

Flathead Fisheries Management Challenges

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Receding glaciers left behind a relatively simple fish community in the Flathead, consisting of bull and westslope cutthroat trout, mountain and pygmy whitefish, and assorted sculpin, sucker, and minnow species. These species co-existed relatively well over the next 10,000 or so years, with some species evolving far reaching migratory life histories to best adapt to the sterile waters.



Source: Jon Hanson, 2008

Jim Vashro with a Flathead Lake lake whitefish

Conditions started to change rapidly after Europeans arrived in the mid-1800s. The first change was to more than double the number of fish species through introductions. Introductions were mostly utilitarian, for food or commercial fishing, but settlers were also looking for sport and reminders of what they left behind. Early fish stocking took a Johnny Appleseed approach, spreading fish without thought of impacts to existing fisheries. The next major change was construction of hydroelectric dams to power homes and industry and control floods. Dams included Bigfork Dam on the Swan River in 1910, Kerr Dam on the outlet of Flathead Lake in 1938, and Hungry Horse Dam on the South Fork of the Flathead in 1953. These 3 dams dramatically affected the movement of fish and water throughout the watershed. Hungry Horse Dam alone cut off forty percent of the spawning habitat for

Flathead fish. The last major change was human population growth with increases in fishing pressure and harvest and natural resource development that built roads, removed trees, mined minerals and moved sediment and nutrients into waterways.

Kokanee salmon are the best example of human tinkering with fish populations in the watershed. Kokanee were accidentally introduced into Flathead Lake in 1916 when sockeye salmon eggs were mixed in with chinook salmon eggs. The chinook vanished but the sockeye persisted and turned into landlocked kokanee salmon. The kokanee quickly pioneered spawning sites throughout the lake and river and by the 1960s were producing 100,000 angler days of fishing and harvests of several hundred thousand salmon each year, making Flathead Lake the most popular fishery in Montana. Not content, anglers clamored for the introduction of mysis shrimp based on Kootenay Lake in British Columbia where kokanee were growing to 4 pounds on a shrimp diet. With good intentions but little research, Montana and the other western states introduced mysis into more than 100 kokanee bearing lakes across the West.

Too late it was discovered that Kootenay Lake was an aberration caused by an upwelling current. In most lakes mysis stayed too deep for shallow feeding kokanee and, in fact, mysis competed with kokanee for zooplankton food sources and actually resulted in smaller salmon. Worse yet, in lakes with lake trout the kokanee were wiped out. Research in British Columbia revealed that kokanee spread out at dawn and feed until they are full. With mysis-depleted zooplankton the salmon had to forage longer and farther, the equivalent of a diet and exercise program. Worse yet, when the kokanee were spread out they were more vulnerable to predation. Mysis dramatically improved survival of deep-dwelling lake

trout. The combination of increased vulnerability and increased lake trout predation knocked kokanee out.

The Flathead salmon fishery was struggling by the 1960s. Fall drawdowns from changes in operations of Kerr and Hungry Horse dams had knocked out most of the spawning in the lake and river system. The only secure spawning left was in the outlet of Lake McDonald in Glacier Park where tens of thousands of kokanee drew hundreds of bald eagles – and tourists – each fall. All the kokanee eggs were literally in one basket. Intense fishing pressure was harvesting half or more of the salmon each year. Steps were taken to reverse those problems but in 1981 mysis were detected in Flathead Lake. Mysis had been planted in Ashley, Whitefish and Swan lakes in 1968 and drifted down. Mysis peaked in Flathead in 1985 and lake trout numbers started exploding. By 1988 the kokanee were gone. The lake trout boom also impacted native bull and westslope cutthroat trout and triggered intense debates over management of the Flathead fishery.

What is seldom recognized is that Flathead Lake after 1981 no longer resembles the ecosystem of the previous 10,000 years and a new management paradigm is needed.

On top of the biological upheaval, overlay the political and social realities of fishery management in the Flathead. Fish and water in the Flathead may originate in another country (British Columbia), flow from the Bob Marshall, Great Bear and Mission wilderness areas or Glacier National Park, flow through the Flathead National Forest and a mix of state, county and private ownerships, down through the sovereign nation of the Confederated Salish and Kootenai Tribes and ultimately flow into the state of Idaho. Further, overlay more than 100 organized citizen interest groups and you have a tough juggling act.