

NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS

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2016

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, 2016 through December 31, 2016*

SUMMARY

A total of 10 drop-box surveys were received in 2016. Anglers fished 48.5 hrs and caught 21 fish consisting of rainbow trout and lake trout. The resulting catch rates were 1.9 fish per angler and 0.43 fish per hour. Of the fish caught, 62% were reported to be harvested (one rainbow trout and 12 lake trout).

The Mail-in Angler Questionnaire Survey estimated use at 988.8 anglers and 4,333 angler days in 2015. Total catch was 5,863 fish and the success rate was 1.4 fish per angler day. Success rates declined slightly from 2014 but were in line with the long-term trends of the fishery (1.4 fish per angler day).

Lake Tahoe was stocked on four occasions in 2016. From July through September, the lake received 17,324 catchable rainbow trout with all but 2,000 being triploid strain.

BACKGROUND

Lake Tahoe is located in 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 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, non-native 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 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 species 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 0.30-1.25 fish per hour and 2.0-3.5 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.
- 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 boxes at Lake Tahoe (Sand Harbor and Cave Rock) were periodically maintained and restocked. Angler satisfaction was also rated on a scale of -2 to +2 with -2 being unsatisfied and +2 representing satisfaction.

Angler use and success at Lake Tahoe was 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.

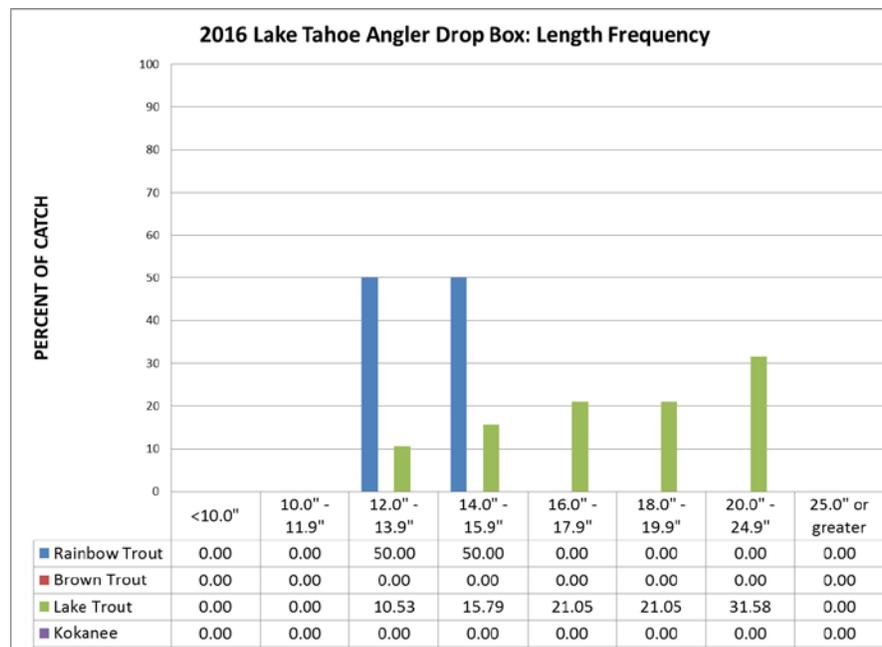
Work with the Tahoe Basin Recovery Implementation Team to determine and implement measures that work towards restoration of Lahontan cutthroat trout in the Lake Tahoe Basin. The TBRIT met on four occasions in 2016. Most were informational and based on study proposals from non-governmental organizations.

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. Due to the ongoing drought experienced in the region and the resulting low water levels, the Sand Harbor boat ramp was closed until October of 2016. This had a negative impact on the use of the volunteer angler drop-box at that location. In general, anglers fishing from boats utilize this drop-box upon returning from fishing. The Cave Rock boat ramp was also closed from August until November of 2016 for construction which rendered the volunteer drop-box at this location useless for those months. That time period is typically popular with anglers targeting pre-spawning kokanee. Despite these interruptions in the use of the volunteer drop-boxes, a total of 10 drop-box surveys were received in 2016. Anglers fished 48.5 hrs and caught 21 fish consisting of rainbow trout and lake trout. The resulting catch rates were 1.9 fish per angler and 0.43 fish per hour. Of the fish caught, 62% were reported to be harvested (one rainbow trout and 12 lake trout). The two reported rainbow trout caught fell between 12.0 in and 14.0 in. Lake trout were represented in several size brackets, but the majority (74%) was greater than 16.0 in. (Figure 1).

Figure 1.



Shore anglers comprised 18.2% and boaters 81.8% of the anglers, which was similar to the 2015 numbers. The majority of anglers fished with lures (81.8%) while the remainder used bait (18.2%). Average satisfaction showed a +1.0 for total fishing experience, +1.08 for size of fish, and +1.00 for number of fish. All ratings were slightly below the 2015 ratings but maintained above the 5-year average for the water.

The Mail-in Angler Questionnaire Survey estimated use at 988.8 anglers and 4,333 angler days in 2015. Total catch was 5,863 fish and the success rate was 1.4 fish per angler day. Success rates declined slightly from 2014, but were in line with the long-term trends of the fishery (1.4 fish per angler day).

Lake Tahoe was stocked on four occasions in 2016 (Table 1). From July through September, the lake received 17,324 catchable rainbow trout with all but 2,000 being triploid. Table 2 shows the recent stocking history for Lake Tahoe.

Table 1. Lake Tahoe Stocking Summary – 2016.

Date	Species	Number	Size (in.)	Strain
7/28/2016	Rainbow	5,706	9.2	Triploid
8/2/2016	Rainbow	6,030	9.1	Triploid
8/18/2016	Rainbow	3,588	9.3	Triploid
9/28/2016	Rainbow	2,000	10.0	Incline
Total (All Fish)		17,324		

Table 2. Lake Tahoe Stocking History 2009 – 2015.

Year	Species	Number	Size Range (in.)
2009	Rainbow	46,076	9.1 – 10.1
2010	Rainbow	31,031	9.3 – 10.0
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
2013	Rainbow	19,588	9.2 – 10.0
2014	Rainbow	31,708	8.6 - 9.9
2015	Rainbow	35,311	8.6 - 9.9
Historical Total		252,835	

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. Three TBRIT meetings were held during 2016. The meetings were informational and allowed agencies to convey the work they were undertaking in the Lake Tahoe Basin to other agencies on the RIT. A renewed desire to complete the Short Term Action Plan for LCT in the Tahoe Basin was expressed and all agencies are working cooperatively to complete the document. Communication with members of the team was also conducted on a one-on-one basis and several issues regarding Lahontan cutthroat trout recovery within the Tahoe basin were discussed.

MANAGEMENT REVIEW

The angler success rates reported from the angler drop-boxes and mail-in questionnaire data fell slightly below or within the recommended guidelines of the

Quality Coldwater Fishery Concept. Lake trout continue to be the most pursued and harvested fish in Lake Tahoe with rainbow trout being second in 2016. Low use of the angler drop-boxes due to low water and construction may have negatively impacted the reporting by anglers.

The renewed interest in the Tahoe Basin Recovery Implementation Team has led to several meetings and potential for future work to benefit the recovery of LCT within the Lake Tahoe Basin. There are numerous challenges that will need to be addressed before any project can be undertaken, but all meetings have been positive thus far.

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.
- 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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Date: January 24, 2017