitable angling regulations for each stream or lake. The department [CDFW] shall determine for each stream or lake whether it should be managed as a wild trout fishery, or whether its management should involve the planting of native trout species to supplement wild trout populations.”

Section 1726.4 (a) additionally states that “biological and physical inventories prepared 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 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 and highlight wild populations of California’s native trout that are 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 Fall 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

Fall River, a major tributary of the Pit River, is located in north-eastern Shasta County approximately 60 miles northeast of Redding in Fall River Valley (Figure 1). The river originates at Thousand Springs (elevation approximately 3,320 ft.), a series of springs

rising from lava beds less than one mile northeast of Dana, and flows 21.3 miles in a southerly direction before joining the Pit River below Fall River Mills. Since 1922, the majority of flow is diverted at the Pacific Gas and Electric (PG&E) Pit No. 1 Forebay, located directly upstream from Fall River Mills. From the Forebay, flow is diverted through a tunnel and penstock to the Pit 1 Powerhouse located approximately 7.5 miles downstream on the Pit River.

The Fall River watershed lies within volcanic terrain of the Modoc Plateau geomorphic province. The river drains a 612 square mile area, but due to the porous volcanic nature of the region, most of the stream flow originates from springs within the valley. Bear Creek represents the largest surface flow contribution to the Fall River.

The orographic effect of mountainous terrain to the west of Fall River Valley results in moderate rainfall. The valley normally receives 18 to 27 inches/year of precipitation with the mountainous areas to the west receiving as much as 60 inches. Snowfall is light in the valley but may annually exceed 70 inches in the mountains. Summers are generally dry and hot (temperatures in the high 80's °F are common) with subfreezing temperatures occurring in the winter. A strong afternoon wind regularly occurs throughout the valley during the summer.

Fall River is a moderate sized, slow moving, meandering meadow stream. It varies in width from 50 ft. in narrower stretches near its headwaters to 300 ft. in its lower reaches. Depths generally range from approximately 2 ft. in some shallow runs to over 25 ft. in deeper pools. The mean gradient is less than 1 ft./mile.

Flows are relatively stable throughout the year due to the stream's spring origins. Recorded at the USGS gage near Dana, the river had a summer flow averaging (from 1958-1967) about 450 cubic feet per second (cfs). Extreme flows recorded for the 1958 to 1967 period were 353 and 3,910 cfs (USGS 1968). The peak flows originate primarily from flood events on Bear Creek, which flows into Fall River just below Thousand Springs; it is intermittent in the lower reaches during summer months.

In the uppermost five miles, upstream of Spring Creek, Fall River is about 75 ft. wide and flows through ponderosa pine forests interspersed with wide, flat meadows. Spring Creek adds additional cold, clear spring water to the river 5.2 miles downstream of Thousand Springs. Below Spring Creek, the river broadens to about 100 ft. and meanders the remaining 16 miles through an open valley. Approximately seven miles below Spring Creek, Fall River is joined by Tule River which flows out of Big and Eastman lakes. These tributaries bring the total summer flow to about 1,200 cfs and channel widths to about 300 ft. in the lower 9.3 miles of Fall River above the Pit No. 1 Intake. A USGS gauge monitors flow downstream of the Pit 1 Powerhouse on the Pit River. The flow in this section includes the Fall River outflow through the Powerhouse, the small amount of Fall River bypass water, and the Pit River. Extreme flows recorded on this gauge from October 2007 through March 2013 were 369 cfs (November 2007) and 7,560 cfs (March 2011) (USGS 2013).

The large volume of spring water inflow maintains Fall River water temperature at near optimum ranges for trout production, even during mid-summer. At the Island Road Bridge, mid-summer temperatures are generally in the low to mid 50's °F and near

Glenburn and the Pit No. 1 Intake, in the low to mid 60s °F.

The Designated Wild Trout Area (WTA) of Fall River is approximately 23 miles in length and its boundaries are from the Pit 1 Powerhouse intake upstream to its' origin at Thousand Springs including Spring Creek, but excluding all other tributaries.

Land ownership/administration

- | | |
|--|--|
| <input type="checkbox"/> United States Forest Service | <input type="checkbox"/> Bureau of Land Management |
| <input type="checkbox"/> State Parks | <input type="checkbox"/> National Parks |
| <input type="checkbox"/> Fish and Game | <input checked="" type="checkbox"/> Private |
| <input checked="" type="checkbox"/> Other (California Trout private property but open to the public during fishing season) | |

Public access

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> Roadside | <input type="checkbox"/> Remote/hike-in | <input checked="" type="checkbox"/> Boat |
|--|---|--|

The Fall River WTA is unique in that all of the surrounding land is privately owned and thus public access to the upper river is very limited. PG&E owns a few small parcels of land along the WTA which are not publically accessible and California Trout (CalTrout) owns a 5.5 acre parcel at the Island Road Bridge, which constitutes the only privately-owned property open to the public (without fee) during the trout season.

In 1976, CalTrout purchased this land and granted the public permission to trespass based upon certain conditions: "This property may be entered for the purpose of angling within 400 feet downstream from the bridge and for the purpose of launching and taking out boats and rafts other than those powered by gasoline motors. No trespassing is permitted for persons launching or taking out boats with gasoline motors. No hunting, shooting, or littering is permitted. Permission to trespass may be revoked without notice (May 1976)." The CalTrout facility includes a primitive boat launch for small boats (non-gasoline outboards only) and fishing dock. There is a small parking area (for approximately six to eight vehicles) and portable sanitary facility.

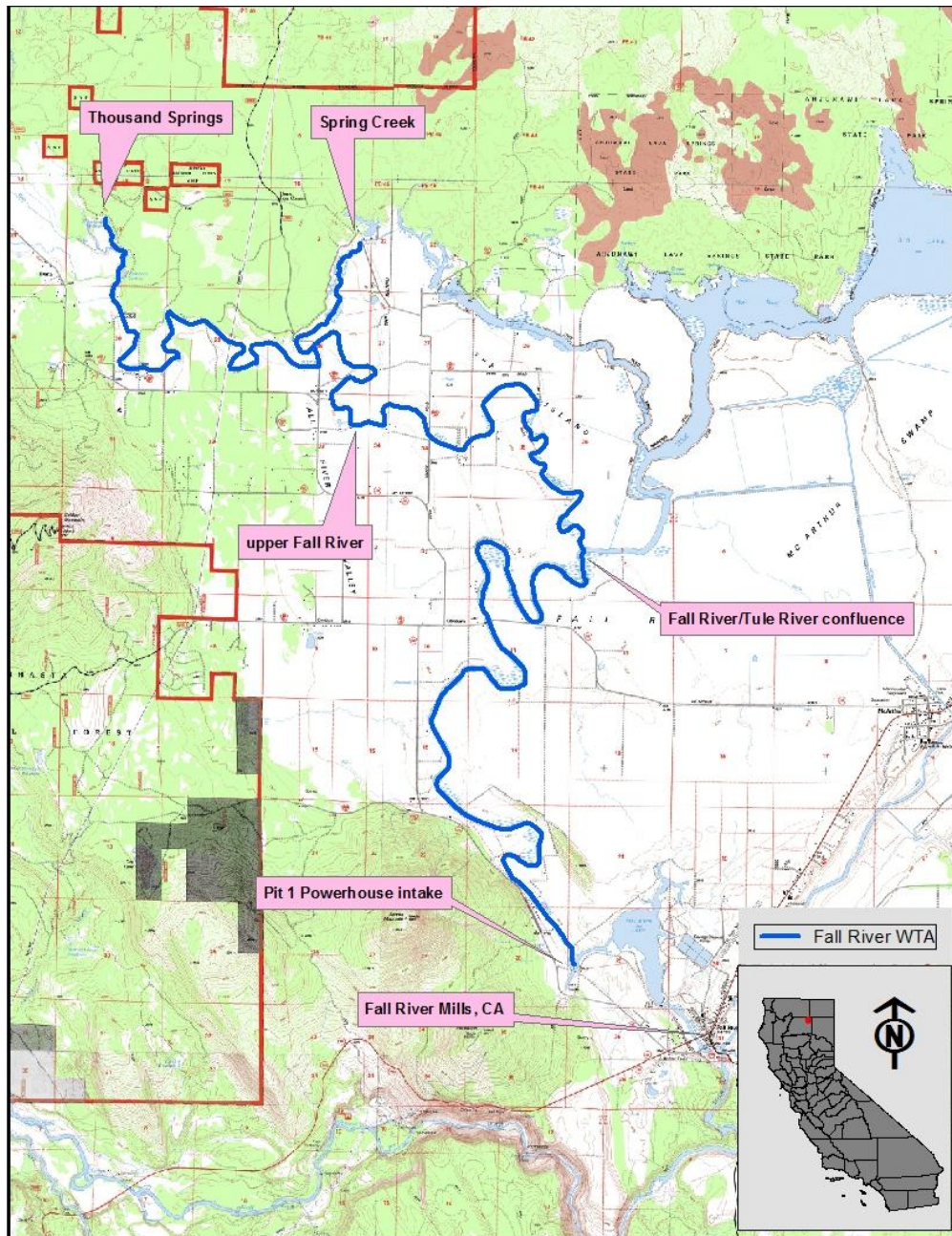
Other public accesses on the Fall River complex (Fall River, Tule River, Little Tule River, Eastman Lake, Horr Pond and Big Lake) include the PG&E boat ramps at Big Lake (Rat Farm) and at Tule River. Both are primitive launches and include permanent sanitary facilities. These two public access areas are well outside the Fall River WTA and popular trout fishing areas of the upper Fall River. The Big Lake and Tule River boat launches are approximately 5.3 and 1.2 water miles, respectively, from the mouth of upper Fall River. The majority of angler access to the upper Fall River (more popular section of the wild trout area) is through private landowners either by guest privilege, or as members of private fishing clubs

A Shasta County ordinance limits boat speeds to a maximum of five miles per hour on upper Fall River above the mouth of the Tule River. This ordinance was put forth for public safety, to lessen noise disturbance for landowners, and to minimize the effects of

shoreline erosion via wave action. However, for anglers who do not have private landowner access, or who do not have a small boat with electric trolling motor (to launch at CalTrout), travel time from the public launching sites (Big Lake or Tule River) to upstream fishing areas can take over two hours.

Area map

Figure 1. Fall River WTA with upper and lower boundaries



Designations

- | | |
|--|---|
| <input checked="" type="checkbox"/> Wild Trout Water | <input type="checkbox"/> Heritage Trout Water |
| <input type="checkbox"/> Federal Wild and Scenic River | <input type="checkbox"/> Wilderness |
| <input type="checkbox"/> Other | |

Fishery description

There are ten fish species established in the Fall River WTA which include; coastal rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*), Sacramento sucker (*Catostomus occidentalis occidentalis*), Sacramento pikeminnow (*Ptychocheilus grandis*), Pit tui chub (*Gila bicolor ssp.*), rough sculpin (*Cottus asperimus*), bigeye marbled sculpin (*Cottus klamathensis macrops*), Pit-Klamath brook lamprey (*Lampetra lethophaga*), largemouth bass (*Micropterus salmoides*) and brown bullhead (*Ameiurus nebulosus*; Table 1). Other fish species including brook trout (*Salvelinus fontinalis*), speckled dace (*Rhinichthys osculus*), bluegill (*Lepomis macrochirus*) and Western mosquito fish (*Gambusia affinis*) have been documented in the Fall River watershed but limited data exists to suggest they are established in the Fall River WTA.

Coastal rainbow trout

Coastal rainbow trout are the most abundant and widespread native salmonid in western North America. They are successful because they have adapted to a wide variety of habitats and are flexible in life history patterns (Moyle 2002). Coastal rainbow are the only trout native to Fall River and are the most abundant trout species. Native coastal rainbow trout in the Pit River watershed have evolved with an endemic protozoan, *Ceratomyxa shasta*, which is fatal to other strains of rainbow trout. Because of their resistance to *C. shasta*, coastal rainbow trout in the Pit River system are unique and generally termed "Pit River strain" rainbows. Coastal rainbow trout are distributed throughout the Fall River WTA.

Brown trout

Brown trout are native to Europe, North Africa, and western Asia. According to Mather (1889), the first brown trout in America were hatched in New York State in 1883. In 1893, brown trout embryos were brought to California and successfully reared (Moyle 2002). Since that time, brown trout have been raised at California hatcheries and subsequently stocked at various waters throughout the state. In upper Fall River, brown trout historically were an occasional occurrence (Rode and Weidlein 1986). They currently make up only a small fraction of the trout assemblage (Plemons 2012).

Sacramento sucker

Sacramento sucker is a common, widely distributed species in central and northern California. They are native to the Sacramento River watershed including Fall River. Historically, they were occasional occurrences in the upper Fall River and were more abundant downstream of the confluence with the Tule River (Rode and Weidlein 1986). During recent direct observation (DO) surveys (Weaver and Mehalick 2008-2010;

Mehalick and Zuber 2012), adult Sacramento sucker were observed in low numbers in the upper Fall River.

Sacramento pikeminnow

Sacramento pikeminnow are widely distributed throughout California. They are native to the Sacramento River watershed, including Fall River. Historically they were occasionally observed in Fall River (Rode and Weidlein 1986). During recent DO surveys (Weaver and Mehalick 2008 and 2009), Sacramento pikeminnow were observed in low numbers in the upper Fall River. During a 2012 creel survey, there were a few unconfirmed angler catches of pikeminnow, with the majority of these reports in the lower river below the confluence with the Tule River.

Pit River tui chub

In California, tui chub are mostly native to interior drainages, except the Central Valley, and absent from all coastal drainages, except where introduced. In the Sacramento-San Joaquin drainage, tui chubs are native only to Pit River downstream at least as far as Hat Creek and Britton Reservoir (Moyle 2002). Historically, they were an occasional occurrence in the upper Fall River but more common downstream (Rode and Weidlein 1986). They have been documented in other areas of the Fall River complex, specifically Big Lake (Plemons 2008).

There are eight species of sculpin in California streams, three of which are native to the Pit River watershed (rough, marbled and Pit). Two of these have been documented in the Fall River complex (rough and marbled). It is not uncommon to find two or three different species living together as is the case for Fall River.

Rough sculpin

According to Moyle (2002), rough sculpin are largely restricted to spring-fed tributaries of the Pit River below Lake Britton. They are most abundant throughout the Fall River and its major tributary, Tule River (but are absent from a non-spring tributary, Bear Creek). Rough sculpin are listed as Threatened under the California Endangered Species Act and are fully protected to preclude possible extinction. According to Rode and Weidlein (1986), historically they were a common occurrence in the Fall River. During recent DO surveys (Weaver and Mehalick 2008-2010; Mehalick and Zuber 2012), sculpin (not identified to species; unable to determine through DO methodology) were observed in the upper river. There have not been any recent surveys in the Fall River complex to document rough sculpin current distribution and abundance.

Bigeye marbled sculpin

There are three recognized subspecies of marbled sculpin. *C. macrops*, described by Rutter from the Fall River and named after its large eyes, is the recognized sub-species in the Pit River watershed. This subspecies is fairly distinctive in morphology, ecology, and behavior, and may warrant separate species status (Moyle 2002). According to Rode and Weidlein (1986), historically they were a common occurrence in the Fall River. As noted previously, sculpin were observed in the Fall River during surveys

conducted between 2008 and 2012 but were not identified to species. There are no recent surveys in the Fall River complex to document current distribution and abundance.

Pit-Klamath brook lamprey

The Pit-Klamath brook lamprey is a non-predatory species closely related to the Pacific lamprey. Their distribution is limited to the Pit River system (including Fall River) and the upper Klamath River. Historically they were an occasional occurrence in the Fall River (Rode and Weidlein 1986). Recent DO surveys (2008-2012) observed some lamprey in the upper Fall River, although survey methodology may be biased against detection of lampreys, specifically the ammocete-life stage. There have not been any recent surveys in the Fall River complex to document current distribution and abundance of lamprey.

Largemouth bass

Largemouth bass have been introduced throughout the continental United States. It may have been first introduced into California in 1891 (Dill 1997), although there are differing accounts. Regardless, largemouth bass have been subsequently stocked throughout the state and are established in the Fall River complex. Historically, largemouth bass were a rare occurrence in the Fall River (Rode and Weidlein 1986). During recent DO surveys in the upper Fall River, no largemouth were observed. Although rare in the Fall River, they are more common below the confluence of the Fall and Tule rivers. Anglers target this species in this area and in Horr Pond and Big Lake, both of which support a popular largemouth bass fishery.

Brown bullhead

Brown bullhead are native to the eastern United States and have been widely introduced throughout the western United States. They arrived in California in 1874, when 70 fish from Lake Champlain, Vermont were brought by Livingston Stone at the request of the California Fish Commission (Dill 1997). Brown bullhead are assumed to be mistaken for black bullhead, as written in the 1986 FMP. According to Rode and Weidlein (1986), they were historically an occasional occurrence in the Fall River. Although documented in Big Lake (Plemons 2008), no recent surveys have been conducted to document their current distribution and abundance within Fall River.

Although Fall River offers a variety of unique native and non-native fish fauna, it is most notably recognized as an outstanding wild trout fishery in an aesthetically pleasing environment. Fall River slowly meanders through agriculture lands of the scenic Fall River Valley with snowcapped Mount Shasta in the backdrop. The large volumes of cold spring water inflow maintain temperatures at near optimum ranges for trout production throughout the year. The “hex” hatch of early to mid-summer is world famous to wild trout enthusiasts and anglers report some of the best catch rates during this time. Fall River offers a unique spring river trophy trout (≥ 18 inches) fishing experience with abundant and hard fighting rainbow trout.

Not including the hex hatch, reported catch rates are often low. The most recent creel results reported catch rates of less than one fish per hour on average (Plemons 2012).

The Fall River is a heavily guided fishery and the 2012 creel survey results reported that 18% of anglers were being guided (Plemons 2012). Lack of public access, low catch rates, and special angling techniques are the most likely reasons why.

Fall River attracts many out-of-town wild trout anglers. Fall River anglers residing in counties other than Shasta County for the 1978, 1982 and 2012 creel surveys were 83%, 82% and 80%, respectively (Rode and Weidlein 1986, Plemons 2012). The high percentage of non-local anglers may be another reason why guide use is high on the Fall River.

Table 1. Fishes of Fall River WTA

Common name	Scientific name	Native	Listing status
coastal rainbow trout	<i>Oncorhynchus mykiss</i>	yes	none
brown trout	<i>Salmo trutta</i>	no	none
Sacramento sucker	<i>Catostomus occidentalis occidentalis</i>	yes	none
Sacramento pikeminnow	<i>Ptychocheilus grandis</i>	yes	none
Pit tui chub	<i>Gila bicolor ssp.</i>	yes	none
rough sculpin	<i>Cottus asperrimus</i>	yes	California Threatened
bigeye marbled sculpin	<i>Cottus klamathensis macrops</i>	yes	California Species of Special Concern
Pit-Klamath brook lamprey	<i>Lampetra lethophaga</i>	yes	none
largemouth bass	<i>Micropterus salmoides</i>	no	none
brown bullhead	<i>Ameiurus nebulosus</i>	no	none

Table 2. Other aquatic species of Fall River WTA

Common name	Scientific name	Native	Listing status
Shasta crayfish	<i>Pacifastacus fortis</i>	yes	California Endangered
signal crayfish	<i>Pacifastacus leniusculus</i>	no	none
American bullfrog	<i>Rana catesbeiana</i>	no	none
western pond turtle	<i>Emys marmorata</i>	yes	California Species of Special Concern
western toad	<i>Bufo boreas</i>	yes	none
Pacific chorus frog	<i>Pseudacris egilla</i>	yes	none
muskrat	<i>Ondatra zibethicus</i>	no	none
beaver	<i>Castor canadensis</i>	yes	none
mayfly	<i>Drunella spp.</i>	yes	none
mayfly	<i>Baetis ssp.</i>	yes	none
mayfly	Family Siphonurid	yes	none
mayfly	<i>Hexagenia spp.</i>	yes	none
caddisfly	Order Trichoptera	yes	none
midges	Family Chironomid	yes	none
aquatic snails	Class Gastropod	yes	none
aquatic worms	Subclass Oligochaeta	yes	none
leeches	Subclass Hirudinea	yes	none

Water source(s)

- Spring Rain Snow Tailwater

Gradient

- Low (< 2%) Medium (2-4%) High (>4%) N/A

Trout Population Estimates

Fall River was one of the original 16 streams in the Commission's Wild Trout Program, giving it special management and habitat protection. For this reason and the high profile nature, the Fall River has been one of the most intensely studied wild trout fisheries in the Department's Northern Region (Tables 3 and 4).

The Department began in-depth fisheries investigations in the early to mid-1970's to analyze the effectiveness of special management. Initially, boat electrofishing was the preferred method to gather fishery-related data. In the late 1980's to early 1990's, concern over this method and fish injury was raised. In an effort to reduce fish injury related to electrofishing, the Department began conducting DO surveys in 1993. While boat electrofishing and DO surveys are designed to collect information on the fishery, angler survey box (ASB) and creel data are designed to capture angler catch and satisfaction to determine if management objectives are being achieved.

Table 3. Fall River fisheries assessments

Water	Section	Date	Survey Type	Reference Data
Fall River	Gasline	1975-1978	Petersen MR	Rode and Weidlein 1986
Fall River	Gasline	1979-1986	Boat Electrofishing	Region 1 Files
Fall River	Gasline	1988	Boat Electrofishing	Region 1 Files
Fall River	Gasline	1993	Petersen MR	Region 1 Files
Fall River	Gasline	1993	Direct Observation	Region 1 Files
Fall River	Gasline	1995	Direct Observation	Region 1 Files
Fall River	Gasline	1997-1999	Direct Observation	Region 1 Files
Fall River	Gasline	2001	Direct Observation	Region 1 Files
Fall River	Gasline	2004	Direct Observation	Region 1 Files
Fall River	Gasline	2007-2010	Direct Observation	Weaver and Mehalick 2007-2010
Fall River	Gasline	2012	Direct Observation	Mehalick and Zuber 2012
Fall River	Whipple	1978	Petersen MR	Rode and Weidlein 1986
Fall River	Whipple	1979-1982	Boat Electrofishing	Region 1 Files
Fall River	Whipple	1983	Petersen MR	Rode and Weidlein 1986
Fall River	Whipple	1985-1986	Boat Electrofishing	Region 1 Files
Fall River	Whipple	1988	Boat Electrofishing	Region 1 Files
Fall River	Whipple	1993	Petersen MR	Region 1 Files
Fall River	Whipple	1993	Direct Observation	Region 1 Files
Fall River	Whipple	1995	Direct Observation	Region 1 Files
Fall River	Whipple	1997-1999	Direct Observation	Region 1 Files
Fall River	Whipple	2001	Direct Observation	Region 1 Files
Fall River	Whipple	2004	Direct Observation	Region 1 Files
Fall River	Whipple	2007-2010	Direct Observation	Weaver and Mehalick 2007-2010
Fall River	Whipple	2012	Direct Observation	Mehalick and Zuber 2012
Fall River	Island Rd.	1993	Direct Observation	Region 1 Files
Fall River	Island Rd.	1995	Direct Observation	Region 1 Files
Fall River	Island Rd.	1997-1999	Direct Observation	Region 1 Files
Fall River	Island Rd.	2001	Direct Observation	Region 1 Files
Fall River	Island Rd.	2004	Direct Observation	Region 1 Files
Fall River	Island Rd.	2007-2008	Direct Observation	Weaver and Mehalick 2007-2008
Fall River	Island Rd.	2010	Direct Observation	Weaver and Mehalick 2010
Fall River	Island Rd.	2012	Direct Observation	Mehalick and Zuber 2012
Fall River	Horr	1984-1986	Boat Electrofishing	Region 1 Files
Fall River	Horr	1988	Boat Electrofishing	Region 1 Files
Fall River	Horr	1993	Boat Electrofishing	Region 1 Files
Fall River	Rosie's	2010	Direct Observation	Weaver and Mehalick 2010

Table 4. Angler survey data from Fall River

Water	Section	Date	Survey Type	Reference Data
Fall River	Fall River Complex	1978	Creel Census	DFW Region 1 Files
Fall River	Fall River Complex	1983	Creel Census	DFW Region 1 Files
Fall River	Fall River Complex	1988	Creel Census	DFW Region 1 Files
Fall River	Fall River Complex	1993	Creel Census	DFW Region 1 Files
Fall River	Fall River Complex	2012	Creel Census	Plemons 2012
Fall River	Upper Fall River	2003-2012	Angler Survey Box	DFW Region 1 Files

Angling Regulations

The most influential decision in the current management of the Fall River fishery was the People vs. Mack verdict which declared the Fall River as navigable water in May 1970. Due to concern over an increase in angling pressure due to an increase in public access, special regulations were implemented. Subsequently, the Commission changed the angling regulations from a two-fish bag (1971) to artificial lures only (1974) to a single barbless hook above Island Road Bridge (1982). The current special angling regulations for the upper Fall River have been in place since 1985 and are monitored to ensure effectiveness in maintaining a self-sustaining wild trout fishery.

The Fall River WTA incorporates special regulations for the upper Fall River and general district regulations for the lower river. The upper Fall River is as follows: Fall River (Shasta Co.) from its origin at Thousand Springs downstream to the mouth of the Tule River and including Spring Creek and excluding all other tributaries is open from the last Saturday in April through November 15th with a maximum size limit of 14 inches total length, daily bag limit of two fish, and only artificial lures with barbless hooks may be used (Section 7.50 (b) (67)). The lower Fall River follows general Sierra district regulations which stipulates all streams, lakes and reservoirs in the Fall River Valley above the Pit No. 1 PG&E Diversion Dam on Fall River in Shasta County, except those listed by name in the Special Regulations, are open from the last Saturday in April through November 15th with a daily bag and possession limit of two fish (Section 7.00 (b) (4)).

Known stressors

Bank erosion

The 1986 FMP cited bank erosion as the most serious environmental problem affecting trout habitat on Fall River. Although efforts have been put forth to limit erosion and maintain bank stability, it still occurs in the Fall River and remains an environmental stressor.

Siltation

A high level of siltation was noted as an environmental problem in the 1986 FMP and

has been an environmental problem in Fall River for decades. Much of this problem is in the upper river and the point source has been linked to the upper watershed, specifically Bear Creek. A large fire in the Bear Creek watershed and subsequent surface erosion is a major source of sediment currently residing in the upper Fall River. Also, poor land management practices (timber harvest and roads) in the upper Bear Creek watershed have induced increased sediment loads. The Fall River Resource Conservation District (FRRCD) has been instrumental in obtaining grant funding and coordinating, implementing and completing several pond and plug restoration projects in the Bear Creek watershed to reduce sedimentation.

Aquatic vegetation

Inconsistent patterns of native and non-native aquatic macrophyte growth in the Fall River WTA may affect wild trout populations. In Fall River, trout typically occupy areas of dense aquatic vegetation; particularly the native Z-grass or horned pond weed (*Zannichellia palustris*). Aquatic vegetation provides trout cover and a food source for aquatic invertebrates of which the trout feed on. Although the Fall River is a stable spring fed system, there has been annual or seasonal variability in aquatic macrophyte abundance (temporally and spatially) throughout the Fall River complex. The cause and effect of this variability is not completely understood at this time, but high sedimentation may be a contributing factor. For unknown reasons, some years (or seasons) there is an abundance of macrophyte growth, and others a complete absence of it.

Agricultural practices

The Fall River Valley has been described as a “working landscape.” The valley and river provide many people a way of life whether farming, ranching or angling. It is also a major source of recreation from outdoor enthusiasts including bird watchers, anglers, hunters and campers.

Wild rice

Wild Rice farming in the Fall River Valley has increased from about 60 acres in 1982 to about 700 acres in 1984. In 2012, there are several thousand acres of this crop and it is one of the main commodities in this area. The growing of rice requires intensive flood irrigation and the irrigation return water is much warmer, turbid and can carry nutrients and chemicals back into the Fall River.

Cattle ranching

The Fall River Valley provides a very productive area to raise cattle. Cattle ranching can have negative effects on an ecosystem (over-grazing, effluent, riparian zone impacts) which can lead to other major environmental problems such as bank erosion, increased sedimentation, siltation and water turbidity.

Non-native species

Projects to control non-native muskrat are ongoing. Bait stations appear to be the most

effective control methods; however, they are localized and require ongoing use to be effective.

The Fall River Conservancy (FRC) obtained grant funds through the Orvis Company to begin a pilot project to biologically control non-native Eurasian watermilfoil (*Myriophyllum spicatum*) with a watermilfoil weevil (*Euhrychiopsis lecontei*). However, after further research it was determined that water temperatures in Fall River are too cold to support this weevil in numbers determined effective for watermilfoil control. The pilot project was terminated and grant funds were used for other restoration efforts on Fall River (Drew Braugh, pers. com.).

Public outreach efforts are ongoing to inform anglers and recreationalists about the threats of New Zealand mudsnail (*Potamopyrgus antipodarum*), quagga (*Dreissena rostriformis*) and zebra (*Dreissena polymorpha*) mussels. Informative invasive species posters have been placed at strategic locations (public access sites, fishing locations, and boat launches) on the Fall River system (L.B. McAlexander pers. com.).

Management

The current special angling regulations for the upper Fall River were adopted for the 1985 season. These regulations were put in place to maintain and maximize the trophy trout fishery.

The 2012 creel survey results show that over 10% of the trout caught were ≥ 18 inches (Plemons 2012). ASB data show similar results in that 13% of the trout caught in 2012 were ≥ 18 inches (Plemons 2012a). Current management is meeting the objectives of this fishery. Maintaining this fishery as a trophy trout fishery is a management objective.

Goals and objectives

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

Monitoring recommendations

In order to determine if current management of the Fall River fishery is meeting management objectives outlined in this FMP into the future, the Fall River WTA should be monitored/surveyed utilizing the methodology and frequency as follows:

Water	Date Range	Survey Type	Survey Interval
Fall River	July-October	Mark recapture	as needed
Fall River	July-October	Boat electrofishing	as needed
Fall River	July-August	Direct observation	5 yrs. or as needed
Water	Date Range	Survey Type	Survey Interval
Fall River	July-August	Habitat typing	5 yrs. or as needed
Fall River	April-November	Creel	5 yrs. or as needed
Fall River	April-November	ASB	Annual

Angling regulations

Current angling regulations for the Fall River were adopted by the Commission on December 6, 1984. They are set forth to provide protection for the trout population while maintaining management goals and objectives. The Department shall monitor the fishery along with angler satisfaction and preferences to guide and direct any future regulatory changes if warranted. Regulations will be used in an adaptive manner to optimize angler opportunities in conjunction with management goals and objectives outlined in the FMP.

Addressing stressors

Bank erosion

Continue to work with landowners to increase awareness of the importance of a healthy riparian zone in association with stable stream banks. Work with the FRRCD, FRC, CalTrout and other organizations to seek funding to support cattle exclusion fencing, riparian zone restoration and offsite watering projects. Continue to enforce the five mile per hour boating speed limit in the upper Fall River to reduce bank erosion via wave action.

Siltation

Continue to monitor and assess the effectiveness of the pond and plug projects in the upper watershed. Work with the FRRCD and FRC to seek additional funds for restoration projects with designs to restrain and control additional sediment loads.

Aquatic vegetation

The United States Department of Agriculture (USDA) is currently conducting aquatic vegetation studies in the Fall River. University of California, Davis (UCD) Center for Watershed Science is also conducting studies of spring fed river systems, including Fall River. Information obtained from these studies should help us better understand aquatic macrophytes in Fall River.

Agricultural practices

Maintain the way of life in the Fall River Valley with sustainability of the Fall River ecosystem and wild trout fishery as the objective.

Wild rice

Follow the recommendations of the Central Valley Regional Water Quality Control Board to help ensure that rice farming does not adversely impact the aquatic resources of Fall River.

Cattle ranching

In coordination with the FRRCD, FRC and Natural Resource Conservation Service (NRCS), work with landowners to provide information on potential environmental problems associated with cattle ranching and proper ways to minimize their negative effects. Where necessary, promote and support cattle exclusion fencing and restrict cattle access to stream banks and riparian zone.

Non-native species

Continue to work with FRRCD and FRC to seek funding to support non-native species control, public outreach and/or eradication projects. Continue to support and expand the bait station program for non-native muskrat control.

Adaptive strategies

This FMP provides guidance and management direction for wild trout resources in the Fall River WTA. 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 information should play a critical role in future management prescriptions. Any changes to the prescribed management goals/objectives should be based on updated quantifiable data, stakeholder input, HWTP Policy, the Strategic Trout Plan, and collaborative HWTP review.

References

Dill, W. A. 1997. History and Status of Introduced Fishes in California, 1871-1996. State of California Resources Agency. Department of Fish and Game, Inland Fisheries Division.

May, R.H. 1976. Memorandum to California Department of Fish and Game. President, California Trout (CalTrout).

Mather, F. 1889. Brown trout in America. Bulletin U.S. Fish Commission, Vol. VII 1887, p. 21-22.

Mehalick, S. and C. Zuber. 2012. Fall River Summary Report (Draft). State of California Natural Resources Agency. Department of Fish and Wildlife. Heritage and Wild Trout Program. Rancho Cordova, CA.

Moyle, P.B. 2002. Inland Fishes of California. University of California Press.

Plemons, S.L. 2008. Memorandum: Electro-fishing at Big Lake for the collection of brown bullhead, *Ameiurus nebulosus* for comparative anatomy studies and genetic analysis. State of California Natural Resources Agency. Department of Fish and Game. Heritage and Wild Trout Program. Northern Region. Redding, CA.

Plemons, S.L. 2012. SFRA Annual Performance Project Report (Draft). Upper Pit River Angler Creel Census. State of California Natural Resources Agency. Department of Fish and Wildlife. Heritage and Wild Trout Program. Northern Region. Redding, CA.

Plemons, S.L. 2012a. 2012 Fall River and Hat Creek Monitoring. State of California Natural Resources Agency. Department of Fish and Wildlife. Heritage and Wild Trout Program. Northern Region. Redding, CA.

Rode, M. and W.D. Weidlein. 1986. Fall River Management Plan. State of California Resources Agency. Department of Fish and Game, Inland Fisheries Admin. Rpt. No. 86-2.

USGS (United States Geological Survey). 2013. United States Geological Survey Current Water Data for the Nation. Available: <http://waterdata.usgs.gov/nwis/rt> (March 2013).

USGS (United States Geological Survey). 1968. Water resource data for California 1967. Dept. Interior, Geological Survey, Part 1, Vol.2.

Weaver, J. and S. Mehalick. 2007. Fall River Summary Report. State of California Natural Resources Agency. Department of Fish and Game. Heritage and Wild Trout Program. Rancho Cordova, CA.

Weaver, J. and S. Mehalick. 2008. Fall River Summary Report. State of California Natural Resources Agency. Department of Fish and Game. Heritage and Wild Trout Program. Rancho Cordova, CA.

Weaver, J. and S. Mehalick. 2009. Fall River Summary Report. State of California Natural Resources Agency. Department of Fish and Game. Heritage and Wild Trout Program. Rancho Cordova, CA.

Weaver, J. and S. Mehalick. 2010. Fall River Summary Report. State of California Natural Resources Agency. Department of Fish and Game. Heritage and Wild Trout Program. Rancho Cordova, CA.