

California Department of Fish and Wildlife
Inland Fisheries Assessment and Monitoring Program

Stampede Reservoir Creel Survey Evaluation – 2020

by

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ABSTRACT

Stampede Reservoir is a popular recreational sport fishery destination, especially for anglers targeting Kokanee. Fishery management goals and stocking needs are evaluated by fisheries biologists when making critical decisions regarding the sport fisheries in this reservoir. California Department of Fish and Wildlife conducted an access point angler survey at Stampede Reservoir in 2020. A Fish and Wildlife Scientific Aid surveyed anglers requesting information relating to the number of anglers, number of rods used, total hours fished, species targeted, and number of fish (by species) kept and released. In addition, anglers were asked questions about their satisfaction with the day's fishing experience, the number and size of fish caught. All fish kept were measured to total length in millimeters, and Kokanee were examined for missing adipose fins to recover marked fish that were released into the reservoir in 2018. Currently, the Kokanee fishery management goal of 330 mm (13 in.) total length is not being achieved. Only 5% of Kokanee caught in 2020 met or exceeded the management goal. Anglers enjoyed the opportunity to fish and the number of Kokanee caught but prefer to catch fish with a minimum total length of 355 mm (14 in.) total length, higher than the existing management goal. Further study of the Stampede Reservoir ecosystem and species composition is recommended. Adaptive management strategies should be implemented when making allotment decisions designed to improve the sport fishery at Stampede Reservoir.

INTRODUCTION

Since its formation in 1971, Stampede Reservoir has been a popular recreational sport fishery in Northern California for all types of anglers (cdec.water.ca.gov, usbr.gov); from the inexperienced angler that wants to learn, to the professional angler who enjoys teaching others. The reservoir contains a variety of sport fish: Kokanee (*Oncorhynchus nerka*; KOK), Rainbow Trout (*Oncorhynchus mykiss*; RT), Lahontan Cutthroat Trout (*Oncorhynchus clarkii henshawi*; LCT), Brown Trout (*Salmo trutta*; BN), Lake Trout (*Salvelinus namaycush*; LT), and Smallmouth Bass (*Micropterus dolomieu*; SMB); as well as non-game fish, consisting of Mountain Whitefish, (*Prosopium williamsoni*; WF) and Tui Chub (*Siphateles bicolor*; TC). The California Department of Fish and Wildlife (CDFW) has a long history of stocking a variety of species in Stampede Reservoir for recreational anglers. Currently, KOK and LCT are the only two sport fish annually stocked. Brown Trout, RT, and LT received historic stocking allotments, but now these fisheries are maintained by natural recruitment (Figure 1).

Stampede Reservoir contains a strong spawning run of KOK ascending the Little Truckee River in the fall. Due to this natural spawning run, Stampede Reservoir is currently the only active site providing a source of KOK eggs for the CDFW Landlocked Salmon program. To help support and maintain the reservoir's KOK sport fishery a supplemental stocking of fingerlings are released into the reservoir each year.

Due to the diversity of fisheries at this reservoir, the CDFW conducts angler surveys at access points, such as boat ramps, to aid in assessing angler success and satisfaction. The data collected from anglers are extremely valuable and is utilized by fisheries biologists when making critical decisions regarding adaptive management strategies for these fisheries, including evaluating existing management goals, fish stocking needs, and regulation modifications.

STUDY LOCATION

Stampede Reservoir (Sierra County, CA) is a man-made reservoir located on the eastern side of Northern California's the Sierra Nevada Mountain Range (Figure 2). Located in the Tahoe National Forest, it is surrounded by a conifer and evergreen forest and has a drainage area of 130 square miles. The reservoir is situated at 5,910 feet elevation with a surface area of 3,450 acres and a water capacity of 226,500 acre feet of water (<https://www.usbr.gov/mp/sod/projects/stampede/index.html>). The average reservoir level for the 2020 water year was 52% of full capacity, at 135,831 acre feet (cdec.water.ca.gov). Inflow to the reservoir is provided primarily by three tributaries: Little Truckee River, Sagehen Creek, and Davies Creek.

Filled in 1971 after the completion of the Stamped dam, the reservoir is managed and operated by the US Bureau of Reclamation (cdec.water.ca.gov). As part of the Washoe Project, the reservoir drains into the Little Truckee River, which is impounded again, forming Boca Reservoir. The Little Truckee River flows out of Boca Reservoir then joins with the Truckee River. The water delivered from Stampede Reservoir is used primarily for fishery enhancement along the Truckee River and Pyramid Lake Fishway facilities, but also provides flood control and recreational sport fish opportunities (usbr.gov).

METHODS

The California Department of Fish and Wildlife conducted an access point angler survey with the use of Fish and Wildlife Scientific Aids beginning May 7th, 2020 and ending on September 7th, 2020. A scientific aid was stationed at Stampede Reservoir boat launch to speak with anglers once they completed their fishing day. Survey days were stratified into weekday and weekends. Approximately 50% of weekend days and 25% of weekdays randomly selected to be surveyed each month. The surveys were conducted between at 0900 h and 1430 h. At the beginning of each survey day, the weather conditions were recorded, as well as surface water temperature. Boat anglers were surveyed at the end of their fishing day. Information requested from anglers was related to that day's fishing experience. The information regarding the fishing method, number of anglers, number of rods used, total hours fished, species targeted, county of residence, and number of fish (by species) kept and released was requested from anglers. All fish kept were identified to species and total length (TL) was measured to the nearest millimeter. Kokanee were also inspected for the presence of an adipose fin. Additionally, anglers are asked questions about their satisfaction with the day's fishing, the number, and the size of fish caught. If anglers indicated that they were dissatisfied or very dissatisfied with the number or size of fish caught, a follow up question was asked what the number and size of fish would satisfy them. If no fish were caught, anglers were only asked to rate their satisfaction with the day's fishing experience.

RESULTS

At the end of the four-month survey period, a total of 280 angling groups were interviewed representing 582 anglers and 2,587.5 hours fished. Of the 280 total angling parties interviewed, 245 groups consisting of 509 individuals targeted KOK. Thirteen groups representing 25 anglers targeted SMB, while nine groups representing 23 individuals angled for RT. Four groups for a total of eight anglers pursued LCT, while three groups representing five anglers targeted LT. Brown Trout was the least sought-after species with only two groups comprised of three anglers targeting BN. Nine anglers reported no target species, stating they were angling for anything (Table 1). Targeting six different fish species - KOK, BN, LCT, RT, SMB, and LT - anglers reported a total catch of 2,572 fish of which 1,283 were kept and 1,289 released (Table 2).

Based on the total hours fished, KOK were the target for most anglers with 2,282.5 hours (88%) expended over the four-month period. While KOK were the most frequently targeted species, some anglers fishing the reservoir focused on other species such as: SMB for 104.5 hours (4%), RT for 89.5 hours (3%), LCT for 37 hours (1%), LT for 18 hours (<1%), and BN for 17 hours (<1%). Anglers that reported targeting any species of fish add up to 36 hours (1%) of the total angling effort (Table 1).

KOKANEE

Kokanee comprised over 90% ($n = 2,329$) of all fish caught and anglers reported keeping 53% ($n = 1,234$) of those reported caught (Table 2). A total of 1,170 of the KOK kept were available for measurement. Of the KOK measured, 66% ($n = 780$) were determined to be less than 279 mm (11 in.) TL. Only 5% ($n = 62$) of all KOK kept were greater than or equal to 330 mm (13 in.) TL (Figure 3).

For anglers targeting KOK, 71% expressed being Satisfied or Very Satisfied with their day's angling experience, while 15% were Neutral. The percentage of anglers who expressed being Dissatisfied or Very Dissatisfied with their angling experience were 8% and 6% respectively (Figure 4). When anglers were asked about their satisfaction with the number of KOK they caught, almost half (46%) responded as being Satisfied or Very Satisfied, while 20% responded as Neutral. Over one-third (34%) of the anglers responded as having some level of dissatisfaction with the number of fish they caught (Figure 5). When asked about the size of KOK caught, more than half (55%) of anglers responded with some level of dissatisfaction. Just over one-quarter (28%) responded as being Neutral and only 17% of anglers reported some level of satisfaction with fish size (Figure 6).

LAHONTAN CUTTHROAT TROUT

Anglers reported a total catch of 78 LCT with 62% (n = 48) being released. All LCT kept were available for measurement. Of the LCT kept, the majority measured between 279-330 mm (11-13 in.) TL. Two were between 203-229 mm (8-9 in.) and three measured greater than or equal to 335 mm (≥ 14 in.) TL (Figure 7).

Satisfaction with overall angling day's experience for those targeting LCT was relatively even, with two anglers reporting as Neutral and one Very Satisfied, and one Very Dissatisfied. When considering the number of fish caught only one angler expressed being Dissatisfied and two were Satisfied. One angler did not respond to the question. The same ratio was expressed regarding the size of LCT caught.

RAINBOW TROUT

A total of 16 RT were caught and eight were kept. Rainbow trout kept ranged in size from 221 mm (8.5 in) to 410 mm (16 in) TL.

BROWN TROUT

Only three BN were reported during this survey and all were kept. The BN caught ranged in size from 346-500 mm (13.5-20 in.) TL.

Smallmouth bass had the highest catch-and-release rate with over 95% of SMB reported being released by anglers. Other fish reported kept and released were Tui Chub, Mountain Whitefish, and Common carp (Table 2).

To gain an idea of the distance anglers were traveling to fish this reservoir the scientific aid asked each group for their county of residence. Out of the 280 angling groups, almost one-half (44.3%) reported being from the state of Nevada. Anglers from California predominantly came from four counties: Placer, Sacramento, Nevada, and El Dorado (Table 3).

DISCUSSION

Stampede Reservoir is a popular recreational sport fishery destination offering a variety of game fish species. This reservoir is especially popular with for anglers seeking Kokanee. Therefore, angler surveys are an important tool used by CDFW fishery biologists to evaluate the success of management goals at this sport fishery.

In this survey 44% of KOK measured were between 203-251 mm (8-9.9 in) TL. This is far below the current management goal for this fishery - the management goal for KOK is 330

mm (13 in.) or greater. Only 5% of KOK observed met or exceeded that goal. In a 2019 angler survey conducted by CDFW (Mamola and Mellon, 2020), the average size KOK observed was 279 mm (11 in.) TL and 25% met or exceed the management goal (Figure 8).

Anglers targeting KOK enjoyed the opportunity to fish and were satisfied with the day's fishing experience. While most angling parties also expressed satisfaction with the number of KOK caught, they expressed considerable dissatisfaction with size in the current fishery. Those displeased with the current fish size were asked what size would be satisfactory. The preferred size suggested was 355 mm (14 in.) TL. While this is slightly higher than current management goal, it still aligns closely with it.

Further study on the Stampede Reservoir ecosystem is recommended. Adaptive management strategies should be considered when making future decisions regarding KOK stocking allotments at this reservoir to align KOK size in the sport fishery with management goals and expectations of anglers.

ACKNOWLEDGEMENTS

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- US Bureau of Reclamation (USBR). 2020. Projects & Facilities, Stampede Dam. Projects & Facilities, Washoe Project. Available: <https://www.usbr.gov>

TABLES

Table 1. Total number of angling groups, number of anglers, rods used, and hours fished by target species.

Target Species	Angling Groups	Number of Anglers	Number of Rods Used	Total Hours Fished	% of Total Hours Fished
KOK	245	509	679	2282.5	88.2%
SMB	13	25	25	104.5	4.2%
RT	9	23	23	89.5	3.5%
LCT	4	8	10	37.0	1.4%
LT	3	5	7	18.0	0.7%
BN	2	3	4	17.0	0.6%
ANY	4	9	10	36.0	1.4%
Grand Total	280	582	758	2587.5	

Table 2. The total number of fish kept and released by species.

Fish Species	Kept	Released	Total Caught
KOK	1,234	1,095	2,329
LCT	29	48	78
SMB	8	138	146
RT	8	5	16
BN	3	0	3
OTHER	4	5	9
Total	1,287	1,294	2,581

Table 3. The number of angler groups by state or California county of residence.

State or California County	Total Number of Groups	Frequency
State of Nevada	124	44%
Placer County	55	20%
Sacramento County	36	13%
Nevada County	16	6%
El Dorado County	14	5%
Other Counties	35	12%

Table 4. The preferred number and size of Kokanee per number of anglers in angling group.

Number Anglers in Group	Average Number of Kokanee Preferred	Average Size of Kokanee Preferred (inches)
1	5	14
2	10	14
3	14	14
4	--	13

FIGURES

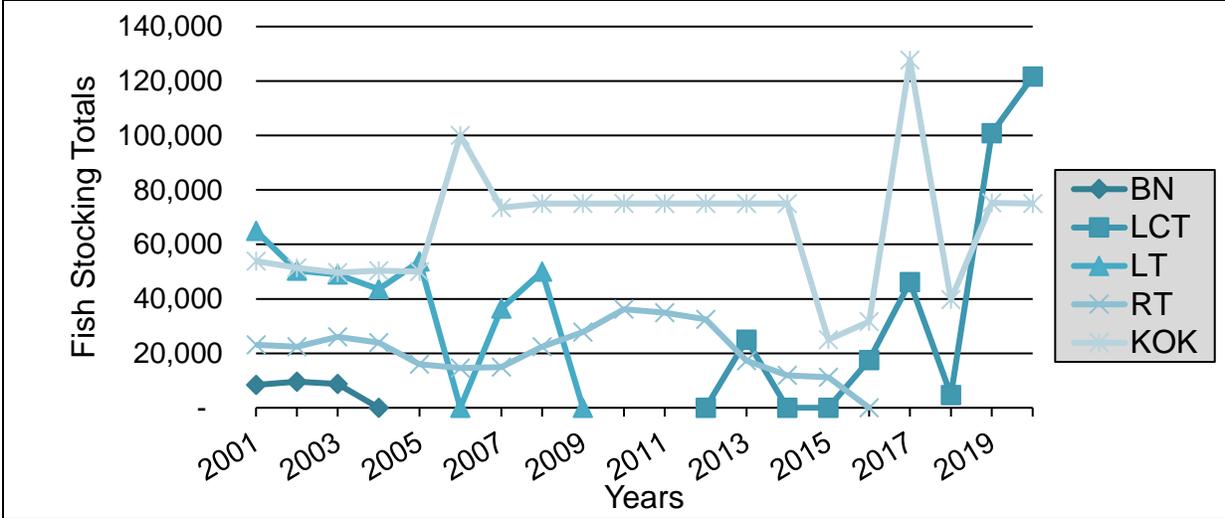


Figure 1. 20 -year stocking history by species for Stampede Reservoir.



Figure 2. Location of Stampede Reservoir in California.

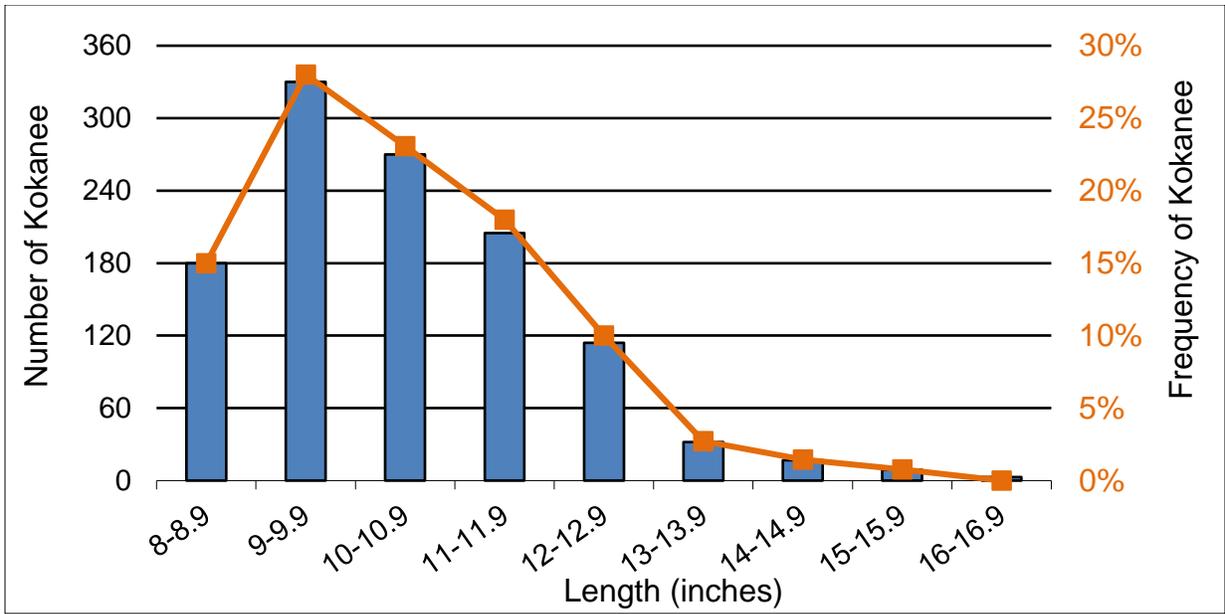


Figure 3. Number and percent of Kokanee kept by length frequency.

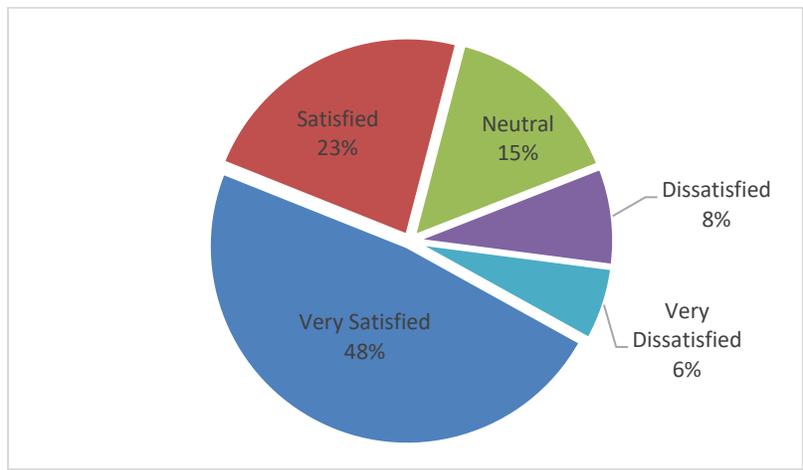


Figure 4. Angler's satisfaction with the days fishing experience for anglers that targeted Kokanee.

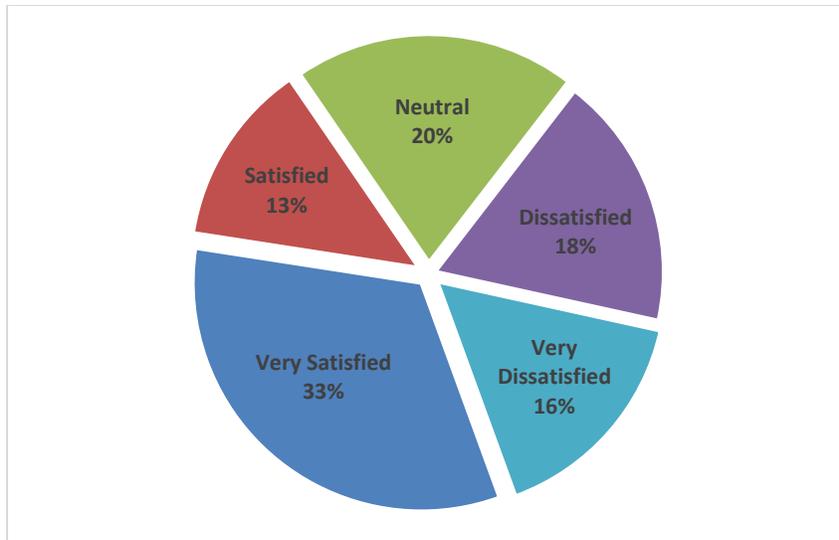


Figure 5. Angler's satisfaction with the number of Kokanee caught by anglers targeting Kokanee.

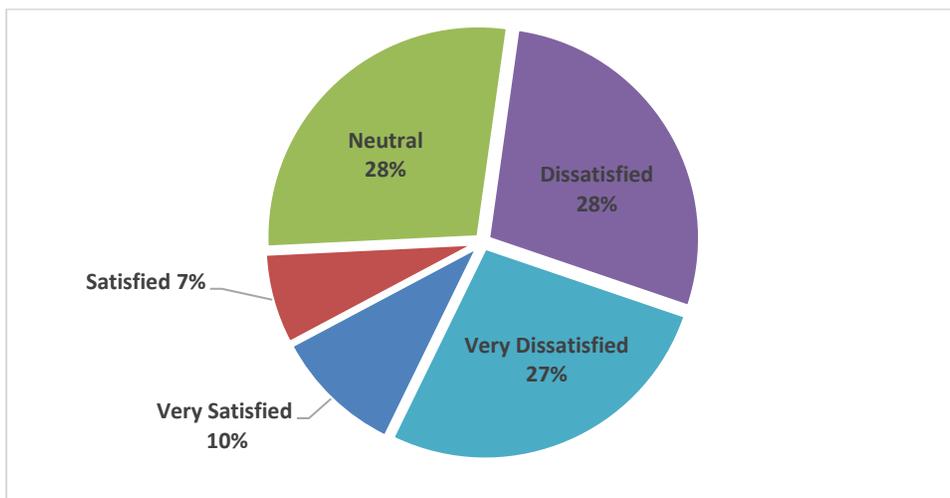


Figure 6. Angler's satisfaction with size of Kokanee caught by anglers targeting Kokanee.

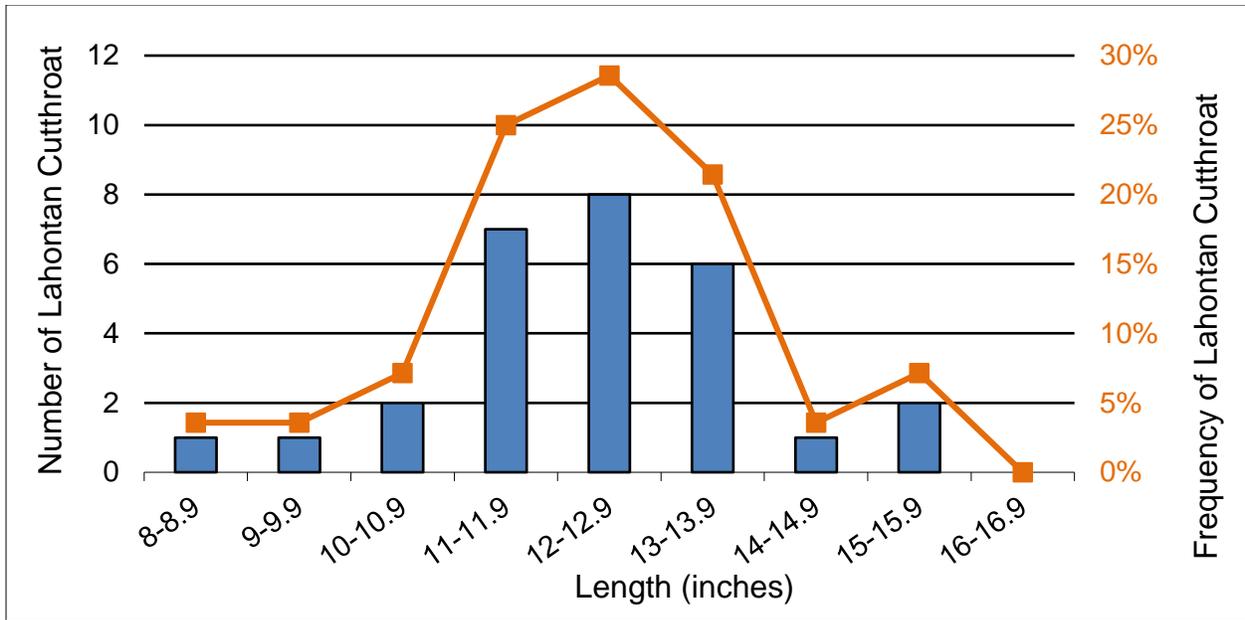


Figure 7. Number and percent of Lahontan Cutthroat Trout kept by length frequency.

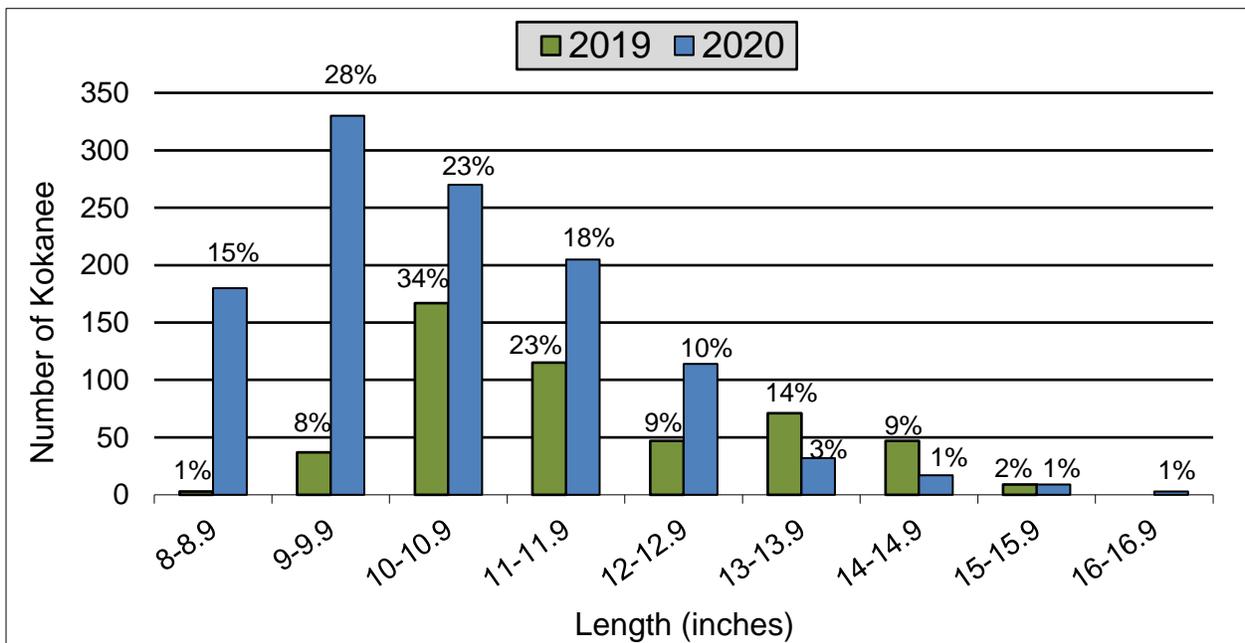


Figure 8. Comparison between number of Kokanee by length frequency observed in 2019 and 2020 angler surveys.