

# **Plumas-Sierra County Angler Survey Box Report 2014-2019**



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## Introduction

This report collates data collected from Angler Survey Boxes (ASB) located at 13 different lakes throughout Plumas and Sierra Counties. The report summarizes a collection of data acquired from anglers who volunteered information related to their individual fishing experiences at Antelope Lake, Bucks Lake, Butt Valley Reservoir, Frenchman Lake, Lake Almanor, Lake Davis, Little Grass Valley Reservoir, Lower Bucks Lake, and Sly Creek Reservoir (Butte/Plumas County) in Plumas County and Gold Lake, Lake of the Woods, Stampede Reservoir, and Webber Lake in Sierra County.

## Methods

Angler survey boxes were installed at boat launches or heavily used access points. Anglers were asked to complete a voluntary survey form about their fishing experience. One survey form was used per angler, per day of fishing. The survey asked anglers for information regarding number of hours spent fishing, type of gear used, method used, and the number of fish landed. Anglers were also asked about the size and species of the fish landed and whether they kept or released their catch. Survey forms were specifically tailored per individual waterbody to represent which species could potentially be caught at that waterbody. Additionally, anglers were asked three questions regarding satisfaction of overall angling experience, size, and number of fish. Their answers to those questions were recorded on a scale of “-2 to +2”, with “+2” representing most satisfied and “-2” representing least satisfied. The back of the survey form was reserved for anglers who had any additional comments (**Appendix 1**).

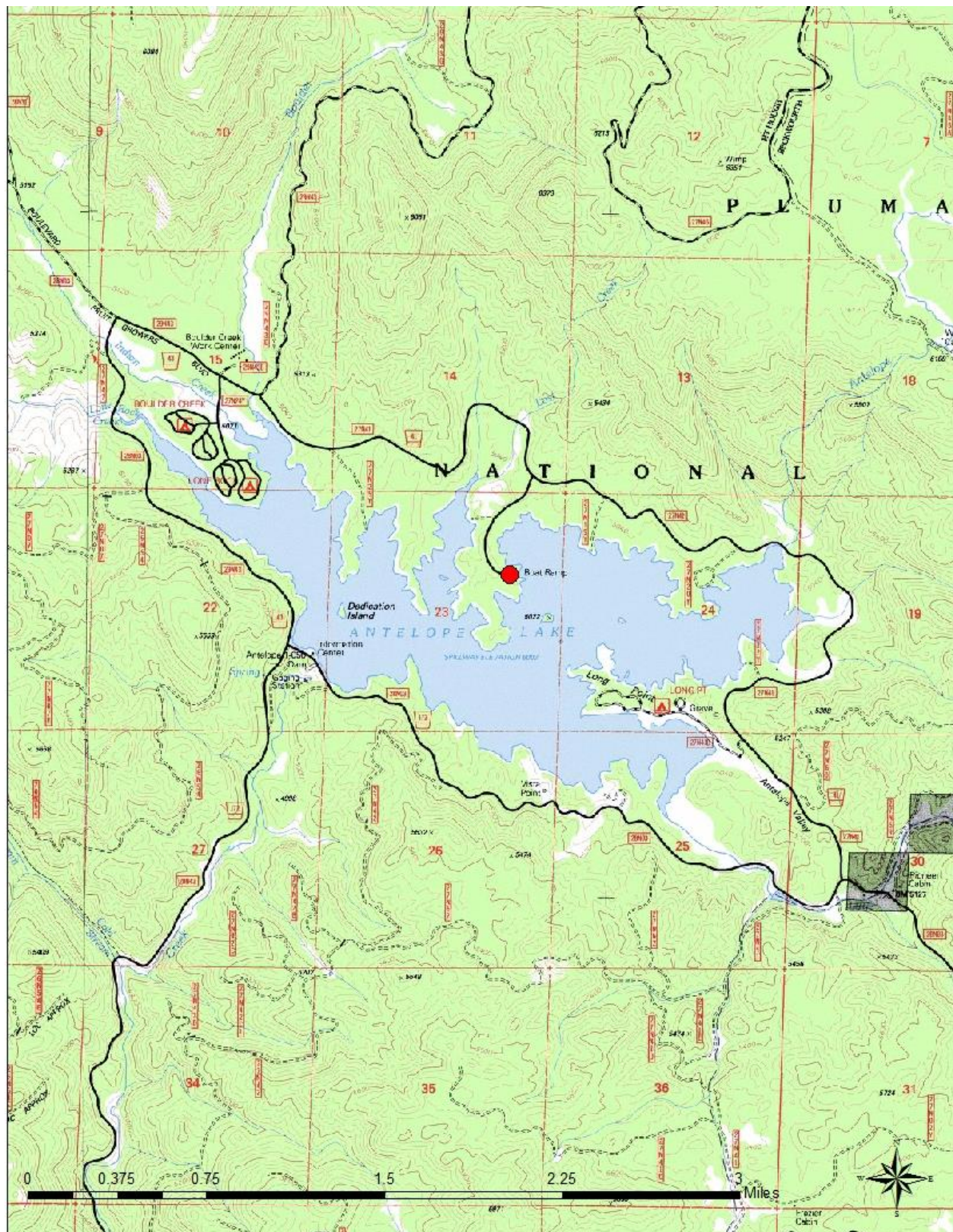
## ASB Implementation- Plumas County

### Antelope Lake (CA Lake ID 11687)

Antelope Lake is a 948.6 surface acre artificial lake created in 1964 on Indian Creek and is part of the North Fork Feather River drainage. The reservoir sits at an elevation of 5,003 feet about 30 miles northeast of Taylorsville, CA (CNDDDB). Rainbow Trout (*Oncorhynchus mykiss*, RT) are a native species in the North Fork Feather River drainage; a tributary of the Feather River hydrological basin which contains native salmonid, cyprinid, and other fish species (Moyle 2002). The recreational fishery at Antelope Lake is comprised of a variety of self-sustaining native and non-native fish populations including RT, Brook Trout (*Salvelinus fontinalis*, BK), Black Crappie (*Pomoxis nigromaculatus*, BCR), Smallmouth Bass (*Micropterus dolomieu*, SMB), and Largemouth Bass (*Micropterus salmoides*, LMB) (Shaffer 2005). The reservoir is currently stocked with BK and RT (Antelope Lake Pre-Stocking Evaluation [PSE]). In order to assess the fishery and associated angler satisfaction at Antelope Lake, the California Department of Fish and Wildlife (CDFW) installed an Angler Survey Box at

the Lost Cove Boat Launch, a public boat launch on the northern side of the lake in 2016 (**Figure 1**). More detailed information on the fishery at Antelope Lake can be found in the *Antelope Lake General Fish Survey 2011 & 2013* report (Rossi 2014a).





**Figure 1.** Map of Antelope Lake, Plumas County. Red dot on map indicates the location of the Angler Survey Box.

Catch results from 2016 through 2019 were comprised of BK, BN (*Salmo trutta*, BN), LMB, RT, SMB, and catfish species (CAT). In 2016, five anglers responded to the survey and reported catching 44 fish in 16.0 hours of fishing. The average catch rate was 2.8 fish per hour. In 2017, 14 anglers responded to the survey and reported catching 43 fish during 46.0 hours of fishing. The average catch rate for this time period was 0.9 fish per hour. In 2018, seven anglers responded to the survey and reported catching 28 fish during 37.5 hours of fishing. The average catch rate for this time period was 0.7 fish per hour fished. In 2019, thirteen anglers responded to the survey (**Table 1**). A total of 135 fish were caught in 2019 over a period of 53.00 hours for a CPUE of 2.5 fish/hour. The 2019 fishing season had the highest total number of fish landed, the second highest CPUE (fish per hour), and had the highest catch per angler experienced at Antelope Lake compared to the previous three years.

**Table 1.** Collection of average effort and catch statistics recorded from the 2016 - 2019 Angler Survey Box at Antelope Lake.

Year	Anglers	Hours Fished	Fish Landed	Catch per Angler	Fish per Hour	Hours per Angler
2016	5	16.0	44	8.8	2.8	3.2
2017	14	46.0	43	3.1	0.9	3.3
2018	7	37.5	28	4.0	0.7	5.4
2019	13	53.0	135	10.4	2.5	4.1

Anglers used either bait, flies, lures, or a combination of multiple types while fishing Antelope Lake (**Table 2**). In 2019, seven anglers used bait and had a 9.1 catch per angler rate, while only one angler solely using flies had a 17.0 catch per angler rate. Three anglers used lures and had a 14.7 catch per angler rate. No anglers used multiple gear methods and two anglers did not answer (DNA) and had a 5.0 catch per angler rate. Compared to the previous three years, 2019 observed an overall increase in catch per angler for all methods except for anglers using multiple gear methods, but that was due to the absence of anglers using this method in 2019. On average, fly fishing (nine fish per angler was the average catch rate for the four-year period, excluding 2018) and lure fishing (8.4 fish per angler was the average catch rate for the four-year period) appeared to have the best overall average catch per angler rates over the four-year survey period.

**Table 2.** The frequency of anglers that recorded their gear method and their corresponding catch rates in 2016-2019 at Antelope Lake.

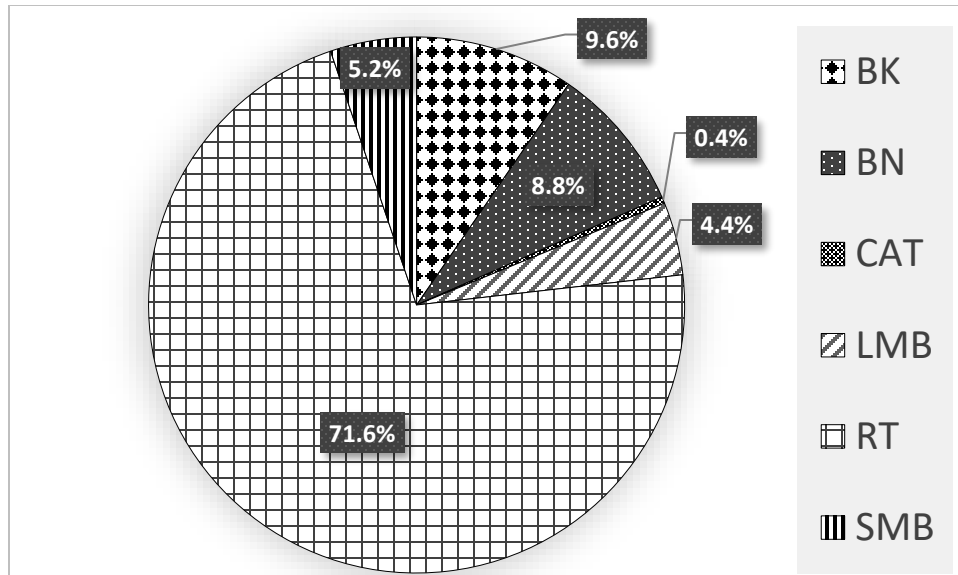
	2016		2017		2018		2019	
Angling Method	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler
Bait	1	5.0	7	3.9	1	4.0	7	9.1
Fly	1	5.0	1	5.0	0	0.0	1	17.0
Lure	2	13.0	3	2.0	6	4.0	3	14.7
Multiple	1	8.0	0	0.0	0	0.0	0	0.0
DNA	0	0	3	1.7	0	0.0	2	5.0

In 2019, nine anglers (69.2%) reported fishing from a boat, which resulted in the second-best success in terms of catch per angler (10.0 fish/angler) (**Table 3**). One angler (7.7%) reported fishing from a float tube or kayak which resulted in the best success in terms of catch per angler (35.0 fish/angler). Two anglers (15.4%) reported fishing from shore, resulting in a 1.5 catch per angler rate and one angler (7.7%) did not report their method of fishing, resulting in a 7.0 catch per angler rate. Over the four-year survey period, most of the people who responded to the survey reported fishing from a boat with varying success rates.

**Table 3.** The number of anglers and average catch per angler based on angling method in 2016-2019 at Antelope Lake.

	2016		2017		2018		2019	
Method	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	0.0%	0.0	28.6%	5.8	85.7%	4.0	69.2%	10.0
Float Tube/ Kayak	0.0%	NA	0.0%	NA	0.0%	NA	7.7%	35.0
Shore/ Wading	0.0%	NA	0.0%	NA	14.3%	4.0	15.4%	1.5
Not Recorded	100.0%	8.8	71.4%	2.0	0.0%	NA	7.7%	7.0

Over the four-year survey period combined, most of the fish caught were RT (71.6%), followed by BK (9.6%), BN (8.8%), SMB (5.2%), LMB (4.4%), and CAT (0.4%) (**Figure 2**).



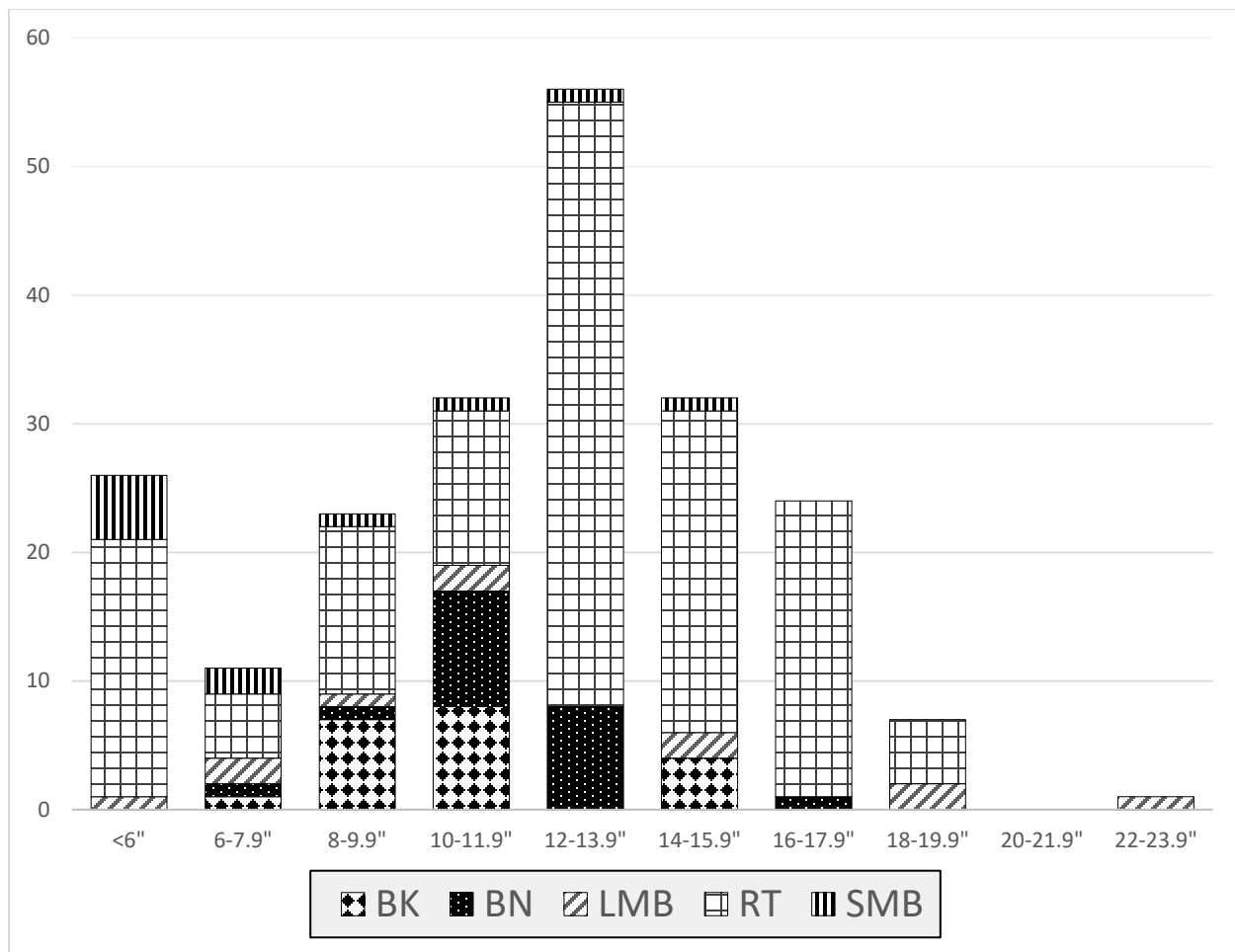
**Figure 2.** Species composition of fish reported during the 2017-2019 ASB survey seasons at Antelope Lake.

The modal size class for 2019, representing all fish kept and released, was 12.0-13.9 inches. This was the same in 2016, however 2018 had equal modal amounts of fish in the 12-13.9 in. and 14-15.9 in. size classes. The 2017 modal size class was 14-15.9 in. (**Table 4**). Over the four-year survey period combined, all fish caught ranged from the less than <6 in. to the 22-23.9 in. size classes (**Figure 3**).

**Table 4.** Kept and released fish and modal size class from 2016 - 2019 at Antelope Lake.

All Fish					
Year	Kept	Released	Total Reported	Modal Size Class	Percent Kept
2016	15	24	39	12-13.9"	38.5%
2017	23	15	38	10-11.9"	60.5%
2018	10	18	28	12-13.9" & 14-15.9"	35.7%
2019	48	69	117	12-13.9"	41.0%

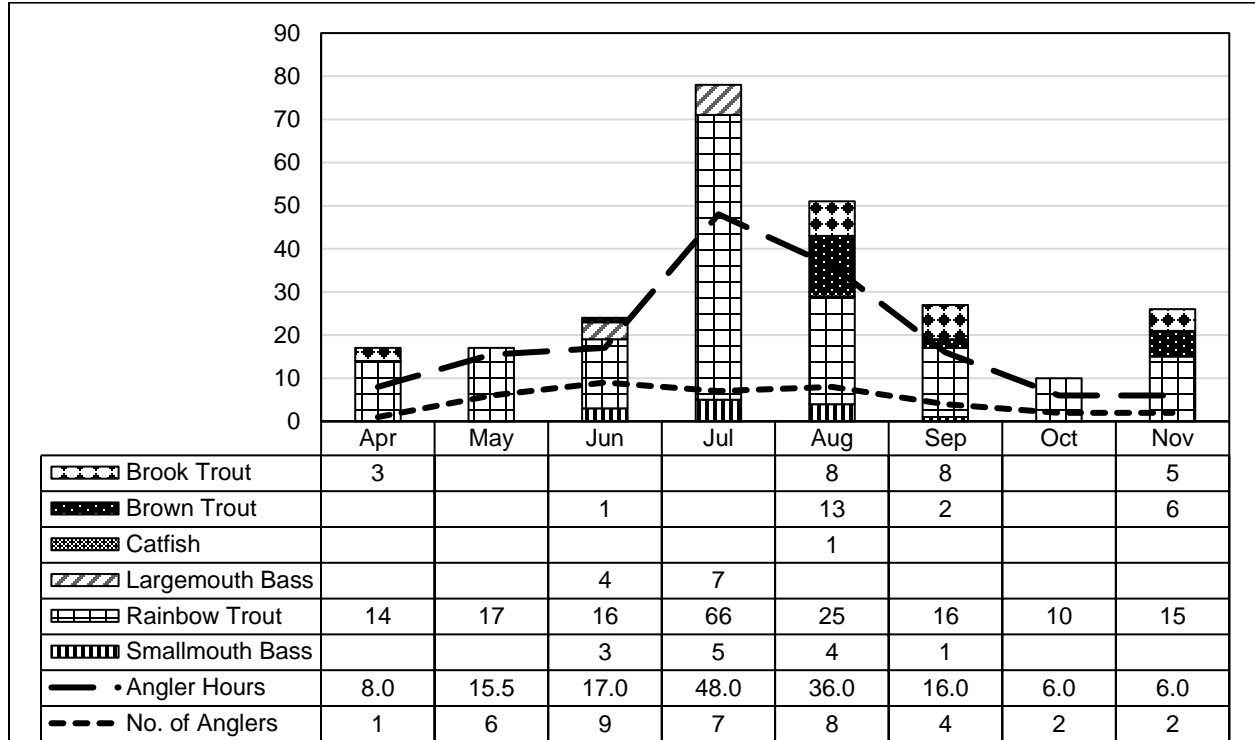




**Figure 3.** Size classes of fish reported during the 2016-2019 ASB survey seasons at Antelope Lake.

July had the highest overall number of fish caught over the four-year ASB survey period. July also had the most angling use in regard to hours spent angling. However, July did not represent the highest quantity of anglers (June had the highest quantity of anglers). Although July represented the most fish caught, it only had a CPUE of 1.6 fish per hour. April had the best CPUE of 4.8 fish per hour, followed by November with a CPUE of 4.3 fish per hour (**Figure 4**).





**Figure 4.** Angling effort and catch by month reported during the 2016-2019 ASB survey seasons at Antelope Lake.

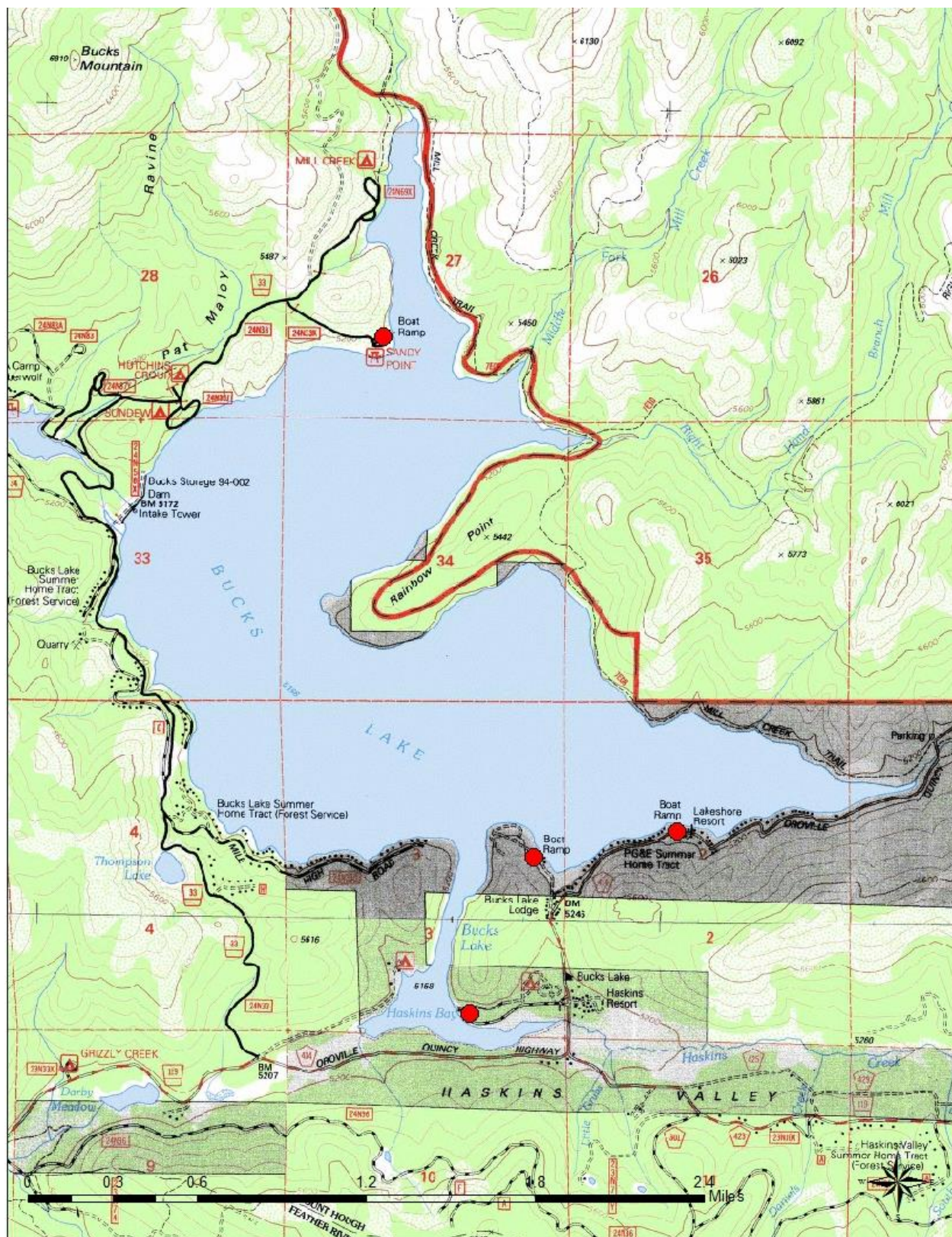
In 2019, anglers had a positive overall angling experience which increased from 2017 and 2018. 2016 had the highest positive value over the four-year survey period for overall angling experience, size of fish, and number of fish (**Table 5**).

**Table 5.** Angler satisfaction response averages for Antelope Lake, 2016 - 2019.

Year	Overall angling experience	Size of fish	Number of fish
2016	1.33	2.00	2.00
2017	0.30	0.50	-0.60
2018	0.67	0.57	0.29
2019	1.00	1.00	1.00

## Bucks Lake (CA Lake ID 12092)

Bucks Lake is a 1731.2 surface acre artificial lake created in 1928 and is part of the North Fork Feather River drainage. The reservoir is at an elevation of 5,161 feet (CNDDDB). Rainbow Trout are a native species in the North Fork Feather River; a tributary to the Feather River hydrological basin which contains native salmonid, cyprinid, and other fish species (Moyle 2002). Bucks Lake is known for its self-sustaining Kokanee Salmon (*Oncorhynchus nerka kennerlyi*, KOK) population. The recreational fishery at Bucks Lake is primarily comprised of KOK, RT, BN, BK, and Lake Trout (*Salvelinus namaycush*, LT) (Shaffer 2005). The reservoir is currently stocked with BK, BN, and RT (Bucks Lake PSE). In order to assess the fishery and associated angler satisfaction at Bucks Lake, a total of four Angler Survey Boxes were installed at Sandy Point, Haskins Valley, Lakeshore Resort, and Bucks Lake Marina boat ramps in 2017 (**Figure 5**). More information on the fishery at Bucks Lake can be found in the *Lake Davis Pike Eradication 2008 Post-Project Monitoring of Other Waters of Plumas County* report (LaCoss & Rossi 2012).



**Figure 5.** Map of Bucks Lake, Plumas County. Red dots on map indicate the locations of the Angler Survey Boxes.

Catch results from 2017 through 2019 were comprised of BK, BN, KOK, LT, and RT. In 2017, only one angler responded to the survey and reported catching five fish during 6.0 hours of fishing. The average catch rate for this time period was 0.8 fish per hour fished. In 2018, 13 anglers responded to the survey and reported catching 135 fish during 60.5 hours of fishing. The average catch rate for this time period was 2.2 fish per hour fished. In 2019, 20 anglers responded to the survey and reported catching 94 fish during 76.5 hours of fishing. The average catch rate for this time period was 1.2 fish per hour fished (**Table 6**).

**Table 6.** Collection of average effort and catch statistics recorded from the 2017 - 2019 Angler Survey Box at Bucks Lake.

Year	Anglers	Hours Fished	Fish Landed	Catch per Angler	Fish per Hour	Hours per Angler
2017	1	6.0	5	5.0	0.8	6.0
2018	13	60.5	135	10.4	2.2	4.7
2019	20	76.5	94	4.7	1.2	3.8

Anglers used either bait, flies, lures, or a combination of multiple types while fishing Bucks Lake (**Table 7**). In 2019, 11 anglers used bait and had a 4.2 catch per angler rate, while only one angler solely used flies and had a zero catch per angler rate. Four anglers used lures and had a 6.5 catch per angler rate. Zero anglers reported using multiple gear methods in 2019 and the four anglers that did not answer (DNA) had a 5.5 catch per angler rate. On average, bait fishing (11.9 fish per angler was the average catch rate for the two-year period, excluding 2017) and lure fishing (5.9 fish per angler was the average catch rate for the two-year period, excluding 2017) appeared to have the best overall average catch per angler rates over the two-year survey period.

**Table 7.** The frequency of anglers that recorded their gear method and their corresponding catch rates in 2017-2019 at Bucks Lake.

Angling Method	2017		2018		2019	
	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler
Bait	0	NA	4	19.5	11	4.2
Fly	0	NA	0	NA	1	0.0
Lure	1	5.0	6	5.3	4	6.5
Multiple	0	NA	3	8.3	0	NA
DNA	0	NA	0	NA	4	5.5

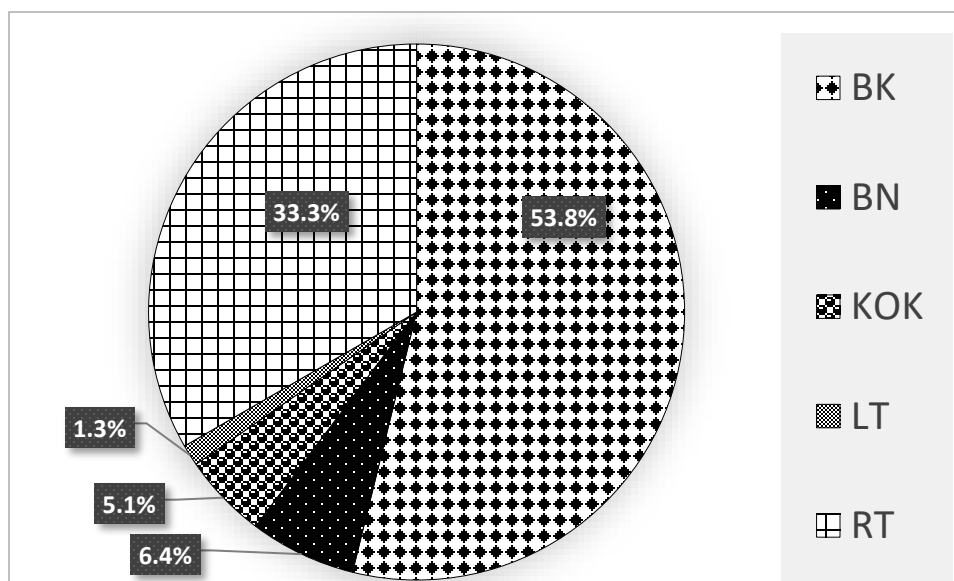
In 2019, three anglers (15.0%) reported fishing from shore, resulting in a 7.3 catch per angler rate and demonstrated the most success. Nine anglers (45.0%) reported fishing

from a boat, which resulted in the second-best success in terms of catch per angler (4.7 fish/angler) and eight anglers (40.0%) did not report their method of fishing, resulting in a 3.8 catch per angler rate (**Table 8**). In 2019, zero anglers reported fishing from a float tube or kayak, however in 2018, float tube or kayak anglers demonstrated the most success (13.0 fish per angler).

**Table 8.** The number of anglers and catch per angler based on angling method 2017-2019 at Bucks Lake.

Method	2017		2018		2019	
	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	0.0%	NA	0.0%	NA	45.0%	4.7
Float Tube/ Kayak	0.0%	NA	15.4%	13.0	0.0%	NA
Shore/ Wading	0.0%	NA	15.4%	9.0	15.0%	7.3
Not Recorded	100.0%	5.0	69.2%	10.1	40.0%	3.8

Over the three-year survey period combined, most of the fish caught were BK (53.8%), followed by RT (33.3%), BN (6.4%), KOK (5.1%), and LT (1.3%) (**Figure 6**).



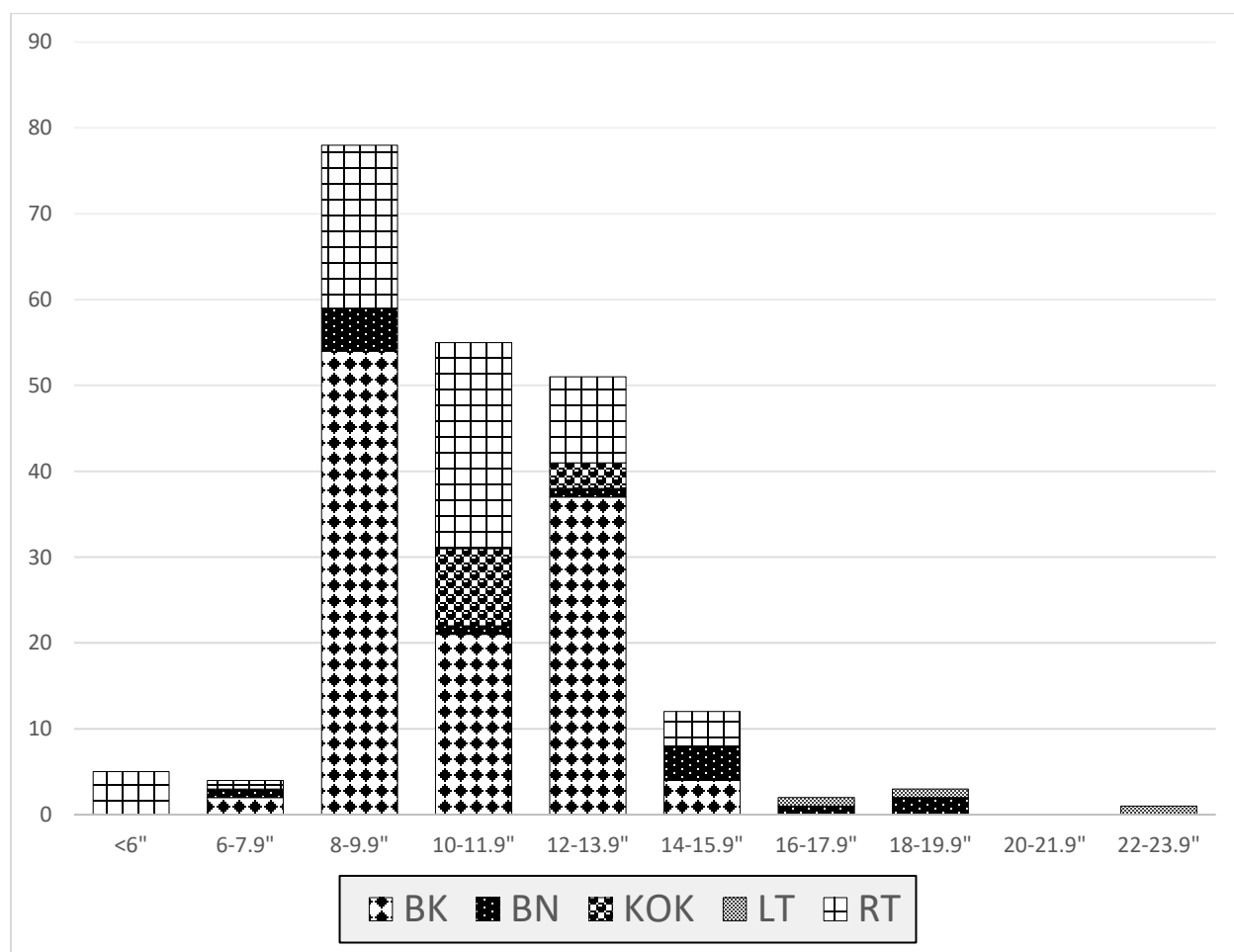
**Figure 6.** Species composition of fish reported during the 2017-2019 ASB survey seasons at Bucks Lake.



The modal size classes for 2019, representing all fish kept and released, had equal modal amounts of fish in the 8-9.9 in. and 10-11.9 in. size classes. Similarly, 2017, also had equal modal amounts of fish in the 10-11.9 in. and 14-15.9 in. size classes. The 2018 modal size class was 8-9.9 in. (**Table 9**). Over the three-year survey period combined, all fish caught ranged from the less than <6 in. to the 22-23.9 in. size classes (**Figure 7**).

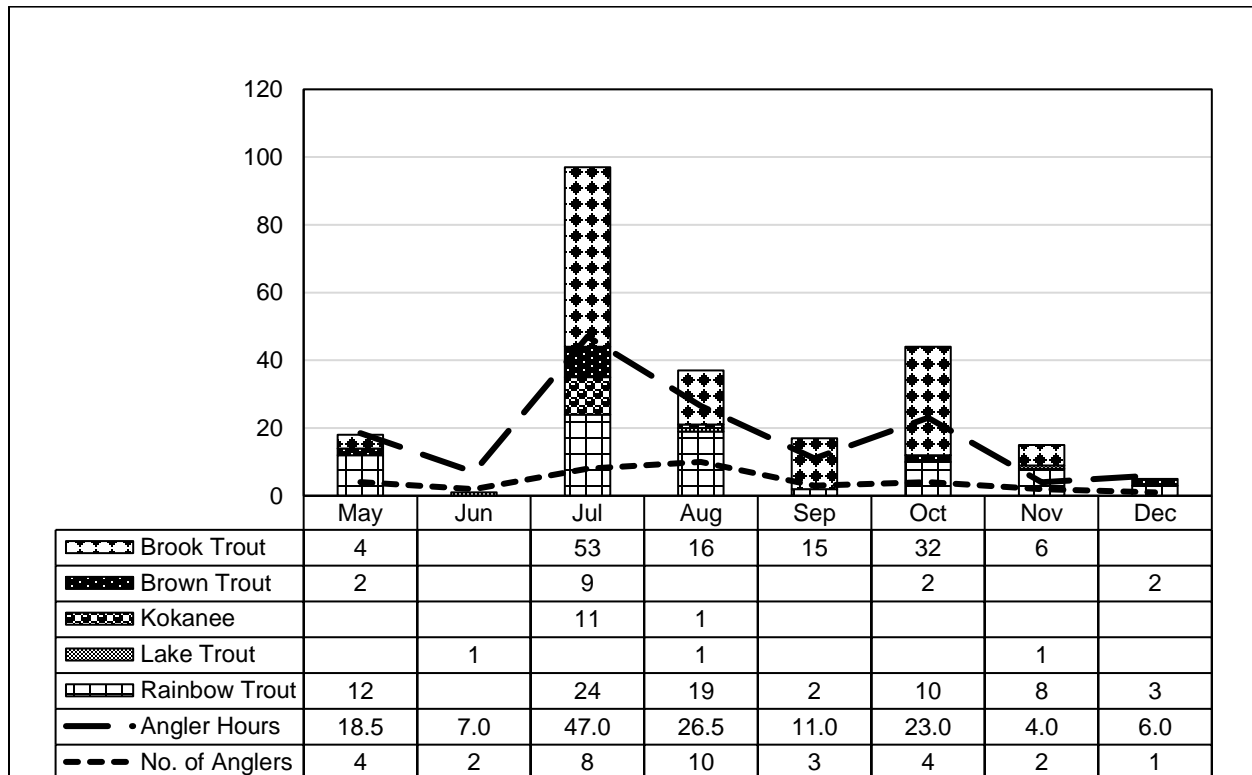
**Table 9.** Kept and released fish and modal size class from 2017 - 2019 at Bucks Lake.

All Fish					
Year	Kept	Released	Total Reported	Modal Size Class	Percent Kept
2017	0	5	5	10-11.9" & 14-15.9"	0.0%
2018	72	63	135	8-9.9"	53.3%
2019	56	24	80	8-9.9" & 10-11.9"	70.0%



**Figure 7.** Size classes of fish reported during the 2017-2019 ASB survey seasons at Bucks Lake.

July had the highest overall number of fish caught over the three-year ASB survey period. July also had the most angling use in regard to hours spent angling. However, July did not represent the highest quantity of anglers (August had the highest quantity of anglers). Although July represented the most fish caught, it had a lower CPUE of 2.1 fish per hour. November had the highest CPUE of 3.8 fish per hour (**Figure 8**).



**Figure 8.** Angling effort and catch by month reported during the 2017-2019 ASB survey seasons at Bucks Lake.

In 2019, anglers had a positive overall angling experience which increased from 2017 and 2018. 2019 had the highest positive value over the three-year survey period for overall angling experience but was slightly lower than 2018 for size of fish and number of fish average satisfaction (**Table 10**).

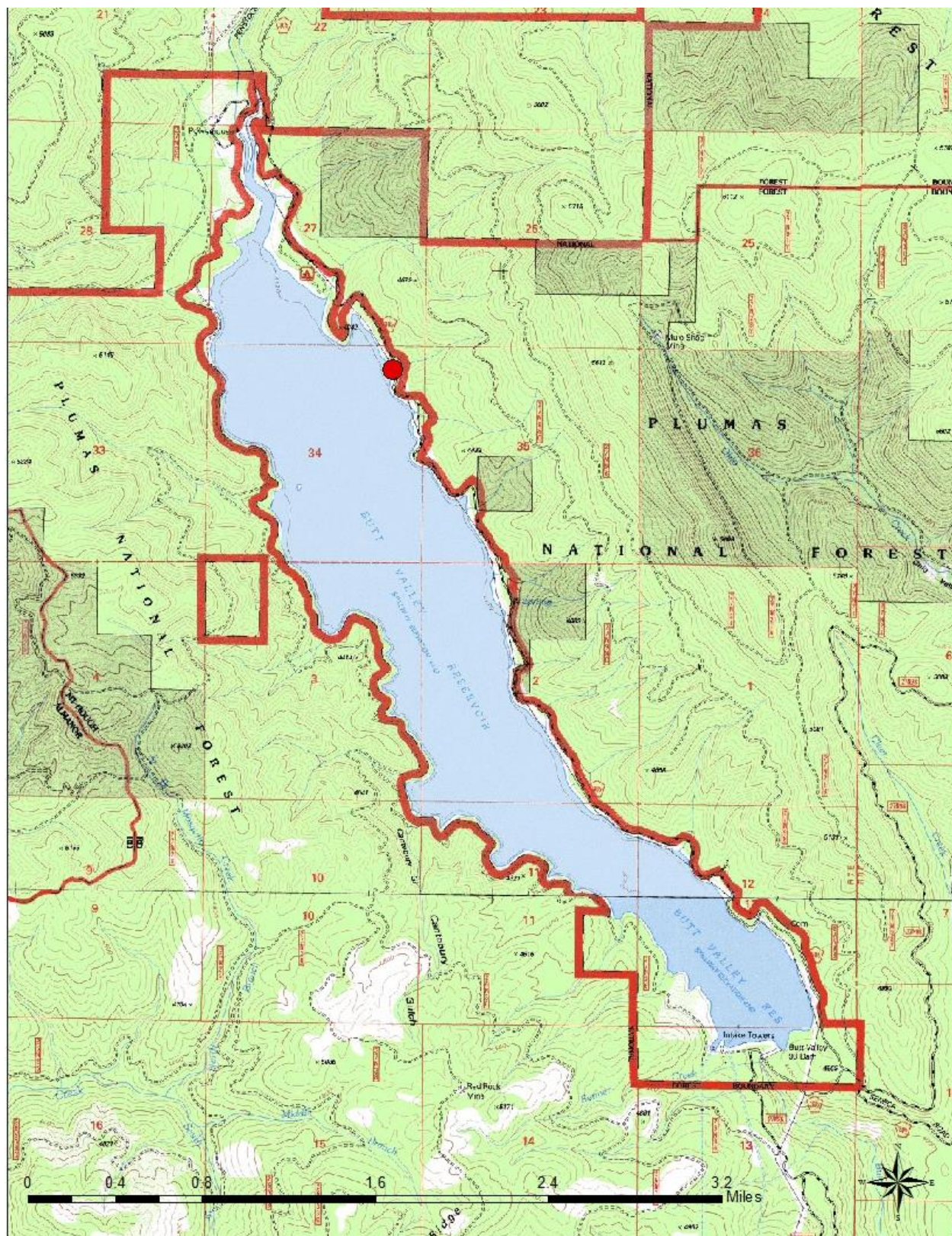
**Table 10.** Angler satisfaction response averages for Bucks Lake, 2016 - 2019.

Year	Overall angling experience	Size of fish	Number of fish
2017	0.00	-1.00	1.00
2018	0.82	0.60	1.10
2019	1.22	0.58	1.06

## Butt Valley Reservoir (CA Lake ID 1170)

Butt Valley Reservoir (BVR) is located in Plumas County, in the northwestern portion of the Plumas National Forest. BVR is a 1,515-surface acre reservoir created in 1924 that sits at an elevation of 4,144 feet above mean sea level and is part of the North Fork Feather River watershed (Central Valleys Fish Hatchery 1961). The dam is owned and operated by the Pacific Gas and Electric Company (PG&E). BVR was created on Butt Creek and is additionally fed by the Butt Valley Tunnel, which is a penstock that receives water from Lake Almanor. Water exits BVR via tunnels to the Caribou Powerhouse, which supports Belden Forebay. The recreational fishery established at BVR is primarily comprised of RT, BN, and SMB (Mouser 2017a). The reservoir is currently not stocked but is approved to do so if deemed necessary (Butt Valley Reservoir PSE). In order to assess the fishery and associated angler satisfaction at Butt Valley Reservoir, CDFW installed an Angler Survey Box at the Ray Adams Boat Launch, a public boat launch on the northeastern side of the lake in 2017 (**Figure 9**). More detailed information on the fishery at Butt Valley Reservoir can be found in the *Butt Valley Reservoir General Fish Survey 2016-2017* report (Mouser 2017a).





**Figure 9.** Map of Butt Valley Reservoir, Plumas County. Red dot on map indicates the location of the Angler Survey Box.

Catch results from 2017 through 2019 were comprised of BN, Common Carp (*Cyprinus carpio*, CP), RT, SMB, and unknown species. In 2017, four anglers responded to the survey and reported catching 19 fish during 28.5 hours of fishing. The average catch rate for this time period was 0.7 fish per hour fished. In 2018, 18 anglers responded to the survey and reported catching 38 fish during 71.0 hours of fishing. The average catch rate for this time period was 0.5 fish per hour fished. In 2019, 21 anglers responded to the survey and reported catching 34 fish during 88.5 hours of fishing. The average catch rate for this time period was 0.4 fish per hour fished (**Table 11**).

**Table 11.** Collection of average effort and catch statistics recorded from the 2017 - 2019 Angler Survey Box at Butt Valley Reservoir.

Year	Anglers	Hours Fished	Fish Landed	Catch per Angler	Fish per Hour	Hours per Angler
2017	4	28.5	19	4.8	0.7	7.1
2018	18	71.0	38	2.1	0.5	3.9
2019	21	88.5	34	1.6	0.4	4.2

Anglers used either bait, flies, lures, or a combination of multiple types while fishing Butt Valley Reservoir (**Table 12**). In 2019, one angler used bait and had a 1.0 catch per angler rate, while only two anglers solely used flies and had a 0.5 catch per angler rate. Fourteen anglers used lures and had a 1.4 catch per angler rate. Four anglers reported using multiple gear methods and had a 3.0 catch per angler rate in 2019 and zero anglers did not answer (DNA). On average, lure fishing (3.2 fish per angler) appeared to have the best overall average catch per angler rate over the three-year survey period.

**Table 12.** The frequency of anglers that recorded their gear method and their corresponding catch rates in 2017-2019 at Butt Valley Reservoir.

	2017		2018		2019	
Angling Method	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler
Bait	0	NA	4	0.0	1	1.0
Fly	0	NA	3	2.3	2	0.5
Lure	3	6.3	6	1.8	14	1.4
Multiple	1	0.0	5	4.0	4	3.0
DNA	0	NA	0	NA	0	NA

In 2019, 13 anglers (61.9%) reported fishing from a boat, which resulted in the second-best success in terms of catch per angler (1.9 fish/angler). Two anglers (9.5%) reported fishing from a float tube or kayak, resulting in a 2.0 catch per angler rate. Three anglers (14.3%) reported fishing from shore, resulting in a 0.7 catch per angler rate, and three

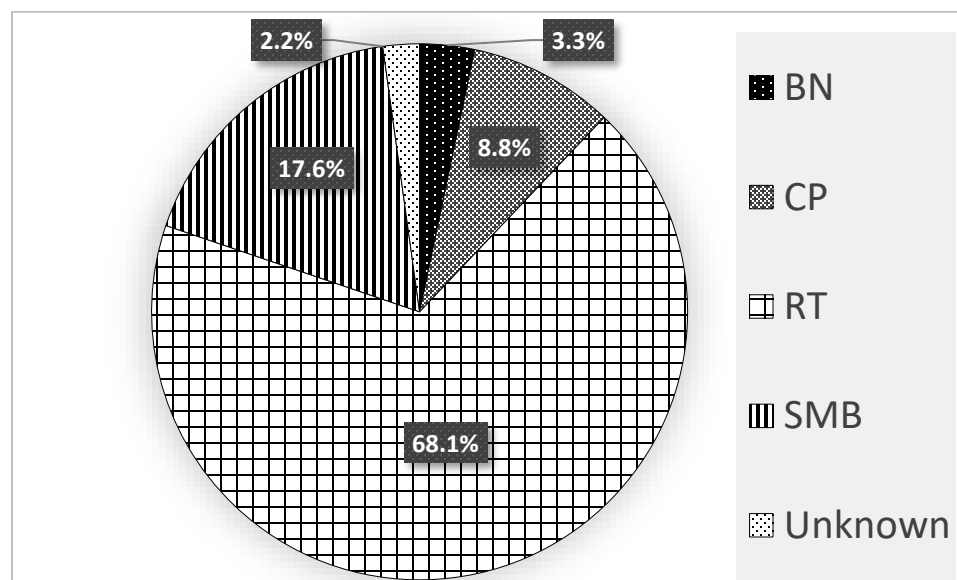


anglers (14.3%) did not report their method of fishing, resulting in a 1.0 catch per angler rate (**Table 13**). No anglers reported their mode of fishing in 2017 or 2018. This is likely due to the fact that some of the earlier versions of the ASB forms did not include an option to select the mode of fishing.

**Table 13.** The number of anglers and catch per angler based on angling method 2017-2019 at Butt Valley Reservoir.

Method	2017		2018		2019	
	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	0.0%	NA	0.0%	NA	61.9%	1.9
Float Tube/ Kayak	0.0%	NA	0.0%	NA	9.5%	2.0
Shore/ Wading	0.0%	NA	0.0%	NA	14.3%	0.7
Not Recorded	0.0%	NA	0.0%	NA	14.3%	1.0

Over the three-year survey period combined, most of the fish caught were RT (68.1%), followed by SMB (17.6%), CP (8.8%), BN (3.3%), and unknown species (2.2%) (**Figure 10**).

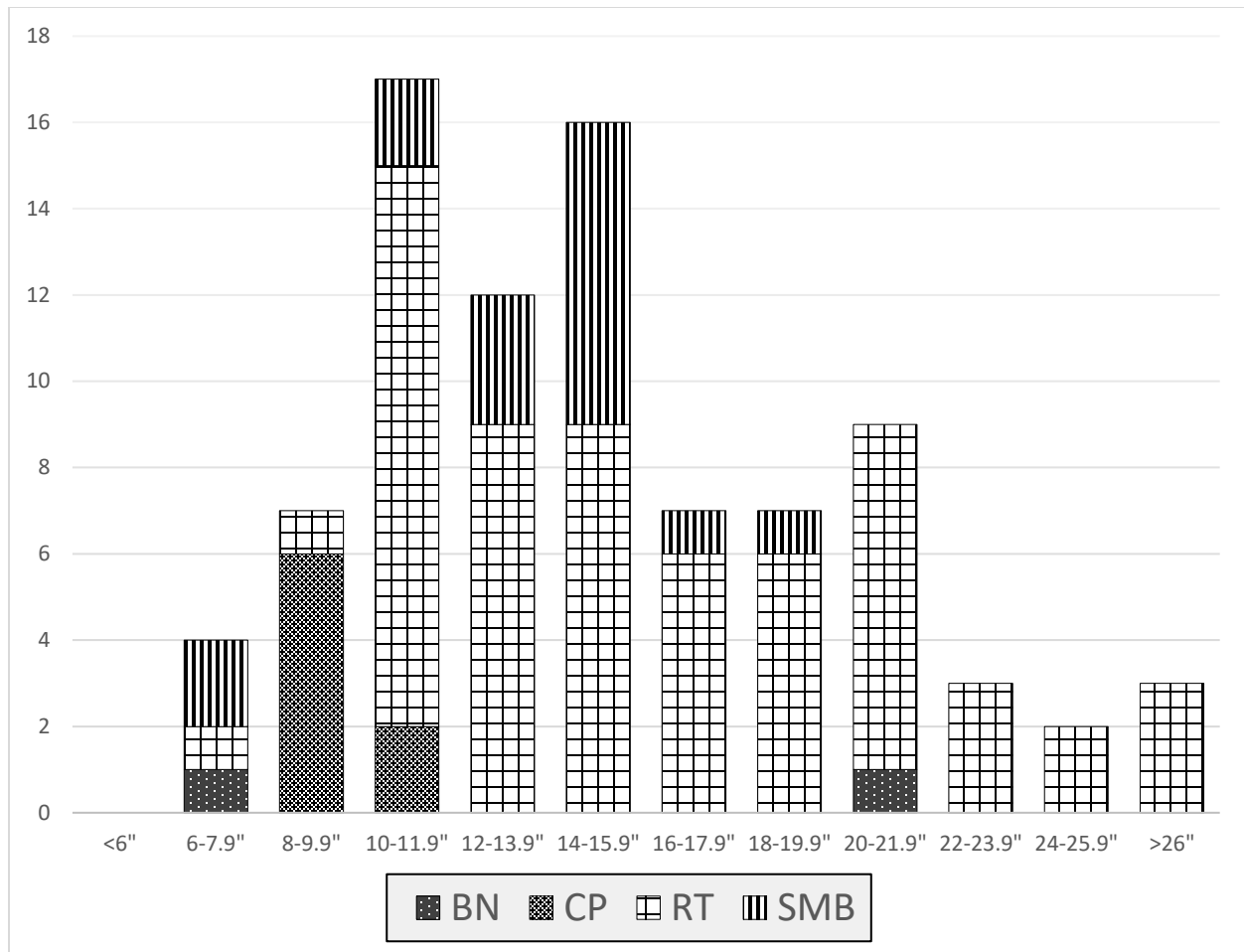


**Figure 10.** Species composition of fish reported during the 2017-2019 ASB survey seasons at Butt Valley Reservoir.

The modal size classes for 2019, representing all fish kept and released, had equal modal amounts of fish in the 8-9.9 in. and 12-13.9 in. size classes. Similarly, 2018, also had equal modal amounts of fish in the 10-11.9 in. and 14-15.9 in. size classes. The 2017 modal size class was 10-11.9 in. While anglers reported the sizes of the fish that they caught in 2017 and 2018, they neglected to indicate whether they kept or released the fish that they caught those years (**Table 14**). Over the three-year survey period combined, all fish caught ranged from the <6 in. to the >26 in. size classes (**Figure 11**).

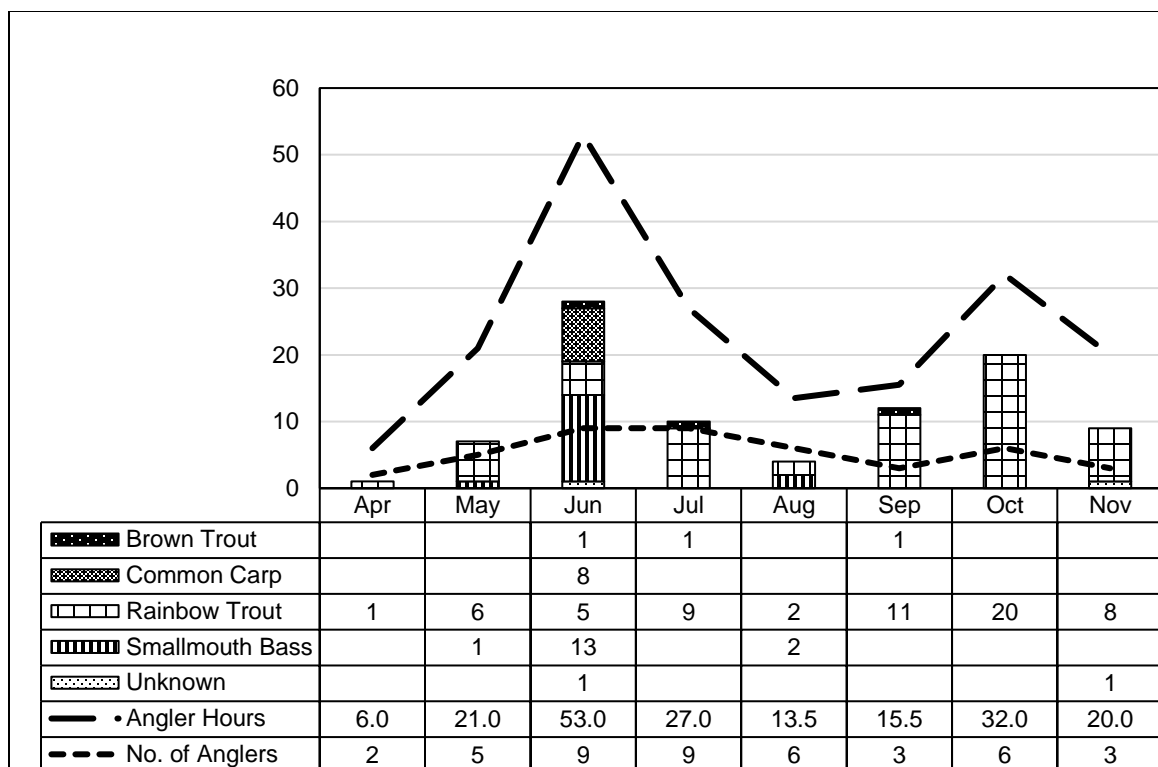
**Table 14.** Kept and released fish and modal size class from 2017 - 2019 at Butt Valley Reservoir.

All Fish					
Year	Kept	Released	Total Reported	Modal Size Class	Percent Kept
2017	NA	NA	0	10-11.9"	NA
2018	NA	NA	0	10-11.9" & 14-15.9"	NA
2019	6	24	30	8-9.9" & 12-13.9"	20.0%



**Figure 11.** Size classes of fish reported during the 2017-2019 ASB survey seasons at Butt Valley Reservoir.

June had the highest overall number of fish caught over the three-year ASB survey period. June also had the most angling use in regard to hours spent angling. However, both June and July represented the highest quantity of anglers. Although June represented the most fish caught, it only had a CPUE of 0.5 fish per hour. September had the best CPUE of 0.8 fish per hour (**Figure 12**).



**Figure 12.** Angling effort and catch by month reported during the 2017-2019 ASB survey seasons at Butt Valley Reservoir.

In 2019, anglers had a positive overall angling experience which decreased slightly from the average responses in 2017 and 2018. 2019 had the highest positive value over the three-year survey period for size of fish but was still on the negative side for number of fish average satisfaction (**Table 15**).

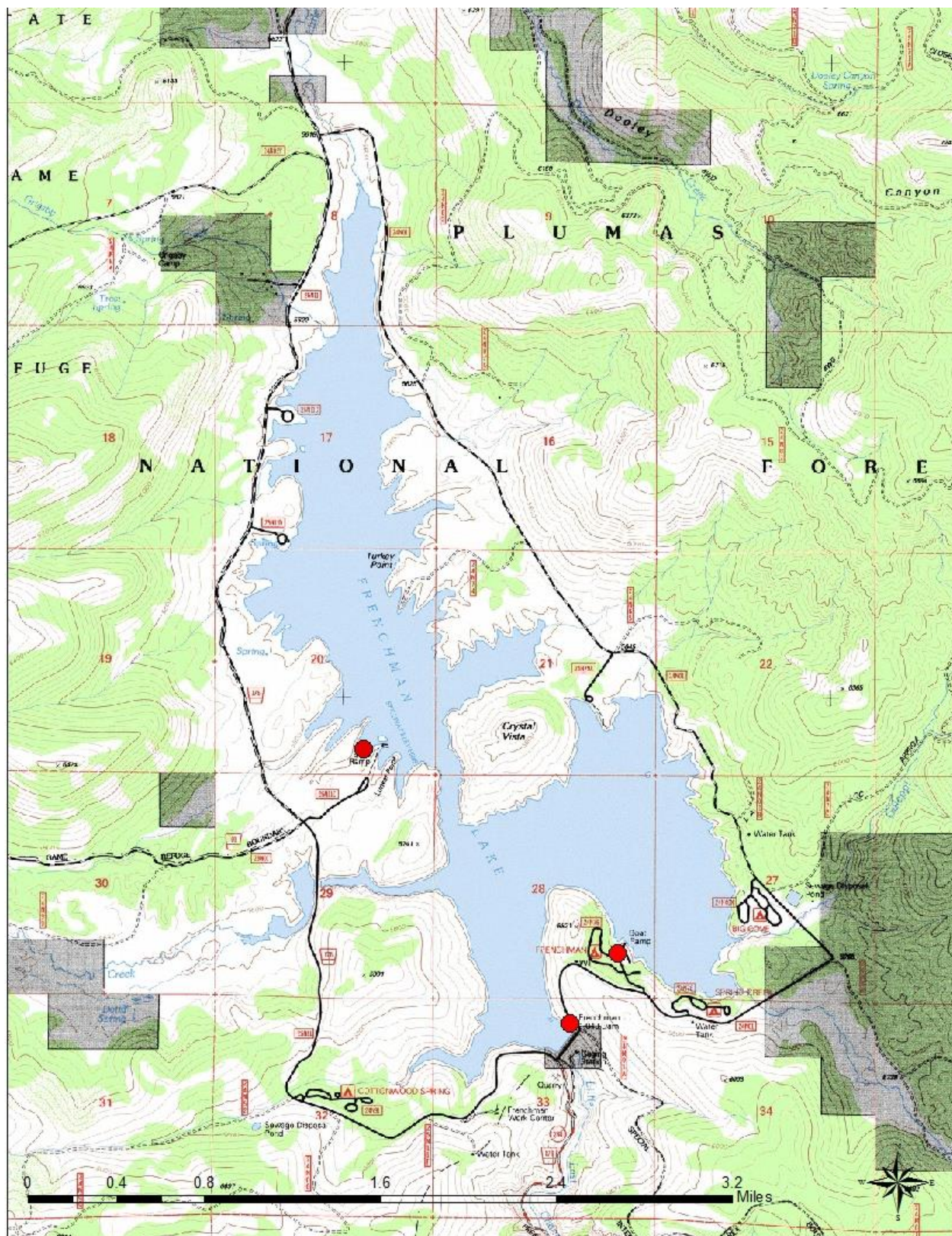
**Table 15.** Angler satisfaction response averages for Butt Valley Reservoir, 2017 - 2019.

Year	Overall angling experience	Size of fish	Number of fish
2017	0.50	0.33	-0.33
2018	0.54	0.09	-0.09
2019	0.47	0.36	-0.06

## Frenchman Lake (CA Lake ID 12063)

Frenchman Lake is a 1526.9 surface acre artificial lake created in 1961 on Little Last Chance Creek and is part of the Middle Fork Feather River drainage. The reservoir sits at an elevation of 5,591 feet and is approximately six miles north of Chilcoot, CA (CNDDDB). Rainbow Trout are a native species in the Middle Fork Feather River drainage; a tributary of the Feather River hydrological basin which contains native salmonid, cyprinid, and other fish species (Moyle 2002). The recreational fishery at Frenchman Lake is managed as a put-and-grow trout fishery, primarily comprised of Eagle Lake strain RT (Shaffer 2005). Brown Trout were recently reintroduced as a means to help control a newly established Goldfish (*Carassius auratus*, GF) population and to provide a more diverse fishing opportunity. The reservoir is currently stocked with BN and RT (Frenchman Lake PSE). In order to assess the fishery and associated angler satisfaction at Frenchman Lake, a total of three Angler Survey Boxes were installed at Frenchman and Lunker Point boat ramps, and at the dam in 2017 (**Figure 13**). More detailed information on the fishery at Frenchman Lake can be found in the *Frenchman Lake General Fish Survey 2016* report (Mouser 2017b) and the *DRAFT RECREATION USE AND CREEL SURVEY OF FRENCHMAN LAKE RECREATION AREA, PLUMAS COUNTY 2010* report (Boyt 2010).





**Figure 13.** Map of Frenchman Lake, Plumas County. Red dots on map indicate the locations of the Angler Survey Boxes.

Catch results from 2017 through 2019 were comprised of BN, RT, and unknown species. In 2017, 21 anglers responded to the survey and reported catching 50 fish during 84.5 hours of fishing. The average catch rate for this time period was 0.6 fish per hour fished. In 2018, 83 anglers responded to the survey and reported catching 288 fish during 394.5 hours of fishing. The average catch rate for this time period was 0.7 fish per hour fished. In 2019, 51 anglers responded to the survey and reported catching 199 fish during 237.8 hours of fishing. The average catch rate for this time period was 0.8 fish per hour fished (**Table 16**).

**Table 16.** Collection of average effort and catch statistics recorded from the 2017 - 2019 Angler Survey Box at Frenchman Lake.

Year	Anglers	Hours Fished	Fish Landed	Catch per Angler	Fish per Hour	Hours per Angler
2017	21	84.5	50	2.4	0.6	4.0
2018	83	394.5	288	3.5	0.7	4.8
2019	51	237.8	199	3.9	0.8	4.7

Anglers used either bait, flies, lures, or a combination of multiple types while fishing Frenchman Lake (**Table 17**). In 2019, 19 anglers used bait and had a 4.0 catch per angler rate, while only two anglers solely used flies and also had a 4.0 catch per angler rate. Twenty-two anglers used lures and had a 4.8 catch per angler rate. One angler reported using multiple gear methods and had a 4.0 catch per angler rate in 2019 and the seven anglers that did not answer (DNA) had a 0.9 catch per angler rate. On average, lure fishing (5.5 fish per angler) appeared to have the best overall average catch per angler rate over the three-year survey period.

**Table 17.** The frequency of anglers that recorded their gear method and their corresponding catch rates in 2017-2019 at Frenchman Lake.

Angling Method	2017		2018		2019	
	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler
Bait	7	2.1	36	2.6	19	4.0
Fly	10	1.7	12	3.3	2	4.0
Lure	1	6.0	18	5.6	22	4.8
Multiple	3	4.0	12	3.3	1	4.0
DNA	0	NA	5	3.0	7	0.9

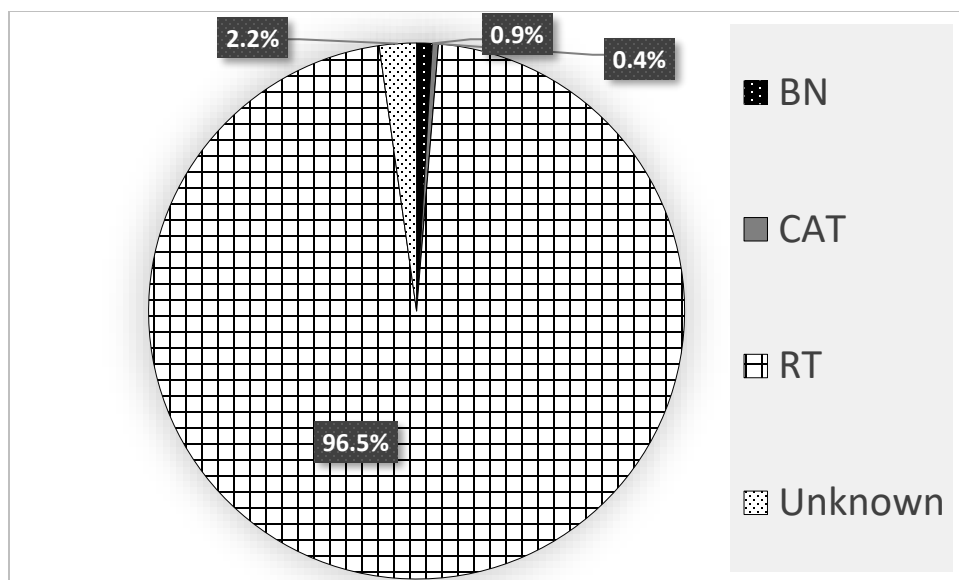
In 2019, 27 anglers (52.9%) reported fishing from a boat, which resulted in the second-best success mode reported (excluding not recorded category) in terms of catch per

angler (3.5 fish/angler). Fishing from a boat also represented the most success in both 2017 and 2018. In 2019, three anglers (5.9%) reported fishing from a float tube or kayak, resulting in a 2.7 catch per angler rate. Fifteen anglers (29.4%) reported fishing from shore, resulting in a 4.9 catch per angler rate, and represented the overall best success in 2019. Six anglers (11.8%) did not report their method of fishing, resulting in a 3.8 catch per angler rate (**Table 18**).

**Table 18.** The number of anglers and catch per angler based on angling method at Frenchman Lake 2017-2019 at Frenchman Lake.

Method	2017		2018		2019	
	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	9.5%	4.0	32.5%	5.0	52.9%	3.5
Float Tube/ Kayak	0.0%	NA	6.0%	2.0	5.9%	2.7
Shore/ Wading	0.0%	NA	14.5%	3.2	29.4%	4.9
Not Recorded	90.5%	2.2	47.0%	2.7	11.8%	3.8

Over the three-year survey period combined, most of the fish caught were RT (96.5%), followed by unknown species (2.2%), BN (0.9%), and CAT (0.4%) (**Figure 14**).

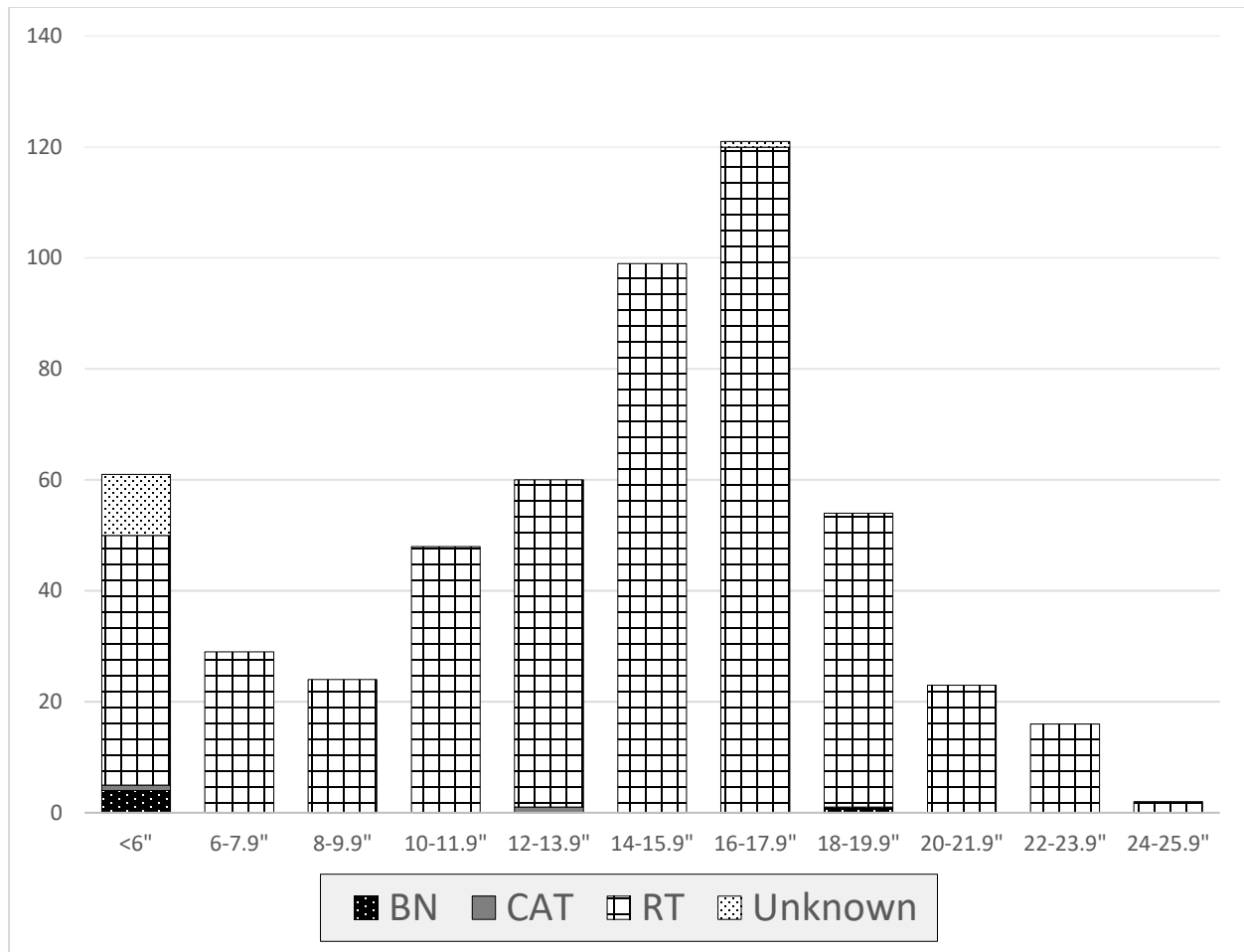


**Figure 14.** Species composition of fish reported during the 2017-2019 ASB survey seasons at Frenchman Lake.

The modal size class for 2019, representing all fish kept and released, was 14-15.9 inches. This was smaller than the 16-17.9 in. modal size class observed in both 2017 and 2018 (**Table 19**). Over the three-year survey period combined, all fish caught ranged from the <6 in. to the 24-25.9 in. size classes (**Figure 15**).

**Table 19.** Kept and released fish and modal size class from 2017 - 2019 at Frenchman Lake.

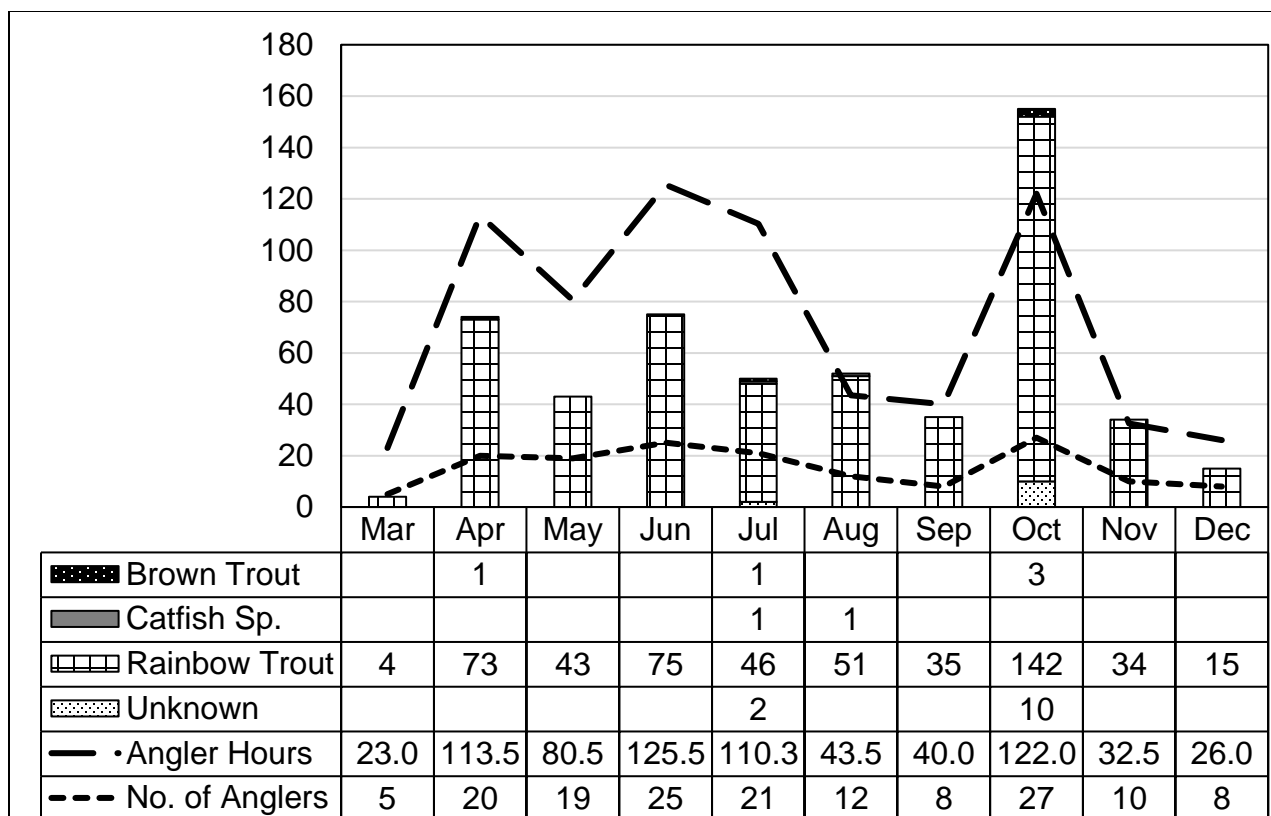
All Fish					
Year	Kept	Released	Total Reported	Modal Size Class	Percent Kept
2017	16	34	50	16-17.9"	32.0%
2018	154	134	288	16-17.9"	53.5%
2019	125	74	199	14-15.9"	62.8%



**Figure 15.** Size classes of fish reported during the 2017-2019 ASB survey seasons at Frenchman Lake.

October had the highest overall number of fish caught over the three-year ASB survey period and represented the highest quantity of anglers. However, June had the most angling use in regard to hours spent angling. Although June had 3.5 more hours spent angling than October, the CPUE varied greatly between the two times of year. June had a 0.6 CPUE, while October had the best CPUE of 1.3 fish per hour (**Figure 16**).





**Figure 16.** Angling effort and catch by month reported during the 2017-2019 ASB survey seasons at Frenchman Lake.

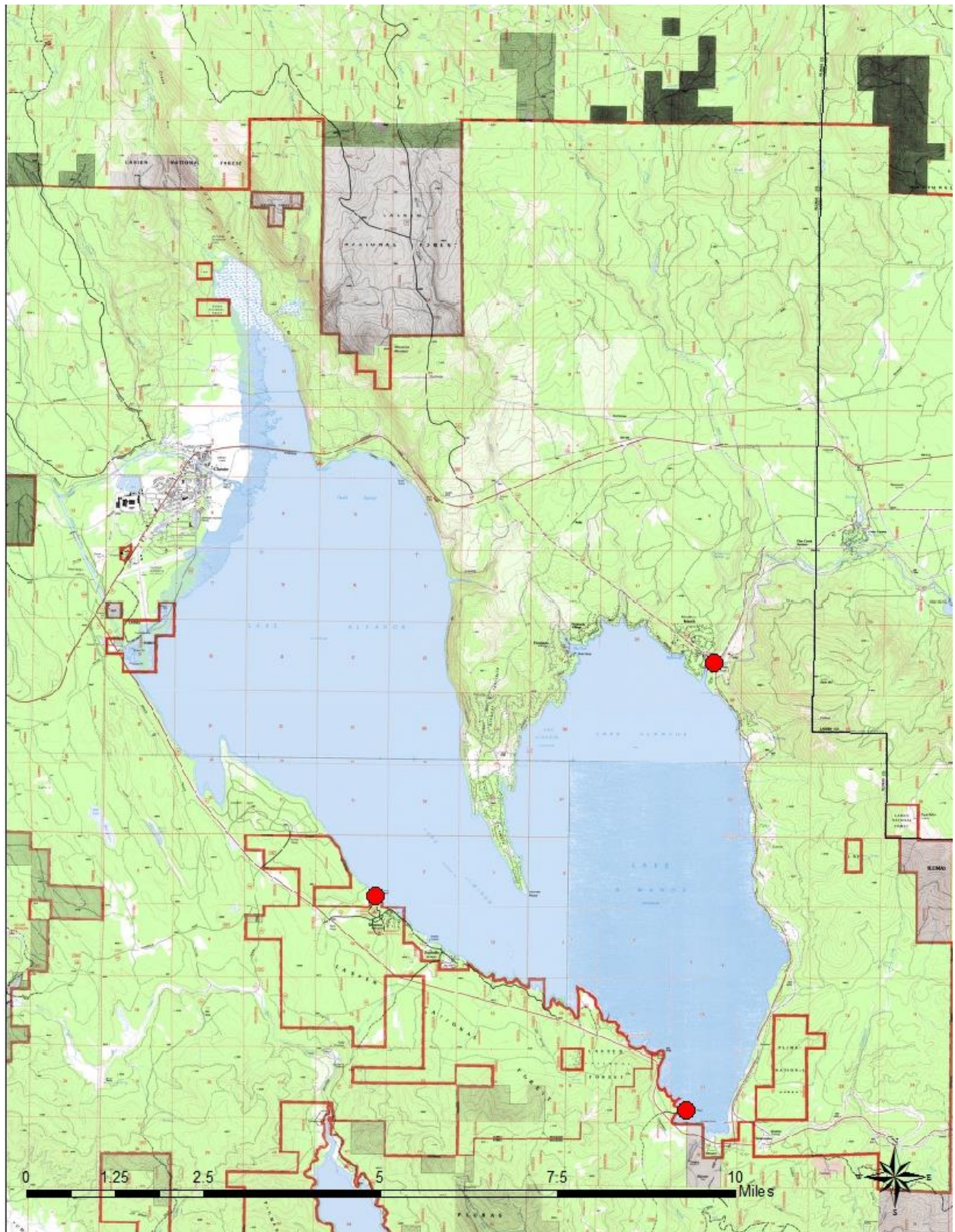
In 2019, anglers had a positive overall angling experience which decreased slightly from the average responses in 2018 but was up from 2017. 2019 demonstrated a similar trend for the three-year survey period for size of fish satisfaction. Number of fish average satisfaction appeared to increase in 2018 but dropped back down to near 2017 ratings for 2019, while still maintaining a slightly positive average value (**Table 20**).

**Table 20.** Angler satisfaction response averages for Frenchman Lake, 2017 - 2019.

Year	Overall angling experience	Size of fish	Number of fish
2017	0.78	0.59	0.29
2018	1.18	1.40	0.70
2019	1.00	1.12	0.31

## Lake Almanor (CA Lake ID 1116)

Lake Almanor is a 25,333.9 surface acre artificial lake created in 1927 that sits at an elevation of 4,501 feet and is part of the North Fork Feather River drainage (CNDDDB). Rainbow Trout are native to the Feather River watershed (Moyle 2002). The recreational fishery established at Lake Almanor is currently comprised of a variety of self-sustaining native and non-native fish populations including RT, BN, Chinook Salmon (*Oncorhynchus tshawytscha*, CHIN), SMB, and LMB. The reservoir is currently stocked with CHIN, BN, and RT (Lake Almanor PSE). In order to assess the fishery and associated angler satisfaction at Lake Almanor, a total of three Angler Survey Boxes were installed at Almanor North and Canyon Dam boat ramps, and at the Hamilton Branch fishing access in 2016 (**Figure 17**). More detailed information on the fishery at Lake Almanor can be found in the *Lake Almanor General Fish Survey 2013* report (Rossi 2014b).



**Figure 17.** Map of Lake Almanor, Plumas County. Red dots on map indicate the locations of the Angler Survey Boxes.

Catch results from 2016 through 2019 were comprised of CHIN, BK, BN, LMB, RT, SMB, and unknown species. In 2016, two anglers responded to the survey and reported catching 12 fish during 12 hours of fishing. The average catch rate for this time period was 1.0 fish per hour fished. In 2017, 27 anglers responded to the survey and reported catching 82 fish during 129.5 hours of fishing. The average catch rate for this time period was 0.6 fish per hour fished. The Angler Survey Boxes had run out of forms during the 2018 survey period. In 2018, 13 anglers responded to the survey and reported catching 31 fish during 38.0 hours of fishing. The average catch rate for this time period was 0.8 fish per hour fished. In 2019, 58 anglers responded to the survey and reported catching 200 fish during 240 hours of fishing. The average catch rate for this time period was 0.8 fish per hour fished (**Table 21**).

**Table 21.** Collection of average effort and catch statistics recorded from the 2016 - 2019 Angler Survey Box at Lake Almanor.

Year	Anglers	Hours Fished	Fish Landed	Catch per Angler	Fish per Hour	Hours per Angler
2016	2	12.0	12	6.0	1.0	6.0
2017	27	129.5	82	3.0	0.6	4.8
2018	13	38.0	31	2.4	0.8	2.9
2019	58	240.0	200	3.4	0.8	4.1

Anglers used either bait, flies, lures, or a combination of multiple types while fishing Lake Almanor (**Table 22**). In 2019, 24 anglers used bait and had a 3.9 catch per angler rate, while seven anglers solely used flies and had a 2.0 catch per angler rate, and 22 anglers used lures and had a 3.4 catch per angler rate. Three anglers used multiple gear methods and had a 0.3 catch per angler rate. The two anglers that did not answer (DNA) had the highest catch per angler rate (8.0 fish per angler) in 2019. Compared to the previous three years, 2019 catch per angler stayed relatively consistent for bait and fly anglers. Anglers using multiple gear methods indicated a catch per angler decrease from 2018 to 2019. On average, bait fishing (3.7 fish per angler was the average catch rate for the four-year period, excluding 2016) and lure fishing (3.3 fish per angler was the average catch rate for the four-year period) had the best overall average catch per angler rates over the four-year survey period.

**Table 22.** The frequency of anglers that recorded their gear method and their corresponding catch rates in 2016-2019 at Lake Almanor.

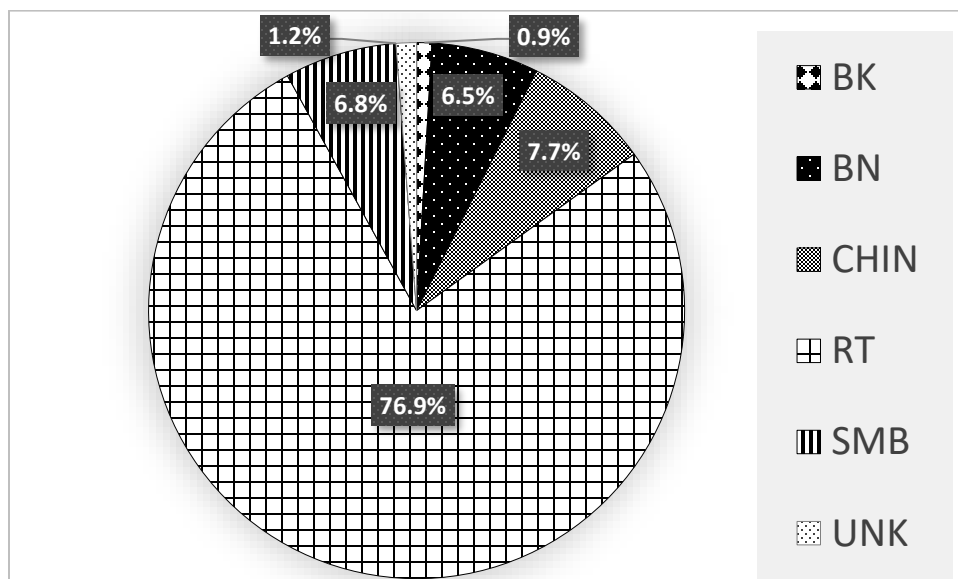
	2016		2017		2018		2019	
Angling Method	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler
Bait	0	NA	5	3.6	5	3.6	24	3.9
Fly	0	NA	7	2.1	3	1.0	7	2.0
Lure	2	6.0	15	3.3	3	0.3	22	3.4
Multiple	0	NA	0	NA	2	4.5	3	0.3
DNA	0	NA	0	NA	0	NA	2	8.0

In 2019, 25 anglers (43.1%) reported fishing from a boat, which resulted in the best success in terms of catch per angler (3.9 fish/angler) (**Table 23**). Four anglers (6.9%) reported fishing from a float tube or kayak, which resulted in the least success in terms of catch per angler (0.5 fish/angler). Twenty-six (44.8%) reported fishing from shore, resulting in a 3.7 catch per angler rate and three anglers (5.2%) did not report their method of fishing, resulting in a 1.3 catch per angler rate. Over the four-year survey period most of the people who responded to the survey reported fishing from a boat or from shore, with boat fishing representing the highest average success rates.

**Table 23.** The number of anglers and catch per angler based on angling method at Lake Almanor 2016-2019 at Lake Almanor.

	2016		2017		2018		2019	
Method	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	100.0%	6.0	74.1%	3.7	0.0%	NA	43.1%	3.9
Float Tube/ Kayak	0.0%	NA	11.1%	0.0	0.0%	NA	6.9%	0.5
Shore/ Wading	0.0%	NA	14.8%	2.0	100.0%	2.4	44.8%	3.7
Not Recorded	0.0%	NA	0.0%	NA	0.0%	NA	5.2%	1.3

Over the four-year survey period combined, most of the fish caught were RT (76.9%), followed by CHIN (7.7%), SMB (6.8%), BN (6.5%), unknown species (1.2%), and BK (0.9%) (**Figure 18**).



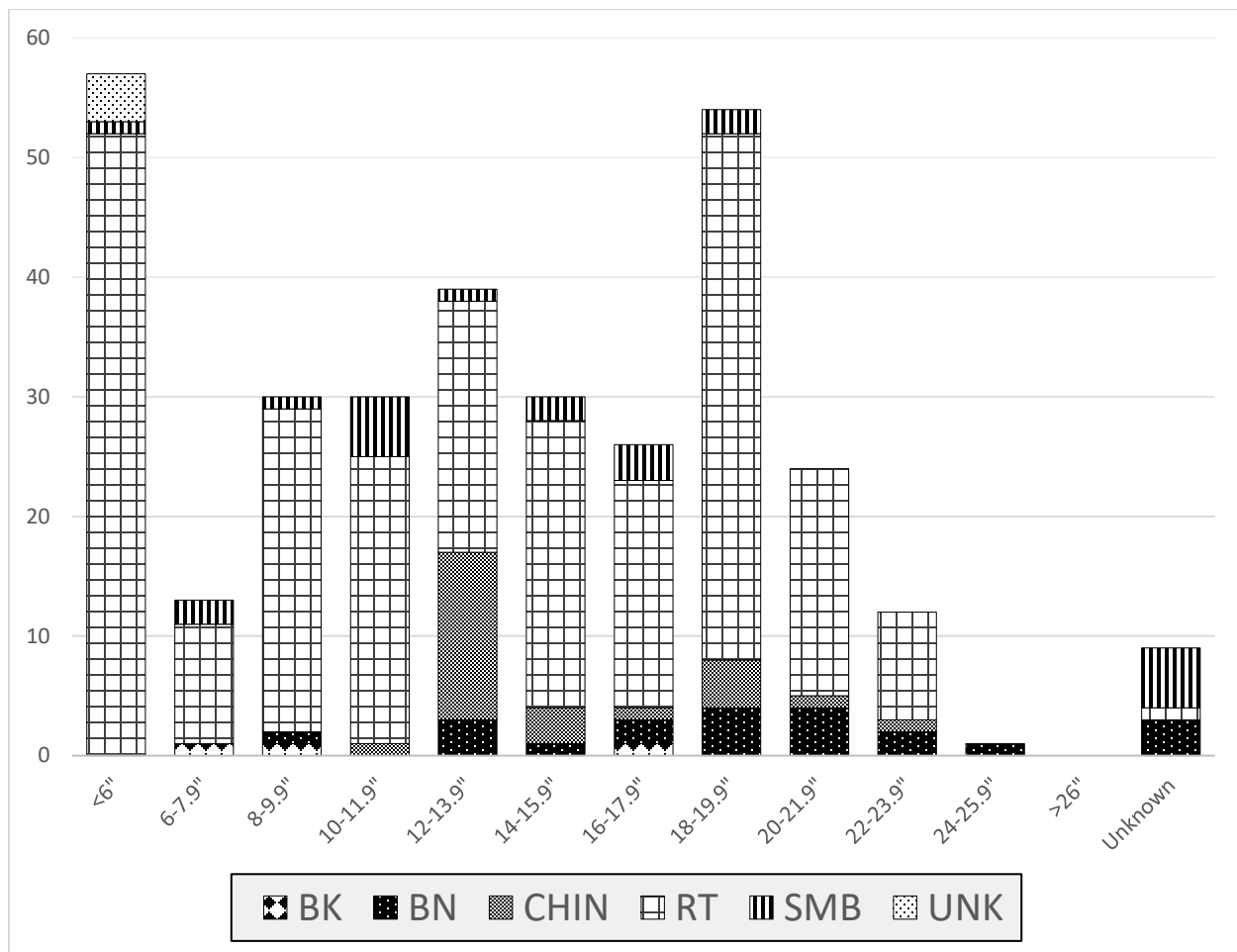
**Figure 18.** Species composition of fish reported during the 2016-2019 ASB survey seasons at Lake Almanor.

The modal size class for 2019, representing all fish kept and released, was <6 inches. This was the smallest modal size class reported out of all four survey years (12-13.9 inches in 2016, 18-19.9 inches in 2017, and 8-9.9 inches in 2018) (**Table 24**). Over the four-year survey period combined, all fish caught ranged from the <6 in. to the >26 in. size classes (**Figure 19**).

**Table 24.** Kept and released fish and modal size class from 2016 - 2019 at Lake Almanor.

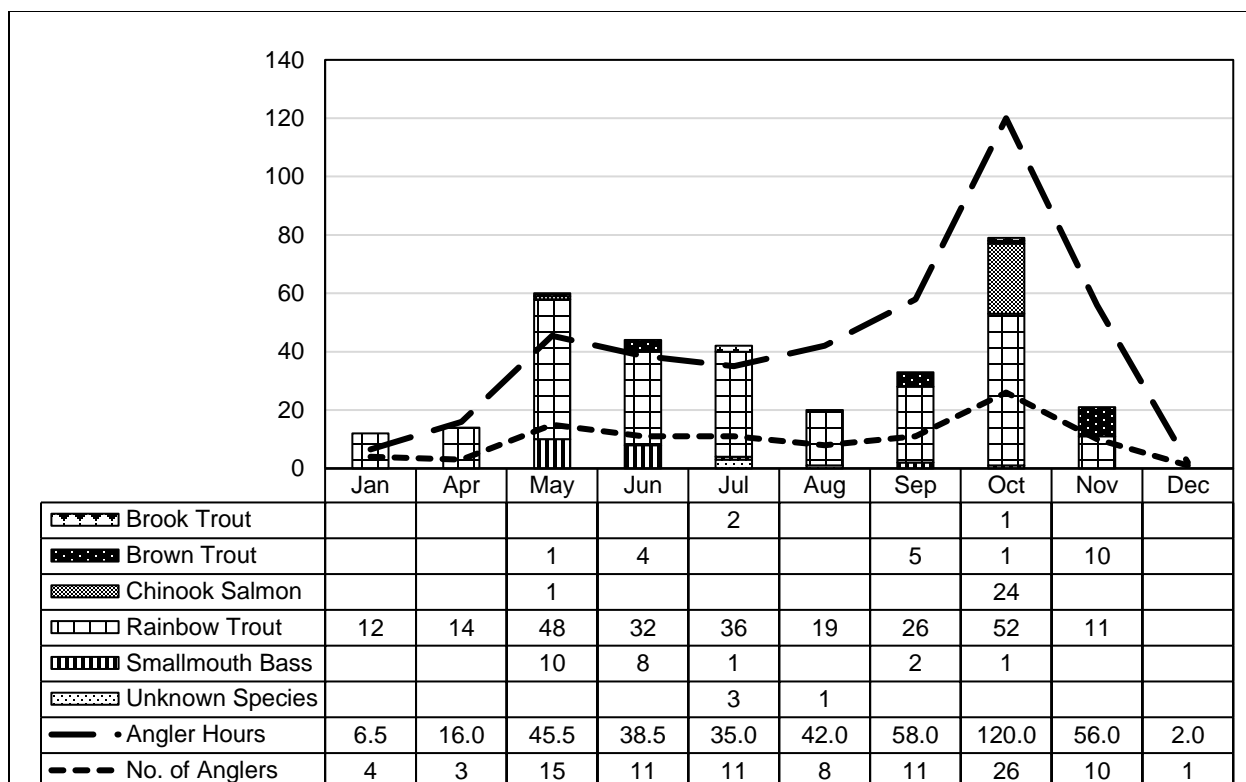
All Fish					
Year	Kept	Released	Total Reported	Modal Size Class	Percent Kept
2016	0	12	12	12-13.9"	0.0%
2017	38	44	82	18-19.9"	46.3%
2018	11	20	31	8-9.9"	35.5%
2019	87	104	191	<6"	45.5%





**Figure 29.** Size classes of fish reported during the 2016-2019 ASB survey seasons at Lake Almanor.

October had the highest overall number of fish caught over the four-year ASB survey period and represented the highest quantity of anglers. October also had the most angling use in regard to hours spent angling. Although October represented the most fish caught, highest quantity of anglers, and most hours spent angling, the CPUE for October was actually lower than several other months. January had the highest average CPUE of 1.8 fish per hour, followed by May which had a CPUE of 1.3 fish per hour (Figure 20).



**Figure 20.** Angling effort and catch by month reported during the 2016-2019 ASB survey seasons at Lake Almanor.

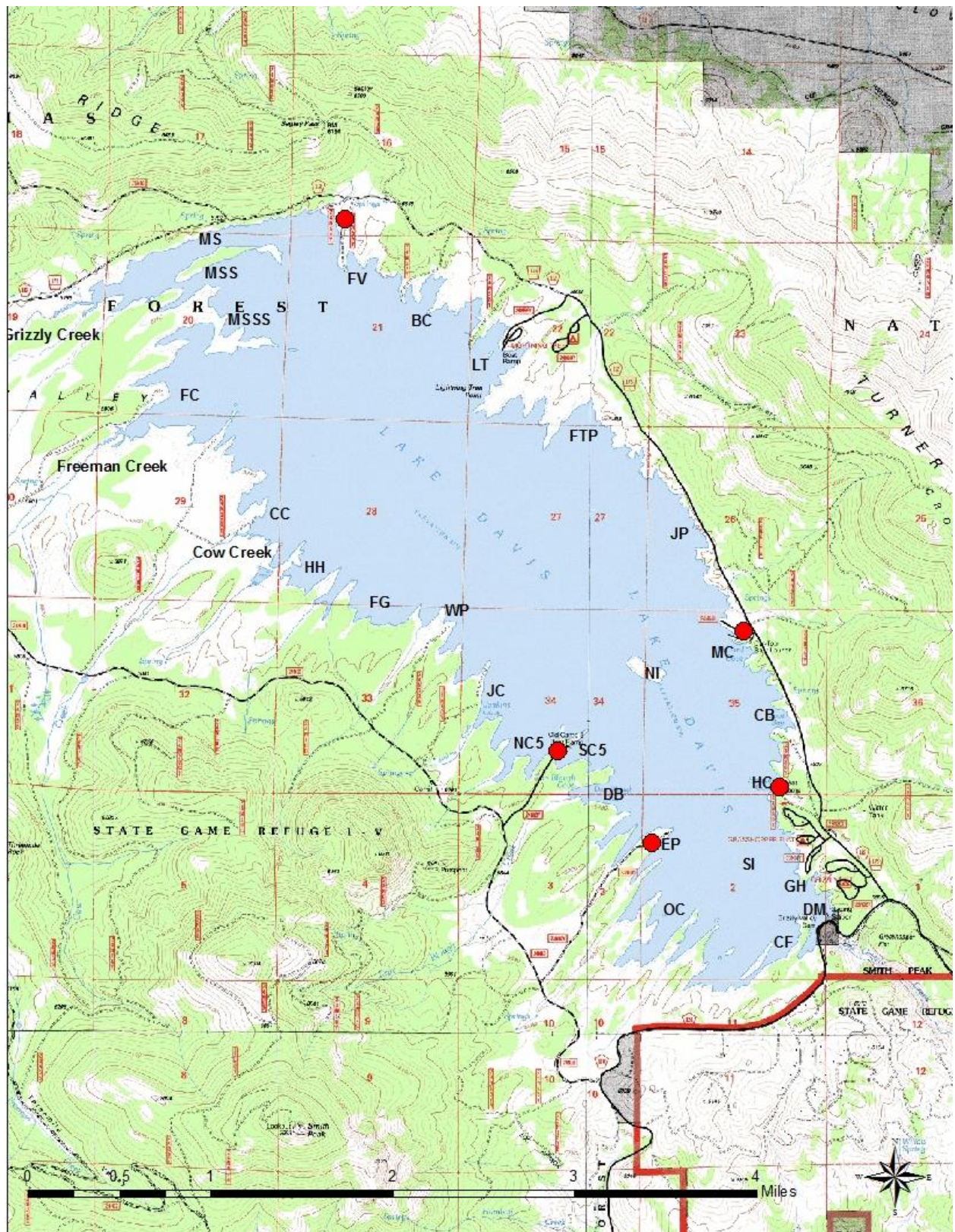
In 2019, anglers had a positive overall angling experience which decreased from 2018 but was up from 2017 and 2016. 2019 demonstrated a similar trend for the four-year survey period for size of fish satisfaction. Number of fish average satisfaction appeared to increase in 2018 but dropped back down for 2019, while still maintaining a slightly positive average value (**Table 25**).

**Table 25.** Angler satisfaction response averages for Lake Almanor, 2016 - 2019.

Year	Overall angling experience	Size of fish	Number of fish
2016	0.50	0.00	1.50
2017	0.08	0.42	-0.08
2018	0.83	0.70	0.64
2019	0.69	0.65	0.20

## Lake Davis (CA Lake ID 12078)

Lake Davis is a 4,025-surface acre artificial lake created in 1967 by Big Grizzly Creek Dam and it sits at an elevation of 5,775 feet about six miles north of Portola, CA. Rainbow Trout are a native species in the Lake Davis watershed including Big Grizzly Creek which is a tributary of the Feather River hydrological basin which contains native salmonid, cyprinid, and other fish species. The recreational trout fishery (BK, BN, and RT) established at the lake quickly became known as one of California's most popular fisheries due to the high productivity characteristics of the watershed. A self-sustaining component to the trout fishery also became established in the lake and its associated inlet tributaries. Additional non-native game and non-game fish populations became established in the lake through illegal and/or bait bucket introductions. During the mid-1990s illegally introduced Northern Pike (*Esox lucius*, NP) were discovered in Lake Davis and Department efforts to chemically eradicate the species took place in 1997 and 2007. These efforts have resulted in extensive studies, surveys, and documentation of Lake Davis ecological and biological conditions. The documentation includes the 2007 Lake Davis Pike Eradication Project Final EIR / EIS (<http://www.dfg.ca.gov/lakedavis/EIR-EIS/>) in addition to other published and peer reviewed papers. The reservoir is currently stocked with BN and RT (Lake Davis PSE). In order to assess the fishery and associated angler satisfaction at Lake Davis, a total of five Angler Survey Boxes were installed at Honker Cove, Camp Five, and Mallard Cove boat ramps, and at Fairview and Eagle Point access points in 2016 (**Figure 21**). More detailed information on the fishery at Lake Davis can be found in the *Lake Davis Pike Eradication 2016-2017 Post-Project Monitoring* report (Mouser 2017c) and *Recreation and Fisheries Monitoring at Lake Davis and Big Grizzly Creek in Plumas County, California* report (Hinton 2007).



**Figure 21.** Map of Lake Davis, Plumas County. Red dots on map indicate the locations of the Angler Survey Boxes.

Catch results from 2016 through 2019 were comprised of BN, RT, LMB, CAT, Pumpkinseed (*Lepomis gibbosus*, PSD), and unknown species. In 2016, 22 anglers responded to the survey and reported catching 29 fish during 93.8 hours of fishing. The average catch rate for this time period was 0.3 fish per hour fished. In 2017, 71 anglers responded to the survey and reported catching 81 fish during 293.0 hours of fishing. The average catch rate for this time period was 0.3 fish per hour fished. In 2018, 46 anglers responded to the survey and reported catching 146 fish during 191.5 hours of fishing. The average catch rate for this time period was 0.8 fish per hour fished. In 2019, 54 anglers responded to the survey and reported catching 234 fish during 212.8 hours of fishing. The average catch rate for this time period was 1.1 fish per hour fished (**Table 26**).

**Table 26.** Collection of average effort and catch statistics recorded from the 2016 - 2019 Angler Survey Box at Lake Davis.

Year	Anglers	Hours Fished	Fish Landed	Catch per Angler	Fish per Hour	Hours per Angler
2016	22	93.8	29	1.3	0.3	4.3
2017	71	293.0	81	1.1	0.3	4.1
2018	46	191.5	146	3.2	0.8	4.2
2019	54	212.8	234	4.3	1.1	3.9

Anglers used either bait, flies, lures, or a combination of multiple types while fishing Lake Davis (**Table 27**). In 2019, ten anglers used bait and had a 3.6 catch per angler rate, while five anglers solely used flies and had a 7.0 catch per angler rate. Thirty-two anglers used lures and had a 3.6 catch per angler rate. Six anglers used multiple gear methods and had a 3.7 catch per angler rate. The one angler that did not answer (DNA) had the highest catch per angler rate (25.0 fish per angler) in 2019. Averaged over the four years, catch per angler stayed relatively consistent for all methods (2.7 fish per angler was the average catch rate for the four-year period for bait, 2.6 fish per angler for fly, and 2.5 fish per angler for lure), excluding those that used multiple methods and those that did not answer.



**Table 27.** The frequency of anglers that recorded their gear method and their corresponding catch rates in 2016-2019 at Lake Davis.

	2016		2017		2018		2019	
Angling Method	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler
Bait	8	1.1	13	2.9	13	3.0	10	3.6
Fly	9	2.1	11	0.4	6	0.8	5	7.0
Lure	2	0.5	14	1.2	19	4.5	32	3.6
Multiple	1	0.0	30	0.6	6	1.5	6	3.7
DNA	2	0.0	3	1.3	2	3.5	1	25.0

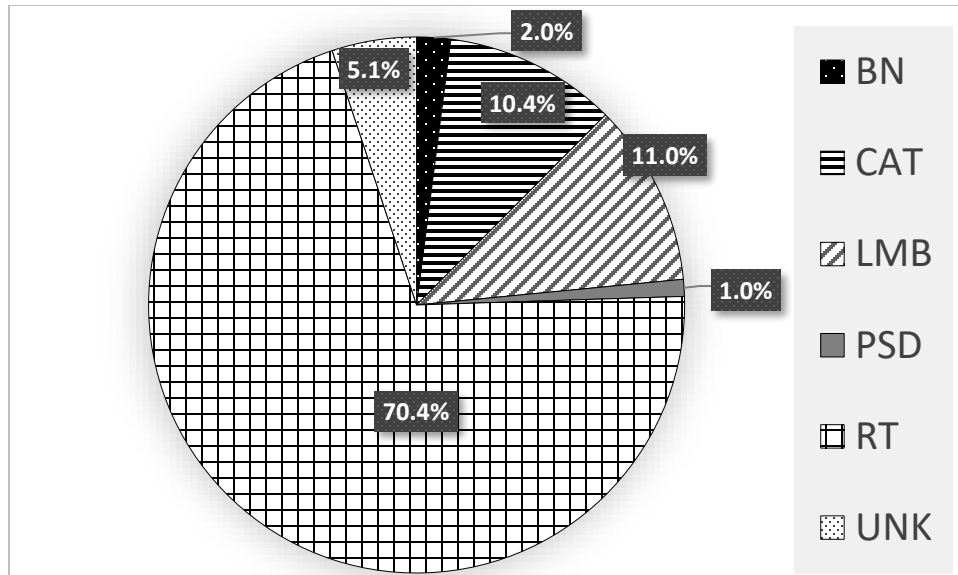
In 2019, 27 anglers (50.0%) reported fishing from a boat, which resulted in the best success in terms of catch per angler (5.9 fish/angler) (**Table 28**). Two anglers (3.7%) reported fishing from a float tube or kayak, which resulted in the least success in terms of catch per angler by those who reported their method (2.5 fish/angler). Twenty-two (40.7%) reported fishing from shore, resulting in a 3.0 catch per angler rate. Three anglers (5.6%) did not report their method of fishing, resulting in a 1.0 catch per angler rate. Over the four-year survey period most of the people who responded to the survey reported fishing from a boat or from shore, with boat fishing representing the highest average success rates.

**Table 28.** The number of anglers and catch per angler based on angling method in 2016-2019 at Lake Davis.

	2016		2017		2018		2019	
Method	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	0.0%	NA	43.7%	1.0	45.7%	4.0	50.0%	5.9
Float Tube/ Kayak	0.0%	NA	2.8%	4.0	8.7%	0.8	3.7%	2.5
Shore/ Wading	0.0%	NA	18.3%	2.1	34.8%	2.9	40.7%	3.0
Not Recorded	100.0%	1.3	35.2%	0.6	10.9%	2.4	5.6%	1.0



Over the four-year survey period combined, most of the fish caught were RT (70.4%), followed by LMB (11.0%), CAT (CAT) (10.4%), unknown species (5.1%), BN (2.0%), and PSD (1.0%) (**Figure 22**).

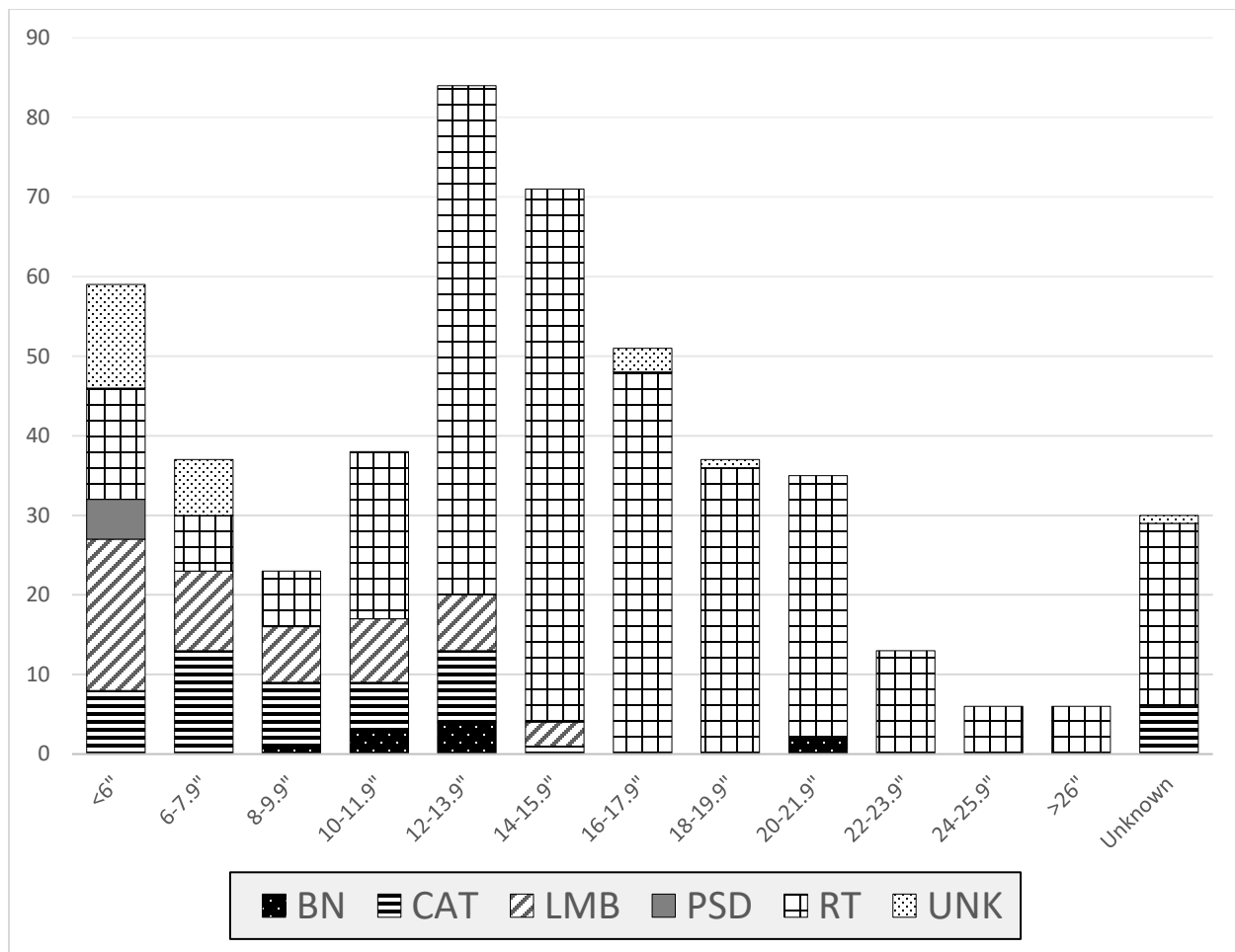


**Figure 22.** Species composition of fish reported during the 2016-2019 ASB survey seasons at Lake Davis.

The modal size class for 2019, representing all fish kept and released, was 12-13.9 inches. This was the second smallest modal size class reported out of all four survey years (20-21.9 inches in 2016, <6 inches in 2017, and 14-15.9 inches in 2018) (**Table 29**). Over the four-year survey period combined, all fish caught ranged from the <6 in. to the >26 in. size classes (**Figure 23**).

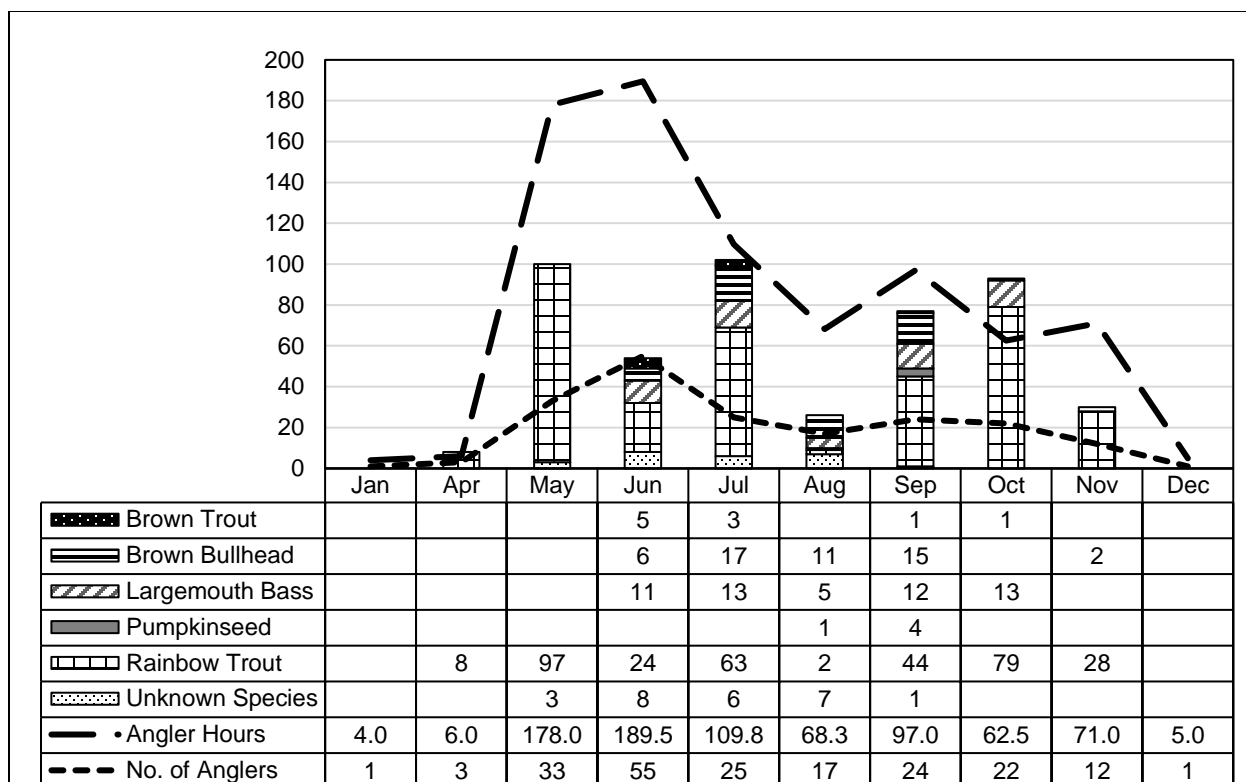
**Table 29.** Kept and released fish and modal size class from 2016 - 2019 at Lake Davis.

All Fish					
Year	Kept	Released	Total Reported	Modal Size Class	Percent Kept
2016	8	20	28	20-21.9"	28.6%
2017	40	35	75	<6"	53.3%
2018	44	99	143	14-15.9"	30.8%
2019	96	112	208	12-13.9"	46.2%



**Figure 23.** Size classes of fish reported during the 2016-2019 ASB survey seasons at Lake Davis.

May (100 fish) and July (102 fish) had the highest overall number of fish caught over the four-year ASB survey period. June had the most angling use in regard to hours spent angling and also represented the highest quantity of anglers. Although May and July represented the most fish caught, they only had a CPUE of 0.6 fish per hour in May and 0.9 fish per hour in July. October had the best CPUE of 1.5 fish per hour, followed by April with a CPUE of 1.3 fish per hour (**Figure 24**).



**Figure 24.** Angling effort and catch by month reported during the 2016-2019 ASB survey seasons at Lake Davis.

In 2019, anglers had a positive overall angling experience which increased from the average responses in 2016, 2017, and 2018. 2019 demonstrated a similar trend for the four-year survey period for size of fish satisfaction and number of fish average satisfaction (**Table 30**).

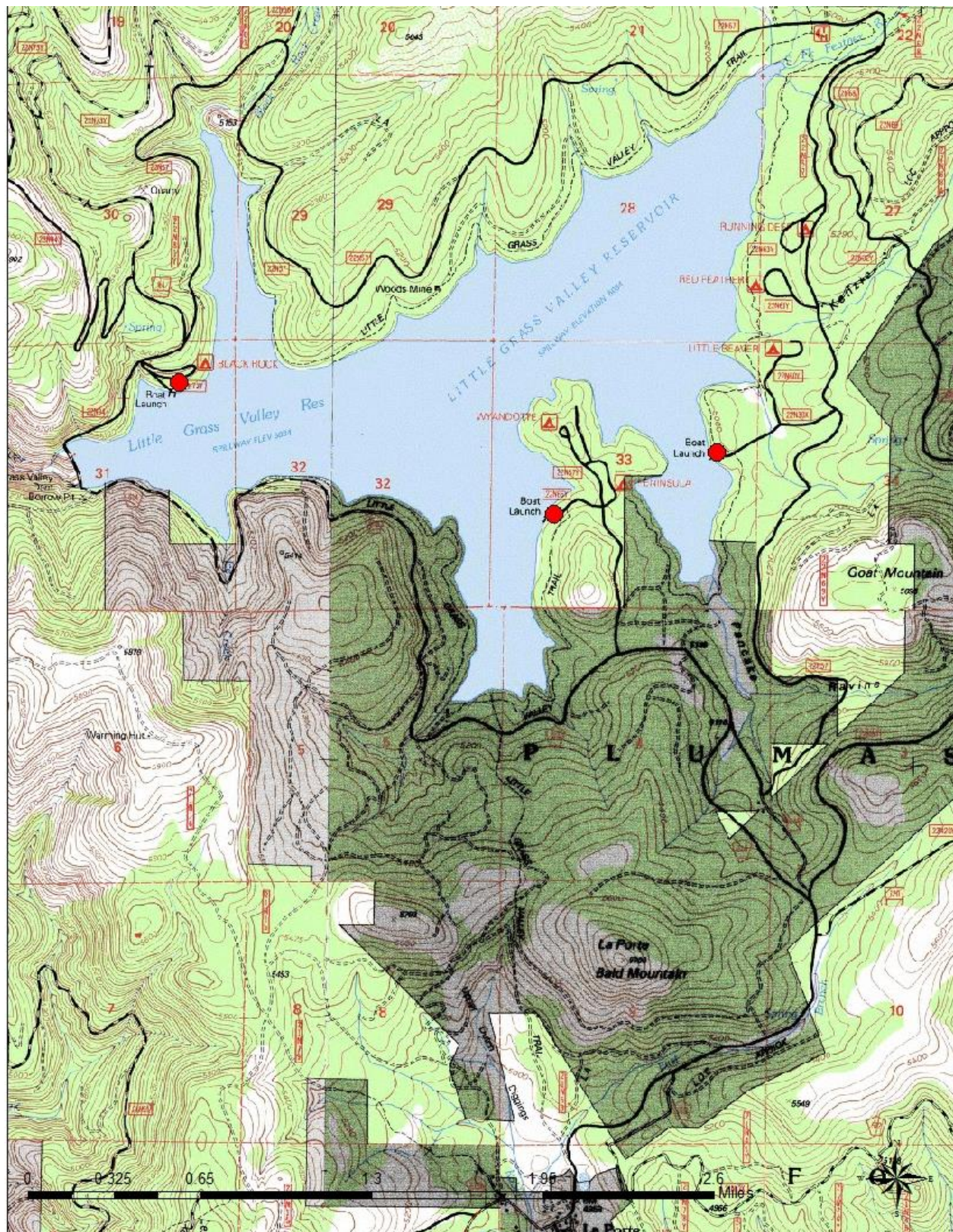
**Table 30.** Angler satisfaction response averages for Lake Davis, 2016 - 2019.

Year	Overall angling experience	Size of fish	Number of fish
2016	-0.21	0.53	-0.84
2017	-0.65	0.26	-1.22
2018	0.57	0.58	0.26
2019	0.74	0.70	0.37

## Little Grass Valley Reservoir (CA Lake ID 12183)

Little Grass Valley Reservoir is a 1393.4 surface acre artificial lake created in 1961 and is part of the South Fork Feather River drainage. The reservoir sits at an elevation of 5,036 feet about one mile north of La Porte, CA (CNDDDB). Rainbow Trout are a native species in the South Fork Feather River drainage; a tributary of the Feather River hydrological basin which contains native salmonid, cyprinid, and other fish species (Moyle 2002). The recreational fishery at Little Grass Valley Reservoir is primarily comprised of KOK, RT, and BN (Shaffer 2005). In order to assess the fishery and associated angler satisfaction at Little Grass Valley Reservoir, a total of three Angler Survey Boxes were installed at Black Rock, Tooms, and Maidu Launching Facility boat ramps in 2018 (**Figure 25**). More detailed information on the fishery at Little Grass Valley Reservoir can be found in the *Lake Davis Pike Eradication 2008 Post-Project Monitoring of Other Waters of Plumas County* report (LaCoss & Rossi 2012).





**Figure 25.** Map of Little Grass Valley Reservoir, Plumas County. Red dots on map indicate the locations of the Angler Survey Boxes.



Catch results from 2018 through 2019 were comprised of BN, KOK, LMB, RT, and Spotted Bass (*Micropterus punctulatus*, SPB). In 2018, five anglers responded to the survey and reported catching 48 fish during 19 hours of fishing. The average catch rate for this time period was 2.5 fish per hour fished. In 2019, 26 anglers responded to the survey and reported catching 108 fish during 108.4 hours of fishing. The average catch rate for this time period was 1.0 fish per hour fished (**Table 31**).

**Table 31.** Collection of average effort and catch statistics recorded from the 2018 - 2019 Angler Survey Box at Little Grass Valley Reservoir.

Year	Anglers	Hours Fished	Fish Landed	Catch per Angler	Fish per Hour	Hours per Angler
2018	5	19.0	48	9.6	2.5	3.8
2019	26	108.4	108	4.2	1.0	4.2

Anglers used either bait, flies, lures, or a combination of multiple types while fishing Little Grass Valley Reservoir (**Table 32**). In 2019, seven anglers used bait and had a 1.4 catch per angler rate, while only one angler solely used flies and also had a 9.0 catch per angler rate. Fourteen anglers used lures and had a 5.3 catch per angler rate. Two anglers reported using multiple gear methods and had a 0.0 catch per angler rate in 2019 and the two anglers that did not answer (DNA) had a 7.5 catch per angler rate. On average, lure fishing (8.4 fish per angler) appeared to have the best overall average catch per angler rate over the two-year survey period.

**Table 32.** The frequency of anglers that recorded their gear method and their corresponding catch rates in 2018-2019 at Little Grass Valley Reservoir.

	2018		2019	
Angling Method	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler
Bait	1	2.0	7	1.4
Fly	0	NA	1	9.0
Lure	2	11.5	14	5.3
Multiple	2	11.5	2	0.0
DNA	0	NA	2	7.5

In 2019, eleven anglers (42.3%) reported fishing from a boat, which resulted in the best success mode reported in terms of catch per angler (5.1 fish/angler). Fishing from a boat also represented the most success in 2018. In 2019, two anglers (7.7%) reported

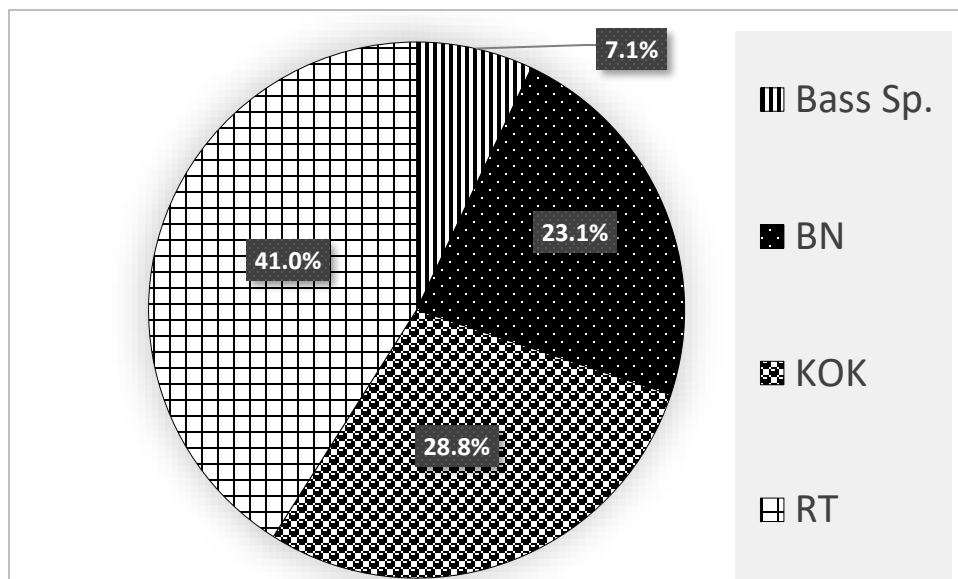


fishing from a float tube or kayak, resulting in a 3.5 catch per angler rate. Six anglers (23.1%) reported fishing from shore, resulting in a 2.5 catch per angler rate, and represented the overall least success in 2019. Seven anglers (26.9%) did not report their method of fishing, resulting in a 4.3 catch per angler rate (**Table 33**).

**Table 33.** The number of anglers and catch per angler based on angling method in 2018-2019 at Little Grass Valley Reservoir.

Method	2018		2019	
	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	60.0%	12.7	42.3%	5.1
Float Tube/ Kayak	0.0%	NA	7.7%	3.5
Shore/ Wading	0.0%	NA	23.1%	2.5
Not Recorded	40.0%	5.0	26.9%	4.3

Over the two-year survey period combined, most of the fish caught were RT (41.0%), followed by KOK (28.8%), BN (23.1%), and Bass species (7.1%) (**Figure 26**).

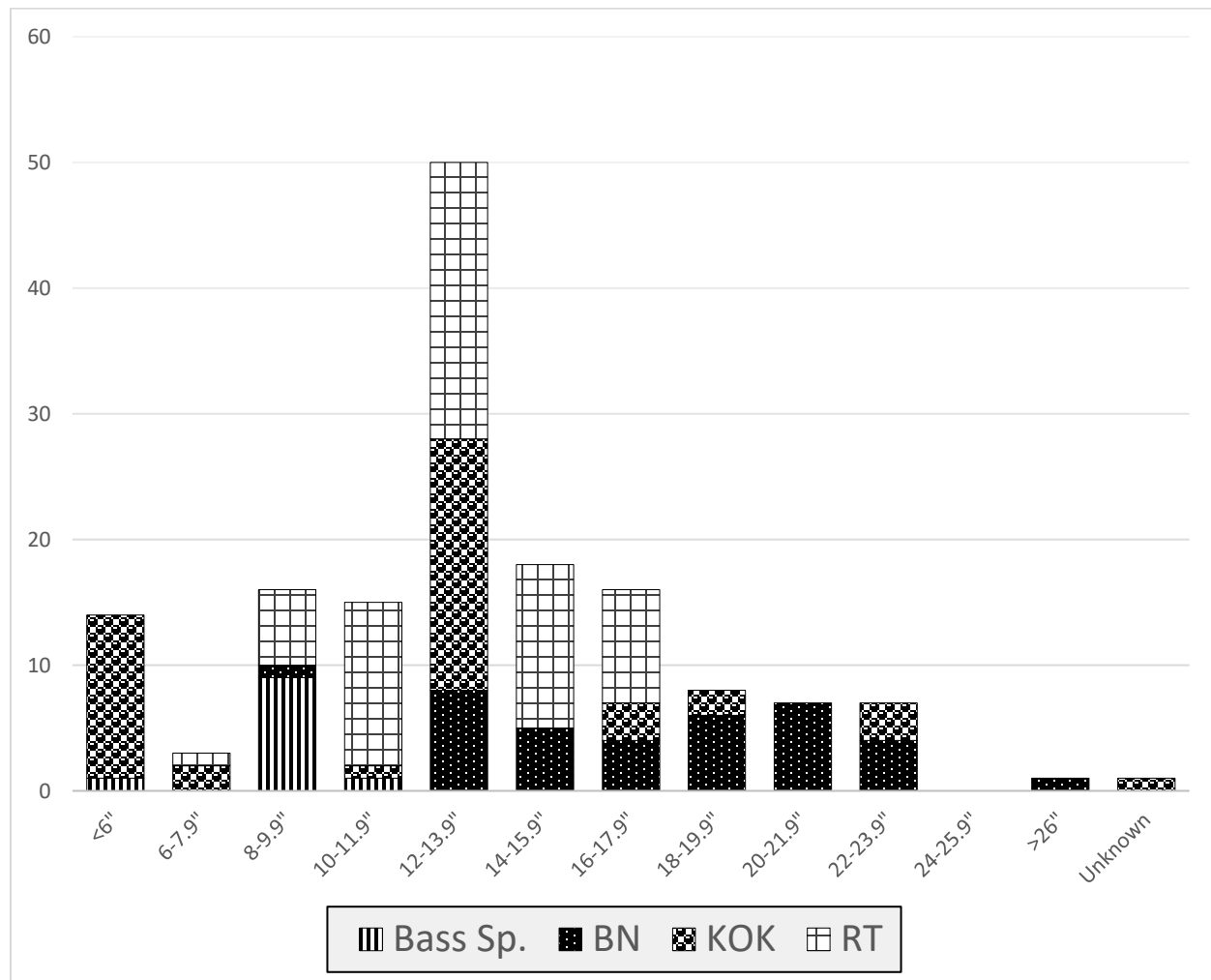


**Figure 26.** Species composition of fish reported during the 2018-2019 ASB survey seasons at Little Grass Valley Reservoir.

The modal size class for 2019, representing all fish kept and released, was 12-13.9 inches. This was the same as the 2018, 12-13.9 in. modal size class (**Table 34**). Over the two-year survey period combined, all fish caught ranged from the <6 in. to the >26 in. size classes (**Figure 27**).

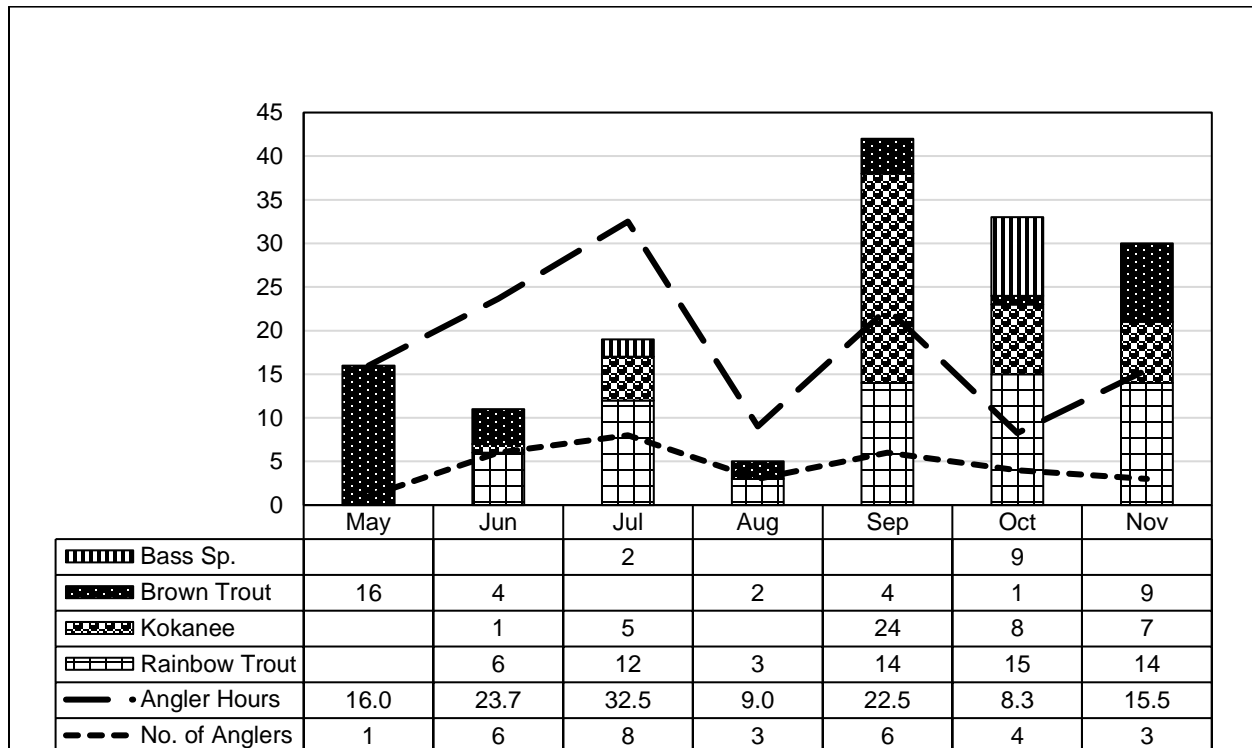
**Table 34.** Kept and released fish and modal size class from 2018 - 2019 at Little Grass Valley Reservoir.

All Fish					
Year	Kept	Released	Total Reported	Modal Size Class	Percent Kept
2018	33	15	48	12-13.9"	68.8%
2019	47	61	108	12-13.9"	43.5%



**Figure 27.** Size classes of fish reported during the 2018-2019 ASB survey seasons at Little Grass Valley Reservoir.

September (1.9 CPUE) had the highest overall number of fish caught over the two-year ASB survey period. However, July had the most angling use in regard to hours spent angling and quantity of anglers. Although July had 24.2 more hours spent angling than October, the CPUE varied greatly between the two times of year. July had a 0.6 CPUE, while October had the best CPUE of 4.0 fish per hour (**Figure 28**).



**Figure 28.** Angling effort and catch by month reported during the 2018-2019 ASB survey seasons at Little Grass Valley Reservoir.

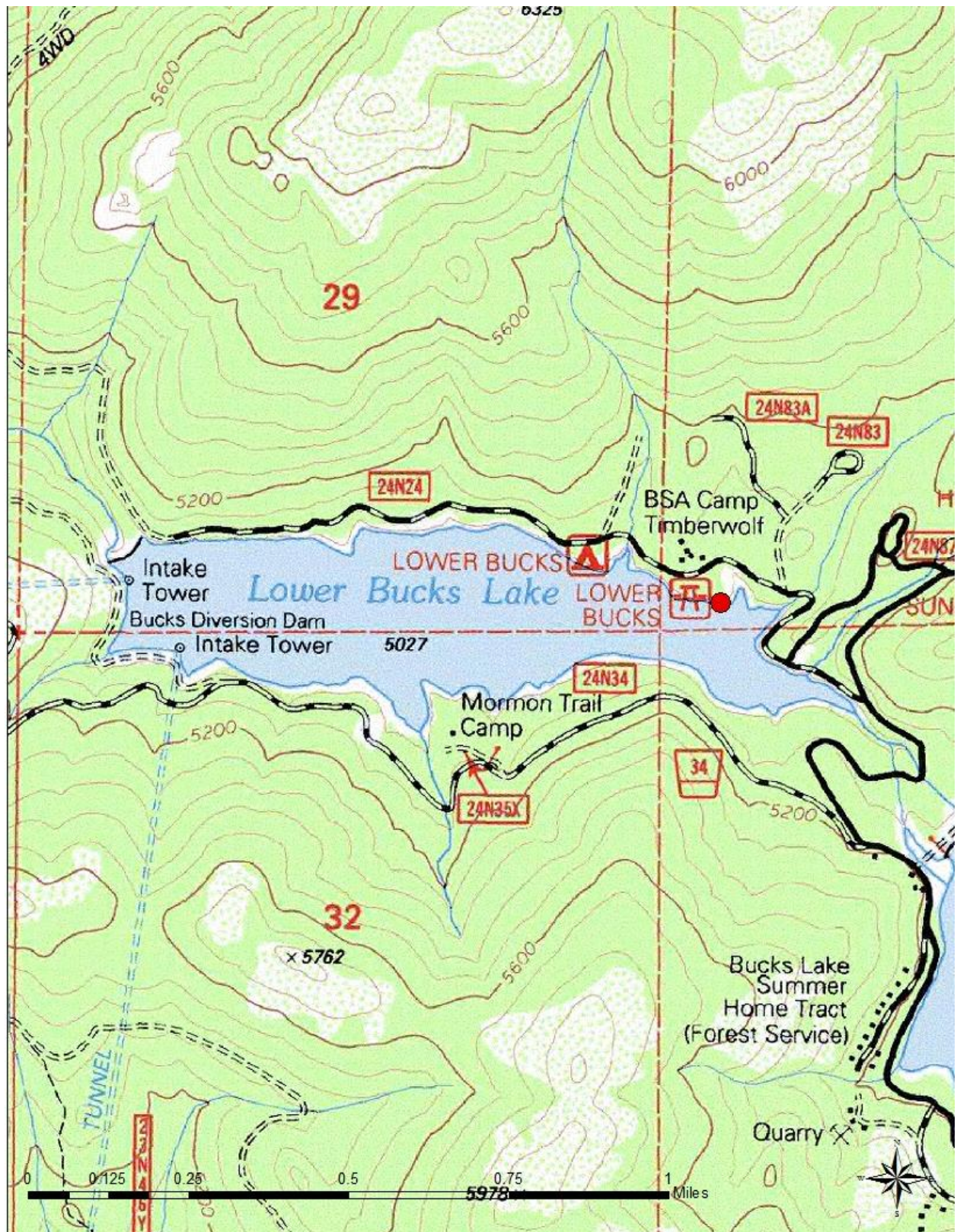
In 2019, anglers had a positive overall angling experience which decreased slightly from the average responses in 2018. Like the overall angling experience, the size of fish satisfaction and number of fish average satisfaction also decreased. All three categories still maintained a slightly positive average value (**Table 35**).

**Table 35.** Angler satisfaction response averages for Little Grass Valley Reservoir, 2018 - 2019.

Year	Overall angling experience	Size of fish	Number of fish
2018	1.00	0.60	1.60
2019	0.52	0.57	0.39

## Lower Bucks Lake (CA Lake ID 12098)

Lower Bucks Lake is a 136-surface acre artificial lake created as part of the Bucks Creek Hydroelectric Project. The reservoir sits at an elevation of 5,030 feet (CNDDDB) and is surrounded by mixed conifer forest. The shoreline often consists of exposed bank composed of sand and gravel, with patches of grasses, forbs, and willows (PG&E 2016). Lower Bucks Lake feeds Bucks Creek, which feeds the North Fork Feather River; a tributary to the Feather River hydrological basin which contains native salmonid, cyprinid, and other fish species (Moyle 2002). The recreational fishery at Lower Bucks Lake is primarily comprised of kokanee, RT, BN, BK, and LT (Shaffer 2005). The reservoir is currently stocked with RT, BN, and KOK to fulfill a contractual restocking obligation (Lower Bucks Lake PSE). In order to assess the fishery and associated angler satisfaction at Lower Bucks Lake, CDFW installed an Angler Survey Box at the unimproved public boat launch on the northern side of the lake in 2017 (**Figure 29**). More detailed information on the fishery at Lower Bucks Lake can be found in the *Lower Bucks Lake Fish Restocking Plan 2021-2022* (PG&E 2020).



**Figure 29.** Map of Lower Bucks Lake, Plumas County. Red dot on map indicates the location of the Angler Survey Box.



Catch results from 2017 through 2019 were comprised of BK, BN, KOK, LT, RT, and unknown species. In 2017, two anglers responded to the survey and reported catching two fish during 15 hours of fishing. The average catch rate for this time period was 0.1 fish per hour fished. In 2018, five anglers responded to the survey and reported catching 27 fish during 33 hours of fishing. The average catch rate for this time period was 0.8 fish per hour fished. In 2019, six anglers responded to the survey and reported catching 13 fish during 31.5 hours of fishing. The average catch rate for this time period was 0.4 fish per hour fished (**Table 36**).

**Table 36.** Collection of average effort and catch statistics recorded from the 2017 - 2019 Angler Survey Box at Lower Bucks Lake.

Year	Anglers	Hours Fished	Fish Landed	Catch per Angler	Fish per Hour	Hours per Angler
2017	2	15.0	2	1.0	0.1	7.5
2018	5	33.0	27	5.4	0.8	6.6
2019	6	31.5	13	2.2	0.4	5.3

Anglers used either bait or lures while fishing Lower Bucks Lake (**Table 37**). In 2019, four anglers used bait and had a 1.8 catch per angler rate, while zero anglers solely used flies. Two anglers used lures and had a 3.0 catch per angler rate. Zero anglers reported using multiple gear methods and zero anglers did not answer (DNA). On average, lure fishing (4.0 fish per angler) appeared to have the best overall average catch per angler rate over the three-year survey period.

**Table 37.** The frequency of anglers that recorded their gear method and their corresponding catch rates in 2017-2019 at Lower Bucks Lake.

	2017		2018		2019	
Angling Method	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler
Bait	1	0.0	1	0.0	4	1.8
Fly	0	NA	0	NA	0	NA
Lure	1	0.0	3	9.0	2	3.0
Multiple	0	NA	0	NA	0	NA
DNA	1	2.0	1	0.0	0	NA

In 2019, two anglers (33.3%) reported fishing from a boat, which resulted in the best success mode reported in terms of catch per angler (3.0 fish/angler). No fishing method was reported in 2017 or 2018. In 2019, one angler (16.7%) reported fishing from a float tube or kayak, resulting in a 1.0 catch per angler rate. Two anglers (33.3%) reported fishing from shore, resulting in a 2.5 catch per angler rate, and represented the overall

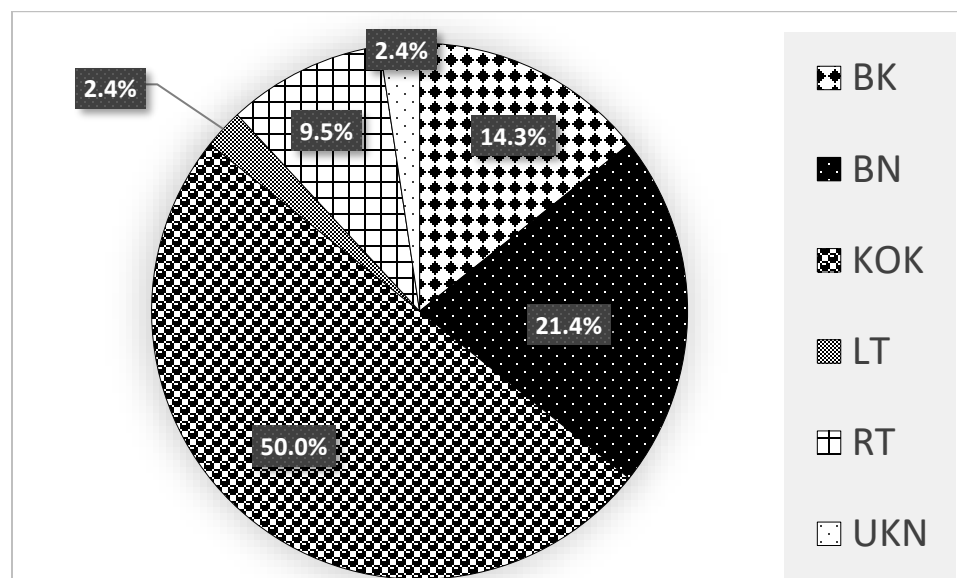


best success in 2019. One angler (16.7%) did not report their method of fishing, resulting in a 1.0 catch per angler rate (**Table 38**).

**Table 38.** The number of anglers and catch per angler based on angling method 2017-2019 at Lower Bucks Lake.

Method	2017		2018		2019	
	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	0.0%	NA	0.0%	NA	33.3%	3.0
Float Tube/ Kayak	0.0%	NA	0.0%	NA	16.7%	1.0
Shore/ Wading	0.0%	NA	0.0%	NA	33.3%	2.5
Not Recorded	100.0%	0.7	100.0%	5.4	16.7%	1.0

Over the three-year survey period combined, most of the fish caught were KOK (50.0%) followed by BN (21.4%), BK (14.3%), RT (9.5%), LT (2.4%) and unknown species (2.4%), (**Figure 30**).

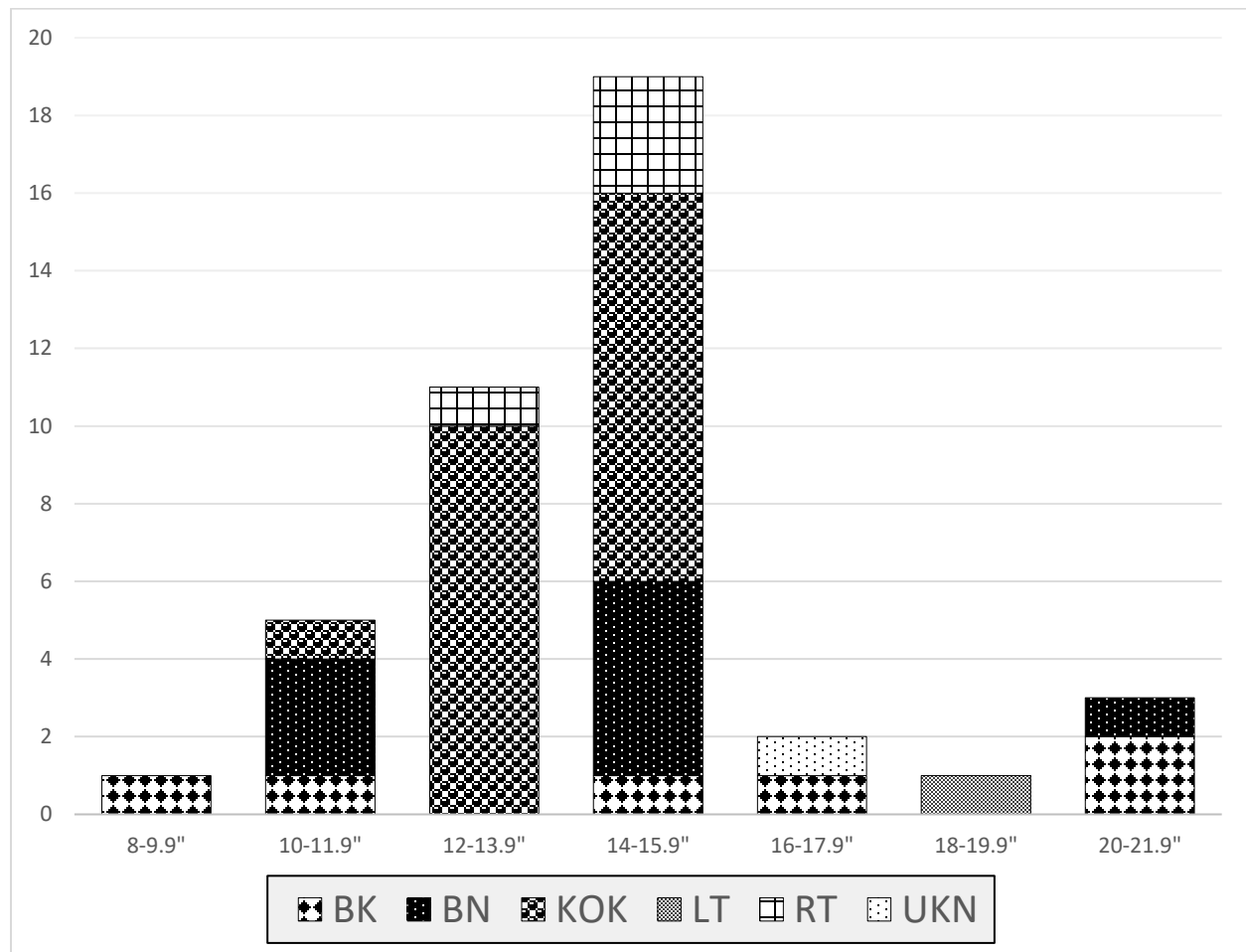


**Figure 30.** Species composition of fish reported during the 2017-2019 ASB survey seasons at Lower Bucks Lake.

The modal size class for 2019, representing all fish kept and released, was 10-11.9 inches. This was smaller than the 14-15.9 in. modal size class observed in both 2017 and 2018 (**Table 39**). Over the three-year survey period combined, all fish caught ranged from the 8-9.9 in. to the 20-21.9 in. size classes (**Figure 31**).

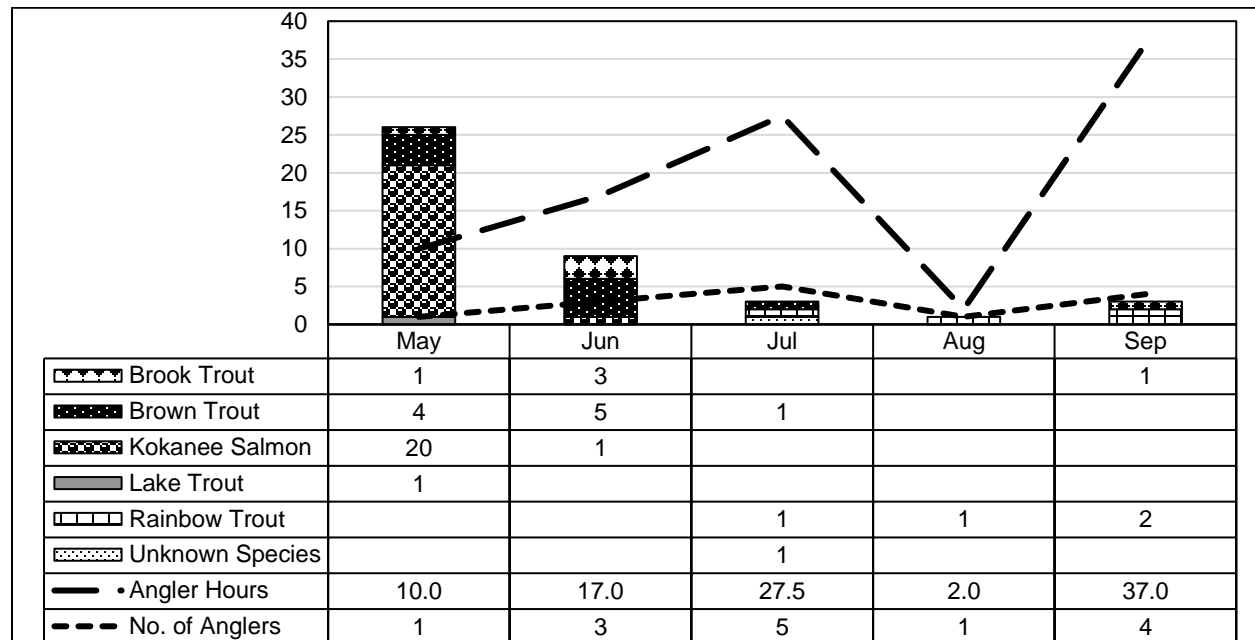
**Table 39.** Kept and released fish and modal size class from 2017 - 2019 at Lower Bucks Lake.

All Fish					
Year	Kept	Released	Total Reported	Modal Size Class	Percent Kept
2017	1	1	2	14-15.9"	50.0%
2018	22	5	27	14-15.9"	81.5%
2019	13	0	13	10-11.9"	100.0%



**Figure 33.** Size classes of fish reported during the 2017-2019 ASB survey seasons at Lower Bucks Lake.

May had the highest overall number of fish caught over the three-year ASB survey period and July represented the highest quantity of anglers. July also had the most angling use in regard to hours spent angling. May had the best CPUE of 2.6 fish per hour (Figure 32).



**Figure 32.** Angling effort and catch by month reported during the 2017-2019 ASB survey seasons at Lower Bucks Lake.

In 2019, anglers had a positive overall angling experience which seemed to come up from the average responses in 2018 and 2017. 2019 demonstrated a similar trend for the three-year survey period for size of fish satisfaction and number of fish average satisfaction (Table 40).

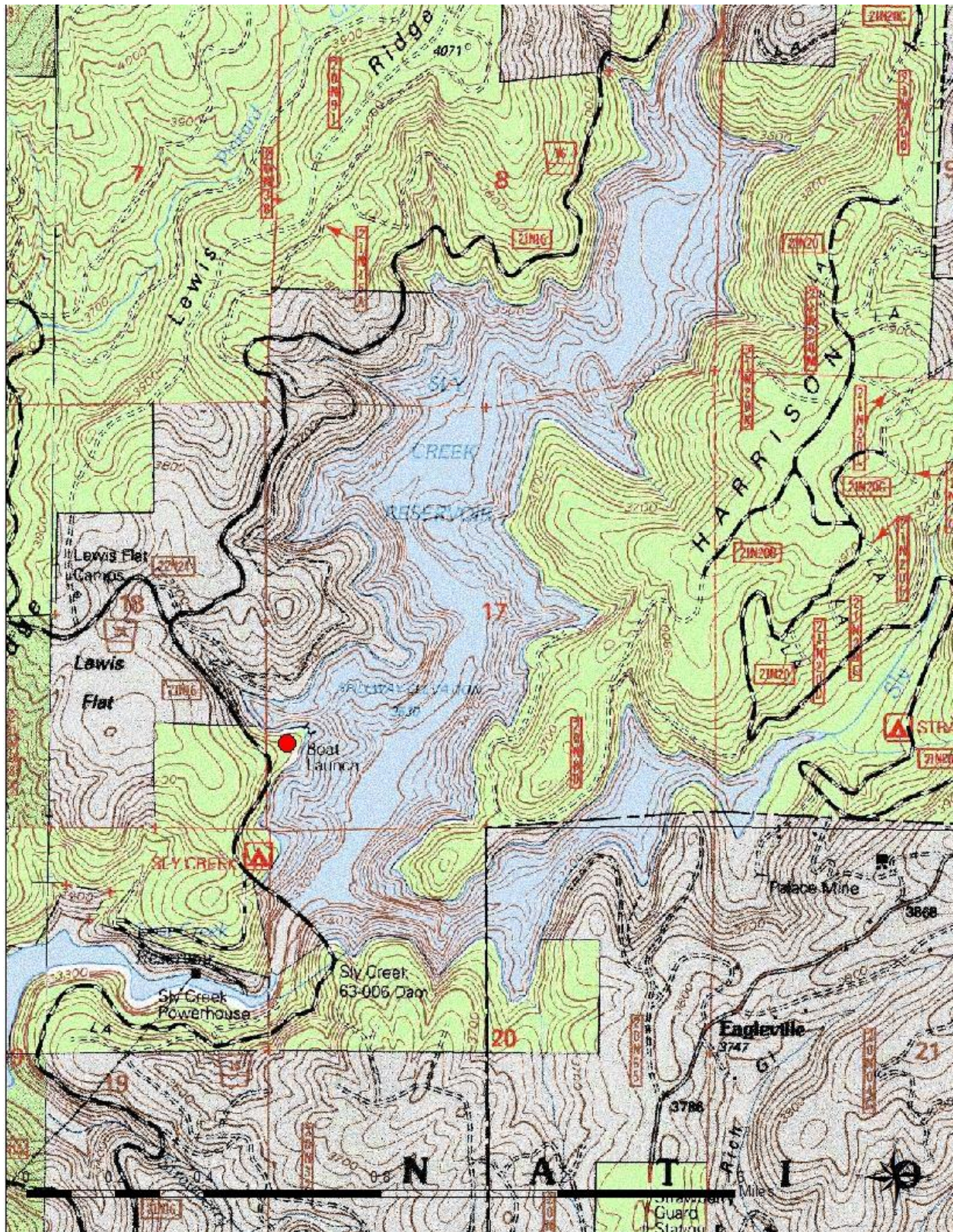
**Table 40.** Angler satisfaction response averages for Lower Bucks Lake, 2016 - 2019.

Year	Overall angling experience	Size of fish	Number of fish
2017	-1.50	-2.00	-2.00
2018	0.00	-0.20	-0.20
2019	0.50	0.80	0.60

## Sly Creek Reservoir (Butte/Plumas County) (CA Lake ID 12347)

Sly Creek Reservoir is a 617.6 surface acre artificial lake created in 1961 and is part of the South Fork Feather River drainage. The reservoir sits at an elevation of 3,530 feet about one and a half miles north of Strawberry Valley, CA (CNDDDB). Rainbow Trout are a native species in the South Fork Feather River drainage; a tributary of the Feather River hydrological basin which contains native salmonid, cyprinid, and other fish species (Moyle 2002). The recreational fishery at Sly Creek Reservoir is primarily comprised of RT, BN (Shaffer 2005), and SPB. The reservoir is currently stocked with RT (Sly Creek Reservoir PSE). In order to assess the fishery and associated angler satisfaction at Sly Creek Reservoir, CDFW installed an Angler Survey Box at the Mooreville Boat Launch Ramp, a public boat launch on the southwestern side of the lake, in 2017 (**Figure 33**). More detailed information on the fishery at Sly Creek Reservoir can be found in the *Butte County fisheries monitoring – Sly Creek Reservoir* memorandum (Mouser 2017d).





**Figure 33.** Map of Sly Creek Reservoir, Plumas County. Red dot on map indicates the location of the Angler Survey Box.



Catch results from 2018 through 2019 were comprised of SPB and RT. In 2018, one angler responded to the survey and reported catching 14 fish during 8.0 hours of fishing. The average catch rate for 2018 was 1.8 fish per hour. In 2019, six anglers responded to the survey and reported catching 72 fish during 26.0 hours of fishing. The average catch rate for this time period was 2.8 fish per hour fished (**Table 41**).

**Table 41.** Collection of average effort and catch statistics recorded from the 2018 - 2019 Angler Survey Box at Sly Creek Reservoir.

Year	Anglers	Hours Fished	Fish Landed	Catch per Angler	Fish per Hour	Hours per Angler
2018	1	8.0	14	14.0	1.8	8.0
2019	6	26.0	72	12.0	2.8	4.3

Anglers used either bait or lures while fishing Sly Creek Reservoir (**Table 42**). In 2019, three anglers used bait and had a 13.7 catch per angler rate, while zero anglers reported using flies. Three anglers used lures and had a 10.3 catch per angler rate. Zero anglers reported using multiple gear methods in 2019 and zero anglers did not answer (DNA). On average, bait fishing (13.9 fish per angler) appeared to have the best overall average catch per angler rate over the two-year survey period.

**Table 42.** The frequency of anglers that recorded their gear method and their corresponding catch rates in 2018-2019 at Sly Creek Reservoir.

Angling Method	2018		2019	
	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler
Bait	1	14.0	3	13.7
Fly	0	NA	0	NA
Lure	0	NA	3	10.3
Multiple	0	NA	0	NA
DNA	0	NA	0	NA

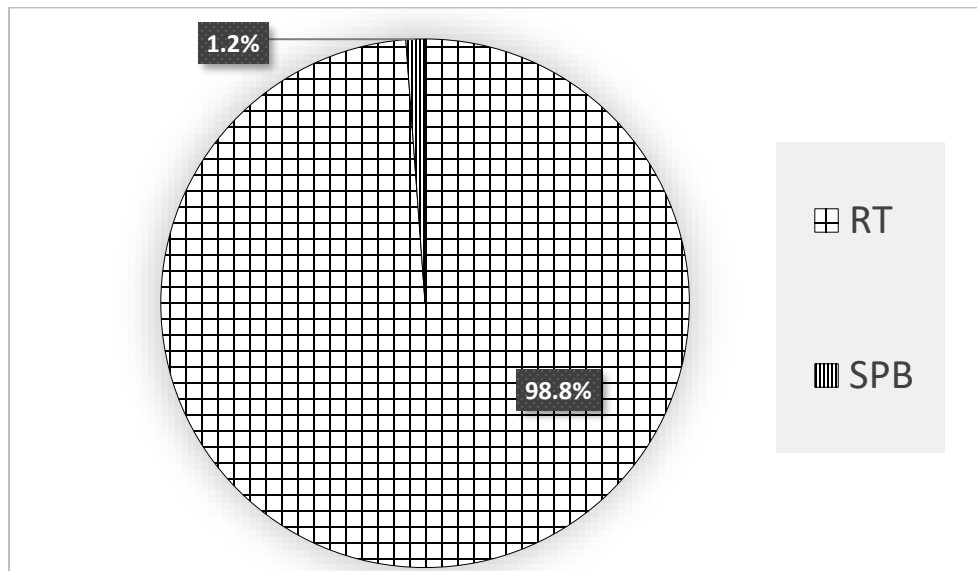
In 2019, three anglers (50.0%) reported fishing from a boat, which resulted in the best success mode reported in terms of catch per angler (23.0 fish/angler). Fishing from a boat also represented the most success in 2018. In 2019, zero anglers reported fishing from a float tube or kayak. Three anglers (50.0%) reported fishing from shore, resulting in a 1.0 catch per angler rate, and represented the overall least success in 2019. Zero anglers did not report their method of fishing (**Table 43**).



**Table 43.** The number of anglers and catch per angler based on angling method 2018-2019 at Sly Creek Reservoir.

Method	2018		2019	
	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	100.0%	14.0	50.0%	23.0
Float Tube/ Kayak	0.0%	NA	0.0%	NA
Shore/ Wading	0.0%	NA	50.0%	1.0
Not Recorded	0.0%	NA	0.0%	NA

Over the two-year survey period combined, most of the fish caught were RT (98.8%), followed by SPB (1.2%) (**Figure 34**).

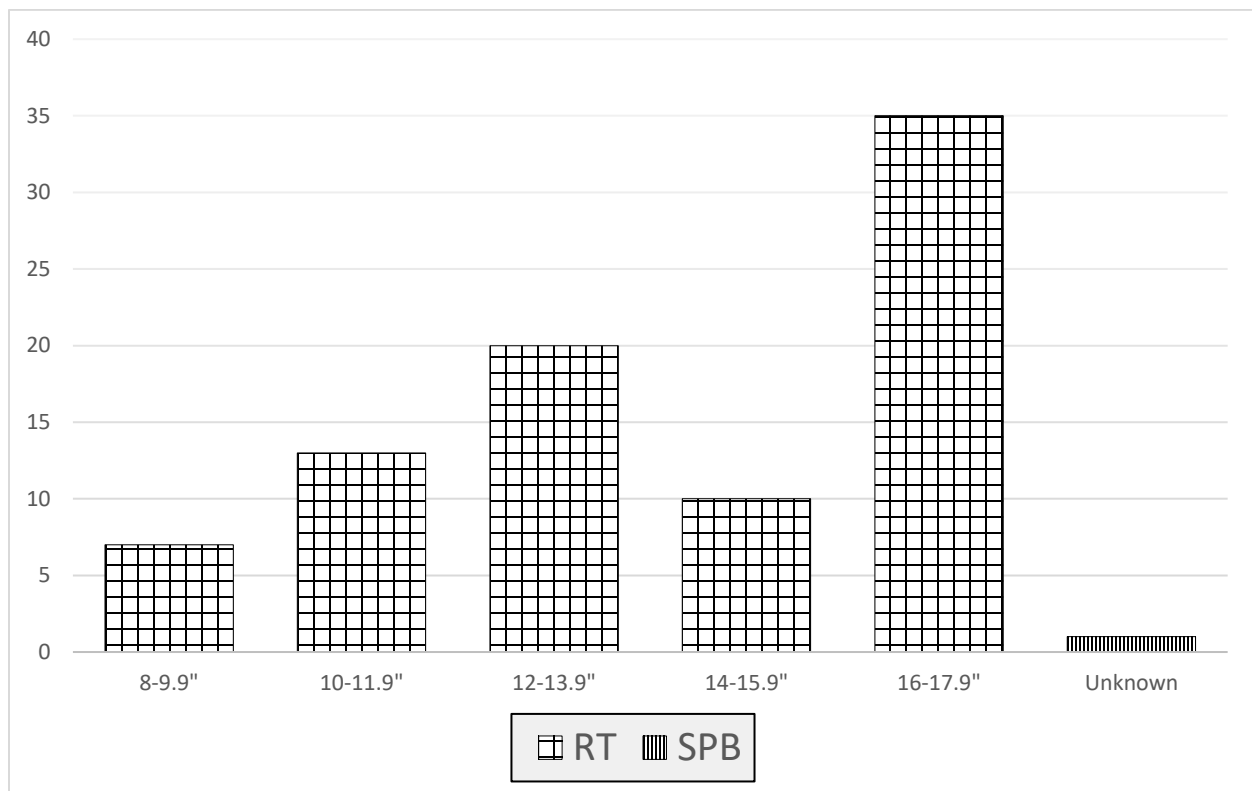


**Figure 34.** Species composition of fish reported during the 2018-2019 ASB survey seasons at Sly Creek Reservoir.

The modal size class for 2019, representing all fish kept and released, was 16-17.9 inches. This was the higher than the 8-9.9 in. and 10-11.9 in. modal size classes observed in 2018 (**Table 44**). Over the two-year survey period combined, all fish caught ranged from the 8-9.9 in. to the 16-17.9 in. size classes (**Figure 35**).

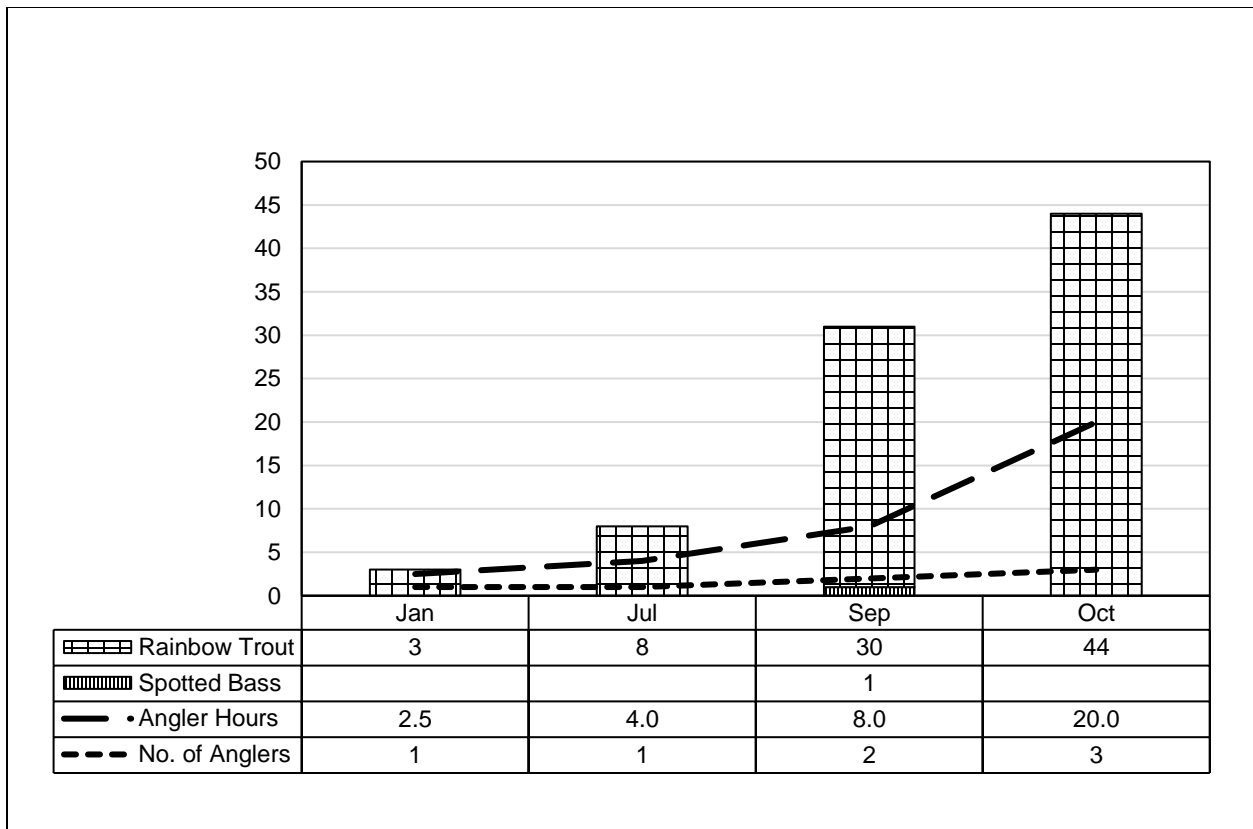
**Table 44.** Kept and released fish and modal size class from 2018 - 2019 at Sly Creek Reservoir.

All Fish					
Year	Kept	Released	Total Reported	Modal Size Class	Percent Kept
2018	14	0	14	8-9.9" & 10-11.9"	100.0%
2019	5	66	71	16-17.9"	7.0%



**Figure 35.** Size classes of fish reported during the 2018-2019 ASB survey seasons at Sly Creek Reservoir.

October (2.2 CPUE) had the highest overall number of fish caught over the two-year ASB survey period. October also had the most angling use in regard to hours spent angling and quantity of anglers. Although October had the highest overall number of fish caught, the most hours spent angling, and the highest quantity of anglers, September actually had the best CPUE of 3.9 fish per hour (**Figure 36**).



**Figure 36.** Angling effort and catch by month reported during the 2018-2019 ASB survey seasons at Sly Creek Reservoir.

In 2019, anglers had a positive overall angling experience which decreased slightly from the average responses in 2018. 2019 demonstrated a similar trend for the two-year survey period for size of fish satisfaction and number of fish average satisfaction. All three categories still maintained a positive average value (**Table 45**).

**Table 45.** Angler satisfaction response averages for Sly Creek Reservoir, 2018 - 2019.

Year	Overall angling experience	Size of fish	Number of fish
2018	2.00	1.00	2.00
2019	0.83	0.60	1.20

## ASB Implementation- Sierra County

### Gold Lake (CA Lake ID 12260)

Gold Lake is a 483.7 surface acre lake that feeds Frazier Creek and is part of the Middle Fork Feather River drainage. The reservoir sits at an elevation of 6,411 feet about 5.5 miles southwest of Graeagle, CA (CNDDDB). Rainbow Trout are a native species in the Middle Fork Feather River drainage; a tributary of the Feather River hydrological basin which contains native salmonid, cyprinid, and other fish species (Moyle 2002). The recreational fishery at Gold Lake is primarily comprised of LT and RT (Shaffer 2005). The reservoir is currently stocked with BK, BN, and RT (Gold Lake PSE). In order to assess the fishery and associated angler satisfaction at Gold Lake, CDFW installed an Angler Survey Box at the Gold Lake Boat Launch, a public boat launch on the northeastern side of the lake, in 2016 (**Figure 37**). More detailed information on the fishery at Gold Lake can be found in the *Fisheries Monitoring in Sierra County – Gold Lake and Little Gold Lake* memorandum (Mouser 2020).





**Figure 37.** Map of Gold Lake, Sierra County. Red dot on map indicates the location of the Angler Survey Box.



Catch results from 2016 through 2019 were comprised of BK, BN, LT, RT, and unknown species. In 2016, six anglers responded to the survey and reported catching 22 fish during 32.8 hours of fishing. The average catch rate for this time period was 0.7 fish per hour fished. In 2017, 31 anglers responded to the survey and reported catching 32 fish during 99 hours of fishing. The average catch rate for this time period was 0.3 fish per hour fished. In 2018, 13 anglers responded to the survey and reported catching 93 fish during 44.0 hours of fishing. The average catch rate for this time period was 2.1 fish per hour fished. The Angler Survey Box had run out of forms during the 2018 survey period. In 2019, 18 anglers responded to the survey and reported catching 117 fish during 79.3 hours of fishing. The average catch rate for this time period was 1.5 fish per hour fished (**Table 46**).

**Table 46.** Collection of average effort and catch statistics recorded from the 2016 - 2019 Angler Survey Box at Gold Lake.

Year	Anglers	Hours Fished	Fish Landed	Catch per Angler	Fish per Hour	Hours per Angler
2016	7	32.8	22	3.1	0.7	4.7
2017	31	99.0	32	1.0	0.3	3.2
2018	13	44.0	93	7.2	2.1	3.4
2019	18	79.3	117	6.5	1.5	4.4

Anglers used either bait, flies, lures, or a combination of multiple types while fishing Gold Lake (**Table 47**). In 2019, four anglers used bait and had a 5.5 catch per angler rate, while three anglers solely used flies and had a 1.7 catch per angler rate, and seven anglers used lures and had a 9.3 catch per angler rate. Three anglers used multiple gear methods and had an 8.0 catch per angler rate. The one angler that did not answer (DNA) had the lowest catch per angler rate (1.0 fish per angler) in 2019. On average, lure fishing (5.0 fish per angler) and those that used multiple types (5.0 fish per angler) appeared to have the best overall average catch per angler rate over the four-year survey period.

**Table 47.** The frequency of anglers that recorded their gear method and their corresponding catch rates in 2016-2019 at Gold Lake.

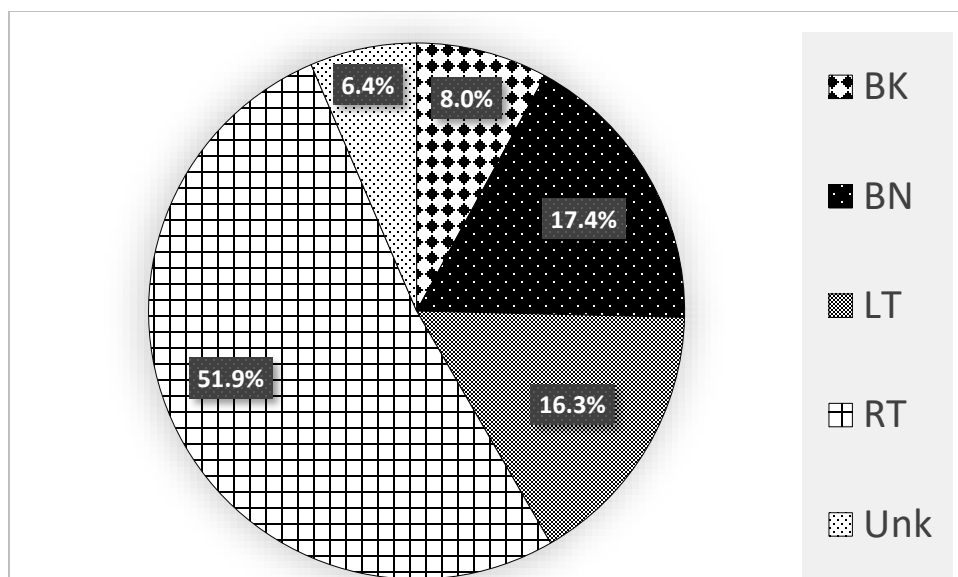
	2016		2017		2018		2019	
Angling Method	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler
Bait	1	2.0	4	3.5	3	3.7	4	5.5
Fly	0	NA	0	NA	2	13.0	3	1.7
Lure	5	3.0	8	0.4	7	7.1	7	9.3
Multiple	1	5.0	11	1.0	1	6.0	3	8.0
DNA	0	NA	8	0.5	0	NA	1	1.0

In 2019, 11 anglers (61.1%) reported fishing from a boat, which resulted in the best success in terms of catch per angler (9.1 fish/angler) (**Table 48**). Four anglers (22.2%) reported fishing from a float tube or kayak, which resulted in the least success in terms of catch per angler by those who reported their method (2.0 fish/angler). Three (16.7%) reported fishing from shore, resulting in a 3.0 catch per angler rate and zero anglers did not report their method of fishing. Over the four-year survey period most of the people who responded to the survey reported fishing from a boat.

**Table 48.** The number of anglers and catch per angler based on angling method in 2016-2019 at Gold Lake.

Method	2016		2017		2018		2019	
	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	0.0%	NA	29.0%	1.6	53.8%	6.0	61.1%	9.1
Float Tube/ Kayak	0.0%	NA	0.0%	NA	15.4%	13.0	22.2%	2.0
Shore/ Wading	14.3%	0.0	9.7%	3.0	23.1%	5.3	16.7%	3.0
Not Recorded	85.7%	3.7	61.3%	0.5	7.7%	9.0	NA	NA

Over the four-year survey period combined, most of the fish caught were RT (51.9%), followed by BN (17.4%), LT (16.3%), BK (8.0%), and unknown species (6.4%) (**Figure 38**).

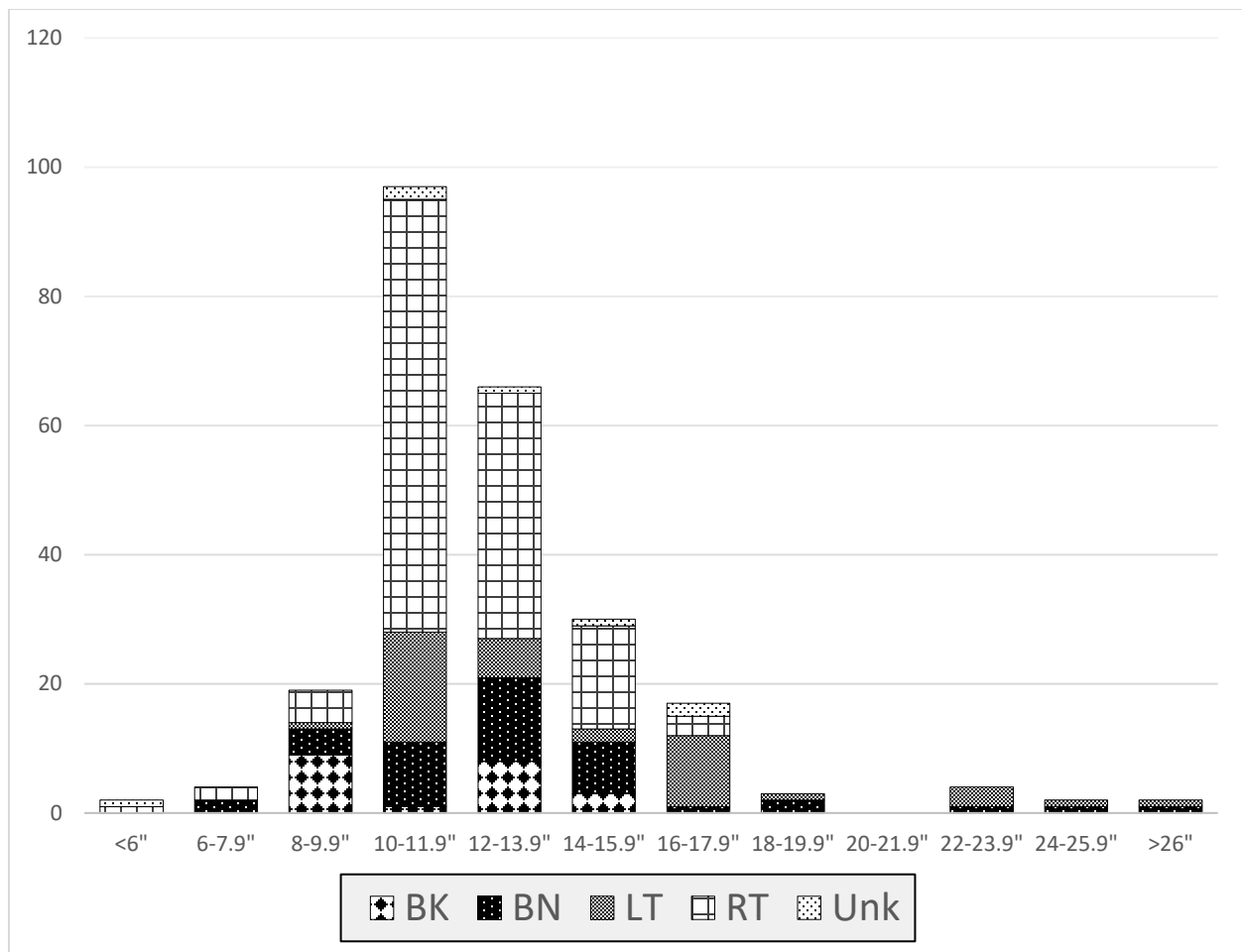


**Figure 38.** Species composition of fish reported during the 2016-2019 ASB survey seasons at Gold Lake.

The modal size class for 2019, representing all fish kept and released, was 10-11.9 inches. This was the smallest modal size class reported out of all four survey years (12-13.9 inches in all other survey years, 2016 through 2018) (**Table 49**). Over the four-year survey period combined, all fish caught ranged from the <6 in. to the >26 in. size classes (**Figure 39**).

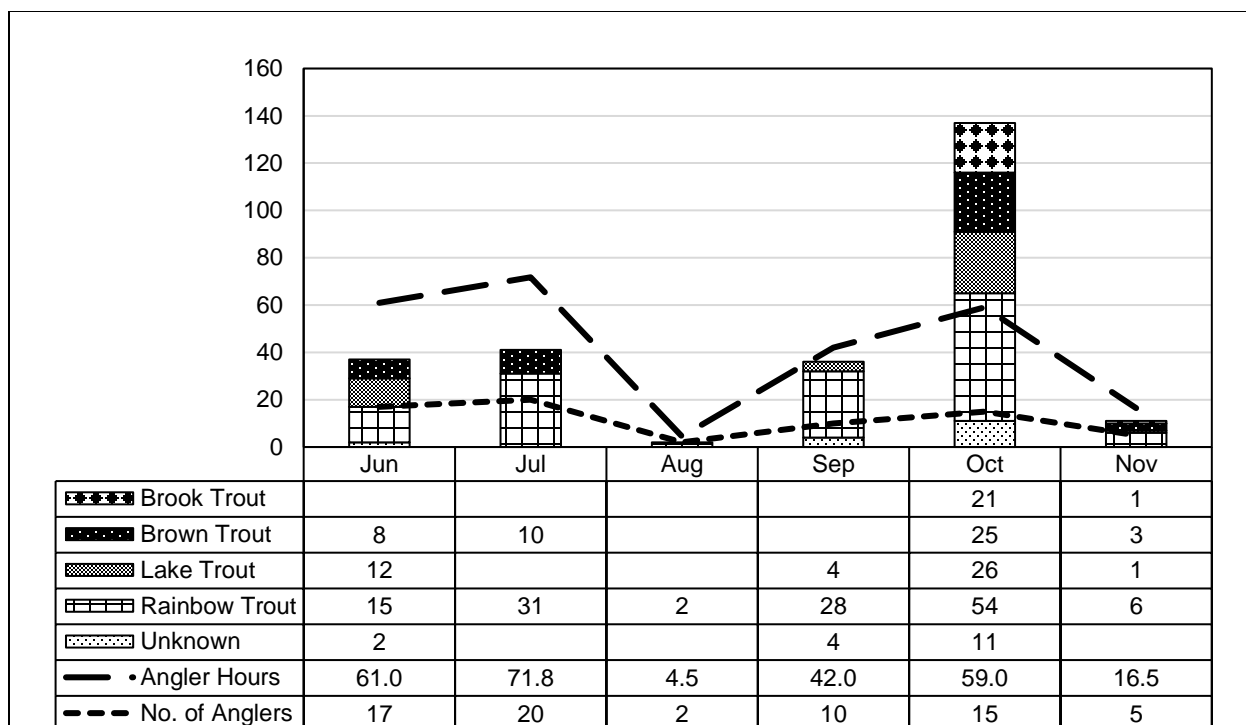
**Table 49.** Kept and released fish and modal size class from 2016 - 2019 at Gold Lake.

All Fish					
Year	Kept	Released	Total Reported	Modal Size Class	Percent Kept
2016	2	18	20	12-13.9"	10.0%
2017	19	11	30	12-13.9"	63.3%
2018	34	59	93	12-13.9"	36.6%
2019	49	68	117	10-11.9"	41.9%



**Figure 39.** Size classes of fish reported during the 2016-2019 ASB survey seasons at Gold Lake.

October had the highest overall number of fish caught over the four-year ASB survey period. July had the most angling use in regard to hours spent angling and also represented the highest quantity of anglers. Although July represented the highest use by anglers, the mid-summer month only had a CPUE of 0.6 fish per hour. October had the best CPUE of 2.3 fish per hour (**Figure 40**).



**Figure 40.** Angling effort and catch by month reported during the 2016-2019 ASB survey seasons at Gold Lake.

In 2019, anglers had a positive overall angling experience which seemed to be consistent with the average responses in 2016 and 2018. 2019 demonstrated a similar trend for the four-year survey period for size of fish satisfaction and number of fish average satisfaction. 2017 displayed an overall slightly negative response for the three categories (**Table 50**).

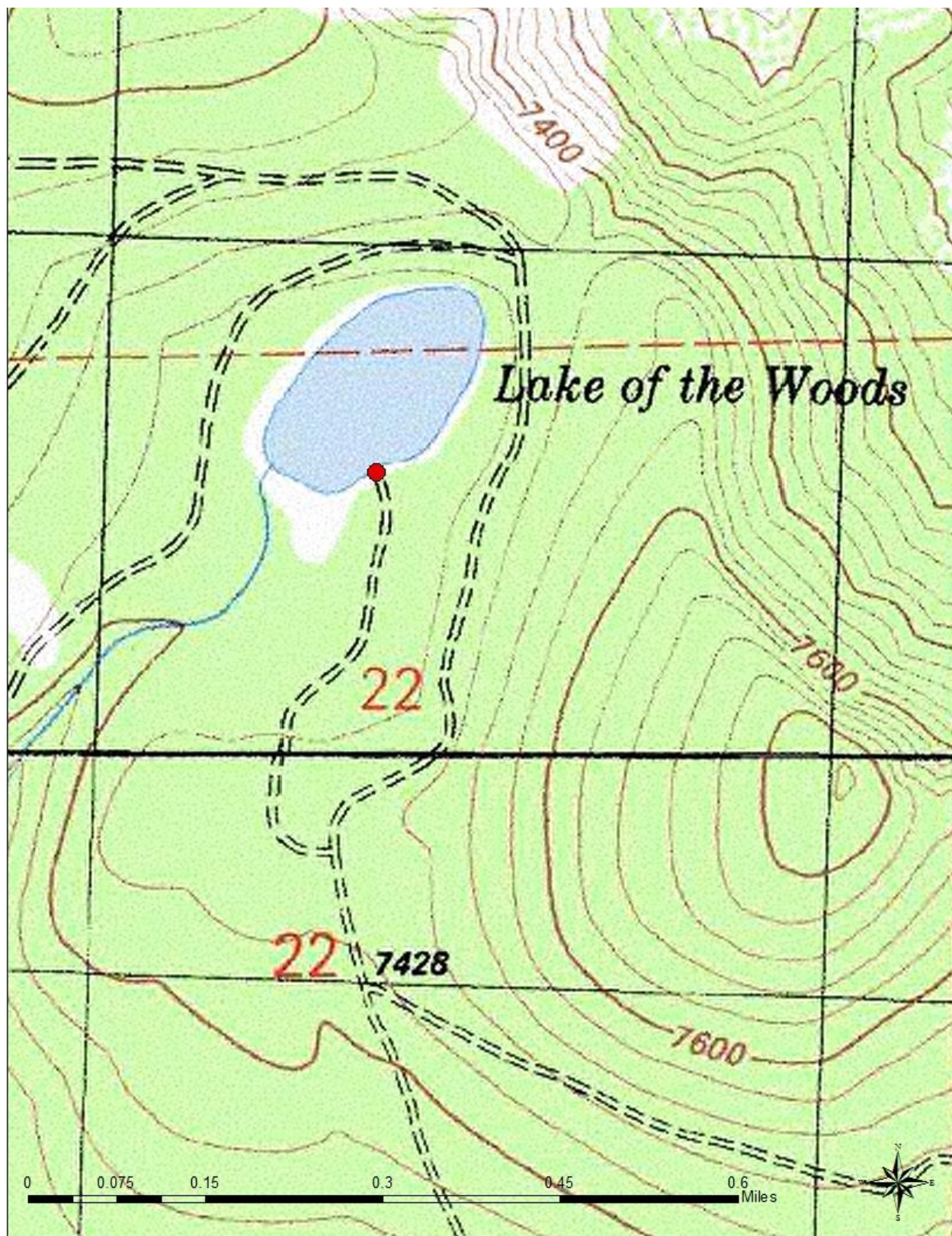
**Table 50.** Angler satisfaction response averages for Gold Lake, 2016 - 2019.

Year	Overall angling experience	Size of fish	Number of fish
2016	1.17	0.60	1.00
2017	-0.04	-0.17	-0.48
2018	1.73	1.45	1.64
2019	1.06	0.60	0.87



## Lake of the Woods (CA Lake ID 12438)

Lake of the Woods is a 13-surface acre lake that sits at an elevation of 7,422 feet. The lake is at the top of the Little Truckee River drainage (CNDDDB). LCT (*Oncorhynchus clarkii henshawi*, LCT) are native to the Little Truckee River watershed (Moyle 2002). The lake is currently stocked with LCT (Lake of The Woods PSE). In order to assess the fishery and associated angler satisfaction at Lake of the Woods, CDFW installed an Angler Survey Box at the main access point and information center on the southern side of the lake, in 2016 (**Figure 41**).



**Figure 41.** Map of Lake of the Woods, Sierra County. Red dot on map indicates the location of the Angler Survey Box.

Catch results from 2016 through 2019 were comprised of BK, BN, CAT, LCT, RT, and unknown species. In 2016, six anglers responded to the survey and reported catching five fish during 15.0 hours of fishing. The average catch rate for this time period was 0.3 fish per hour fished. In 2017, 12 anglers responded to the survey and reported catching 21 fish during 40.0 hours of fishing. The average catch rate for this time period was 0.5 fish per hour fished. In 2018, 11 anglers responded to the survey and reported catching 42 fish during 53.0 hours of fishing. The average catch rate for this time period was 0.8 fish per hour fished. In 2019, 19 anglers responded to the survey and reported catching 54 fish during 91.0 hours of fishing. The average catch rate for this time period was 0.6 fish per hour fished (**Table 51**).

**Table 51.** Collection of average effort and catch statistics recorded from the 2016 - 2019 Angler Survey Box at Lake of the Woods.

Year	Anglers	Hours Fished	Fish Landed	Catch per Angler	Fish per Hour	Hours per Angler
2016	4	15.0	5	1.3	0.3	3.8
2017	12	40.0	21	1.8	0.5	3.3
2018	11	53.0	42	3.8	0.8	4.8
2019	19	91.0	54	2.8	0.6	4.8

Anglers used either bait, flies, lures, or a combination of multiple types while fishing Lake of the Woods (**Table 52**). In 2019, nine anglers used bait and had a 3.1 catch per angler rate, while three anglers solely used flies and had a 2.7 catch per angler rate, and four anglers used lures and had a 3.5 catch per angler rate. Three anglers used multiple gear methods and had a 1.3 catch per angler rate. Bait fishing (2.8 fish per angler) and fly fishing (2.6 fish per angler) appeared to have the best average catch per angler rate over the four-year survey period.

**Table 52.** The frequency of anglers that recorded their gear method and their corresponding catch rates in 2016-2019 at Lake of the Woods.

	2016		2017		2018		2019	
Angling Method	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler
Bait	2	1.5	2	1.0	4	5.5	9	3.1
Fly	0	NA	6	2.0	6	3.2	3	2.7
Lure	1	1.0	3	2.3	1	1.0	4	3.5
Multiple	1	1.0	1	0.0	0	NA	3	1.3

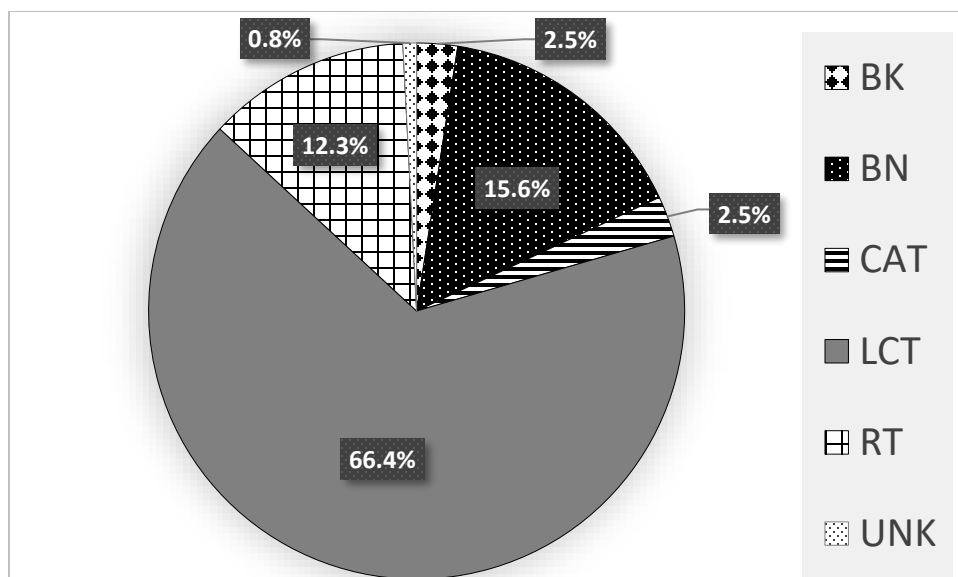
In 2019, zero anglers (0.0%) reported fishing from a boat (**Table 53**). Two anglers (10.5%) reported fishing from a float tube or kayak, which resulted in the most success

in terms of catch per angler (3.0 fish/angler). Sixteen anglers (84.2%) reported fishing from shore, resulting in a 2.9 catch per angler rate and one angler did not report their method of fishing which resulted in the least success in terms of catch per angler (2.0 fish/angler). Over the four-year survey period most of the people who responded to the survey reported fishing from shore or wading.

**Table 53.** The number of anglers and catch per angler based on angling method in 2016-2019 at Lake of the Woods.

	2016		2017		2018		2019	
Method	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	25.0%	1.0	50.0%	2.3	45.5%	4.8	0.0%	NA
Float Tube/ Kayak	0.0%	NA	50.0%	1.2	27.3%	4.3	10.5%	3.0
Shore/ Wading	75.0%	1.3	0.0%	NA	27.3%	1.7	84.2%	2.9
Not Recorded	0.0%	NA	0.0%	NA	0.0%	NA	5.3%	2.0

Over the four-year survey period combined, most of the fish caught were LCT (66.4%), followed by BN (15.6%), RT (12.3%), BK (2.5%), CAT (2.5%), and unknown species (0.8%) (**Figure 42**).



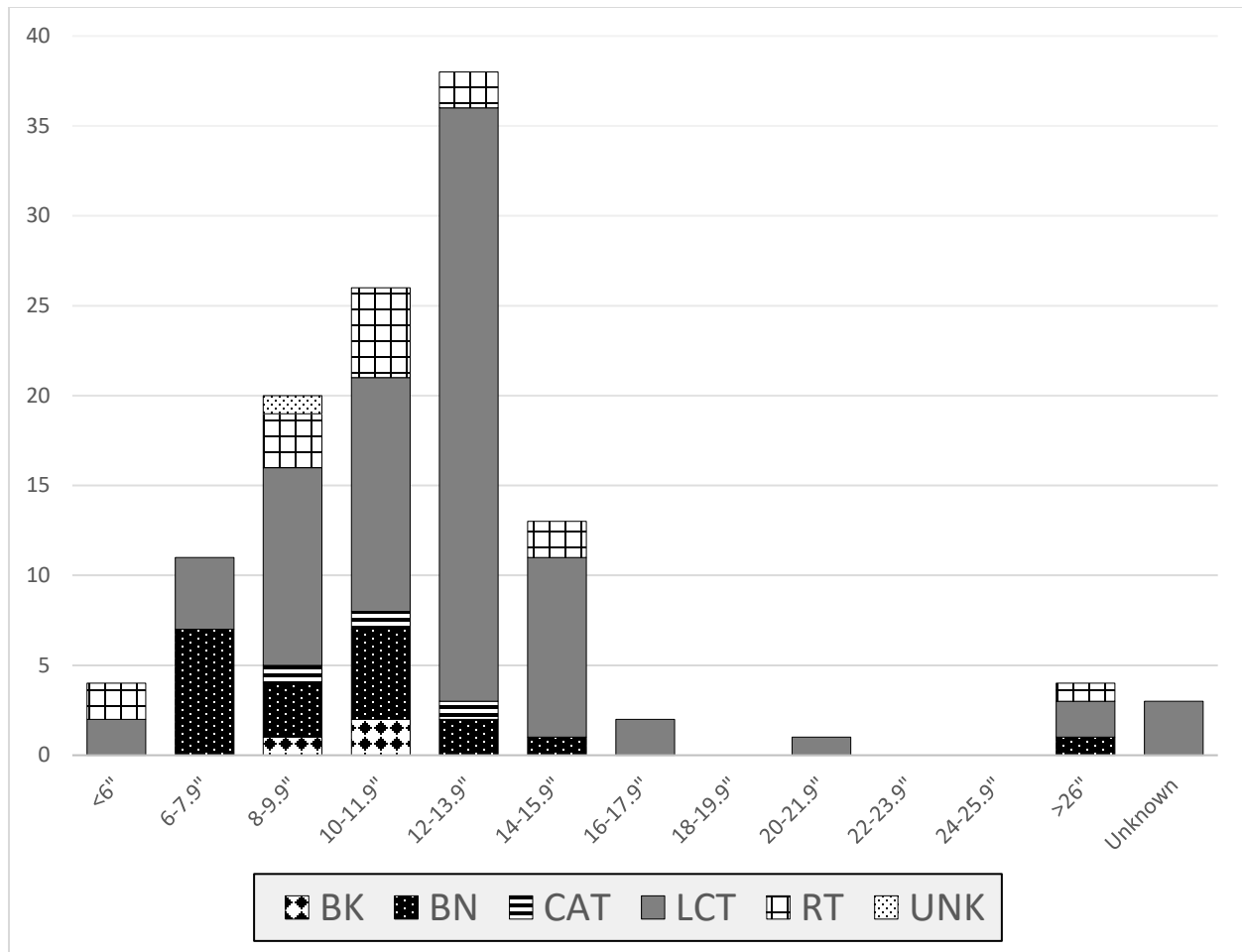
**Figure 42.** Species composition of fish reported during the 2016-2019 ASB survey seasons at Lake of the Woods.

The modal size class for 2019, representing all fish kept and released, was 12-13.9 inches. The same modal size class was also represented in 2017. The smallest modal size class reported out of all four survey years was 8-9.9 inches in 2018 (**Table 54**). Over the four-year survey period combined, all fish caught ranged from the <6 in. to the >26 in. size classes (**Figure 43**).

**Table 54.** Kept and released fish and modal size class from 2016 - 2019 at Lake of the Woods.

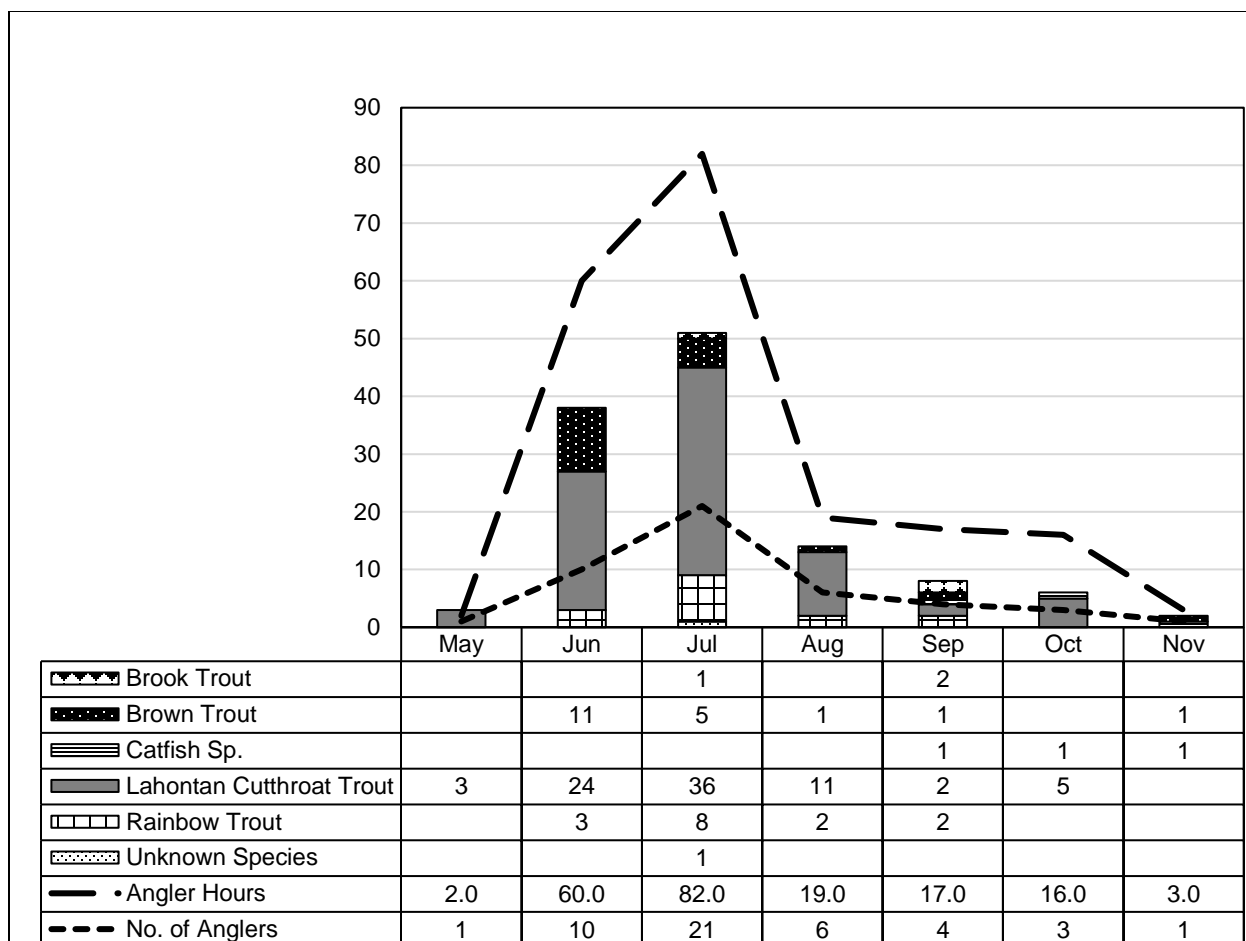
All Fish					
Year	Kept	Released	Total Reported	Modal Size Class	Percent Kept
2016	4	1	5	10-11.9"	80.0%
2017	7	14	21	12-13.9"	33.3%
2018	7	35	42	8-9.9"	16.7%
2019	27	27	54	12-13.9"	50.0%





**Figure 43.** Size classes of fish reported during the 2016-2019 ASB survey seasons at Lake of the Woods.

July had the highest overall number of fish caught over the four-year ASB survey period. July also had the most angling use in regard to hours spent angling and represented the highest quantity of anglers. Although July represented the highest use by anglers, the mid-summer month only had a CPUE of 0.6 fish per hour. May had the best CPUE of 1.5 fish per hour (**Figure 44**).



**Figure 44.** Angling effort and catch by month reported during the 2016-2019 ASB survey seasons at Lake of the Woods.

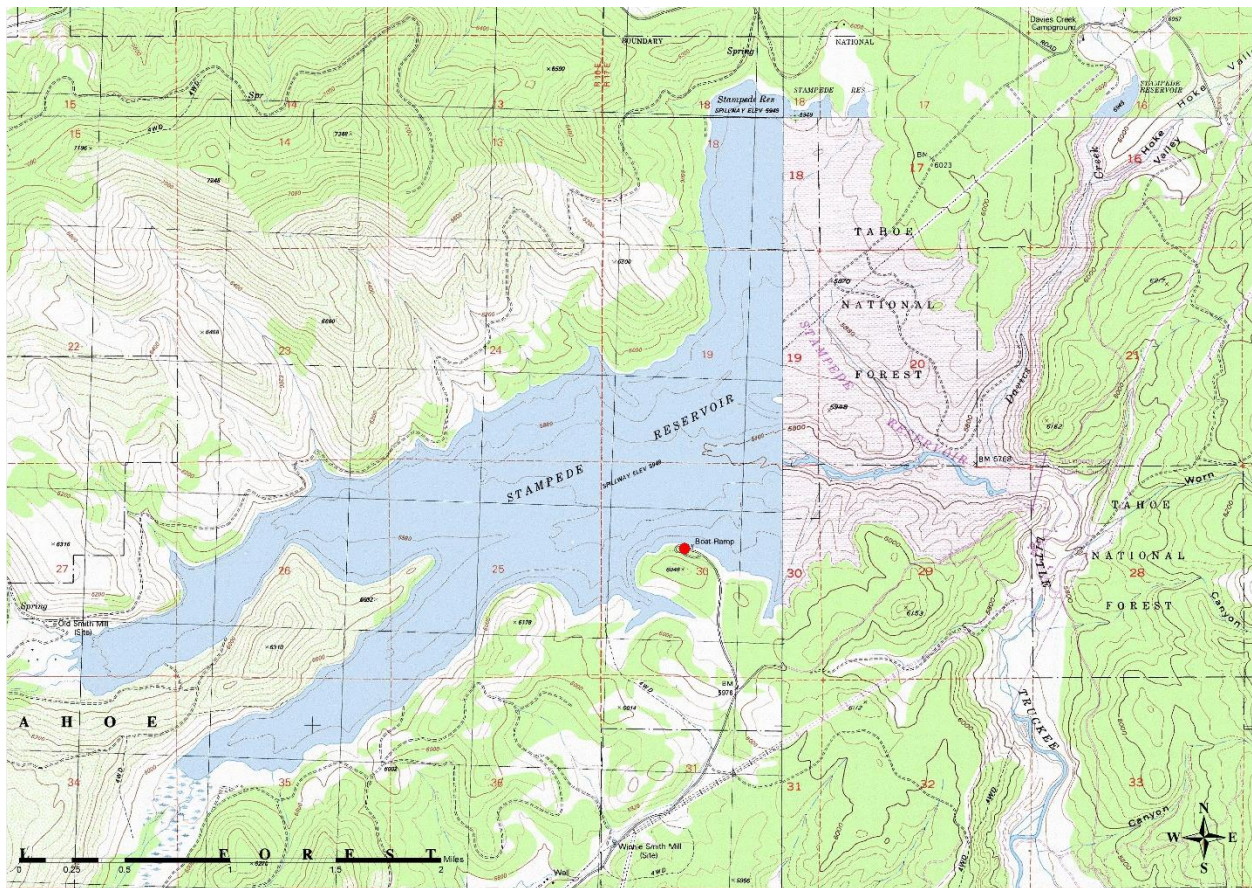
In 2019, anglers had a positive overall angling experience which seemed to be consistent with the average responses in 2016, 2017, and 2018. 2019 also demonstrated a similar trend for the four-year survey period for size of fish satisfaction and number of fish average satisfaction (**Table 55**).

**Table 55.** Angler satisfaction response averages for Lake of the Woods, 2016 - 2019.

Year	Overall angling experience	Size of fish	Number of fish
2016	1.25	0.75	0.50
2017	0.45	0.89	0.20
2018	1.60	1.50	1.50
2019	0.85	0.67	0.83

## Stampede Reservoir (CA Lake ID 12444)

Stampede Reservoir is a 3,330-surface acre artificial lake created in 1970 that sits at an elevation of 5,951 feet above mean sea level and is part of the Little Truckee River drainage (CNDDDB). The reservoir provides flood control, recreation, and a reservoir fishery, but the primary use is for fishery enhancement along the Truckee River and Pyramid Lake facilities operation (USBR). Lahontan Cutthroat Trout (LCT) are native to the Little Truckee River watershed (Moyle 2002). The recreational fishery established at Stampede Reservoir is currently comprised of a variety of salmonids and centrarchids. The lake has become a popular fishery due to the high productivity and high target species diversity (Shaffer 2005). The reservoir is currently stocked with KOK and LCT (Stampede Reservoir PSE). In order to assess the fishery and associated angler satisfaction at Stampede Reservoir, CDFW installed an Angler Survey Box at the Captain Roberts Boat Ramp, a public boat launch on the southeastern side of the lake, in late 2014 (**Figure 45**). More detailed information on the fishery at *Stampede Reservoir* can be found in the *Stampede Reservoir Creel Survey Evaluation – 2020* report (Murphy & Nece 2020).



**Figure 45.** Map of Stampede Reservoir, Sierra County. Red dot on map indicates the location of the Angler Survey Box.

Catch results from 2014 through 2019 were comprised of BN, KOK, LCT, LMB, LT, RT, SMB, and unknown species. In 2014/2015, thirteen anglers responded to the survey and reported catching 65 fish during 57.0 hours of fishing. The average catch rate for this time period was 1.1 fish per hour. In 2016, 27 anglers responded to the survey and reported catching 59 fish during 134.6 hours of fishing. The average catch rate for this time period was 0.4 fish per hour. In 2017, four anglers responded to the survey and reported catching 26 fish during 22.0 hours of fishing. The average catch rate for this time period was 1.2 fish per hour fished. In 2018, 16 anglers responded to the survey and reported catching 168 fish during 101.0 hours of fishing. The average catch rate for this time period was 1.7 fish per hour fished. In 2019, nine anglers responded to the survey and reported catching 123 fish during 41.5 hours of fishing. The average catch rate for this time period was 3.0 fish per hour fished (**Table 56**).

**Table 56.** Collection of average effort and catch statistics recorded from the 2014 - 2019 Angler Survey Box at Stampede Reservoir.

Year	Anglers	Hours Fished	Fish Landed	Catch per Angler	Fish per Hour	Hours per Angler
2014/2015	13	57.0	65	5.0	1.1	4.4
2016	27	134.6	59	2.2	0.4	5.0
2017	4	22.0	26	6.5	1.2	5.5
2018	16	101.0	168	10.5	1.7	6.3
2019	9	41.5	123	13.7	3.0	4.6

Anglers used either bait, flies, lures, or a combination of multiple types while fishing Stampede Reservoir (**Table 57**). In 2019, one angler used bait and had a 2.0 catch per angler rate, while zero anglers used flies or multiple gear methods. Seven anglers used lures and had a 16.4 catch per angler rate. The one angler that did not answer (DNA) had a catch per angler rate of 6.0 fish per angler in 2019. On average, lure fishing (9.8 fish per angler) appeared to have the best overall average catch per angler rate over the five-year survey period.

**Table 57.** The frequency of anglers that recorded their gear method and their corresponding catch rates in 2014-2019 at Stampede Reservoir.

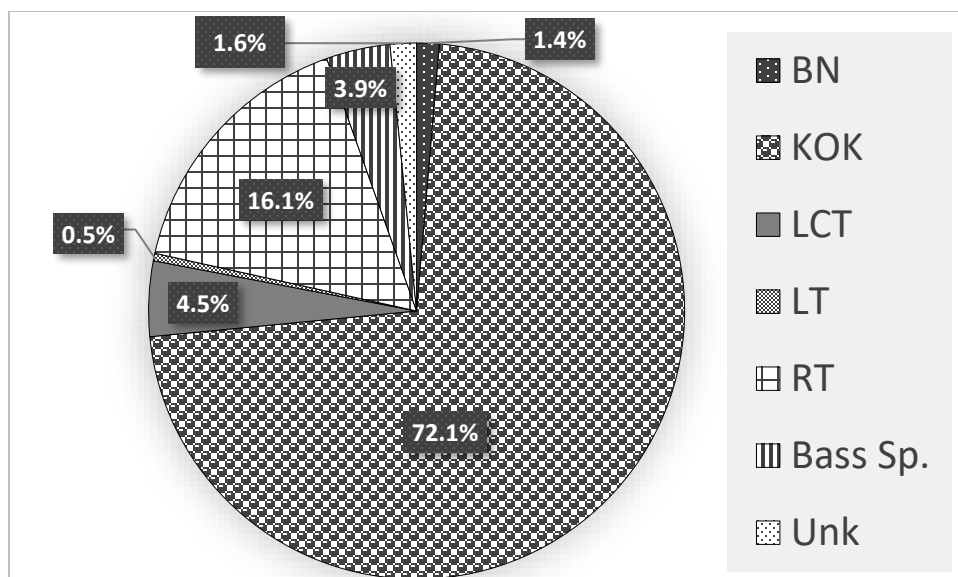
	2014/2015		2016		2017		2018		2019	
Angling Method	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler
Bait	2	2.5	4	0.5	0	NA	0	NA	1	2.0
Fly	0	NA	1	1.0	1	0.0	0	NA	0	NA
Lure	9	5.8	14	2.9	2	11.5	13	12.3	7	16.4
Multiple	1	0.0	6	0.5	0	NA	2	3.0	0	NA
DNA	1	8.0	2	6.0	1	3.0	1	2.0	1	6.0

In 2019, seven anglers (77.8%) reported fishing from a boat, which resulted in the best success in terms of catch per angler (16.4 fish/angler) (**Table 58**). Zero anglers reported fishing from a float tube or kayak. One angler (11.1%) reported fishing from shore, resulting in a 6.0 catch per angler rate. One angler did not report their method of fishing, which resulted in the least success in terms of catch per angler by those who reported their method (2.0 fish/angler). Over the five-year survey period most of the people who responded to the survey reported fishing from a boat.

**Table 58.** The number of anglers and catch per angler based on angling method in 2014-2019 at Stampede Reservoir.

	2014/2015		2016		2017		2018		2019	
Method	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	0.0%	NA	88.9%	1.9	75.0%	7.7	93.8%	11.1	77.8%	16.4
Float Tube/ Kayak	0.0%	NA	0.0%	NA	0.0%	NA	0.0%	NA	0.0%	NA
Shore/ Wading	0.0%	NA	0.0%	NA	0.0%	NA	0.0%	NA	11.1%	6.0
Not Recorded	100.0%	5.0	11.1%	4.7	25.0%	3.0	6.3%	2.0	11.1%	2.0

Over the five-year survey period combined, most of the fish caught were KOK (72.1%), followed by RT (16.1%), LCT (4.5%), bass species (3.9%), unknown species (1.6%), BN (1.4%), and LT (0.5%) (**Figure 46**).



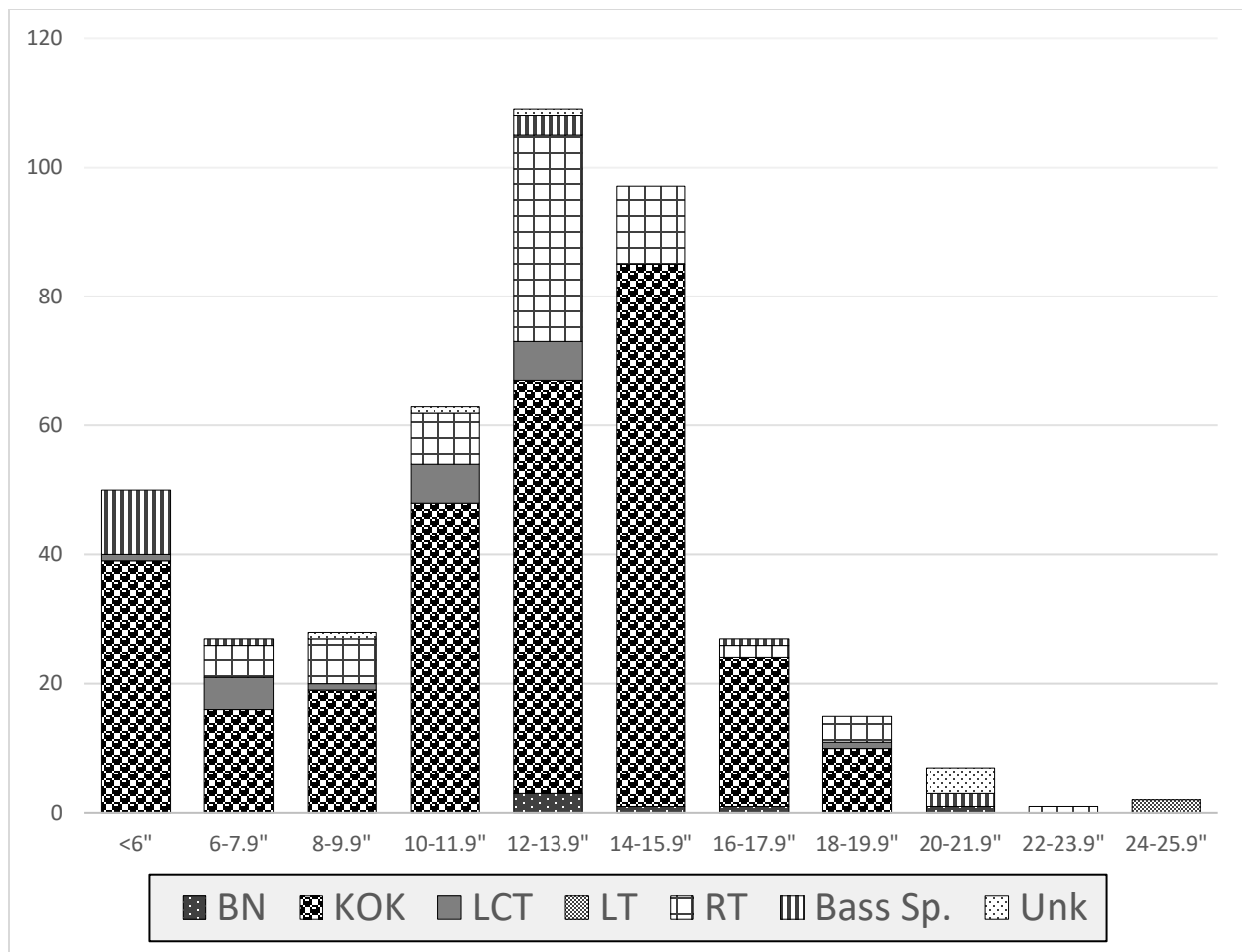
**Figure 46.** Species composition of fish reported during the 2014-2019 ASB survey seasons at Stampede Reservoir.

The modal size class for 2019, representing all fish kept and released, was <6 inches. This was the smallest modal size class reported out of all five survey years (12-13.9 inches in survey years 2016 through 2018, and 14-15.9 inches in 2014 through 2016. 2016 was represented by both 12-13.9 and 14-15.9 inches modal size classes) (**Table 59**). Over the five-year survey period combined, all fish caught ranged from the <6 in. to the 24-25.9 in. size classes (**Figure 47**).

**Table 59.** Kept and released fish and modal size class from 2014 - 2019 at Stampede Reservoir.

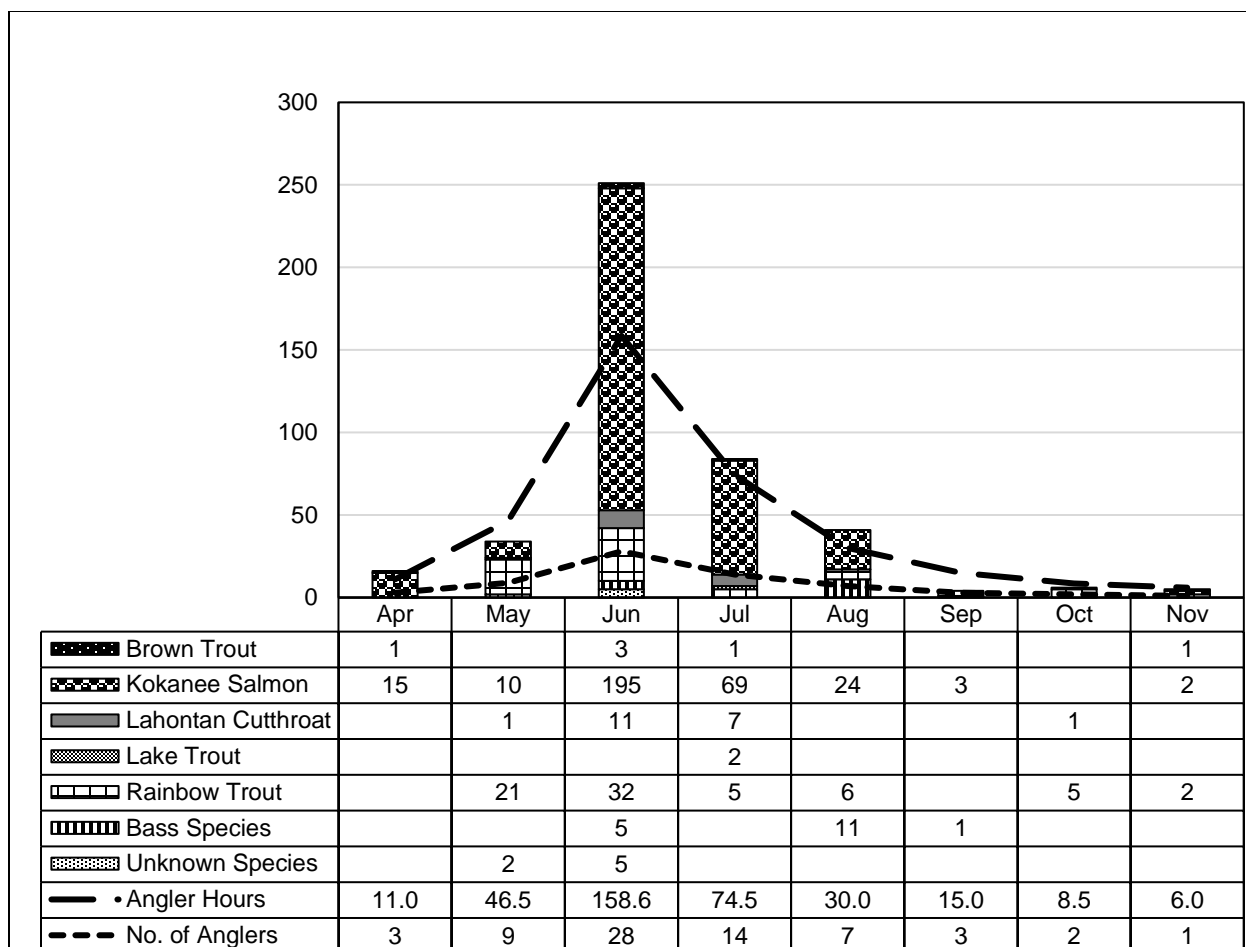
All Fish					
Year	Kept	Released	Total Caught	Modal Size Class	Percent Kept
2014/2015	48	17	65	14-15.9"	73.8%
2016	40	19	59	12-13.9"&14-15.9"	67.8%
2017	5	21	26	12-13.9"	19.2%
2018	110	58	168	12-13.9"	65.5%
2019	45	78	123	<6"	36.6%





**Figure 47.** Size classes of fish reported during the 2014-2019 ASB survey seasons at Stampede Reservoir.

June had the highest overall number of fish caught over the five-year ASB survey period. June also had the most hours spent angling, highest quantity of anglers, and highest CPUE of 1.6 fish per hour (**Figure 48**).



**Figure 48.** Angling effort and catch by month reported during the 2014-2019 ASB survey seasons at Stampede Reservoir.

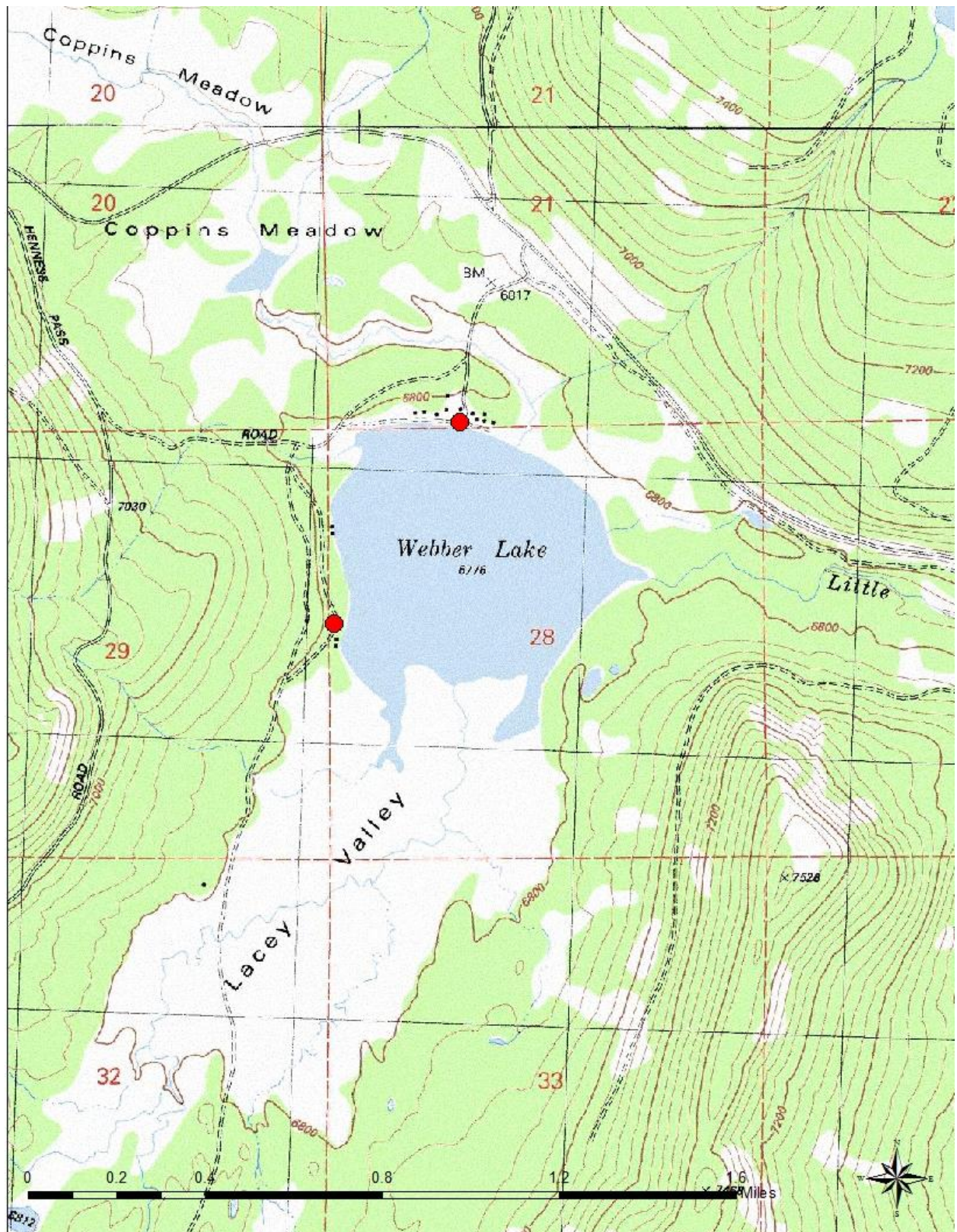
In 2019, anglers had a positive overall angling experience which was higher than the previous five years' average responses. Conversely, 2019 demonstrated the lowest size of fish satisfaction for the five-year survey period. Number of fish average satisfaction was also the highest in 2019. 2016 and 2017 displayed mostly negative responses for all three categories, while 2018 and 2019 had overall positive responses in all three categories (**Table 60**).

**Table 60.** Angler satisfaction response averages for Stampede Reservoir, 2014 - 2018.

Year	Overall angling experience	Size of fish	Number of fish
2014/2015	1.08	1.18	1.09
2016	-0.17	-0.25	-0.65
2017	0.00	-0.25	-0.25
2018	1.27	1.31	0.77
2019	1.56	0.13	1.13

#### Webber Lake (CA Lake ID 12451)

Webber Lake is a 200-surface acre lake that sits at an elevation of 6,778 feet above mean sea level. The lake is part of the Little Truckee River drainage (CNDDDB). Lahontan Cutthroat Trout are native to the Little Truckee River watershed (Moyle 2002). The lake is currently stocked with LCT (Webber Lake PSE). In order to assess the fishery and associated angler satisfaction at Webber Lake, CDFW installed two Angler Survey Boxes at the main access point launch on the north side of the lake and at the unimproved campground launch on the west side of the lake in 2016 (**Figure 49**).



**Figure 49.** Map of Webber Lake, Sierra County. Red dots on map indicate the locations of the Angler Survey Boxes.

Catch results from 2016 through 2019 were comprised of BK, BN, LCT, Lahontan Redside (*Richardsonius egregius*, LRS), and RT. In 2016, two anglers responded to the survey and reported catching 25 fish during 10.0 hours of fishing. The average catch rate for this time period was 2.5 fish per hour fished. In 2017, 11 anglers responded to the survey and reported catching 51 fish during 42.0 hours of fishing. The average catch rate for this time period was 1.2 fish per hour fished. In 2018, 10 anglers responded to the survey and reported catching 19 fish during 43.0 hours of fishing. The average catch rate for this time period was 0.4 fish per hour fished. In 2019, 20 anglers responded to the survey and reported catching 170 fish during 84.0 hours of fishing. The average catch rate for this time period was 2.0 fish per hour fished (**Table 61**).

**Table 61.** Collection of average effort and catch statistics recorded from the 2016 - 2019 Angler Survey Boxes at Webber Lake.

Year	Anglers	Hours Fished	Fish Landed	Catch per Angler	Fish per Hour	Hours per Angler
2016	2	10.0	25	12.5	2.5	5.0
2017	11	42.0	51	4.6	1.2	3.8
2018	10	43.0	19	1.9	0.4	4.3
2019	20	84.0	170	8.5	2.0	4.2

Anglers used either bait, flies, lures, or a combination of multiple types while fishing Webber Lake (**Table 62**). In 2019, two anglers used bait and had a 0.5 catch per angler rate, while three anglers solely used flies and had a 4.3 catch per angler rate. Twelve anglers used lures and had a 12.7 catch per angler rate. Three anglers used multiple gear methods and had a 1.3 catch per angler rate. Zero anglers did not answer (DNA) in 2019. Fly fishing was the only method reported for all four years and appeared to have the second-best average catch per angler rate (4.8 fish per angler) over the four-year survey period. Lure fishing had the best average catch per angler (5.8 fish per angler), but this method was only reported during three of the four survey years.

**Table 62.** The frequency of anglers that recorded their gear method and their corresponding catch rates in 2016-2019 at Webber Lake.

Angling Method	2016		2017		2018		2019	
	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler	Number of Anglers	Catch per Angler
Bait	0	NA	2	6.5	1	2.0	2	0.5
Fly	2	12.5	2	1.5	2	1.0	3	4.3
Lure	0	NA	6	3.8	2	1.0	12	12.7
Multiple	0	NA	0	NA	5	2.6	3	1.3
DNA	0	NA	1	12.0	0	NA	0	NA

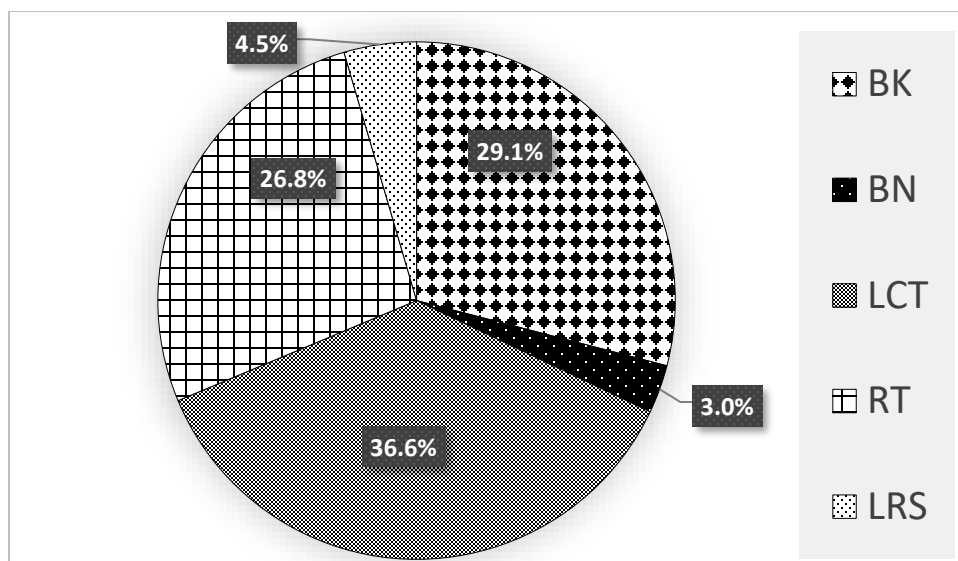
In 2019, ten anglers (50.0%) reported fishing from a boat, resulting in a 9.6 catch per angler rate (**Table 63**). Seven anglers (35.0%) reported fishing from a float tube or kayak, resulting in an 8.6 catch per angler rate. Two anglers (10.0%) reported fishing from shore, which resulted in the least success in terms of catch per angler (0.5 fish/angler) and one angler (5.0%) did not report their method of fishing which resulted in the most success in terms of catch per angler (13.0 fish/angler). Over the four-year survey period most of the people who responded to the survey reported fishing from a boat.

**Table 63.** The number of anglers and catch per angler based on angling method in 2016-2019 at Webber Lake.

Method	2016		2017		2018		2019	
	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler	Number of Anglers (%)	Catch per Angler
Boat	100.0%	12.5	54.5%	5.2	50.0%	1.4	50.0%	9.6
Float Tube/ Kayak	0.0%	NA	27.3%	5.0	40.0%	0.5	35.0%	8.6
Shore/ Wading	0.0%	NA	18.2%	2.5	0.0%	NA	10.0%	0.5
Not Recorded	0.0%	NA	0.0%	NA	10.0%	10.0	5.0%	13.0

Over the four-year survey period combined, most of the fish caught were LCT (36.6%), followed by BK (29.1%), RT (26.8%), LRS (4.5%), and BN (3.0%) (**Figure 50**).



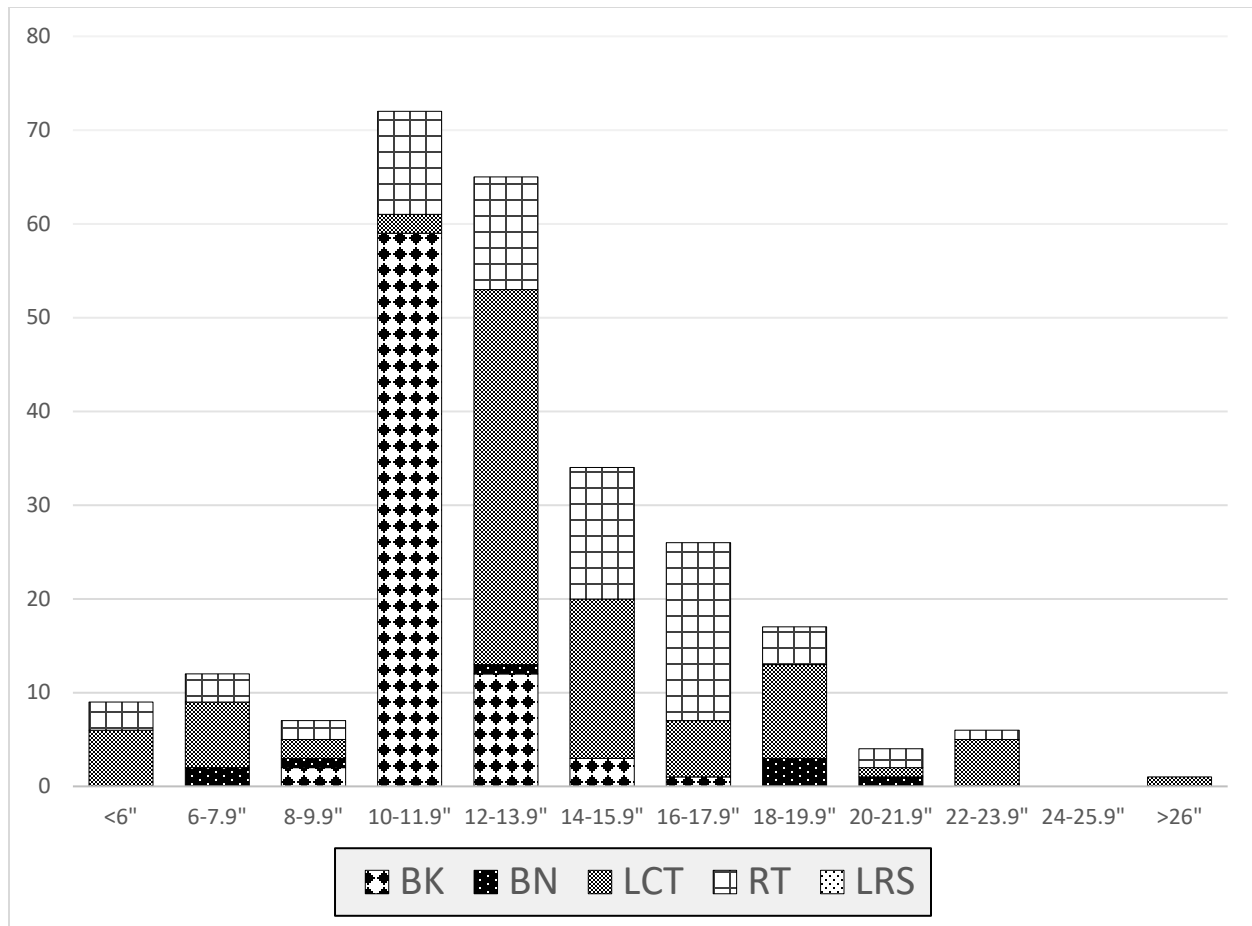


**Figure 50.** Species composition of fish reported during the 2016-2019 ASB survey seasons at Webber Lake.

The modal size class for 2019, representing all fish kept and released, was 10-11.9 inches. The largest modal size class was 16-17.9 inches in 2016. The smallest modal size class reported out of all four survey years was <6 inches in 2018 (**Table 64**). Over the four-year survey period combined, all fish caught ranged from the <6 in. to the >26 in. size classes (**Figure 51**).

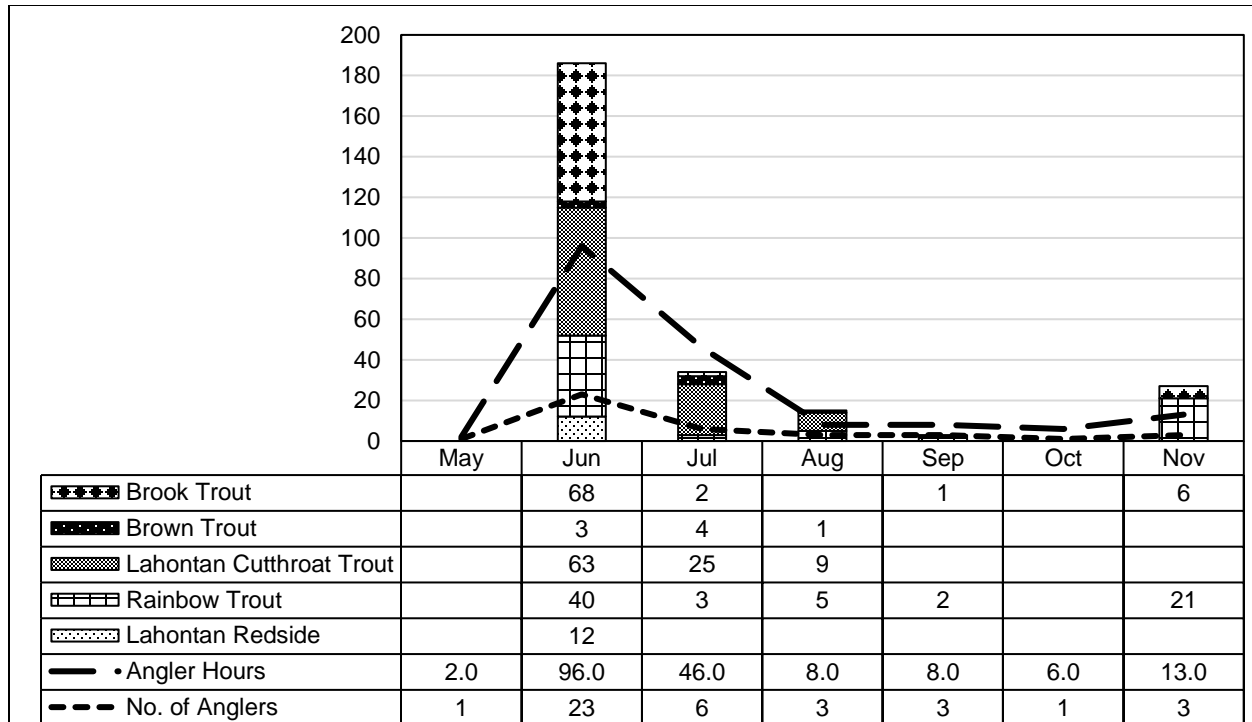
**Table 64.** Kept and released fish and modal size class from 2016 - 2019 at Webber Lake.

All Fish					
Year	Kept	Released	Total Reported	Modal Size Class	Percent Kept
2016	10	15	25	16-17.9"	40.0%
2017	15	24	39	14-15.9"	38.5%
2018	7	12	19	<6"	36.8%
2019	26	144	170	10-11.9"	15.3%



**Figure 54.** Size classes of fish reported during the 2016-2019 ASB survey seasons at Webber Lake.

June had the highest overall number of fish caught over the four-year ASB survey period. June also had the most angling use in regard to hours spent angling and represented the highest quantity of anglers. Although June represented the highest use by anglers, the mid-summer month did not have the highest CPUE (1.9 fish per hour). November had the best CPUE of 2.1 fish per hour (**Figure 52**).



**Figure 52.** Angling effort and catch by month reported during the 2016-2019 ASB survey seasons at Webber Lake.

In 2019, anglers had a positive overall angling experience, size of fish satisfaction, and number of fish average satisfaction, which appeared consistent with the average responses in 2016 and 2017. However, 2018 demonstrated negative responses across all three categories (**Table 65**).

**Table 65.** Angler satisfaction response averages for Webber Lake, 2016 - 2019.

Year	Overall angling experience	Size of fish	Number of fish
2016	2.00	2.00	1.50
2017	1.11	1.22	0.78
2018	-0.86	-0.86	-1.50
2019	1.00	0.36	0.58

## Discussion

This report is not intended to represent in-depth analyses of the fisheries since the data is based on anecdotal fishing reports from members of the public rather than other

forms of scientifically approved fish survey methods. However, one notable observation from this report is that the CPUE was typically lower during the summer months, even though June, July, and August more often reported the highest use by number of anglers and by quantity of hours spent fishing. Spring and fall typically represented the best angling CPUEs. A good example of this can be seen in the Frenchman Lake results. At Frenchman Lake, June and October had nearly identical amounts of angler use: June had 25 anglers/125.5 angler hours/75 fish caught; October had 27 anglers/122 angler hours/142 fish caught. The resulting CPUEs indicated that October (1.3 CPUE) anglers caught twice as many fish as did June (0.6 CPUE) anglers. Similar trends were observed at many of the other surveyed waters. There were also many outside factors that may have influenced the survey results. Some of these factors were ASB vandalism, survey forms running out, species misidentification by anglers, forest or boat launch closures, and fish stocking events.

## Conclusion

The information presented in this report can be used to assist anglers in decision making when trying to determine where to fish, what game species are present at different waterbodies, what times of year may offer better fishing opportunities, and what methods to use at different locations. This report also informs CDFW's stocking decisions and provides data suggesting the effectiveness of stocking programs. Subsequent ASB annual data will be collected and analyzed in future reports.

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Webber Lake Pre-Stocking Evaluation  
<https://nrm.dfg.ca.gov/PSEP/edit/Item.aspx?id=3115>

Appendix 1. Example of an ASB angler self-evaluation survey form from Lake Almanor.

Lake Almanor													
The California Department of Fish and Wildlife is conducting an evaluation of the fishery at Lake Almanor. 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 Almanor by one angler only.													
		<b>Date Fished:</b>						<b># Hours Fished:</b>					
		mm/dd/yyyy											
<b>Primary gear type used</b> (check one):													
		<input type="checkbox"/> Lure		<input type="checkbox"/> Bait		<input type="checkbox"/> Fly							
<b>Primary method or location fished</b> (check one):													
		<input type="checkbox"/> Shore or Wading		<input type="checkbox"/> Float Tube		<input type="checkbox"/> Boat							
Enter the total number of fish caught and released by species and size class:													
Size	Rainbow trout		Brown trout		Chinook salmon		Largemouth Bass		Smallmouth Bass		Other:		
	Kept	Released	Kept	Released	Kept	Released	Kept	Released	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"													
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 fisheries.													