

# NEVADA DEPARTMENT OF WILDLIFE STATEWIDE FISHERIES MANAGEMENT



## FEDERAL AID JOB PROGRESS REPORTS

F-20-52  
2016

BLUE LAKES  
WESTERN REGION



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

Table of Contents

<u>Contents</u>	<u>Page</u>
SUMMARY .....	1
BACKGROUND .....	1
OBJECTIVES .....	1
PROCEDURES .....	2
FINDINGS .....	2
MANAGEMENT REVIEW .....	4
RECOMMENDATIONS .....	7

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

**State:** *Nevada*  
**Project Title:** *Statewide Fisheries Program*  
**Job Title:** *Blue Lakes*  
**Period Covered:** *January 1, 2016 through December 31, 2016*

**SUMMARY**

The 2016 fishing season at Blue Lakes opened on June 11, 2016 and ended November 15, 2016. A total of 1,056 subcatchable triploid rainbow trout were stocked in 2016 for expected harvest beginning in 2017. The water level remained low throughout the fishing season, with the lower lakes receiving little to no water. Additionally, the main lake was low at the start of the season, but started to fill in July and stabilized throughout the rest of the fishing season.

The Mail-in Angler Questionnaire Survey reported 117 anglers fished 171 days to catch 915 fish during 2015. Angler drop-box forms were maintained throughout the 2016 season and 16 anglers reported fishing for 48.5 hours and only caught 12 trout. Opportunistic angler contact surveys were completed throughout the fishing season and no anglers were contacted.

**BACKGROUND**

Blue Lakes are composed of three small lakes located in the Pine Forest Range Wilderness Area at 8,300 feet in elevation. The main lake covers 24 surface acres with a maximum depth of 48 feet and average depth of 24 feet. The lower lake covers 7.4 surface acres. Access to Blue Lakes requires a hike of approximately 1/4 mile from the trailhead to the main lake.

Historically, Blue Lakes supported a Lahontan cutthroat trout fishery. Currently, there is a self-sustaining population of brook trout along with rainbow, tiger, and bowcutt trout, which are augmented using helicopters. Blue Lakes are managed as a quality coldwater fishery.

**OBJECTIVES**

- Conduct a general fisheries assessment through opportunistic angler contacts, angler drop-box surveys, and mail-in angler questionnaire data.
- Conduct a general habitat assessment through visual observations of water quantity (lake level) and water quality (clarity) when on site.

## PROCEDURES

**Conduct a general fisheries assessment through opportunistic angler contacts, angler drop-box surveys, and Mail-in Angler Questionnaire Survey.** Opportunistic creel surveys were conducted during the 2016 fishing season by attempting to contact anglers that were fishing Blue Lakes or camped at the Blue Lakes trailhead. The angler drop-box was maintained prior to the fishing season and was checked after the close of the fishing season on November 15, 2016. Participating anglers rated their satisfaction for angling experience, size of fish, and number of fish caught on a scale of -2 (worst) to +2 (best). The 2015 mail-in angler questionnaire data was summarized. This voluntary angler questionnaire is randomly mailed to 30,000 fishing license holders for the year to estimate angler use and success.

**Conduct a general habitat assessment through visual observations of water quantity (lake level) and water quality (clarity) when on site.** Blue Lakes was visited in May, June, July, August, September, and November to monitor lake level, water clarity, aquatic vegetation, and angler use.

## FINDINGS

**Conduct a general fisheries assessment through opportunistic angler contacts, Angler Drop-Box Surveys, and Mail-in Angler Questionnaire Survey.** Blue Lakes was stocked with 1,056 subcatchable triploid rainbow trout on September 20, 2016. These fish were stocked using a helicopter. The stocking history from 2012 through 2016 is summarized in Table 1.

**Table 1.** Blue Lakes Stocking Data 2012-2016.

Year	Species	Strain	Number of Fish	Pounds of Fish	Average Size (inches)	Annual Total	
						Number	Pounds
2012	Rainbow	Fish Lake	4,044	73	3.6	4,044	73
2013	Rainbow	Triploid	1,501	22	3.3	4,004	35
	Bowcutt		2,503	13	2.3		
2014	Rainbow	Triploid	3,528	120	4.4	5,532	126
	Bowcutt		2,004	6	1.9		
2015	Rainbow	Triploid	1,011	50	5.0	1,011	50
2016	Rainbow	Triploid	1,056	46	4.8	1,056	46

Anglers completing mail-in angler questionnaire for 2015 reported catching 5.33 fish per day, which is above the 5-year average of 4.7 fish per day. Angler success was 7.79 fish per angler, which was slightly below the five-year average of 8.35. Mail-in angler questionnaire results are summarized in Figures 1 and 2.

A total of 16 anglers completed drop-box surveys for Blue Lakes from June through November, with the exception of October. Angler satisfaction ratings were all negative for angling experience, size of fish, and number of fish caught at -0.1, -0.34 and -0.65, respectively. The results of the angler drop-box survey are summarized in Tables 2 and 3.

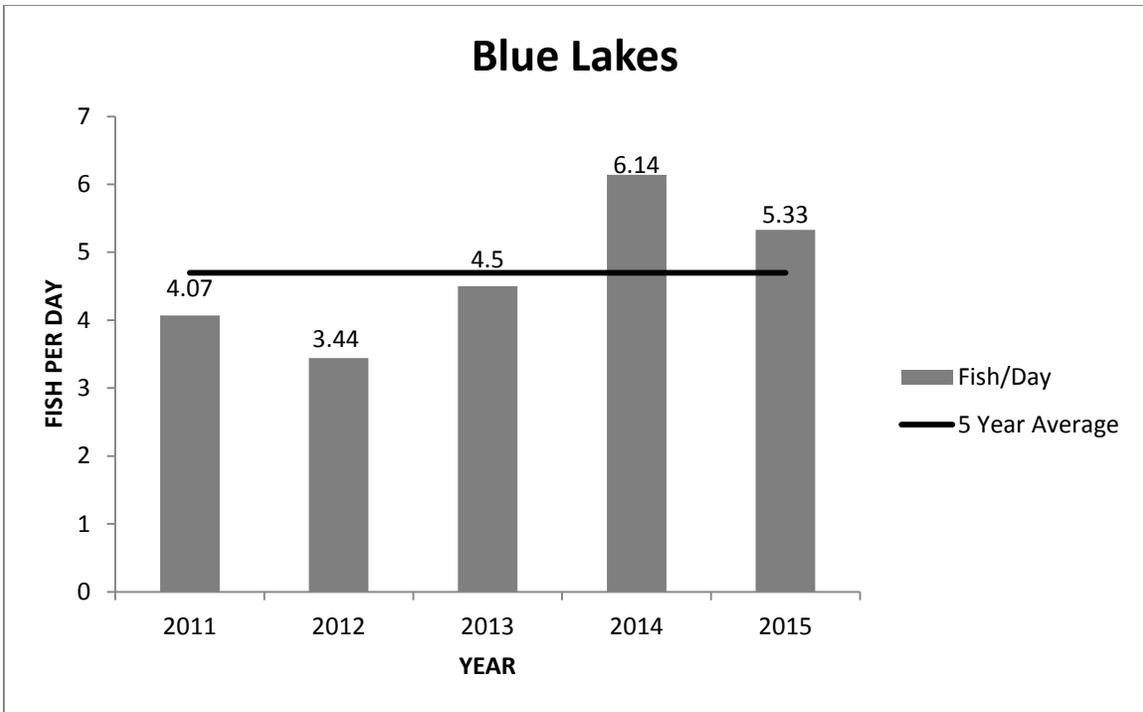


Figure 1. Blue Lakes Angler Questionnaire fish/day 2011-2015.

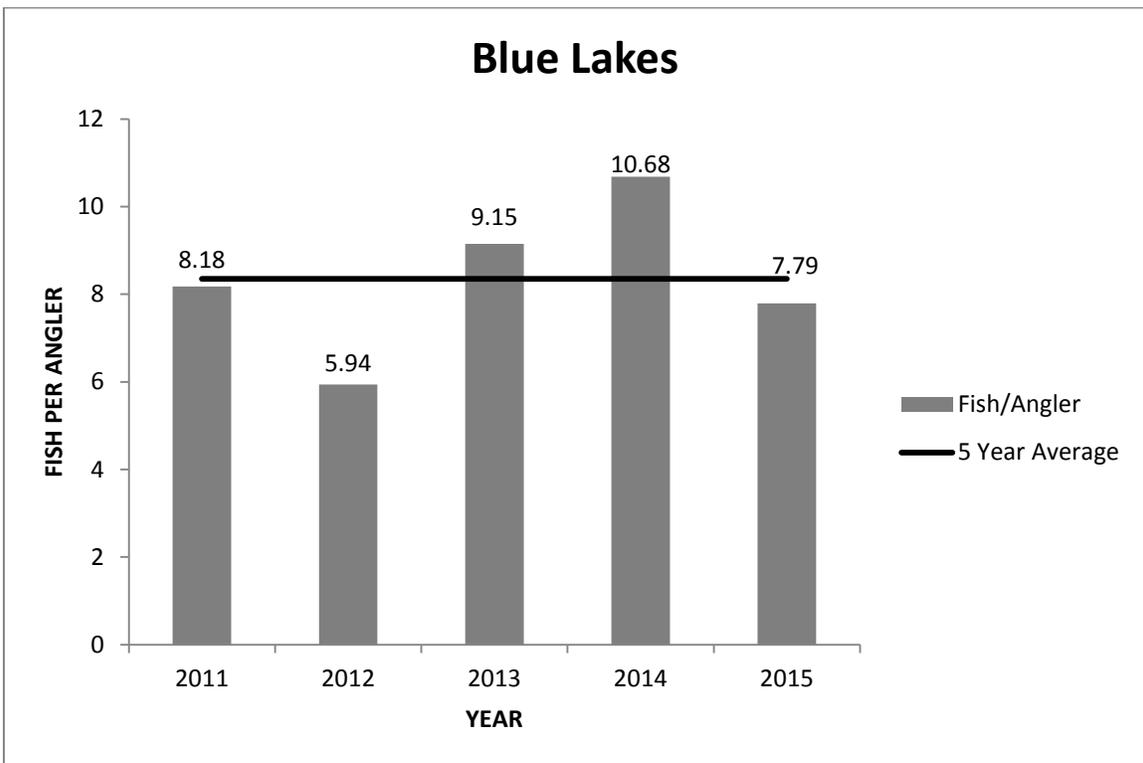


Figure 2. Blue Lakes Angler Questionnaire fish/angler 2011-2015.

**Table 2.** Monthly Angler Use and Success Data – Drop-Box.

Month	# of Anglers	# of Angler Hours	Angler Satisfaction			# of Fish Caught	# of Fish Harvested	Fish/Angler	Fish/Hour
			Angling Experience	Size of Fish	# of Fish				
June	6	14.5	0.2	0.2	-0.6	4	0	0.67	0.28
July	4	16	-0.38	-0.25	-0.5	1	0	0.25	0.06
August	3	10	-1.33	-0.67	-0.67	0	0	0	0
September	2	6	1.0	1.0	0.50	7	0	3.5	1.17
November	1	2	0	-2	-2	0	0	0	0
<b>Annual Summary</b>	16	48.5	-0.1	-0.34	-0.65	12	0	0.74	0.25

**Table 3.** Length Frequency and Species Composition Data – Drop-Box.

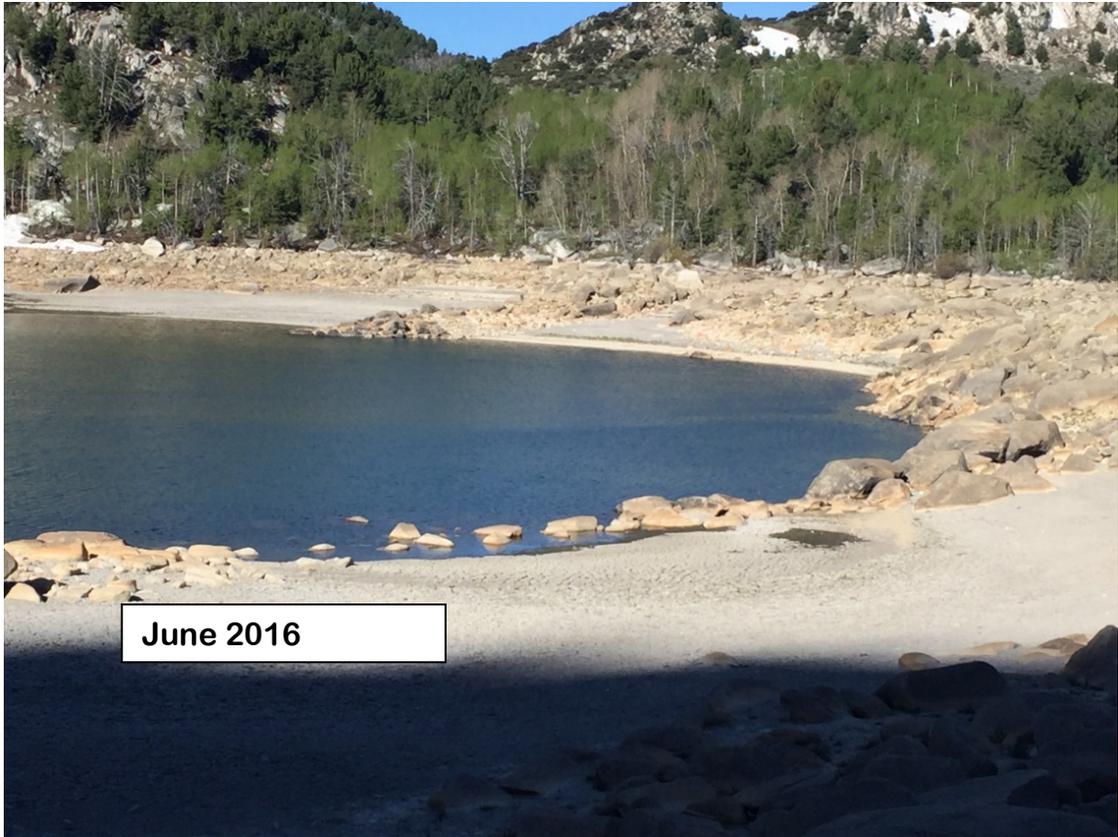
Species	# Caught	Size Class							
		<10"	10-11.9"	12-13.9"	14-15.9"	16-17.9"	18-19.9"	20-22"	>22"
Rainbow trout	3	1	0	0	1	0	0	1	0
Bowcutt	1	0	0	0	0	1	0	0	0
Tiger Trout	1	1	0	0	0	0	0	0	0
Brook Trout	7	1	0	2	0	4	0	0	0

Opportunistic angler surveys are conducted every time Blue Lakes was visited. No anglers were contacted during the 2016 fishing season.

**Conduct a general habitat assessment through visual observations of water quantity (lake level) and water quality (clarity) when on site.** Blue Lakes were visited at least once a month from May through November, with the exception of October. In May, the main lake was very low and was estimated to be below 50 percent capacity, but the lower three lakes were nearly empty. The water clarity was very poor, with occasional algae blooms occurring through the fishing season. In July, the water level started to increase slightly at the upper main lake, but the water clarity remained poor. By November, the lower three lakes were completely dry, water clarity remained poor, and aquatic vegetation was dense around the edges of the main lake. Photos were taken of the lake level throughout the year (Figure 3).

### **GENERAL MANAGEMENT REVIEW**

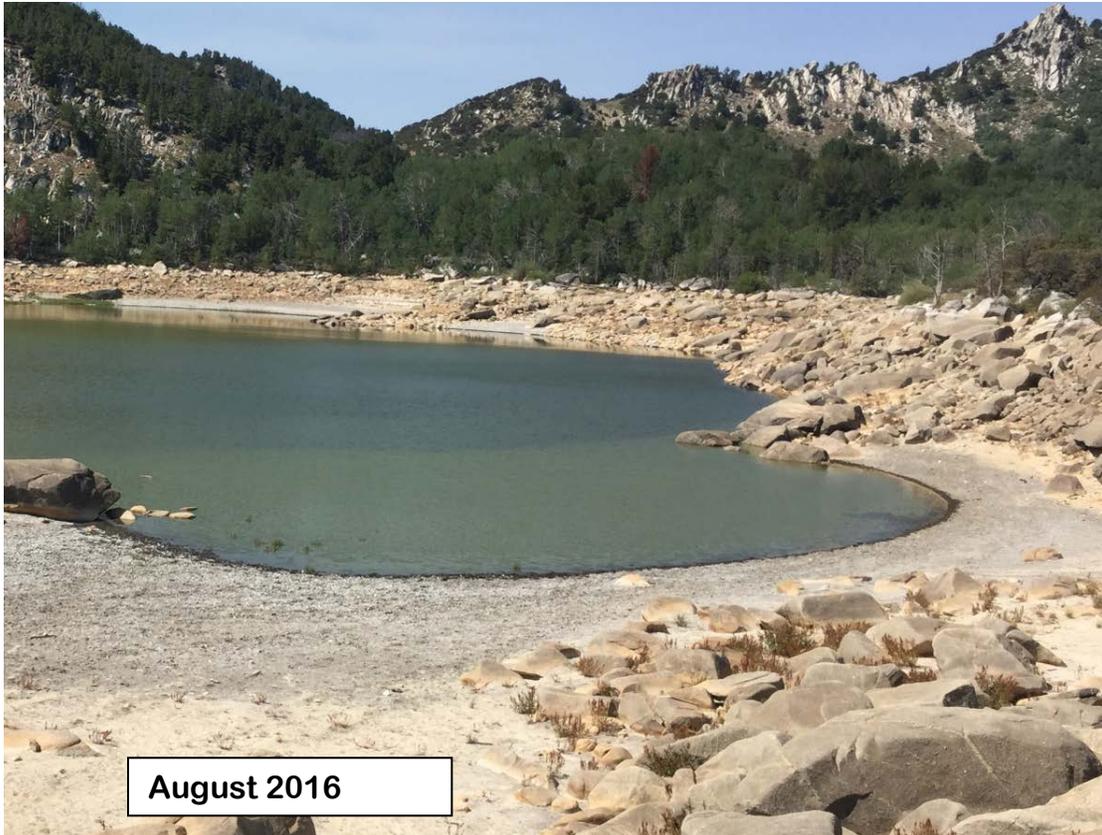
The 2015 mail-in, angler questionnaire at Blue Lakes exceeded the catch rate standards of a Quality Fishery Management Concept, but angler satisfaction based on the 2016 drop-box surveys was poor and angler success dramatically declined below the standards of a Quality Fishery Management Concept.



June 2016



July 2016



August 2016



September 2016

Figure 3. Photos of Blue Lake - 2016.

Typically, during visits to Blue Lakes, it is common to see fish constantly rising and swimming the shoreline, but very few fish were observed in 2016. Low angler catch rates and satisfaction ratings coupled with visual observations made in 2016 suggest there was a substantial loss of the fishery. The extent of the loss, however, cannot be determined. It is speculated that a fish kill occurred in the winter of 2015/2016 or an algae bloom occurred in the late fall of 2015 that resulted in a substantial fish kill. Blue Lakes were at their lowest level on record in the fall of 2015 due to three years of continued drought. Drought and low water levels have resulted in a substantial fish loss at this high elevation lake.

### **RECOMMENDATIONS**

- Conduct a general assessment of angler use, success, and harvest through contact creel survey, Angler Drop-Box Survey, and Mail-in Angler Questionnaire Survey.
- Monitor lake level and water quality as access to the lakes permits.

Prepared by: Brad Bauman  
Fisheries Biologist  
Western Region

Date: March 15, 2017