Big Hole Watershed Committee

Monthly Meeting Minutes

May 19th, 2021 – 7:00 pm at the Divide Grange

Zoom option also provided

In Attendance

In-person: Pedro Marques, BHWC; Tana Nulph, BHWC; Ben LaPorte, BHWC; Jarrett Payne, MFWP; Jim Hagenbarth, Rancher/BHWC; Max Hanson, UM/BHWC Intern; Paul Cleary, Resident/BHWC; Sandy Cleary, Resident; Dean Peterson, Rancher/BHWC; Roy Morris, GGTU/BHWC; Matt Norberg, DNRC; Betty Bowler, Resident; Tom Bowler, Resident; Craig Fellin, Big Hole Lodge; Howard Varner, Resident; Hans Humbert, Rancher/BHWC; Michael Cast, Montana Standard; Chris Edgington, MTU; McEver Dugan, MTU; Tom and Steph Bates; and Jim Olsen, MFWP.

Zoom: Sierra Harris, TNC/BHWC; Brian Wheeler, BHRF/BHWC; Paul Siddoway; Eric Thorson, Sunrise Fly Shop/BHWC; Peter Frick, Rancher/BHWC; Steve Luebeck, Sportsman/BHWC; Paul Hooper, USFS; Lia Jones, Great Divide Outfitters; Vic Watson; and Ryan (no last name listed).

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 tnulph@bhwc.org or (406) 267-3421 to suggest additions or corrections.

Drought Management Plan – 2016-2020 version adopted for 2021, will review again this fall to consider possible changes for 2022.

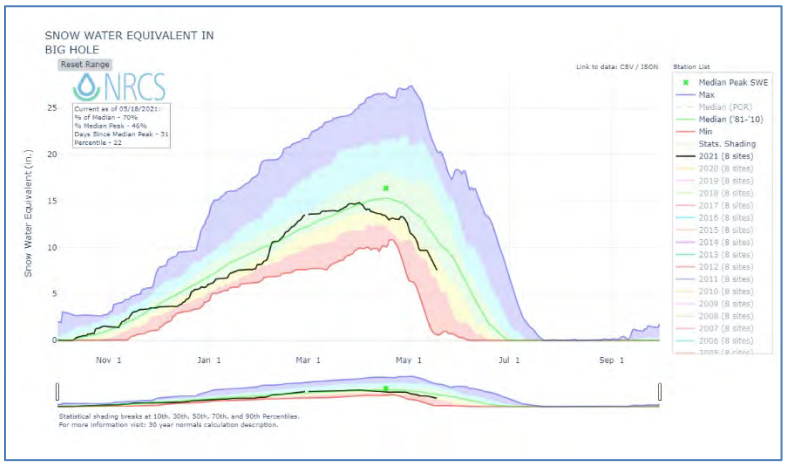
Reports

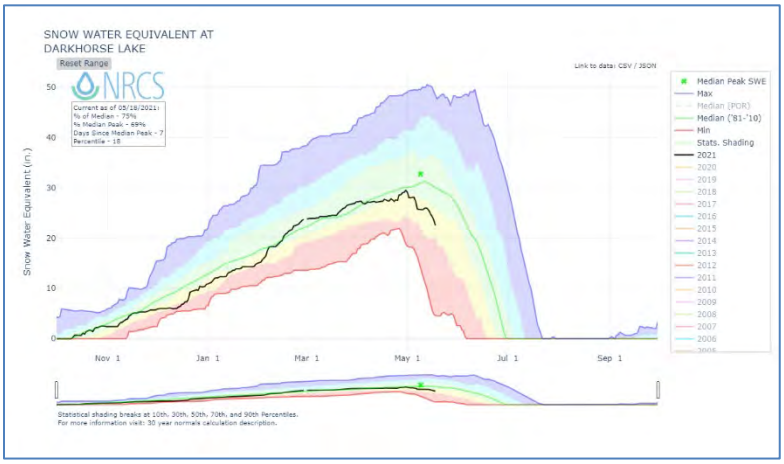
Big Hole River Stream Gages

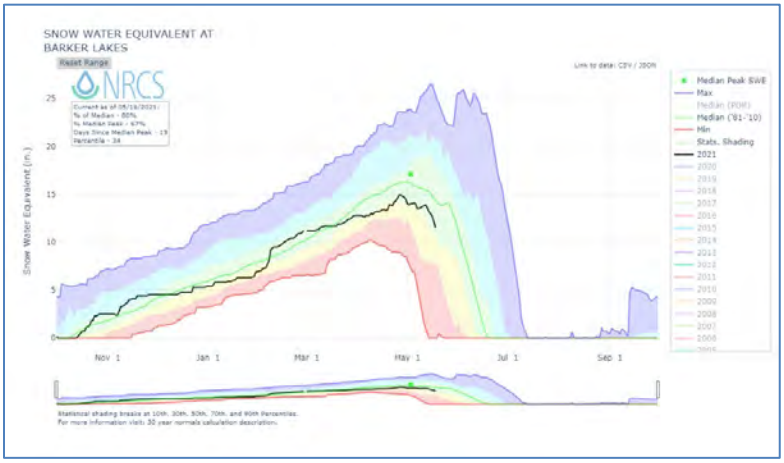
Station Number	Station name	Date/Time	Gage height, feet	Dis-charge, ft3/s	Long-term median flow 3/17	Temper-ature, water, deg C
UPPER MISSOURI RIVER BASIN						
06023500	Big Hole River near Jackson MT	05/18 11:15 MDT	1.93	88.2	139	--
06023800	Big Hole River ab Spring Creek nr Jackson MT	05/18 11:00 MDT	2.07	78.8	167	--
06024020	Big Hole River at Miner Creek nr Jackson MT	05/18 11:15 MDT	1.51	145	585	--
06024450	Big Hole River bl Big Lake Cr at Wisdom MT	05/18 11:45 MDT	2.30	79.5	429	14.0
06024540	Big Hole River bl Mudd Cr nr Wisdom MT	05/18 11:30 MDT	3.83	1,110	1,840	--
06024580	Big Hole River near Wise River MT	05/18 11:30 MDT	4.12	1,640	2,970	12.9
06025250	Big Hole River at Maiden Rock nr Divide MT	05/18 11:45 MDT	4.67	2,140	3,190	Ssn
06025500	Big Hole River near Melrose MT	05/18 11:15 MDT	3.18	1,900	2,970	13.2
06026210	Big Hole River near Glen MT	05/18 11:30 MDT	3.78	2,100	2,770	Ssn
06026420	Big Hole R bl Hamilton Ditch nr Twin Bridges, MT	05/18 11:30 MDT	2.837	1,650	3,320	Ssn

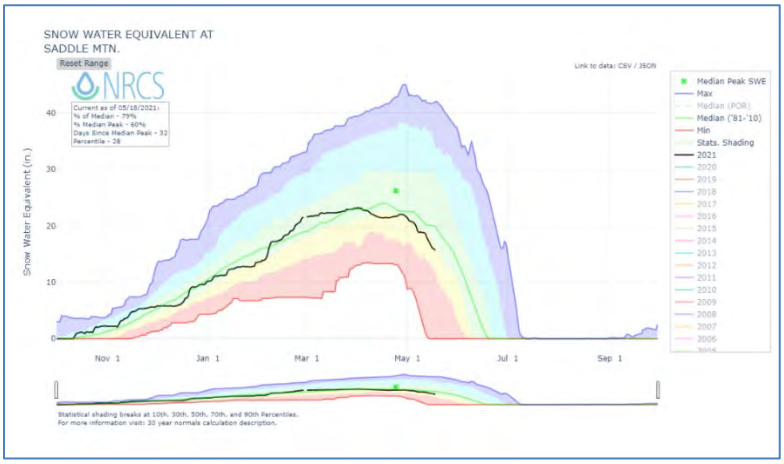
Streamflow/Snowpack Report as of May 19, 2021 – Matt Norberg, Montana Department of Natural Resources and Conservation

- *Streamflows*: Streamflows in the Big Hole River have generally been below average since the start of April. A couple of the upper gages did not come out of ice conditions until late April due to cool spring conditions persisting through beginning of May. These cool spring conditions coupled with below average precipitation have caused streamflows to remain steadily below average. Basically, we've had a couple of short spikes due to mid to low elevation runoff but flows have receded after those short duration events. NRCS water supply forecasts are for below average river volumes both at Wisdom and Melrose from the May to July and May to Sept timeframe.
- From NRCS: "Water users in the Jefferson River basin should be aware that streamflows are expected to be below to well below normal for the May – July period. The current 50 percent exceedance forecasts are around 70% of average for the Big Hole, 80% of average for the Boulder, 60% of average for the Ruby, and around 50% of average at the downstream mainstem points (Jefferson nr Twin Bridges and Jefferson nr Three Forks). Of particular concern in this region are the forecasts for the Beaverhead; water users in this basin should be prepared for well below normal runoff for the remainder of this season. Forecasts for the two main storage facilities in this basin, Lima and Clark Canyon Reservoirs, are extremely low and water managers should plan accordingly."
- *Snowpack/Precipitation*: Snowpack in the Big Hole River Watershed is currently below average for this time of year (70%). The mid to low elevation snowpack melted out in



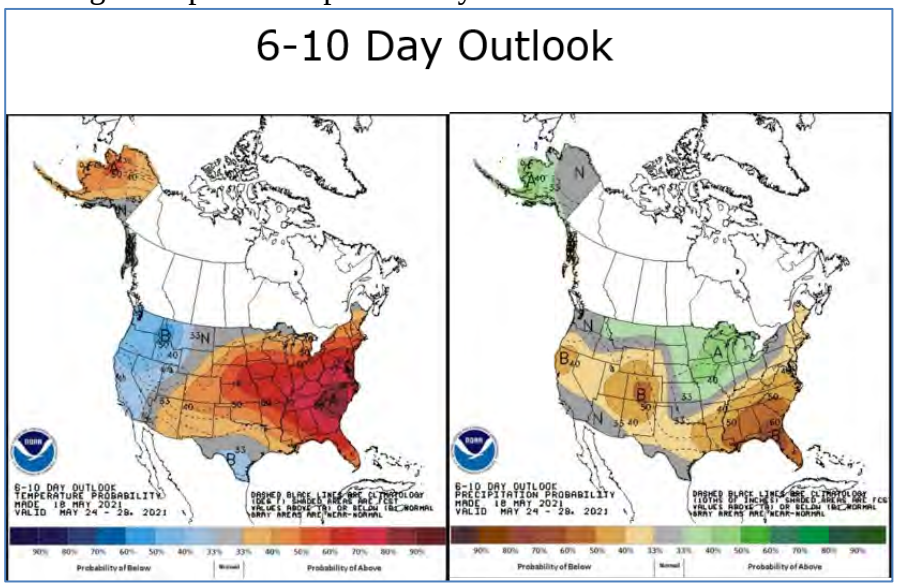


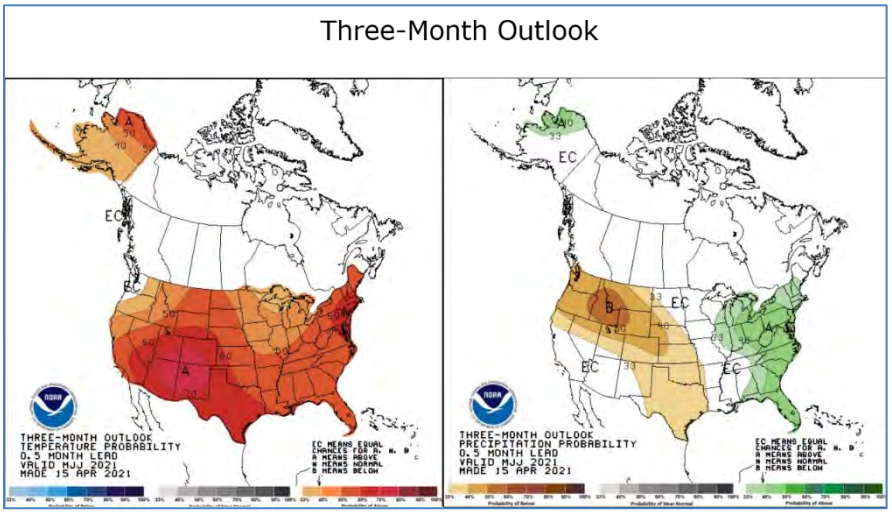




April approximately 1-2 weeks early. The high elevation snowpack has been holding on the best it can through April and into May due to cool conditions, but now we are seeing those SNOTEL sites starting to decline due to melt and lack of normal precipitation.

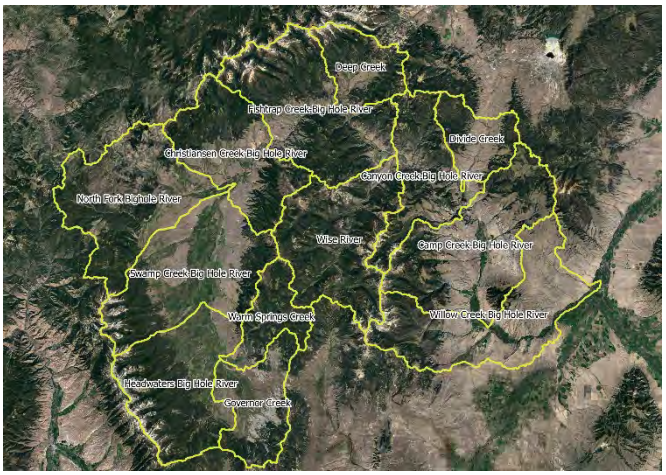
- Darkhorse Lake (75%), Saddle Mtn (79%), and Barker Lakes (80%) SNOTEL sites have seen increased rates of snowmelt within the past couple of days with the warmer air temperatures which is ahead of normal and the available amount of SWE at these sites is diminished due to drier conditions starting in March. Generally, these higher elevation sites peaked out earlier than normal and less than the median peak, therefore limiting the total amount of water available to come down as runoff. The cool weather has helped prolonged the snowpack we have left. The storm system forecasted for this week will hopefully bring rain/snow to the valleys and give us a much-needed bump in snowpack at the higher elevations.
- *Forecast*: I'm betting that everyone has been keeping a close watch on the weather forecast for the next couple of days, and hopefully we can expect some wetter conditions. Wednesday through Sunday are forecasted to bring in rain and snow and cooler conditions. This weather pattern will should elevate streamflows and provide much needed soil moisture to the region. Look for this system to start mobilizing snowpack and potentially kickstart the runoff.
- From NOAA:
    - ENSO Alert System Status: Final La Niña Advisory
    - Synopsis: La Niña has ended, with ENSO-neutral likely to continue through the Northern Hemisphere summer (67% chance in June-August 2021).
    - The 6-10-day outlooks are favorable for below normal temperatures and normal to above normal precipitation conditions, however as we transition out of spring the forecast is for warmer and drier conditions to move in. The forecast moving forward to summer is for above average temperatures and below normal precipitation conditions. So Hot and Dry! As I have mentioned in the past couple of meetings, the ENSO-Neutral conditions can be variable so be prepared for all types of weather and prepare for water shortages if precipitation falls short moving forward.





Director's Report –Pedro Marques, Executive Director

- Sponsors: Southern Montana Telephone Company (SMTC), Wisdom, and Black Coffee Roasters, Missoula
- FWP native fish management
- Restoration planning: 13 subwatersheds (see map, right): Wise River first
- French Creek assessment and deslisting
    - Flow meter
- MBMG GWIP nomination – nominating Melrose area to study how changing irrigation infrastructure might affect water availability.
- Gage Funding: DNRC paying for BHG gages in 2021 (GGTU was going to but can use that funding elsewhere now.) Thanks DNRC and GGTU! (And Big Hole Lodge who contributed funding toward the gages as well.)

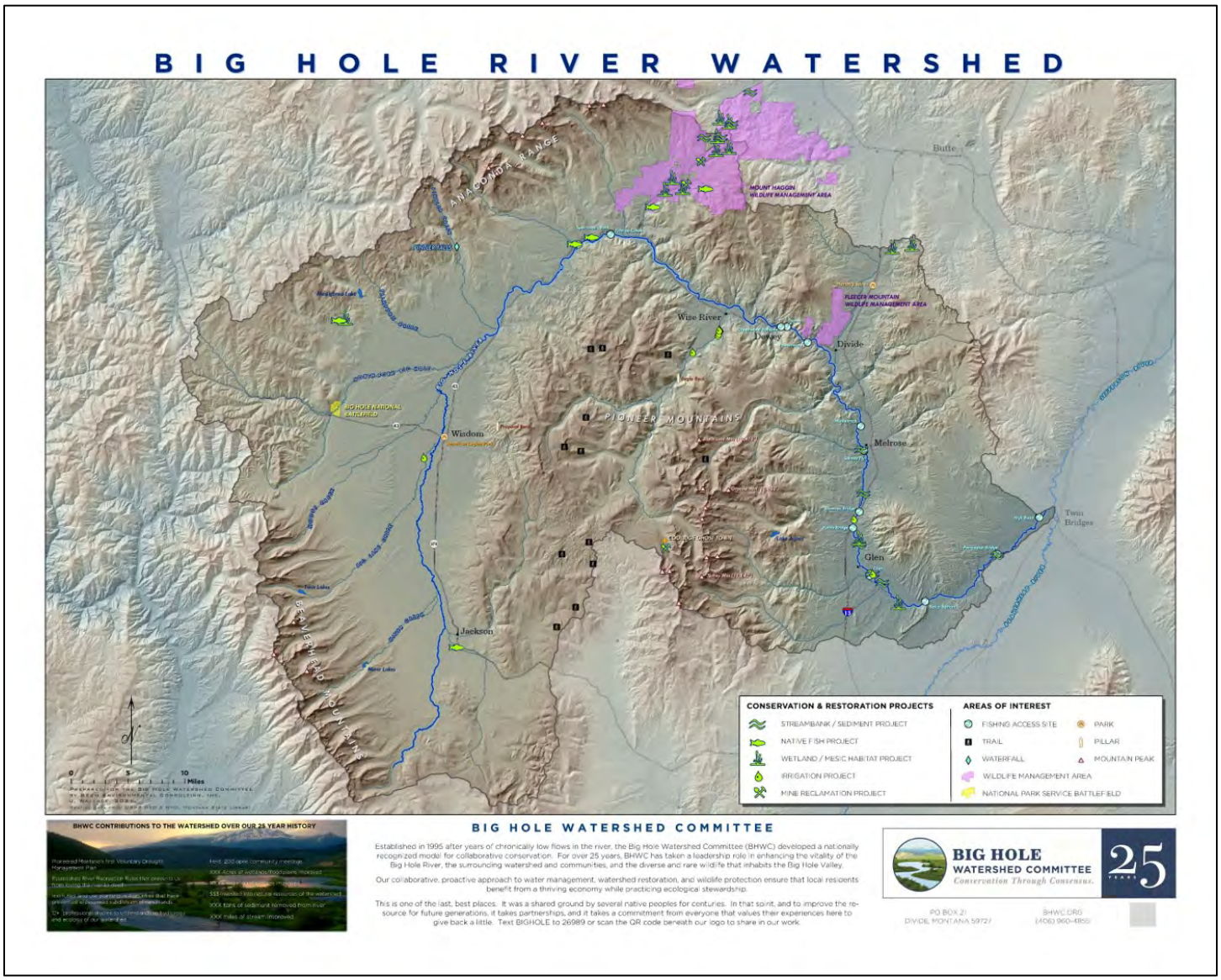


- Partnership agreements: USFS, BLM, FWP/NRDP – management of Anaconda Superfund area will be handed over from NRDP to FWP. FWP will contract BHWC to do work. This will allow us to think, plan, and do on a longer timeframe than we have previously.
- Recognitoin:
    - American Fisheries Society Project Award- French Creek
    - Bozeman TV newscast: https://www.kbzk.com/news/jefferson-river-basin-drought-concerns-for-possible-low-flows-this-summer
- Big Hole Conservation Fund:

    - Local business partnership:
        - 1% fee to clients and customers: opt-in or opt-out options
        - Tax deductible contributions to specific projects or most pressing need
        - Improve the Conservation Brand of your business
        - Flexible and tailored to business needs
    - For BHWC, will provide non-federal matching funds required by many grant sources.
    - Text BIGHOLE to 26989 to sign up for text updates or to make a donation.
    - Scan this QR code (right) with your phone (just open the camera app and hold it up to it) to go directly to our donation page!
- Help Make the Map!
    - BHWC putting together informational Big Hole map – seeking input on what it should include. Will be sold/displayed at local businesses and FAS.
    - Make map suggestions:

- Past project locations (26+ years of work)
- Trails and Fishing Access
- Other points of interest
- Portrait or Landscape?

o Call or email Pedro to make map suggestions (406-552-2369 0r pmarques@bhwc.org).



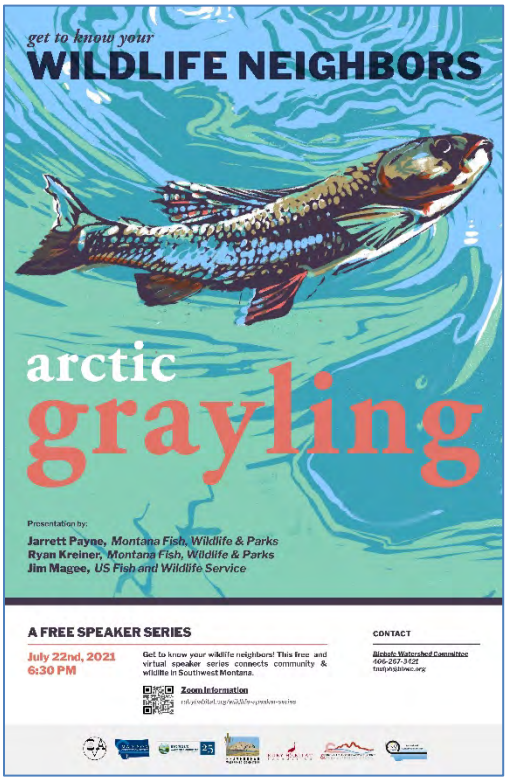
Steering Committee Report – Jim Hagenbarth, Vice-Chairman, Steve Luebeck, Treasurer, and Roy Morris, Secretary

- Steering Committee is so proud of the team we have working for us, they have done a wonderful job.

Wildlife Report – Tana Nulph, Associate Director

- Loaner toolkits available for producers/residents:
  - Producers and residents can borrow/use/test tools.
  - Livestock Loss Prevention:
    - Scare devices, temporary electric fencing, bear spray, books about wildlife conflict, wolves, livestock guard dogs, etc.
  - Bear Safety:

        - Bear-resistant garbage canisters (free to residents while supplies last), scare devices, bear-resistant backpacking containers, bear spray, inert practice bear spray, books about bears and bear safety
    - Contact Tana Nulph, BHWC Associate Director, for more information: tnulph@bhwc.org or (406) 267-3421.
- Carcass removal offered free to Big Hole Valley residents/ranchers:
    - Offered now through May 2021.
        - Service is free but donations are optional.
    - To arrange for carcass removal, contact John Costa, Wildlife Programs Technician, at 209-628-2225 or jcosta@bhwc.org.
        - John works full-time for MDT so leave a message if he doesn't answer and he'll get back to you within a day or two. You can also text him.
        - OR texts "CARCASS" to 269-89 to get all this information on your phone.
    - Dump truck borrowed from Red Rock Lakes NWR.
    - Carcasses composted at BHWC's compost site outside of Wisdom.
    - Carcass removal & composting reduces predator attractant, helps keep predators honest (no free meals).
    - Producer information is always kept confidential!
    - More grizzly bears are being confirmed in the Big Hole Valley each year, and bears are about to wake up, so it's especially important to take precautions this time of year.
- Conservation Innovation Grant (CIG):
    - Collecting and reporting agreed-upon data to help CIG research team evaluate effectiveness of existing programs and innovate new solutions to livestock depredation.
    - Grant provides funding for our wildlife programs over 3 years ($18K total).
- Wildlife Speaker Series:
    - BHWC and Southwest Montana partners (Beaverhead CD/ Watershed Committee, Ruby Valley CD/ Watershed Council, Madison CD, Centennial Valley Association, and Ruby Habitat Foundation) are holding 3 virtual events this year.



    - Events begin at 6:30 pm and are expected to be done by 8:00 pm.
    - Click the links to pre-register.

        - May 27: Pollinators
        - June 24: Trumpeter Swans
        - July 22: Arctic grayling (hosted by BHWC, featuring Jim Magee, Jarrett Payne, and Ryan Kreiner)
- *Discussion:*
    - *In Clark County, Idaho, where BHWC board member Jim Hagenbarth ranches (along with his ranch near Glen), a 501(c)(3) group called the Sagebrush Habitat Conservation Fund recently approached county commissioners to tell their story.*
        - *The group's mission (from their website) is to protect and restore sagebrush habitat. They do so by:*
            - *Buying and retiring federal grazing permits where authorized from interested willing-seller permittees on an individual basis and where permitted by law or regulation;*
            - *Acquiring property interests from willing sellers, including property in fee title, conservation easements, or other interests;*
            - *Leasing state or private land for wildlife conservation;*
            - *Working with other non-profit organizations, government agencies and others to fund comprehensive land protections for native wildlife; and*
            - *Restoring native plants and water sources to benefit native wildlife.*
        - *This group started out with $15 Million from the Ruby Pipeline from Wyoming to Oregon. They are a well-organized group.*
        - *Jim is concerned that the general public, wealthy landowners, and NGOs may contribute a lot of funding to this group to keep livestock off federal lands. Jim spent 26 weeks over 3 years helping to write the Idaho State Sage Grouse Plan and tried to work with this group, but they declined to share their concerns with the Upper Snake River Working Group and instead expressed intent to list Sage Grouse under the ESA and remove ranchers from federal lands.*
            - *This is very concerning for ranchers who run livestock on federal lands and know how to maintain sagebrush ecosystems.*

Restoration Report – Ben LaPorte, Program Manager

- Elkhorn Mine and Mill:
    - We are still in a holding pattern on our USFS Participating Agreement. This agreement is essentially a funding mechanism to allow us to continue work at Elkhorn this field season without the unknowns of our BoR grant proposal.
    - The bulk of the work will consist of a soils characterization, which will allow us to quantify where and how much contaminated soils still exist on the site. This effort will help with a preliminary design to remove the contaminated soils.

- Eastern Pioneers-BLM and TNC Partnership:
    - BLM Participating Agreement: Another funding mechanism to allow us to do restoration projects on the BLM and surrounding areas.
- Wise River Irrigation Infrastructure: This month we met with agency folks-NRCS,

USFWS, FWP, USFS to look at the Wise River watershed and potential irrigation infrastructure and natural resource improvements to improve stream flows coming out of the Wise. Very important cold-water input to the Big Hole. Looking at ways to improve connectivity, stream temps and stream flows. More to come on this project!

- Upper Oregon Creek:
  - Pre-project monitoring: We have started our pre-project monitoring on Upper Oregon Creek. The goal for this monitoring effort is to show the impacts of our project on stream flows and vegetation change. Our Watershed Health intern, Max Hanson, will help with this effort this summer.
- Anaconda Uplands:
  - Watershed Crews start in June
  - Reporting since 2018
- French Gulch Fish Passage:
  - Fundraising ongoing

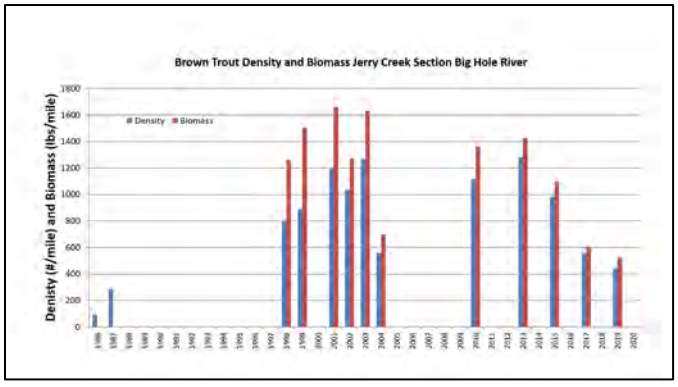
New Business

- Stream gages – Matt Norberg – Furnished Record Sites – DNRC has been doing all of the work for these 4 gages but didn't have the capacity to publish this data online, which is where USGS came in. Stream gage data usually posted on USGS website. Moving forward, DNRC will be taking over data hosting from USGS. DNRC SAGE (Stream and Gage Explorer): https://gis.dnrc.mt.gov/apps/stage/gage-report/
  - Will include historic data and Realtime data updated hourly
  - Same information provided, just a different place to find it starting July 1.
  - *How will we need to update our River Conditions webpage?*
    - *DNRC is working with Matt Heller, USFWS, to make the change. (Matt developed the Upper Missouri Headwaters River Conditions tool in 2019 based on BHWC's previous river conditions page, published in 2016.)*

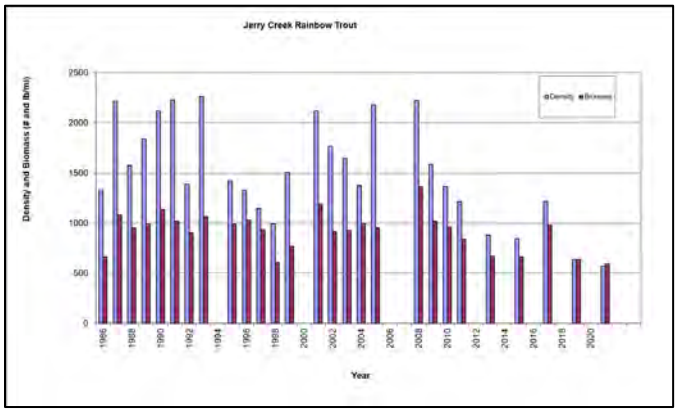
Meeting Topic: Big Hole River Fishery Update

Presented by: Jim Olsen, Fisheries Biologist, Montana Fish, Wildlife and Parks

- Four sections monitored for Brown and Rainbow Trout
  - Jerry Creek
  - Melrose
  - Hogsback (Between Glen and Notch)
  - Between Pennington and High Bridge
- Don't do monitoring in upper sections because CCAA does that using genetic sampling.
- Graphs (blue bar: number of fish/mile, red bar: pounds of fish/mile)
  - If bars are the same, the average fish is about 14 inches and 1 lb.
  - If red bar is larger, fish are larger.
- Jerry Creek section:
  - Brown trout:
    - Historically a rainbow trout section.

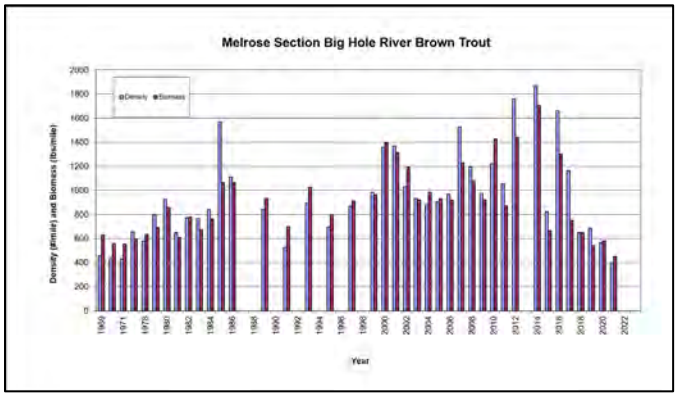


- Started to see more brown trout.
- Now seeing significant decline in brown trout numbers over the past 5 years or so.

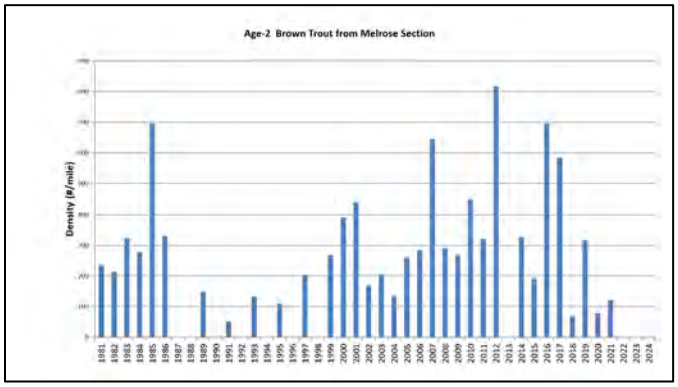


- Rainbow trout:
  - Historically, a lot of smaller rainbows in this section. Not as many juveniles in recent years, but not seeing major declines in rainbow populations. Low number of juveniles may reflect changes in spawning habitat.

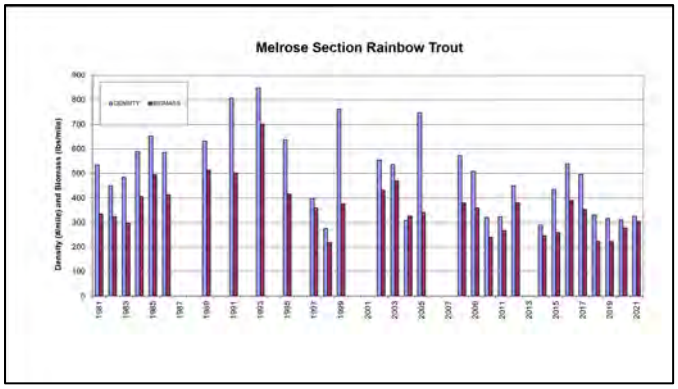
- Melrose Section:
  - Brown trout:
    - In 1981, special regulations went into place (no trout 14-18 inches could be kept upstream of Melrose and you could only fish with artificial flies and lures upstream of Melrose. Also, it became catch-and-release for trout from October 31-3rd Saturday in May).



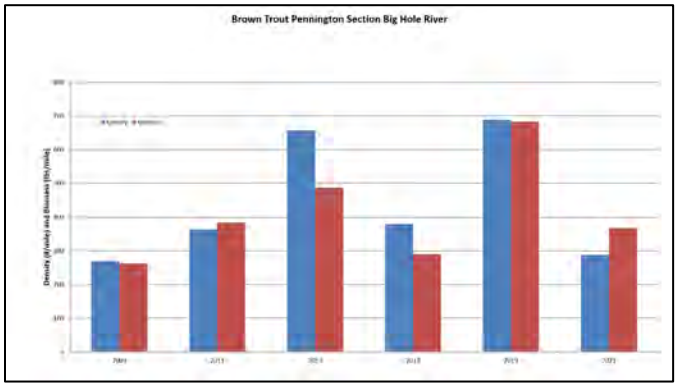
    - Population increase, 400-500 to 1,000-1,100 fish/mile
    - Multiple years of drought in the early to mid-2000s
    - Good water years around 2014, brown trout population rebounded and hit record high.
    - Fall 2014, *Saprolignia* fungus outbreak caused population decrease. 2015 also saw fish kills.
    - 2016 – good year class of small fish
    - 2016-2020: no fish kills, haven't seen fungus return, steady decline in fish numbers. Not sure why.
    - Spring 2021: Lowest fish count ever recorded on this section for brown trout (~400 fish/mile).
      - Age-2 Brown Trout: typically see high levels of Age-2 fish two years after high water year. Age-2 fish populations declining.



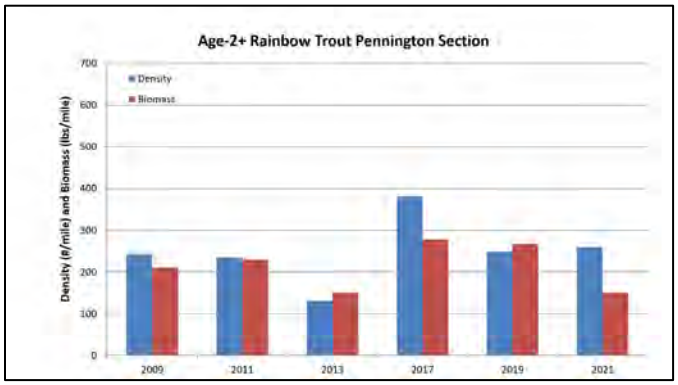
  - Rainbow trout:
    - After brown trout populations decreased in 2014, rainbow populations initially increased but now are staying relatively flat (no changes).



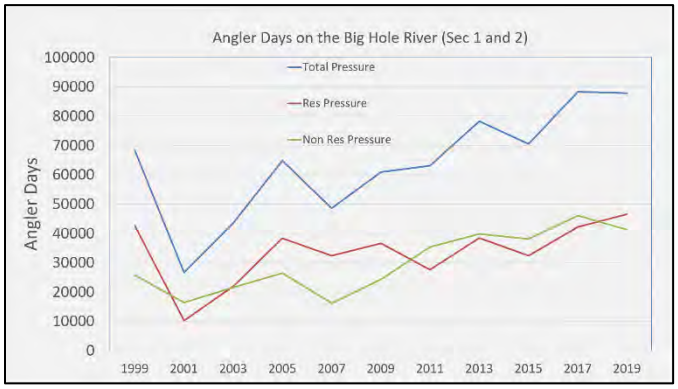
- Hogsback Section numbers look very similar to Melrose section
- Pennington Section:
    - Brown Trout:
        - Relatively low fish density in this section but not seeing steady decline like in Melrose section. Seeing large numbers of juvenile brown trout.
    - Rainbow Trout:
    - Caught 1 grayling at Pennington Section! First time ever finding one this low in the river! (Also 9 and Melrose and ~5-ish at Jerry Creek.)



- Fishing Pressure:
    - Do a survey every other year (odd years) to see where people fish and estimate fishing pressure.
    - Estimates are fairly accurate for bodies of water that get a lot of pressure (like the Big Hole).
    - Since Jim started in 2008, went from ~38,000 angler days to ~90,000 angler days.



- What we know:
    - Poor recruitment last few years.
    - Angling pressure continues to rise.
    - No signs of disease with any of the known pathogens.
        - No recent fish kills except in upper river near Wisdom:
            - Fish had fungus but no other diseases. Possibly due to high fall water temps.
    - Decreasing brown trout number trends throughout SW Montana:
        - Not in nearby states or other parts of the world.
    - Things are warmer than they were, particularly early and late. Warmer water species are being found farther upstream.



- What we don't know:
    - Cause of decline
        - Past reductions coincided with drought conditions, current ones do not.
    - Don't have data on harvest
        - Past studies have suggested catch-and-release >90% on Big Hole
    - Could catch-and-release angling be impacting population?
        - BHR is at least 90% catch-and-release.
        - Always some mortality related to catch-and-release
    - Could there be a new pathogen (that we don't know anything about and don't know how to test for)?

        - Proliferative kidney disease
- What can we do about it (what tools are in the toolbox)?
    - Regulation changes to protect brown trout:
        - Catch-and-release
        - Seasonal closures to protect spawning and incubating eggs
            - Not sure this will produce desired results as not sure harvest is driver of population decrease.
        - Additional research into potential causes of declines (temps, drought/flow, harvest, etc.)
    - Habitat: (This is wild fish management):
        - Take care of habitat and the fish take care of the rest.
        - Not first time we have seen declines (whirling disease)
        - Fish have proven to be very resilient.
    - Focus on habitat projects:
        - In the 1970s when Montana made the decision to stop stocking fish in our rivers and streams and depend on wild fish reproduction, we committed to focusing on habitat when declines like this occur.
            - Spawning and rearing (opportunity at Melrose)
            - Connectivity of tributaries to mainstem
            - Increasing cold water tributary connection to the river.
- *Discussion:*
    - *Do you monitor for the Saprolignia fungus that caused the fish kill in2014?*
        - *Yes, we float each year and count dead fish and the number with fungus, but have seen very few of these fish in recent years, so this is not what's causing the decline.*
    - *What % of fish die due to catch-and-release fishing?*
        - *Somewhere from 1-5%, dependent upon other factors like water temps.*
- Smith Slough and ditch:
    - Between Pennington and High Road
    - About 1.5-mile slough
    - Spawning habitat, excavated out coarse substrate and replaced with gravel suitable for spawning.
    - Project completed in partnership with landowner. BHWC and GGTU also partners.
    - 2019: 43 redds
    - 2020: 52 redds
    - Incubated rainbow trout here, all brown trout moved in on their own.
    - Fish come into slough system, spawn, rear for a year, then move into the river.
    - Very sensitive to disturbance.
- *Discussion:*
    - *How do you count the redds?*
        - *They're very visible during the right time of year (fall/winter). Everything else is covered in moss and algae except where the female trout fan the gravel with their tails to cover the redds (egg deposits). Biologist walk the river bank and count the redds visually.*
    - *What condition were the fish that were counted?*
        - *All fish counted looked very healthy in all sections.*
    - *Almost all aquatic insect life has declined alarmingly in the last 10 years (according to Craig Fellin's observations). It's said that the health of the river is depended on the health of it's (insect) hatches. Our hatches are disappearing. If the fish don't have anything to eat, they're going to die. Could this be a cause of the current fish decline?*

        - *MFWP doesn't monitor insects, but the fish that are present are fat and healthy, so Jim doesn't think the fish are starving to death.*
            - *Could it be that the more aggressive fish are eating the insects that are available, while other fish are not getting anything to eat?*
            - *You would see that at high densities, but we currently have low fish densities and a lot of habitat. Also, Rainbows are not declining in the same way as brown trout. So, I (Jim) don't think it's a food issue.*
    - *Those who have fished on the river for many years have clearly noted the decline in brown trout, but it's good to have the data before it.*
    - *Commendation to Michael Cast for his excellent article in the Montana Standard: https://mtstandard.com/news/local/brown-trout-decline-across-southwest-montana-rivers/article_8b26ffca-0295-5218-a3dd-61fef0e3b20f.html*
    - *We know that angling pressure is going sky high while we are experiencing a catastrophic decline in brown trout. Have seen higher mortality % reported for catch-and-release – up to 20%.*
    - *In 2016, went to year-round fishing without giving the fish a break on many of the rivers in SW Montana. At the time, MFWP said they would monitor trends and if populations declined, they could reconsider having year-round fishing. A lot of focus needs to go on the things we do know about and the changes that can take place. We can't wait on this. Hoping you can come back soon to tell us what kind of changes/decisions are being made to help the fishery.*
        - *Any potential changes would go before the FW Commission in July and could be adopted in August as kind of an emergency measure.*
        - *The Big Hole has been open to year-round fishing since the 1980s. During the winter, it's catch-and-release only.*
    - *There are more pelicans, otters, and other predators than their used to be. How is MFWP addressing this?*
        - *This is true overall, but not in the last 5 years, so again we don't think that is the cause of the population decline.*
        - *Not seeing any decline in whitefish numbers so unless the predators are specifically targeting brown trout, they are probably not causing the decline.*
    - *Sounds like a mortality issue with either eggs or juvenile fish – does the methodology exist within MFWP to see if there is some sort of disease targeting younger fish?*
        - *That's a good question and I (Jim) don't know the answer to it.*
    - *What about brook trout?*
        - *They're pretty much absent in the lower river. We didn't catch any in any of our monitoring sections this year.*
            - *Same with cutthroats?*
                - *Yes, we caught a few of them but not very many.*
- French Creek:
    - Fish barrier installed in 2019.
    - Spillway capacity almost 1,000 cfs
    - Treated 2-4 tributaries each week, put in canvas fish barriers and used rotenone to kill fish present in streams. Used potassium permanganate to neutralize rotenone at WMA boundary. Measure amount of permanganate and also monitor fish response.
    - Treated mainstream …
    - Plan going forward:
        - Retreat entire system in 2021
        - EDNA stream in early summer 2022

        - If evidence suggests fish are removed (no fish DNA found), restock in 2022.
        - If evidence suggests trout are present (DNA found), then retreat.
    - *Do you remove the fish after you treat with rotenone?*
        - *No, we leave them there and they sink and decompose (or get eaten) within about 10 days.*

Upcoming Meetings

- June 16, 2021:
    - **BHWC Monthly Meeting. Topic: Aquatic Invasive Species**
    - 7:00 pm at the Divide Grange/Zoom
- BHWC does not meet in July.
- August 18, 2021:
    - **BHWC Monthly Meeting. Topic: Conifer Encroachment**
    - 7:00 pm at the Divide Grange/Zoom

Adjourn