

NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS

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2016

KNOTT CREEK RESERVOIR
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: *Knott Creek Reservoir*
Period Covered: *January 1, 2016 through December 31, 2016*

SUMMARY

The 2016 fishing season at Knott Creek Reservoir started on June 11, 2016 and ended on November 15, 2015. Knott Creek Reservoir was stocked with 2,502 rainbow trout, 2,543 cuttbow trout, and 1,052 tiger trout. Anglers participating in the Mail-in, Angler Questionnaire Survey reported on angler use and success at Knott Creek Reservoir during the 2015-fishing season. Angler drop-box forms were maintained throughout the 2016-fishing season and collected after the season closed. Opportunistic angler contacts were conducted on the opening weekend of the fishing season. Based on these methods of determining angler success, this fishery was consistent with the management objectives of this reservoir.

The water level in Knott Creek Reservoir varied slightly throughout the fishing season. Overall, the water level was considered low for the duration of the 2016-fishing season. Water from the reservoir was not used for irrigation in 2016 and the reservoir was at approximately 1,300 AF at the beginning of the fishing season, then dropped slightly throughout the year due to evaporation and was near the 1,000 AF minimum pool by the end of the fishing season in November.

BACKGROUND

Knott Creek Reservoir is located in the Pine Forest Range at an elevation of 6,400 feet. The dam was reconstructed in 1988 when an initial 500 acre-feet minimum pool was purchased by the state. In 2003, another 500 acre-feet was purchased through the Southern Nevada Public Lands Management Act bringing the minimum pool agreement to 1,000 acre-feet. The reservoir covers 216 surface acres and stores 2,700 acre-feet of water with a maximum depth of 24 feet. In addition to recreational angling, Knott Creek Reservoir is also used for irrigation at Knott Creek Ranch.

Currently, Knott Creek Reservoir is managed as a trophy, coldwater fishery with special regulations. The fishing season is open from the second Saturday in June through November 15, with only artificial lures and flies with single barbless hooks permitted. The harvest limit is one trout per day having a minimum size of 18 inches.

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.
- Conduct up to five days of visual observations surveys along Knott Creek upstream of the reservoir during the spring for spawning rainbow trout and redds.
- Monitor Knott Creek upstream of Knott Creek Reservoir in the summer and fall using visual observations and two days of spot electroshocking for juvenile trout.

PROCEDURES

Conduct a general fisheries assessment through opportunistic angler contacts, angler drop-box surveys, and Mail-in Angler Questionnaire Survey. Opportunistic angler contacts were made in June 2016. The majority of the anglers at Knott Creek Reservoir used float tubes or boats and contacts were made using a boat and while anglers were on shore and not actively fishing. The angler drop-box was maintained prior to the fishing season opening on June 11, 2016 and through November 15, 2016, which was the last day of the season. Anglers participating in the drop-box survey rated their satisfaction in 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. The voluntary angler questionnaire was randomly mailed to 30,000 anglers fishing in 2015 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. Knott Creek Reservoir was visited monthly in May, June, July, September, October, and November 2016 to monitor lake level, water clarity, and aquatic vegetation.

Conduct up to five days of visual observations surveys along Knott Creek upstream of the reservoir during the spring for spawning rainbow trout and redds. Visual observation surveys were conducted on two days along Knott Creek upstream of the reservoir in May of 2016.

Monitor Knott Creek upstream of Knott Creek Reservoir in the summer and fall using visual observations and two days of spot electroshocking for juvenile trout. Monitoring for juvenile trout in Knott Creek upstream of the reservoir was not conducted in 2016 due to low flows resulting from the ongoing drought.

FINDINGS

Conduct a general fisheries assessment through opportunistic angler contacts, Angler Drop-Box Surveys, and Mail-in Angler Questionnaire Survey. Knott Creek Reservoir was stocked with 2,502 triploid rainbow trout, 2,543 bowcutt trout, and 1,052 tiger trout in 2016. The stocking history from 2012 through 2016 is summarized in Table 1.

Table 1. Knott Creek Reservoir Stocking Data 2012-2016.

Year	Species	Strain	Number of Fish	Pounds of Fish	Average Size (inches)	Annual Total	
						Number	Pounds
2012	Tiger Trout	-	450	182	10.0	450	182
2013	Rainbow	Triploid	4,357	2,010	10.5	7,743	3,135
	Bowcutt	-	2,522	1,025	10.1		
	Tiger trout	-	864	100	6.6		
2014	Rainbow	Triploid	5,000	1,760	9.6	6,764	2,440
	Tiger		1,764	680	9.9		
2015	Rainbow	Triploid	2,028	600	9.0	5,806	1,850
	Tiger trout	-	1,727	550	9.3		
	Rainbow	Triploid	2,051	700	9.5		
2016	Rainbow	Triploid	2,502	900	9.7	6,097	2,050
	Tiger trout	-	1,052	400	9.6		
	Bowcutt	Marlette	2,543	750	9.0		

The mail-in, angler questionnaire results for 2015 indicated angler use was below the five-year average, with 1,365 anglers fishing Knott Creek Reservoir in 2015. The average number of anglers fishing over the past 5-years was 1,652 anglers. In 2015, estimated angler success was 8.57 fish per day and 27.06 fish per angler, which is slightly above the five-year average of 8.53 fish per day and 26.75 fish per angler. The angler questionnaire history is summarized in Figures 1 and 2.

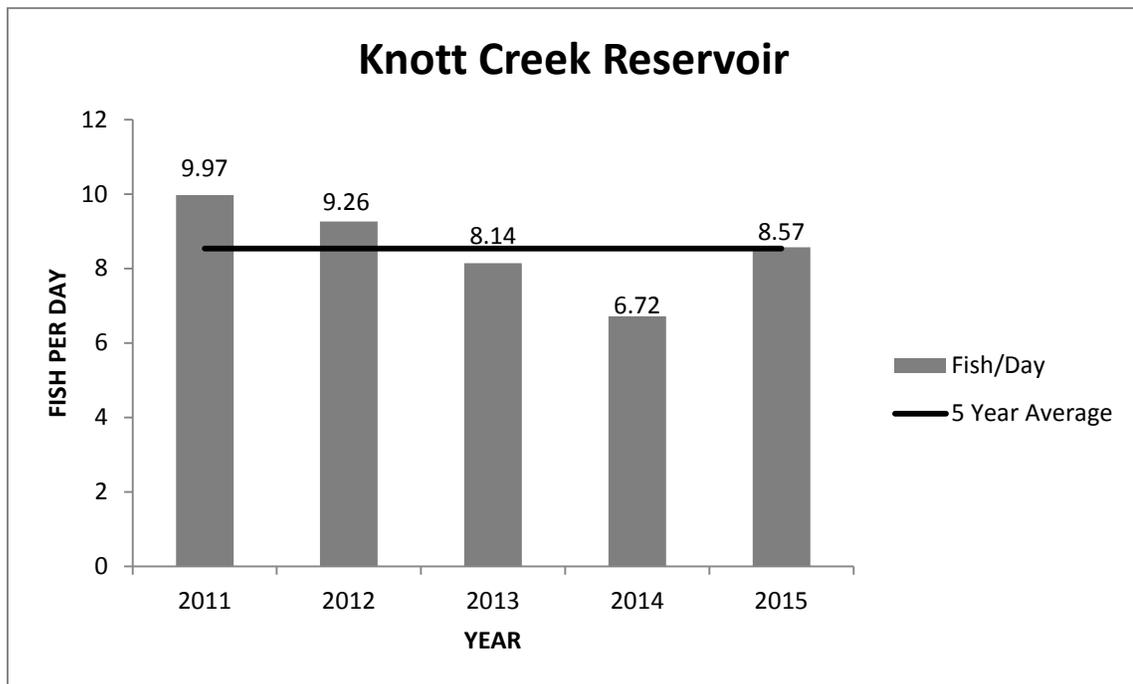


Figure 1. Knott Creek Reservoir Angler Questionnaire fish/day 2011-2015.

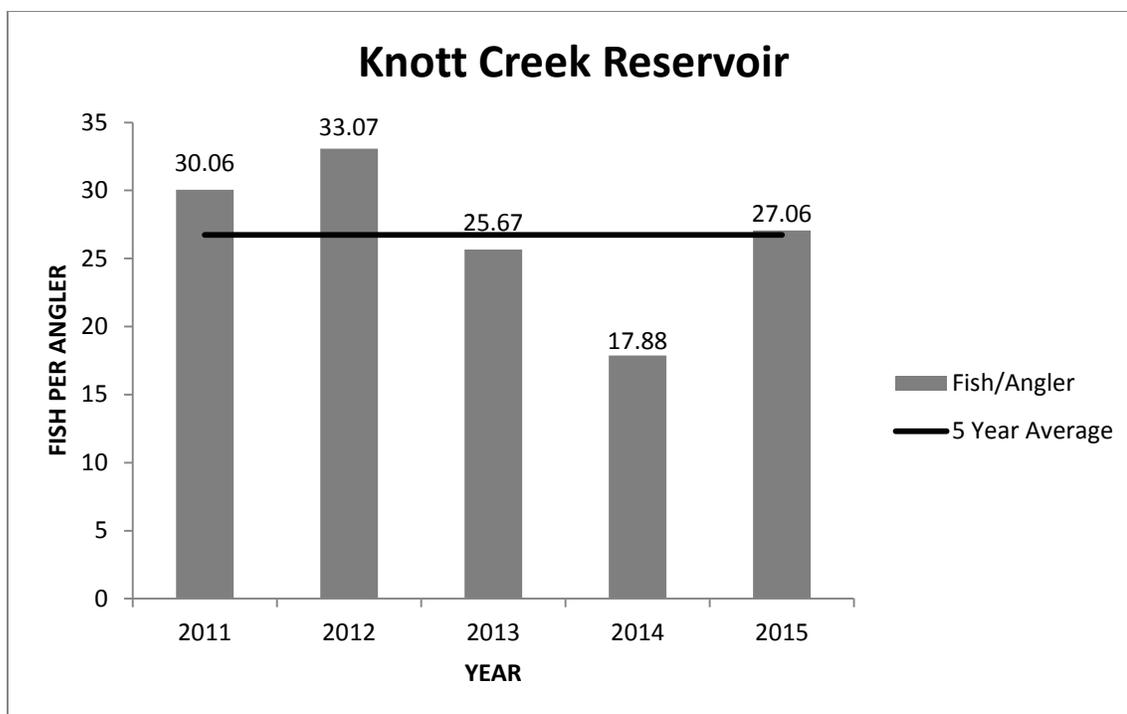


Figure 2. Knott Creek Reservoir Angler Questionnaire fish/angler 2011-2015.

Seven anglers submitted drop-box forms in 2016. The average angler satisfaction rating for angling experience was 0.21, size of fish 0.25, and number of fish caught 0.0. Angler success was 9.03 fish per angler and 0.84 fish per hour. The angler drop-box data is summarized in Table 2 and 3.

Table 2. Knott Creek Reservoir Monthly Angler Use and Success Data.

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	3	50	1.33	1	1	59	4	19.67	1.18
September	2	32	0.5	1	0	27	0	13.5	0.84
October	1	16	-2	-2	-2	0	0	0	0
November	1	5.5	1	1	1	12	0	12	2.18
Annual Summary	7	103.5	0.21	0.25	0.0	98	4	9.03	0.84

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	66	5	3	6	25	11	10	5	1
Tiger trout	15	0	1	7	5	0	2	0	0
Bowcutt trout	17	0	3	0	4	1	9	0	0

Angler contacts were made on the opening weekend of June 11 and 12, 2016. The majority of anglers fished from float tubes or boats and they were contacted via

boat while out on the water. Anglers were also contacted while on shore. Angler success averaged 6.20 fish per angler and 1.56 fish per hour. The data from these angler contacts is summarized in Tables 4 and 5.

Table 4. Opportunistic Angler Surveys – 2016.

Month	Survey Days	Anglers	Angler Hours	Fish	Fish/Angler	Fish/Hour
June	2	48	191	298	6.20	1.56
Summary	2	48	191	298	6.20	1.56

Table 5. Length Frequency and Species Composition Data – Opportunistic Surveys.

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	186	10	21	40	54	50	6	4	1
Tiger trout	62	1	6	19	24	11	1	0	0
Bowcutt trout	50	0	0	12	25	8	3	1	1

Conduct a general habitat assessment through visual observations of water quantity (lake level) and water quality (clarity) when on site. At the start of the fishing season with below normal runoff, Knott Creek Reservoir was at approximately 1,300 AF, which is 300 AF above legal minimum pool of 1,000 AF of water for the reservoir. Knott Creek Ranch did not release any water for irrigation use in 2016. In November, the reservoir was near the 1,000 AF minimum pool due to evaporation losses.

The water clarity at Knott Creek Reservoir remained good to fair throughout the 2016-fishing season. In July and August, short-lived algae blooms did occur. No fish die offs were observed or reported as a result of algae blooms.

Conduct up to 5 days of visual observations surveys along Knott Creek upstream of the reservoir during the spring for spawning rainbow trout and redds. Two days of visual observation took place in May 2016 looking for spawning rainbow trout. A total of 44 rainbow trout were observed in Knott Creek above the reservoir, but no redds or paired trout were observed. Stream flow in Knott Creek was low and there was virtually no spawning habitat available. Trout that did attempt to move up Knott Creek struggled due to the shallow water. Several fish carcasses were observed along the bank, indicating that fish that did make it upstream showed very low survival.

Monitor Knott Creek upstream of Knott Creek Reservoir in the summer and fall using visual observations and 2 days of spot electroshocking for juvenile trout. Electroshocking Knott Creek upstream of the reservoir did not take place in 2016 due to very low water flow.

MANAGEMENT REVIEW

Angler success reported from the 2016 angler drop-box, 2015 mail-in angler questionnaire, and 2016 opportunistic angler contacts were consistent with the standards of the Coldwater, Trophy Fisheries Management Concept. Angler satisfaction ratings from the 2016 angler drop-box survey were lower than usual, but catch rates remain similar to previous years. Angler success rates for the 2015 mail-in angler questionnaire survey were just slightly above the 5-year average for fish per angler and fish per day.

Water levels at Knott Creek Reservoir remained mostly static throughout the 2016-fishing season. The reservoir started-off the fishing season at approximately 1,300 AF and dropped slightly throughout the fishing season due to evaporation. Knott Creek Ranch did not use any water from the reservoir for irrigation purposes in 2016.

RECOMMENDATIONS

- 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.
- Collect fish condition data (relative weight or K factor) on rainbow trout, tiger trout, and bowcutt trout.
- Conduct up to five days of visual observations surveys along Knott Creek upstream of the reservoir during the spring for spawning rainbow trout and redds.

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