

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

Lake Alpine, Alpine County

2015 – July 2020 Angler Survey Box Analysis



Ben Ewing
District Fisheries Biologist
Alpine, Amador, Calaveras, and Lake Counties

December, 2020

Introduction

Lake Alpine is located off Highway 4 in Alpine County, approximately two miles east of Bear Valley and 31 miles south of Lake Tahoe in Alpine County (**Figure 1**). Lake Alpine encompasses 173 surface acres at full capacity and is 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. Lake Alpine is a Northern California Power Agency (NCPA) managed reservoir. NCPA diverts a portion of the water releases from Lake Alpine 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 due to the closure of Highway 4 during the winter season.



Figure 1. Lake Alpine, Alpine County. Lake Alpine is also indicated by beige dot in smaller data frame in relation to California.

California Department of Fish and Wildlife (CDFW) has stocked Lake Alpine for recreational fishing since 1930 (CDFW Region 2 Fish Files). Historically, CDFW stocked Lake Alpine with Rainbow Trout (*Oncorhynchus mykiss*) (RT), Brook Trout (*Salvelinus fontinalis*), Brown Trout (*Salmo trutta*), and Lahontan Cutthroat Trout (*Oncorhynchus clarkii henshawi*). Currently, CDFW and the Alpine County Fish and Game Commission (ACFG) only stock RT into Lake Alpine.

CDFW installed an angler survey box (ASB) at the public launch ramp prior to the 2015 fishing season to assess the fishery (**Figure 2**). CDFW uses data collected in the ASB 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 through July 15, 2020. On July 15, 2020, CDFW removed the ASB in order to move it to another location since this was the sixth year at Lake Alpine and need for information at another fishery. Since the ASB was moved in the midst of the 2020 recreation season, total angler use and total catch data for 2020 is incomplete and will not be compared to previous years.



Figure 2. Angler Survey Box location (red dot) at Lake Alpine, Alpine County.

Methods

Anglers voluntarily complete a survey form regarding their fishing experience. The survey asked anglers for information regarding hours fished, gear type, fishing method, and number of landed fish. These responses were used to measure the Catch per Unit of Effort (CPUE) as defined by the number of fish caught per hour and number of fish caught per angler. Anglers were also 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 was available for anglers to include additional comments (**Appendix 2**).

Results

In 2020, four anglers responded to the survey. In 2020, the CPUE was 3.60 fish/hour compared to 2.53 in 2019, 0.27 in 2018, 0.91 in 2017, 1.02 in 2016, and 0.66 in 2015 (**Table 1**) (Ewing 2016, 2017, 2018; Harris 2019). In 2020, anglers caught 11.75 fish on average per angler, the highest catch per angler value during the six seasons. This is in comparison to 9.10 fish on average per angler in 2019, 1.33 in 2018, 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 - 2020 Angler Survey Box at Lake Alpine.

Year	Catch per Angler	Catch per Hour	Hours per Angler
2015	2.71	0.66	4.11
2016	3.82	1.02	3.73
2017	4.36	0.91	4.80
2018	1.33	0.27	4.88
2019	9.10	2.53	3.60
2020	11.75	3.60	1.88
Average	5.51	1.50	3.83

Anglers have used either bait, lures, or flies while fishing Lake Alpine (**Table 2**). Like 2019, in 2020, there were zero fly anglers. In 2020, bait anglers had the highest catch per angler value (14.0) for a second consecutive year (2019 = 11.7). This was also the highest catch per angler rate of any gear method since the ASB was installed. One angler used lures and had a 5.0 catch per angler rate, a decrease from 6.0 in 2019. No anglers reported using multiple gear or flies in 2020.

Table 2. Anglers that used each angling method and their corresponding catch rates in 2015 - 2020. Number of anglers are in parenthesis.

	2015	2016	2017	2018	2019	2020
Angling Method	Catch per Angler	Catch per Angler	Catch per Angler	Catch per Angler	Catch per Angler	Catch per Angler
Bait	2.5 (2)	2.5 (15)	4.6 (10)	1.6 (5)	11.7 (6)	14.0 (3)
Lure	4.0 (2)	3.7 (3)	4.0 (1)	NA	6.0 (2)	5.0 (1)
Fly	2.0 (1)	6.0 (1)	1.0 (1)	2.3 (3)	NA	NA
Multiple	2.0 (2)	10.0 (3)	5.0 (2)	0 .0 (3)	4.5 (2)	NA
Total Anglers	7	22	14	11	10	4

**One angler did not record their gear method in 2018.*

The 2020 ASB results mark the third consecutive year with only RT reported caught at Lake Alpine. In 2020, RT caught ranged from the 8.0 - 9.9 inch (in.) to the 12.0 - 13.9 in. size classes (**Figure 3**). The modal size class, representing 57.4% of all RT caught, was 10.0-11.9 in. (n = 27) (**Table 3**). The 10.0 - 11.9 in. size class was also modal from 2016 to 2019 while the 2015 modal size class was 8.0 - 9.9 in. All RT caught in 2019 and 2020 were less than 18 inches. Looking back at ASB results from prior years, RT < 18 inches comprised 81% of the fish in 2018 and 2017, 97% in 2016, and 95% in 2015.

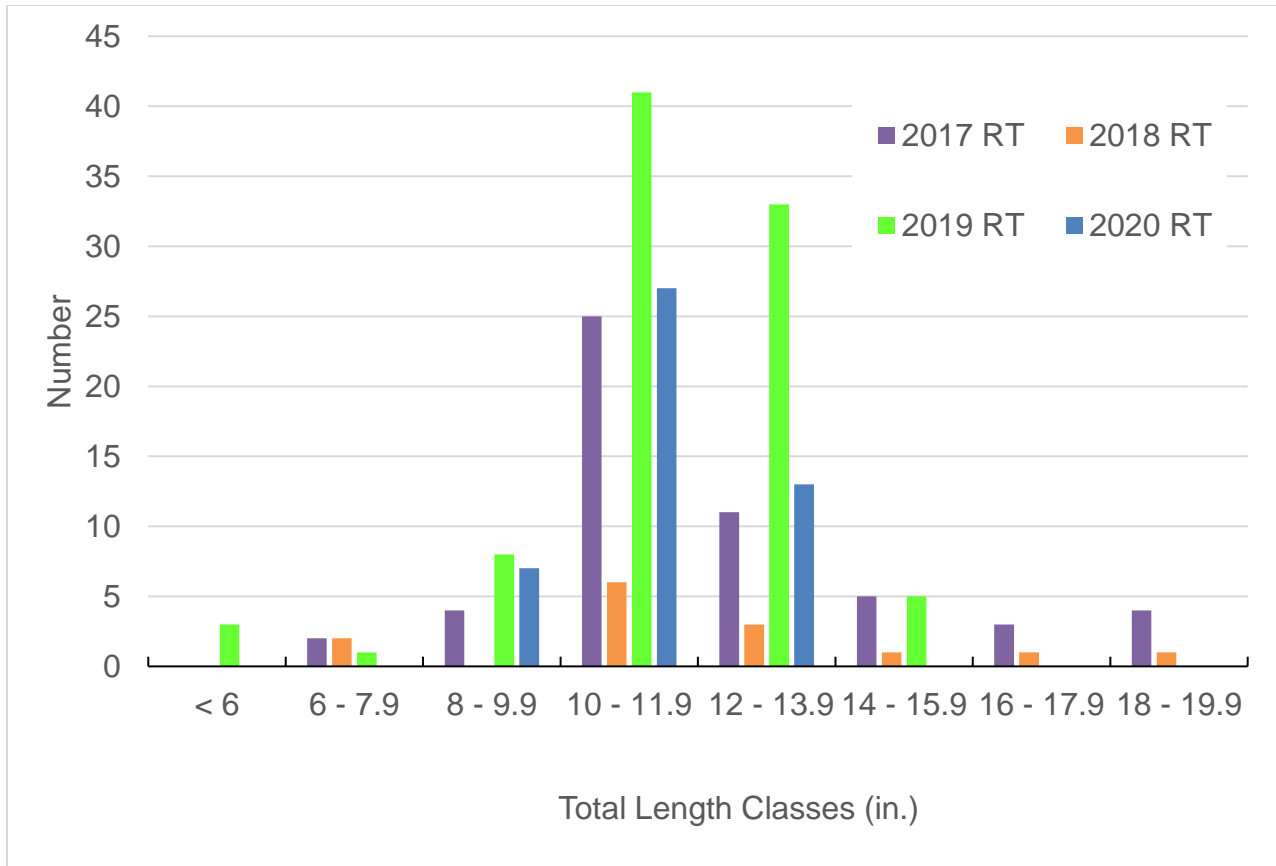


Figure 3. Number of Rainbow Trout (RT) caught in each size class at Lake Alpine (2017 – 2020). To make most length class totals easier to see, the following RT are not included in this figure. In 2018, one RT in each of the 20.0 – 21.9 in. and 22.0 – 23.9 in. length classes; in 2017, one RT in each of the 20.0 – 21.9 in., 24.0 – 25.9 in. and > 26 in. length classes.

In 2020, anglers released 15% of RT caught compared to 22% in 2019 and 19% in 2018 (**Table 3**). Anglers released 53%, 25%, and 37% of all fish caught in 2017, 2016, and 2015, respectively.

Table 3. Kept and released fish and the corresponding modal size class at Lake Alpine from 2015 - 2020.

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
2018	13	3	0	0	16	18.8	10.0 - 11.9
2019	71	20	0	0	91	22.0	10.0 - 11.9
2020	40	7	0	0	47	14.9	10.0 - 11.9

In 2020, three anglers (75.0%) reported fishing from a boat, which resulted in the second-best success in terms of catch per angler (10.67) (**Table 4**). One angler (25.0%) did not report their fishing method, which resulted in the best success rate in terms of catch per angler (15.00). In 2020, anglers did not report fishing from float tube/kayak or shore/wading.

Table 4. The number of anglers and catch per angler based on angling method at Lake Alpine 2018 - 2020.

Method	2018		2019		2020	
	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	4 (33.3%)	3.00	5 (50.0%)	11.80	3 (75.0%)	10.67
Float tube/kayak	1 (8.3%)	0.00	1 (10.0%)	4.00	NA	NA
Shore/wading	6 (50.0%)	0.50	NA	NA	NA	NA
Not recorded	1 (8.3%)	1.00	4 (40.0%)	7.00	1 (25.0%)	15.00
Total	12		10		4	

In 2020, anglers reported a positive overall fishing experience for a third consecutive year following two consecutive years (2016 and 2017) with a negative overall angling experience (**Table 5**). In 2020, anglers reported the highest average satisfaction (1.75) with their number of fish landed over the six years of surveys. It was also the sixth consecutive year that the average satisfaction with the number of fish landed was positive. For the first time in the six years of surveys, anglers had a negative experience with the size of fish caught (**Table 5**).

Table 5. Angler satisfaction response averages for Lake Alpine, 2015 - 2020.

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
2018	0.33	0.80	0.40
2019	1.83	0.43	1.71
2020	1.50	-0.50	1.75

Discussion

The 2020 abbreviated fishing season had the highest CPUE and catch per angler values at Lake Alpine compared to the previous five years. In previous years, the CPUE and catch per angler values may have been attributed to the combination of the large sum of fish stocked and lake/shoreline fishing access (Ewing 2017). In 2019, 9100 lbs. of RT were stocked compared to 5600 lbs. in 2018, 6450 lbs. in 2017, 8730 lbs. in 2016, and 9300 lbs. in 2015 (**Appendix 1**). In 2020, due to the COVID-19 pandemic and fires, Alpine County only stocked Lake Alpine once, after the ASB was removed. CDFW stocked 1800 lbs. of RT on June 22, the last stocking prior to the ASB being removed. It is possible that stay-at-home restrictions due to the pandemic as well as fires occurring near Lake Alpine deterred anglers. However, the anglers who did fish Lake Alpine appeared to be successful with the quantity of fish caught.

In 2020, catch per angler for bait anglers in 2020 was higher than any other gear method used during the six-year ASB period at Lake Alpine. In 2020, boat anglers had the greatest catch per angler for an identified method of fishing for a fourth consecutive year (Ewing 2020). Boat angling may have appeared to be such a productive angling methods in 2020 because it was the only method reported and there were relatively few responses to the ASB.

For the third straight year, anglers identified all fish as RT in 2020, which is consistent with the stocking records (**Appendix 1**).

Only four anglers responded to the survey in 2020, but this would have likely increased if the ASB was not removed in July. The lower response rate may have also been the result of reduced recreation, caused by the COVID-19 pandemic. Ideally, the more respondents, the more feedback it provides CDFW on angler usage and success at the fishery, which can help inform stocking frequency and pounds of fish stocked each year. Since the ASB has been located at the boat launch since 2015, it is likely that many Lake Alpine anglers are aware of the ASB program.

In 2020, overall angler satisfaction was the second highest out of six years of surveys. Angler satisfaction with the size of fish in 2020 was the lowest in six years of surveys. This could be attributed to a decrease in percentage of fish caught 12 in. and greater. Additionally, ACFG did not stock any trout in 2020 prior to the ASB being removed. ACFG usually stocks a portion of RT greater than 18 inches in total length, but this did not happen earlier in the year like past years. While fewer anglers responded to this survey than average, those that did respond, caught the most RT among ASB respondents during the last six years. In 2020 the “number” satisfaction value was the highest in the six years of surveys. The “number” value was also positive for a sixth consecutive year. During the past three years, anglers have kept over 78% of the RT caught. This suggests that the “put and take” stocking strategy at Lake Alpine may be successful.

In 2020 and 2019, RT that were less than 18 inches comprised 100% of fish caught; followed by 75%, 95%, 98%, and 95% in 2018, 2017, 2016, and 2015, respectively. This is consistent with the sizes of RT stocked by CDFW and ACFG. ACFG stocked 18,000 lbs. of catchable-size RT into Lake Alpine from 2015 – July of 2020, while CDFW stocked 26,400 lbs. from 2014 – July of 2020. It is possible the catchable-sized fish have a difficult time overwintering due to an insufficient forage base and/or lack of suitable habitat. Although trophy-size RT were not present in the reported harvests, the modal size class of fish caught in 2020 suggests that CDFW’s management goal of a successful “put and take” fishery is successful at Lake Alpine.

Recommendations

- The Lake Alpine ASB was removed in 2020 due to the five plus years of informative data. The ASB will be moved to obtain angler data at another waterbody.
- CDFW and ACFG should continue the same RT stocking allotment of RT at Lake Alpine.

Literature Cited

1. California Department of Fish and Wildlife. Region 2 Fish Files. Lake Alpine Fish Stocking Record.
2. Ewing, B. 2016. Lake Alpine 2015 Angler Survey Box Analysis. California Department of Fish and Wildlife. Available from:
<http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=127367>

3. Ewing, B. 2017. Lake Alpine 2015 - 2016 Angler Survey Box Analysis. California Department of Fish and Wildlife. Available from:
<http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=152910>
4. Ewing, B. 2018. Lake Alpine 2015 - 2017 Angler Survey Box Analysis. California Department of Fish and Wildlife. Available from:
<http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=154933>
5. Ewing, B. 2020. Lake Alpine 2015 - 2019 Angler Survey Box Analysis. California Department of Fish and Wildlife. Available from:
<http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=179095>
6. Harris, S. 2019. Lake Alpine 2015 - 2018 Angler Survey Box Analysis. California Department of Fish and Wildlife. Available from:
<http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=168277>
7. Northern California Power Agency Hydroelectric Project Referral.

Appendix 1. Stocking history at Lake Alpine since 2014 for CDFW (in black) and 2015 (in red) for ACFG. The September 2020 CDFW stocking and August 2020 ACFG stocking were not included since the ASB was removed prior to those stockings.

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
6/14/2018	RT	3400	2000	Catchable
July, 2018	RT		1800	Catchable
September, 2018	RT		1800	Catchable
6/26/2019	RT	3600	2000	Catchable
7/19/2019	RT	4400	2000	Catchable
9/13/2019	RT	1700	850	Catchable
9/13/2019	RT	1300	650	Catchable
July, 2019	RT		1800	Catchable
September, 2019	RT		1800	Catchable
6/22/2020	RT	7000	2000	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.

