

State of California
The Resources Agency
Department of Fish and Wildlife

Poison Lake Fish Survey
Summer 2019

By

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Photo by B. Ewing (8/7/19)

Introduction

In an effort to gather information on the fishery at Poison Lake (Alpine County), a fish survey was conducted on August 7, 2019.

The objectives of this survey were to:

- Determine the Brook Trout (*Salvelinus fontinalis*) (BK) age class distribution
- Determine the growth rates of BK

This data, along with future efforts and data collected from other Alpine County lakes will be used to monitor the status of this fishery, which historically has provided a productive BK fishery.

Location and Description

Poison Lake (Poison) is approximately a 12-surface acre lake in Alpine County located at 38.480969 N, 119.653272 W, situated at 9,160 feet above mean sea level (**Figure 1**). The shoreline is a mix of rocks, sand, willows, and conifer forest (**Figure 2**). Poison's lake bottom appears mostly mud and various sized rock substrate. Poison has no inlet streams, and receives water from the surrounding steep terrain. When Poison spills, water drains into Poison Creek, eventually flowing into the East Fork Carson River. Historically, the California Department of Fish and Wildlife (CDFW) stocked BK, Lahontan Cutthroat Trout (*Oncorhynchus clarki henshawi*) (LCT), and Golden Trout (*Oncorhynchus mykiss aguabonita*) (GT) were stocked into Poison from 1931 – 2000 (High Mountain Lakes Database).

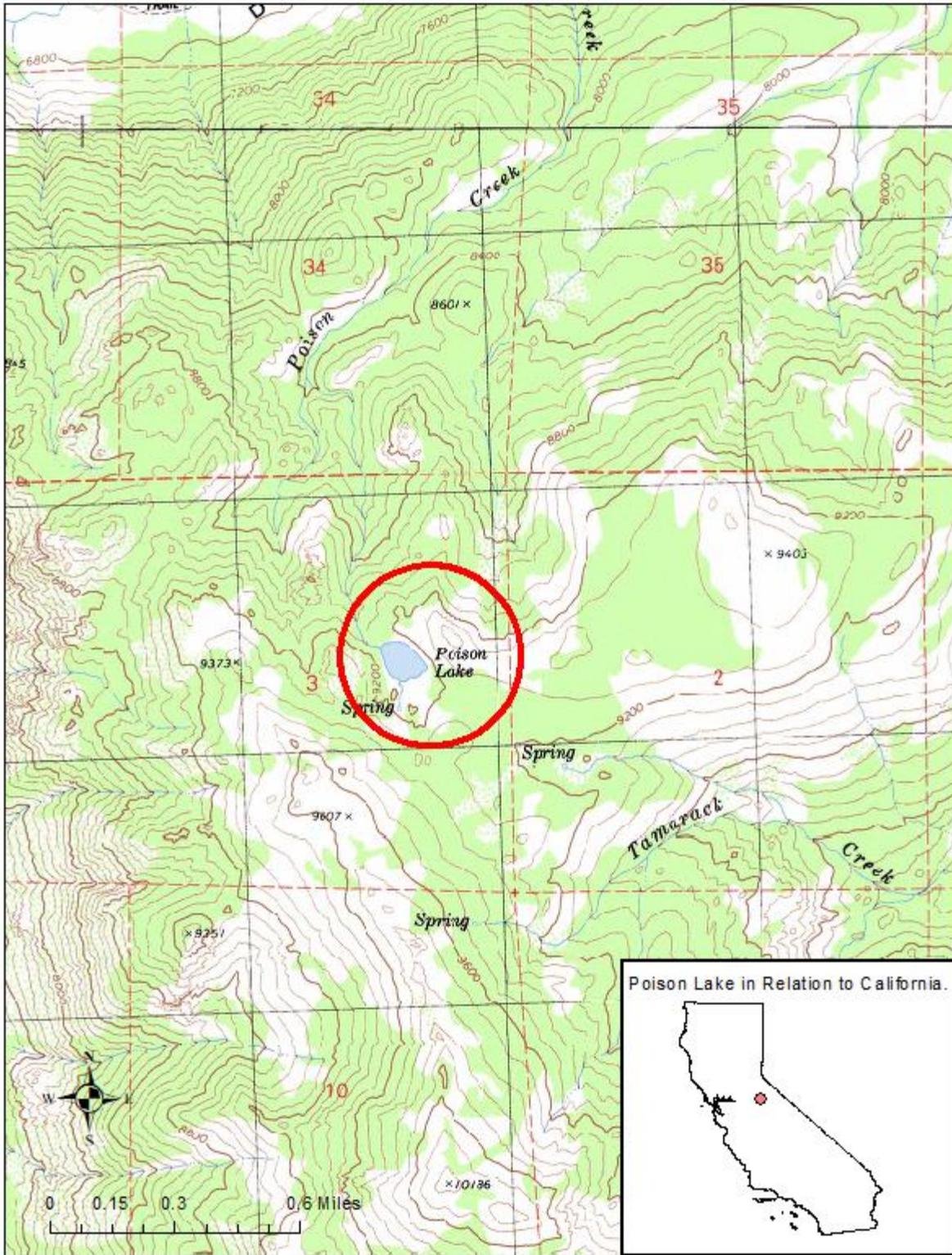


Figure 1. Poison Lake, Alpine County.

Methods and Materials

To estimate BK growth rates at a given age, CDFW collected total lengths and scale samples from the lateral line area of BK via a knife scrape. Collection of scale samples was accomplished by hook and line angling using a spoon-type lure. Scale samples were placed in an envelope with the species, total length (in. inches), date, and sampling method were recorded. All BK collected were marked with a fin clip in the upper caudal fin to identify previously captured individuals. Total angling time was recorded to gather a catch per unit effort (fish/hr). Age was determined by counting scale annulus using a dissecting microscope and Image Pro[®] compound microscope in a lab. Each annuli was assumed to be one year of age (L. Koerber, CDFW Personal communication).



Figure 2. Poison Lake, Alpine County. Photo by B. Ewing (8/7/19)

Results

Ten BK were caught on August 7, 2019 in 2.5 hours of angling time (**Figure 3**). Catch per unit effort was 4 fish/hour, which is considered a fast-action wild trout fishery (CDFW 2020). The average total length of BK collected was 8.45 inches. Total lengths ranged from (7.0 in. – 9.25 in.) (**Figure 4**). All BK collected were two to three years of age. Given the low number of BK captured and limited age class distribution, estimating the age from a given total length via regression was found to be unreliable ($R^2 = 0.05$)

(Figure 5).



Figure 3. Brook Trout caught at Poison Lake, Alpine County (B.Ewing 8/7/19).

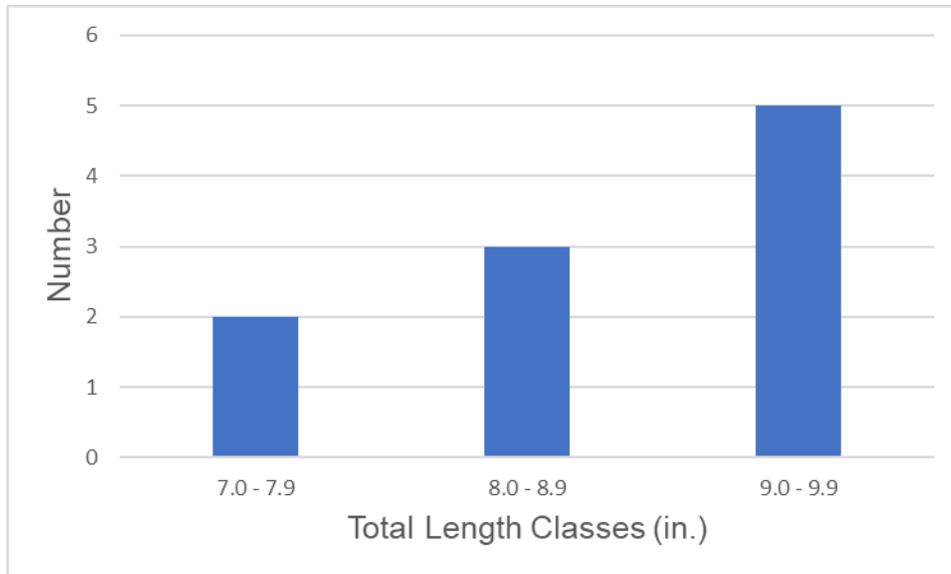


Figure 4. Length-frequency distribution for Brook Trout (BK) collected by angling at Poison Lake on August 7, 2019.

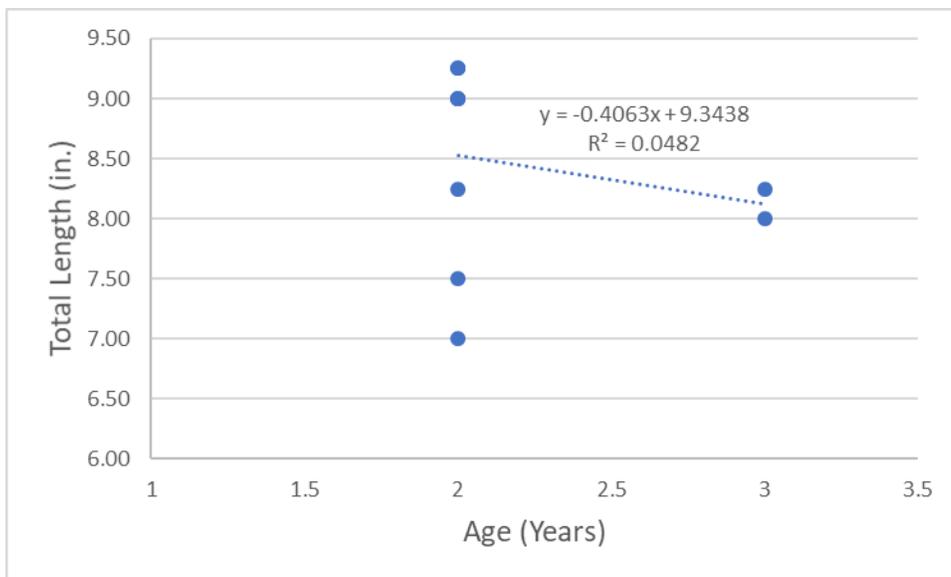


Figure 5. Age and length regression comparison for Brook Trout (BK) collected from Poison Lake on August 7, 2019. Although 10 BK were captured, three BK measured 9.0 inches and 2 years of age, and two BK measured 9.25 inches and 2 years of age, so only seven points are visible.

Conclusions

With only 10 samples collected and all samples aged two or three years, determining a BK's age from a given total length may not be reliable. However, we can conclude that BK are living at least three plus years of age. By having more BK to age,

it is possible to more accurately compare age/length. Although CDFW only collected ten BK, the BK collected indicated that Poison has a self-sustaining population of BK because the last stocking was 19 years prior. It is likely no GT or LCT remain in Poison from previous stockings and likely can't persist without supplemental assistance. Because Poison contains a self-sustaining, recreational fishery with a quality catch rate and quality-size BK, CDFW will not stock trout in Poison at this time.

References

California Department of Fish and Wildlife website. 2020.

<https://wildlife.ca.gov/Fishing/Inland/Brook-Trout#35600373-angling>

High Mountain Lakes Database. 2020. California Fish and Wildlife. Unpublished.