

NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS

F-20-54
2018

BLUE LAKES
WESTERN REGION



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

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

State: *Nevada*
Project Title: *Statewide Fisheries Program*
Job Title: *Blue Lakes*
Period Covered: *January 1, 2018 through December 31, 2018*

SUMMARY

The 2018 fishing season at Blue Lakes opened on June 9 and ended November 15. The agency stocked 1,005 fingerling bowcutt trout and 501 fingerling rainbow trout using backpacks for transport to the lake. The water level at Blue Lakes was better than the previous three years; the main lake started the season at approximately 50 percent capacity and increased to 60 percent during the fishing season. The lower lakes received little to no water.

The Mail-in Angler Questionnaire Survey from 2017 reported 55 anglers fished for 81 d to catch only three fish. Angler drop-box forms were maintained throughout the 2018 season and 31 anglers reported fishing for 130.5 hrs and caught 92 trout. Opportunistic angler contact surveys were completed throughout the fishing season and only one angler was contacted.

BACKGROUND

Blue Lakes are composed of three small lakes located in the Pine Forest Range Wilderness Area at 8,300 ft in elevation. The main lake covers 24 SA with a maximum depth of 48 feet and an average depth of 24 feet. The lower lake covers 7.4 surface acres. Access to Blue Lakes requires a hike of approximately 1/4 mi 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 routinely using helicopters. Blue Lakes is managed under the Coldwater Quality Fishery Concept, a management strategy that applies to waterbodies producing fish with significant growth characteristics and has fish of a size anglers prefer to catch. Anglers should be able to catch trout larger than the 8.0 to 10.0 in stocked size, but smaller than a "Trophy" fish. Management of this resource is directed towards wild fish or stocked fish that grow a significant portion of their size in the wild environment. However, fish should not be stocked at a large size to create this fishery. Special management regulations may be appropriate to reduce harvest and allow fish to grow larger. Therefore, Blue Lakes is open to fishing on the second Saturday in June through November 15. The limit is 5 trout.

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 2018-fishing season by contacting 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. 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 2017 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, and October 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 were stocked with 1,521 sub-catchable, triploid rainbow and bowcutt trout on October 16, 2018. Fish were hiked-in using backpacks and dry bags with aerators. The stocking history from 2014 through 2018 is summarized in Table 1.

Table 1. Blue Lakes Stocking Data 2014 – 2018.

Year	Species	Strain	Number of Fish	Pounds of Fish	Average Size (inches)	Annual Total	
						Number	Pounds
2018	Rainbow	Triploid	516	4	1.29	1,521	10
	Bowcutt		1,005	6	1.57		
2017	Rainbow	Triploid	2,006	57	4.1	4,010	63
	Bowcutt		2,004	6	1.9		
2016	Rainbow	Triploid	1,056	46	4.8	1,056	46
2015	Rainbow	Triploid	1,011	50	5.0	1,011	50
2014	Rainbow	Triploid	3,528	120	4.4	5,532	126
	Bowcutt		2,004	6	1.9		

Based on mail-in angler questionnaire results in 2017, an estimated 55 anglers showed a catch rate of 0.04 fish per day, which is well below the 5-year average of 3.33

fish per day. Angler success was 0.06 fish per angler, which is also well below the 5-year average of 5.66 fish per angler. In fact, the angler success results from the 2016 and 2017 mail-in angler questionnaires are the lowest since the questionnaire was initiated in 1980. Mail-in angler questionnaire results for 2013 through 2017 are summarized in Figures 1 and 2.

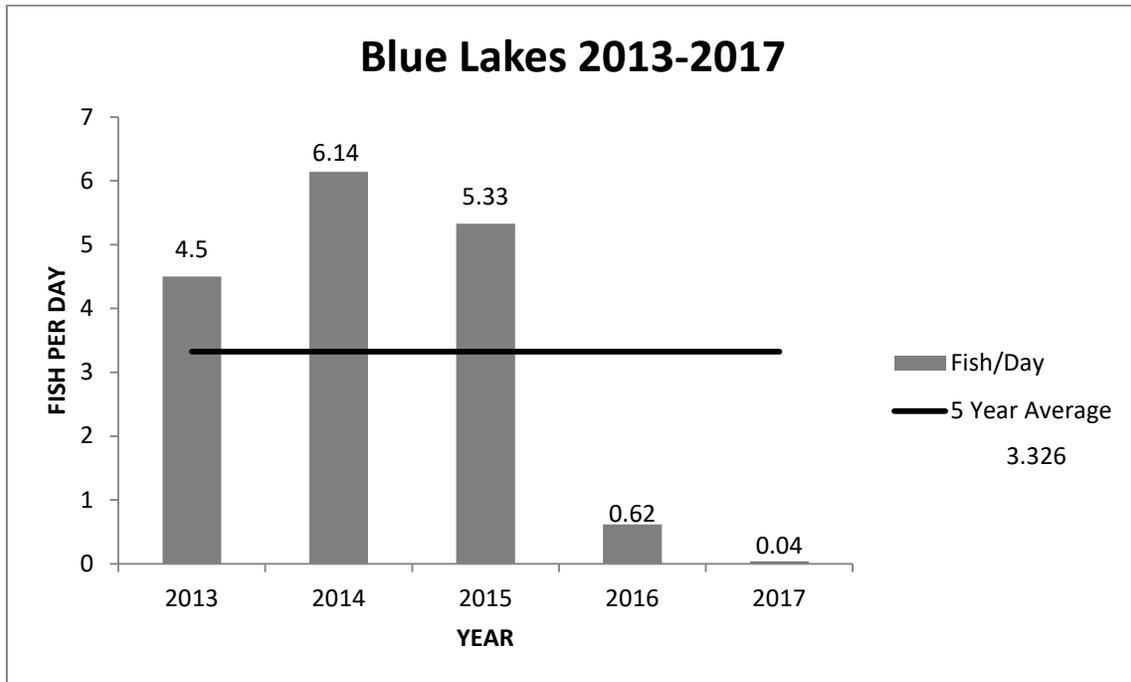


Figure 1. Blue Lakes Angler Questionnaire fish/day, 2013 – 2017.

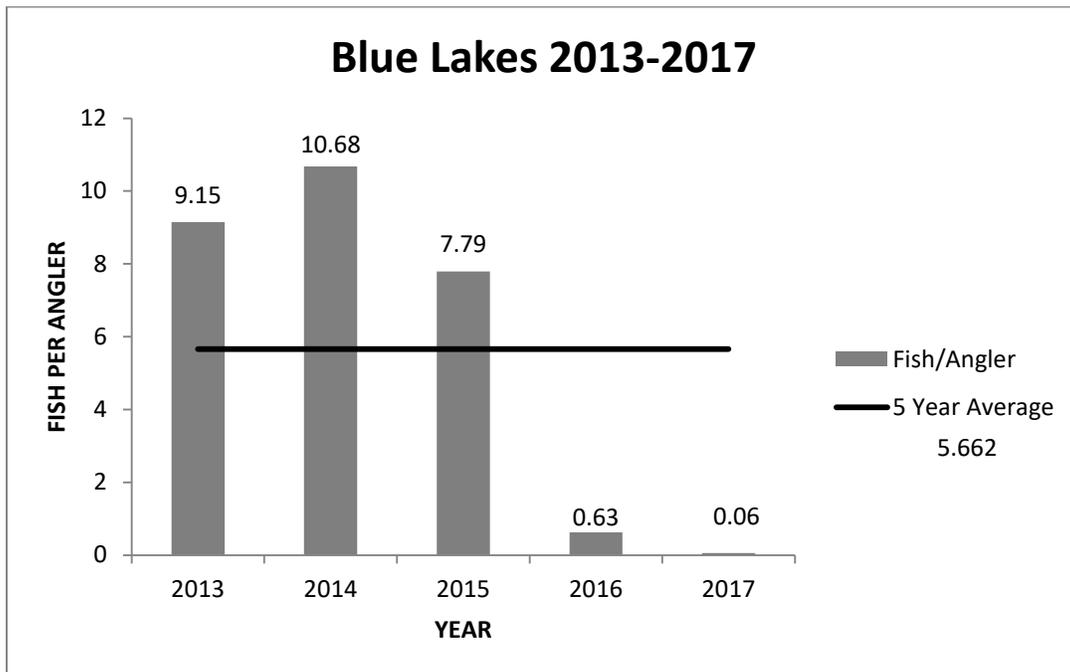


Figure 2. Blue Lakes Angler Questionnaire fish/angler, 2013 – 2017.

Drop-box surveys for 2018 were completed by 31 anglers from June through November. The survey asked participants to rate their fishing day on a scale of -2.0 (highly dissatisfied) to +2.0 (highly satisfied) for three categories: “overall experience,” “size of fish,” and “number of fish.” The survey also asks anglers to report the number, species, and size of fish that were caught. Average angler satisfaction ratings were positive for angling experience (+1.03), size of fish (+0.94), and for number of fish caught (+0.45). The most common size class of trout caught was >10 in, which is typical for this high mountain lake. Satisfaction and angler success results are summarized in Table 2 and 3. Length frequency for all trout species combined is depicted in Figure 3. Figure 4 summarizes the five-year angler satisfaction ratings for the Blue Lakes angler drop-box survey.

Table 2. Monthly Angler Use and Success Data, Drop-Box 2018.

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	11	35.5	1.36	1.09	0.5	20	7	1.82	0.56
July	6	44	1.17	1	0.33	22	16	3.67	0.50
August	8	38.5	-0.13	0.25	-0.25	12	0	1.2	0.4
September	1	1	1	0	0	0	0	0	0
October	4	6.5	2	1.75	1.75	27	4	6.75	4.15
November	1	5	2	2	2	11	5	11	2.2
Summary	31	130.5	1.03	0.94	0.45	92	32	2.97	0.70

Table 3. Length Frequency and Species Composition Data, Drop-Box 2018.

Species	# Caught	Size Class						
		<10"	10-11.9"	12-13.9"	14-15.9"	16-17.9"	18-19.9"	20-22"
Rainbow trout	67	21	16	8	8	7	6	1
Bowcutt	16	1	0	1	9	0	2	3
Tiger Trout	0	0	0	0	0	0	0	0
Brook Trout	10	1	2	0	1	3	3	0

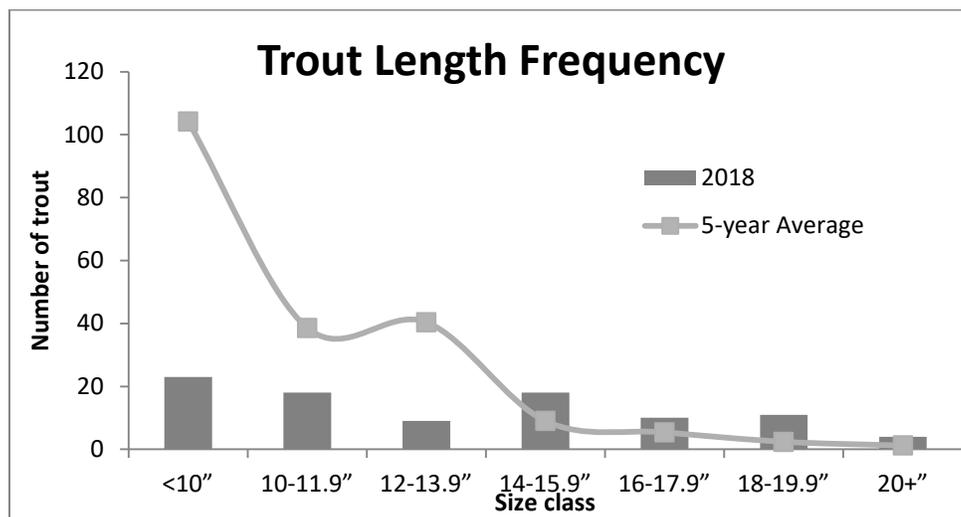


Figure 3. Length frequency of all trout species combined Blue Lakes, 2018.

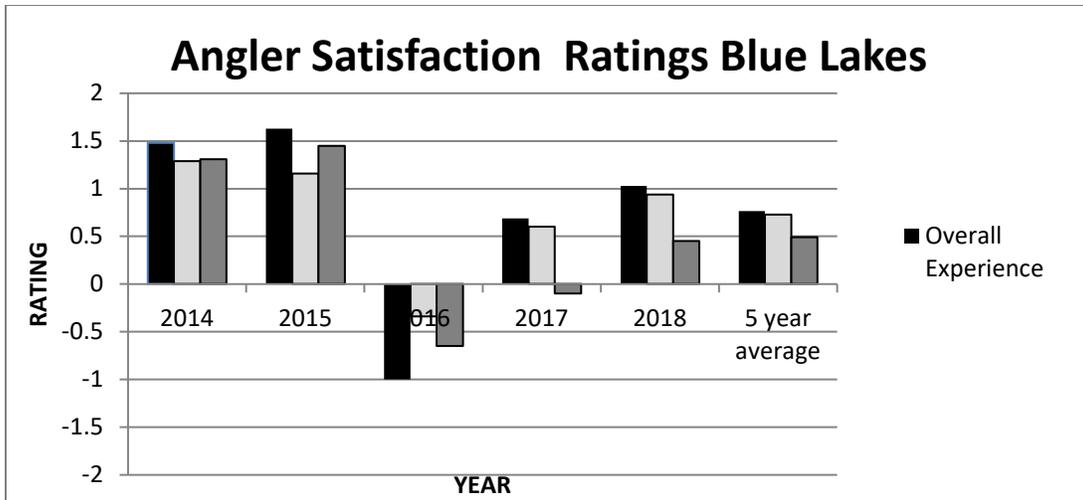


Figure 5. Five-year angler satisfaction ratings for Blue Lakes, 2014 – 2018.

Opportunistic angler surveys were conducted if there were anglers present each time Blue Lakes was visited. Blue Lakes was visited in May, June, July, and October. Only one angler was contacted during June, catching 10 trout in 3.0 hrs for a success rate of 3.33 fish/hr.

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, and October. In May, the capacity of main lake was estimated at 50 percent, which increased to 60 percent throughout the fishing season. The lower three lakes remained nearly empty all year. Water clarity was good through the fishing season. Table 4 summarizes general habitat assessments made at Blue Lakes in 2018.

Table 4. General Habitat Assessment at Blue Lakes, 2018.

Date	Water Temperature (°F)	Water Level	Water Clarity	Road Conditions	Number of Anglers	Comments
5/8/2018	41	50%	Clear	Poor	0	90% ice cover
6/10/2018	55	60%	Clear	Poor	1	
7/25/2018	67	60%	Clear	Poor	0	
10/16/2018	53	60%	Clear	Poor	0	

GENERAL MANAGEMENT REVIEW

It appears that Blue Lakes has rebounded from very poor angler success observed in 2016 and 2017. During drought years from 2014 to 2016, the lake experienced record low water levels that resulted in a substantial winterkill of fish. Annual stocking along with improved water levels since 2016, has promoted the rebounding of the fishery. The 2018 angler catch and angler satisfaction ratings have improved from the record lows observed in 2016 and 2017.

The guidelines of the Coldwater Quality Fishery Management Concept suggests “Success rates should be between 0.30 and 1.25 fish per hour and 2.0 to 3.5 fish per

angler-day, with an opportunity to catch fish larger than the average size for the species.” Anglers reported catching 0.70 fish per hour and 2.97 fish per angler in the 2018 angler drop-box survey. Blue Lakes is once again meeting the guidelines of a Coldwater Quality Fishery after failing to meet them in 2016 and 2017.

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 levels and water quality as access to the lakes permits.

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