

**State of California
Department of Fish and Wildlife**

M e m o r a n d u m

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Subject: Truckee River and Tributary Electrofishing 2014

The Truckee River originates in the Lake Tahoe basin and it is dammed at the outlet of Lake Tahoe before passing through the east slope of the Sierra Nevada into Pyramid Lake in Nevada. The focus of this memo is the reach between Lake Tahoe and the town of Truckee including tributaries. Flows in this reach of the Truckee as well as in Donner Creek below Donner Lake are highly regulated and fall under the Truckee River Operating Agreement (TROA) which seeks to improve flow conditions for aquatic resources in the Truckee River basin.

In order to obtain fisheries data to guide the TROA process, single pass electrofishing surveys were conducted on the Truckee River and selected tributaries during July 2014 (Figures 1 and 2). In addition to the Truckee River the Department surveyed Bear Creek, Brush Creek, Cabin Creek, Coldstream Creek, Deep Creek, Donner Creek, Pole Creek, Rocky Wash, Silver Creek, and Trout Creek. Fish captured were identified to species and total length was measured to the nearest millimeter. The purpose of these single pass electrofishing efforts is to gather basic fisheries information at low cost and effort which will guide fisheries management decisions and the TROA process.

Eight species of fish were collected during the surveys. These species were brown bullhead (*Ameiurus nebulosus*, BHH), brook trout (*Salvelinus fontinalis*, BK), brown trout (*Salmo trutta*, BN), Lahontan redband (*Richardsonius egregius*, LRS), Paiute sculpin (*Cottus beldingi*, PSCP), rainbow trout (*Oncorhynchus mykiss*, RT) speckled dace (*Rhinichthys osculus*, SD), and Tahoe sucker (*Catostomus tahoensis*, TSKR) (Table 1). Native mountain whitefish (*Prosopium williamsoni*) and Lahontan cutthroat trout (*Oncorhynchus mykiss henshawi*) were not detected; however a small self-

sustaining population of Lahontan cutthroat trout is known to be present in Pole Creek above the section sampled. While single pass electrofishing is an effective method of gathering basic fisheries data, care must be given in regard to interpreting species composition and population information. Although mountain whitefish and Lahontan cutthroat trout were not detected it cannot be definitively concluded that these species are not present in the Truckee River or in the sampled tributaries. It can be assumed; however, that populations of these species are not robust in these waters.

Basic conclusions can be drawn about the fisheries populations especially in terms of age class structure and species composition. Based on the mean total length, minimum total length, and maximum total length it is apparent that there are few catchable trout in the Truckee River or its tributaries though it is apparent that there is recruitment of juvenile fish (Table 2). What is not clear is if these fish are moving to downstream stretches of the Truckee River where adult fish are known to occur or if large fish from the lower stretches of the Truckee River are moving upstream during spawning seasons and if they are the source of the juvenile fish detected during sampling. Answers to these questions are necessary to guide the TROA process, particularly in regard to establishing flow conditions to enhance spawning, juvenile rearing, and adult rearing habitat as well as migration flow conditions. Finally, the connectivity between mainstem and tributary populations is not known.

In the 1996 report *Instream Flow Requirements Truckee River Basin Lake Tahoe to Nevada*¹ four existing problems with Truckee River conditions are identified. They are:

1. Loss of historic spawning and rearing habitats in the major tributaries: Donner Creek, Martis Creek, Prosser Creek, Little Truckee River and its tributaries
2. Deterioration of spawning and rearing habitat within the mainstem including loss of habitats critical to juvenile survival (e.g., complex pool habitats)
3. Reduced flow, especially above Boca and between hydropower diversions.
4. Fluctuating flow downstream of Lake Tahoe and hydropower diversions.

These problems still persist. During the course of surveys it is readily apparent that the water velocities in the Truckee River at the time of sampling were not suitable for fish holding and that complex habitat features such as instream current breaks and complex pool habitats are lacking. Most fish captured in the Truckee River were taken from edgewater habitat where flows flow velocities were lower. Channelization of the stream due to the adjacent Highway 89 is likely a factor in the lack of habitat complexity in this section of the Truckee River. Opportunities to improve native and sport fisheries populations cannot be maximized without implementing a combination of instream habitat improvement, channel restoration and improved flow conditions. The pending

¹ Instream Flow Requirements Truckee River Basin Lake Tahoe to Nevada, Stream Flow and Habitat Evaluation Program, Environmental Services Division, California Department of Fish and Game, Technical Report No. 96-6 August 1996.

implementation of TROA (expected 2015-2016) offers opportunities to address flow conditions on the Truckee River below Lake Tahoe and in Donner Creek. Opportunities do exist to improve habitat conditions but are limited to mechanical and instream habitat improvement projects as it is unlikely channel modifying high flow events can be achieved naturally or through the TROA process.

The management recommendations for this fishery are to:

1. Prioritize the Truckee River in the TROA process to improve low flow conditions and reduce the extreme variability of flow fluctuations.
2. Prioritize Donner Creek in the TROA process to improve low flow conditions and reduce the extreme variability of flow fluctuations.
3. Seek opportunities to improve habitat conditions to create instream habitat and reduce stranding of juvenile fish.
4. Implement rigorous repeatable fisheries studies which are adequate to assess species composition and population pre and post TROA implementation in order to adaptively manage flow regimes to benefit fisheries resources.
5. Consider implementing a native Lahontan cutthroat stocking allocation to provide a catchable trout fishery until flow and habitat conditions are improved.

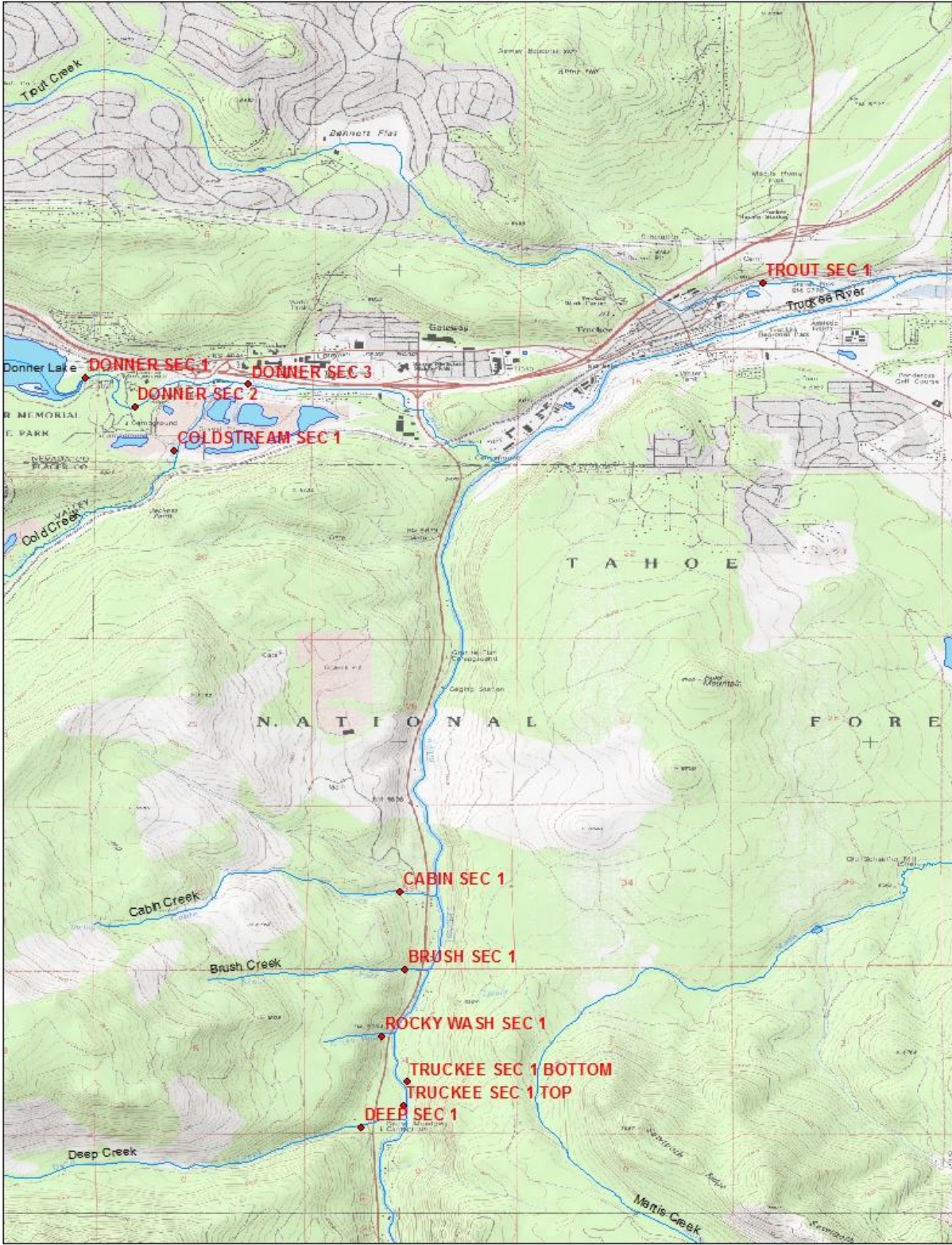


Figure 1. Truckee River and tributary locations of single pass electrofishing sections 2014.

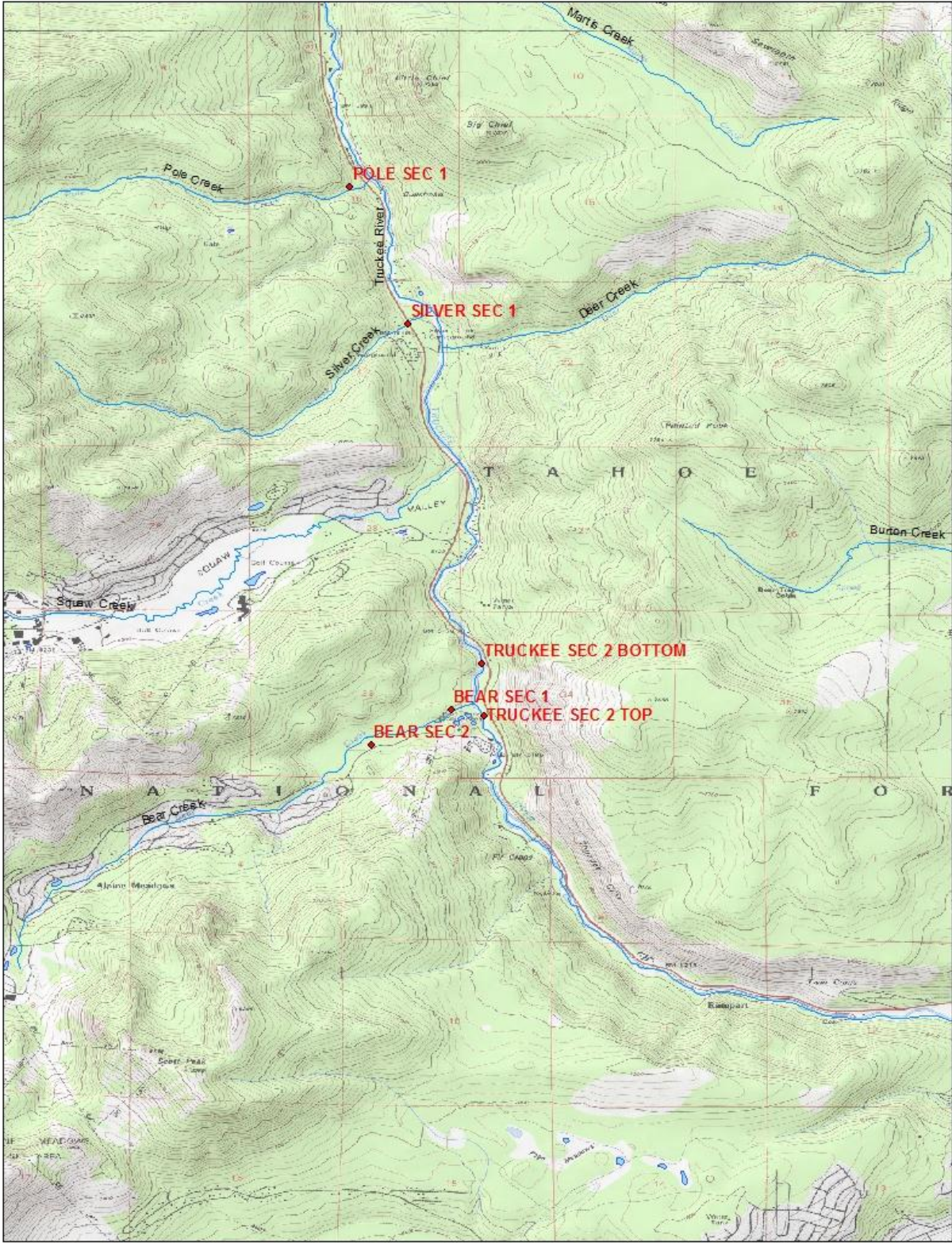


Figure 2. Truckee River and tributary locations of single pass electrofishing sections 2014.

Table 1. Fish species composition Truckee River and tributary single pass electrofishing survey 2014.

| Water Name | Species Present | | | | | | | | | |
|---------------|-----------------|----|----|-----|-----|-----|------|----|----|------|
| | BBH | BK | BN | LCT | LRS | MWF | PSCP | RT | SD | TSKR |
| Bear Creek | | | X | | | | X | X | | |
| Cabin Creek | | | | | | | | X | | |
| Coldstream | | | X | | | | | X | | |
| Deep Creek | | X | | | | | | X | | |
| Donner Creek | X | | X | | X | | X | X | | X |
| Pole Creek | | | | | | | | X | | |
| Silver Creek | | | | | | | X | X | | |
| Trout Creek | | X | X | | | | | | | |
| Truckee River | | | X | | X | | X | X | X | X |

Table 2. Date sampled, mean total length (mm), minimum length, and maximum length by stream Truckee River and tributary single pass electrofishing survey 2014.

| Name | Date(s) | Species | Count | Mean total length (mm) | Min | Max |
|------------------|------------------------|---------|-------|------------------------|-----|------------------|
| Bear Creek | 4/16/2014 | BN | 5 | 106 | 91 | 117 |
| | | RT | 35 | 86 | 53 | 147 |
| | | PSCP | 21 | 62 | 35 | 100 |
| Cabin Creek | 4/24/2014 | RT | 4 | 171 | 65 | 225 |
| Coldstream Creek | 4/23/2014 | BN | 2 | 112 | 90 | 133 |
| | | RT | 4 | 107 | 71 | 156 |
| Deep Creek | 4/24/2014 | BK | 8 | 91 | 76 | 130 |
| | | RT | 9 | 72 | 58 | 111 |
| Donner Creek | 4/16/2014 4/23/2014 | BBH | 5 | 141 | 60 | 210 |
| | | BN | 7 | 102 | 54 | 140 |
| | | LRS | 63 | 58 | 32 | 95 |
| | | PSCP | 7 | 50 | 40 | 75 |
| | | RT | 3 | 200 | 85 | 305 ^a |
| | | SD | 33 | 54 | 33 | 82 |
| Pole Creek | 4/24/2014 | RT | 12 | 82 | 46 | 166 |
| Silver Creek | 4/17/2014 | PSCP | 5 | 63 | 55 | 76 |
| | | RT | 5 | 103 | 83 | 119 |
| Trout Creek | 4/25/2014 | BK | 3 | 145 | 119 | 170 |
| | | BN | 4 | 214 | 145 | 284 |
| Truckee River | 4/15/2014 | BN | 32 | 141 | 70 | 460 |
| | | LRS | 3 | 106 | 100 | 116 |
| | | PSCP | 39 | 63 | 40 | 90 |
| | | RT | 32 | 121 | 70 | 212 |
| | | SD | 87 | 63 | 25 | 108 |
| | | TSKR | 3 | 138 | 125 | 160 |

^a Hatchery origin rainbow trout