Little Truckee River 2009 Summary Report

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State of California

Natural Resources Agency

Department of Fish and Game

Heritage and Wild Trout Program

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Introduction:

The Little Truckee River is an east-slope Sierra Nevada stream originating from Weber Lake, approximately 22 miles to the northwest of Truckee, CA and is tributary to the Truckee River (Sierra and Nevada counties; Figure 1). In 2009, the California Department of Fish and Game (DFG) Heritage and Wild Trout Program (HWTP) conducted Phase 1 initial resource assessment via single-pass electrofishing at two locations in the Little Truckee River downstream of Stampede Reservoir (Figure 2). The HWTP utilizes a phased approach when evaluating waters for potential designation as a Wild Trout Water and Phase 1 assessments are designed to provide baseline information on fish species composition, relative abundance and size of fishes (specifically trout), public access, aesthetics of the fishery, basic habitat attributes, and whether the trout present are of wild or hatchery origin.

This survey was performed in order to determine if the Little Truckee River meets the minimum qualifications for designation as a Wild Trout Water. 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 (Bloom and Weaver 2008).

Methods:

On September 17, 2009, HWTP personnel (Headquarters and North Central Region) conducted single-pass electrofishing at two locations (Sections 109-209; Figure 2) on the Little Truckee River using Smith Root backpack electroshockers. Survey sites were selected based on survey feasibility (water depth, stream width, and flow), safety considerations, habitat, and access. Sections were limited to the area between Stampede and Boca reservoirs and were spaced apart within this area to the greatest extent possible.

Prior to electrofishing, physical measurements of the stream and environmental conditions were taken, including air and water temperature (in the shade) and conductivity (both specific and ambient). These factors were used to determine appropriate electroshocker settings. GPS coordinates were recorded for both the upstream and downstream boundaries of the survey. Current weather conditions were noted and the area was scouted for any species of concern prior to commencing the electrofishing effort.

Each survey consisted of three shockers, two netters, and one live car tender. Surveys proceeded in an upstream direction, with netters capturing fish and placing them in live cars to be held until processed. Live cars were 32-gallon plastic trash bins, perforated with holes to allow water circulation. The Little Truckee River was wide in Sections 109 and 209 and a comprehensive electrofishing survey would require a minimum of six to eight shockers. HWTP

personnel did not attempt to collect all fish within a given section. The HWTP selected suitable habitat (including both deeper water and edgewater) within each section in an attempt to document species composition, size class structure, and evaluate the origins of trout captured (wild vs. hatchery).

Hatchery fish were identified primarily by closely examining the fin rays on the dorsal fin; fish with irregularities in the dorsal fin rays were presumed to be of hatchery origin. Fin erosion and/or deformities are common in fish raised in hatcheries and studies have shown that the dorsal fins of rainbow trout are the first to erode (Arndt et al. 2001, Wagner et al. 1996). Other fins were also evaluated for signs of wear and/or fin ray abnormalities. If all fin rays were symmetrical and parallel, with no abnormalities, we identified the fish as wild.

Over the course of the survey, fish were handled carefully to minimize injury and stress. Each fish was identified to species and was measured from head to tail (total length in millimeters). Using a digital scale, weights were recorded (in grams). The maximum weight capacity of the scales was 600 grams; fish larger than 600 grams were not weighed. Fish were then recovered in live cars secured in the stream (with fresh flowing water) and released back into the section.

Figure 1. Vicinity map of Little Truckee River.

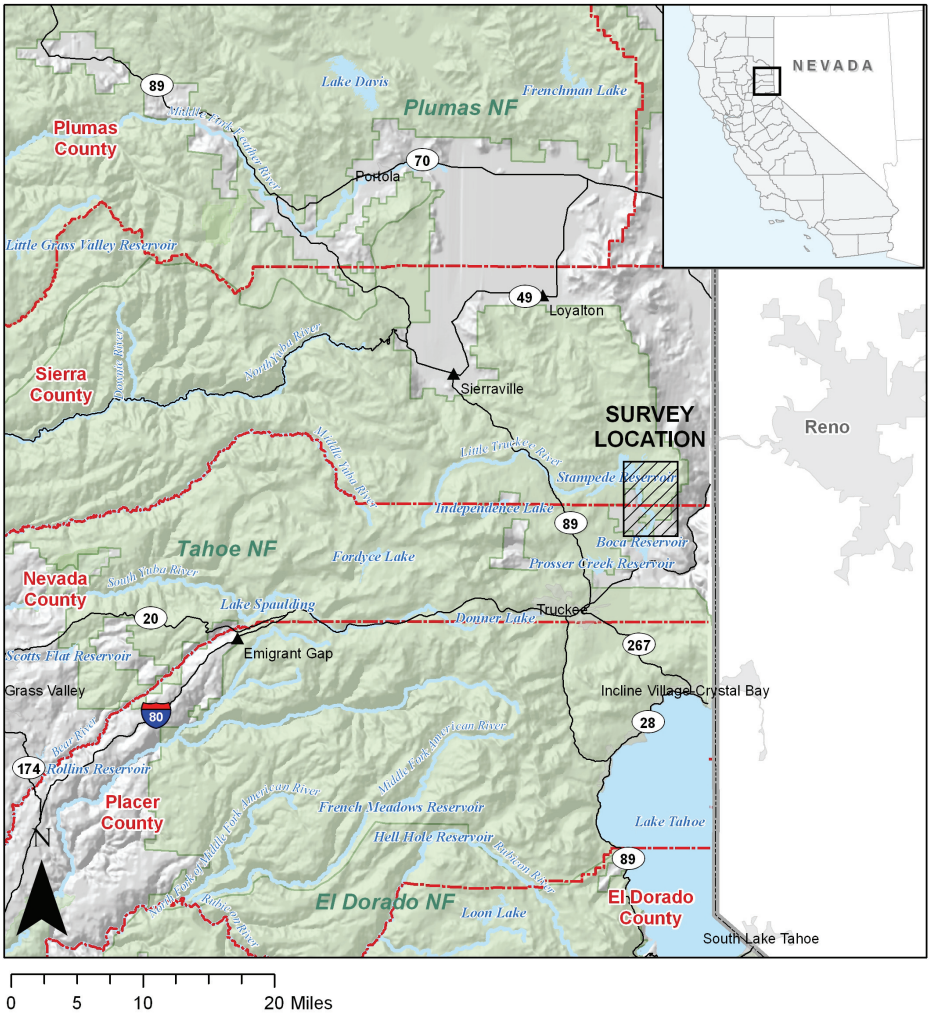


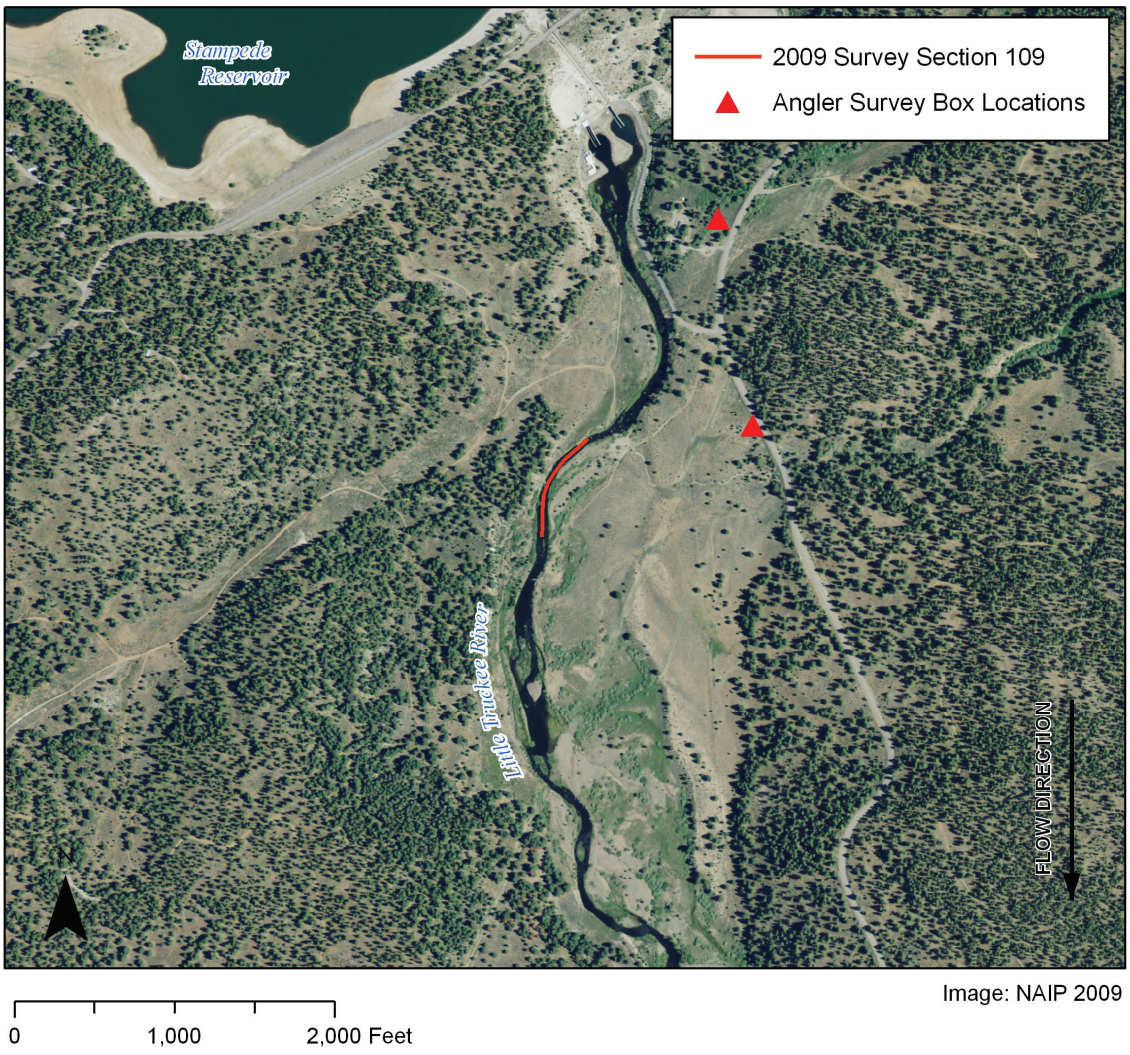
Figure 2. Map of Little Truckee River Sections 109 and 209.

Little Truckee River Location

Results:

Section 109 was located approximately 0.2 miles downstream of Stampede Reservoir (Figures 2 and 3). Habitat was predominantly flatwater with cobble substrate. The air temperature was 22 ºC and water temperature was 9 ºC at 11:00 a.m. Based on GIS analysis, section length was approximately 700 feet. A total of 63 brown trout (*Salmo trutta*), 26 coastal rainbow trout (*Oncorhynchus mykiss irideus*), and 33 Paiute sculpin (*Cottus beldingi*) were captured. Captured coastal rainbow trout ranged in size from 51 mm to 498 mm total length; brown trout were between 52 mm and 531 mm total length, and Paiute sculpin were between 55 mm and 113 mm total length.

Figure 3. Detail map of Little Truckee River Section 109 and ASB locations.



Section 209 was located approximately one-quarter mile upstream from Boyington Campground in flatwater habitat (Figures 2 and 4). Section length was approximately 600 feet based on GIS analysis. A total of ten brown trout, five coastal rainbow trout, and 66 Paiute sculpin were captured. The brown trout ranged in size from 89 mm to 544 mm total length, coastal rainbow trout were between 126 mm and 192 mm total length, and Paiute sculpin were between 44 mm and 93 mm total length.

The majority of fish captured appeared to be of wild origin (Figure 5). Numerous fish were observed with scar marks on the maxillae, possibly from previous hooking injury.

Figure 4. Detail map of Little Truckee River Section 209 and ASB location.

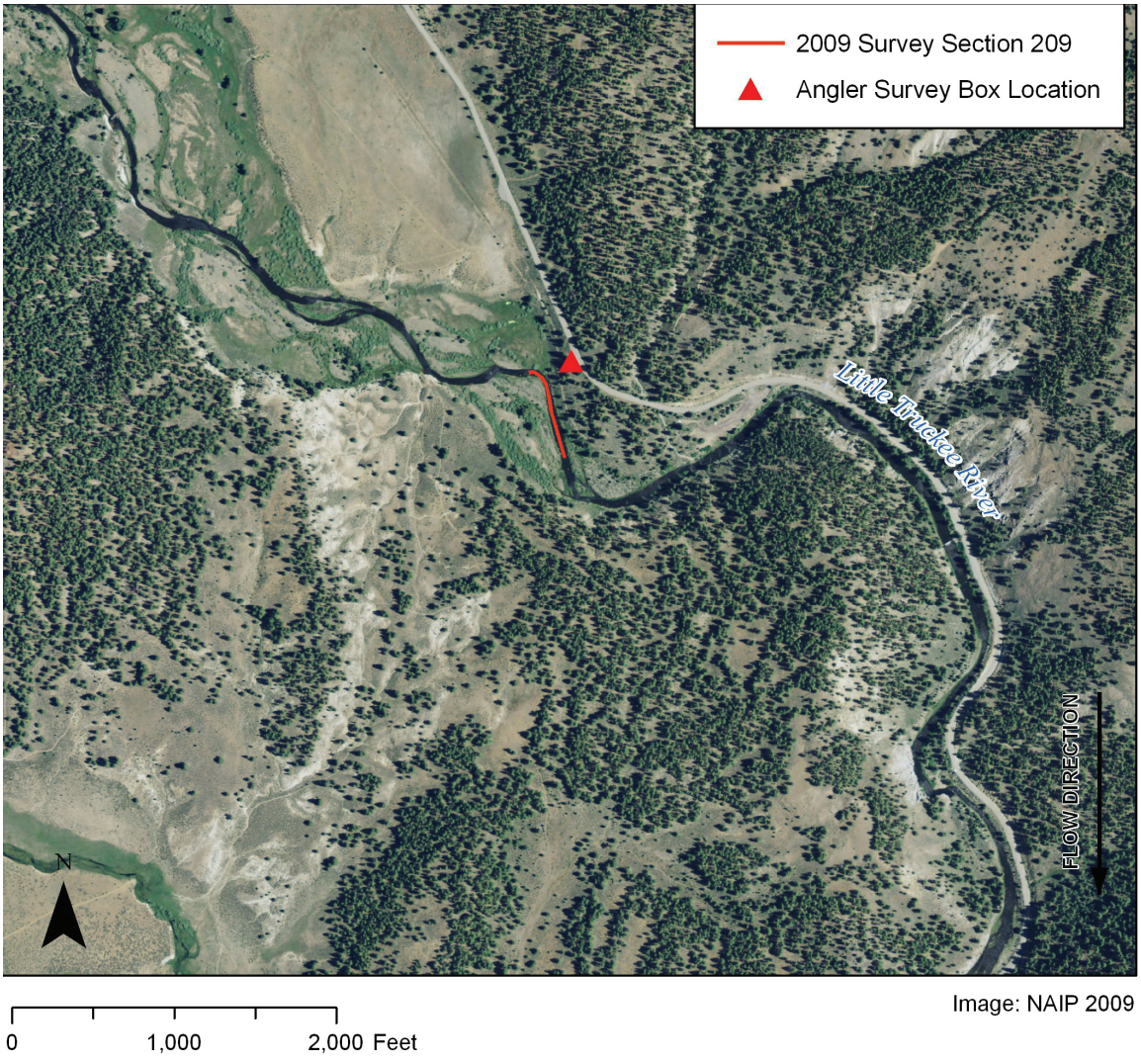
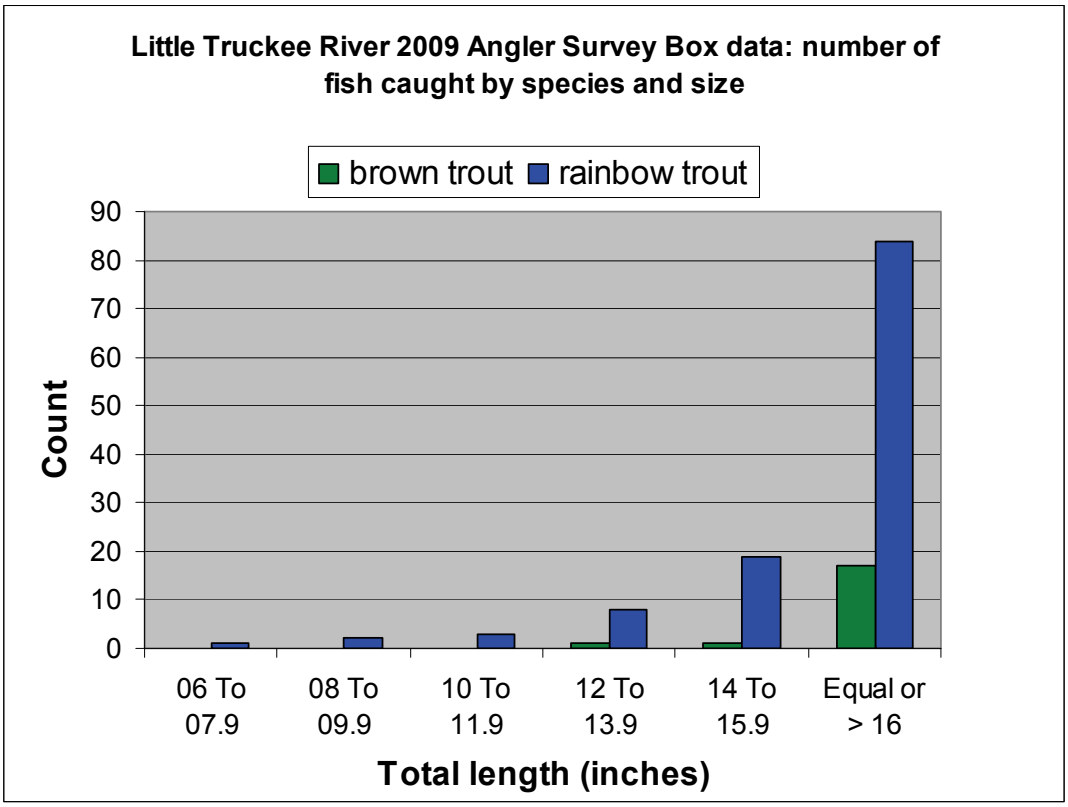


Figure 5. Photographs of coastal rainbow trout (left) and brown trout (right) captured during electrofishing effort in Little Truckee River in 2009.

There are two Angler Survey Boxes (ASB) located on the Little Truckee River. An examination of voluntary angling data obtained at these two ASB locations provides further insight into this fishery including angler catch rates and catch sizes by species. Data from these boxes were examined for 2009 and included a total of 89 forms. Anglers reported fishing for a total of 379 hours in 2009 and captured 136 trout (brown and rainbow trout combined) with an average catch rate of 0.36 fish per hour. The majority of trout captured were greater than or equal to 16 inches in total length (Figure 6).

Figure 6. Chart of Little Truckee River 2009 Angler Survey Box data including number of fish captured by species and size class.



Discussion:

The Little Truckee River is a popular fishery in close proximity to both Lake Tahoe and Reno, Nevada and is open to year-round angling (only artificial lures with barbless hooks may be used). During the course of this Phase 1 initial resources assessment, we captured both coastal rainbow and brown trout across multiple size classes from young of year to extra-large size fish. Angler survey box data show that average catch rates in 2009 were relatively low and the majority of fish captured were greater than or equal to 16 inches in total length. The Little Truckee River is not a fast-action fishery; however, trophy-sized trout (greater than 18 inches) are present in the system. Currently, Boca, Stampede, and Prosser reservoirs are stocked by the DFG with catchable-sized hatchery trout (among other species). Wild Trout Waters may not be stocked with catchable-sized hatchery trout and although the Little Truckee River is not stocked directly, it is possible that hatchery-reared fish can move into the Little Truckee River (especially during spawning migrations of fish in Boca Reservoir moving upstream into the Little Truckee River). This may eliminate the Little Truckee River from consideration as a candidate Wild Trout Water. If DFG North

Central Regional support exists to pursue the Little Truckee River for Wild Trout-designation, the HWTP recommends the following:

1. Evaluate the distribution and influence of hatchery-stocked trout in the system.

2. Assess the Little Truckee River at different times of the year to better understand trout utilization for residency, spawning, and rearing habitat and to better understand whether trout utilize Boca Reservoir for portions of their life history (specifically brown trout).

3. Evaluate the influence of adfluvial versus resident life history patterns.

4. Develop population estimates and continue evaluation of size class distribution and habitat conditions.

5. Evaluate injury rate and missing maxillae in association with angling pressure.

6. Complete creel census summary report.

7. Work with local shareholders including Trout Unlimited and US Forest Service on habitat projects.

Sample design should include randomization of survey site selection and broader geographic distribution of sampling locations. Multiple-pass electrofishing, coupled with direct observation snorkel surveys, should be considered to compare density estimates and calibrate detectability of different species using multiple survey methods.

References:

Arndt, R. et al. 2001. Influence of raceway substrate and design on fin erosion and hatchery performance of rainbow trout. North American Journal of Aquaculture. 63:312-320.

Bloom, R. and J. Weaver. 2008. The California Heritage and Wild Trout Program Handbook (Draft). State of California. Natural Resources Agency. Department of Fish and Game. Heritage and Wild Trout Program. Gold River, CA.

Wagner, E. et al. 1996. The effects of fry rearing density on hatchery performance, fin condition, and agnostic behavior of rainbow trout *Oncorhynchus mykiss* fry. Journal of the World Aquaculture Society. Vol. 27, No. 3.