Decline of Bull Trout in The Flathead System

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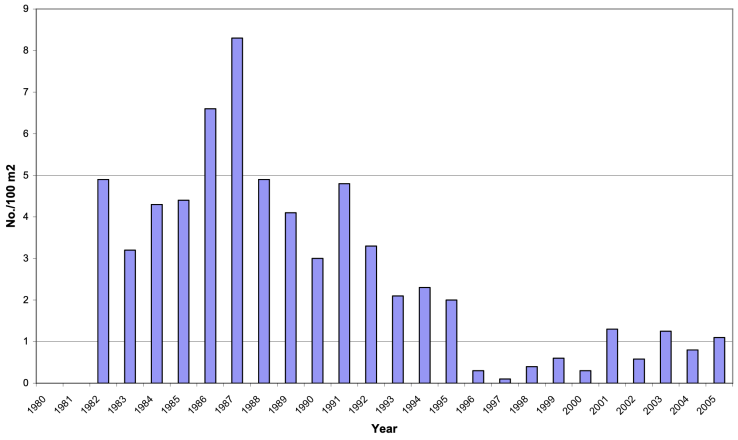


Bull trout caught in South Fork of Flathead River at Big Prairie Ranger Station, Between 1925-1943, Retrieved from Montana History Portal

"In 1968, 1975 and 1976 MFWP introduced Mysis into four lakes (Ashley, Swan, Tally and Whitefish) in the Flathead Lake Drainage (Rumsey 1985)... The impetus for this action was the apparent success of introducing Mysis into other inland waters to supplement food organisms for sport fish like trout and salmon...*To compare catch between pre- and post-Mysis establishment, we combined 1981 and 1983 for pre-Mysis values and the three most recent years for post-Mysis values. There has been over a ten-fold increase in lake trout CPUE (catch per unit effort), conversely there has been a large decrease in bull trout CPUE."*

Flathead Lake and Rivers System Status Report, May 2006, Retrieved from Montana FWP

Figure 4. Densities of Age I and older bull trout calculated from annual electrofishing in the index section of Coal Creek from 1982 through 2005.



Flathead Lake and Rivers System Status Report, May 2006, Retrieved from Montana FWP

Contextual Paragraph

For generations, native bull trout served as an apex predator in Montana's pristine Flathead River basin, thriving in robust numbers documented by early U.S. Forest Service rangers. However, between 1968 and 1976, wildlife managers introduced non-native Mysis shrimp into the drainage to boost sport fisheries. This well-intentioned action triggered a severe trophic cascade, which is an ecological chain reaction in which an alteration at one level of the food web ripples through all others: The shrimp fueled an exponential, ten-fold increase in non-native lake trout catch rates, which rapidly outcompeted and preyed upon native bull trout.

Key Questions

1. Based on Document 1, what do the physical size and condition of the bull trout held by the ranger suggest about the health of native fish populations in the early 20th-century Flathead drainage?
2. According to Document 3, in which years and specific lakes were *Mysis* introduced into the Flathead drainage, and what contrasting changes occurred in the catch per unit effort (CPUE) for lake trout versus bull trout following their establishment?
3. How does the quantitative population drop in the tributaries reflect the trophic cascade caused by the shrimp introduction?

Assessment

1. Using evidence from the sources, explain how and why Montana's bull trout population changed over the 20th century.