

NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS

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2018

LAKE TAHOE
WESTERN REGION



**NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
ANNUAL PROGRESS REPORT**

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**NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
ANNUAL PROGRESS REPORT**

State: *Nevada*
Project Title: *Statewide Fisheries Program*
Job Title: *Lake Tahoe*
Period Covered: *January 1, 2018 through December 31, 2018*

SUMMARY

A total of 15 drop-box forms were filled out in 2018. According to the surveys, anglers fished for 77.5 hrs to catch 16 rainbow trout and 11 lake trout. The resulting catch rates averaged 3.0 fish per angler and 0.7 fish per hour.

The Mail-in Angler Questionnaire Survey estimated 1,195 anglers fished 3,950 days in 2017 in Washoe County. Total angler catch was 5,183 fish for an average success rate of 1.3 fish per angler day.

Lake Tahoe was stocked on four occasions in 2018. From August through September, the lake received 15,601 catchable rainbow trout, with all but 1,999 being triploid strain.

BACKGROUND

Lake Tahoe is located along the eastern portion of the Sierra Nevada at an elevation of approximately 6,224 ft. Situated along the California/Nevada border, approximately 30% of the lake lies within Nevada. It is 22 mi long, 12 mi wide, and has 123,300 surface acres. The lake holds 122,160,280 acre-ft of water and has a maximum depth of 1,645 ft. Average depth is 989 ft. A natural rim occurs at 6,223.0 ft above mean sea level (MSL), but a permanent concrete dam built in 1913 extends lake elevation to 6,229.1 ft above MSL. The lake is fed predominantly by snowmelt from 63 streams, but the Truckee River is the only natural outlet from Lake Tahoe.

Lake Tahoe was discovered in the 1840's and supported robust populations of Lahontan cutthroat trout (LCT), mountain whitefish, and a number of other native non-game fish species. A number of factors including habitat disturbance, competition and/or predation from introduced fish species, loss of spawning habitat, and commercial harvest led to the extirpation of LCT by the 1940's.

Lake Tahoe supports self-sustaining, wild populations of lake trout, rainbow trout, brown trout, and kokanee salmon, which represent the bulk of the current sport fish community. Densities of introduced, nonnative fish species such as largemouth bass, bluegill, and crappie have shown marked increases in recent years. These populations are generally associated with shallow, warm portions of the lake such as the Tahoe Keys Marina. Lake Tahoe also contains populations of native non-game fish including speckled dace, Lahontan reddsides, tui chub, Tahoe suckers, and Lahontan mountain suckers. Tributary streams provide permanent, spawning, and rearing habitat for species such as

brook trout, brown trout, rainbow trout, and kokanee salmon. Hatchery reared rainbow trout are stocked each year to augment wild populations and enhance sport fishing opportunities.

Several of Nevada's tributaries are crucial for lacustrine rainbow trout, which are collected, artificially spawned, and released back into these tributaries. Eggs collected are hatched and reared at Mason Valley Fish Hatchery. The progeny from these artificial spawning efforts are subsequently used to enhance the genetic diversity of the broodstock in Marlette Lake.

Signal crayfish were introduced in the 1930's to provide an additional food source for trout. Additionally, to further supplement the food base of trout, *Mysis* shrimp were introduced in Lake Tahoe beginning in 1963. This organism is linked to declining populations of native plankton, which has changed the food web structure and forage base of many game fish.

The Lake Tahoe fisheries is managed under the Coldwater, Quality Fishery Management Concept, which establishes an objective for angler success rates of 0.30 to 1.25 fish per hour and 2.0 to 3.5 fish per angler day.

OBJECTIVES

- Conduct a general assessment of angler use, success, and harvest through opportunistic angler contacts, return of angler drop-box surveys, and mail-in angler questionnaire data.
- Identify and implement a new strategy to improve angler participation in the voluntary angler drop-box program.
- Work with the Tahoe Basin Recovery Implementation Team to determine and implement measures that work towards restoration of Lahontan cutthroat trout in the Lake Tahoe Basin.

PROCEDURES

Conduct a general assessment of angler use, success, and harvest through opportunistic angler contacts, return of angler drop-box surveys, and mail-in angler questionnaire data. During the course of other duties throughout the year, volunteer survey drop-boxes at Lake Tahoe (Sand Harbor and Cave Rock) were periodically maintained and restocked. Angler satisfaction was rated on a scale of -2 to +2, with -2 being unsatisfied and +2 representing satisfaction.

Angler use and success at Lake Tahoe were also assessed through the Department's Mail-In Angler Questionnaire Survey. Data was derived from a survey mailed to 30,000 fishing license purchasers from the previous year (2017).

Identify and implement a new strategy to improve angler participation in the voluntary angler drop-box program. During the spring of 2018, Nevada Department of Wildlife personnel met with the California Department of Fish and Wildlife to discuss

options for increasing angler participation in reporting fishing results from Lake Tahoe. One strategy that was discussed and subsequently implemented was to utilize the Nevada State Parks boat ramps and employees as a way to hand out questionnaire forms. The forms were distributed to Nevada State Parks in April of 2018. NDOW seasonals attempted to collect these forms from the boat ramp attendants in August and again in October, unfortunately the Nevada State Parks employees had either misplaced or lost the forms and no data was collected in 2018.

Work with the Tahoe Basin Recovery Implementation Team (TBRIT) to determine and implement measures that work towards restoration of Lahontan cutthroat trout in the Lake Tahoe Basin. The TBRIT met on four occasions in 2018. Action items were discussed and priority ranking of projects was carried out. Communication with members was also conducted individually and issues regarding Lahontan cutthroat trout recovery within the Tahoe basin were discussed.

FINDINGS

Conduct a general assessment of angler use, success, and harvest through opportunistic angler contacts, return of angler drop-box surveys, and mail-in angler questionnaire data. Cave Rock and Sand Harbor boat ramps were open for use during the majority of 2018 and drop-boxes associated with each area were fully stocked and maintained throughout the year. An increase in participation in the drop-boxes was seen in 2018, but it continues to be low. Based on the reporting of tagged fish from the “Lake Tahoe Rainbow Trout Study,” it has become apparent that the level of angler drop-box reporting is not indicative of angler use at the Lake Tahoe.

A total of 15 drop-box forms were filled out in 2018. According to the surveys, anglers fished for 77.5 hrs to catch 16 rainbow trout and 11 lake trout. The resulting catch rates were 3.0 fish per angler and 0.7 fish per hour. Of the fish caught, all but six (one rainbow and five lake trout) were reported as harvested. The majority of anglers fished from a boat (58 percent) while the remaining anglers fished from shore. The majority of the reported lake trout were larger than 16 inches while the rainbow trout caught were reported to be smaller than 16 inches (Figure 1).

The Mail-in Angler Questionnaire Survey estimated 1,195 anglers fished 3,950 angler days in 2017 in Washoe County. Total angler catch was 5,183 fish and the success rate was 1.3 fish per angler day. The estimated days fished per angler and fish caught per angler were substantially lower than the 38-year average, while the fish caught per angler day estimate was consistent with the long-term average at 1.2. Lake Tahoe is a popular tourist destination and anglers generally fish for a day or two while in the area, this data is difficult to quantify utilizing the mail-in questionnaire.

Lake Tahoe was stocked on four occasions in 2018 (Table 1). From August through September, the lake received 15,601 catchable rainbow trout, with all but 1,999 being triploid strain. The stocking levels in Lake Tahoe have declined substantially in the past two years and it would be prudent to assess any impacts this could be having on the

recreational fishery. Table 2 shows a stocking history for Lake Tahoe.

Figure 1.

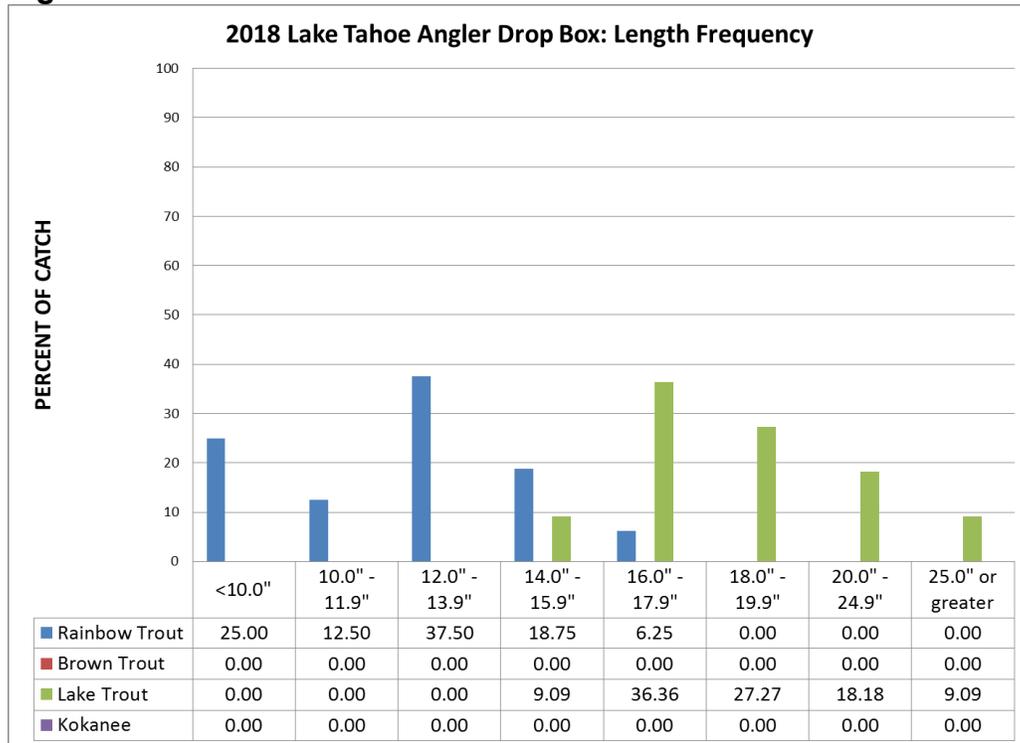


Table 1. Lake Tahoe Stocking Summary, 2018.

Date	Species	Number	Size (in.)	Strain
9/17/2018	Rainbow	1,999	10.1	Incline
8/2/2018	Rainbow	4,692	9.7	Triploid
8/21/2018	Rainbow	3,636	9.4	Triploid
9/7/2018	Rainbow	5,274	9.5	Triploid
Total (All Fish)		15,601		

Identify and implement a new strategy to improve angler participation in the voluntary angler drop-box program. During the spring of 2018, Nevada Department of Wildlife personnel met with the California Department of Fish and Wildlife to discuss options for increasing angler participation for reporting their catch data for Lake Tahoe. One strategy that was discussed and subsequently implemented was to utilize the Nevada State Parks boat ramps and employees (at Cave Rock and Sand Harbor) as a way to hand out questionnaire forms. The forms were distributed to Nevada State Parks in April of 2018. NDOW seasonals attempted to collect these forms from the boat ramp attendants in August and again in October, unfortunately the Nevada State Parks employees had either misplaced or lost the forms and no data was collected in 2018. This objective will be carried forward to 2019.

Work with the Tahoe Basin Recovery Implementation Team (TBRIT) to determine and implement measures that work towards restoration of Lahontan cutthroat trout in the Lake Tahoe Basin. The TBRIT met on four occasions in 2018. Action items were discussed and priority ranking of projects was carried out. Communication with members was also conducted individually and issues regarding Lahontan cutthroat trout recovery within the Tahoe basin were discussed.

Table 2. Lake Tahoe Stocking History, 2009 to 2017.

Year	Species	Number	Size Range (in.)
2009	Rainbow	46,076	9.1 – 10.1
2009 Total		46,076	
2010	Rainbow	31,031	9.3 – 10.0
2010 Total		31,031	
2011	Rainbow	27,000	2.3 – 10.5
	Lahontan Cutthroat	21,838	9.2 – 9.8
2011 Total		48,838	
2012	Rainbow	43,886	9.3 – 10.5
2012 Total		43,886	
2013	Rainbow	19,588	9.2 – 10.0
2013 Total		19,588	
2014	Rainbow	31,708	8.6 - 9.9
2014 Total		31,708	
2015	Rainbow	35,311	8.6 - 9.9
2015 Total		31,708	
2016	Rainbow	17,324	8.6 - 9.9
2016 Total		17,324	
2017	Rainbow	11,986	9.1 - 9.3
2017 Total		11,986	
Total		282,145	

MANAGEMENT REVIEW

The angler success rates reported from volunteer angler drop-boxes and mail-in questionnaire fell slightly below or within the recommended guidelines of the Quality Coldwater Fishery Concept. Limited use of volunteer drop-boxes has been an issue for several years and the Nevada Department of Wildlife along with the California Department of Fish and Wildlife is working to increase the rate of catch reporting by anglers in Lake Tahoe.

Lake trout continue to be the most pursued and harvested fish in Lake Tahoe. Anecdotal information and data collected during the “Lake Tahoe Rainbow Trout Study” suggests that fishing for rainbow trout is popular and productive in the lake. This study should further help to understand rainbow trout dynamics in the lake and the success of anglers.

Working with the hatchery program within the State of Nevada to ensure that the lake reaches its allotted amount of fish for stocking on an annual basis will be beneficial for the recreational fishery. As part of the "Lake Tahoe Lahontan Cutthroat Trout Feasibility Study," 2,000 Lahontan cutthroat trout are scheduled to be stocked into the lake in 2019.

The renewed interest of the Tahoe Basin Recovery Implementation Team has led to several meetings and potential for future cooperation and work that benefits recovery of LCT within the Tahoe Basin. However, there are numerous challenges that need to be addressed before projects can be undertaken.

RECOMMENDATIONS

- Conduct a general assessment of angler use, success, and harvest through opportunistic angler contacts, return of angler drop-box surveys, and mail-in angler questionnaire data.
- Identify and implement a new strategy to improve angler participation in the voluntary angler drop-box program.
- Work with the Tahoe Basin Recovery Implementation Team to determine and implement measures that work towards restoration of Lahontan cutthroat trout in the Lake Tahoe Basin.

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