

Fishes of Flathead Lake (Part 2): What now?

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In the previous installment, we examined how Flathead Lake's aquatic community was changed dramatically by species introductions. The Lake is now dominated by nonnatives, particularly lake trout, lake whitefish and *Mysis* shrimp, which has put our native fishes like bull and cutthroat trout in jeopardy. So the question is: What do we do now?

First I need to point out that despite strong desire and significant efforts (including commercial harvest for aquarium fish food in Lake Pend Oreille, ID) no one has ever gotten rid of *Mysis* shrimp from a large water body. They are here to stay, and subsequently many of the lake food web changes they caused may be irreversible.

So now we ask: What should we do about the nonnative fishes? To address this question, we need to take a look at societal values. During the first half of the 1900s introducing nonnative species was considered a viable and effective management tool. Unfortunately too effective. By the 1960s and 1970s data showed that introduced species were taking a toll on native species across the nation. As native species became increasingly threatened (and in some cases lost), more value was placed on them in part due to the adaptations and genetic diversity they had developed in order to survive in challenging environments like the Flathead.

Also in the '60s and '70s environmental laws were passed, including the Endangered Species Act, which legislated protection for native species and the consideration of effects of introduced species. In essence there was a paradigm shift in ecological management, away from widespread nonnative stocking towards the protection and enhancement of natives. Subsequently, many state and federal agencies no longer stock nonnative fish species in water bodies from which they can spread.

So what do you do in a lake like Flathead where the balance has shifted to dominance by nonnatives? Well, that depends who you ask. If you were to ask the fisheries managers from the Confederated Salish and Kootenai Tribes (who manage the south half of Flathead Lake), they would likely answer that they are concerned about native bull trout which are currently outnumbered by predatory nonnative lake trout roughly 1 million to 20,000. Recent tribal actions reflect this concern. To reduce lake trout numbers and give bull trout a better chance of survival, they have been sponsoring fishing derbies like Mack Days (mackinaw is another name for lake trout). Utilizing angler pressure to reduce targeted fish species is a common fisheries management technique. However tribal biologists do not think the derbies have removed enough lake trout and recently embarked upon a controversial lake trout gill netting effort.

If you were to ask fisheries managers from Montana Fish, Wildlife & Parks (FWP; who manage the north half of Flathead Lake, and have the responsibility of sustaining both native fishes and recreational fishing opportunities), they would likely answer that they are also concerned about bull trout, but think that large-scale lake trout removal would impact the recreational and economic benefits associated with the trophy lake trout fishery in Flathead Lake (the state record lake trout of over 42 lbs was caught in Flathead Lake in 2004).

Although controversial in Flathead Lake, netting to remove lake trout is a management tool being used elsewhere in Montana and even the Flathead. National Park Service (NPS) and U.S. Geological Survey (USGS) research has shown that lake trout radiating from Flathead Lake have colonized 9 of the 12 lakes in Glacier National Park connected to the Flathead Lake-River system, greatly impacting and even eradicating native bull trout populations in those lakes. Subsequently the NPS and USGS are netting lake trout from lakes in Glacier National Park (Quartz and Logging), and the NPS is doing the same in Yellowstone Lake. Additionally a coalition of management agencies including the U.S. Forest Service and FWP has been netting lake trout from Swan Lake since 2009. The U.S. Fish and Wildlife Service, which is charged with recovering bull trout, views lake trout as the biggest risk to bull trout and endorses lake trout removal in the Flathead ecosystem.



The future of Flathead Lake's native bull trout may be determined by fisheries management agencies.

From my personal experience, if I were to ask ten different anglers their opinion on this issue, I would get ten different answers. And if you were to ask FLBS researchers (likely the leading authorities on Flathead Lake ecology), they would respond “right now we just don’t know what effects lake trout removal may have on Flathead Lake’s

aquatic community”. Therefore, researchers at FLBS are currently working on a predictive model to answer this question and help determine the possible effects of lake trout removal and other potential changes in the lake’s conditions and food web.

To me it isn’t really an ecological question anymore. It is a societal values question. Do we take action to protect a native fish from a million hungry predators? Or do we accept abundant lake trout because we like to catch and eat them? I just have to trust that the professionals charged with managing the fishes of the Flathead continue to do their best to figure this dilemma out.

I am more concerned about the arrival of NEW invaders (intentional and unintentional). Illegal stocking of new fish species could have profound effects on the aquatic community of Flathead Lake. And illegal stocking is occurring. At times referred to as “bucket biology” or “Johnny Applefish”, people continue to relocate their favorite fishes. In fact FWP Region 1 (NW Montana) has seen more illegal stocking than the rest of the state combined.

And then there are the mussels! Zebra and quagga mussels are marching towards Montana, and these abundant filter feeders have profound impacts on ecosystems. They can consume the majority of food available in a water body, causing fish population crashes. In fact, if we were to get these mussels in Flathead Lake this whole discussion about bull trout and lake trout might be moot. We might just be hoping for any fish to catch in Flathead Lake.