

## MERRILL LAKE FISH-IN OCTOBER 14, 2023

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### Introduction

This summarizes the fourth Clark-Skamania Flyfishers (CSF) Merrill Lake Fish-in held on Saturday, October 14, 2023. The Fish-in was one of the CSF's series of outings that take place throughout the year at various locations in Washington and Oregon.

The purpose of the Fish-in was to gather information about the trout species present in Merrill Lake and angler success during a one-day effort. The first Fish-in was held on November 3, 2019, the second on October 17, 2020 and the third on October 9, 2021. The 2022 Fish-in was cancelled because of severe storm conditions on the scheduled day of the outing. No other dates were available because of conflicts with other scheduled CSF outings.

We appreciate the support of Washington state agency staff in making the 2023 Fish-in a success. Washington Department of Fish and Wildlife (WDFW) staff Paul Dunlap, Matt Gardner and Andrew Annear provided information and joined us at the Fish-in. Special thanks go to Paul who provided the original idea for a Fish-in and who supplied the data sheet template and trout identification information for our use. Carlo Abbruzzese, Washington Department of Natural Resources, also participated in the Fish-in.

**Weather Conditions:** Weather conditions were good for fishing during the official Fish-in hours of 9:00 a.m. to 3:00 p.m. It began to rain around 3:00 p.m. and it steadily increased from then on. In the morning it was cloudy and calm. The temperature during the day ranged from 56 degrees F. at 9:00 a.m. to 65 degrees F. at 3:00 p.m. at Cougar, WA. The wind was very light throughout the Fish-in. Barometric pressure was steady throughout the day. The moon phase was a waning crescent with about 2% illumination on the night of October 13. There was a partial solar eclipse at about 9:18 a.m. The cloud cover was light enough so that the eclipse was visible.

**Water Conditions:** Merrill Lake's water level was low which is normal for this time of year. The lake level was slightly higher than it has been during some recent years. The lower end of the boat ramp was out of the water and anglers launched their boats from the exposed shore lakeward of the ramp. No one experienced problems launching their craft.

The water was clear and there was relatively little aquatic vegetation observed compared to previous years.

**Angler and Catch Information:** This year twenty-five anglers participated in the Fish-in. Most of the participants were CSF members. Three Washington Department of Fish and Wildlife staff and one Washington Department of Natural Resources employee also joined the Fish-in.

Anglers recorded their catch information on the Merrill Lake Hook & Line Data Sheet. Each angler who fished alone or boat (for multiple anglers) was provided with a data sheet and a measuring board. Information that was entered onto the data sheets included angler names, start and stop times, total hours fished, species caught, fork length of fish caught, whether the fish had external parasites and other comments. Other comments included weather condition, successful fly patterns and fishing techniques. All fish were measured in millimeters.

Anglers fished from larger boats (two to three to a boat) and smaller craft that carried individual fishers. Some anglers also fished from the shore. Various fishing techniques were used including trolling, casting and stripping, and dry fly fishing. Participants fished all depths of the lake and reported the best success fishing in shallower waters.

**Results:**

Number of anglers: 25

Total number of hours those anglers fished: 115.25

Total Number of Fish Caught: 197 (one cutthroat trout was caught, but not measured)

Catch Per Unit Effort (CPUE): 1.7 fish/hour

Table 1. Catch, Fish Size and Number of Fish Parasitized

Species	Number Caught	Max. Length	Min. Length	Avg. Length	#Parasitized
Cutthroat	171	370 mm	170 mm	288 mm	65
Rainbow	26	410 mm	170 mm	304 mm	0
Brown	0				0

**Fish Identification**

Since some of the participants are not well versed in fish identification, those conducting the Fish-in think that some of the rainbow trout reported may have been cutthroat. We tried to brief all anglers on trout identification when they checked in to pick up their measuring boards and recording sheets. Also, photos showing the difference in maxillary length of cutthroat and rainbow trout to aid in fish species identification were included in an email that was sent to all CSF members before the Fish-in.

**A Comparison of the 2019, 2020, 2021 and 2023 Fish-ins**

Anglers

The number of anglers this year was greater than in 2019, but fewer than in 2020 or 2021. The average number of hours each angler fished was intermediate compared to past years. The catch rate was higher this year (1.7 fish/hour) than in past years.

Table 2. Angler Effort and Success for Fish-ins by Year

Year	2019	2020	2021	2023
# of Anglers	11	30	32	25
Total Hours Fished	48.6	162.5	119.5	115.2
Hours Fished/Angler	4.4	5.4	3.5	4.6
CPUE	1.3 fish/hr.	0.8 fish/hr.	0.9 fish/hr.	1.7 fish/hr.

Discussion: Angler success was higher this year than in past years and considerably higher than in 2020 and 2021. This may be due to the good fishing conditions on October 14 which allowed anglers to fish more effectively. It may also be that CSF anglers were becoming more knowledgeable about fishing techniques and more productive locations on the lake.

### Fish Species

Cutthroat dominated catches as they have in past Fish-ins. Rainbow trout comprised a smaller percentage of the catch than in past years. No brown trout were caught this year.

Table 3. Numbers of Fish Caught by Species (Percentage of Total Catch)

Year	2019	2020	2021	2022*	2023
Cutthroat	49 (80.3%)	102 (76.7%)	90 (80.3%)	50 (100%)	171 (86.8%)
Rainbow	9 (14.8%)	29 (21.1%)	21 (18.8%)	0	26 (13.2%)
Brown	3 (4.9%)	2(1.5%)	1 (1%)	0	0

Discussion: The higher percentage of cutthroat in the catch this year may be due to the efforts to help participants identify cutthroat and rainbow trout. Anglers may have correctly identified more cutthroat this year, which in past years might have been recorded as rainbows. Anglers may also have fished in areas that were inhabited more by cutthroat than by the other species.

It is also likely that the percentage of cutthroat compared to rainbow and brown trout in Merrill Lake this year is now much higher than it was in past years. No rainbow trout have been stocked in Merrill Lake in recent years and the most recent stocking of brown trout was in 2020. That planting of brown trout consisted of 2,326 fry and these fish may have been too small for good survival. This year the WDFW plans to stock 2,000 to 3,000 fingerling brown trout which should have better survival due to their larger size. Future plans are to continue stocking brown

trout fingerlings every two to three years. The cutthroat trout population is wild and self-sustaining.

No brown trout were caught, but they are present in Merrill Lake. Recent sampling of Merrill Lake by WDFW staff who used gill nets and electroshocking caught both brown and cutthroat trout. No rainbow trout were collected during that sampling (Matt Gardner, WDFW, personal communication).

### Fish Size

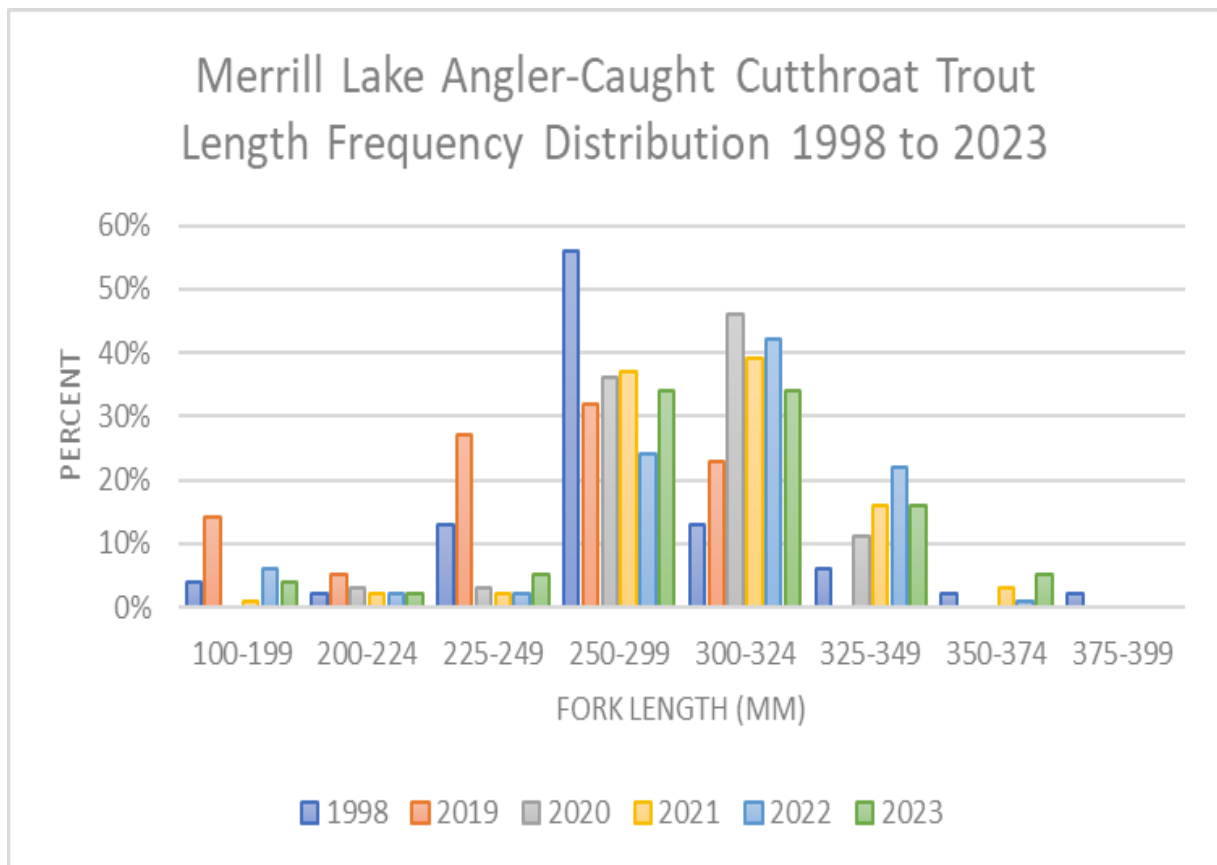
The average length of cutthroat caught in 2023 (288 mm) was slightly smaller than in 2021 (298 mm) and in 2020 (296 mm) and larger than that in 2019 (276 mm). The mean size of rainbow recorded this year (304 mm) was larger than in 2019 (274 mm), 2020 (292 mm) or 2021(247 mm). Too few brown trout have been caught in any of the four years to make a comparison.

Table 4. Mean, Maximum and Minimum Lengths of Trout Caught at 2019, 2020, 2021 and 2023 Fish-ins

	2019	2020	2021	2022*	2023
Cutthroat mean	276 mm (10.9")	296 mm (11.7")	298 mm (11.7")	297mm (11.7")	288.3 mm (11.4")
max	375 mm (14.8")	341 mm (13.4")	363 mm (14.3")	365 mm (14.4")	370 mm (14.6")
min	150 mm (5.9")	201 mm (7.9")	192 mm (7.6")	105 mm (4.1")	170 mm (6.7")
Rainbow mean	274 mm (10.8")	292 mm (11.5")	247 mm (9.7")		304 mm (12.0")
max	330 mm (13.0")	363 mm (14.3")	315 mm (12.4")		410 mm (16.1")
min	190 mm (7.5")	169 mm (6.7")	203 mm (8.0")		170 mm (6.7")
Brown mean	414 mm (16.3)	410 mm (16.1")	300 mm (11.8")		
max	460 mm (18.1")	490 mm (19.3")	300 mm (11.8")		
min	352 mm (13.9")	330 mm (13")	300 mm (11.8")		

We also examined fish length data collected for Merrill Lake in 1998 and compared them with those collected in the 2019 to 2023 Fish-ins. This continues a comparison between 1998 and 2019 done initially by WDFW staff. A comparison of length frequency of cutthroat trout from all years shows that a greater percentage of fish in caught in recent years are larger than those caught in 1998.

\*On November 3, 2022, the year with no club Fish-in due to bad weather, two fish biologist club members fly fished at Merrill Lake and caught 50 cutthroat whose average size was 297 mm (max 365 mm, min 105 mm). They used measuring boards and recorded their catch information on the standard Fish-in data sheets. We included that catch information in Table 4 and in the length frequency distribution chart below.



### Incidence of External Parasites

Fish-in anglers were also asked to examine trout for external parasites. Parasitic copepods (*Salmincola*) occur on the skin, fins, gills and in the mouths of trout. Their impact to the health of fish is minor unless infections are severe. Most fish we have observed in recent years from Merrill Lake have not been severely impacted, though most cutthroat that were closely examined have been afflicted by some copepods. Twenty-four of the twenty-six rainbow trout were checked for parasites and none were found to be carrying parasites. One hundred forty-six of the one hundred seventy-one cutthroat caught were examined for parasites. Sixty-five (44.5%) of the cutthroat were recorded as being infected with parasites. It is important to note

that on October 14<sup>th</sup> fish biologist and CSF member Dave Swank observed limited numbers of copepods on fins of a majority of the fish caught from his boat.