

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

Lake Alpine, Alpine County
2015 - 2017 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 two miles east of Bear Valley and 31 miles south of Lake Tahoe in Alpine County (Figure 1). At capacity, Lake Alpine encompasses 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 water 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 for fishing and other recreational opportunities, but has limited access during the winter season when Highway 4 is closed.

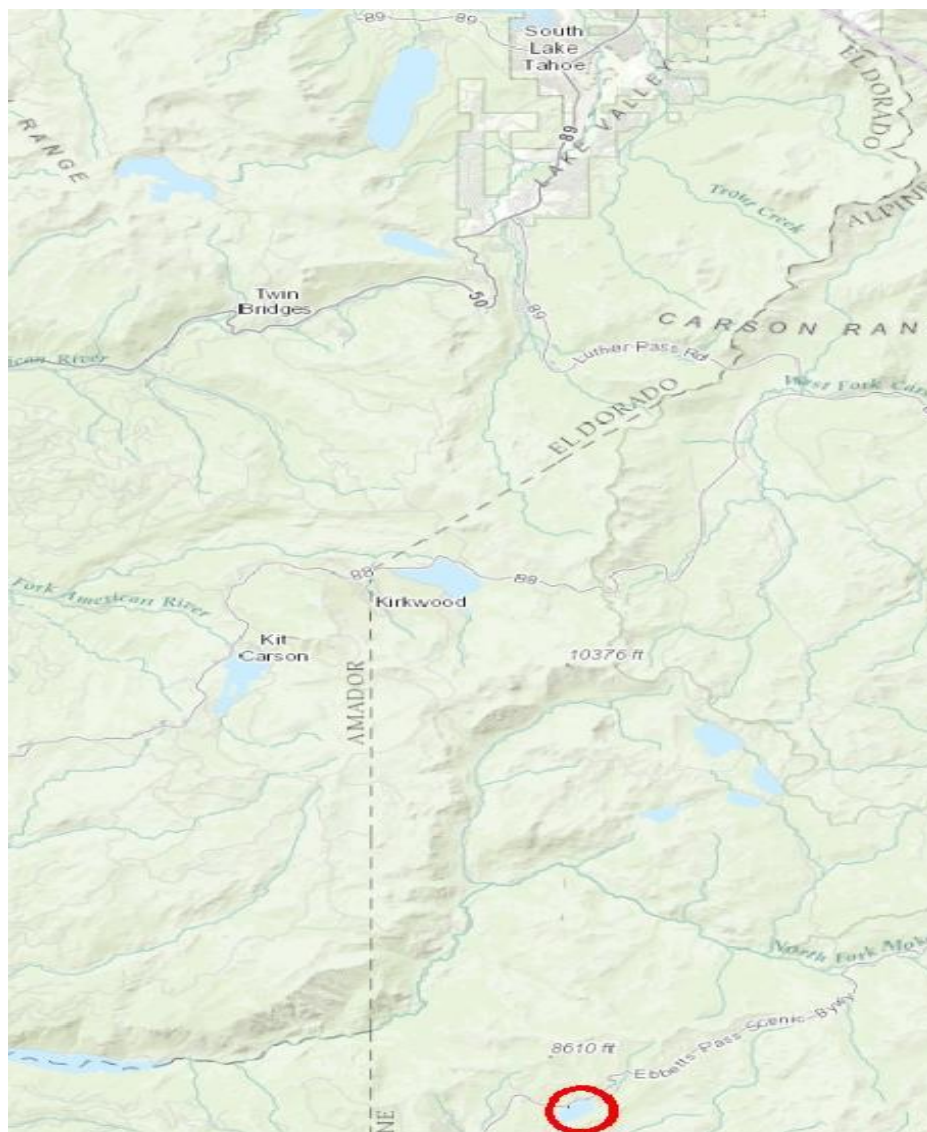


Figure 1. Lake Alpine, Alpine County.

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) due to legal stocking restrictions.

In order to assess the fishery, CDFW installed an angler survey box (ASB) at the public launch ramp (Figure 2). Anglers are asked to 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 from 2015 - 2017.



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 similarly asked the size and species of 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 include additional comments (Appendix 2).

Results

In 2017, fourteen anglers responded to the survey compared to 22 in 2016 and only seven in 2015 (Table 1, Ewing 2016 and 2017). Sixty – one fish were caught over a period of 67.25 hours (0.91 catch/hour) in 2017. The 2017 CPUE decreased from the 2016 CPUE (1.02 catch/hour; n = 84), but increased from the 2015 CPUE (0.66 catch/hour; n = 19). The average catch per angler was 4.36 in 2017, 3.82 in 2016, and 2.71 in 2015.

Table 1. Collection of average effort and catch statistics recorded from the 2015 - 2017 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
2017	14	67.25	61	4.36	0.91	4.80
Total	43		164			
Average	14		55			

Anglers used either bait, lures, or flies while fishing Lake Alpine (Table 2). In 2017, ten anglers (71%) used bait to catch fish, landing 4.6 fish per angler, an increase from the 2.5 fish per angler in both 2015 and 2016. The least frequent methods used were both lure (7%) and fly fishing (7%) in 2017. The lone fly angler in 2017 had a one fish per angler catch rate, which was less than the catch rate from either 2015 (2.0) or 2016 (6.0). The lone lure angler in 2017 had a four fish per angler catch rate, which was the same as 2015 and an increase from 2016 (3.7). Two anglers (14%), using multiple methods, had the greatest fish per angler rate for a second consecutive year (5.0 in 2017).

Table 2. The frequency of anglers that used each angling method and their corresponding catch rates from 2015 - 2017.

Angling Method	2015		2016		2017	
	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler
Bait	2	2.5	15	2.5	10	4.6
Lure	2	4.0	3	3.7	1	4.0
Fly	1	2.0	1	6.0	1	1.0
Multiple	2	2.0	3	10.0	2	5.0
Total	7		22		14	

The 2017 ASB data showed that 10% (n = 6) of the landed fish measured less than 10.0 inches in total length as compared to 25% (n = 21) in 2016 and 47% (n = 9) in 2015 (Figure 3). Seventy – nine percent (n = 48) of landed fish in 2017 measured between 10.0 and 17.9 inches, compared to 73% (n = 61) in 2016 and 47% (n = 9) in 2015. Approximately 11% fish caught were greater than 18.0 inches in 2017, compared to two percent in 2016 and approximately five percent in 2015. In 2016 (n = 33) and 2017 (n = 25), the modal size class for RT was the 10.0 - 11.9 inch size class (Table 3). The second highest frequency in both 2016 and 2017 for RT was in the 12.0 - 13.9 inch size class (2016; n = 20) (2017; n = 11). In 2015, the modal size class for RT (n = 6) was in the 8.0 - 9.9 inch size class. As with 2016 and 2017, the second highest frequency size class in 2015 for RT was the 12.0 - 13.9 inch size class. In 2017, 52.5% of fish landed were released, compared to 25.0% in 2016 and 36.8% in 2015.

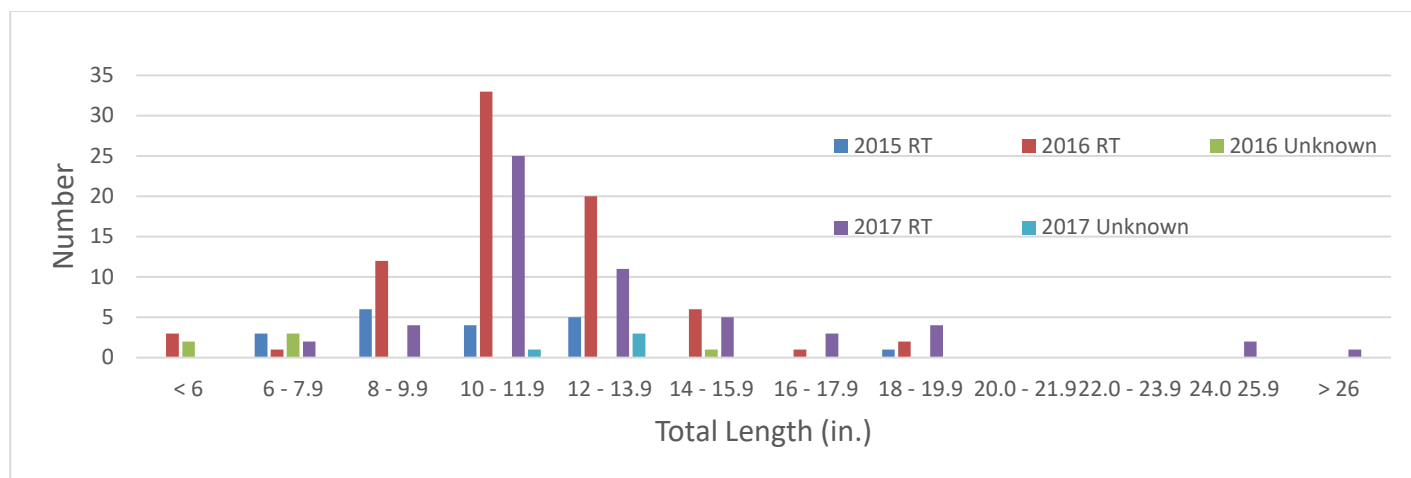


Figure 3. Frequency of fish in each size class that anglers reported landing at Lake Alpine in 2015 (blue bars (RT)), 2016 (red (RT) and green bars (Unknown)), and 2017 (purple (RT) and baby blue bars (Unknown)).

Table 3. Data on kept and released fish and the corresponding modal size class at Lake Alpine from 2015 - 2017.

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
2017	28	29	1	3	61	52.5	10.0 - 11.9

A total of five anglers (35.7%) reported fishing from a boat, which resulted in the best success in terms of catch per angler (6.20 fish/angler) in 2017 (Table 4). Seven anglers (50.0%) did not report their method of fishing, which resulted in the second best success rate in terms of catch per angler (4.14 fish/angler) in 2017. One angler (7.1%) reported fishing from float tube/kayak, which resulted in the third best success method in terms of catch per angler (1.00 fish/angler) in 2017.

Table 4. The number of anglers and catch per angler based on angling method at Lake Alpine.

Method	2016		2017	
	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	6 (27.3%)	4.50	5 (35.7%)	6.20
Float tube/kayak	0 (0.0%)	NA	1 (7.1%)	1.00
Shore/Wading	4 (18.2%)	6.00	1 (7.1%)	0.00
Not recorded	12 (54.5%)	2.75	7 (50.0%)	4.14
	22		14	

In 2017, anglers had a negative average response to their overall fishing experience (-0.27), for a second consecutive year (2016 = -0.06), but had a positive experience with both the size (2017 = 0.38; 2016 = 0.36; 2015 = 0.60) and number of fish caught (2017 = 0.43; 2016 = 0.45; 2015 = 0.60) for a third consecutive year (Table 5).

Table 5. Angler satisfaction response averages for Lake Alpine, 2015 - 2017.

Year	Overall angling experience	Size of fish	Number of fish
2015	0.29	0.60	0.60
2016	-0.06	0.36	0.45
2017	-0.27	0.38	0.43

Discussion

The 2017 Lake Alpine ASB results show anglers caught over four fish on average per day, an increase from 3.82 catch per angler in 2016 and 2.71 catch per angler in 2015. Catch per unit effort (fish per hour) was 0.91 in 2017, 1.02 in 2016, and 0.66 in 2015. The CPUE and catch per angler values may be attributed to the combination of the large sum of fish stocked and lake/shoreline fishing access. The number of respondents in the 2017 survey was only 14, compared to 22 in 2016, but was higher than the seven respondents in 2015. Having more respondents in 2016 may have provided CDFW with a better representation of the fishery than the number collected in 2017. 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 at and surrounding the lake community and posted signage. Anglers may still be getting acquainted with the ASB program, especially since 2015 was the first year of an ASB presence at Lake Alpine, subsequently 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 and 2017, 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 in 2017 were RT, which is consistent with the stocking records (Appendix 1). Fifty percent of anglers in 2017 did not record their method of fishing, but boat anglers had the greatest identified method of fishing catch per angler (6.20 fish per angler). It is possible that the boat anglers in 2017 had better access to where the fish were than anglers from shore and/or boat due to various environmental reasons (snow, water levels, vegetation abundance, limited shoreline access, etc.) and able to cover more water than kayaking/float tubing via trolling.

The greatest number of trout caught in both 2016 and 2017 were in the 10.0 - 11.9 in. size class. The relatively small sizes of RT caught may explain part of the reason why the

majority of RT were released by anglers in 2017. Ninety- five percent of fish caught in 2017 measured less than 18 inches in total length. This is consistent with 2016 (98%) and 2015 (95%) fish caught less than 18 inches in Lake Alpine. ACFG planted 10,800 lbs. of catchable-size RT into Lake Alpine from 2015 - 2017. Many of these fish weighed greater than two pounds at the time of stocking. It is unknown whether the seven RT caught over 18.0 inches in 2017 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 in the last three years. It is possible the larger-sized 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 for a third consecutive year, but the anglers also recorded a negative overall fishing experience at Lake Alpine for a second consecutive year. It is possible the overall 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. Data will help CDFW gather a more accurate information on the Lake Alpine fishery.
- Add more ASB locations and/or ASB signage around Lake Alpine to increase the chance that anglers will see the boxes and participate in the voluntary 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.
3. Ewing, B. 2017. Lake Alpine, Alpine County 2015 - 2016 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 font.

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
2015	RT		3600	Catchable
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
7/8/2016	RT		3600	Catchable
6/23/2017	RT	1710	1425	Catchable
7/24/2017	RT	1568	1425	Catchable
July, 2017	RT		1800	Catchable
September, 2017	RT		1800	Catchable

Appendix 2. Lake Alpine Angler Survey Box Data Sheet

Lake Alpine

The California Department of Fish and Wildlife is conducting an evaluation of the fishery at Lake Alpine. We request your help in this evaluation by providing the following information in this survey. Please use this form for one day's fishing at Lake Alpine by one angler only.

Date Fished: _____ # Hours Fished: _____
mm/dd/yyyy

Primary gear type used (check one):
☐ Bait ☐ Lure ☐ Fly

Primary method or location (check one):
☐ shore/wading ☐ float tube ☐ boat

Enter the total number of fish caught by species and size class:

Size	Rainbow trout		Other	
	Kept	Released	Kept	Released
Less than 6"				
6"-7.9"				
8"-9.9"				
10"-11.9"				
12"-13.9"				
14"-15.9"				
16"-17.9"				
18"-19.9"				
20"-21.9"				
22"-23.9"				
24"-25.9"				
26" and Greater				

Please indicate your level of satisfaction with the following statements regarding your fishing experience today:

	Least satisfied		Neutral	Most satisfied	
Overall angling experience today:	-2	-1	0	+1	+2
Size of fish:	-2	-1	0	+1	+2
Number of fish:	-2	-1	0	+1	+2

Please use the back of this form for any additional comments. Thank you for helping us manage and protect California's wild trout resources.