

SUMMER NEWSLETTER

"Today, more than ever, we need to go back to the River."

B y missing the Bighorn right now, and each other, we are given an opportunity to increase our appreciation for the River, and each other. We also have the chance to reimagine the ways we can give back to the Bighorn- whether through participation, volunteerism, or giving. Understanding that the strength of Bighorn conservation efforts is dependent on a strong membership, the Bighorn River Alliance (BHRA) is launching a new membership campaign titled "Back to the Bighorn," with the goal of recruiting 300 new members.

The benefits of increased members in non-profit organizational development are numerous. Not only does it unite us in shared commitment to the resource and fund important work, it also helps influence NGO advocacy efforts through strength in numbers, equating to a more powerful voice.

Whether you are an angler, a landowner or an irrigator, Montana's Bighorn River **consistently gives to us.** The purpose of the Bighorn River Alliance is to organize and unite voices to advocate for it. We appreciate the vital part you play in giving Back to the Bighorn and ask you to help us increase our efforts by encouraging others to give back too. Perhaps you can reach out to your network, your friends and family and ask them to become members of the Alliance by visiting our website, or you could help by recruiting new members on the River itself. Perhaps you own a business on the river and can reach out to clients, asking them to give back to the resource, by becoming a BHRA member.

Together we can encourage others to reflect upon what the River has offered to them over the years and ask them to Give Back to the Bighorn by becoming a member today.







If you are interested in helping recruit members to the BHRA through volunteerism or would like to sign a connection up for a free membership, please call us at 406-534-2915.





2020



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OUR WORK

RECONNECTING SIDE CHANNELS _____

C ide channels are important to the Bighorn River \mathbf{J} fishery by providing important spawning and rearing habitat that benefit the wild trout population. Additionally, side channels help spread out and slow the river when high water occurs, reducing bank erosion and downstream flooding. In 2009, BHRA and partner agencies observed that many critical side channels on the Bighorn were becoming disconnected due to fine sediment accumulation at channel entrances. Understanding the importance of channel complexity to riverine habitat, BHRA and partners manually reconnected Clines channel, a mile-long side channel, back to the Bighorn River in 2012. Today, this channel remains connected to the river main and its success has encouraged our Research Initiative program to explore other side channel connection projects.

Working with BHRA contractor Karin Boyd and aerial imagery compiled by contractor Tony Thatcher, BHRA has identified 20 disconnected side channels between the Afterbay dam and the city of Hardin that have been outlined in a draft report that prioritizes these side channels for restoration based on the likelihood of success and probable cost (Figure 1). BHRA is working with Boyd to focus on prospects above Hardin, or within the wild trout fishery of the Bighorn and hope to (pending the permitting process and funding constraints) begin construction on one or more of the side channels in 2021.

To read more about the Bighorn River Alliance Research Initiative and its contractors, please visit www. bighornriveralliance.org.

INUNDATION RISK MAPPING ON THE RIVER

T nderstanding how the Bighorn River migrates, and how various flow scenarios affect this migration, is key to identifying BHRA habitat restoration and enhancement projects that





Figure 1: Example data used to identify potential channels including 1950s imagery, 2019 LiDAR imagery and Relative Elevation modeling.

land use practices. This winter, using recently flown LiDAR imagery data, historical imagery and elevation modeling, BHRA contractor Tony Thatcher created a set of Inundation Risk maps that

Road Grades and Bridges Restricted Inundation May Reduce Downsream Behind Canal and Road nundation through Shadowing Elevation Relative to Channe Indation Risk (Low to High) Broad Low Floodplain With Potentially High Inundation Risk Bridges/Diversion May Cause Backwater and Increase Inundation Upstream

maps inundation risk zones (maps that show where flooding may occur over a range of various water levels) for all 80 miles of the river from the Afterbay to its confluence with the Yellowstone. These maps are critical for channel migration analysis and for analyzing restoration of the numerous side channels that exist along this stretch of the river. They will be invaluable as BHRA, partner agencies and landowners collaborate on future channel restoration work and flow negotiations.

Billings, MT Mike Parnell East Sound, WA Mike Stevens Billings, MT

Barry Yontz

Lock Haven, PA

Harry Miller



INTRODUCING BIGHORN FISHPOP!

Using Guides and Technology to collect Bighorn River data.

F ly-fishing guides are valuable information resources that are regularly underutilized by river nonprofit groups. While we work (primarily) behind the screens of our computers, guides are on the resource daily, observing river conditions, changes in river flows, and fish health- making them huge sources of consistent, real-time data. BHRA values feedback from Bighorn guides on the health of the river but has struggled with quantifying observations into usable data that can be used to track changes on the Bighorn

River. This spring, BHRA executive board member Doug Haacke developed a new mobile application known as "FishPop" that may bridge the science/guide divide. Once

downloaded on a guide's phone, the application works to record data throughout a guided trip down the river, while also georeferencing GPS data to specific locations on the River, that will be used internally to determine fish size distribution and species location (Figure 2). At the end of a trip,



Figure 2: Example data collected using FishPop.

the guide exports daily data and observations to a database where BHRA can analyze observations and combine with other guide data providing valuable data on river conditions, catch rates and fish health, species diversity and size. Beginning in July, BHRA will be working with 2-3 Bighorn River guides to test run the application on the Bighorn River, with the goal of fine tuning the application and making it available to more Bighorn River guides in 2021.

FLOWS TO MAINTAIN DESPITE DRY CONDITIONS

Record heat at the end of May coupled with below average precipitation has led to very dry conditions in the Bighorn Basin this summer. Contrary to years past, when we had an abundance of water, water managers are now working to balance the risks of low water conditions amongst various stakeholders, both upstream and downstream.

While lower river flows are a welcome change for anglers and trout who have been challenged by high river flows over the past years, the paradigm shift does present challenges amongst water users who are scrambling to meet the upstream irrigation demands in Wyoming, filling rates of the Bighorn Reservoir, and needs for the Bighorn wild trout fishery- reminding us of the complexities various water years can bring.

The Bighorn River Alliance (BHRA) has been actively working with the Bureau of Reclamation (BOR) and Montana, Fish Wildlife and Parks (MFWP) in navigating forecasts, inflows and lake elevations to advocate for sustainable river flows on the Bighorn River, while also recognizing the benefits a full reservoir by the end of July brings to the fishery in regards to winter flows, and next summer river flows.

In early June, the Bighorn Alliance participated in a BOR water users stakeholder calls and, with MFWP, urged BOR to keep river flows at or above the river release rate of 2000cfs-2500cfs through mid-July to aid the rainbow trout spawn, and recruitment of young of year trout. While the preferred fishery flow for this time of year (during an average water year) is 3500cfs, the Alliance and MFWP identify flows between 2000cfs and 2500cfs as standard levels for the fishery under drought conditions. Flows below 2000cfs can impact the fishery by dewatering side channels that are used during the Rainbow trout spawn and spur algae growth that can clog irrigation intakes and complicate fishing.

In late June, significant precipitation events improved the water conditions forecast, filling the Bighorn Reservoir, and increasing Bighorn river flows to between 4000cfs and 5200cfs for an eleven day period, clearing the river of algae and improving the water outlook. From water management discussions, Bighorn River flows are predicted to decrease to a release of 2500cfs, where it is anticipated they will remain through the end of August (pending conditions remain the same.)

Right now, things are looking balanced for the Bighorn River and the reservoir, which is good news for anglers, and the fisheries. For the first time in years anglers are relishing the walk wade opportunities and tremendous dry fly action that the Bighorn River brings. Fish health is exceptional, and the water is gin clear and cool. It is truly time to go back to the Bighorn.

OUR PEOPLE

MEET EMERY THREE IRONS

Thanks to grants received from Magic City Fly Fishers, Montana Trout Unlimited and private matching donations, the BHRA water monitoring project is funded, equipped and already collecting data on the health of the Bighorn river and reservoir. The BHRA water quality project is one component of the multi-faceted BHRA Research Initiative program that works to identify areas of needed watershed data to develop monitoring efforts and conservation projects to preserve, and enhance the resource, while also increasing our understanding of the river on a watershed level. BHRA has hired Emery Three Irons as the project water quality monitoring technician who will work along side BHRA staff, board members and project contractors to collect river health data at established monitoring sites along the river, and reservoir. His work will parallel the macroinvertebrate data collection work that will occur this Fall, providing us with baseline data on Bighorn river health, and data on macroinvertebrate diversity and density.

E mery Three Irons is a GIS analyst for the Crow Water Quality Project at LBHC. Emery was raised to understand that the world works in a spiritual way and has learned there is a scientific way. He aspires to bringing spirit and science together. His graduate research used spatial analytic methods to understand coliform contamination of private well water on the Crow Reservation and their relationship to physical characteristics and well protection factors. He currently is developing a watershed management plan for Little Bighorn River. Additionally, in the coming sampling year Three Irons will be conducting sample collections along the Bighorn River focusing on water quality parameters that will be analyzed to understand the overall health of river. Emery has a B.S. in Geospatial & Environmental Analysis and M.S. Land Resources Environmental Sciences (Montana State University - Bozeman).



IN MEMORIAM

Brad Downey • Ace Emery • Bob "Sandy" Sanderson

BRAD DOWNEY NAMED FISHING SPOTS

By Bob Krumm

Earlier this season, the Bighorn River lost one of its prominent figures: long-standing guide Brad Downey of Angler's Edge Outfitters. Brad was a respected member of the Bighorn fishing community, an innovative fly tier, and a friend to many. The below story is in tribute to Brad and the fishing spots named from his experiences.

A t a memorial held for Brad Downey in June, Hale Harris (Bighorn Trout Shop) mentioned that one spot on the Bighorn River was associated with Brad, the SBA. Harris went on to say the site was so named because it had saved Brad's rear end from an irate client because the anglers caught trout at the site as Brad had proclaimed when they pulled into the spot. He stated, "This is a good spot, we'll catch fish here."

The client had responded, "We'd better or it's your ass."

While the story is an amusing one, it is only one of the sites that Brad had named.

Downey mentioned that back in the early 1980s he was approached by an angler who had his own boat and wanted to find a good spot on the river to fish. Downey described a spot on the upper 3 miles of the river that was about two miles downstream on river left. He said to the fellow, "If you do well there, leave a five-dollar bill under a certain rock."

The next day Downey was guiding two anglers and stopped in

at that specific spot and walked over to the rock and found a five-dollar bill.

Downey's anglers fished there and had good luck, remarking, "This spot was certainly worth five dollars."

Continuing down the river Downey and his clients next pulled into what we call Pipeline. The anglers wade fished the spot and had particularly good fishing. As they left the spot they proclaimed, "If



Brad Downey

the spot up above was worth five dollars, this spot is worth ten."

After floating another stretch, they again got out to wade fish. The anglers had tremendous fishing and, when they finally called it quits, stated unequivocally: "If the two spots upstream were worth five and ten dollars, this spot is worth twenty!" So that is how the twenty-dollar hole got its name.