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

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State: *Nevada*
Project Title: *Statewide Fisheries Program*
Job Title: *Lake Tahoe*
Period Covered: *January 1, 2012 through December 31, 2012*

SUMMARY

General Management

A total of 10 volunteer angler surveys from the drop-box were received for Lake Tahoe Lake in 2012. Of those received, 11 anglers fished for 53.5 hrs and caught 19 fish consisting of 14 rainbow trout and 5 lake trout. The combined catch rates were 1.73 fish per angler and 0.36 fish per hour.

The Mail-in Angler Questionnaire Survey estimated 1,467 anglers fished 8,796 angler days in 2011. Total catch was 13,245 fish and the success rate was 1.51 fish per angler day. These estimates were consistent with 2010 except total fish, which dropped from 17,837.

Lake Tahoe was stocked with catchable rainbow trout on 10 separate occasions in 2012. From April through August, the lake received 35,760 triploid rainbow trout divided amongst eight loads as well as two loads of 8,126 Jumper-strain rainbow trout in September.

Monthly TBRIT (Tahoe Basin Recovery Implementation Team) meetings were attended to provide input to and coordinate recovery and restoration of LCT in the Lake Tahoe Basin.

Study Specific

No progress was made on the Third and Incline Creeks study due to a vacancy in the Reno fisheries biologist position during the springtime spawning season.

BACKGROUND

Lake Tahoe is located in the eastern portion of the Sierra Nevada Mountains at an elevation of approximately 6,224 ft. Situated along the California 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 of 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 the 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, 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, warmer portions of the lake such as the Tahoe Keys Marina. Lake Tahoe also contains populations of native non-game fish including speckled dace, Lahontan redside shiners, 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. Hatchery reared rainbow trout are stocked each year to augment wild populations and enhance sport fishing opportunities.

Several of Nevada's tributaries are crucial to lacustrine rainbow trout, which are collected, artificially spawned, and released back into the 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 in an effort to provide an additional food source for trout. To further supplement the food base of trout, mysis shrimp were introduced to 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 for many game fish.

Lake Tahoe is managed under the Quality Coldwater 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 AND APPROACHES

General Management Objective: To administer an annual fisheries program that assesses general fish population dynamics, angler use and success, annual stocking programs, habitat conditions, and maintains contact with necessary land management entities.

Approaches:

- 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.
- Collect and spawn wild rainbow trout from Third and Incline Creeks through two days of electroshocking and stock progeny into Marlette Lake.

- 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.

Study Specific Objective: Learn more about rainbow trout in Lake Tahoe by gathering biological data (i.e., growth rate, catch rate, post-spawn survival, number of spawning attempts, stream fidelity etc.) of hatchery produced and wild stocks.

Approaches:

- Concurrent with the spawning operation at Third and Incline Creeks and other streams in the basin, measure length, weigh, check for Floy tags, and Floy tag all spawning rainbow trout.
- Assess angler catch rate and harvest or catch location of tagged rainbow trout through opportunistic angler contacts and return of angler drop box data.

PROCEDURES

General Management:

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. Scheduled and opportunistic visits were made to Lake Tahoe throughout the year for collecting creel survey data during an expected time to contact the greatest number of anglers. Information on angler harvest, effort, and origin were recorded. Harvested fish were measured to fork length in millimeters and weighed with a spring-type hand scale.

During the course of other duties throughout the year, volunteer angler survey boxes at Lake Tahoe (Sand Harbor and Cave Rock) were periodically maintained and restocked. At the end of the year, data was summarized.

Angler use and success at Lake Tahoe was also assessed through the Department's Mail-n Angler Questionnaire Survey data. Angler questionnaire data was derived from a survey mailed to about 10% of license purchasers from the previous year.

Collect and spawn wild rainbow trout from Third and Incline Creeks through two days of electroshocking and stock progeny into Marlette Lake. Due to a vacancy in the Reno fisheries biologist position during the spring spawning season, no progress was completed on this approach in 2012.

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. Monthly TBRIT meetings were attended to provide input and to coordinate efforts related to the recovery and restoration of LCT in the Lake Tahoe Basin.

Study Specific:

Concurrent with the spawning operation at Third and Incline Creeks and other streams in the basin, measure length, weigh, check for Floy tags, and Floy tag all spawning rainbow trout. Due to a vacancy in the Reno fisheries biologist position during the springtime spawning season, no progress was completed on this approach in 2012.

Assess angler catch rates and harvest or catch location of tagged rainbow trout through opportunistic angler contacts and return of angler drop-box surveys. Anglers reported tagged fish by calling a phone number placed on the tag or recording the tag number on the drop-box survey forms.

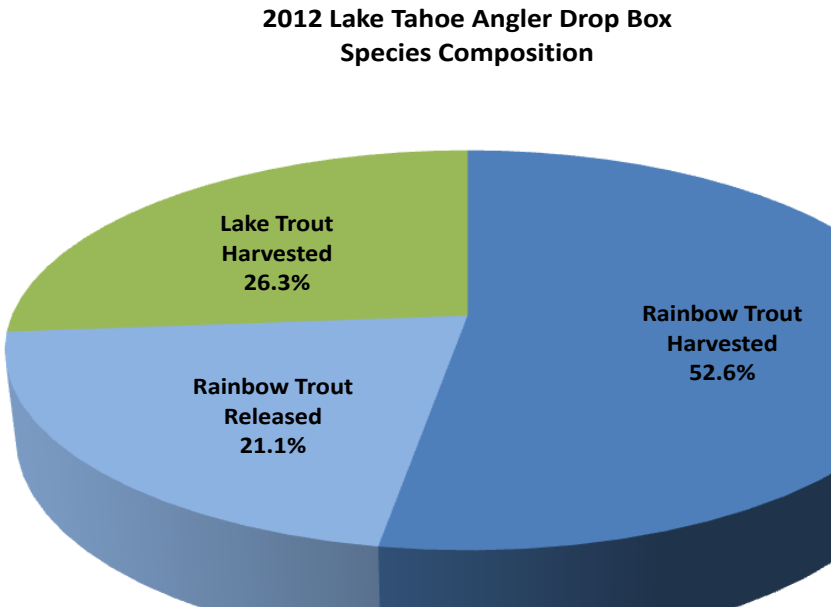
FINDINGS

General Management:

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. No opportunistic angler contacts were made at Lake Tahoe in 2012.

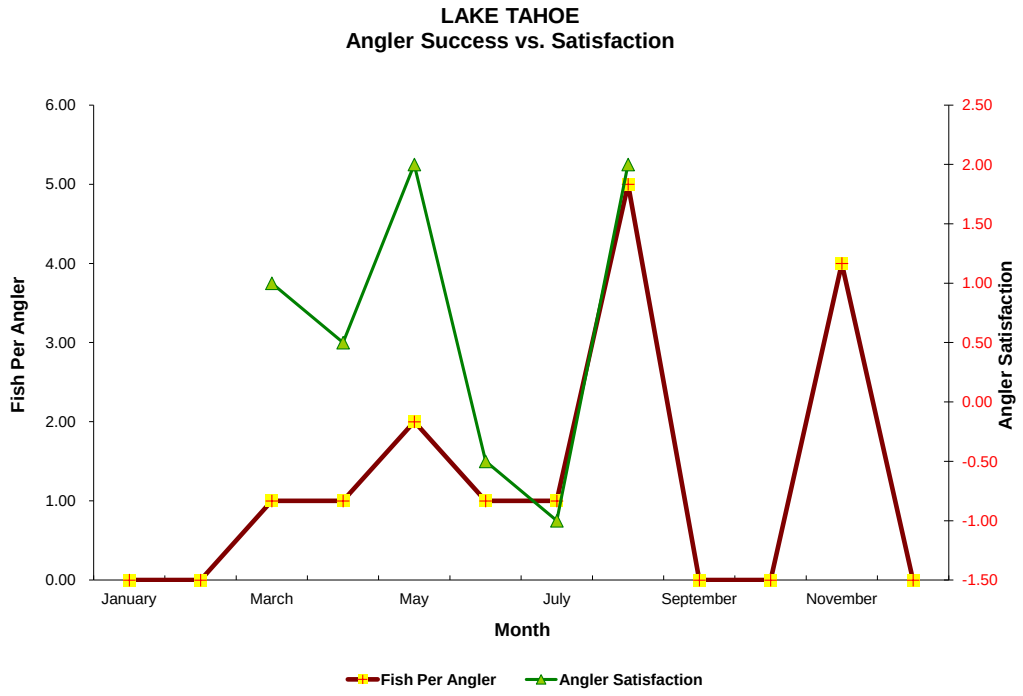
A total of 10 volunteer angler surveys from the drop-box were received in 2012. During the months when surveys were received, 11 anglers fished for 53.5 hrs and caught 19 fish consisting of 14 rainbow trout and 5 lake trout. Catch rates combining all fish were 1.73 fish per angler and 0.36 fish per hour. All but 4 rainbow trout were harvested. Percent composition showed 73.7% rainbow trout and 26.3% lake trout (Figure 1).

Figure 1.



A predominant number of rainbow trout were between 10.0 and 14.0 in while lake trout ranged from 16.0 to 25.0 in. All anglers reported fishing with bait. Angler satisfaction was rated on a scale of -2 to +2 with -2 being unsatisfied and +2 representing satisfaction. Average ratings were 0.67 for total fishing experience, -0.11 for size of fish, and 0.38 for number of fish. A rough relationship can be made between angler success and satisfaction (Figure 2). This means that an increase in angling success generally led to an increase in angler satisfaction and vice versa.

Figure 2.



The Mail-in Angler Questionnaire Survey estimated use at 1,467 anglers and 8,796 angler days in 2011. Total catch was 13,245 fish and the success rate was 1.51fish per angler day. All estimates from the angler survey are on par with results found in 2010 with the exception of total fish, which dropped from 17,837 in 2010.

Lake Tahoe was stocked with catchable rainbow trout on 10 occasions in 2012. From April through August, the lake received a total of 35,760 triploid rainbow trout divided amongst eight loads as well as two loads of 8,126 Jumper-strain rainbow trout in September.

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. Monthly TBRIT meetings were attended to provide input and to coordinate efforts related to the recovery and restoration of LCT in the Lake Tahoe Basin.

Study Specific

Concurrent with the spawning operation at Third and Incline Creeks and other streams in the basin, measure length, weigh, check for Floy tags, and Floy tag all spawning rainbow trout. Due to a vacancy in the Reno fisheries biologist position during the springtime spawning season, no progress was completed on this approach.

Assess angler catch rates and harvest or catch location of tagged rainbow trout through opportunistic angler contacts and return of angler drop-box surveys. No reports of angler caught tagged rainbow trout were provided either through opportunistic angler contacts or from drop-box surveys.

MANAGEMENT REVIEW

General Management:

An angler success rate of 0.36 fish per hour documented in the Angler Drop-box Survey met the guidelines prescribed for a Coldwater General Fishery Management Concept, while the success rate of 1.51 fish per angler day fell short of the 2.0–3.5 fish per angler day prescribed.

Study Specific Objective

No reports of angler caught tagged rainbow trout were provided either through opportunistic angler contacts or from drop-box surveys.

There was no progress made with the Third and Incline creeks study due to a vacancy in the Reno fisheries position during the spawning season.

RECOMMENDATIONS

General Management:

Approaches:

- 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.
- Collect and spawn wild rainbow trout from Third and Incline creeks through two days of electroshocking. Progeny will be stocked into Marlette Lake.

- 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.

Study Specific:

Approaches:

- Concurrent with the spawning operation at Incline and Third creeks and other streams in the basin, measure length, weigh, check for Floy tags, and Floy tag all non-tagged spawning rainbow trout.
- Assess angler catch rate and harvest or catch location of tagged rainbow trout through opportunistic angler contacts and return of angler drop-box data.

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