UMOWA
Upper Missouri Watershed Alliance

WINTER 2024

VOICE OF THE MISSOURI

Mission Statement

Guided by scientific data, our mission is to conserve, enhance and advocate for the unique ecological resources of this valuable watershed.

Board of Directors

UMOWA Updates

by Sherry Meador, UMOWA Board Chair

In this issue we are hoping to better understand the hydroelectric dams on the Upper Missouri, how dams create a tailwater fishery, and how beaver dams impact the environment on a much smaller scale. We're also excited to introduce John Kowalski to our board. He brings us a tremendous amount of knowledge and experience on the Missouri, Smith and Blackfoot rivers, and the impacts of policy, recreational use, and environmental changes over time.

Over the summer, our board members and volunteers collected flea beetles with the Montana BioControl Project in Missoula and conducted 52 releases for Leafy Spurge control in the Mid Canon area. As part of the weed project, we worked with local landowners and FWP to establish permanent monitoring plots and seeding projects to encourage desired grasses as noxious weeds are controlled. Please check out our website for the most recent River Island Weed Report.

We continued our yearly water quality and macroinvertebrate monitoring project. The annual report will be posted online, and we will incorporate the updated data into our River Health Dashboard. This winter, we will continue to analyze data and enhance the current dashboard to answer more questions and define the impacts more succinctly of flow, temp, and WQ on fish, bugs and plants. We'd sure appreciate any questions you may have on what the data collected can tell us.

And finally, we've set a June 14th date for our 9th annual Rendezvous at the Craig Tap House. Please mark it on your calendar.

Please stay up to date on our projects by checking out our website, signing up for emails, and following UMOWA on Facebook and Instagram. Also, feel free to email me, smeador@umowa.org, if you would like to become involved with UMOWA or have any questions about our projects. We appreciate your support.

Canyon Ferry Reservoir Water Rights History

by Grant Grisak, North Western Energy

During the winter of 2023-2024 NorthWestern Energy was not able to fully exercise the timing and volume of their water right from Canyon Ferry Reservoir. NorthWestern was restricted to a maximum release from Canyon Ferry of 100 cfs during the 2023-2024 winter season. At the 2024 Upper Missouri Basin Watershed Group meeting they provided some background on this right to inform the Missouri River stakeholders.

The original dam was constructed in 1896-1898 by Helena Water and Electric Power Company and the first date of operation was October 31, 1898. The dam was a 47 foot tall

rock crib structure located about 1.5 miles south of the current dam near Cemetery Island. It was originally built with four 650kW generators but upgraded only two years after it was built to include six 750kW generators.

Lake Sewell was the reservoir created by this dam and it measured 4,638 surface acres with about 110,000 acre feet of storage. It was operated for 52 years by several private companies that ultimately became the Montana Power Company. The dam and reservoir were conveyed to the United States Government in 1950. Montana Power Company maintained the storage volume of Lake Sewell as the senior water right to generate power at it's downstream hydroelectric dams. The volume of the right is based on the historic power plant capacity flow of 5,100 cfs and the Lake Sewell capacity in Second Foot days x 2 = the acre footage. That brings the volume of the right to 47,500 acre feet. Canyon Ferry Dam was constructed from 1950-1954. It created Canyon Ferry Reservoir which flooded the previous powerhouse and Lake Sewell under 113 feet of water. Canyon Ferry Reservoir is 35,000 surface acres and 1.9 million acre feet of storage. The federal government has operated the dam for the past 70 years.

Montana Power Company maintained the 47,000 acre-foot

Photos credit: Mark Raisler

1898 water right from Lake Sewell for its intended purpose to generate power at Hauser, Holter, Black Eagle, Rainbow, Ryan, Cochrane and Morony dams. NorthWestern Energy utilizes its' Canyon Ferry water right to supplement flows for power generation at these dams during winter months when power demand is high and base generation is low. NorthWestern calls on water to be released from Canyon Ferry from December 1 to February 28 to 1) increase base flow in the Missouri River downstream of Canyon Ferry, or 2) increase flows during extreme cold events as required by their FERC license that typically create severe ice formation and reduced flows resulting in decreased power generation capability. NorthWestern follows a structured method on the winter flow increases in consideration of the number, timing, magnitude and duration of each event when utilizing this water right.

NorthWestern described how maintaining higher winter flows for power generation also helps trout habitat during severe icing. Higher flows reduces ice scour on the riverbed and maintains suitable flows for incubating brown trout eggs between December 1- February 28. Stabilizing flows around late February is beneficial for rainbow trout that spawn early in the mainstem Missouri River. ■

Beavers in the Upper Missouri River Watershed

by Joe Kerkvliet, UMOWA Board Member

The land and water of the Upper Missouri Watershed looks much different now than it did when Lewis and Clark first portaged up the Great Falls in 1805 and down in 1806. For one thing, rather than nine major dams between the Great Falls and Three Forks, there were thousands, if not tens of thousands, of dams on the river and its many tributaries. These dams were built and maintained by the North American beaver (Castor canadensis). On July 24, 1805 at the York Island Fishing Access site, near present day Townsend, Lewis described how beavers affected the Upper Missouri River's ecosystem:

"[W]e saw many beaver and some otter today; the former dam up the small channels of the river between the islands and compell the river in these parts to make other channels; which as soon as it has effected that which was stoped by the beaver becomes dry and is filled up with mud sand gravel and drift wood. …in that way I beleive (the beaver) to be very instrumental in adding to the number of islands with which we find the river crouded."

In Lewis and Clark's day, the beaver, a furry rodent of 30-50 pounds, numbered as many as 60 million, but fur trapping brought it to near extinction by 1870. Today, the beaver is not uncommon in some parts of the Upper Missouri Watershed, but many observers claim our rivers and streams will benefit from much more beaver-based ecological engineering. A 2023 Montana Fish Wildlife and Parks report summarized the case for beaver-based restoration:

"Reestablishing beavers to areas of their former range can help restore degraded stream systems to benefit plants, wildlife, fisheries, and humans. The primary benefits of beavers for Montana streams include increased landscape-scale water storage, improved late-season streamflow, greater ecosystem resilience to disturbances, enhanced floodplain connectivity, and the creation and maintenance of abundant and diverse fish and wildlife habitats. Because much of the long-term stream restoration work is delegated to the beavers themselves, restoring beavers and beaver-modified habitats has the potential to take stream restoration from small-scale projects to landscape-scale restoration. Restoration at this scale can have a significant impact on some of the most pressing problems facing western communities (Ritter, et al. 2023, p.5)."

In many parts of the Upper Missouri, beavers generally do not build dams. But this does not imply that the beavers' ecological engineering could not add to UMOWA's mission of 'Conserving the Upper Missouri.' First, to this observer, beaver activity is noticeably scarce on many tributaries of the Upper Missouri, including Prickly Pear Creek, Little Prickly Pear Creek, Stickney Creek, Sheep Creek, Elkhorn Creek, Cottonwood Creek, the Dearborn River and its forks and tributaries, to name just a few. Second, beavers in the main stem Missouri do not generally build dams. Instead, they burrow as many as 50 yards into river banks or build large riverside lodges out of sticks and logs for raising their young and surviving Montana's long winters (see photo below).

Beaver lodge near mouth of Rock Creek below Wolf Creek Bridge FAS.

Main stem river beavers cut willows, osiers, cottonwoods, and other riparian vegetation for food and to keep their constantly growing incisors in check. Their cutting causes these plants to re-sprout and thus maintains riparian shrubs' health and vigor. Beavers also cut and store driftboat-sized underwater caches of twigs, stems, and small logs for winter food. These caches add woody debris to the river and serve as important food sources for aquatic animals and insects. In my experience, beaver lodges and food caches attract large brown trout.

No doubt, living with beavers has its pitfalls. Riverside homeowners know that trees, shrubs, and even gardens must be protected from beavers' constant gnawing (see photo below).

Beaver-cut willow on the MO near Lone Tree FAS. Photo Credit Joe Kerkvliet

Some riverside homeowners must deal with beavers burrowing. Beaver dams can also flood roads and fields, plug culvers, and sometimes interfere with fish passage. Nevertheless, when carefully done, with due consideration of costs and benefits, beaver-based restoration can be a useful tool in maintaining and restoring the Upper Missouri. ■

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Tailwater Fisheries

by John Chaffee, UMOWA Board Member

Damming a river system impacts its flow, temperature, sedimentation, and habitat fragmentation which can impede migratory fish, like salmon and steelhead, from reaching their spawning grounds. Not all impacts are negative, especially when it comes to Montana tailwaters. Tailwater refers to the section of river below a dam where cold water is released from a lake above in consistent, regulated flows.

Tailwaters provide good habitat for aquatic life. Consistent, cold, clean water provides perfect conditions for many different aquatic insects. Midges, Blue Wing Olives, Caddis, Pale Morning Duns, and Tri-cos are all predictable and somewhat dependable hatches found in the Missouri River. Trout and bird life is rich along the Missouri due to the large volume of insects allowing some sections to obtain blue ribbon status.

Tailwaters are fishable throughout the year even during Montana's cold winter months. The Missouri River above Canyon Ferry becomes clogged with ice and incredibly difficult to fish open water, while the Missouri River below Holter Dam rarely freezes over and is easily fishable. The Missouri River is usually clean and has plenty of visibility which is key to fly fishing. During runoff, freestone rivers are usually muddy with strong currents, and they are routinely put on hoot owl restrictions in July and August while tailwaters are usually immune.

Recreationalists flock to these tailwaters because of the benefits they provide and with a future that looks warmer and warmer, tailwaters are going to be more like the oasis in the desert. ■