

### SUMMER NEWSLETTER

## 2021



Brecken Mauk's fifth year on the Bighorn with grandparents Terri Mauk & Michael Gula

# "Returning to the River"

By Anne Marie Emery, Executive Director

A fter over a year of staying close to home, anglers are finally returning to the currents of rivers as a sense of delicate normalcy returns to the landscape. Bighorn anglers are especially delighted to wade back into the 'Horn where they are met with gin clear waters and healthy (and well rested) wild trout. The angler – trout reunion has been a joyous one.

Contrary to high flow years, anglers are also returning to the Bighorn under drought conditions. As of the writing of this article, flows discharged from Yellowtail dam are 1750cfs, and all reservoirs within the basin (Boysen, Buffalo Bill and Bighorn Reservoir) are not expected to fill under current median forecasts. Things are dry, warm, and the basin needs rain. The good news is that rainbow trout typically fare well under drought conditions and the river should stay cool and clear throughout the summer months. The bad news is that flow reductions occurred mid rainbow trout spawn which, depending on the number of spawning gravels that were impacted due to flow decreases, prevents the fishery from receiving full spawn benefits that would occur under higher flow conditions.

While it is premature to assume that we are entering another extended drought cycle, a report from the Natural Resources Defense Council states that drought and altered snowpack will, as result of changing climate conditions, complicate Bureau of Reclamations operations of the Bighorn Reservoir. Changes in hydraulic extremes throughout the basin are projected to challenge the 30-year average forecasts under which current dam operations depend. Over the past twenty years, we have witnessed the challenges of these extremes through the extended drought of the early 2000's and the high flow events of the last ten years. These changes, and what they mean for the river in terms of the consequences they impose to the health and management of the

fisheries are on the forefront of our minds and research agenda moving forward.



Changes are happening on many of Montana's rivers. Recently I participated in a meeting with Montana fisheries managers from throughout the state who are concerned over declining brown trout populations on rivers in the southwest portion of the state. While brown trout are doing well on the Bighorn, renowned rivers

such as the Madison, Beaverhead, Big Hole, Jefferson, and Ruby are observing drops in brown trout recruitment (when a fish survives to juvenile size and can be surveyed), which is a red flag for managers who rely on healthy young trout populations to replace the adult population. While the cause of this decline is unknown, many managers believe climate change plays a role. All managers wish they had more longterm monitoring data to refer to.

The Bighorn River Alliance Research Initiative works to ensure that the Bighorn River is managed as one of the renowned wild trout tailwater fisheries in the U.S. We are actively collecting the data that is needed and missing on many of Montana's rivers. At this moment we have ecologists on the river performing the first assessment of aquatic vegetation on the river, an intern



Riley Crissman identifying plant species on the Bighorn River.

from Rocky Mountain college collecting water quality data, a licensed drone pilot collecting imagery of spawning beds, guides collecting catch data with their clients, and permits ready to connect two Bighorn side channels back to the river. **This work is possible because of you. Thank you for keeping us active, responsive, and committed to the Bighorn River and ensuring its health in times of change and uncertainty.** 



Pilot Dennis Fisher assessing trout spawning grounds with the new BHRA drone.



# OUR WORK

#### BIGHORN AQUATIC PLANTS



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A quatic vegetation is an important components of the Bighorn River ecosystem. It produces oxygen through photosynthesis, provides food, habitat, and cover for fish, and helps stabilize sediment in the riverbed. Ample growth of algae or plants can also indicate imbalances in nutrient loads that can be the result of disturbances entering the river from the reservoir or land use practices occurring around the riverbanks. This summer the BHRA Research Initiative program has contracted with ecologist Peter Rice to perform an aquatic plant survey throughout the upper section of the Bighorn River to identify the current species composition and distribution of aquatic vegetation.

Rice performed his first survey of 119 sample points on the river this June. At each sample site he used the rake throw method to collect vegetation in which he identified to species and recorded abundance. Rice will revisit sites in August to repeat. At the end of the year Rice will provide a report of his findings that will incorporate potential relationships between the aquatic vegetation and BHRA macroinvertebrate and water quality data.

#### CONNECTING VITAL HABITAT .

**B** ighorn River Alliance is permit ready to begin instream excavation work that will reconnect flow into two Bighorn side channels this summer. Since creation of the Yellowtail dam many Bighorn side channels have become disconnected from adequate streamflow due to channelization of the river that has, over time, led to sediment build up at side channel entrances.

As part of a multi-year effort to preserve and sustain the complex habitat of the Bighorn wild trout fishery the BHRA Research Initiative program has worked with contractors to identify twenty side channels in the upper section of the river that are currently fully, or partially disconnected from the river during lower flow years. From those identified channels, Rattlesnake and Juniper were selected to reconnect in 2021.

Later this summer, BHRA contractor Mike Sanctuary will oversee excavation work to remove approximately 550 cubic yards of material from the entrances of the channels and within their length, to allow flow to enter at lower river releases. Excavated material will be placed strategically within the channel to narrow the bed and stabilize the banks, making the channels functional to the river and to the fishery.



Aerial Photo of Side Channel Restoration Sites

For more information in making a qualified charitable distribution from your IRA, a grant from your donor advised fund (DAF) or a gift of appreciated securities, contact the BHRA office at (406) 534-2915.

#### MEET OUR NEW 2021 BHRA CONTRACTORS \_

**B** ighorn River Alliance contractors are paid independent professionals that work to implement the efforts of the Bighorn River Alliance's Research Initiative program. Scopes of work are guided by the 2018 BHRA Plans and Priorities report that was written by Warren Kellogg with assistance from research professionals and partner federal/state agencies. For 2021, RI areas of focus are: monitoring and classifying aquatic vegetation composition and abundance, resuming long term monitoring of water quality and macroinvertebrates, performing a literature review on Pelicans, and re-connecting two side channels known as Juniper and Rattlesnake.



#### Peter Rice: Aquatic Vegetation Assessment

Peter was a Research Ecologist at University of Montana from September 1970 through August 2020 working in applied environmental science and ecology. His scientific specialties are in applied plant ecology with particular emphasis on the ecosystems of the Northern Rockies and Great Plains. His

background in native plant botany is the basis for many terrestrial and aquatic vegetation surveys.



#### Kayhan Ostovar: Water Quality & Pelican Literature Review

Kayhan is an Environmental Science and Wildlife Conservation professor at Rocky Mountain College (RMC) in Billings, and the director of the Yellowstone River Research Center. With RMC he will be coordinating the Bighorn Water Quality Monitoring on both the Bighorn River and reservoir, as well

as reviewing literature to assess the potential effects of American white pelicans on fish in the Bighorn River.

For a complete list of BHRA contractors, and scopes of work please visit www.bighornriveralliance.org/researchinitiative.

#### BHRA WELCOMES FIRST WATER QUALITY INTERN \_

H ello, my name is Kendall Ard and I was born and raised in Billings, MT. I am entering my junior year at Rocky Mountain College where I am pursuing a bachelor's degree in environmental science and environmental studies. Last summer, I was a team member on the Rocky Mountain turtle research team where we study the habitat, behavior, and demographics of spiny softshell turtles and snapping turtles in various tributaries of the Yellowstone River, including the Bighorn River. I am excited to incorporate water quality data into our turtle



study this summer as well as continuing water quality sampling on the Bighorn River and Bighorn Reservoir. Monitoring the quality of our rivers is crucial for ensuring the continuance of these vital ecosystems and I am grateful I get to take part in understanding and preserving the integrity of the Bighorn River with the BHRA this summer.

#### HOW I GIVE

Throughout my life I have played an active role in helping Montana protect its cold-water trout fisheries. Through my experience serving as president of the Montana State Council TU, National Trout Unlimited and the Montana Trout Foundation I have a deep appreciation for the role nonprofits play in advocating for healthy rivers, which is one of the reasons I currently give to the Bighorn River Alliance.



Harry Miller -BHRA Board of Directors

While I had always contributed a bit to the BHRA over the last ten years, it was not until 2019 that I began to really examine ways to increase my giving. Part of the reason for this was through encouragement of friends, but mostly it was in response to the growing Research Initiative efforts of the organization, which is good for the Bighorn River, and good for Eastern Montana.

Being retired, my giving is easier in retirement through utilizing the nontaxable funds from my IRA, which also counts toward my required minimum annual distribution. Since I do not currently use 100% of my required minimum annual draw, I donate the extra income to support BHRA which prevents me from paying taxes on that income. If you are of retirement age and currently receiving RMD's, I encourage you to consider this method of giving which is good for your tax bill and supports the good work being done on the Bighorn River.

# BIG HORN RIVER ALLIANCE

# 2021 Bighorn Carp Tournament

July 9, 2021 • Ok-A-Beh Marina • \$50 per team

Tournament Participants Receive: Team T-Shirt, BBQ Ticket, & Swag Bag

**Register or get BBQ tickets at:** www.BighornRiverAlliance.org, call (406) 534-2915 or email info@bighornriveralliance.org 09 AM - Sign in opens 10 AM - Fishing starts 04 PM - Fishing ends 05 PM - BBQ begins



www.BighornRiverAlliance.org