

INVESTING IN THE RIVER



Angler & Wild Trout Society member Mike Engel.

It was a great year for the Bighorn River and the Bighorn River Alliance as we celebrated returning to the river, reconnecting habitats, and experimenting with new methodologies that hold us true to our mission to preserve, protect and enhance.

On the river, conditions were fantastic. Despite the dry water year, the river remained cold and clear which equated to spectacular fishing conditions and large, healthy wild trout. Recent surveys show trout populations improving, and anglers are still talking about the epic 2021 PMD hatch.

Programmatically, the BHRA celebrated the success of two side channel restoration projects completed in August. The restoration of these channels work to increase spawning and rearing habitat for wild trout during low flow years. They also mark the beginning of an exciting time for the organization as we begin to apply our Research Initiative findings into on-the-ground, meaningful changes for the river.

We are just getting started. These channels prelude a much larger, multi-channel restoration goal of connecting more channels in 2023. BHRA and contractors identified 11 non-active, or partially active channels that, if restored, would add over 5 miles of additional habitat back to the river. BHRA will fund preliminary survey work of these channels in February after which study designs and cost estimates will be reviewed.

In addition to the above, BHRA continues to take sole lead to fund and implement long-term monitoring of the Bighorn River resource. This includes annual studies on water health, aquatic insect populations, aquatic plant abundance and spawning survey assessments, while also staying active in flow management working groups.

The momentum we have built is exciting, and our work impactful. That is why I have personally pledged to elevate my year-end giving to the Wild Trout Society level. Please consider joining me in furthering your investment in the BHRA by considering a year-end contribution, and if able, becoming a Wild Trout Society member.

Our work reflects our investment in the Bighorn River and its wild trout. The ability to do this work is made possible because of your investment in the BHRA. Thank you for making us capable of protecting it.

Anne Marie Emery
Executive Director



BECAUSE OF YOU

- 2 Bighorn Side Channels Reconnected
- 19 Side Channels analyzed for Future Restoration
- 72 miles of Bighorn Water Quality Monitored
- 11 Spawning Complexes Identified and Mapped
- 8 major points of Irrigation Return Identified and Photographed
- First Aquatic Plant Survey Accomplished

For summaries of these projects, please visit our Research Initiative 2021 Summary Report at:
www.bighornriveralliance.org/researchinitiative



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**Year-End Raffle
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January 20, 2022
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OUR WORK

BIGHORN TROUT POPULATIONS IMPROVE

By Shannon Blackburn, MFWP Fisheries Biologist



Montana Fish, Wildlife & Parks (MFWP) performs annual population estimates on four miles of the upper Bighorn River each spring to assess fish population trends and size class distribution. Since 2019, anglers and biologists have been concerned over low trout populations attributed to high flushing flows in 2017–2019 that have limited young-of-year recruitment. Conversely, drought conditions in 2020 and 2021 produced below-average flows but have been more favorable to wild trout recruitment. As a result, the number of trout in the Bighorn River is up from the near record lows observed in 2019. Rainbow Trout have made

SIDE CHANNELS RESTORED

BHRA is proud to announce that work on Rattlesnake and Juniper side channels is complete, restoring .45 miles of complex habitat back to the Bighorn River and its wild trout. Since dam construction Bighorn side channels have become increasingly disconnected due to channelization of the river, sediment infilling and vegetation encroachment at channel entrances. This August contractors excavated a total of 540 cubic yards of material from the entrances of both Rattlesnake and Juniper channels, and within their length, to restore connection with the main river. BHRA will be monitoring the success of these projects throughout the year, while also preparing plans for much larger, multi-channel reconnection effort in 2023.

For more info visit the BHRA blog on our website, or check us out on YouTube!



Rattlesnake Side Channel Before



Rattlesnake Side Channel After



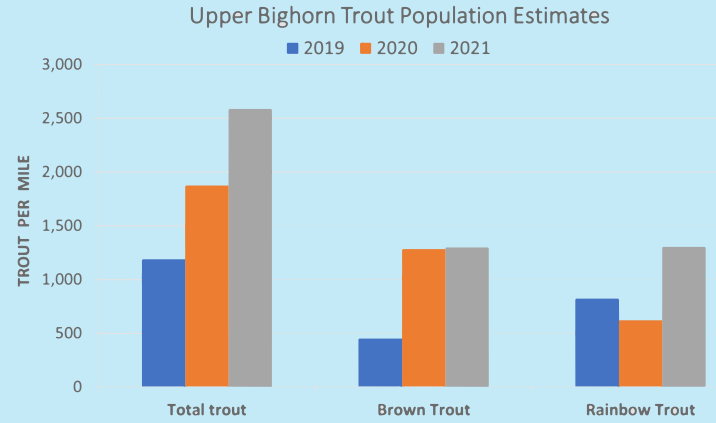
Juniper Side Channel Before



Juniper Side Channel After

a dramatic comeback from 2019, which reaffirms that the species can do well in drought conditions. Brown Trout numbers have also improved, but not as substantially as Rainbow Trout.

Moving forward into 2022, MFWP anticipates the number of wild trout in the Bighorn River will continue to increase given favorable environmental conditions this winter and next spring. We anticipate strong recruitment for both Brown and Rainbow trout as the number of available spawners in 2021 is still high.



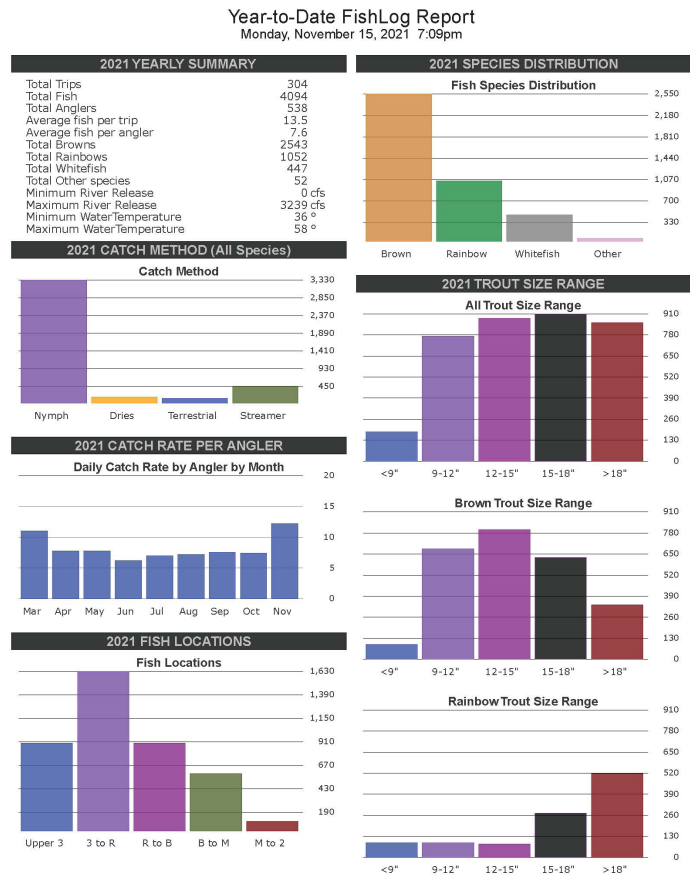
BIGHORN GUIDES CATCHING DATA

While MFWP performs annual population estimates that are important for managing the Bighorn fishery, the BHRA has been working with local guides to create an innovative new tool called FishLog that could supplement population data with fishing data.

FishLog is an iPhone application (app) developed by BHRA board member and software engineer Doug Haacke. The app allows guides to record daily data on fish size, species, health, water clarity, river flows, and weather- while also georeferencing fish locations that are uploaded to the BHRA database at the end of each day.

Thanks to the participation of five seasoned Bighorn guides (below), FishLog was beta tested throughout the 2021 season. In total, the app was used on over 300 trips down the river, contributing data on over 4,000 caught fish!

While cumulative data are yet to be analyzed, the year-to-date report (pictured right) reveals interesting findings. Most striking is the 2:5 dominance of Brown Trout over Rainbow Trout and the different size distributions of the two species. For more information on FishLog visit the 2021 Research Report on the website.



FishLog Beta Testing Team

The BHRA would like to thank the following Bighorn guides who worked with us to beta test FishLog during the 2021 fishing season. Their knowledge of the resource, passion to protect it and willingness to participate in this trial is greatly appreciated!



Bryen Venema



Matt Clawson



Brady Hefner



Jeremy Gilbertson



Mike Kelly

REMEMBERING DOUG GREENWALT

The BHRA would like to recognize the legacy and contributions of Doug Greenwalt, a member of the Bighorn agricultural community who recently passed away. Doug was born and raised along the Bighorn River where he managed a ranch before creating Greenwalt Ag Services, a business established to help tackle problems of the agricultural community. Through his business Doug helped ranching operations improve and expand their farming scope through integration of technology. He also worked with Senators, Congressman and Governmental officials to bring attention to the

outdated, inefficient irrigation structures on the Bighorn, which helped bring improvements to the county through the ongoing Crow Irrigation Project (CIP). His success in bringing groups together within a complex landscape, and his extensive knowledge of irrigation and farming helped everyone become more successful, and thoughtful. Doug was an instrumental partner to the BHRA and spent much time updating us on CIP projects, while also helping brainstorm ways the agricultural community and the BHRA could work together in benefit of the Bighorn River.

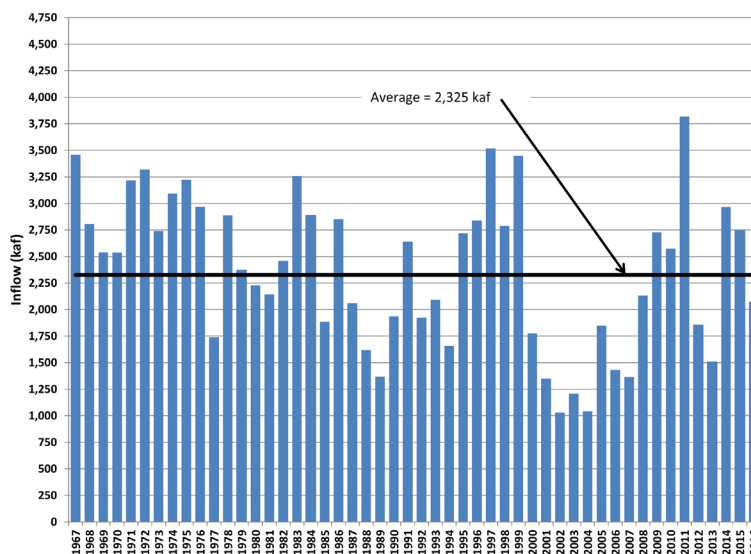
IN MEMORIAM

Don Barlow • Delbert Ruff • Doug Greenwalt

Please send death notices of BHRA members to melissa@bighornriveralliance.org

FOURTH DRIEST YEAR ON RECORD

The 2021 water year has wrapped up, and it ranked as the fourth driest in the Bighorn Basin since Yellowtail Dam construction in 1967 with a total inflow of 1,549,986 acre feet. The driest year on record since construction of the Yellowtail Dam was in 2001 with an inflow 1,347,985 acre feet, and the wettest year on record was 2017 at 4,490,499 acre feet. Fortunately, winter river releases from the reservoir will remain at trout sustainable levels through the winter, despite the lower-than-average storage conditions. Winter flows (defined as between Nov. 1 and March 31st) are currently at 2125cfs, where they will remain unless changes in forecast and precipitation occur.



At right: Annual inflow into Bighorn Lake from 1967-2021. Note, precipitation is not a direct correlation to inflow rank

GIVE A YEAR-END GIFT & BE ENTERED INTO THE RAFFLE

All gifts \$50 or more come with a BHRA Christmas ornament!

