NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE FISHERIES MANAGEMENT

FEDERAL AID JOB PROGRESS REPORTS

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LAKE TAHOE
WESTERN REGION

NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
ANNUAL PROGRESS REPORT

Table of Contents

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ANNUAL PROGRESS REPORT

State: *Nevada*
Project Title: *Statewide Fisheries Program*
Job Title: *Lake Tahoe*
Period Covered: *January 1, 2017 through December 31, 2017*

SUMMARY

A total of four drop-box surveys from Cave Rock and Sand Harbor were received (two were rejected) in 2017. Anglers reported fishing 10 hrs to catch three mackinaw. Resulting catch rates were 1.5 fish per angler and 0.3 fish per hour.

The Mail-in Angler Questionnaire Survey estimated use at 1,515 anglers and 4,071 angler days in 2016 from Washoe County. Total catch was 5,661 fish and the success rate was 1.4 fish per angler day. Estimated days fished per angler and fish caught per angler were substantially lower than the 37-year average, while fish caught per angler-day was consistent with the long-term average, at 1.4.

Lake Tahoe was stocked on three occasions in 2017. From August through September, the lake received 11,986 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 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, 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 redsides, 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 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 drop-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 (2016).

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 two occasions in 2017.

A short term action plan for the recovery of Lahontan cutthroat trout was completed. The document provides a loose framework for recovery projects within the Tahoe basin. 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 2017 and drop-boxes associated with each area were fully stocked and maintained throughout the year. Very little use of either drop-box was found during 2017, however, anecdotal accounts from anglers and the reporting of tagged fish from the "Lake Tahoe Rainbow Trout Study" suggests that the level of angler drop-boxes reporting is not indicative of the use for the Lake Tahoe fishery. A total of four drop-box surveys were received in 2017, but two were rejected. According to the two accepted surveys, anglers fished for 10 hrs and caught three lake trout. The resulting catch rates were 1.5 fish per angler and 0.3 fish per hour. All fish caught were reported as harvested. All three fish caught were reported to range from a 20 to 24.9 in size bracket and were caught with lures from a boat.

The Mail-in Angler Questionnaire Survey estimated use at 1,515 anglers and 4,071 angler days in 2016 in Washoe County. Total angler catch was 5,661 fish and the success rate was 1.4 fish per angler day. The estimated days fished per angler and fish caught per angler were substantially lower than the 37-year average, while the fish caught per angler day estimate is consistent with the long-term average at 1.4. 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 three occasions in 2017 (Table 1). From August through September, the lake received 11,986 catchable rainbow trout, with all but 2,000 being triploid strain. Table 2 shows a stocking history for Lake Tahoe.

Table 1. Lake Tahoe Stocking Summary – 2017.

Date	Species	Number	Size (in.)	Strain
8/16/2017	Rainbow	4,976	9.3	Triploid
8/23/2017	Rainbow	5,010	9.1	Triploid
9/12/2017	Rainbow	2,000	9.3	Incline
Total (All Fish)		**11,986**		

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. Two Tahoe Basin RIT meetings were held during 2017. The meetings were informational and allowed agencies to convey the work they were undertaking in the Lake Tahoe Basin to the other agencies on the RIT. The short-term action plan for recovery of LCT within the basin was completed and

provided a loose framework for developing recovery projects. Several topics regarding LCT recovery within the TBRIT have no clear consensus, and communication for resolving these topics continued throughout 2017.

Table 2. Lake Tahoe Stocking History - 2009 – 2016

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**	
Total		**270,159**	

MANAGEMENT REVIEW

The angler success rates reported from volunteer angler drop-boxes and mail-in questionnaire fell slightly below or within, respectively, the recommended guidelines of the Quality Coldwater Fishery Concept. Limited use of volunteer drop-boxes has been an issue for several years and it may be prudent to explore new locations or tactics to engage anglers into participating.

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.

The renewed interest in 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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