

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

**Silver Lake, Amador County**

**2015 Angler Survey Box Analysis**



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## Introduction

Silver Lake is an El Dorado Irrigation District (E.I.D.) managed reservoir in Amador County. At full capacity it covers 385 surface acres and is situated at approximately 7275 feet above mean sea level. It is located off Highway 88, approximately eight miles west of the Carson Pass and 20 miles southwest of Lake Tahoe (Figure 1). The Silver Fork American River is the main source of inflow and outflow for the lake and is a part of the South Fork American River watershed. Silver Lake is open all year to the public with a five trout daily take and a 10 in possession bag limit.



Figure 1. Silver Lake (Amador County).

California Department of Fish and Wildlife (CDFW) fish files indicate Silver Lake has been stocked since 1930 by CDFW for recreational fishing. Historically, Silver Lake has been planted with rainbow trout (*Oncorhynchus mykiss*) (RT), Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*) (CT-L), brook trout (*Salvelinus fontinalis*) (BK), brown trout (*Salmo trutta*) (BN), and lake trout (*Salvelinus namaycush*) (LT). Currently only RT and BN are planted in Silver Lake by CDFW and E.I.D (Appendix 1).

In order to assess the fishery, CDFW installed an angler survey box (ASB) at the public launch ramp along Highway 88 in 2015 (Figure 2). Anglers voluntarily fill out a survey sheet after they complete their fishing trip, and deposit it in the box. CDFW uses the data collected to assess angler satisfaction, species composition, and general angler statistics at the lake. This report covers the data collected from Silver Lake's ASB for 2015.



Figure 2. Silver Lake ASB location.

## Methods

Anglers were asked to fill out a voluntary survey form about their fishing experience for that day. The survey asks anglers for information regarding hours fished, type of gear used, and the number of landed fish. They were also asked the size and species of the trout landed and whether they kept or released their catch. Finally, 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 reserved for anglers who have any additional comments.

## Results

A total of 12 anglers responded to the survey (Table 1). Cumulatively, these anglers reported 25 fish landed, but only 20 had measurements reported. The average catch per angler and hours per angler was 2.08 and 4.27, respectively. Forty-seven hours of fishing were documented for an average catch per hour of 0.36. One angler reported catching eight fish, but recorded no time, so that specific angler’s catch and time was left out from the cumulative catch rate and hour per angler average.

Table 1. Collection of average effort and catch statistics recorded from the 2015 ASB at Silver Lake.

<u>Respondents</u>	<u>Hours Fished</u>	<u>Fish Landed</u>	<u>Catch per angler</u>	<u>Catch per hour</u>	<u>Hours per angler</u>
12	47	25	2.08	0.36	4.27

Anglers reported using bait and lures while fishing at Silver Lake (Table 2). Six (50%) anglers used multiple gear types but landed zero fish. Zero anglers recorded fly fishing as an angling method. Lure fishing had the highest identifiable method of take (4 fish/angler).

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

<u>Angling method</u>	<u>Number of anglers</u>	<u>Catch per angler</u>
Bait	2	2.00
Lure	2	4.00
Fly	0	0.00
Multiple	6	0.83
Not recorded	2	4.00

Eighty-four percent of fish landed were RT. Brook trout and LT each made up 8% of the total catch (Figure 3).

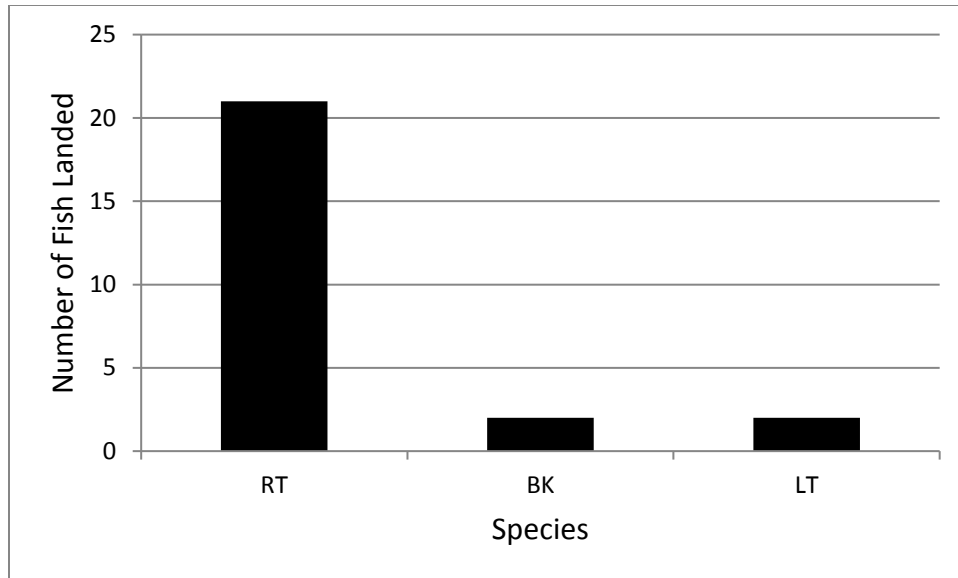


Figure 3. Number of each species of fish caught from Silver Lake in 2015.

Anglers reported 13 (65%) fish measured less than 14.0 inches in total length (Figure 4). Anglers reported landing four (20%) fish greater than 25.9 inches, and three (15%) of fish caught were between 16.0 and 25.9 inches. The modal size class for RT (11 fish) was in the 12.0 - 13.9 inch size class (Table 3). The modal size class for BK (2 fish) was in the 16.0 - 17.9 inch size class while one LT was in the greater than 26 inch size class.

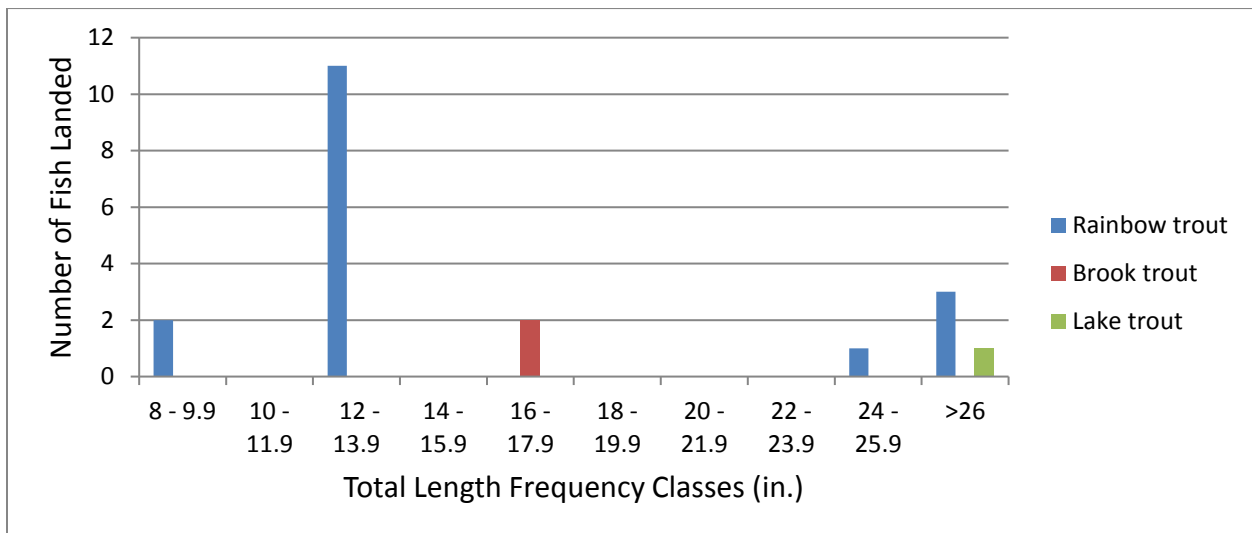


Figure 4. Frequency of fish in each size class that anglers reported landing at Silver Lake in 2015.

Table 3. Data on kept and released fish at Silver Lake in 2015.

Species	Kept	Released	Total Caught	Percent of Total Catch	Percent Released	Modal Size Class
BK	0	2	2	10%	10%	16.0 - 17.9
RT	11	6	17	85%	30%	12.0 - 13.9
LT	1	0	1	5%	0%	> 26.0
Total	12	8	20			

In 2015, anglers reported being unsatisfied with the fishery in regards to overall satisfaction (-1.0), the size of the fish they caught (-0.9), and the numbers of fish they caught (-1.0).

## Discussion

The data gathered from the Silver Lake ASB has shown anglers to have caught at least two fish on average per day. Catch per unit effort was only 0.36 fish/hour, but one angler reported catching eight fish with no time recorded so the CPUE may have been higher. The number of respondents in the survey was only 12, which may not provide CDFW a true representation of the fishery. It is essential CDFW maintain the trend of increasing angler participation in the ASB survey, especially since 2015 was the first year at Silver Lake and anglers might not have been aware of the ASB. CDFW staff should continue to notify anglers of how helpful angler participation in the survey is when possible.

Catch rates for anglers using lures was higher than other forms of identified gear. Two anglers did not record the type of gear used but had an identical catch rate as anglers using lures (4 fish/angler). It would be beneficial for CDFW to encourage anglers to completely fill out the survey, to see if lure fishing really does yield a higher catch rate than other methods of fishing.

The ASB survey showed the majority of fish caught by anglers were RT, which is consistent with the stocking records. Two BK and no BN were reported being caught and it is possible that anglers were misidentifying LT, BN, and/or RT as BK since CDFW has not planted BK into Silver Lake since 1986 and no confirmed BK have been caught out of Silver Lake since 2005. To ensure anglers are properly identifying their catch, CDFW should install a species identification sign listing all of the fish possibly present in Silver Lake. The sign could include a few words explaining how the lake is a diverse recreational fishery.

Sixty five percent of fish caught in Silver Lake measured less than 14 inches in total length. This corresponds with stocking data, as likely 100% of fish stocked by CDFW were less than 14 inches in length (Appendix 1). Anglers were not satisfied with the size of fish they were catching, and would prefer to be catching larger fish. E.I.D. planted 1,193.4 lbs. of 2.5 lb. and greater RT into Silver Lake in 2014 and 2015 and anglers have caught trout in the 30 inch range at Silver Lake. It is not known whether the three RT caught over 24 inches were holdovers or E.I.D. stocked trophies. It is possible that anglers aren't satisfied with catching "catchable" size trout at Silver Lake and expect to catch more in the "trophy" size class. If CDFW wishes to provide a satisfactory "size" fishery to anglers, the focus should be increasing the size of the average fish being caught at Silver Lake by making sure the resources at the lake are great enough to support growth in the number of fish being planted. A

potential way to foster growth would be to decrease the number of fish planted, as to reduce competition for resources and provide more space for the fish to grow. Having more anglers respond to the survey, filling them out completely, and having more than one year's worth of data could help with managing the fishery in order to satisfy the needs of the anglers.

Anglers were not satisfied with the number of fish they were catching, and would prefer to be catching more fish even though the average fish per angler was over two. The majority of anglers that responded to the survey fished during the summer. In general, trout fishing is slower in the summer rather than the spring and fall in which the overall water temperature is cooler and trout are more active. It is also possible that the anglers were fishing from shore in which it would be more difficult to target trout that inhabit greater depths where cooler water is present. The lack of BN being caught could be entirely related to the time of year anglers reported their fishing experience since BN generally can be targeted in reservoirs in the fall when water temperatures are cooler and BN occupy shallower depths to feed and spawn. Having a complete year of data from anglers combined with adding a question asking whether the angler fished from boat or shore could help CDFW manage the fishery in order to satisfy the "number" of fish caught by anglers. The reported species caught do not correspond completely with stocking records as only RT and BN have been planted in Silver Lake since 2001 by CDFW, but both LT and BK were reported being caught. Both LT and BK can successfully spawn in lakes, which might indicate why both species were reported being caught in Silver Lake.

The overall fishing experience for anglers was also negative at Silver Lake. Ideally, a lake where 90% of fish landed were 12 inches and greater with a catch per angler rate of over two fish per day would be considered satisfactory. The dissatisfactory overall angling experience might not then have anything to do with actual fishing but outside factors such as weather, fishing access, or crowds.

## **Recommendations**

- CDFW staff should install a species identification board on or near the ASB at Silver Lake, in order to minimize species misidentification by anglers.
- To maintain satisfaction with the fishery, CDFW could attempt to increase the average size of trout in the lake by decreasing the number of trout planted if future years' data indicates larger-size fish are rare or absent from the anglers' catch. A decreased volume of planted trout could reduce competition for resources and provide more space for the trout to grow.
- Collect more years' worth of data and have more respondents to the survey in order to help CDFW gather more reliable information on the Silver Lake fishery.
- Add question pertaining to angler expectation on survey sheet.
- Add more ASB locations around Silver Lake.

Appendix 1. Stocking history at Silver Lake since 2014.

CDFW				
Date	Species	Weight (lbs.)	Number	Size
4/16/2014	BN	39.6	25000	Fingerling
4/18/2014	BN	39.6	25000	Fingerling
5/12/2014	RT	3000	6300	Catchable
6/3/2014	RT	415	125,330	Fingerling
6/13/2014	RT	3,000	9900	Catchable
6/18/2014	RT	5000	10000	Catchable
4/15/2015	RT	5000	10000	Catchable
6/1/2015	ELT	2000	8000	Catchable
6/26/2015	RT	1100	2420	Catchable
6/29/2015	RT	429.8	89400	Fingerling
7/13/2015	ELT	2000	6000	Catchable
7/22/2015	ELT	453.5	69975	Fingerling
E.I.D.				
Date	Species	Weight (lbs.)	Number	Size
2014	RT	1336.5	2673.0	Catchable
2014	RT	688.5	275.4	Trophy
2015	RT	1336.5	2673.0	Catchable
2015	RT	688.5	275.4	Trophy