NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE SPORT FISHERIES MANAGEMENT

FEDERAL AID JOB PROGRESS REPORT

F-20-50
2014

RUBY MOUNTAIN & EAST HUMBOLDT
HIGH MOUNTAIN LAKES

NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
ANNUAL JOB PROGRESS REPORT

Table of Contents

NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
ANNUAL JOB PROGRESS REPORT

State: *Nevada*
Project Title: *Statewide Fisheries Program*
Job Title: *Ruby Mountain and East Humboldt High Mountain Lakes*
Period Covered: *January 1, 2014 through December 31, 2014*

SUMMARY

During 2014, none of the high mountain lakes in the Ruby Mountains and East Humboldt Range was aerially stocked with Lahontan cutthroat trout fry due to the unavailability of eggs. A total of 47 volunteer angler surveys were collected from the Lamoille kiosk drop-box and Soldier Creek drop-box, with no additional anglers being contacted. Reported catch rates ranged from 1.0 to 8.0 fish per hour. Ratings for angler satisfaction were highest for total fishing experience and lowest for size of fish.

Greys and Smith lakes fisheries were both assessed in 2014. The hook-and-line survey of Smith Lake resulted in 21 Lahontan cutthroat trout being captured in five hours of fishing. The cutthroat trout ranged from 7.0 inches to 11.7 inches (17.2 cm to 29.8 cm). The average C-factor for trout in Smith Lake was 3.66 (fair body condition). Twenty-six percent of the fish had a body condition rating of poor, 36% fair, and 42% had a rating of good. The hook-and-line survey of Greys Lake resulted in 22 Lahontan cutthroat trout being captured in two hours of fishing. The cutthroat trout ranged from 10.1 inches to 13.2 inches (25.6 cm to 33.6 cm). The average C-factor for trout in Greys Lake was 3.77 (fair). Eighteen percent of the fish had a body condition rating of poor, 50% fair, 23% good, and 9% had a rating of excellent.

BACKGROUND

Currently, the Eastern Region of the Nevada Department of Wildlife manages 19 of the 25 named lakes in the Ruby Mountains and East Humboldt Range as high mountain lake fisheries. The lakes generally lie between 8,550 and 10,000 ft in elevation and range from less than two acres to 29 acres. Eleven lakes have established, self-sustaining fish populations, while another eight lakes have established populations that need periodic augmentation. The self-sustaining fisheries are generally brook trout populations, which are managed under a Wild Fisheries Management Concept. The augmented populations are generally hatchery-reared stock of Lahontan cutthroat trout and are managed under a “unique or quality” concept.

Stocking of these mountain lakes can be dated back to 1895, when horseback stocking was used, to the present when releases are completed with the use of helicopter. Species planted in the past have included brook trout, golden trout, rainbow trout, tiger trout, Arctic grayling, and lake trout. Stocking rates have been variable, and dependent upon survey results. Stocking cycles generally have been maintained at three-year intervals. Baseline biological surveys of the lakes were completed during the

period from the 1930s to the 1950s and resulted in baseline water quality, species presence, substrate types, and crude mapping attempts. Since that time, biological monitoring has focused on growth rates, angling pressure, water quality, reproduction, and overwinter survival. Past management activities have included mysis shrimp introductions in the 1950s and 1970s, eradication and re-introduction of golden trout (1963), outlet dam construction projects, and the introduction of different predators (Lahontan cutthroat trout, rainbow trout, or lake trout) to control brook trout populations. In general, the fisheries are limited by overwinter survival, low productivity (low pH, short growing season), and limited natural reproduction. Issues related to the mountain lakes include limited angler access (through private lands to Forest Service lands), native trout recovery waters downstream, and endemic aquatic species. These lakes have demonstrated their potential in providing recreation to the angler through the years and the Department has determined a need to collect periodic data to manage these high mountain lakes properly. Fish population status, potential of natural reproduction, stocking level requirements, and chemical analysis are some of the identified factors associated with the management of the high mountain lakes.

OBJECTIVES and APPROACHES

Ruby Mountain High Lakes

Objective: General Sport Fisheries Management

Approaches:

- Maintain the angler drop boxes at Soldier Creek and Lamoille Creek trailheads
- Conduct general fisheries assessment through opportunistic angler contacts.
- Stock cutthroat trout fry in Verdi Lake (1,300).
- Conduct a hook-and-line survey to evaluate the fisheries health of Robinson Lake.
- Conduct water quality/quantity analysis of Robinson Lake.

East Humboldt High Mountain Lakes

Objective: General Sport Fisheries Management

Approaches:

- Conduct general fisheries assessment through opportunistic angler contacts.
- Conduct a hook-and-line survey to evaluate the fisheries health of Smith and Greys lakes.
- Conduct water quality/quantity analysis of Smith and Greys lakes.
- Stock cutthroat trout fry in Smith Lake (1,000) and Greys Lake (1,000).

PROCEDURES

Fishery Assessments

Angler questionnaires from the Soldier Creek and Lamoille trail drop-boxes were collected throughout the summer and fall. Angler satisfaction in 2014 was rated on a scale of zero to four, with zero being unsatisfied and four representing satisfaction.

High Lake Fisheries Health and Water Quality

The entire shoreline was walked and fish sizes observed from shore were estimated. The number of fish rises was observed and recorded as well. Angler caught fish were measured and weighed for evaluation. The inlet stream was also checked for any fish. Sizes of the fish were estimated if any fish were observed in the inlet. The pH and water temperature of the inlet and outlet to the lake was determined using a Hach Kit and a standard bulb thermometer.

Stocking

No fish were stocked, as no fry were available.

FINDINGS

Fishery Assessments

Cold Lake

Three volunteer angler surveys from the Soldier Creek drop-box were received for Cold Lake in 2014. These anglers reported fishing for 4.5 hours and caught 29 fish. Resulting catch rates were 9.7 fish per angler and 6.4 fish per hour. Reported fish lengths consisted of 82.8% of fish being less than 10.9 inches and 17.2% of the captured fish being 11-12.9 inches. Average ratings were 3.7 for total fishing experience, 3.0 for size of fish, and 3.7 for number of fish.

Favre Lake

Six volunteer angler surveys from the Lamoille drop-box were received for Favre Lake in 2014. These anglers reported fishing for 16.5 hours and caught 77 fish. Resulting catch rates were 12.8 fish per angler and 4.7 fish per hour. Reported fish lengths consisted of 41.6% of fish being less than 10.9 inches and 58.4% of the captured fish being 11-12.9 inches. Average ratings were 4.0 for total fishing experience, 2.7 for size of fish, and 3.8 for number of fish.

Hidden Lake

Sixteen volunteer angler surveys from the Soldier Creek drop-box were received from Hidden Lake in 2014. During the months when surveys were received, 16 anglers had fished for 59.0 hrs and caught 262 fish. Resulting catch rates (cutthroat trout) were 16.4 fish per angler and 4.4 fish per hour. Reported fish lengths consisted of 33.6% of fish being less than 10.9 inches, 40.0% of the fish being 11.0-12.9 inches, 26.0% of the fish being 13.0-14.9 inches, and 0.4% of the catch being greater than 19 inches. Average ratings were 3.8 for total fishing experience, 3.4 for size of fish, and 3.8 for number of fish.

Island Lake

One volunteer angler survey from the Lamoille drop-box was received for Island Lake in 2014. This angler reported fishing for one hour and caught one fish. Resulting catch rates were 1.0 fish per angler and 1.0 fish per hour. The size of trout reported was between 11 and 12.9 inches. Average ratings were 2.0 for total fishing experience, 2.0 for size of fish, and 2.0 for number of fish.

Lamoille Lake

Twenty-one volunteer angler surveys from the Lamoille drop-box were received for Lamoille Lake in 2014. During the months when surveys were received, 21 anglers had fished for 56 hrs and caught 210 fish. Resulting catch rates were 10.0 fish per angler and 3.8 fish per hour. The size of the trout reported was dominated (90%) by those less than 10.9 inches. The other 10% was reported as being 11-12.9 inch fish. Average ratings were 3.4 for total fishing experience, 2.6 for size of fish, and 3.1 for number of fish.

Liberty Lake

One volunteer angler survey from the Lamoille drop-box was received for Liberty Lake in 2014. The angler had fished for 0.5 hrs and caught four fish (brook and lake trout). Resulting catch rates were 4.0 fish per angler and 8.0 fish per hour. The size of trout reported was less than10.9 inches. Average ratings were 2.0 for total fishing experience, 2.0 for size of fish, and 3.0 for number of fish.

Robinson Lake

Ten volunteer angler surveys from the Soldier Creek drop-box was received for Robinson Lake in 2014. Between March and August, 10 anglers fished for 31.5 hrs and caught 336 fish. These numbers are assumed over exaggerated and no summary data was compiled.

High Lake Fisheries Health and Water Quality

Smith Lake

The lake water level was about six feet below the old high water mark. Although the windy weather conditions limited visibility into the water, fish observations and the number of rises observed from the shoreline indicated good survival and sufficient trout numbers. Within the first half hour, more than 40 rises were observed, so recording of rises was stopped. The existing population of cutthroat trout ranged from approximately 7.0 inches to 13.5 inches, and had an estimated mean length of 9.5 inches. No fry were observed along the shoreline that would have indicated natural reproduction; however, the rocky shoreline provides a lot of cover for smaller fish to hide under if they were there.

Although no anglers were at Smith Lake on September 22, angler use appeared to be moderate as indicated by campfire rings, footprints and some litter along the shoreline. After five hours of fishing, 21 fish were caught and released. The cutthroat ranged from 7.0 to 11.7 inches (17.2 cm to 29.8 cm). C-factor analysis and body condition rating were performed on 19 of the 21 caught cutthroat trout. All trout measured and weighed had an average fork length of 10.1 inches, an average weight of 6.22 ounces and an average C-factor of 3.66, for a body condition rating of fair. Twenty percent of the fish had a body condition rating of poor, 36% fair, and 42% had a rating of good.

The pH and water temperature readings were taken at the inlet and outlet to the lake. Weather conditions were cool and overcast, with a slight breeze and strong gusts at times. Sample times were from 1032 to 1550 hrs.

Inlet:

pH = 7.1
Water Temp. = 52°F at 6 inch depth

Outlet:

pH = 7.8
Water Temp. = 58°F at 6 inch depth

Greys Lake

The fish population in Greys Lake was observed from 1214 to 1430 hrs on October 13, 2014. The water level was at the high water mark. Fish were easily visible in the lake when making observations from shore. There was little sign of public use other than a few footprints and horse tracks around the lake. The estimated size of fish observed ranged from eight to 16 inches. A total of 37 rises were also observed during

the two hour survey period. The inlet stream was visually checked for fish, but none were observed.

After a two-hour angling effort, 22 fish were caught, measured, and released. The cutthroat ranged from 10.1 to 13.2 inches (25.6 cm to 33.6 cm). C-factor analysis and body condition rating was performed on all 22 caught cutthroat trout. All trout measured and weighed had an average fork length of 11.5 inches (29.1 cm), an average weight of 9.07 ounces, and an average C-factor of 3.77 for a body condition rating of fair. Eighteen percent of the fish had a body condition rating of poor, 50% fair, 23% good, and 9% had a rating of excellent. During the angling period, there were more fish observed in the water than were caught, totaling more than 40 fish. Based on the total amount of fish caught and observed, the survival of stocked fish appears to be good.

The pH and water temperature readings were taken at the inlet and outlet to the lake. Weather conditions during the survey were cool, clear, and with a slight breeze.

Inlet:

pH = 7.7
Water Temp. = 52°F at 6 inch depth

Outlet:

pH = 8.2
Water Temp. = 61°F at 6 inch depth

Robinson Lake

No water chemistry measurements were taken at Robinson Lake in 2014.

Stocking

No fish were stocked, as fry were unavailable.

MANAGEMENT REVIEW

All objectives were completed with the exception of stocking the high lakes and a fisheries assessment of Robinson Lake. Robinson will be scheduled for survey next year and if eggs become available in 2015, the high lakes will be stocked.

RECOMMENDATIONS

- A more concerted effort should be made to document angler use on the Ruby Mountain high lakes during the 2015 field season. It may be necessary to dedicate some seasonal creel clerk time for this task to collect enough data during the peak use periods.

- Continue to stock the alpine lakes on a three-year rotation, depending on population sampling efforts and fishery analysis.

- Stock fish that are no longer then 2.0 in total length in late July or early August.

- Sampling should occur on selected lakes yearly, preferably sampling a minimum of two lakes per year. Continue to monitor the body condition of the cutthroat trout during population sampling as well as water chemistry analysis and invertebrate observations.

- The drop-boxes should be checked periodically during the summer and fall.

- Evaluate the possibility of stocking other trout species into high mountain lakes that receive high angling pressure in an effort to keep up with the angler demand.

Prepared by: Michael Starr
Fisheries Biologist, Eastern Region

Jeff Petersen
Fisheries Biologist, Eastern Region

Date: February 2015