

Big Hole Watershed Committee

Monthly Meeting Minutes November 17th, 2021 – 6:00 pm at the Divide Grange *Zoom option also provided*

In Attendance

In-person: Pedro Marques, BHWC; Tana Nulph, BHWC; Ben LaPorte, BHWC; Roy Morris, GGTU/BHWC; Jim Dennehy, BSB Water Utility Division/BHWC; Paul Siddoway, Resident; Brian Wheeler, Big Hole River Foundation/BHWC; Sam Stone, Big Hole Ranch; Susan Stone, Big Hole Ranch; Craig Fellin, Big Hole Lodge; John Reinhardt, Rancher/BHWC; Liz Jones, Rancher/BHWC; Chris Edgington, Montana Trout Unlimited; Matt Norberg, DNRC; Jim Berkey, TNC; Jim Magee, USFWS; Peter Frick, Rancher/BHWC; Randy Smith, Rancher/BHWC; John Cozby, Resident; and Kelly Cozby, Resident.

Zoom: Sarah Ashworth, Big Hole River Foundation; Sierra Harris, TNC/BHWC; Steve Luebeck, Sportsman/BHWC; Abbie Ebert, DEQ; Clayton Elliot, Montana Trout Unlimited; Lia Jones, Great Divide Outfitters; and Shirley Johnson, Resident.

Meeting Minutes

BHWC monthly meetings are now held at the Divide Grange with a virtual (Zoom) option provided thanks to Southern Montana Telephone Company, who donated the internet service. Meeting minutes and recordings are available at https://bhwc.org/monthly-meetings/ (scroll down for meeting minutes archive). Printed copies are available during in-person meetings. Contact Tana Nulph, BHWC Associate Director, at thulph@bhwc.org or (406) 267-3421 to suggest additions or corrections.

Reports

Streamflow/Snowpack Report as of November 17, 2021 – Matt Norberg, Montana Department of Natural Resources and Conservation

 Streamflows: Stream gages in the Big hole are shut down for the season with the exception the Melrose gage which is just slightly below the median daily statistic for this time of year. Stream gages in the Big Hole will start reporting next April 1st.



- NRCS Climatic and Hydrologic Normals: The new period of analysis for SWE and precipitation has been updated by the NRCS from the 1981-2010 timeframe to the new 1991-2020 timeframe.
 - Here is a very good explanation of the differences and how the percentages are calculated from the 1981-2010 and the 1991-2020 normals. LINK
- Precipitation/Snowpack: The NRCS is reporting that precipitation for the Big Hole Basin is currently 99% of median conditions. Snow Water Equivalent is currently only 54% of 1991-2020 median conditions, however; only 3 of the 9 stations are being used for this calculation with the higher elevation sites reporting average conditions.
- Forecast:
 - 7-day forecast: The upper valley forecast for the upcoming week is for temperatures to be in the 30-40's with a slight







chance of rain/snow on Friday and then partly cloudy for the remainder of the forecast. The lower valley is forecasted to be similar with temperatures in the 40's.

- o (from NOAA): ENSO Alert System Status: La Niña Advisory
 - Synopsis: La Niña is likely to continue through the Northern Hemisphere winter 2021-22 (~90% chance) and into spring 2022 (~50% chance during March-May).

U.S. Drought Monitor Montana	November 9, 2021 (Released Thursday, Nov. 11, 2021) Valid 7 a.m. EST	Number of Times the 2nd of Back-to-Back La Niña* Winters Was Wetter Than Normal
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- We are now into what is called a "Double-Dip" La Nina event. This is basically back-toback La Nina winters. Here is a link to an article that further explains this type of event, <u>https://www.noaa.gov/news/double-dip-la-nina-emerges</u>. For what it's worth, "Doubledip" La Nina events typically lend to strong winters in Montana, but we all know how the last La Nina event panned out for the Big Hole.
- Three-Month Outlook (Dec/Jan/Feb): (issued-October 21, 2021): The three-month outlook is for below normal temperatures and above normal precipitation.



Director's Report -Pedro Marques, Executive Director

- Drought Review and Communication
 - Big Hole River Drought Subcommittee meeting December 14th. We have a lot to discuss this year. The Drought Management Plan (DMP) as served us well since 1997, but this year we were really tested. We identified some areas of opportunity to assess and improve how we deliver communications around drought. We are looking for more feedback on ways to make the DMP more effective for everyone involved.
 - Encouraging irrigators, especially, to attend this meeting.

- Contact Pedro (406-552-5369, <u>pmarques@bhwc.org</u>) or Tana (406-267-3421, <u>tnulph@bhwc.org</u>) for more information or to tell us know you're coming so we can plan for lunch.
- FWP Fish and Wildlife Commission rules December
 - Reconsidering the dates RE: new brown trout regulations at their December meeting. Tweaks of 15-20 days, may end up being significant for the spawning fish and the outfitting industry.
- A book about Big Hole History?
 - Arcadia Publishing reached out to BHWC about publishing a highly visual book on the history of the Big Hole. They publish, market, distribute, etc. The author gets 8 percent royalties (about \$2/book). 128 pages, mostly photos. BHWC is considering authoring this book by reaching out to folks in the Big Hole who know the history and formatting it around natural resources (timber, water, land, minerals, etc.) in the Big Hole watershed. Proceeds would support the Big Hole River Conservation Fund, if we take this on.
 - Thoughts? Want to get involved? Reach out to us!
- Nominate BHWC for JCCS Funding by November 28th
 - Here's a really easy way to support BHWC. Our accounting firm, JCCS, is celebrating their 75year anniversary by giving out ten \$7,500 donations to existing clients. Click the link above to nominate BHWC. It's super quick and easy, and we will put the money to good use!
- Fall Newsletter at the printer now. Expect to see it in the next couple of weeks!
- Speaking engagements:
 - o Soil Health
 - Nonprofit Capacity, MWCC/FutureWest
 - Permitting/Low-Tech Restoration, National Wildlife Foundation
 - Pedro to speak to CD in Silver Bow, WY in January about the concept of "Holding Back the Snowpack"
 - o Idaho Falls?
 - MT Stormwater Conference 2022
 - o NRDP Conference 2022
- ARPA, BOR, NRCS= BIG \$\$ Irrigation Projects
 - A lot of money coming, especially for irrigation. BHWC qualifies as a water users association, so we can be applicant for ARPA money. There's no required match, but match can help in scoring. These grants are up to \$500,000. Applications are due for these January 15th. First step is to talk to landowners and get some cost estimates together, particularly landowners in the Wise River area. Contact Pedro with any questions or to get a cost estimate for an irrigation project (406-552-2369 or pmarques@bhwc.org).
- Discussion:
 - The initial plan (RE: the brown trout regulations) was to close the river October 1st, which is when spawning occurs generally early October. Somehow, in the Commission meeting, it ended up being November 1st for reasons that were unclear. So, I am very hopeful that they are able to revert this back to what was originally intended. There was a lot of time that went into this discussion into identifying these dates so if the idea is to protect brown trout, we're hoping the commission will revert to the original dates. We HOPE BHWC will make that pitch that it's about the fish, and it needs to go back to October 1st to protect the fish.
 - This is Wade from Big Hole Lodge and I second everything you're saying. KC Walsh, in response to a letter I wrote with a few other outfitters, asked that we get to them ahead of their meetings instead of responding to them after their meetings, so I second the

idea that we should get ahold of them before their meeting. October 1st is great and Big Hole Lodge is happy to sign on.

- I believe they are also going to move the spring closure date earlier, as no one is wade fishing during high water anyway.
- Suggestion: Send letter, signed by everyone, but have people call into the meeting, too.
 - Have BHWC, BHRF, outfitters/guides, etc. pull together and produce a letter and send it before the meeting.

Steering Committee Report – Randy Smith, Chairman; Roy Morris, Secretary; Steve Luebeck, Treasurer

• No updates.

Wildlife Report – Tana Nulph, Associate Director

- Landowner reported concerns about the McCartney Mountain elk herd. Elk numbers are high and harvest is low.
 - From the landowner: "The impacts from this herd are extensive and unsustainable, whether public or private. We have maintained game cams all summer mostly targeting predators, but we are capturing a lot of elk in poor condition so this isn't' great for them either. Current regulatory approaches are and have



been ineffective. I strongly recommend a cow general tag and bull draw only for this unit for a couple years. Current densities will lead to disease concentration followed by spread ... I provide opportunities nearly every day of the season and yet the herd grows at an unprecedented pace."

- "There are too many bull elk now and it is too easy to get a bull when you have an either sex option."
- Carcass Removal Spring 2022: BHWC will offer carcass removal March-May, 2022. For more information, text "carcass" to 26989, <u>click here</u>, or call John Costa, Wildlife Program Tech. at 209-628-2225.

Restoration Report – Ben LaPorte, Program Manager

- DEQ 319 Smith Sage Springs and LSR Forestry Grant Proposals
- Second Round of E. Fk. Divide Creek Fish Introductions (WCT, with USFS)
- Aspen Restoration on Mount Haggin WMA
- Upper River Streambank Project
- Lower River Streambank Project

New Business

- Missouri Headwaters Working Lands Protection Project Jim Magee, USFWS, and Jim Berkey, TNC
 - Jim Magee, USFWS: Over the last few years, USFWS and TNC are receiving more and more requests from landowners for easements in the upper Big Hole watershed. USFWS doesn't have approval to spend any money on easements unless they're in designated areas through their

refuge system or a conservation area that has to be approved (there are 4 of them in Montana). So typically, when landowners do reach out to Jim Magee, he directs them to Jim Berkey (TNC).

- The refuge program, partners program began to discuss whether they should ask for approval for funding to do conservation easements in Southwest Montana.
- With the interest in the last few years, USFWS is approaching watershed groups and other interested parties in Southwest Montana to see what they think about USFWS potentially doing easements. Any thoughts? Red flags?
- Formed a Landscape Conservation Design Steering Committee (Pedro is involved on behalf of BHWC).
 - Will come back to the group with more information and maps in a few months.
- Jim Berkey, TNC: USFWS has a very well developed, effective conservation easement program that they operate in other parts of Montana (Blackfoot, Rocky Mountain Front). A lot of landowners are very satisfied with working with USFWS on easements. So I definitely support this request.
- Why? High Demand! TNC is finding it challenging to find enough funding for the number of requests they are getting. This funding has been around since the sixties. So, this request could open up a whole new pot of funding generated from the Land and Water Conservation Fund (LWCF). Haven't been able to tap into this funding fully, but the Great American Outdoors Act passed during the Trump Administration allowed access to up to \$9 million annually.
 - Good time to create this type of program in Montana because USFWS now has more access to this funding than ever before.
 - This rides on landowner interest and support. We see very little downsides, but want to hear any questions or concerns from folks before we get too far off the ground.
- Contact information:
 - Jim Magee, USFWS Partners Program: 406-683-3893 or james magee@fws.gov
 - Jim Berkey, TNC: 406-543-2751 or <u>iberkey@tnc.org</u>
- Discussion:
 - What has changed to spur more requests for conservation easements?
 - Years ago, there was a proposal to implement conservation easement in the upper Missouri, but landowner concerns resulted in the USFWS cancelling that project.
 - Great American Outdoors Act offering expanded funding.
 - Wanting to keep land in agriculture, succession planning.

Special Topics: Big Hole River Foundation Water Quality Monitoring Program

Presented by: Brian Wheeler, Big Hole River Foundation Executive Director

Water Quality Monitoring:

- Why Monitor?
 - 1. Currently no agency or group is conducting long-term annual monitoring at watershed scale
 - 2. Provide baseline conditions against which we can evaluate improvement or deterioration of water quality
 - 3. Provide stakeholders & water managers with objective evidence to make informed management decisions
 - 4. Proactive, science-based management needed for this extraordinary resource

- Under the Clean Water Act, surface waters are designated with specific beneficial uses that they should be capable of supporting, including:
 - Aquatic life, irrigation, recreation, and drinking
 - Monitoring water quality is therefore an essential function.
- TMDL
 - Pollution diets:
 - Amount of pollutant tolerated before having a negative impact on beneficial uses
 - Big Hole divided into 3 Planning Areas during development of these TMDL's for the 2009 document
 - Primary pollutants:
 - Nutrients
 - Sediment
 - Heavy Metals
 - Temperature
 - o 2018 303(d) impairment list:
 - 21 impairments in the Lower and Middle TMDL planning area
 - Upper Big Hole and North Fork as having 37 impairments.
 - Without regular monitoring to document improvement or deterioration, we are unable to quantify whether "impaired sections" should:
 - Retain impairment status; or
 - Be removed from the Clean Water Act section 303(d) impairment list
- 2019: Pilot Project
 - o Sites
 - Initial design had 8 water sites from Twin to Jackson (pictured)
 - Analytes
 - Bottle Samples: Nutrients (TN & TP), Nitrate + Nitrite (NN), and Sediment (TSS & TDS) were chosen as they are not commonly monitored in the watershed
 - ProDSS: Water temp, pH, conductivity, turbidity, dissolved oxygen
 - QC/QA: Field Duplicates & Field Blanks
 - Frequency
 - Twice monthly April June; once monthly July September
- 2020: Finalize and Partner Up
 - SAP Sampling and Analysis Plan
 - Funding and technical support partnerships
 - Member of DEQ's VMLASP program
 - Energy Labs (state water quality lab)
 - MSU Water Quality Extension
 - Program design, training, and data input



- Guiding document: The "SAP"
 - SAP approved by DEQ spring 2020
 - Revised or updated annually as needed
 - Contains SOP and background info on watershed
 - Validity for state water quality reports
- 2021: Grow and Refine
 - Revise frequency
 - April x 1
 - Add event in October
 - \circ $\;$ New partnership with Flathead Lake Bio Station's Monitoring Montana Waters
 - Lab analysis funding
 - Technical support
 - Equipment funding
 - 2 sampling sites added in the upper river:
 - North Fork Big Hole River
 - Skinner Meadows
- Nutrient Loading
 - Nutrient Pollution: An overabundance of nutrients primarily nitrogen & phosphorus
 - Eutrophication: Waterbody becomes overly enriched by natural or artificial means.
 - Overgrowth of plant life and decline of the biological community
 - HAB (Harmful Algae Bloom)
 - When algae die they are decomposed by bacteria, consuming dissolved oxygen
 - Hypoxia:
 - Low level of DO
 - Can cause respiration, reproductive, and growth problems in fish & aquatic invertebrates
- Program results what are they finding?
 - Highest levels of TN and TP in 2020 were found between Jackson and Mudd Creek Bridge
 - Prompted addition of the 2 new upper river sites at BHSK (Skinner Meadows) and NFBH (North Fork Big Hole)



- Levels were similarly high during 2021
- Readings of DO (dissolved oxygen) > 150% saturation at BHMUD (Mudd Creek) during the day, when algae are producing oxygen suggests that there is a huge drop off in DO at night, when algae are consuming oxygen.
 - 150-mile round trip to check DO
 - Adding a HOBO DO Logger for 2022 to track diurnal fluctuations







- Discussion:
 - Is it a given that this is a source of this pollution that can be addressed or is it ever just a factor of the amount of water flowing at teach time?
 - Samples are recorded in milligrams/liter, so it shouldn't matter what the flow is.
 - Are those nutrients somehow ambient in the system so that if you have less water, it's less of a problem?
 - DEQ has done quite a bit of analysis and in talking with their surface water tech, it seems that the Phosphorus molecule in particular can "wait it out" in a system. Less likely to get flushed out and more likely to attach to rocks or sediment particles, which makes more of an issue when those water conditions are just right for uptake.
 - The main difference between Phosphorus and Nitrogen is the charges that the molecules have. So, Phosphorus is positively charged which makes it bind more easily to sediment. Nitrogen, on the other hand, has a negative charge so it flows through water and does not bind to sediment as easily. So, we see Nitrogen concentrations a lot during runoff and in groundwater.
 - Currently, none of the segments of the Big Hole are listed as impaired for any nutrients, so there are no TMDLs for any nutrients on the Big Hole, like Phosphorus or Nitrogen.
 - These are naturally occurring nutrients, they just become a problem when they are in excess.
 - It will be interesting to see what our levels look like next year after the spring runoff inputs nutrients from the major fires we had in the Big Hole this summer.

Macroinvertebrates

- Fall 2019 addition in response to local concerns over declining hatches
 - Sample sites: BHTW, BHKA, BHJOH, DC, BHW, BHJ
- Because mayflies, stoneflies, and caddisflies are sensitive to pollution and habitat degradation, the evaluation of the relative abundance is often used to evaluate water and habitat quality.
- Physical and chemical measurements of water quality provide data on pollutant concentrations.

- <u>Macroinvertebrate sampling can help us understand how these pollutants are affecting the</u> <u>biological health of the ecosystem.</u>
- Sample in the fall would like to also sample in the spring but it is cost and weather prohibitive.
- Brian's goal is to partner with BHWC and our landowner network and find and implement local solutions to water quality problems on the river.
- A sampling day:
 - o 6 Sites
 - Hess Sampler
 - 3 replicates each
- 3-Year Plan: Bug Baseline
 - In 2022, BHRF will be commissioning a lab analysis report on the diversity and relative abundance of macroinvertebrates in the Big Hole to use as a rough baseline of bug health.
 - Will consider historic data as possible (methods, locations, results, etc.)
 - Thereafter, mini-reports can be produces and compared to this baseline to track changes.
- What's next?
 - Monitor in Perpetuity:
 - Track current conditions (nutrient, sediment, and macroinvertebrates)
 - Build historic record, identify trends over time
 - Alert stakeholders to current or emerging issues
 - o Impairment Status
 - Eventual reassessment of TMDL's will need data
 - Collaborate with BHWC local solutions and landowner network
 - Provide info to help inform restoration work and strengthen grant requests
 - Narrow down and identify problem areas
 - Design projects to address
 - Improve water quality on the Big Hole for all users
 - Ultimately: To ensure that the Big Hole River, as a surface water of the U.S., is able to support the beneficial uses of aquatic life, recreation, irrigation, and drinking water.
 - Cows, fish, and people ALL need water.
- Discussion:
 - Part of the problem with the TMDL process is years ago when they set these thresholds, they did "windshield appraisals". They drove along the river or used data from FWP, but the only impairments recognized were mining, agriculture, or logging. Didn't consider things like roads, railroads, etc. So, what you're doing is a good thing to help us figure out what's really going on.
 - For the Big Hole, the reason that some of the impairments were taken off in 2018 was for flow regimen. When they looked back at the data, it wasn't all there for us to make some assessment decisions. There were no major impairments taken off related to TMDLs, because there were no TMDLs for the impairments removed in2018.
 - Is it true that without the data, the impairment just goes away after a certain amount of time?
 - No, the impairment does not go away until the water body is re-monitored and reassessed. (Abby Ebert, DEQ)
 - BHWC is in the process of de-listing streams in the French Creek drainage (Mount Haggin) for sediment and metals impairments. There are a few examples of de-listings in the state of Montana (such as metals coming from a mine adit, the adit is fixed and the site is de-listed), but this would be the first de-listing of an entire drainage. DEQ has pumped a lot of money to us through the 319-program to do the restoration work up there that you've all been hearing about for several years now. As we're going through those projects, we're documenting

sediment reductions and can compare that to the suggested amount of sediment reduction in the TMDLs. Just by looking at the projects that we've done, we've more than exceeded that sediment reduction recommendation, so that was enough of a justification to go back to those locations and resample. That is what our intern, Max Hanson, did this summer. DEQ has been great to work with – they're working WITH us on figuring out how to even go about de-listing a whole basin, because they've never actually gone through the process themselves.

- DEQ has very specific sampling criteria as to where their sampling sites are, and they have to keep those consistent. They're not going to sample right at a restoration site.
- So, it MAY be that they go back and sample French Creek and despite all of our work, because of how the whole system is stratified, it might look the same as it did 10 years ago. I HOPE not, but that would be informative to DEQ, too.
- So, this water quality sampling that BHRF has been doing, particularly the Deep Creek site, will help support our work to de-list French Creek.
- What was the impetus of the 2018 reassessment?
 - It was EPA's list not a new assessment, just a new list.
- RE: the macroinvertebrate study, particularly salmon flies. There has been a huge change in invertebrate populations in the last 10 years in the Melrose area. There was a study done by an entomologist out of Helena back in the '80s that identified a lot of the sediment in the Melrose area as coming from the canyon. I know in your sampling, there is a pretty big gap between Glen and Wise River. I think, in terms of really looking at that and knowing ... that adding another site somewhere in there would important.
 - We scoped that whole canyon out for an appropriate sampling site, but it has to be just the right kind of riffle to effectively use the Hess sampler. Kalsta Bridge is my least favorite sampling site, because there are so many of these size rocks that is really difficult to effectively sample. You need a large riffle with the right size gravel. We walked/floated the whole canyon and were able to find only one suitable site. I wouldn't be opposed to finding another site in the canyon, but it would be to be floated to, and we have to consider cost and replicability of the sampling process. There is room for growth though. Adding a site in the canyon would be a long-term goal of the project, but we have to do this thing incrementally and it was a major lift to get the project started.
 - I hope that this macroinvertebrate baseline with serve as a starting point for other people to answer some of those questions about things like changing insect populations, sedimentation, etc.
 - Thanks for getting this started!

Upcoming Meetings

- January 19, 2022: BHWC Annual Business Meeting (for board and staff only)
 - 11:00 am at Fairmont Hot Springs Restort/Zoom. Invitations will be sent, RSVPs requested, lunch provided.
- February 16, 2022: USFS Pintler Face Project
 - 6:00 pm at the Divide Grange/Zoom

Adjourn