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

Blue Lake (Lower), Alpine County

2005 Creel Census
And
Catchable Trout Evaluation Study

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February 2017

Introduction

Lower Blue Lake (Lower Blue) in Alpine County is located in the El Dorado National Forest just off Blue Lakes Road and approximately 23 miles south of Lake Tahoe. Lower Blue covers an area of 145 surface acres and is 8,063 feet above mean sea level (California Department of Fish and Wildlife Region 2 Fish Files). The storage capacity for Lower Blue is 4,800 acre feet of water that is managed by Pacific Gas & Electric (PG&E) for hydroelectric uses.

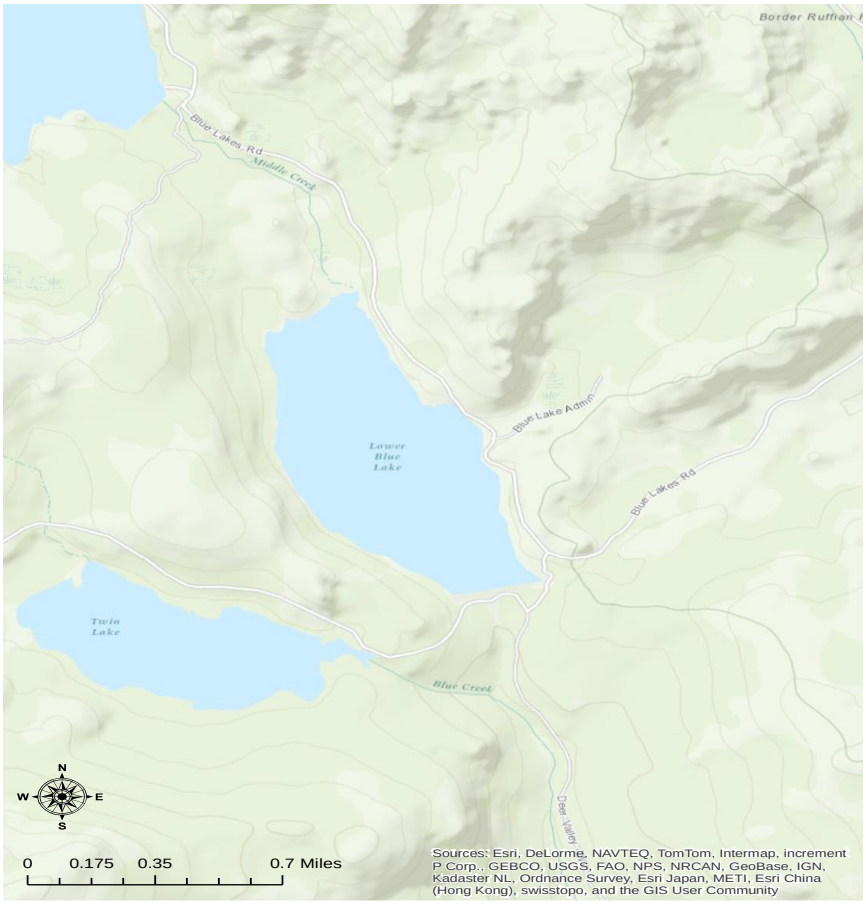

Figure 1. Lower Blue Lake, Alpine County, CA.

One boat launch facility is available for boat access at the lake. Due to the low lake elevation in 2005, boat launching was a more difficult task than normal. Upper Blue was drawn down in 2005 in order for PG&E to perform work on the dam. Campgrounds are located around the lake which makes Lower Blue, ideal for multi-day usage. In addition to fishing, the area surrounding the lake supports recreational activities including hiking, boating, hunting, kayaking, canoeing, and swimming. Lower Blue also provides terrain for snowmobiling, cross-country skiing, and ice fishing in the winter. This lake is a well-known trout fishery with historical plants of brook trout (*Salvelinus fontinalis*) (BK), brown trout (*Salmo trutta) (*BN), rainbow trout (*Oncorhynchus mykiss) (*RT), and Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi)* (LCT) (California Department of Fish and Wildlife Region 2 Fish Files). . Stocking events occur regularly by the California Department of Fish and Wildlife (Department) in the summer and early fall. Currently the Department plants three/four to the pound size RT into Lower Blue.

The results of this creel census helps the Department assess angler satisfaction, catch efficiency, species composition, and general angler statistics at the lake.

Methods

For the 2005 census, 22 days (11 weekdays; 11 weekend days) in total were selected from early July through early October. The number of days surveyed varied from month to month, while survey start times were randomly stratified into either an AM or PM sampling period. Anglers were interviewed using a roving creel method and asked a standard series of survey questions to determine angling effort, catch rate, size of fish, tagged fish returns, and species caught.

For the fish kept, total length was measured in millimeters (mm) and individuals were also checked for Floy© T-Bar Anchor Tags. These tags were inserted into 300 of the 5,400 RT at the American River Hatchery prior to being planted into Lower Blue in 2005. For the fish

released by anglers, the species and the total number caught were recorded; no size ranges were taken.

Each angler was asked between one and three standard "yes or no" questions to determine angling satisfaction. Every angler interviewed was asked the question: "Were you satisfied with your angling experience today?" If an angler reported catching one or more fish, they were then asked two follow-up questions: "Were you satisfied with the number of fish caught?" and "Were you satisfied with the size of fish caught?"

Results

In total, 151 anglers were surveyed. Total effort was 300.5 angling hours, averaging 2.0 hours per angler. A total of 152 fish were caught for a catch per unit effort (CPUE) of 0.51 fish per hour (Table 1).

Table 1. Catch Statistics for Lower Blue Lake, 2005.

Number of Anglers	151
Total Fish Caught	152
Number of Fish per Angler	1.0
Total Hours Fished	300.5
Average CPUE	0.51

A total of 145 anglers (96.0%) reported fishing from shore, which resulted in the highest success in terms of catch per angler (1.1 fish/angler; Table 2). Shore fishing was also the most popular method of fishing. Boating as an angling method resulted in a catch per angler of zero fish.

Table 2. The number of anglers and catch per angler based on angling method at Lower Blue Lake, 2005.

Method	Number of Anglers	Catch per Angler
Shore	145	1.1
Boat	6	0.0

Anglers used bait, lures, and flies while fishing at Lower Blue (Table 3). In 2005, 129 anglers (85.4%) used bait to catch trout. The least frequent method used was fly fishing (0.03%). Bait anglers had the highest catch per angler (1.12 fish per angler). Lure method

anglers had the second highest catch per angler (0.47 fish per angler). Fly anglers caught the least fish at zero fish per angler. Of the 152 fish reported caught, 123 were kept (81%) and 29 were released (19%).

Table 3. The frequency of anglers that used each angling method and their corresponding catch per angler at Lower Blue Lake, 2005.

Angling method	Number of Anglers	Catch per Angler
Bait	129	1.12
Lure	17	0.47
Fly	5	0.00

The total length of the fish measured ranged from the 10.0 – 10.9 inch to 14.0 – 14.9 inch total length classes. Of the 120 fish measured, 44 were in the size range of 12.0 – 12.9 inches (Figure 2).

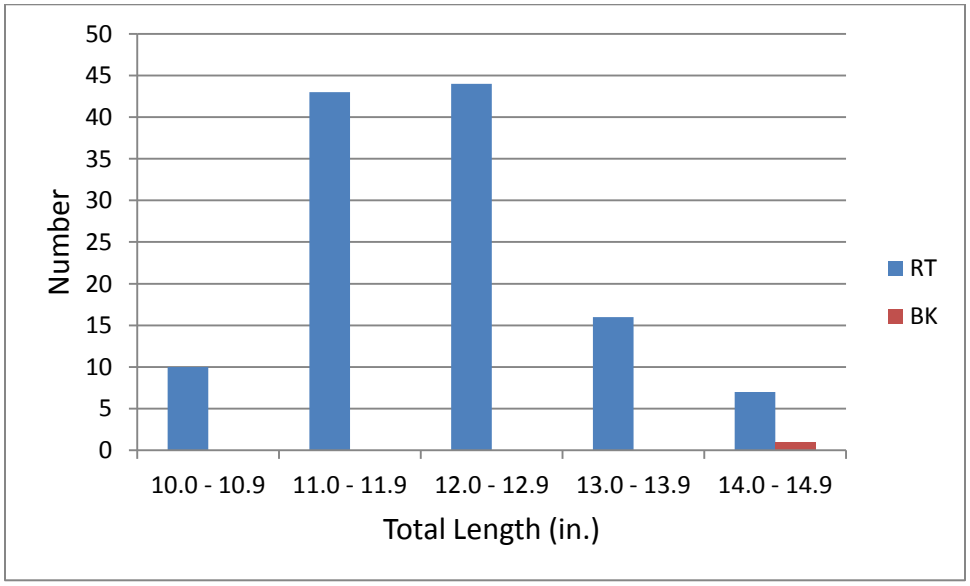

Figure 2. Length-frequency distribution for fish caught and measured at Lower Blue Lake, Alpine County, 2005.

Of the anglers who were asked the survey questions; 96.7% of anglers were satisfied with their overall fishing experience, 83.3% were satisfied with both the number of fish and the size of the fish they caught (Table 4).

Table 4. Angler Satisfaction Response Averages for Lower Blue Lake, 2005.

	Yes	No	Percent Satisfied
Overall Fishing Experience	145	5	96.7%
Number of Fish Caught	55	11	83.3%
Size of Fish	55	11	83.3%

There were a total of 5,400 RT that were released into Lower Blue in 2005. Of the 5,400 that were released, 300 were tagged. Of the 300 RT tagged, 112 were returned, with a final return rate of 37% (Table 5).

Table 5. Tag return results for rainbow trout stocked in select lakes and reservoirs in the Sacramento Valley and North Central Region from 2000 – 2005 (CDFW Region 2 Fish Files).

Water	Number of Fish Released	Number of Tagged Fish Released	Number of Tags Returned	Return Rate
Fuller Lake	14,250	800	332	42%
Blue Lake, Lower	5,400	300	112	37%
Sugar Pine Reservoir	20,140	1,194	405	34%
Silver Lake	18,100	398	132	33%
Blue Lake, Upper	9,000	400	132	33%
Icehouse Reservoir	10,000	399	128	32%
Scotts Flat Reservoir, Upper	18,900	1,099	256	23%
Loon Lake	13,450	400	93	23%
Rollins Reservoir	12,700	798	185	23%
Jenkinson Lake	22,100	1,194	273	23%
Thermalito Forebay	8,800	797	175	22%
Jackson Meadows Reservoir	12,700	299	62	21%
Caples Lake	13,450	400	78	20%
Union Valley Reservoir	7,300	400	77	19%
Folsom Lake	22,575	1,295	246	19%
Boca Reservoir	23,500	1,200	220	18%
Donner Lake	110,600	1,999	280	14%
Stampede Reservoir	37,000	1,791	110	6%

Discussion

During the 2005 creel census, Lower Blue had an average CPUE of 0.51 fish per hour. A CPUE of 0.50 fish per hour or greater is considered an acceptable number if fish size is considered satisfactory (Hickey, 2013). In 2005, Lower Blue experienced a large drawdown due to work being done on the dam. A combination of the fish allotment and the smaller body of water may have allowed for better angler access to the fish. A creel survey at Lower Blue in 1967 yielded a very similar value of 0.52 fish per hour (CDFG 1967). All fish caught were from the shore in 2005. This may have also been the result of the lake drawdown which made launching a boat more difficult.

In total, 85% of anglers only used bait when targeting trout, resulting in 95% of all fish caught. Of the 152 fish caught, 123 (81%) were kept. From the angling method and number of fish kept, it is clear that Lower Blue is a fishery where the majority of anglers are looking for a relaxing, easy place to catch and harvest fish. The majority of fish harvested were between 11.0 and 13.0 inches. This suggests that the majority of fish caught are from recent plant stockings, with few juvenile or holdover fish.

Of the 151 anglers, 96.7% responded that they were satisfied with their overall fishing experience and 83.3% were satisfied with both the numbers and sizes of fish they were catching. The nice sizes of fish caught as well as the high catch per angler supports this feedback. Lower Blue is a gorgeous, high elevation reservoir with beautiful scenery which may contribute to the overall satisfaction anglers had while fishing.

Of the 18 waters that had a trout tagging program, Lower Blue had the second highest return rate. The high return rate might suggest an efficient utilization of the fish planted by the Department. This may have been the result of a large summer allotment and smaller body of water due to the drawdown. Lower Blue also experiences high angler pressure in the summer due to many factors such as clean campgrounds, recreation vehicle parking, lakeside camping, smooth road access, and close proximity to metropolitan areas. With more pressure, there will likely be higher chances of catching a tagged fish.

Recommendations

- When available CDFW should continue to stock Lower Blue with the same allotment as 2005.

- Install angler survey boxes or conduct another creel survey to compare the 2005 data to Lower Blue when it is at a higher capacity. This would also provide a comparison to the 2005 report and creel surveys from 1967 and 1968.

References

1. Tag Return Results. 2005. California Department of Fish and Wildlife Region 2 Fish Files. Unpublished.
2. Lower Blue Lake Survey. 1937. California Department of Fish and Wildlife Region 2 Fish Files. Unpublished.
3. Lower Blue Lake Creel Census Data. 1967. California Department of Fish and Wildlife Region 2 Fish Files. Unpublished.
4. Hickey, K. 2013. Milton Lake 2003 – 2012 Angler Survey Box Analysis with a 2012 Creel Survey. Rancho Cordova, CA; California Department of Fish and Wildlife, North Central Region Fish Files. Unpublished.