

Diamond Lake Monitoring Report



Oregon Department of Fish and Wildlife

2025

Diamond Lake is located near the headwaters of the North Umpqua basin, in eastern Douglas County, Oregon. Oregon Department of Fish and Wildlife (ODFW) has been managing the lake since the early 1900's when it began operating a rainbow trout hatchery. Two past rotenone treatments in 1954 and 2006 to eradicate tui chub and the rediscovery of the invasive tui chub in 2015 have led ODFW to conduct more specific monitoring and management of the lake. In 2025 several monitoring projects were conducted to determine the health of the lake, rainbow trout health, fishery productivity as well as monitoring and removal of non-native minnows.

Creel:

In 2025, creel sampling was done from May to October on 19 different days with the help of ODFW personnel and volunteers throughout the season. The current protocol dictates that the interviewer stays at one pre-determined location and interacts with as many anglers as possible during a 7-hour shift. Locations and shift times are chosen using a weighted/ random method. More surveys are conducted at the more popular boat launches. During our 2025 season, 270 surveys were conducted, interviewing 685 anglers and measuring 640 rainbow trout.

Based on these data, ODFW estimates between May 10, 2025 (Ice-off) through November 30th, 2025, there were 63,091 rainbow trout caught, and 33,017 rainbow trout harvested over an estimated total of 154,889 angler hours. Using a weighted average, catch per unit effort (effort is angling hours) is 0.40 (Figure 1). These results are below the 10-year average of 81,807 caught, 46,241 harvested, 183,492 angler hours and 0.52 CPUE (Figure 2). In the catch and release fishery, ODFW estimates that there were 7,893 brown and 2,318 tiger trout caught and released. These estimates do not account for winter harvest, but generally winter or ice fishing harvest is much lower than summer.

Due to the late ice-off in 2025, we had a reduction in the summer fishery by 18 days compared to 2024, which accounts for a significant portion of the reduction in catch we see. Non expanded data shows 1.84 rainbow trout caught per angler and 2.08 total trout caught per angler. Using the data obtained, the average length of rainbow trout retained was 13.6 inches in fork length, approximately 14 inches in total length using a conversion factor of 1.02. The largest rainbow trout recorded was 21 inches (TL).

Diamond lake has seen an effort shift over the last few years with the increasing popularity of the brown and tiger trout catch & release fishery. In 2026 we are looking to adjust our creel methods and questions to gain a better understanding of the proportion of anglers that are strictly targeting these non-native predatory fish.

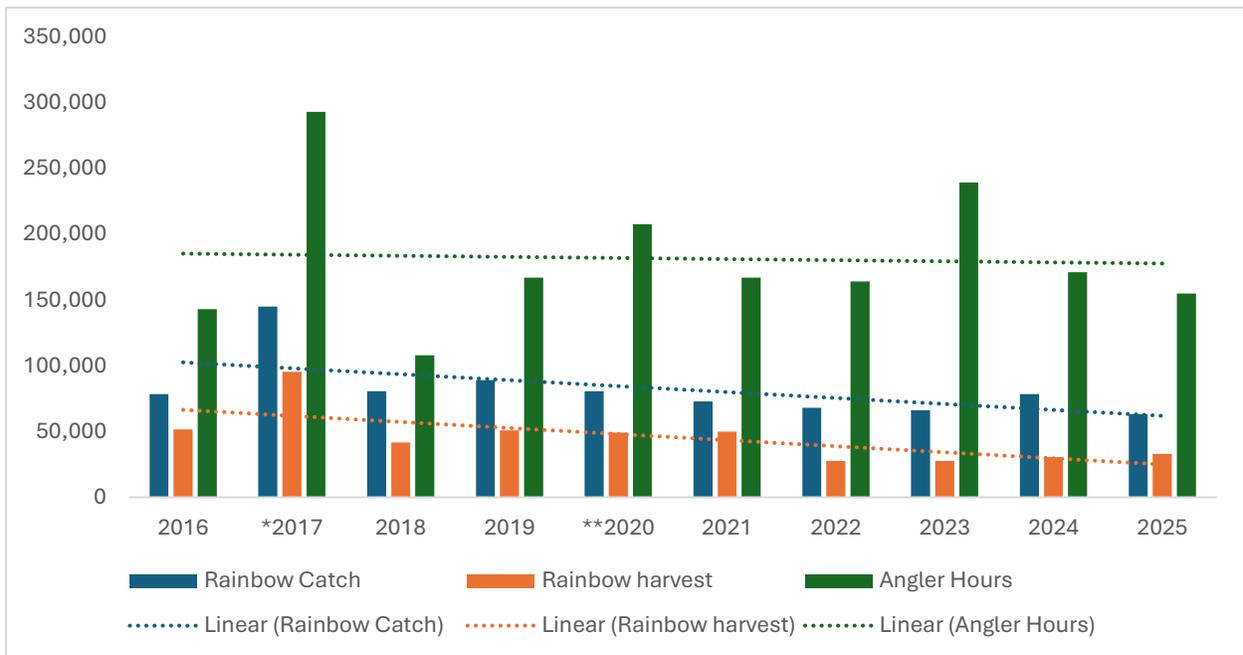


Figure 1 Estimated rainbow trout catch, harvest and effort

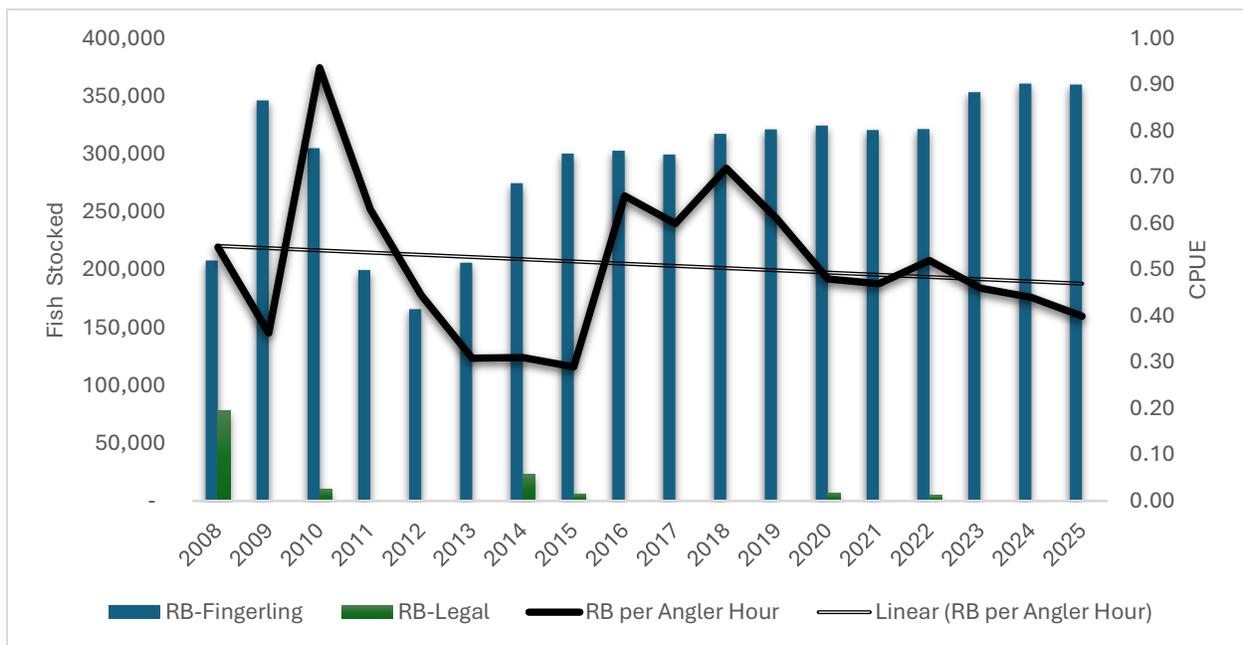


Figure 2 Diamond Lake catch per unit effort (CPUE) and Stocking

Summer Trap Netting:

In 2025, ODFW hired two temporary Biological Science Assistants with funding from the US Forest Service Good Neighbor Authority, to set trap nets daily at both standardized and random locations along the shore of Diamond Lake (Figure 3). 2025 marked the tenth season of these efforts to remove non-native minnows.

This year, trap netting efforts started in late May and continued through the end of September, resulting in 240 net sets. Information (including length and weight) was collected on 1,306 rainbow, 215 brown and 76 tiger trout. The crews purposefully avoid setting nets where large numbers of trout were caught in the past, resulting in lower numbers of trout than have occurred in past efforts. The crew successfully removed 12,898 tui chub and 55,508 golden shiners.

The crew did a fantastic job in the mechanical removal of the non-native minnows and very much narrowed in on the most prolific sites of tui chub inhabitation, 2025 unfortunately marks the highest number of both tui chub and golden shiner interceptions since the introduction of this project in 2016. 80% of the tui chub intercepted in trap nets came from 22% of the total net sets.

Moving forward with the monitoring and removal of non-native invasive species, ODFW is looking to conduct further research to determine the total population size of tui chub in diamond lake to get a better understanding of how our mechanical removal and introduction of non-native predatory fish is impacting the tui chub population. Gastric lavage was conducted during the mechanical removal and October trap netting, but due to high stress on the fish, many empty stomachs or contents being thoroughly digested, we are unable to have any statistically valid analysis of stomach content. Discussions on collecting and analyzing isotopic samples to determine the diet consistency of the brown

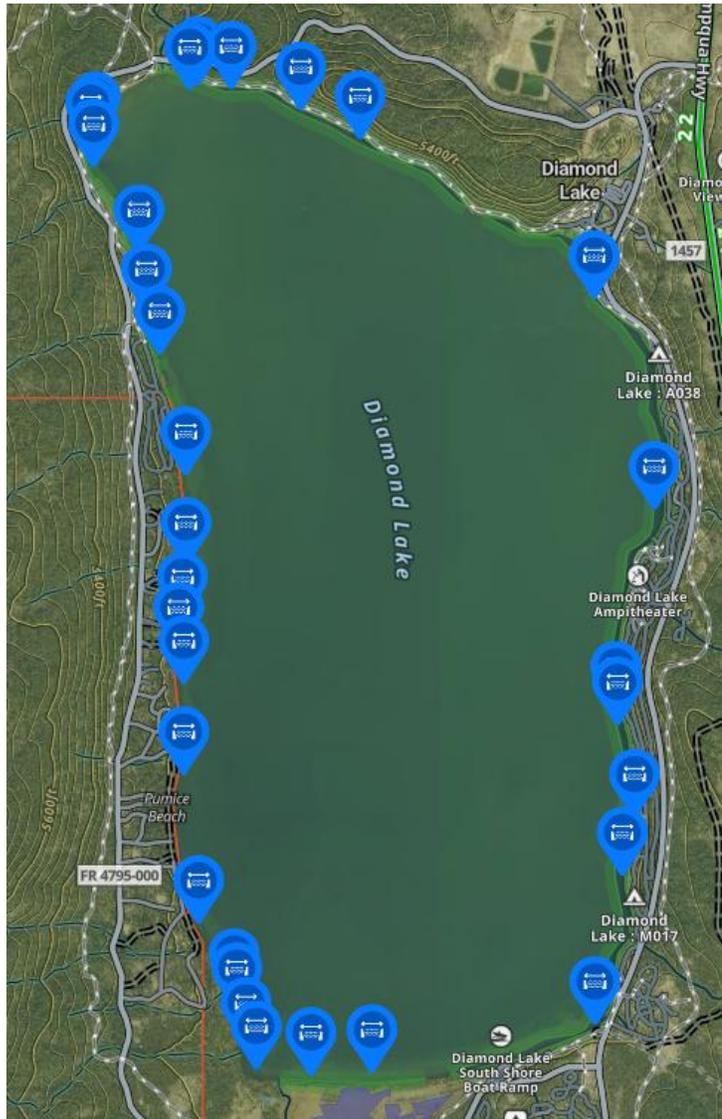


Figure 3 Sum of summer trap netting at Diamond Lake by species.

and tiger trout are currently in motion and the goal is to have statistically valid data to show what percentage of these predatory fishes' diet is chub and shiner.

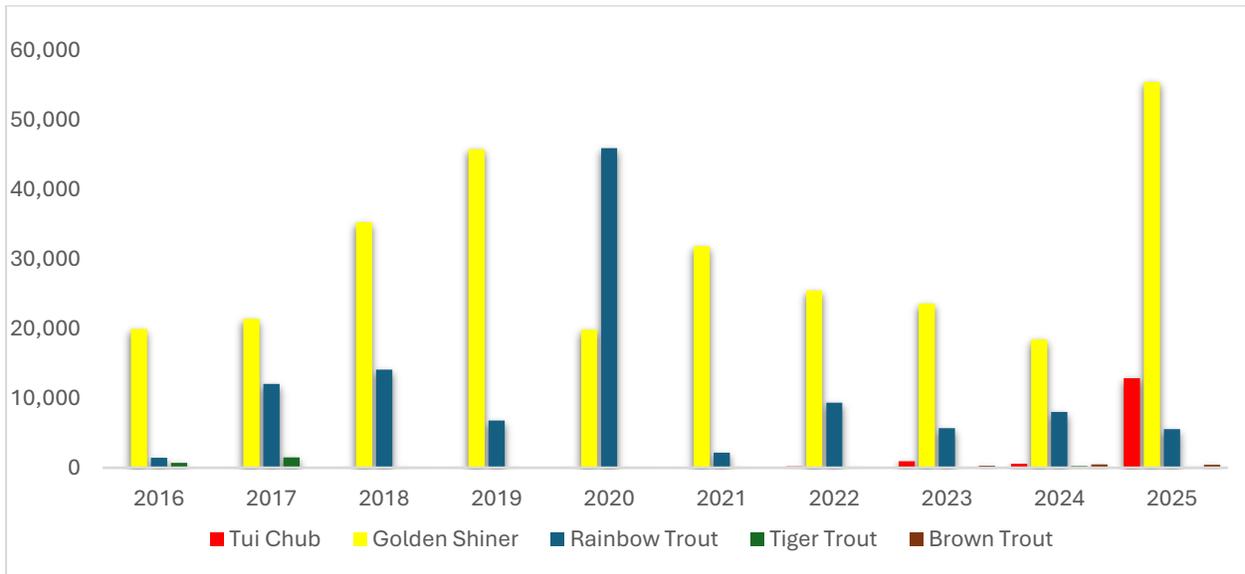


Figure 4 Sum of summer trap netting at Diamond Lake by species.

Stocking:

In 2025, stocking goals were met for Diamond Lake. Over the course of the year, ODFW has stocked 360,225 fingerling rainbow, 20,020 brown and 17,926 tiger trout; total 398,171 trout stocked for 2025. Rainbow trout averaged 3.7 inches when stocked. Rainbow trout stocking was conducted over the spring into early summer; brown trout were stocked late spring/early summer and tiger trout were stocked in the fall.

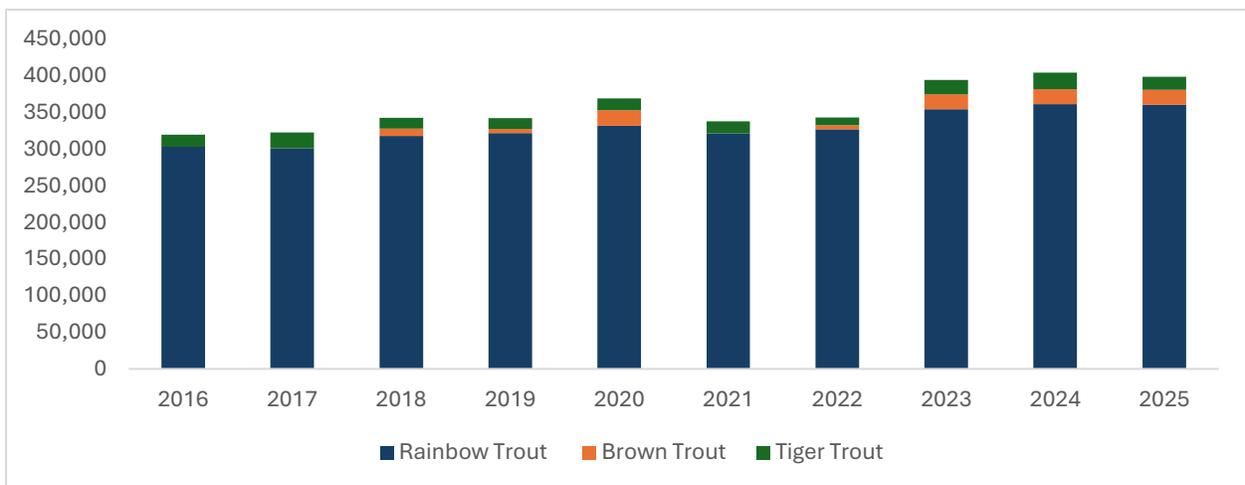


Figure 5 Annual trout stocking at Diamond Lake

Summer Growth:

In late October, ODFW staff set up 2 trap nets and 3 gillnets at designated sampling sites across Diamond Lake. The nets were set for approximately 24 hours to capture >50 rainbow trout to determine summer growth. The length and weight of the trout collected were compared against a subsample of fingerlings that were measured during two stocking events in June and July of 2025. Target trout during this sampling event are less than 350mm, which is the estimated max length of one-year-old rainbow trout. In 2025, ODFW observed an average growth rate of 1.20"/ month, which is below the post-treatment average of 1.37"/month (Figure 6). ODFW also calculated the condition factor of 2025 recruits, which was determined to be 1.31, above the post-treatment average of 1.29 (Figure 7). Growth rates in 2025 were analyzed using two separate stocks; the Oak springs stock are all adipose fin-clipped and therefore, when collecting our samples in October, all adipose fin-clipped trout were only compared to the stocking event that coincided with the Oak Springs fish. Both the growth rate (>1mm/day FL) and rainbow trout condition (K factor >1) are indicative of a healthy population and properly functioning lake ecosystem.

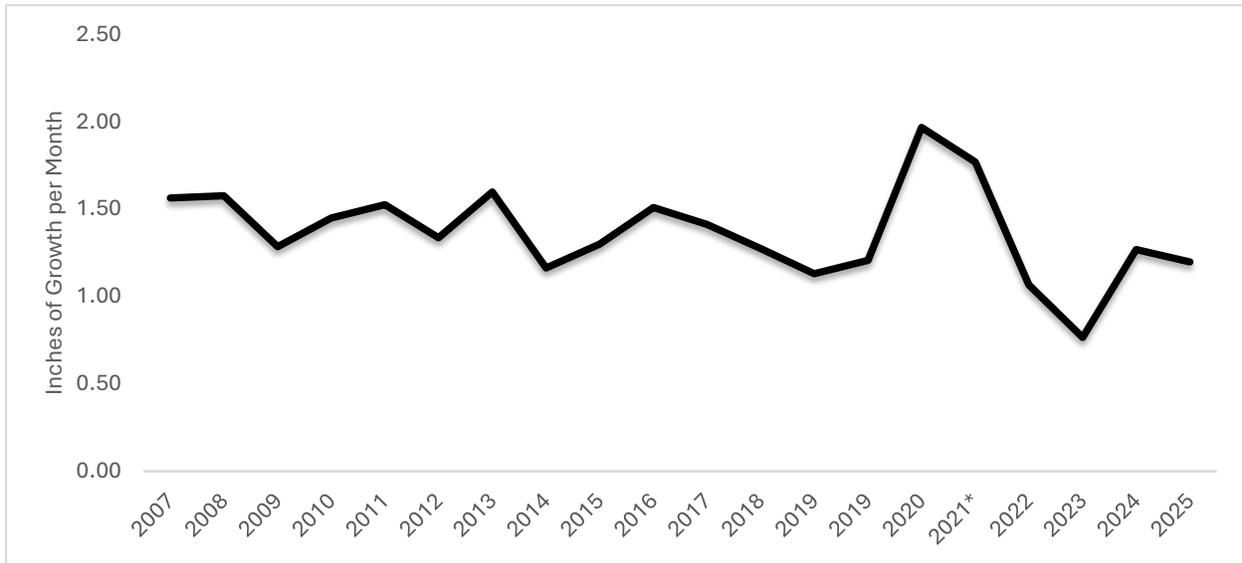


Figure 6 Young of the year rainbow trout growth rates in inches per month.

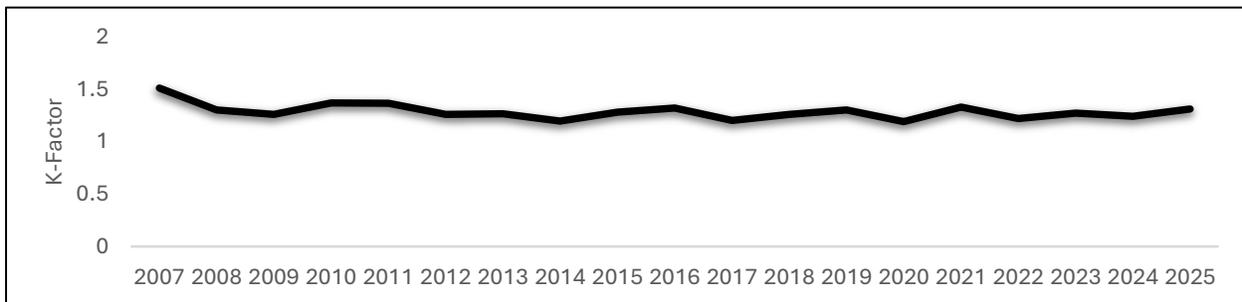


Figure 7 Fulton's Condition Factor of young of the year rainbow trout in Diamond Lake.

Benthic Analysis:

In 2025, a benthic analysis was not conducted. Since 2020, ODFW has moved to a biennial rotation of analysis. In 2024, benthic samples were taken from 23 separate sites around Diamond Lake. The samples were then analyzed for macroinvertebrate species composition and estimated invertebrate pounds/acre. Results from 2024 showed that invertebrate composition was 53.4% Daphnia (water fleas), 21.9% Chironomids (midges), 7.9% round worms, 5.2% shrimp, 5.1% mollusks, 2.6% round snails, 2.5% flat worms and 1.4% other (copepods, mayflies, mites, etc.). Invertebrate lb./acre was estimated to be 469.3 lbs./acre, 125% of the post-treatment average of 374.53 lbs./acre and 489% of the pre-treatment average of 95.98 lbs./acre (Figure 8).

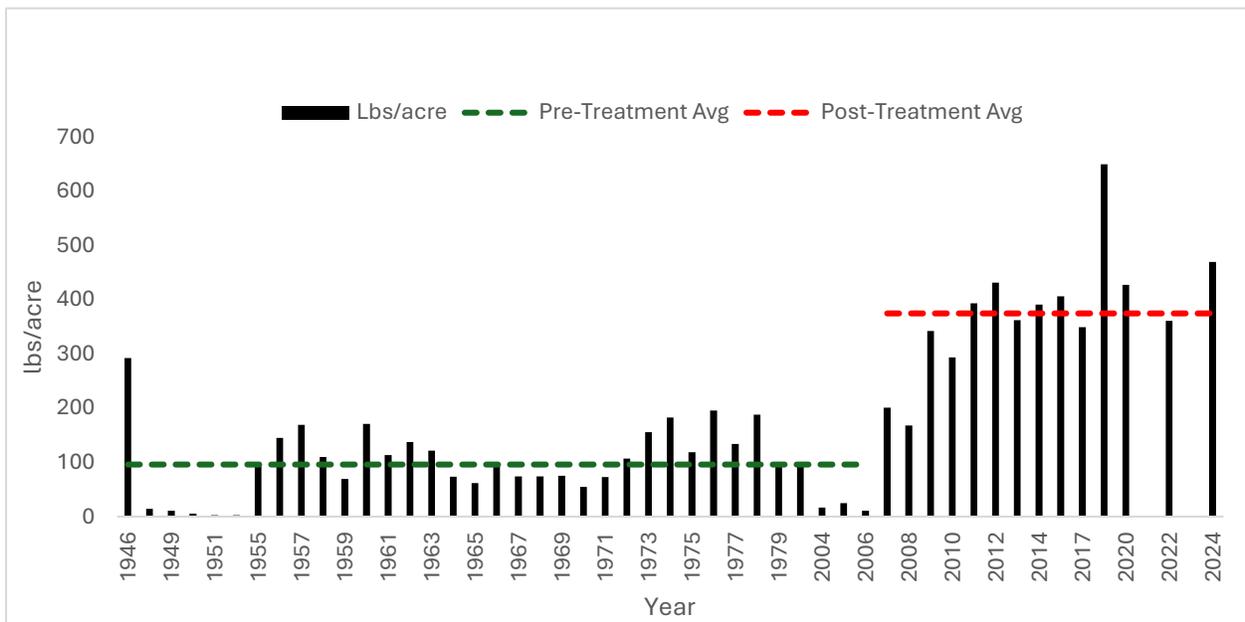


Figure 8 Diamond Lake Benthic Macroinvertebrate Estimates by lbs./acre

Summary:

2025 marks the decade anniversary since the rediscovery of the invasive tui chub. Since 2016 ODFW has put much effort into monitoring and removal methods to ensure the health of the lake and the continuation of the consumptive rainbow trout fishery. From our observations, we saw a significant increase in Catch per unit effort (CPUE) of tui chub (*Gila bicolor*) and golden shiner (*Notemigonus crysoleucas*). We see good indicators of fish and lake health from our positive results from our 2024 benthic analysis (125% over 10-year avg.), 2025 trout summer growth (>1mm/day fl) and K-factor (>1). Our data does show a decrease in rainbow trout caught but increase in trout retention compared to the previous few years, which the catch reduction can be mostly accounted for by a reduction in fishable days due to late ice-off in the spring compared to 2024. ODFW continues to plan for the stocking of ~360,000 rainbow trout fingerlings and 20,000 of both brown and tiger trout in 2026. Creel surveys will

begin after ice-off and mechanical trap net removal will start in spring of 2026. Summer growth and benthic analysis will be conducted in the fall.

Acknowledgements:

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