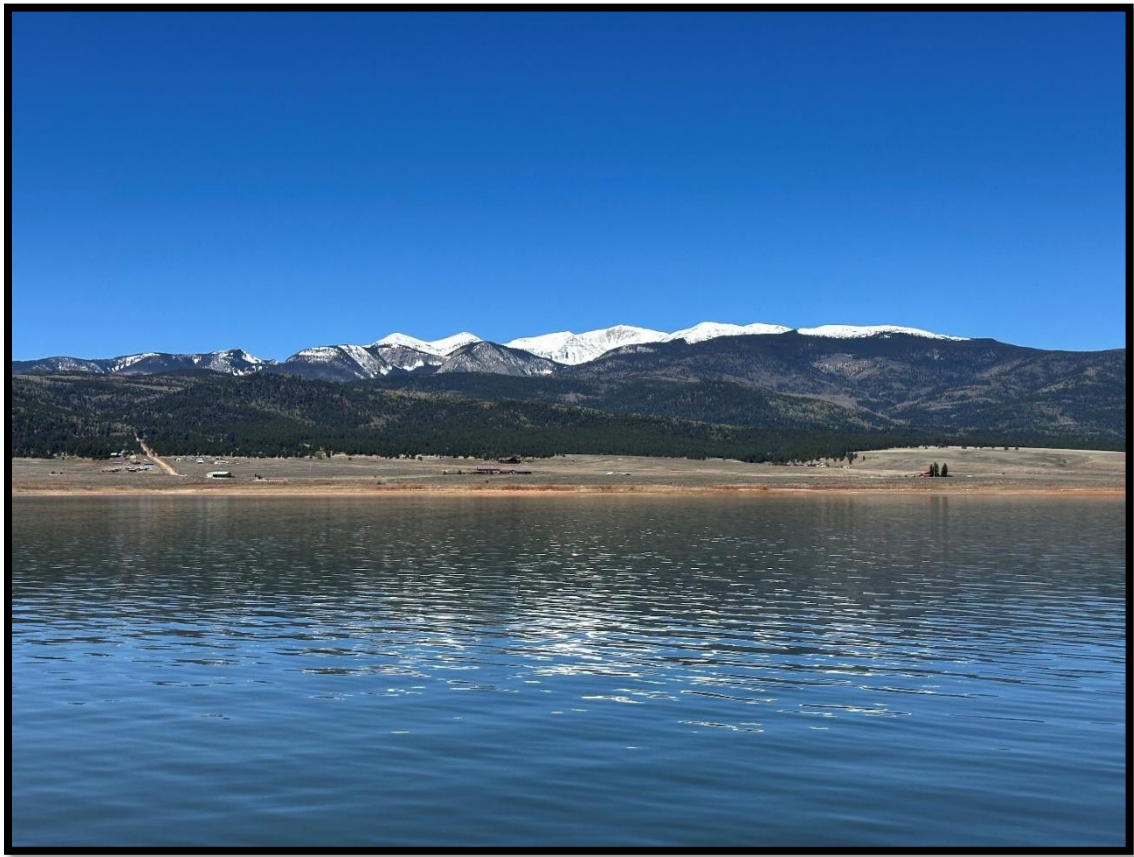


**New Mexico Department of Wildlife
Fisheries Management Division
Management Brief**



**Eagle Nest Lake
September 2026**



Introduction

Eagle Nest Lake is one of the most popular fishing lakes in New Mexico and is a socially and economically important fishery to Eagle Nest, NM and surrounding areas. The lake was purchased by the New Mexico State Wildlife Commission in 2002 for \$20 million (\$37.3 million in 2026) to provide angling opportunities for the public. Over the past few decades, the fish community has undergone significant changes due to fluctuating water levels and illegal species introductions. As such, the New Mexico Department of Wildlife (Department) has adapted management and stocking strategies to continue providing quality Rainbow Trout *Oncorhynchus mykiss* and kokanee *Oncorhynchus nerka* fisheries. The purpose of this management brief is to inform the public about the history of the Eagle Nest Lake fishery and provide an update on its status and management objectives.

Background

Eagle Nest Lake is a high elevation reservoir with a surface area of over 2,200 acres when full. The lake is primarily managed for Rainbow Trout and kokanee, (NMDGF, 2022), which is consistent with angler preferences. In a 2022 angler survey, 66% of respondents said they preferred to fish for Rainbow Trout, and 16% of anglers preferred to fish for kokanee (NMDOW, unpublished data). Historically, fingerling (2 - 6 in long) Rainbow Trout were stocked throughout the year to support a Put, Grow, and Take fishery along with opportunistic stockings of larger size classes when available (NMDGF, 2016; Trujillo, 2022). In the mid to late 2000s, Northern Pike *Esox lucius* were illegally introduced. Following their discovery, bag and possession limits for Northern Pike in Eagle Nest Lake were removed in the 2012-13 license year, and in the 2014-15 license year, mandatory harvest was implemented. Northern Pike are a voracious predator that can grow over 50 in and have had devastating effects to trout and salmon populations in reservoirs and rivers throughout the western United States where they are not native (Muhlfeld et al., 2008; Scheibel et al., 2016). Consequently, biologists, anglers, and the local community remain concerned for the future of the Rainbow Trout and kokanee fisheries.

A previous study in 2022 by the Department found that Rainbow Trout stocked as fingerlings rarely survive to catchable (≥ 9 in) size in Eagle Nest Lake due to high predation by Northern Pike (Trujillo, 2022). To increase survival, the stocking strategy was changed in 2022 from fingerlings to subcatchable (6 – 9 in) and catchable Rainbow Trout with most fish stocked in the spring. Although fewer trout are stocked, the total pounds stocked has increased (Figure 1). As a result, the associated cost of stocking fish in Eagle Nest Lake has also increased. In 2026, it cost \$6.22/lb to raise Rainbow Trout at Red River Hatchery, which supplies fish for Eagle Nest Lake. From 2010-2021, an average of 8,150 pounds of fingerling Rainbow Trout were stocked annually, costing \$50,693 per year (in 2026 dollars). From 2022-2025, an average of 15,500 pounds of subcatchable and catchable Rainbow Trout were stocked, costing \$96,410 per year.

Stocking larger Rainbow Trout not only improves survival, but it may also influence the Northern Pike population by reducing the availability of suitable prey for smaller Northern Pike. Northern Pike are gape-limited predators, and smaller individuals cannot consume larger trout and must rely on smaller prey items until they reach larger sizes (Flinders & Bonar, 2008; Scheibel et al., 2008; Sepulveda et al., 2013). Over time, stocking larger Rainbow Trout could reduce Northern Pike growth and limit the number of individuals reaching sizes greater than 30 in, when they can more effectively prey on large subcatchable Rainbow Trout (Courtney et al., 2018; Diana, 1987)

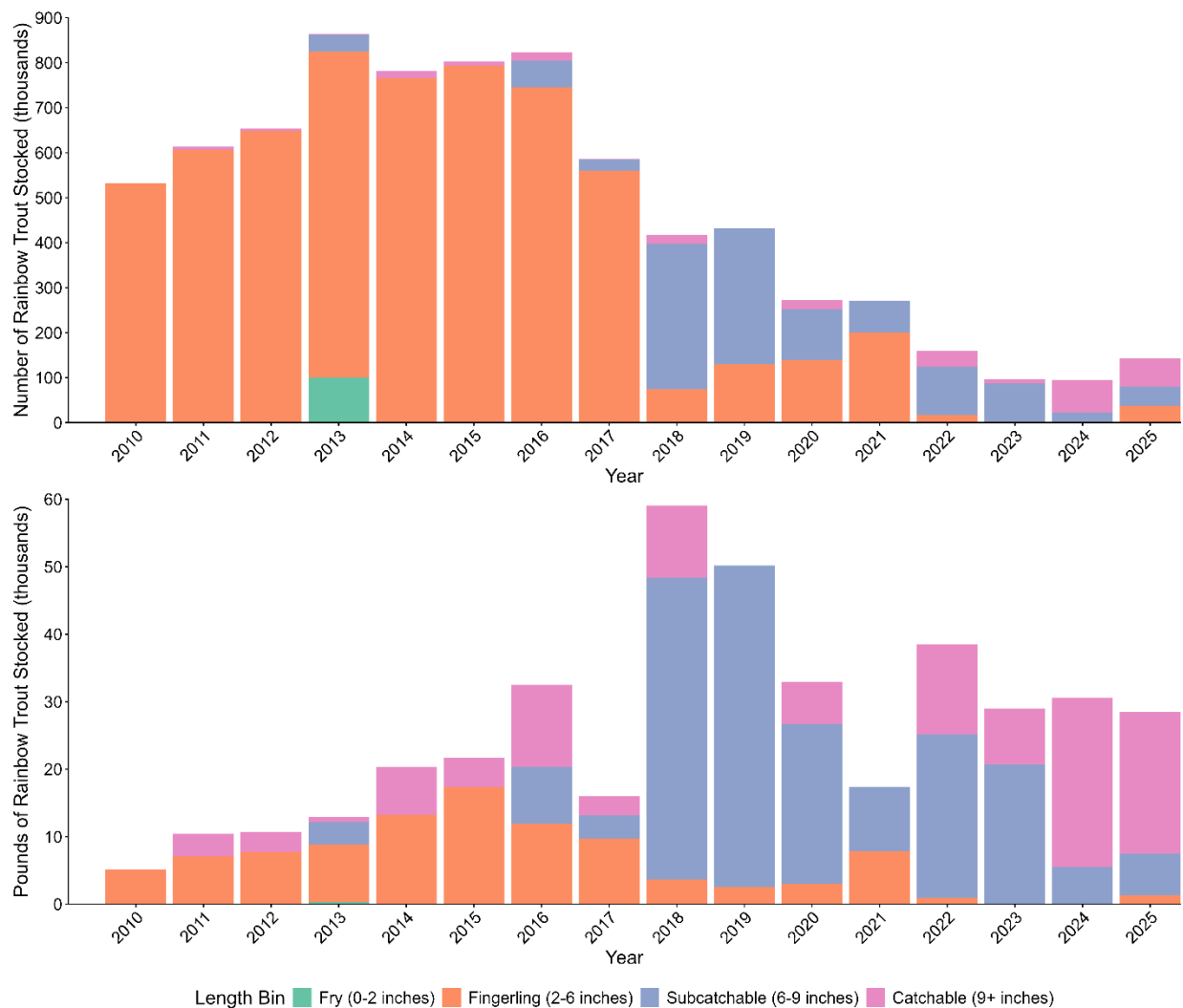


Figure 1. Number (top) and total weight (bottom) of Rainbow Trout stocked (in thousands) into Eagle Nest Lake by year, 2010-2025.

Department biologists completed surveys at Eagle Nest Lake in autumn 2025 and spring 2026 to evaluate sportfish populations following the change in Rainbow Trout stocking strategy implemented in 2022. Surveys consisted of a combination of gill nets and nighttime boat electrofishing to capture fish. Catch rates, size structure, growth, and other population metrics were evaluated to detect changes through time and determine whether management objectives are being met.

Eagle Nest Lake Fish Community Surveys

Rainbow Trout

Rainbow Trout mean catch rates during the spring 2026 survey were 51.3 fish/hr, well above the management objective of 10 fish/hr electrofishing (NMDGF, 2022) and higher than the average catch rate of 22.3 fish/hr observed over the past two decades (Figure 2). Over 92% of Rainbow Trout caught in the spring survey were over 10 in, well above the management objective of 50% (NMDGF, 2022; Figure 3). Additionally, 24% of Rainbow Trout measured over 18 in, including one individual over 25 in (Figures 4).

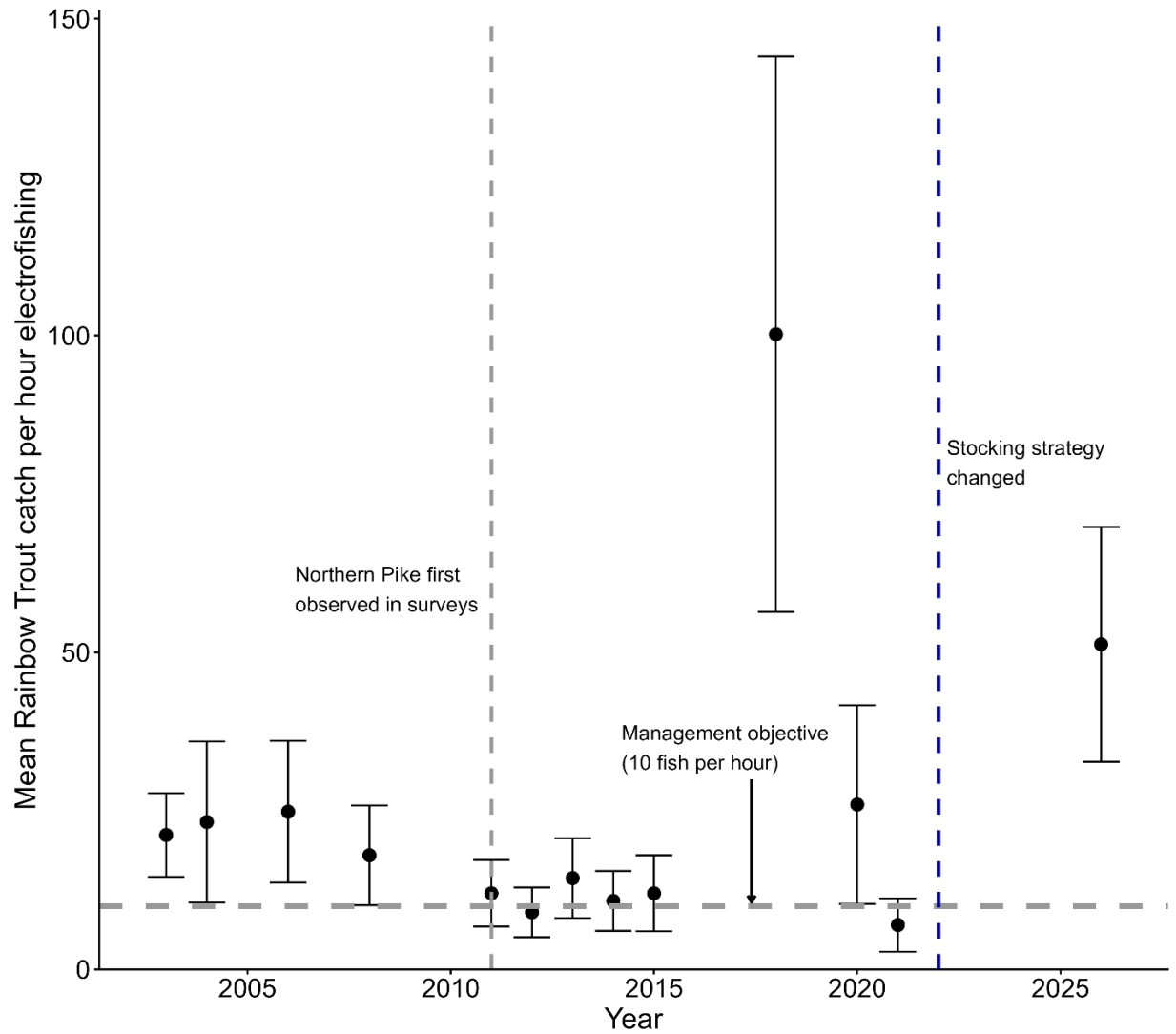


Figure 2. Mean Rainbow Trout electrofishing catch rates during spring surveys at Eagle Nest Lake by year, 2003-2026. Error bars represent 80% confidence intervals.

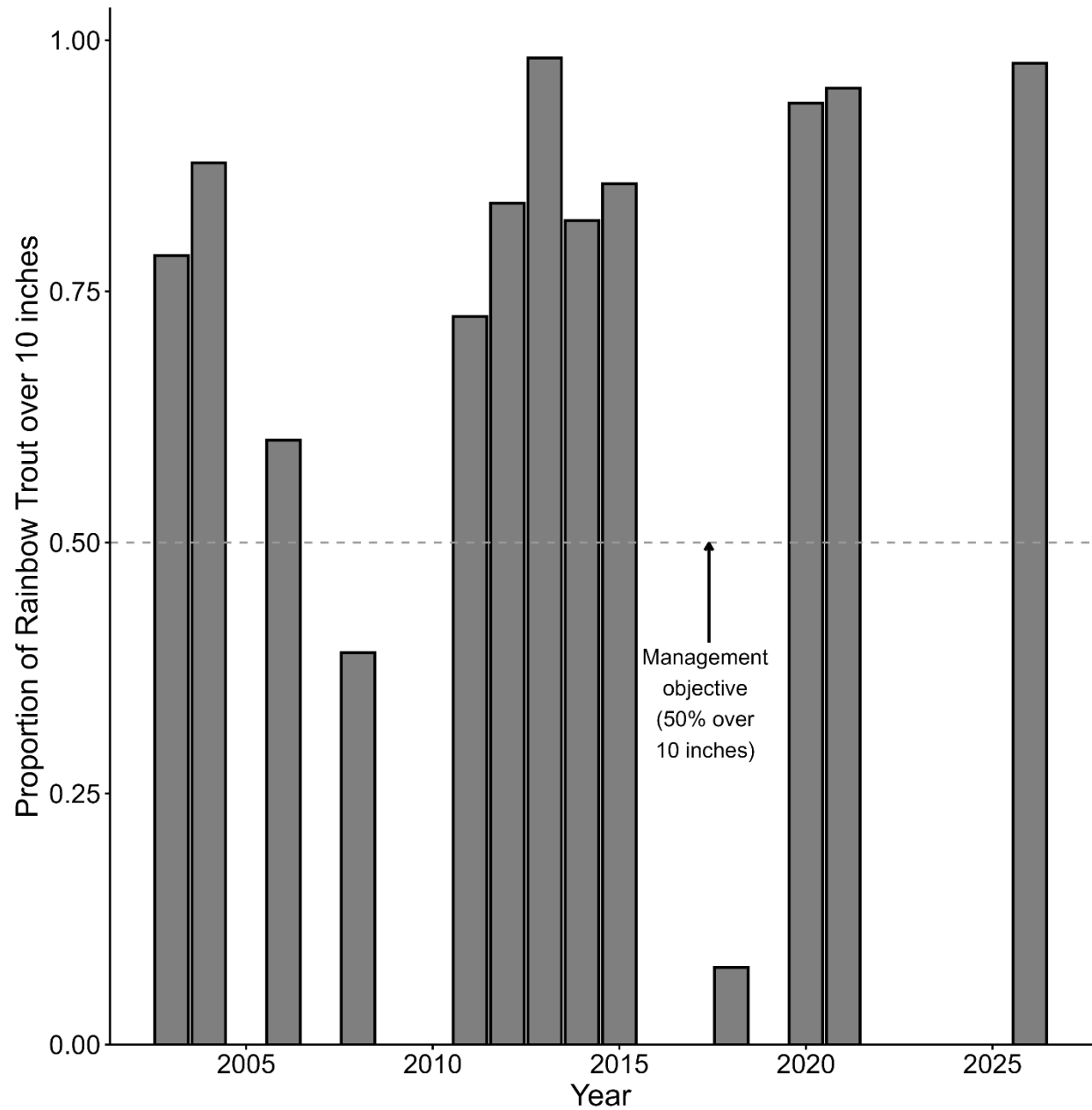


Figure 3. Proportion of Rainbow Trout greater than 10 in caught during spring electrofishing and gillnet surveys at Eagle Nest Lake by year, 2003-2026. No surveys were conducted in years without data.

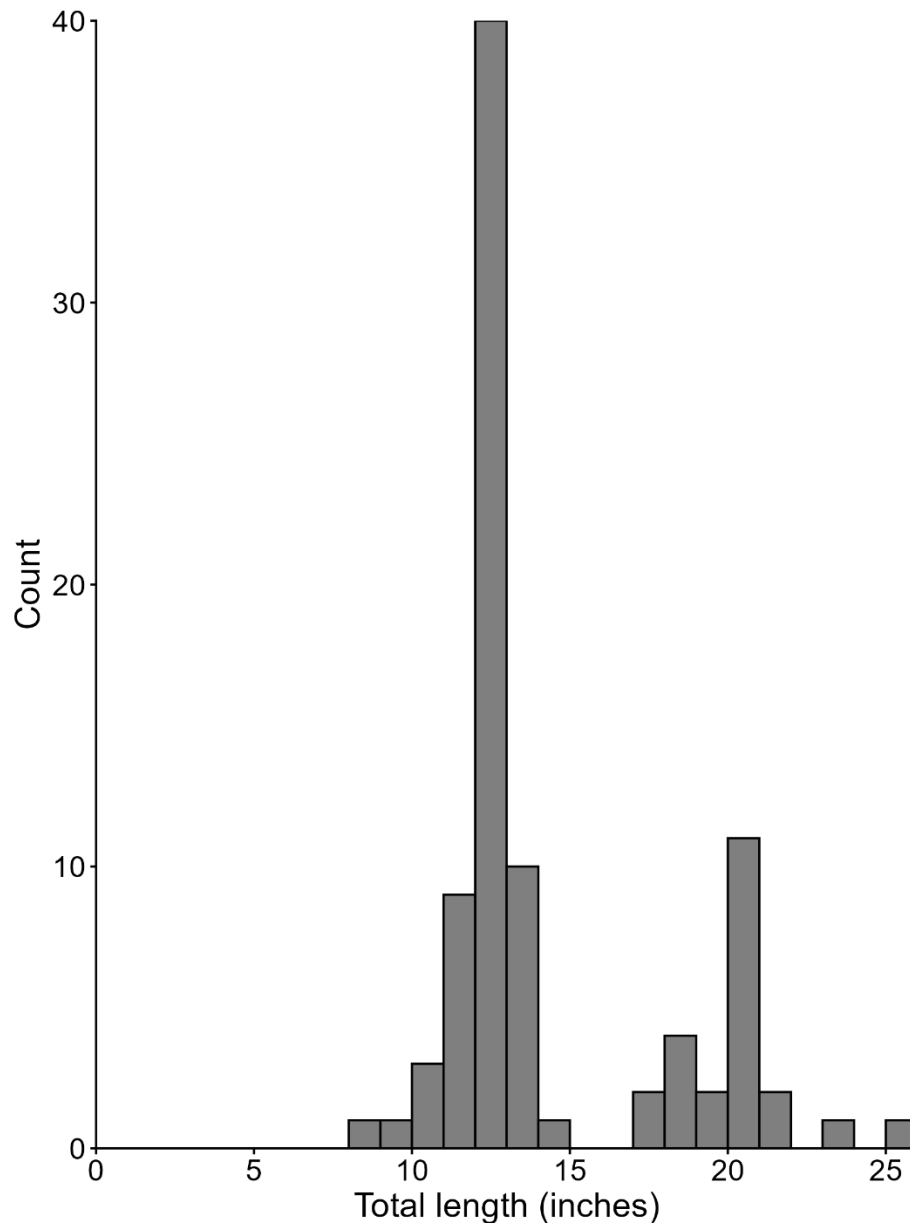


Figure 4. Length-frequency histogram of Rainbow Trout captured during the spring 2026 electrofishing and gill net survey at Eagle Nest Lake. Mean total length = 14.4 in (SE = 0.4 in; n = 88).

Kokanee

Kokanee are a pelagic species that often occupy deeper water for most of the year and therefore are not effectively sampled during nearshore community surveys. During the autumn 2025 survey, kokanee catch rates were 11.1 fish/net night, with an average length of 18.2 in (Figure 5A). No kokanee were captured in the spring 2026 survey. A pelagic net survey was conducted in summer 2026, and the mean catch rate for kokanee was 2.6/net night, below the

management objective of 20 fish/net night (NMDGF, 2022). The average length of kokanee captured was 20.2 in (Figure 5B).

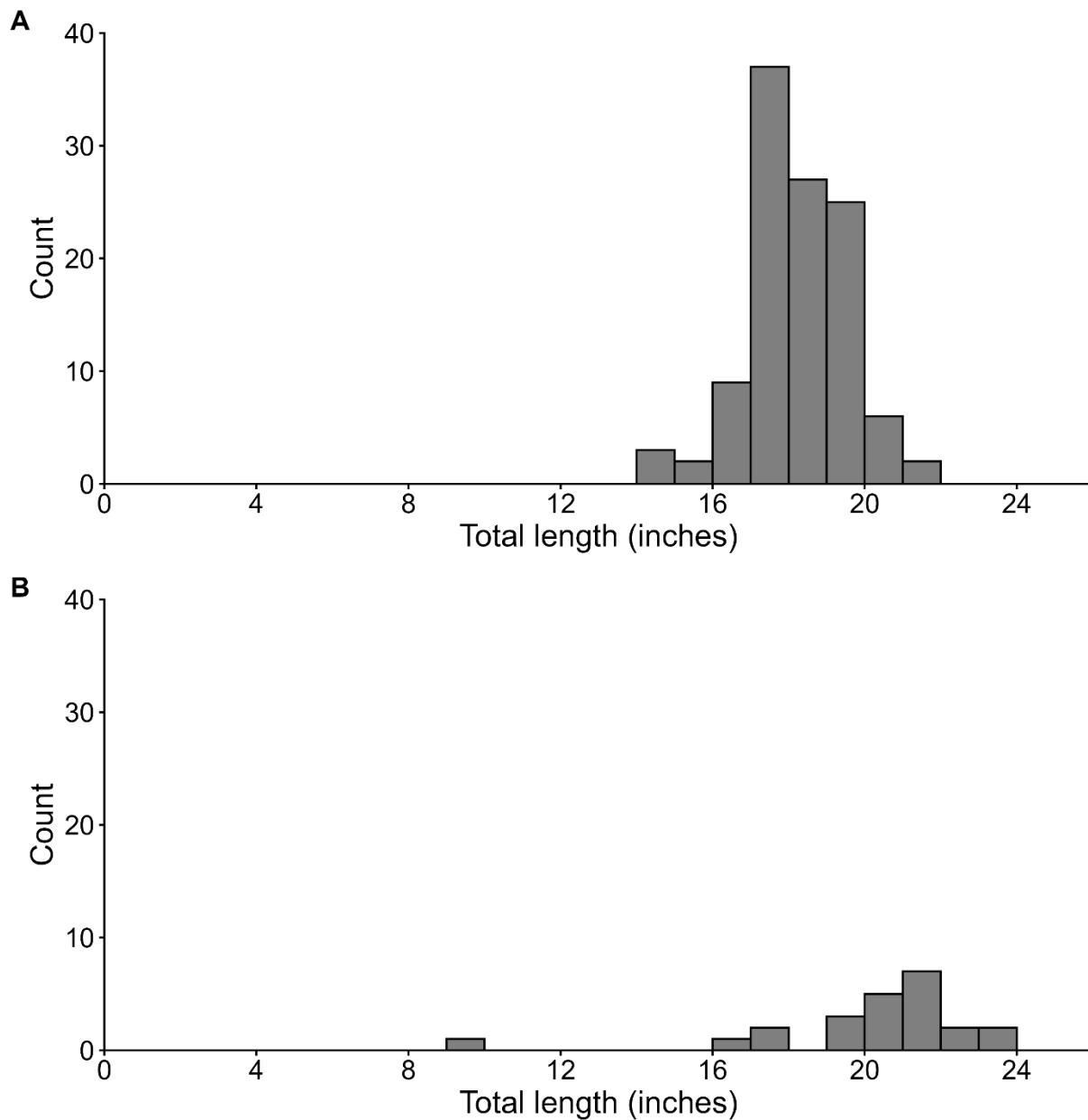


Figure 5. Length-frequency histograms of kokanee captured during (A) the autumn 2025 electrofishing and gillnet survey and (B) the summer 2026 pelagic net survey at Eagle Nest Lake. Mean total length was 18.2 in (SE = 0.1 in; n = 111) in autumn 2025 and 20.2 in (SE = 0.6, n = 23) in summer 2026.

Northern Pike

Northern Pike mean catch rates during the autumn 2025 survey were 16.5 fish/hr electrofishing and 0.75 fish/net night. Catch rates were 22.9 fish/hr electrofishing and 5.5 fish/net night in the spring 2026 survey, among the highest observed since Northern Pike were first captured during surveys in 2011 (Figure 6). Over 15% of Northern Pike captured during the spring 2026 survey exceeded 40 inches in length (Figure 7). During that survey, biologists captured and removed 86 adult Northern Pike for diet analysis (mean length = 33.4 in; SE = 1.0 in). Of the 32 stomachs that contained prey items, 88% of stomachs had Rainbow Trout, making them by far the most common prey item. Other prey included Iowa Darters *Etheostoma exile* and White Suckers *Catostomus commersonii*.

In a previous study conducted by the Department, Rainbow Trout were also the most prevalent prey species found in Northern Pike, although present at lower rates. Rainbow Trout were present in around 40% of stomachs that contained prey items during the spring 2020 sampling period, and over 60% during summer and fall sampling (Trujillo, 2022). Yellow Perch were the second most prevalent prey species in the spring 2020 sampling period but were completely absent from Northern Pike stomachs in the 2026 survey.

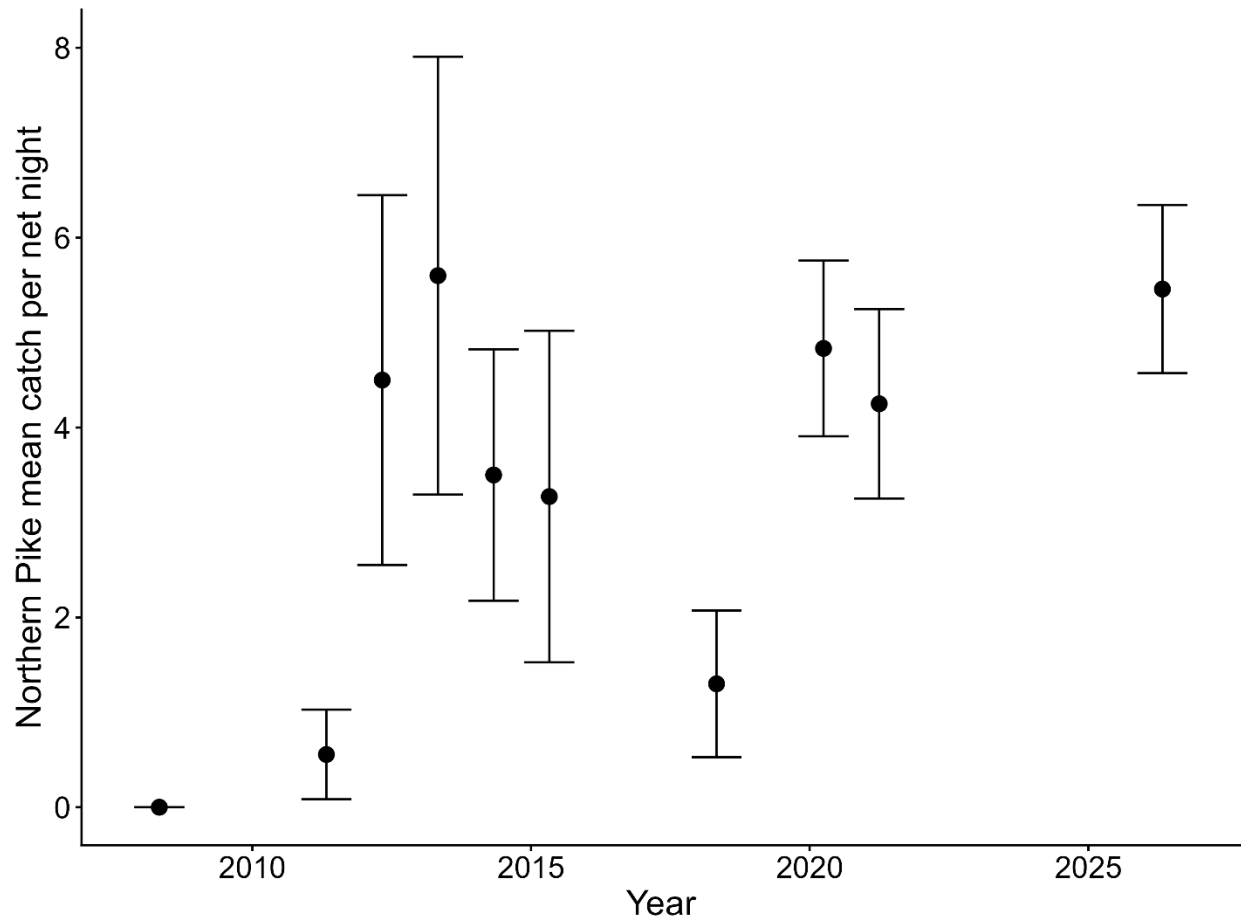


Figure 6. Mean Northern Pike catch rates (fish/net night) during spring gillnet surveys at Eagle Nest Lake by year, 2008–2026. Error bars represent 80% confidence intervals.

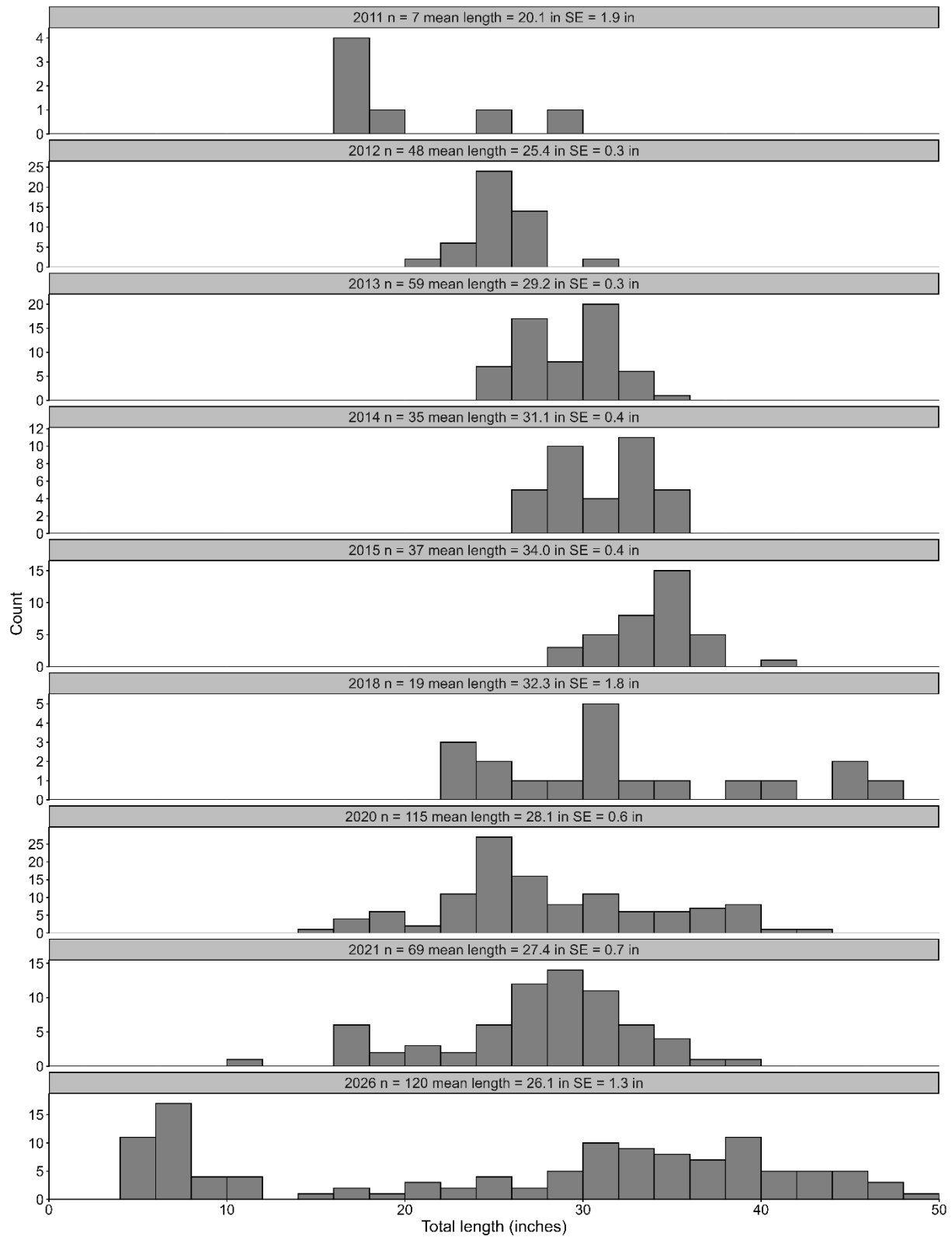


Figure 7. Length-frequency histogram of Northern Pike captured during spring electrofishing and gillnet surveys at Eagle Nest Lake by year, 2011-2026. Note different y-axis scales.

Yellow Perch

Yellow Perch *Perca flavescens* were illegally introduced in the 1990s before Eagle Nest Lake was purchased by the State Wildlife Commission. Mean catch rates have declined dramatically, from more than 200 fish/hr electrofishing in the 2000s to just 7.6 fish/hr in 2026 (Figure 8). Additionally, the average size of Yellow Perch captured has increased, and juveniles have been absent in recent surveys (Figure 9).

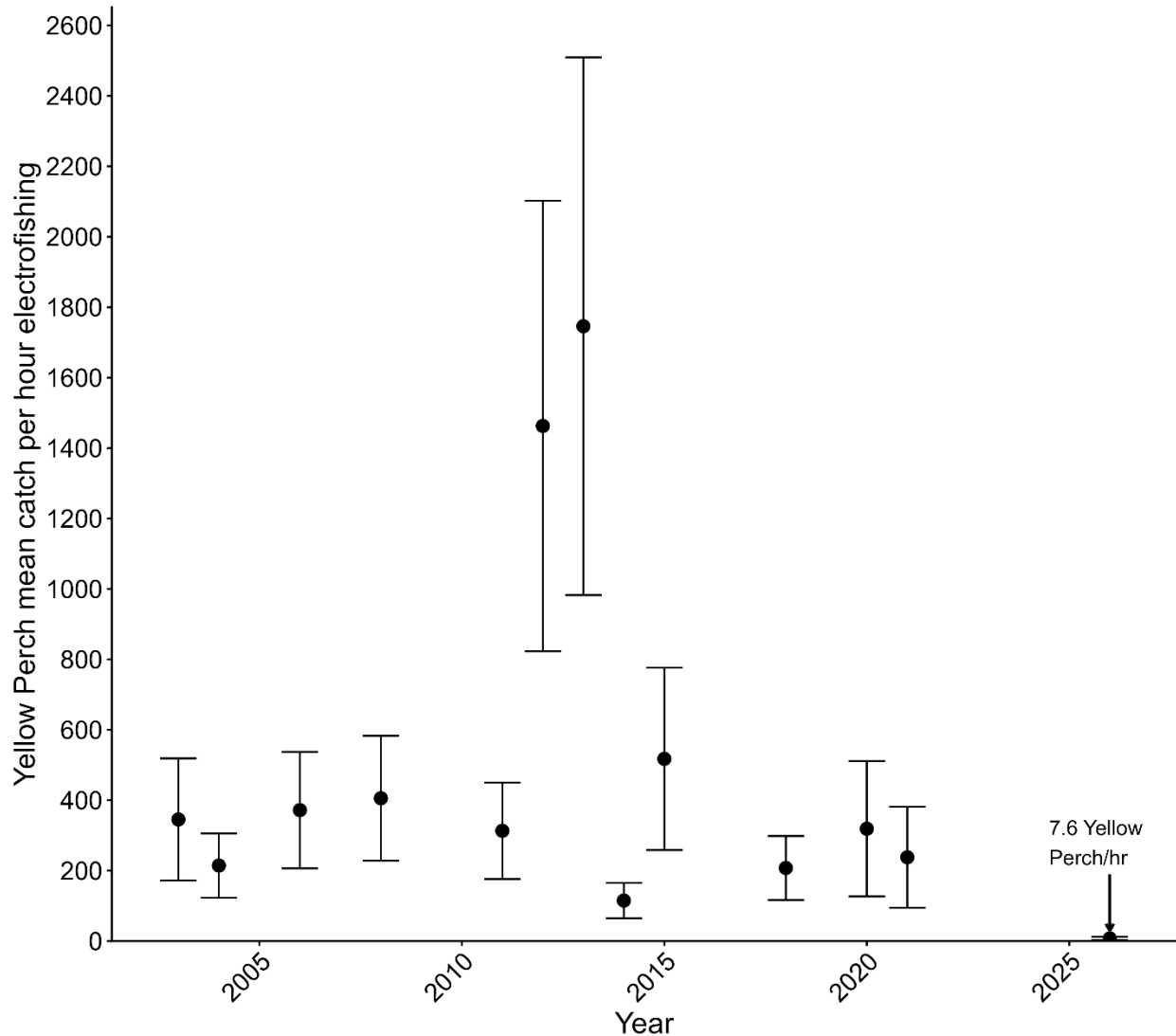


Figure 8. Yellow Perch catch per hour electrofishing during spring surveys at Eagle Nest Lake by year, 2003-2026. Error bars represent 80% confidence intervals.

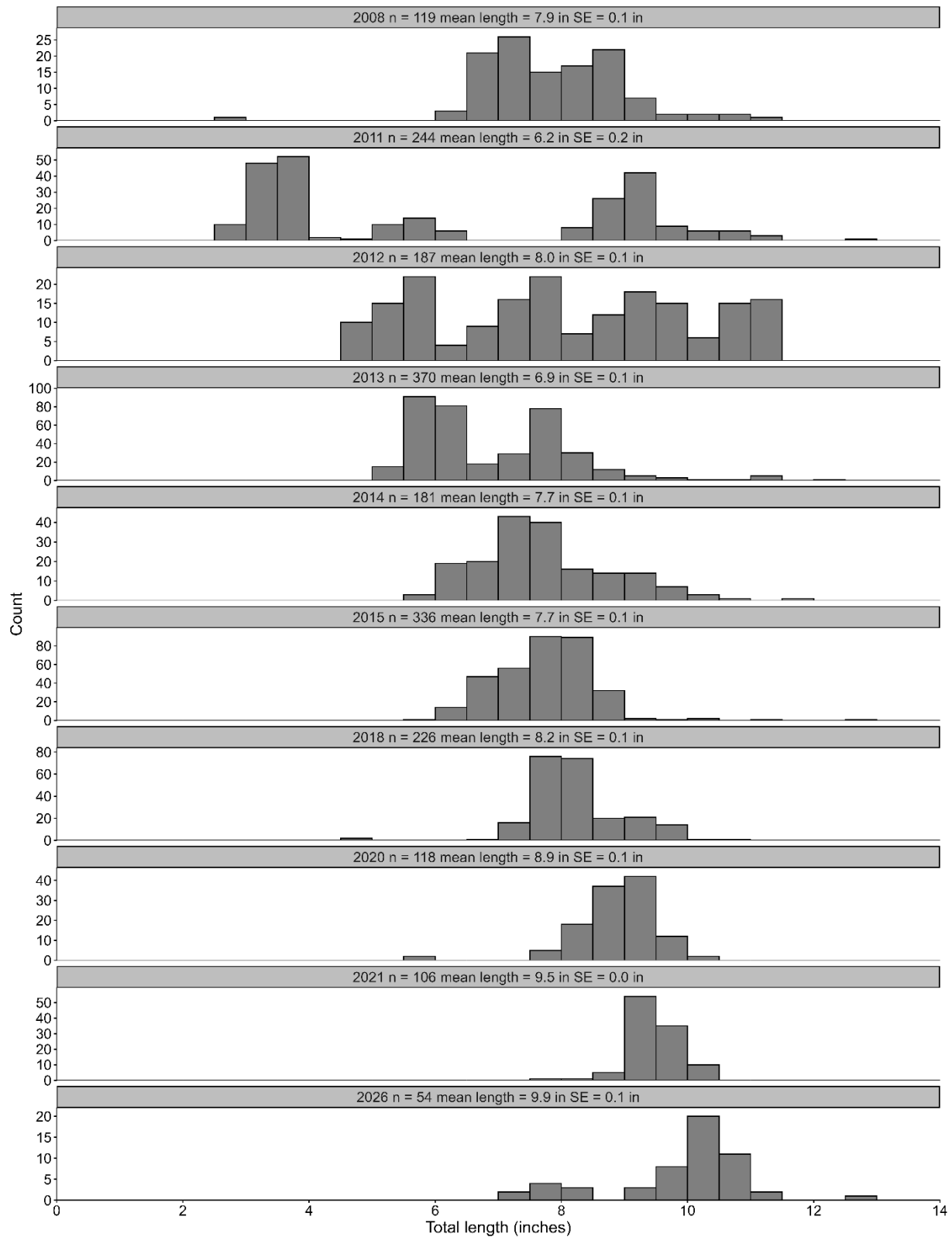


Figure 9. Length-frequency histogram of Yellow Perch captured during spring electrofishing and gillnet surveys at Eagle Nest Lake by year, 2008-2026. Note different y-axis scales.

Current Fishery Status

Rainbow Trout catch rates have increased since recent changes in the stocking strategy, and the fishery is currently meeting management objectives. Additionally, multiple size classes of Rainbow Trout have been observed in surveys, with individuals over 24 in encountered in recent years. Subcatchable and catchable Rainbow Trout, which have higher survival compared to fingerling-sized fish, will continue to be stocked from spring to autumn.

The kokanee fishery in Eagle Nest Lake is currently maintained with annual stockings of fry. From 2022-2025, fewer than 100,000 kokanee were stocked annually due to low spawner returns and disruptions to field spawning and hatchery operations during the COVID-19 pandemic (Figure 10). In 2026, stocking increased to 300,000 kokanee, which is near the average number stocked since 2010. Despite these challenges, the Department remains committed to providing a great kokanee fishery in Eagle Nest Lake, where earlier this year, an angler landed a 22 in kokanee which tied the New Mexico state record. Beginning in autumn 2026, the Department plans to conduct spawning operations at Eagle Nest Lake to increase statewide kokanee egg collection and the number of fish available for stocking.

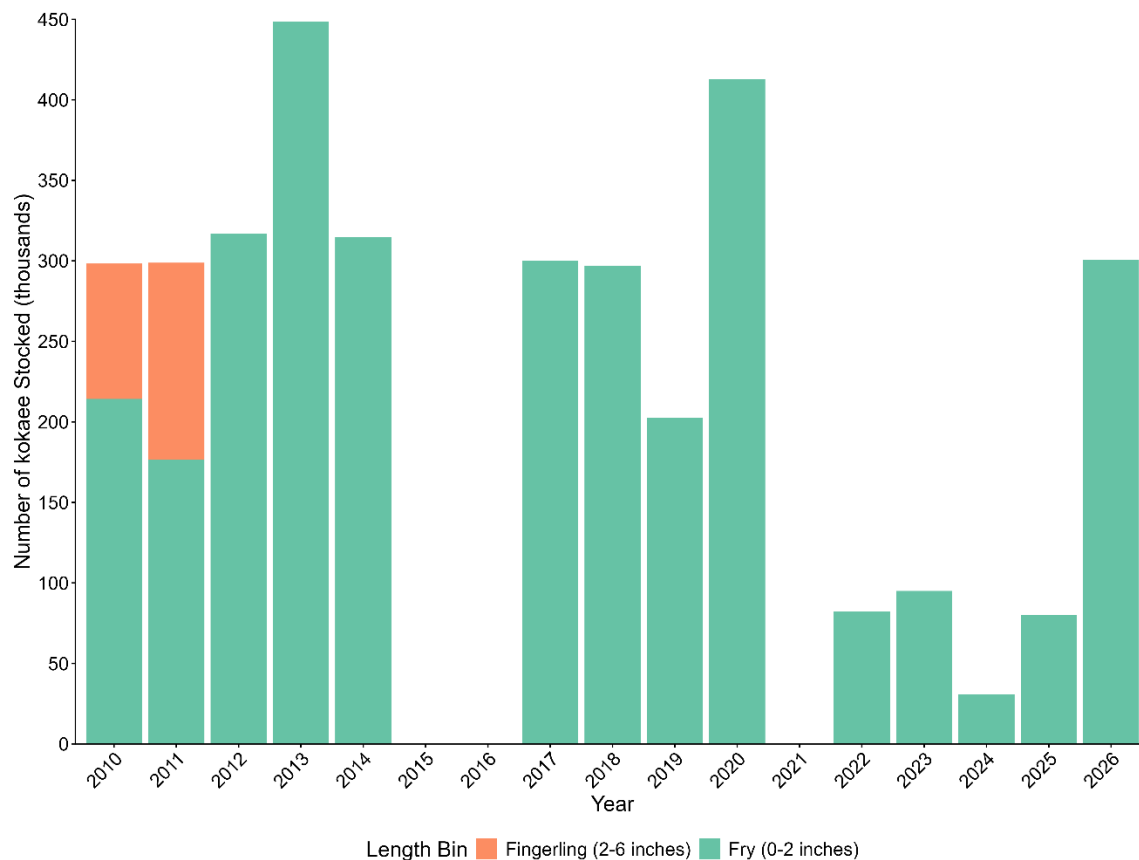


Figure 10. Number of kokanee (in thousands) stocked into Eagle Nest Lake by year, 2010-2026.

Despite improvements in Rainbow Trout catch rates, Northern Pike continue to predate heavily on Rainbow Trout, as evidenced by the recent diet samples. A lower proportion of Northern Pike in the 12-30 in size range were captured during the spring 2026 survey compared to previous years (Figure 7). This shift toward fewer Northern Pike in the 12–30 in size range may be an early indication that stocking larger Rainbow Trout is reducing the availability of appropriately sized prey for smaller Northern Pike. However, additional community surveys are needed to evaluate this trend long-term. Additionally, fisheries staff are currently evaluating Northern Pike age and growth to determine whether this shift is affecting growth rates and overall population structure.

Juvenile Yellow Perch have been absent in recent surveys and overall catch rates have been decreasing. These trends indicate that the Yellow Perch population is dominated by larger, older fish. This suggests that fewer young fish are surviving to adulthood, likely due to reduced spawning success and/or low juvenile survival due to predation, contributing to the continued population decline. Fisheries staff are currently aging otoliths from Yellow Perch caught during the previous surveys. These data will help determine whether younger fish are recruiting into the population and provide a better understanding of the population's age structure.

Conclusion

Recent fisheries surveys indicate that Rainbow Trout relative abundances are above average in Eagle Nest Lake, despite high Northern Pike abundances and continued predation pressure. Additionally, kokanee captured during the fall 2025 and summer 2026 survey exhibited a large average size compared to other lakes in New Mexico, suggesting that the lake continues to support quality kokanee growth. In contrast, Yellow Perch catch rates remain at historic lows, and fisheries staff are evaluating population trends and recruitment to determine the cause of the decline. The Department will continue annual spring fish community surveys and complete ongoing age and growth evaluations at Eagle Nest Lake to monitor changes in fish populations, assess the effectiveness of current management actions, and guide future management decisions.

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