

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.



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UMOWA Updates by Sherry Meador, UMOWA Board Chair

Greetings to all! We are excited to introduce a new member to our board, Jeff Smith, a Missoula/Craig resident, who has jumped in wholeheartedly with our conservation efforts.

Please check out our River Health Summary dashboard with updated data from 2023 water quality and macroinvertebrate data collections. We continue to evaluate the data to better understand and monitor the river.

UMOWA board members, lead by scientist Dave Stagliano, took a blustery float on the Missouri this March to begin our assessment of streambank erosion conditions using the Bank Erosion Hazard Index (BEHI). This assessment will help us to prioritize projects and seek funding to bring various bank stabilization projects to reality.

Our noxious weed management project has expanded landowner participation. The project will again include collection and distribution of bio control agents (bugs). We were awarded a 2024 grant from the Noxious Weed Trust Fund and are raising matching funds for the river island weed project.

We'll be picking up trash along the river at the annual Bashin' Trash, August 3rd in collaboration with Sun River Watershed Group and TU. Check with Megan at meganh@umowa.org if you'd like to join us.

Thanks to RO Drift Boats, we are raffling off your choice of an RO Deville LS or RO LSG on August 17th at the Craig Taphouse. Only 200 tickets sold! You can buy your ticket on UMOWA.org, email meganh@umowa.org, or contact any one of our board members.

We hope you join us for our 8th annual UMOWA Rendezvous, Friday, May 31st, at the Craig Taphouse for some great barbeque and beer, a silent auction, and lots of fun.

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.

Protect Our Fishery Resource

by Hal Harper, Helena resident, angler, and former state legislator championing many conservation bills

Thank you all for your love of this river and help in River clean-ups. Here the greatest trout fishery in the entire world is matched by spectacular scenery and wildlife. Upper Missouri River Watershed Alliance's scientific observation, along with citizen support, ensure lasting excellence!

Recent news of the alarming decline in large trout, especially browns, in our river's headwaters is a concern to all of us. Fungus-covered and "zombie" trout are turning up frequently, and study is being conducted: Nutrient loads and de-watering are suspected factors, but so far low oxygen levels have been noted. New research is revealing that even netting abrasion can damage fish, with handling, measuring, unhooking, and picture taking more detrimental and deadly. We now know that oxygen deprivation poses an immediate serious threat, worse the warmer the water. Also that removal of a trout's protective slime exposes it to the ever-present fungus. These factors can largely be controlled by the angler.

Last year I observed a group of several guided boat MO anglers huddled together showing each other cell phone pictures of trout taken that day, and it hit me: If you don't have a picture, you didn't catch it! "Every good fish being a picture fish" is undoubtedly a reason we are seeing more fungus covered trout in shallows and backwaters, and this is backed by science. Hundreds of thousands of us each year fish the Missouri and the Big Hole alone; everybody has a cell phone, many catch fish. If this is a new accepted norm, it is trouble for our fishery.

Every competent guide should know proper release techniques, and how to take a picture without exhausting a fish. If you must take a picture, leave the fish in the water, avoid air exposure time, and especially dry hand handling. Please fish with barbless hooks and learn to use a release device. We use the one shown, which is merely a bent wire stuck in a wine cork that we make ourselves, and it sure beats injured fish and cold hands! ■

A Fun Conversation with UMOWA Supporter, Susie Maclin

by Joe Kerkvliet, UMOWA Board Member



Susie Maclin and I are Missouri River neighbors; our Missouri River homes are less than half a mile apart and sometimes we are lucky enough to be enjoying the Upper Missouri at the same time. Last July, Susie and I sat on her deck and watched

an osprey pair raising a family of chicks on a 30 foot tall nesting platform she had built on the bank of the river. This April, we spoke of Susie's connection to Montana, her love of the Upper Missouri, and her support of UMOWA. A summary of our conversation follows.

Joe: Susie, how did you first come to Montana and the Upper Missouri?

Susie: Twenty-two years ago, I was living in New York City and my husband-to-be, John, was living in Washington D.C. We both loved to fish and decided we wanted to buy a fishing property somewhere in the west where we could enjoy our summers and pursue our passions for fly fishing together. We looked at properties in Wyoming, Idaho, and Montana and chose the Missouri River because the people here were so friendly and welcoming and the fishing was great.

Joe: Tell me about your move to Montana?

Susie: We were married on the deck of the home we bought on Marshall Lane. Family and friends and anglers in drift boats served as witnesses. For our honeymoon, we took a fishing trip on the Missouri and we both caught fish. John was very romantic and saved the flies we used to catch fish and I still have them.

Joe: What kinds of things do you enjoy doing while in Montana.

Susie: Oh, there are so many things I like to do when I'm here. There is never enough time to do them all. As soon as we started living here, I wanted to be part of the community and joined the Dearborn Garden Club. John was a board member of the National Audubon Society and so naturally we became active members of the Montana Audubon. We fished; we hiked; we enjoyed exploring different parts of Montana.

Joe: What changes have you seen happen over the years on the river?

Susie: Well, there are a lot more anglers. There are also a lot more women anglers and I like seeing that happen. I have gravitated from fly fishing to photography, which I really enjoy.

Joe: You have been a strong supporter of UMOWA over the years and we are very appreciative of that. Tell me what is it about UMOWA that you like?

Susie: I was first attracted to UMOWA because of the people. Alan and Marilyn Shaw, in particular, are neighbors of mine and are great ambassadors of UMOWA's mission. I like what UMOWA has done with river restoration projects and its work on controlling invasive weeds and plants on the river. I like that UMOWA has come through on what it says it will do and gets results.

Joe: Are there projects that you would like to see UMOWA take on in the future?

Susie: Yes. I would very much like to see continuing efforts to control invasive weeds and plants. UMOWA is making a difference in controlling the leafy spurge and other noxious weeds along the river, but controlling weeds is a long process and these efforts must continue. I would also like UMOWA to do more to educate river users and river residents about how to conserve and protect this great natural

resource we all enjoy. The way each one of us manages our homes and yards, encourages native trees, plants, and shrubs, protects birds and other wildlife, and walks softly and with respect upon the land can make a big difference in keeping the Upper Missouri for me and you and future generations.

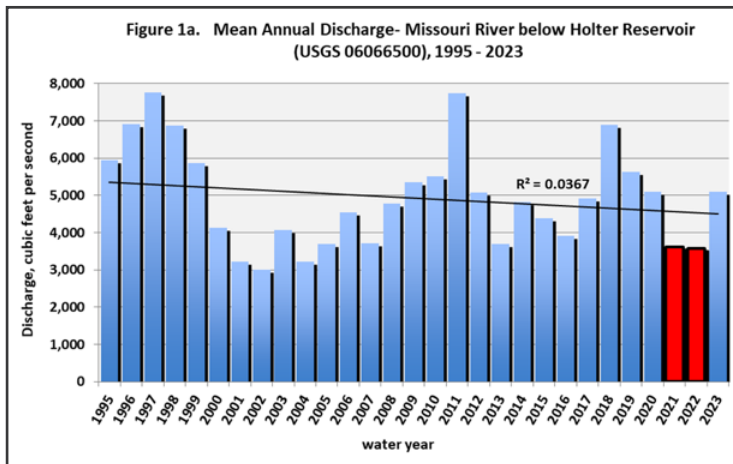
Joe: Thanks Susie. Have a great trip to Portugal.

Susie: Thanks, Joe. See you this summer on the Missouri. ■

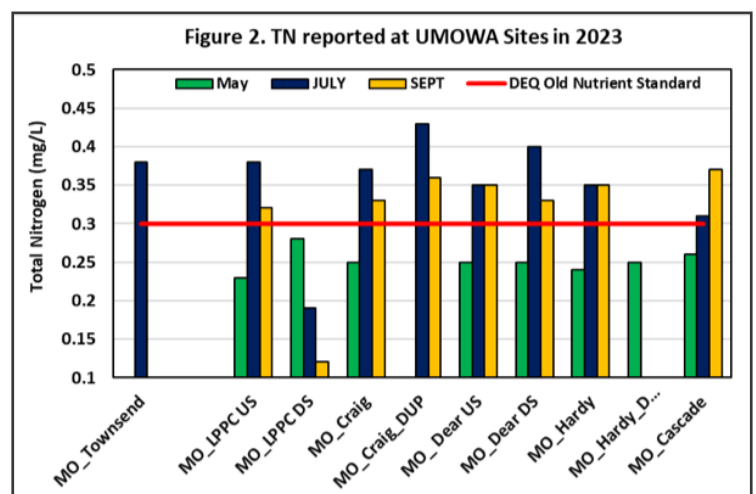
Tracking the Water Quality Pulse of the Upper Missouri River in 2023

by David Stagliano, Aquatic Ecologist, Montana Biological Survey

It doesn't take a scientist to know that there was a lot more 'water in the river' (streamflow) in 2023 compared to the last 2 years of low-flows (*Figure 1a, red bars on graph*); especially in June, when the Missouri River below Holter reached a peak streamflow of 15,300 cfs. Although we did not break any records and still have a slight declining trend when it comes to mean annual discharge over the last 29-years (*black line on graph*), water levels sure were nice compared to 2021 and 2022; two of the lowest discharges reported since 2013. Remember 2013, things in Montana sure seemed a little slower, less crazy, and a whole lot less crowded.



This past year, as we have since 2016, UMOWA collected water chemistry (WQ) samples in Spring, Summer and Fall at 7 sites from Wolf Creek to Cascade and, since 2021, at the Missouri River at Townsend. In 2023, nutrient levels, particularly total nitrogen (TN) in the summer and fall, have increased and exceeded the old DEQ nutrient standard downstream of Holter Dam compared 2021 and 2022 (*Figure 2, above red line*). The Missouri River upstream of Canyon Ferry has reported consistently high TN and oftentimes total phosphorus (TP) levels. Little Prickly Pear Creek may contribute some added TN in the spring but dilutes (decreases) TN levels in the adjacent Missouri River in the Summer and Fall (*Figure 2, MO_LPPC US vs. MO_LPPC DS*). The Dearborn River may be contributing some added TN in the summer but provides a slight dilution



of TN in the adjacent Missouri River in the Fall (*Figure 2, MO_DEAR US vs. MO_DEAR DS*).

Lower mean discharge and no large flushing flows in 2021 and 2022 did not provide the lower Missouri River below Canyon Ferry with a large nutrient pulse that occurred from 2017 to 2020 and again in 2023. Due to UMOWA's water quality collections, especially in the tributaries that are contributing excess nutrients upstream of Townsend (Deep, Dry, Greyson and others), we have a pretty good explanation for why this is the case. During low flow years, nutrients, both TN and TP have more time to be utilized by plants and algae within the reservoir and do not appear to be high downstream of Holter Dam. Whereas, during high discharge years, nutrients are not utilized quickly enough as they flow through the reservoirs and wind up exceeding the nutrient thresholds below Holter Reservoir as we had in summer and fall of 2023.

On the flip side, a large flushing flow often clears out sediment and silt from cobbles which favors mayfly and caddisfly colonization and abundance. And from the looks of the Fall 2023 macroinvertebrate data, 2024 could be a banner year for BWO, Tricos and Tan Caddisflies in some of the stretches of the Missouri from Holter Dam to downstream of Wolf Creek bridge, and around the Dearborn River downstream to Hardy Bridge. ■

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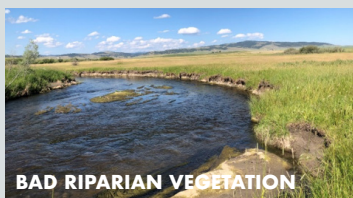
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The Importance of Woody Riparian Vegetation

by Amy Sacry, Biologist, Geum Environmental Consulting



GOOD RIPARIAN VEGETATION



BAD RIPARIAN VEGETATION

Riparian areas are lands that occur along the edges of rivers and streams. While occupying only 3% of Montana, over 60% of our species depend on these areas for some portion of their life cycle. Woody riparian vegetation, such as willows and cottonwoods, provides shade to streams and rivers helping keep water cool. Cooler, shaded streams have less algae and can hold

more dissolved oxygen, which aquatic species need to breathe. Riparian areas are important natural biofilters, protecting aquatic environments from excessive sedimentation and polluted runoff. The roots of riparian trees and shrubs help hold streambanks in place, preventing erosion. During high flows, riparian vegetation slows and spreads out floodwaters, further preventing erosion and storing water for release during critical low flow periods in late summer.

Riparian areas have been extensively altered throughout Montana, initially through beaver eradication in the mid-1800s and then through urban and agricultural development. Before eradication of beaver and development, riparian areas along the upper Missouri River and its tributaries would have supported many types of vegetation spanning the entire valley bottom.

Beaver would have occupied these areas forming ponds that stored water, filtered sediments and nutrients, and created a wide range of habitats.

Due to their relatively flat topography, deep organic soils, and high water tables, riparian areas were some of the first areas in Montana to be converted for grass production. This led to extensive clearing of woody vegetation, leveling of land, and seeding of productive grasses such as smooth brome, timothy, meadow foxtail, Kentucky bluegrass and reed canarygrass. These introduced grasses thrive in these areas, outcompeting native graminoids and limiting the natural ability for woody vegetation to re-establish. At the same time, most of these species are poor streambank stabilizers and contribute little to aquatic habitat compared to willows and cottonwoods.

Montana's warming climate increases the urgency to conserve and restore riparian areas. By mid-century temperatures in central Montana are predicted to increase by 4.5-6.0° F and the number of days exceeding 90° F are projected to increase by 25-30 days. This will lead to more droughts, lower stream flows, and higher stream temperatures which could cause fish population declines and increase nuisance algae blooms. Preserving or restoring woody vegetation cover along streambanks and allowing riparian areas to function naturally are two of the best strategies we have to protect Montana's cold-water fisheries and rivers. ■

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