

State of California  
California Department of Fish and Wildlife  
North Central Region

Lake Alpine, Alpine County  
2015 - 2016 Angler Survey Box Analysis



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## Introduction

Lake Alpine is a Northern California Power Agency (NCPA) managed reservoir. Lake Alpine is located off Highway 4, approximately one mile west of Bear Valley and 31 miles south of Lake Tahoe in Alpine County (Figure 1). At capacity Lake Alpine covers 173 surface acres and is situated at approximately 7,305 feet above mean sea level. Silver Creek is the main source of inflow, which is part of the North Fork Stanislaus River watershed. A portion of the releases from Lake Alpine are diverted into New Spicer Meadow Reservoir at the North Fork Diversion Dam approximately 2.5 miles downstream of Lake Alpine (NCPA files). Lake Alpine is open all year to the public for fishing as well as other recreational opportunities, but has limited access during the winter season when Highway 4 is closed.

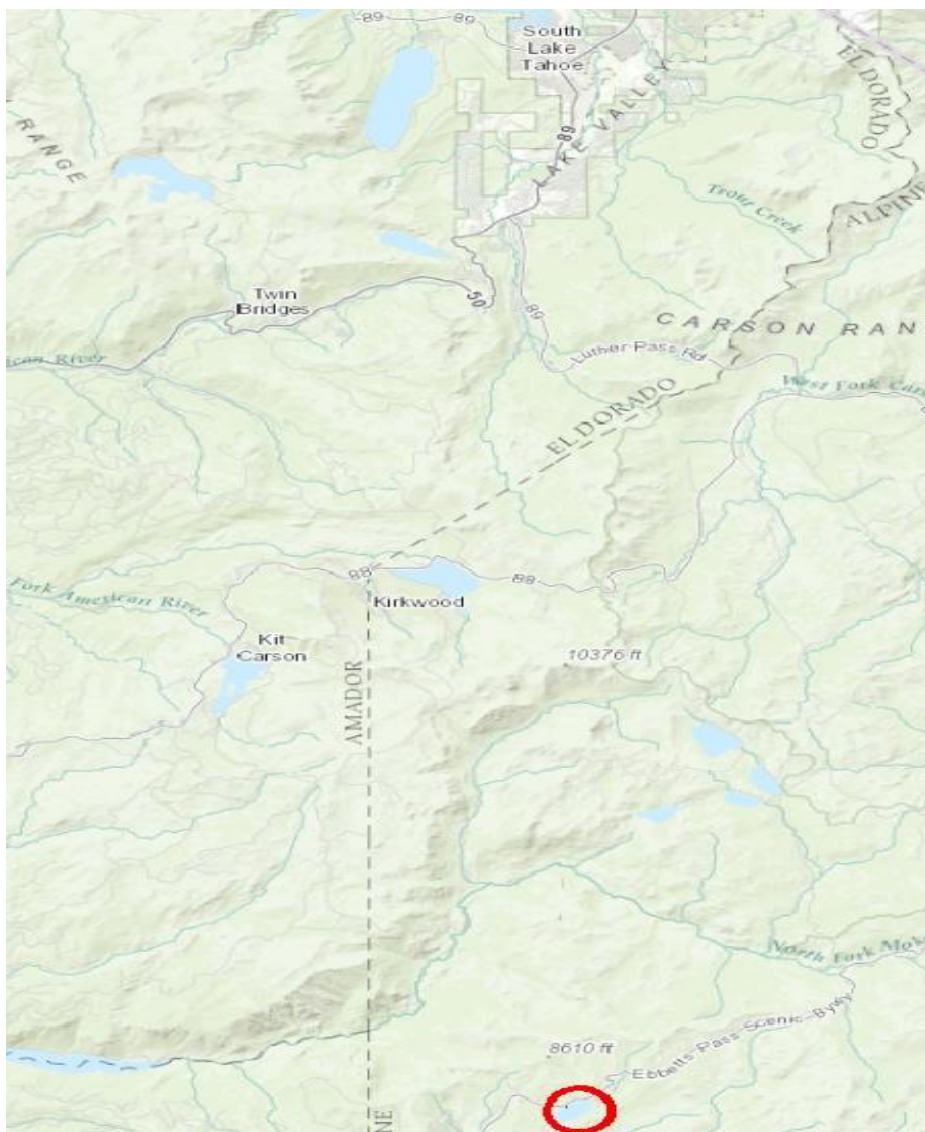


Figure 1. Lake Alpine, Alpine County.

California Department of Fish and Wildlife (CDFW) fish files indicate Lake Alpine has been stocked since 1930 by the Department for recreational fishing. Historically, Lake Alpine was stocked with rainbow trout (*Oncorhynchus mykiss*) (RT), brook trout (*Salvelinus fontinalis*), brown trout (*Salmo trutta*), and Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*). Currently, only RT are stocked in Lake Alpine by CDFW and the Alpine County Fish and Game Commission (ACFG).

In order to assess the fishery, CDFW installed an angler survey box (ASB) at the public launch ramp (Figure 2). Anglers voluntarily complete a survey sheet after they complete their fishing trip, and deposit it in the box. CDFW uses this data to assess angler satisfaction, species composition/sizes, and general angler statistics at the lake. This report covers data collected from Lake Alpine's ASB in 2015 - 2016.



Figure 2. Angler Survey Box location at Lake Alpine, Alpine County.

## Methods

Anglers were asked to complete a voluntary survey form about their fishing experience. The survey asked anglers for information regarding hours fished, type of gear used, and the number of landed fish. This information was used to measure the Catch per Unit of Effort (CPUE) as defined by the number of fish caught per hour. Anglers were also asked the size and species of the landed fish and whether they kept or released their catch. Lastly, anglers were asked three questions, and their answers were recorded on a scale of -2 to 2, with “2” representing most satisfied and “-2” representing least

satisfied. The questions pertain to satisfaction of overall angling experience, size, and number of fish. The back of the survey form is available for anglers to add any additional comments.

## Results

In 2016, twenty-two anglers responded to the survey compared to only seven in 2015 (Table 1, Ewing 2016). Eighty – four fish were caught over a period of 82 hours of fishing (1.02 fish/hour) in 2016. The average catch per angler was 3.82. These values are an increase from 2015 in which anglers landed 19 rainbow trout over a period of 28.75 hours of fishing (0.66 fish/hour) and an average catch per angler of 2.71.

Table 1. Collection of average effort and catch statistics recorded from the 2015 and 2016 Angler Survey Box at Lake Alpine.

Year	Respondents	Hours Fished	Fish Landed	Catch per angler	Catch per hour	Hours per angler
2015	7	28.75	19	2.71	0.66	4.11
2016	22	82.00	84	3.82	1.02	3.73

Anglers used either bait, lures, or flies while fishing Lake Alpine (Table 2). Fifteen anglers (68%) used bait to catch fish, landing 2.5 fish per angler, identical to the 2015 catch per angler. The least frequent method was fly fishing for a second consecutive year, as only five percent of anglers fished with flies. The lone fly angler had a six fish per angler catch rate, which was triple the catch rate from 2015. Two anglers (14%), using multiple methods, had the greatest fish per angler rate (10 fish per angler).

Table 2. The frequency of anglers that used each angling method and their corresponding catch rates in 2015 - 2016.

Angling method	2015		2016	
	Number of anglers	Catch per angler	Number of anglers	Catch per angler
Bait	2	2.5	15	2.5
Lure	2	4.0	3	3.7
Fly	1	2.0	1	6.0
Multiple	2	2.0	3	10.0

The 2016 ASB data showed that 25% (n = 21) of the landed fish measured less than 10.0 inches in total length compared to 47% (9 fish) in 2015 (Figure 3). Seventy – three percent of landed fish in 2016 measured between 10.0 and 17.9 inches, compared to 47% in 2015. Approximately two percent of fish caught were greater than 18.0 inches in 2016 compared to approximately five percent in 2015. In 2016, the modal size class for RT (n = 33) was in the 10.0 - 11.9 inch size class (Table 3). The second highest frequency was in the 12.0 - 13.9 inch size class (n=20) in 2016. In 2015, the modal size class for RT (n = 6) was in the 8.0 - 9.9 inch size class. As with 2016, the second highest frequency size class in

2015 was 12.0 - 13.9. In 2016, 25.0% of fish landed were released whereas in 2015, 36.8% were released.

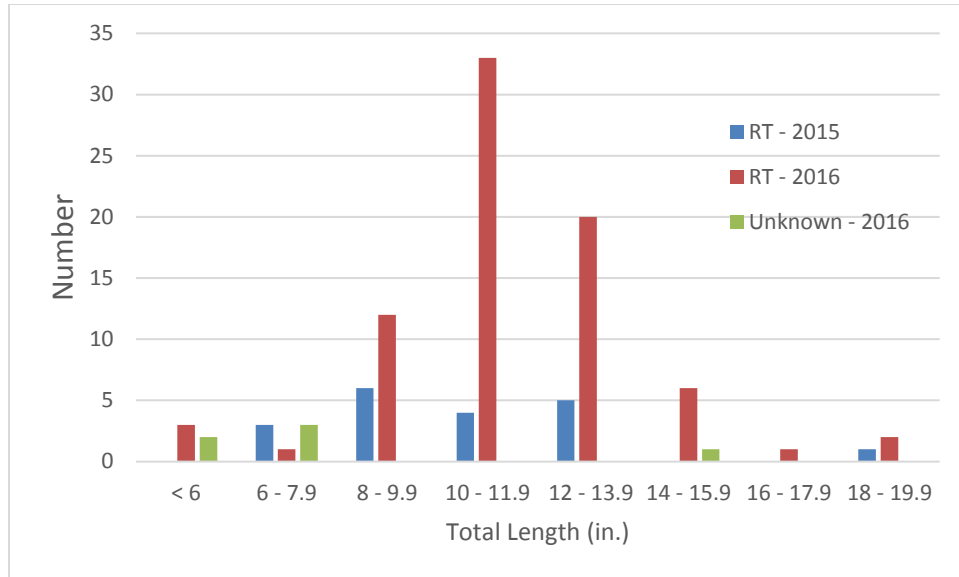


Figure 3. Frequency of fish in each size class that anglers reported landing at Lake Alpine in 2015 (blue bars) and 2016 (red and green bars).

Table 3. Data on kept and released fish and the corresponding modal size class in Lake Alpine in 2015 and 2016.

Year	Rainbow trout		Unknown fish		Total Caught	Percent Released	Modal Size Class
	Kept	Released	Kept	Released			
2015	12	7	0	0	19	36.8	8.0 - 9.9
2016	62	16	1	5	84	25.0	10.0 - 11.9

In 2016, anglers had a negative average response to their overall fishing experience (-0.06), but had a positive experience with the size (0.36) and number of fish caught (0.45). All three satisfaction questions had declined from 2015 (Overall satisfaction = 0.29, Size of fish = 0.60, and Number of fish = 0.60) (Table 4).

Table 4. Angler satisfaction response averages for Lake Alpine, 2015 - 2016.

Year	Overall angling experience	Size of fish	Number of fish
2015	0.29	0.60	0.60
2016	-0.06	0.36	0.45

## Discussion

Data gathered from the 2016 Lake Alpine ASB shows anglers have caught over three fish on average per day, an increase from the 2.71 catch per angler in 2015. Catch per unit effort (fish per hour) was 1.02 in 2016, compared to 0.66 in 2015. The number of respondents in the survey in 2016 was 22, which is higher than the seven respondents in 2015. Having more respondents in 2016 may have provided CDFW with a better representation of the fishery. Ideally, the more respondents, the more feedback it provides CDFW on angler success at the fishery. It is essential CDFW maintain the trend of increasing angler participation in the ASB survey. The goal of increasing angler participation may be accomplished by personal communication in and/or around the lake community and/or posted signage. It appears that anglers may now be better acquainted with the ASB, especially since 2015 was the first year of ASB at Lake Alpine and anglers may have been less aware of the ASB.

Catch per angler for anglers using multiple types of gear was higher than other forms of identified gear in 2016 while in 2015, anglers using lures had the highest catch per angler. The ASB survey showed that 93% of all identified fish caught by anglers were RT, which is consistent with the stocking records (Appendix 1).

The greatest number of trout caught in 2016 were in the 10.0 - 11.9 in. size class. Ninety-eight percent of fish caught in 2016 measured less than 18 inches in total length. This is consistent with 2015, in which 95% of fish caught in Lake Alpine measured less than 18 inches in total length. ACFG planted 7,200 lbs. of catchable-size RT into Lake Alpine from 2015 - 2016. Many of these fish weighed greater than two pounds at the time of stocking. It is unknown whether the three RT caught over 18.0 inches were a CDFW holdover or ACFG stocked fish. Regardless, it does not appear that anglers are catching many of the larger ACFG RT and/or CDFW holdover RT. It is possible that larger-size fish have a difficult time overwintering, the forage base is not sufficient to sustain survival at Lake Alpine, and/or the larger-size fish have a difficult time switching over to surviving on their own compared to being fed in the hatchery.

Anglers were satisfied with the size and number of fish they were catching in 2016, but the values decreased from 2015. Anglers also recorded a negative overall fishing experience at Lake Alpine. It is possible the fish condition and/or lack of RT by CDFW stocked in 2016 compared to 2015 may have played a role in the negative satisfaction. Alternatively, the negative experience may have been unrelated to the fishing itself, but instead be due to outside factors, such as weather, fishing access, or crowds.

## **Recommendations**

- When possible, CDFW should continue to encourage anglers to fill out the ASB forms.
- Continue to collect more years' worth of data each year to look at fishery trends over time. These data will help CDFW gather a more accurate information on the Lake Alpine fishery.
- Add a question pertaining to whether angler fished from boat, shore, or float tube/kayak.
- Add more ASB locations and/or signage around Lake Alpine to increase the chance that anglers will see the boxes and participate in the survey.

## Literature Cited

1. Northern California Power Agency Hydroelectric Project Referral
2. Ewing, B. 2016. Lake Alpine, Alpine County 2015 Angler Survey Box Analysis. California Department of Fish and Wildlife Region 2 Fish Files. Unpublished.

Appendix 1. Stocking history at Lake Alpine since 2014 for CDFW and 2015 for ACFG. ACFG allotment is in red lettering.

Date	Species	Number	Weight (lbs.)	Size-Class
4/24/2014	ELT	3000	2500	Catchable
6/25/2014	ELT	3450	1500	Catchable
7/2/2014	ELT	1800	1000	Catchable
7/28/2014	ELT	1610	700	Catchable
<b>2015</b>	<b>RT</b>		<b>3600</b>	<b>Catchable</b>
4/29/2015	RT	1500	1500	Catchable
6/3/2015	RT	1530	900	Catchable
7/17/2015	RT	2300	1000	Catchable
7/27/2015	RT	4830	2300	Catchable
6/22/2016	ELT	2280	1425	Catchable
7/25/2016	ELT	2850	1425	Catchable
<b>7/8/2016</b>	<b>RT</b>		<b>3600</b>	<b>Catchable</b>