

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

Stampede Reservoir Sport Fishery Evaluation – 2024

by

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ABSTRACT

Stampede Reservoir, located in Tahoe National Forest, is a popular fishing spot for anglers of varying experience. Due to its strong natural spawn run, Stampede is the sole source of Kokanee Salmon eggs for the California Department of Fish and Wildlife (CDFW) Landlocked Salmon Program. To manage Kokanee and other sport fisheries at this reservoir, angler access point surveys were conducted during the summer season of 2024. A CDFW employee interviewed anglers after their day fishing. Information regarding the number of anglers, total rods used, total hours fished, species targeted, and number of fish kept and released (separated by species) was collected. Anglers were also asked to rate their satisfaction with overall angling experience and the number and size of fish caught. Fish kept were identified by species, and the total lengths were taken. Kokanee measured during the surveys had an average total length of 287 millimeters (mm). The majority (86%) of anglers targeted Kokanee, and the other 14% consisted of anglers targeting Smallmouth Bass, Rainbow Trout, other trout, or no target preference. Anglers were generally satisfied with their overall fishing experience and number of fish caught, but anglers were divided on their satisfaction with the size of the fish.

INTRODUCTION

Stampede Reservoir was formed by the completion of the Stampede Dam in 1970. The dam is owned and operated by the US Bureau of Reclamation, is a part of the Washoe Project, and serves as the drainage basins of the Truckee and lower Carson Rivers to supply irrigation water to other projects (US Bureau of Reclamation 2020). The reservoir provides flood control and recreation, and it is a popular destination for anglers. The reservoir contains a variety of sport fish: Kokanee Salmon (*Oncorhynchus nerka*), Rainbow Trout (*Oncorhynchus mykiss*), Brown Trout (*Salmo trutta*), Smallmouth Bass (*Micropterus dolomieu*), Lake Trout (*Salvelinus namaycush*), and Lahontan Cutthroat Trout (*Oncorhynchus clarkii henshaw*). The California Department of Fish and Wildlife (CDFW) has a history of stocking Stampede Reservoir with Kokanee, Brown Trout, Lahontan Cutthroat, Lake Trout, and Rainbow Trout, but it has been predominantly stocked with Kokanee and Lahontan Cutthroat in recent years.

Angler surveys are conducted at Stampede Reservoir to specifically evaluate the Kokanee fishery and its needs, and as a result they also track the other various sport fisheries. This data is used by fishery managers when developing

adaptive management strategies for these fisheries; actions such as assessing management goals, fish stocking needs, or regulation changes all utilize information provided by anglers.

METHODS

STUDY LOCATION

Stampede Reservoir is a human-made reservoir located in Sierra County and part of the Tahoe National Forest, approximately 30 minutes from the town of Truckee, California (Figure 1). It is situated at an elevation of just under 6,000 feet above sea level. The reservoir has a capacity of 226,500 acre-feet of water, a maximum depth of 120 feet, a surface area of about 3,450 acres, and about 25 miles of shoreline (US Bureau of Reclamation 2022). Inflow to Stampede Reservoir is provided by three main tributaries: Little Truckee River, Sagehen Creek, and Davies Creek. Stampede drains back into the Little Truckee River.

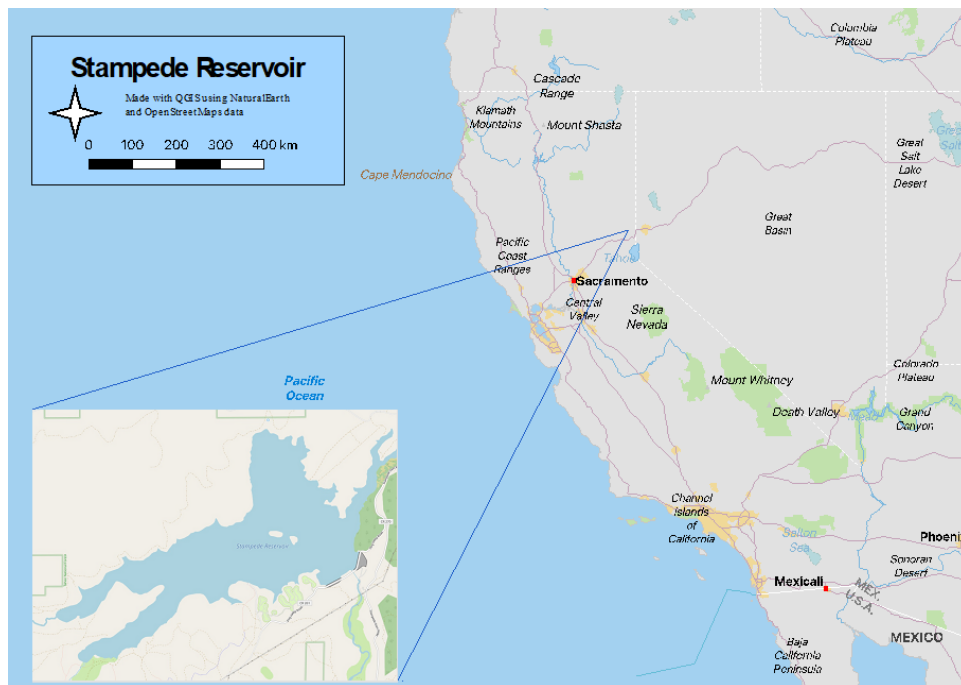


Figure 1. A QGIS map showing the location of Stampede Reservoir.

DATA COLLECTION

CDFW conducted access point angler surveys at Stampede Reservoir from June 6, 2024, to September 28, 2024. A CDFW employee, stationed at the Camp Roberts boat launch, conducted angler surveys from 0800h to 1300h. The surveys

were randomly stratified between weekdays and weekends/holidays to account for heavier usage by anglers. Weather conditions and surface water temperatures were taken at the beginning of each survey. Anglers were surveyed once they finished fishing for the day to ensure that the results represented complete fishing trips. The survey collected the following information: number of anglers, number of rods used, total hours fished, species targeted, number of fish kept and released (separated by species), and county of residence. If the angler was from out of state, their state of residence was recorded. Additionally, anglers were asked to rate the satisfaction of their overall experience, number of fish caught, and size of fish caught that day. The satisfaction ratings were on a scale from 1 to 5, with 1 indicating strong dissatisfaction and 5 indicating strong satisfaction. If the angler did not catch anything during their day, they were only asked to rate their overall experience. Fish kept by anglers were identified by species, and total length (TL) was measured to the nearest millimeter (mm).

RESULTS

OVERVIEW

In 2024, 254 angler groups were interviewed, representing 477 individual anglers, with a total of 1,977.5 fishing hours. Of the anglers interviewed, 86% (n=412) targeted Kokanee, 5.7% (n=27) did not have a target species, 4% (n=19) targeted Smallmouth Bass, 2.7% (n=13) targeted Rainbow Trout, <1% (n=4) fished for any trout, and <1% (n=2) targeted Brown Trout (Table 1). Anglers targeted Kokanee most frequently with a total of 1,768.3 hours fished, and angling groups used an average of 2.6 rods to fish for Kokanee.

Target Species	Total Anglers	Total Hours Fished	Average # of Rods
KOKANEE SALMON	412	1768.3	2.6
ANY	27	93.0	2.3
SMALLMOUTH BASS	19	58.0	1.3
RAINBOW TROUT	13	39.3	1.8
TROUT (GENERAL)	4	11.0	2.0
BROWN TROUT	2	8.0	1.0

Table 1. The number of anglers, hours fished, and average number of rods used for each target species at Stampede Reservoir.

STATE AND COUNTY ANGLER DISTRIBUTION

Approximately 42.6% (n=109) of angling groups interviewed were from the state of Nevada, 15.2% (n=39) of groups were from Nevada County, 9.4% (n=24) were from Placer County, and 8.6% (n=22) were from Sacramento County in California. The remaining 24.2% (n=62) of groups came from 21 other California counties and 3 other states, each representing <3% of angling groups (Figure 2).

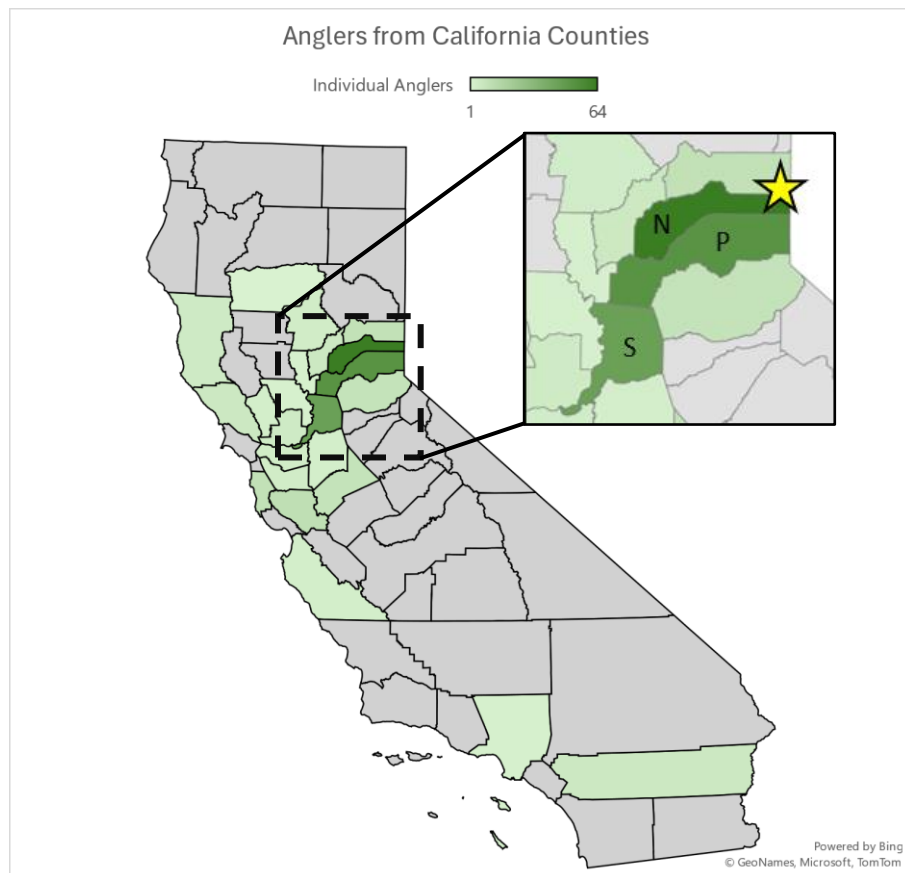


Figure 2. A map representing the counties of origin for each angling group from California. Nevada County (N), Placer County (P), and Sacramento County (S) were the counties that most anglers came from. The location of Stampede Reservoir is marked with a yellow star.

ANGLER SATISFACTION RATINGS

Anglers rated their satisfaction on a scale from 1 (strongly dissatisfied) to 5 (strongly satisfied). When split by target species, Kokanee anglers rated their overall experience at an average of 4.3, the number of Kokanee caught at 3.9 and the size of Kokanee caught at 2.9 (Table 2). Anglers targeting Smallmouth Bass rated their overall fishing experience at 4.6, the number of Smallmouth Bass

caught at 3.5, and the size of Smallmouth Bass at 3.3. Anglers targeting Rainbow Trout rated their overall experience at 4.2, the number of Rainbow Trout caught at 3.1, and the size of Rainbow Trout at 3.6.

Target Species	Experience	Number	Size
KOKANEE	4.3	3.9	2.9
RAINBOW TROUT	4.2	3.1	3.6
SMALLMOUTH BASS	4.6	3.5	3.3
TROUT (GENERAL)	3.5	2.0	3.5
BROWN TROUT	4.0	3.0	-
ANY	3.7	3.5	3.5
Total	4.3	3.8	3.0

Table 2. Average angler ratings reflecting the daily satisfaction of angler groups, split by target species or category. Note that Brown Trout was fished for, but there was no catch reported for size satisfaction.

Kokanee anglers preferred to catch an average of 6.4 fish per trip, while Rainbow Trout anglers preferred to catch an average of 3.8 fish per trip (Table 3). Kokanee anglers preferred their fish to be bigger than the mean length of Kokanee caught this year, with the average preferred length at 15.2 inches (385 mm). Rainbow Trout anglers preferred their fish to reach an average length of at least 14 inches (356 mm).

Species	Preferred Number	Preferred Size (inches)
KOKANEE	6.4	15.2
RAINBOW TROUT	3.8	14.0

Table 3. Average angler ratings for Kokanee and Rainbow Trout anglers reflecting the preferred size and number of fish caught.

FISH DATA

Most of the fish caught were Kokanee (n=2344), representing 1,321 kept Kokanee and 1,023 released Kokanee (Table 4). A total of 112 Smallmouth Bass, 32 unidentified trout, 21 Rainbow Trout, 6 Lahontan Cutthroat Trout, 2 Lake Trout, and 4 "Other" (including Pikeminnow) were also caught.

A total of 769 Kokanee were measured with total lengths ranging from 131 mm to 384 mm (Figure 3). The average length of kept Kokanee was 287.3 mm. Lahontan Cutthroat Trout averaged 428 mm and Rainbow Trout averaged 376.3 mm in length.

Overall Catch	Kept	Released	Total
KOKANEE	1321	1023	2344
RAINBOW TROUT	8	13	21
SMALLMOUTH BASS	0	112	112
LAHONTAN CUTTHROAT TROUT	6	0	6
BROWN TROUT	0	0	0
LAKE TROUT	0	2	2
GENERAL TROUT (UNIDENTIFIED)	0	32	32
OTHER	0	4	4

Table 4. Total number of fish reported caught by species or category during Stampede Reservoir creel survey.

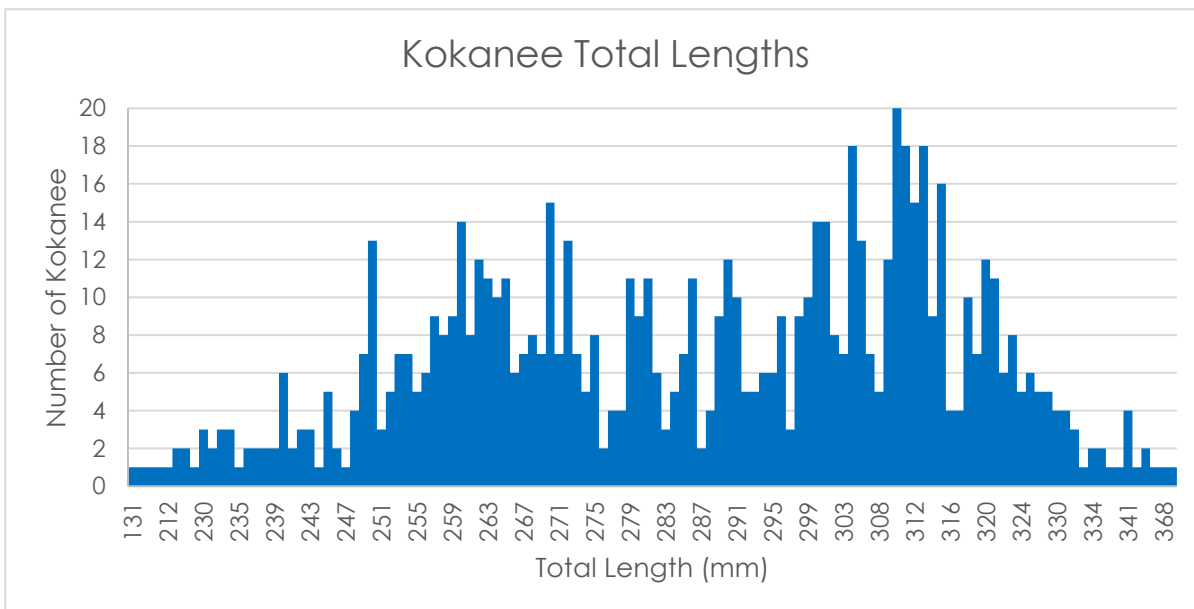


Figure 3. Total lengths in millimeters of kept Kokanee at Stampede Reservoir. The vertical axis represents how many fish at each size were recorded.

Catch per unit effort (CPUE) is defined as the number of fish, kept or released, caught by an angler for every hour they fished. Similarly, we defined HPUE (harvest per unit effort) as the number of fish kept by an angler for every hour they fished. Kokanee anglers averaged a CPUE of 1.31 fish per hour and an HPUE of 0.73 fish per hour.

ENVIRONMENTAL DATA

Surface water temperatures at Stampede Reservoir showed an average temperature of 20.2 °C during the 2024 creel survey period. Water temperatures rose during the summer months and fell during the fall months (Figure 4).

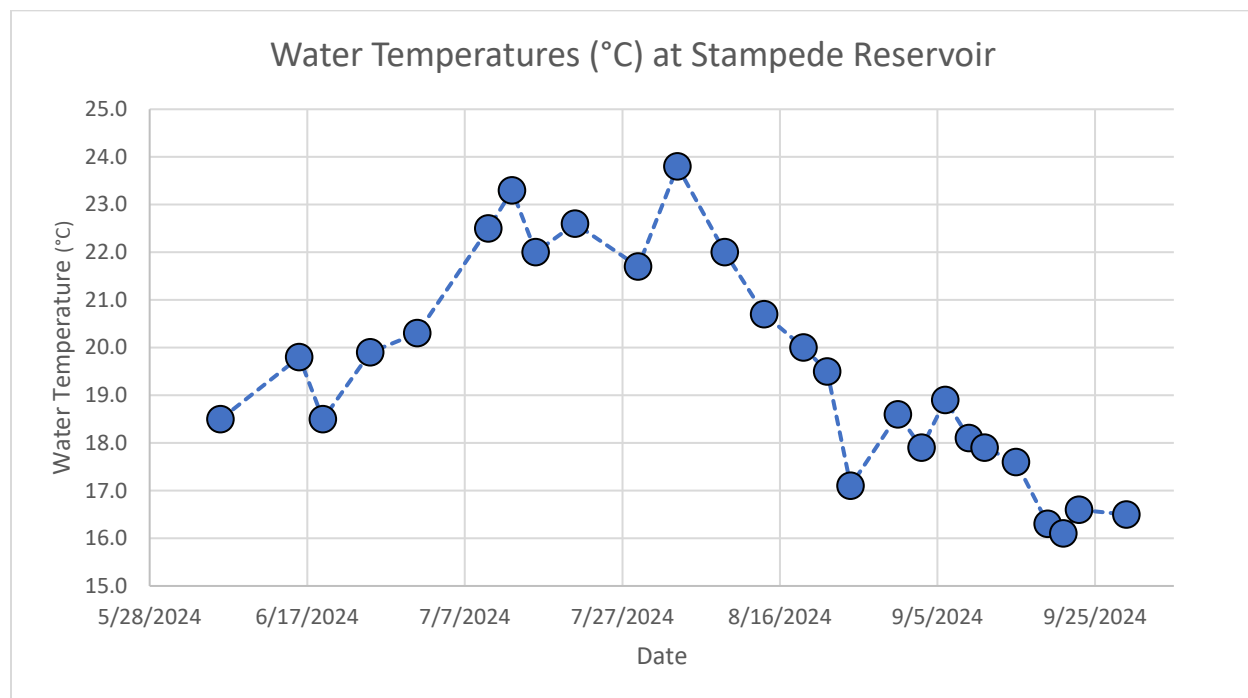


Figure 4. A graph showing water temperatures in Celsius (°C) at Stampede Reservoir. Each dot represents a creel survey day where the water temperature was recorded.

DISCUSSION

Anglers targeting Kokanee in 2024 were overall satisfied with their experience on the water but expressed mixed feelings about the number of fish caught and size of fish this season.

A review of the catch data from 2019 to 2024 shows that the size of Kokanee has fluctuated over the years (Figure 5). In 2019, the average Kokanee length was 297.6 mm. In 2020, the average length was 262 mm, and in 2021, the average length rose to 272 mm. The average length reached 346 mm in 2022 and fell to 287.3 mm in 2024.

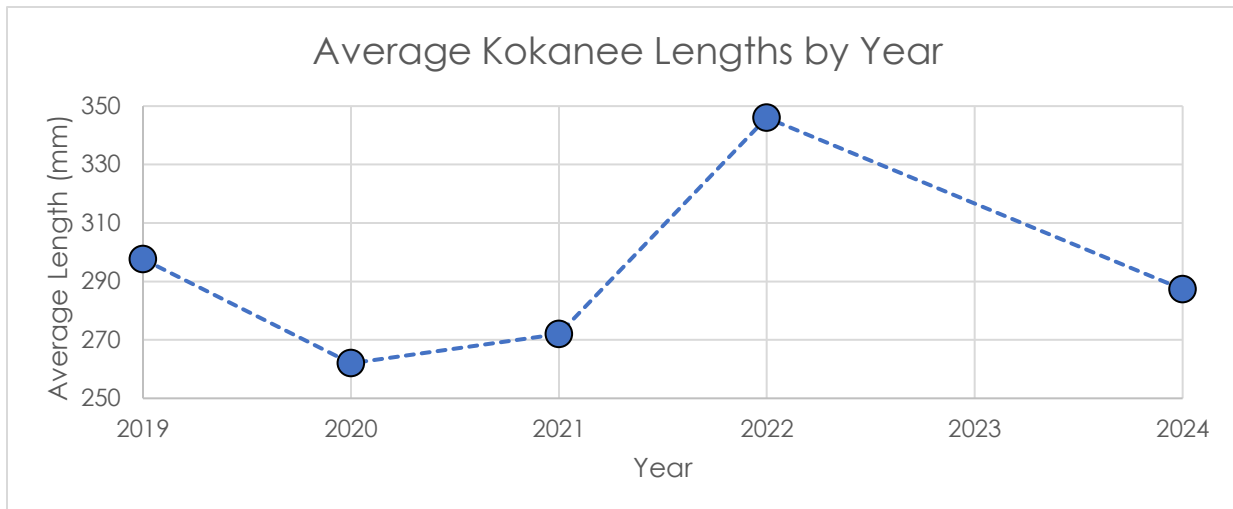


Figure 5. Kokanee average lengths from 2019 to 2024 in millimeters (mm). No creel data was collected in 2023.

Kokanee angler satisfaction ratings between 2020 and 2024 have also shown changes (Figure 6). In 2020, the average size satisfaction rating was 2.4 out of 5, and in 2021 it was 2.48 out of 5. In 2022, size satisfaction rating rose up to 4.56 out of 5. However, in 2024, the average size satisfaction rating was 2.9 out of 5, like the ratings in 2020 and 2021. The overall satisfaction with angling experience for Kokanee remained high across years, and the Kokanee number satisfaction followed a similar trend.

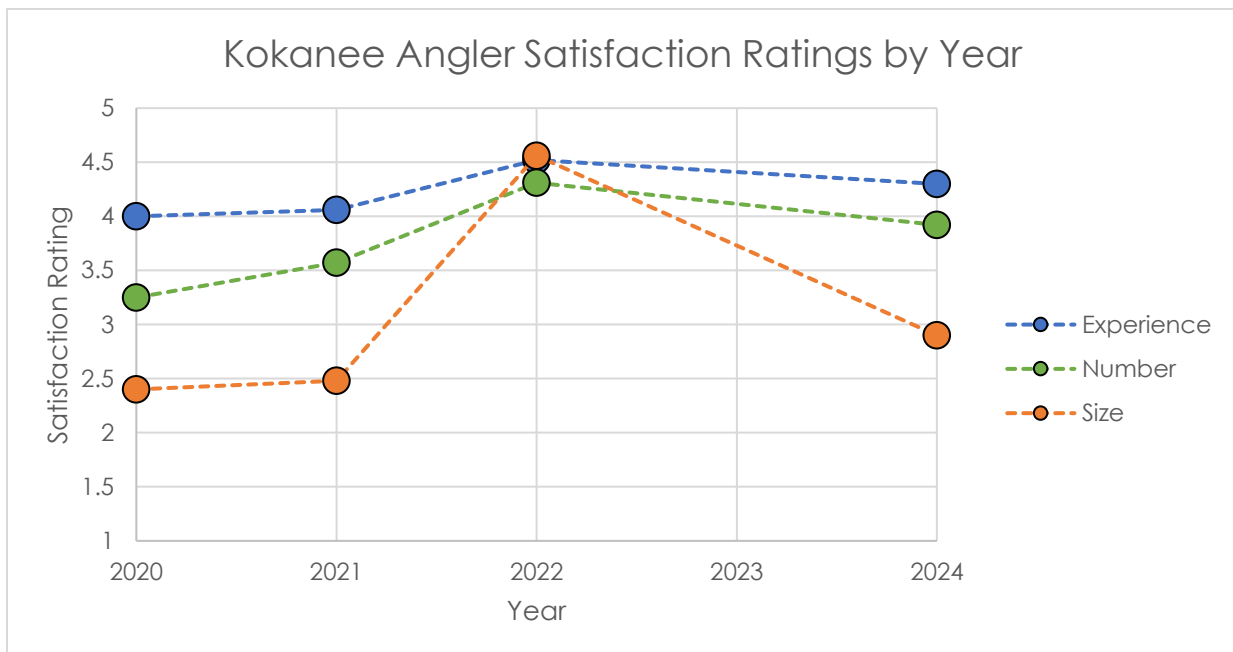


Figure 6. Kokanee angler satisfaction ratings from 2020 to 2024 for overall experience, number of fish caught, and size of fish caught. Satisfaction ratings on the vertical axis are recorded from 1 (very dissatisfied) to 5 (very satisfied). No creel data was collected in 2023.

Kokanee CPUE and HPUE data were also compared from 2020 to 2024 (Figure 7). Kokanee CPUE gradually increased from 1.0 fish caught per hour in 2020 to 1.31 fish in 2024. In 2020, 0.46 fish were harvested per hour, and in 2021 it rose to 0.86 fish harvested per hour. In 2022, 1.07 fish were harvested per hour, but in 2024 this fell to 0.73 fish harvested per hour. Kokanee anglers in 2022 had a higher harvest rate that more closely matched their overall catch per hour than in 2020, 2021, or 2024. Keeping more of the fish that are caught on average makes sense considering both increased satisfaction ratings (Figure 6) and increased fish size (Figure 5) seen in 2022 compared to the other years; anglers keep more of the fish they catch when they are satisfied with the size.

These trends, including the varied opinions of anglers on Kokanee size this season warrant further study, including monitoring of angler satisfaction, stocking considerations, and the kokanee population overall.

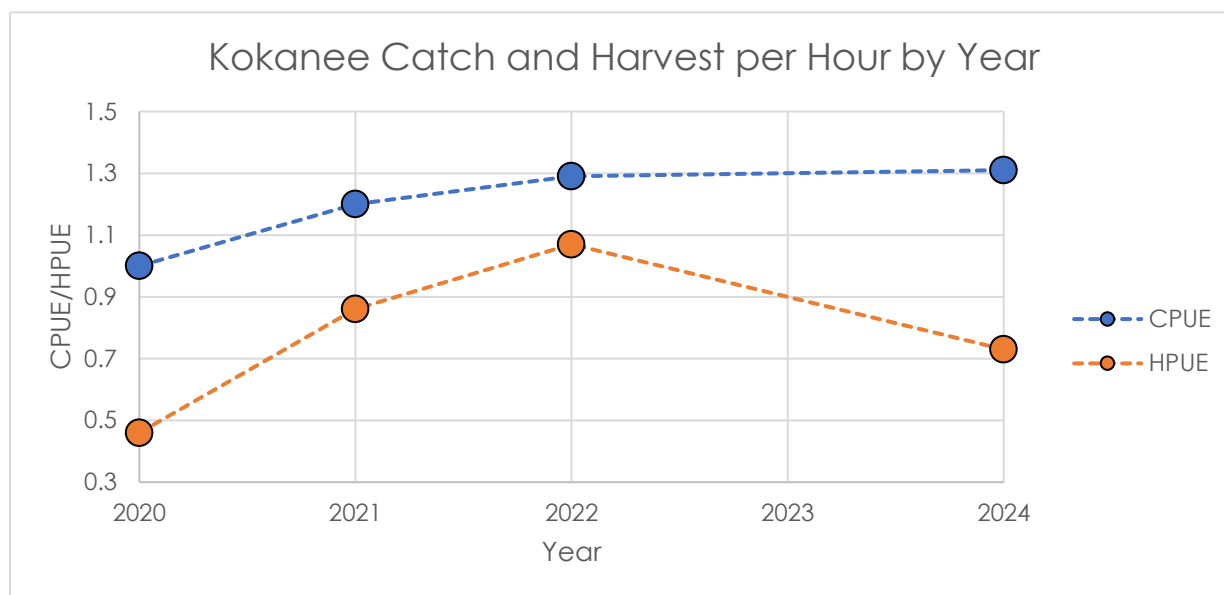


Figure 7. A line graph showing the Kokanee catch per hour (CPUE) and Kokanee harvest per hour (HPUE) from 2020 to 2024. Note that there was no creel data collected for 2023.

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