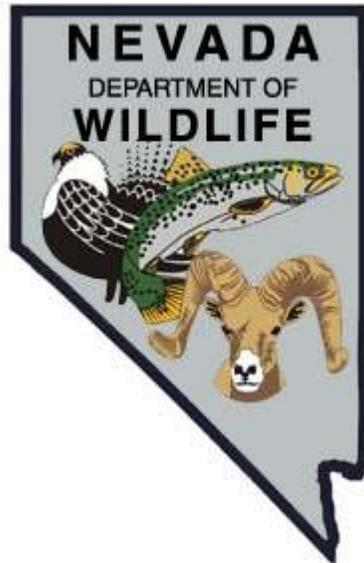


**NEVADA DEPARTMENT OF WILDLIFE  
STATEWIDE SPORT FISHERIES MANAGEMENT**



**FEDERAL AID JOB PROGRESS REPORT**

**F-20-52  
2016**

**RUBY MOUNTAIN & EAST HUMBOLDT  
HIGH MOUNTAIN LAKES**



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

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**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, 2016 through December 31, 2016*

**SUMMARY**

During 2016, Lamoille Lake was stocked via horseback with Pyramid Lake strain Lahontan cutthroat trout (LCT) fry, and Boulder Lake was stocked via helicopter with tiger trout. A total of 36 volunteer angler surveys were collected from the Lamoille and Soldier Creek drop-boxes, with no additional anglers being contacted. Reported catch rates ranged from 0.6 to 4.2 fish per hour. Ratings for angler satisfaction were highest for total fishing experience and lowest for size of fish. The Island Lake fishery was also assessed in 2016. The hook-and-line survey of Island Lake resulted in no trout being captured in three hours of fishing.

**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 and East Humboldt High Lakes

Objective: General Sport Fisheries Management

Approaches:

- Conduct general fisheries assessment through opportunistic angler contacts.
- Maintain the angler drop boxes at Soldier Creek and Lamoille Creek trailheads
- Evaluate the fisheries health and water quality/quantity of Island, Goat, and Echo lakes.
- Stock Pyramid Lake strain LCT fry or sterile tiger trout fry in Lamoille Lake (4,000).
- Stock sterile tiger trout fry in Boulder 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 2016 was rated on a scale of zero to four, with zero being unsatisfied and four representing satisfaction.

### High Lake Fisheries Health and Water Quality

A hook-and-line survey was conducted on Island Lake using various methods of fishing (fly and spin fishing). The total length and weight of all captured fish was measured and recorded before it was released back into the lake. The total amount of time spent conducting the survey and the number of individuals fishing was recorded in an effort to calculate the catch rate (fish/hr). The pH and water temperature of the lake was determined using a Hach Kit and a standard bulb thermometer.

## Stocking

### Lamoille Lake

Approximately 4,113 Pyramid Lake strain LCT were stocked into Lamoille Lake. The fish were raised at Gallagher Hatchery and transferred to Lamoille Canyon via a live well. The trout were then transported to Lamoille Lake via panniers on horses supplied by the Bristlecone Chapter of the Backcountry Horsemen of America.

### Boulder Lake

On August 15, 2016, approximately 1,015 sterile tiger trout averaging 10.68 fish/lb were delivered from Mason Valley Fish Hatchery. The fish were then loaded into a Bambi Bucket (a bucket used by helicopters to fight fires) and transported to the lake via a helicopter. Once at the lake, the fish were dumped out from the air.

## **FINDINGS**

## Fishery Assessments

### Favre Lake

Four volunteer angler surveys from the Lamoille drop-box were received for Favre Lake in 2016. These anglers reported fishing for 13 hours and caught 50 fish. Resulting catch rates were 12.5 fish per angler and 3.85 fish per hour. Reported fish lengths consisted of 18.0% of fish being less than 10.9 in and 82.0% of the captured fish being 11 to 12.9 in. Average ratings were 4.0 for total angling experience, 3.0 for size of fish, and 3.8 for number of fish caught.

### Hidden Lake

Eleven volunteer angler surveys from the Soldier Creek drop-box were received for Hidden Lake in 2016. During the months when surveys were received, 11 anglers had fished for 28.25 hrs and caught 119 fish. Resulting catch rates (LCT) were 10.82 fish per angler and 4.21 fish per hour. Reported fish lengths consisted of 49.6% of fish being less than 10.9 in, 31.93% of the fish being 11.0 to 12.9 in, 14.29% of the fish being 13.0 to 14.9 in, 3.36% of the fish being 15.0 to 16.9 in, and 0.8% of the catch being greater than 17 to 18.9 in. Average ratings were 3.6 for total angling experience, 3.7 for size of fish, and 3.7 for number of fish caught.

### Island Lake

Two volunteer angler surveys from the Lamoille drop-box were received for Island Lake in 2016. During the months when surveys were received, two anglers had fished for five hours and caught three fish. Resulting catch rates were 1.5 fish per angler and 0.6 fish per hour. Reported fish lengths consisted of 33.3% of fish being less

than 10.9 in and 66.7% of the fish being 11.0 to 12.9 in. Average ratings were 3.5 for total angling experience, 3.4 for size of fish, and 2.0 for number of fish caught.

### Lamoille Lake

Thirteen volunteer angler surveys from the Lamoille drop-box were received for Lamoille Lake in 2016. During the months when surveys were received, 13 anglers had fished for 34 hrs and caught 47 fish. Resulting catch rates were 3.6 fish per angler and 1.4 fish per hour. Reported fish lengths consisted of 65.9% of fish being less than 10.9 in and 34.1% of the fish being 11.0 to 12.9 in. Average ratings were 3.6 for total angling experience, 2.9 for size of fish, and 3.2 for number of fish caught.

### Liberty Lake

Two volunteer angler surveys from the Lamoille drop-box were received for Liberty Lake in 2016. These anglers fished for 7.5 hrs and caught eight fish. Resulting catch rates were 2.67 fish per angler and 1.07 fish per hour. Reported fish lengths consisted of 50.0% of fish being less than 10.9 in and 50.0% of the fish being 11.0 to 12.9 in. Average ratings were 4.0 for total fishing experience, 2.3 for size of fish, and 2.7 for number of fish caught.

## High Lake Fisheries Health and Water Quality

### Island Lake

Island Lake was at full pool, with a steady stream of water flowing out of the lake. There was still several feet of snow on the north-facing slope, which made hiking around the lake difficult and unsafe. Weather conditions were clear and cool. The pH at the outlet of the lake was 8.6, with a water temperature of 50°F.

Three angler hours did not produce any fish. No fish were observed along the shallows of the lake and no fish rises were recorded. Also, no other anglers were observed fishing at the lake.

## Stocking

### Lamoille Lake

Approximately 4,113 Pyramid Lake strain LCT were picked up at Gallagher Hatchery and transported in an aerated and oxygenated tank to the Lamoille Lake Trailhead. About 75 juveniles were caught and died in the agitator since the protective mesh size was too large. Live fish were then transported in aerated buckets to Lamoille Lake via horses with panniers supplied by the Bristlecone Chapter of the Backcountry Horsemen of America. Once at the lake, the trout were acclimated and then released.

### Boulder Lake

On August 15, 2016, approximately 1,015 sterile tiger trout averaging 10.68 fish/lb were delivered from Mason Valley Fish Hatchery. The fish were then loaded into a Bambi Bucket (a bucket used by helicopters to fight fires) and transported to the lake via a helicopter. Once at the lake, the fish were dumped out. There was a total of 4.9 hours of flight time used, which included the ferry from Reno to Elko.

### **RECOMMENDATIONS**

- A more concerted effort should be made to document angler use at the Ruby Mountain high lakes during the 2017 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 depending on population sampling efforts and fishery analysis.
- Population assessment should occur on selected lakes yearly, preferably sampling a minimum of two lakes per year. Continue to monitor the body condition of the LCT 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.

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