

Fall/Winter Newsletter

2018



Moving Forward for the Bighorn

Anne Marie Emery, Executive director

2018 was a trying year for Bighorn anglers with near record high inflows and low reservoir storage capacity equating to another summer season of high river flows. Altered or absent hatches, impaired walk-wade opportunities, turbid waters and lower than average catch rates challenged the attitudes of the most seasoned anglers, anglers who despite the trying conditions remain hopeful that normal water years will return, along with those double-digit fish days. However, the uniqueness of 2018 must be thoughtfully considered and taken into context before assessing the state of the river and speculating on the future of its fishing conditions. To do this, it is important to 1) understand the limits of the reservoir behind Yellowtail Dam 2) recognize the uniqueness of the hydrological events we are seeing today and 3) adjust dam operating criteria to balance water delivery in low, average and high-water years.

This past year was particularity unique for the Bighorn as it 1) was the second highest water year on record and 2) it followed 2017, the largest water year on record. The amount of water that entered the system in 2018 could have filled the reservoir three times over if the reservoir had been drawn down to 0.

Much of the frustration expressed by the Alliance today is that despite a decade of high water, the Bighorn Reservoir continues

to be managed under criteria that were established during years of extreme drought. In 2010 a trend of record low water (coupled with reservoir recreational concerns) prompted the Bureau of Reclamation (BOR) to make changes to operating criteria that involved raising spring reservoir elevations and creating end of month target dates that would help ensure a full reservoir for south end lake users during low water events. Ten years later and several major high water events later, it is apparent that those criteria need to be reworked and rebalanced to consider the events we are seeing today.

This past spring the Alliance launched the "Save the Bighorn" campaign to bring awareness to current operating criteria that are not working in benefit of the river during average and high-water years. Through this effort, Alliance has pushed the Bureau of Reclamation (BOR) to review operating criteria through an inclusive work group referred to as the Technical Working Group (see page 2). Through this process the Alliance is expending its time and resources to determine and advocate for the best water management practices for the river, during all hydrological conditions, while simultaneously launching our own Research Initiative to better track and monitor river changes over time (see page 2). Basically, we are working on the best deal for the river, an effort that takes time and considerable understanding of basin water management. Reviewing dam operating criteria and launching a research initiative has required the Alliance to accelerate internally as well through growing its membership



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To learn more about the Research Initiative, or to receive information on how to become a founding underwriter, please visit www.bighornriveralliance.org/reserach-initiative/

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base and increasing communications to keep pace with an active campaign that is only as strong as the members who reflect it. The maintenance of organizational development and growth coupled with exciting bold initiatives that are essential to our goal of protecting the Bighorn reflect our efficiency, passion and commitment to the resource, and blossom from the support of our members.

As anglers we are in tune and reliant upon the waters we fish. From the booking of the airline tickets, to the picking of rods and flies, to the section of river we focus our time- we are invested in our river experiences. In return, we hope for good hatches, abundant fish and most importantly, accessible flows. However, there is always a certain unpredictability involved in fishing. Mother nature and dam operations can often affect our plans and ideal conditions, teasing our loyalty to our most favorite waters. Bottom line is extreme water years challenge the waters we fish – a challenge that is not unique to the Bighorn alone. The important thing is that we learn from these extreme years and adjust management plans to better prepare how water is stored/delivered during high/average/low water years. As anglers and conservationists, we remain committed to our rivers with anxious, loyal patience and thoughtful, determined participation. Average Bighorn water years will return, and with them, better management.

Operating Criteria Review Update

Since February, the Alliance has dedicated the majority of its time in working with the Bureau of Reclamation (BOR) and various stakeholders to review operating criteria for Bighorn Lake and Yellowtail dam water operations. This internal review of operations was prompted by the Alliances "Save the Horn" campaign after current operating criteria failed to alleviate the affects of a decade of high river flows during average and high water years. To date, this on going group effort has reviewed operations and is currently working on defining and modeling criteria recommendations that be implemented to improve operations by Spring of 2019. While the Alliance was hoping to have recommendations in place before the new year, conflicts between south end reservoir users and river stakeholders required BOR to seek solicitor assistance in providing a legal interpretation of Yellowtail dam project purposes and prompted the Alliance to travel to Washington D.C. to meet with the Department of Interiors director of water and science. After review of dam documentation solicitors concluded that fish and wildlife (both below and above the dam) are regarded as project benefits of dam construction, and that reservoir recreation (despite being part of the Bighorn National Recreational Area) does not hold priority over the river downstream. With legal interpretation verifying reservoir recreation needs are equally important as river recreational needs, the Department of Interior has recommended that BOR and stakeholders continue to work together to improve management operations.

Alliance to Launch Research Initiative in 2019

The success of the Alliance in executing its stewardship mission is dependent on the quality of information on which its policy, projects and education efforts are based. From flows and water quality to management protocols and regulations, all components of Bighorn river health and management are interconnected. Until recently, the knowledge base of the Bighorn river ecosystem has been limited, with many questions regarding river health unanswered.

Under the direction of board member James Chalmers, chair of the Research Committee, the Alliance is initiating an ambitious ten-year research initiative aimed at monitoring and analysis of the key components of the Bighorn River ecosystem. The Alliance has retained the services of Warren Kellogg, a respected Montana watershed researcher, to help finalize a "Plans and Priorities" report that provides the framework for the Research initiative. Since completion of that report, (available online at bighornalliance.org) efforts have been focused on refining 2019 work tasks that will include: clarification of Bighorn governmental authorities and operations, consolidation of spatial imagery with LIDAR imagery, hydrology baseline analysis and channel mapping and water quality sampling program development.

To fund the research tasks for 2019, estimated at about 100K, a Research Initiative brochure (pictured left) was created to solicit contributions from ten "Founding Underwriters" committed to donating \$10K each. The response to this effort has been encouraging with the Alliance at 85% of its year one goal. Currently the Alliance is working to finalize scopes of work and to retain contractors with work scheduled to begin by January 1, 2019. The Alliance is very excited about this effort and the improved foundation it will provide for addressing issues facing the river.

2018 Bighorn Fisheries Review

By Mike Ruggles, MFWP Fisheries Biologist

Region 5 of Montana Fish Wildlife and Parks conducts biannual sampling on the Bighorn River to monitor the health and abundance of the Bighorn wild trout fishery. The agency samples the Bighorn in the fall and spring at 2 locations: the Upper Section (from Three Mile Access to 4 miles downstream) and the Lower Section (Mallards Landing to 4 miles upstream). Given the high water of 2018 and angler concern over catch rates, we asked the agency to summarize current Bighorn trout counts.

2018 was a challenging year for the Bighorn River fishing experience with anglers reporting too much water, turbid water, warm water, weedy water and low catch rates. Back to back high-water years and sustained high water releases created issues for anglers who are anxious to know how the fishery is responding to these unique high-water years.

It is important to note that Bighorn brown and rainbow trout populations respond differently to water events. The timing, magnitude and duration of high or low water, coupled with winter flow releases and spawning periods can impact the success of young trout recruitment into the population. Typically, brown trout, which are fall spawners, favor high water years, and rainbow trout, which are spring spawners, favor average or lower water years.

2018 was an exceptionally unique year for the fishery as it was the second highest water year on record, that followed 2017, the highest water year on record. We know that anglers struggled on the river, but how have Bighorn trout populations responded to these repeated high sustained flow events?

Our spring population sampling on two sections of the Bighorn (the upper section and lower section) showed different results. The Upper Bighorn showed near average numbers of both brown and rainbow trout with a total combined count of both trout species over 8 inches exceeding 3000 trout per mile – good news for anglers who reported low catch rates (figure 1). The Lower Bighorn section sampled showed different results. Rainbow trout numbers remained stable, but below the long-term average, while brown trout numbers dropped to the lowest level observed since 1992. Combined, the total count for both species over 8 inches was less than 500 fish per mile (figure 2).

Currently it is unknown why Upper Bighorn site fish counts remained stable, while Lower Bighorn estimates declined. It could be that lower site trout occupied side channel areas that are not typically sampled, or that the high flows encouraged them to move upstream. It is also not uncommon for a year class of fish to not to show up one year, but show up strongly the next year in sampling efforts.

From data collected over the years, timing and magnitude of flows affect Bighorn fish populations, with effects varying between sample sections. Flows exceeding 7,000 cfs in April and not decreasing below 6,000 cfs before mid-July and flows over 10,000 cfs lasting for weeks or months did not support increased Bighorn trout abundance. This may be the product of scouring flows limiting spawning areas or digging out redds before trout can emerge and recruit into the population.

Bighorn River Upper Trout Section Population Estimate for Trout Greater Than Eight Inches



Figure 1. MFWP upper Bighorn River trout population estimates for trout greater than 8 inches from 1992-2018.

Bighorn River Mallards Trout Section Population Estimate for Trout Greater Than Eight Inches



Figure 2. MFWP lower Bighorn River trout population estimates for trou greater than 8 inches from 1992-2018.

In summary, the high flows of 2017 and 2018 did not support the fishery as expected. Higher water temperatures and reduced water clarity were also observed this year, but not thought to have limited affects on the fishery other than affecting catchability of trout and increased aquatic vegetation.

Results from MFWP Bighorn population estimates are important management tools that will be used to inform water managers of the negative effects sustained high flows have on the fishery. While the ability to manage extreme high-water events is limited by the relatively small size of Bighorn Reservoir, it is hoped that water management changes can be made to improve fish habitat and the fish numbers in a wider range of water years. If a normal or below average water year is experienced this winter and in 2019, it is expected the trout will respond with improved spawning success and increased trout numbers.

Miike Ruggles is the Region 5 fisheries biologist who oversees data collection on the Blghorn River. For the full Bighorn Report, please visit www.bighornriveralliance.org/fisheries-report/ or contact Ruggles at mikeruggles@mt.gov.

The Bighorn River Alliance is a 501c(3) not for profit organization.

Congratulations to the Winners!



Congrats to local Montanans Sarah and Justin Clark for winning the 2018 Alliance Adipose Drift boat raffle! This limited raffle opportunity is made possible by Adipose Boatworks and raises \$15K for Alliance conservation efforts annually.



Fort Smith residents and co-owners of the Bighorn Trout Shop Steve and J.J. Hilbers were winners of the 2018 Bighorn Carp Tournament. Seventeen teams participated in the Carp tournament this this year, which remains the oldest Carp fishing tournament in the state.

A Special Thanks

Dedicated Bighorn Angler George Tunnell has been visiting the Bighorn River and the Bighorn River Lodge with a dedicated group of friends since the early 1980s. Like many anglers, George acquired an impressive collection of rods, reels, flies and sundry equipment over the years. This last year, due to health problems, George had to give up his favorite pastime and asked that his equipment be auctioned off by his beloved fishing group with proceeds going to the Bighorn River Alliance. The funds from this auction, along with additional donations from others in his group, raised 5K. The Bighorn River Alliance would like to extend its deepest appreciation to George for his generosity, and acknowledge his deep love for the Bighorn River and all it gives to each of us. His legacy and love for the River will be forever remembered in the Bighorn waters we wade.



The George Tunnell fishing group. Photo courtesy of Don Putnam.

In Memorium

Ed Saidon Iohn Olson Robert "Bud" Chandler

Are you receiving monthly Bighorn updates?

Reducing our carbon footprint, while also increasing membership communications is important to the Bighorn River Alliance. Currently the Alliance distributes 2 paper mailings a year to its members, with monthly email updates being sent between mailings, right to your inbox. If you are not receiving our monthly email updates, please send us an email at info@bighornriveralliance.org or give us a call at 406.606.2353 with your information and we will make sure you are getting the latest in Bighorn news!

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