

State of California
Department of Fish and Wildlife
North Central Region

2016 Heenan Lake Angler Survey Box Creel



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North Central Region Heritage and Wild Trout Program

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Introduction

Heenan Lake is located in Alpine County at an elevation of 7084 feet above mean sea level. The lake covers 129 acres and contains about 3000 acre feet of water. Heenan Lake has a maximum depth of 35 feet with an average depth of 19 feet. The lake is fed by Heenan Creek, which is a small year-round flowing creek with a drainage area of about 4 square miles. The lake is completely within the 1652 acre Heenan Lake Wildlife Area (Figure 1). Heenan Lake contains Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*) (LCT), which provide the broodstock for the California Department of Fish and Wildlife's (CDFW) LCT stocking program, and a quality Heritage Trout recreational fishing opportunity.

Heenan Lake is opened to angling on Fridays, Saturdays, and Sundays from the Friday before Labor Day through the last Sunday in October, with angling hours from sunrise to sunset. Only artificial lures with barbless hooks may be used to angle and there is a zero bag limit. In prior years, Heenan Lake was staffed with a CDFW scientific aide; however, this year, the lake was unstaffed while Alpine County volunteers opened and closed the gate each day. Portable toilets were provided by the Amador Fly Anglers. The fishery was monitored using a voluntary angler creel survey.

Methods

Angler survey forms were provided in an angler survey box that is located near the kiosk at the top of the boat launch (Figure 1). The form is unique for Heenan Lake and instructs the angler to use one form per angler per angling day. The anglers report the date and number of hours fished for each day; the primary gear (lure or fly) used to fish; the primary method (shore or wading, float tube, or boat) used to access the lake; the total number and size classes of LCT caught; and county or state of residence. The anglers were further asked their level of satisfaction on a scale of -2 (least) to 2 (most) with their overall angling experience; size of fish; and number of fish. The back side of the form can be used for comments.

Results

Heenan Lake was open to angling over nine weekends for a total of 27 angling days. However, Highway 89 to Heenan Lake was closed due to inclement weather on October 14, 15, and 16, 2016 (week 7) resulting in zero angler forms returned during that weekend (Table 1). The first weekend (opening weekend) was a popular weekend to fish in Heenan Lake, with 39 respondents; however, the greatest number of respondents occurred during the second weekend, when 64 anglers responded to the survey. The sixth weekend resulted in the second highest number of returned survey forms, with 50 respondents. The fifth weekend resulted in 47 respondents. In terms of

single day survey totals, the greatest number of responses (32) occurred on September 9, 2016, while the least (1) occurred on October 30, 2016 (the last day).

Overall, 297 anglers responded to the survey, reporting 1775 hours of angling and landing 1310 LCT. The average trip duration was six hours per angler. Anglers reported a catch rate of 0.7 LCT per hour with 4.4 LCT per angler (Table 1). The greatest catch rates of 1.2 LCT per hour and 9.9 LCT per angler occurred on October 28, 2016, the last Friday of fishing. These seven anglers spent 56 hours fishing (average eight hours) and landed a total of 69 LCT. However, the greatest number of LCT landed (170) occurred on September 2, 2016 (the first day of the season). That day, 24 anglers fished for 158 hours (average six hours), producing catch rates of 1.1 LCT per hour and 7.1 LCT per angler. The fewest number of LCT landed (two) occurred on September 4, 2016, the third day of fishing. These six anglers fished for 28 hours (average five hours per angler), producing catch rates of 0.4 LCT per hour and 0.3 LCT per angler; the lowest during the season.

Fly anglers were the largest group of anglers fishing Heenan Lake during the 2016 season. A total of 204 anglers reported using flies as their gear choice (Table 2). Fly anglers reported 1205 hours fishing, landing 784 LCT and averaging six fishing hours per angler. However, fly anglers reported the lowest LCT catch per hour of 0.6 and lowest LCT catch per angler of 3.8. By comparison, lure anglers reported 0.9 LCT per hour and catch rates of 5.7 LCT per angler. The 85 lure anglers fished for 518 hours, landing 482 LCT, while fishing for an average of six hours per angler. The greatest catch rate of six LCT per angler was reported by three anglers who did not answer their choice of gear (Table 2).

A total of 178 anglers reported using float tubes as their fishing method of choice. Float tubers fished for a total of 1041 hours and landed 761 LCT. These anglers reported catch rates of 4.3 LCT per hour and 0.7 LCT per angler. Float-tubing anglers fished for an average of six hours per angler. Another 74 anglers reported boats as their fishing method of choice. Boat anglers fished for 488 hours and landed 390 LCT. These anglers reported catch rates of 5.3 LCT per hour and 0.8 LCT per angler. Boat anglers fished for an average of seven hours per angler.

Collectively, anglers who replied to the survey reported landing at least one LCT in each size class during the 2016 season. The greatest number of LCT landed (304) was reported in the 18.0 to 19.9 inch size class (23.2%), followed by 282 in the 20.0-21.9 inch size class (21.5%), and 220 in the 16.0 to 17.9 inch size class (16.8%; Table 4). Overall, 64.4% of all LCT landed were reported to be greater than or equal to 18.0 in. A length frequency histogram of the sizes of LCT landed is presented in Figure 2.

In addition to California, anglers reported traveling from three states during the 2016 angling season. A total of 227 (76.4%) anglers reported California as their primary state of residence, while another 41 (13.8%) of anglers reported traveling from Nevada (Table 5). Anglers also reported traveling from Montana (2 anglers) and Colorado (1 angler) to fish Heenan Lake. A total of 26 (8.8%) anglers did not respond to their state of primary residence. Of the California respondents, 36 (12.1%) reported their primary residence as El Dorado County. This was followed by Sacramento County with 24 (8.1%) respondents, Calaveras County with 23 (7.7%) respondents and Contra Costa County with 20 (6.7%) respondents (Table 5 and Figure 3).

Overall, anglers reported positive satisfaction with their angling day at Heenan Lake during the 2016 season. Anglers were most satisfied with the sizes of LCT landed, with an average response of 1.20 (Table 7). Of total respondents, 197 (66.3%) responded positively (1 or 2) regarding satisfaction with LCT size, compared to 48 (16.3%) who responded neutral or negatively (0, -1, or -2) (Tables 7). The number of anglers who did not respond (DNA) to satisfaction with size (52; 17.5%) was relatively high. Anglers responded positively, but less so with their satisfaction with the numbers of LCT landed, with an average response of 0.76 (Table 7). Of total respondents, 154 (51.8%) responded positively (1 or 2), compared to 91 (17.2%) who responded neutral or negatively (0, -1, or -2). As with size, 52 (17.5%) anglers did not respond to the question regarding number of LCT landed (Tables 7). Anglers were generally satisfied with their angling experience for the day, with an average response of 1.14. Of total respondents, 205 (69.0%) anglers responded positively (1 or 2), compared to 61 (20.6%) who responded neutral or negatively (0, -1, or -2) with their overall angling experience. Of total respondents, 31 (10.4%) did not respond to their satisfaction with their overall angling experience.

Car and angler counts were taken at Heenan Lake on September 30 through October 2, 2016. Counts were taken every two hours during the day except on October 2, when only two counts were taken. The average response rate over those three days was 82% (range 58.3% to 122.2%; Table 9). Car counted in the parking lot ranged from a high of 28 to a low of two while the number of anglers ranged from a high of 36 to a low of three (Table 8). The number of anglers fishing in Heenan Lake generally peaked at 11:00 am and then declined during the afternoon.

Discussion

Heenan Lake continues to be a popular fishing destination even though the number of anglers was lower compared with previous years (Mamola 2015). The 297 responses were significantly lower than the 1984 through 2016 average (843; range 231 – 2472), but was the greatest number of responses since 2012, when 302 anglers responded to the survey. The lower number of anglers during the 2016 angling season (when compared with 2012) was likely affected by the closure of the Heenan Lake access road during inclement weather on October 14, 15, and 16, 2016.

During the first several seasons, anglers were required to check in and out; therefore, the response was 100%. The 2016 estimated response rate was likely high since more anglers responded to the survey than were counted on October 1, 2016. The greater number of responses could have been a miscount or recording error. Alternatively, the count of the number of anglers actively fishing Heenan Lake was accurate but missed other anglers near the lake who were not actively fishing. These anglers returned to fishing soon after the count was taken. The greater daily count and number of responses suggests the most accurate response rate of 58% likely occurred on September 30, 2016.

Anglers travel to Heenan Lake from all over the state, including distant locations like San Diego County. A small number of anglers even traveled from Colorado and Montana. While anglers travel from distant areas, Heenan Lake was primarily fished by local anglers during the 2016 season. A majority of anglers reported Alpine County, five adjacent counties to Alpine County, and four counties along the Interstate 80 corridor as their primary residence.

Generally, the opening weekends have been popular during the angling seasons. However, during the 2016 angling season, the greatest number of responses occurred during the second weekend, and a relatively large number of anglers also responded to the survey during the fifth and sixth weekends (late September and early October). The best angling appeared to have occurred in the middle third of the angling season. While the last weekend produced the second best weekly (and best daily) catch rate, weekends four and six produced the first and third best weekly catch rates, respectively. Both of these weekends occurred during the middle third of the angling season.

When compared to other ASB surveys at other waters, the Heenan Lake voluntary survey receives a high number of responses during the angling seasons (Hickey 2013 and Ewing 2016). This high response rate relative to other waters may be because Heenan Lake was staffed prior to the 2016 season. CDFW staffing of Heenan Lake not only encourages a higher ASB response rate but also compliance with angling and Heenan Lake Wildlife Area regulations. Although the 2016 season was not staffed,

many anglers still responded to the survey. These high responses enable CDFW to track long-term trends of the Heenan Lake fishery. Maintaining the high number of responses is important to help guide future management decisions for the Heenan Lake fishery and broodstock population. Therefore, it is recommended that:

1. Continue the creel survey through the use of the ASB to monitor the fishery.
2. In the absence of every day staffing, include randomly staffed creel surveys during the season, in an effort to maintain high response rates to guide management of the quality fishery.
3. Continue to inform anglers of the ASB survey's importance for effective management of the Heenan Lake fishery

References

Ewing, B. 2016. Red Lake, Alpine County 2011-2015 Angler Survey Box Analysis. California Department of Fish and Wildlife. Unpublished.

Hickey, K. 2013. Milton Lake, Nevada County 2003-2012 Angler survey Box Analysis with a 2012 Creel Survey. California Department of Fish and Wildlife. Unpublished.

Mamola, M. 2015. Heenan Lake 2014 Creel. California Department of Fish and Wildlife. Unpublished

Table 1. The number of angler responses, total daily fishing hours, and total daily catch of Lahontan cutthroat trout land each day and totals for 2016 fishing season in Heenan Lake, Alpine County, CA. Catch statistics include the daily and season total for the catch per angler, catch per angler, and hours fished per angler.

Date	Number of Responses	Hours Fished	LCT Landed	Catch per Hour	Catch per Angler	Hours per Angler
09/02/16	24	158	170	1.1	7.1	7
09/03/16	9	55	38	0.7	4.2	6
09/04/16	6	28	2	0.1	0.3	5
09/09/16	32	200	129	0.6	4.0	6
09/10/16	24	148	109	0.7	4.5	6
09/11/16	8	47	31	0.7	3.9	6
09/16/16	9	66	49	0.7	5.4	7
09/17/16	8	48	39	0.8	4.9	6
09/18/16	4	12	4	0.3	1.0	3
09/23/16	8	51	39	0.8	4.9	6
09/24/16	9	60	60	1.0	6.7	7
09/25/16	4	26	23	0.9	5.8	6
09/30/16	21	118	47	0.4	2.2	6
10/01/16	22	108	57	0.5	2.6	5
10/02/16	4	12	10	0.8	2.5	3
10/07/16	17	111	92	0.8	5.4	6
10/08/16	21	142	161	1.1	7.7	7
10/09/16	12	57	27	0.5	2.3	5
10/14/16	N/A	N/A	N/A	N/A	N/A	N/A
10/15/16	N/A	N/A	N/A	N/A	N/A	N/A
10/16/16	N/A	N/A	N/A	N/A	N/A	N/A
10/21/16	17	91	57	0.6	3.4	5
10/22/16	10	52	22	0.4	2.2	5
10/23/16	6	32	16	0.5	2.7	5
10/28/16	7	56	69	1.2	9.9	8
10/29/16	14	90	56	0.6	4.0	6
10/30/16	1	5	3	0.6	3.0	5
2016	297	1775	1310	0.7	4.4	5

Table 2. The number of responses, hours fished, and number of Lahontan cutthroat landed by gear type used during the 2016 Heenan Lake, Alpine County, CA, fishing season. Catch statistics include the catch per hour, catch per angler, and hour fished per angler.

Gear Type	Number of Responses	Hours Fished	LCT Landed	Catch per Hour	Catch per Angler	Hours per Angler
DNA	3	21	18	0.9	6.0	7
Fly	204	1205	784	0.6	3.8	6
Lure	85	518	482	0.9	5.7	6
Lure Fly	5	31	26	0.8	5.2	6
Total	297	1775	1310	0.7	4.4	5

Table 3. The number of responses, hours fished, and number of Lahontan cutthroat landed by method type used during the 2016 Heenan Lake, Alpine County, CA, fishing season. Catch statistics include the catch per hour, catch per angler, and hour fished per angler.

Method Type	Number of Responses	Hours Fished	LCT Landed	Catch per Hour	Catch per Angler	Hours per Angler
Boat	74	488	390	5.3	0.8	7
DNA	9	48	47	5.2	1.0	5
Float Tube	178	1041	761	4.3	0.7	6
Shore or Wading	29	137	75	2.6	0.5	5
Shore or Wading/Float Tube	7	61	37	5.3	0.6	9
Total	297	1775	1310	4.4	0.7	6

Table 4. The number and percentage of Lahontan cutthroat trout landed in each size class during the 2016 Heenan Lake, Alpine County, CA, fishing season.

	< 6.0"	6.0-7.9"	8.0-9.9"	10.0-11.9"	12.0-13.9"	14.0"-15.9"	16.0-17.9"	18.0-19.9"	20.0-21.9"	22.0-23.9"	24.0-25.9"	≥ 26.0"
Number	1	6	14	36	60	130	220	304	282	176	61	20
Percent	0.1	0.5	1.1	2.8	4.6	9.9	16.8	23.2	21.5	13.4	4.7	1.5

Table 5. The primary state of residence, number, and percent of anglers responding to the survey for the 2016 fishing season in Heenan Lake, Alpine County, CA .

State	Number of Responses	Percent of Responses
California	227	76.4
Nevada	41	13.8
Montana	2	0.7
Colorado	1	0.3
DNA	26	8.8
Total	297	100.0

Table 6. A list of California counties which the anglers listed as their primary residence during the 2016 fishing season in Heenan Lake, Alpine County, CA.

California County	Number of Responses	Percent of Anglers
Alameda	15	5.1
Alpine	9	3.0
Amador	11	3.7
Calaveras	23	7.7
Contra Costa	20	6.7
El Dorado	36	12.1
Fresno	2	0.7
Kern	1	0.3
Los Angeles	5	1.7
Madera	3	1.0
Mendocino	2	0.7
Mono	5	1.7
Nevada	4	1.3
Placer	7	2.4
Riverside	5	1.7
Sacramento	24	8.1
San Bernardino	14	4.7
San Diego	1	0.3
San Francisco	1	0.3
San Joaquin	19	6.4
San Mateo	1	0.3
Santa Clara	1	0.3
Sonoma	10	3.4
Stanislaus	3	1.0
Sutter	1	0.3
Tuolumne	2	0.7
Yolo	2	0.7

Table 7. The number of responses from each angler to their satisfaction with the overall angling day, size of fish landed, and the number of Lahontan cutthroat trout landed during 2016 angling season in Heenan Lake, Alpine County, CA. Heenan Lake was opened to angling from September 2, through October 30, 2016.

	Response							Total	Average
	-2	-1	0	1	2	DNA			
Overall	10	15	36	71	134	31	297	1.14	
Size	15	7	26	64	133	52	297	1.20	
Numbers	23	17	51	58	96	52	297	0.76	

Table 8. The number of cars and anglers counted at Heenan Lake, Alpine County, on September 30 through October 2, 2016.

Date	Number of		Count Time	am/pm
	Cars	Anglers		
9/30/2016	27	33	9:00	am
9/30/2016	28	36	11:00	am
9/30/2016	15	19	1:00	pm
9/30/2016	8	9	3:00	pm
9/30/2016	2	3	5:00	pm
10/1/2016	14	17	9:00	am
10/1/2016	13	18	11:00	am
10/1/2016	9	14	1:00	pm
10/1/2016	9	14	3:00	pm
10/1/2016	3	3	5:00	pm
10/2/2016	3	6	9:00	am
10/2/2016	2	3	11:00	am

Table 9. The largest number of anglers counted at Heenan Lake, Alpine County, on September 30 through October 2, 2016 with the number and percentage of respondents for each day.

Date	Largest Angler Count	Number of Responses	Percent Responses
9/30/2016	36	21	58
10/1/2016	18	22	122
10/2/2016	6	4	67
		Average	82

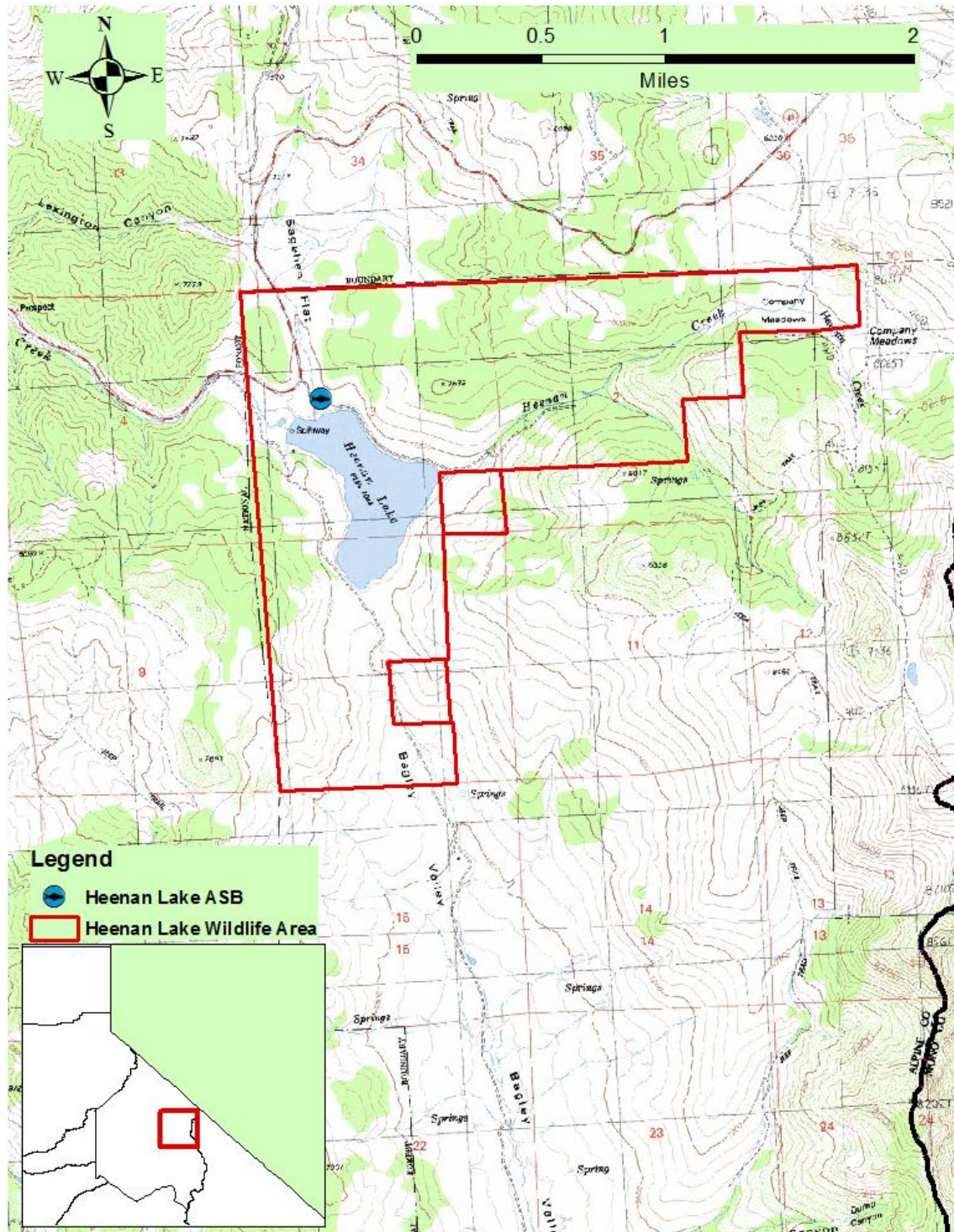


Figure 1. Map depicting the Heenan Lake, the Wildlife Area, and the Angler Survey Box (ASB) location, Alpine County, CA.

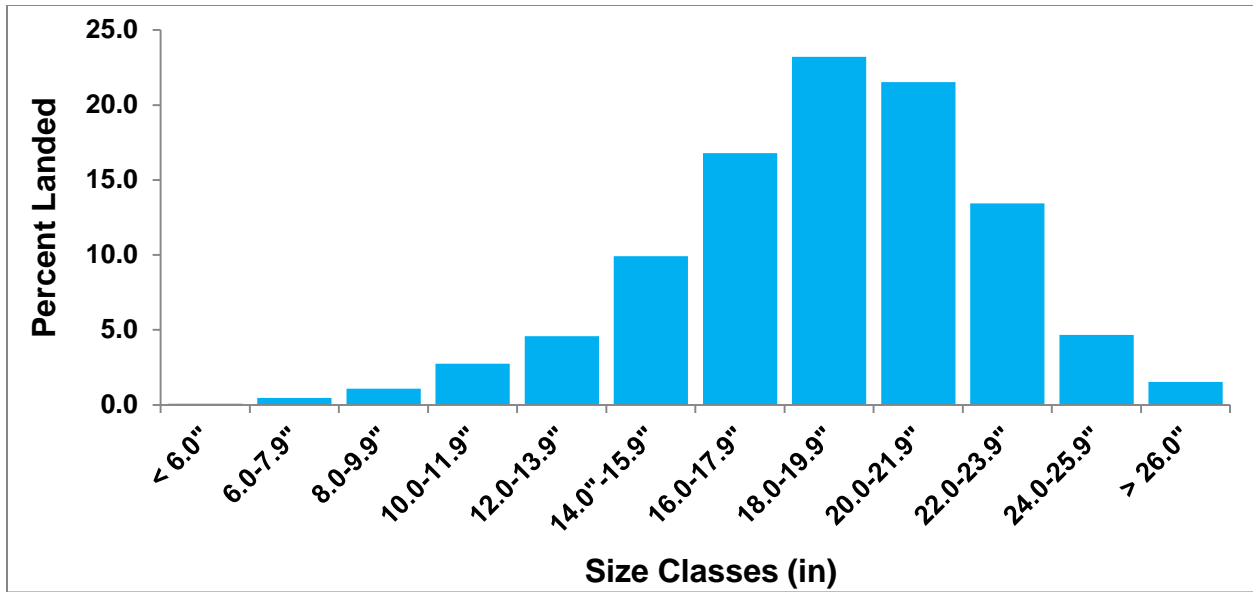


Figure 2. Length frequency histogram for the percentage of Lahontan cutthroat trout landed in each size class during the 2016 Heenan Lake, Alpine County CA, fishing season.

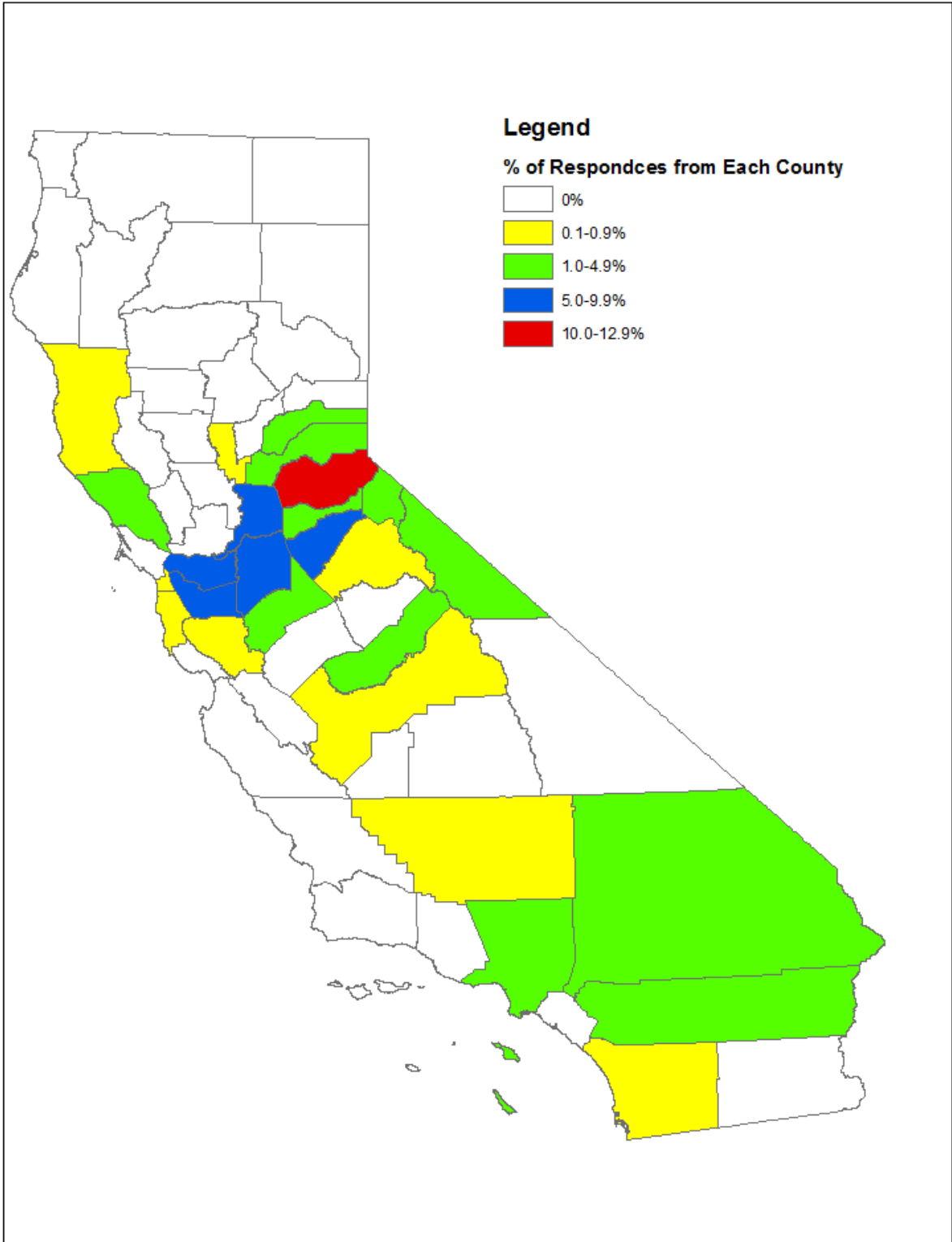


Figure 3. Map of California showing the percentage and county of primary residence of anglers fishing Heenan Lake, Alpine County, CA during the 2016 fishing season.