



Big Hole Watershed Committee

Monthly Meeting Minutes

October 16, 2024 – 7:00 pm at the Divide Grange
Zoom option also provided

In Attendance

In-person: Pedro Marques, BHWC; Tana Lynch, BHWC; John Reinhardt, Rancher/BHWC; Tom Bowler, Butte Resident; Betty Bowler, Butte Resident; Jim Keenan, BSB Water Utility/BHWC; Jim Hagenbarth, Rancher/BHWC; Steve Luebeck, Sportsman/BHWC; Nick Hudson, MSU; Timothy Cline, MSU; Ryan Devereaux; Scott Desena; John Jackson, Rancher/BHWC; Sean Claffey, TNC/BHWC; Katelin Killoy, MFWP; Jeff Wolk, Resident; Dave Duffy, Resident; Diane Hutton, Resident/BHWC; Dean Peterson, Rancher/BHWC; JM Peck, Rancher/BHWC; Chris Edgington, MTU; Gary Ouldhouse, Anaconda Sportsman's Club; Jim Bjornemo, Anaconda Sportsman's Club; Kaitlin Boren, DNRC; Roy Morris, GGTU/BHWC; Erik Kalsta, Rancher/BHWC; Jenna Dohman, MBMG; and Paul Siddoway, Butte/Melrose Resident.

Zoom: Randy Smith, Rancher/BHWC; Brian Wheeler, Sunrise Fly Shop/BHWC; John Craig; John Hooks; Eric Thorson; Ruby Habitat Foundation; and Ben LaPorte, Trout Unlimited.

Meeting Minutes

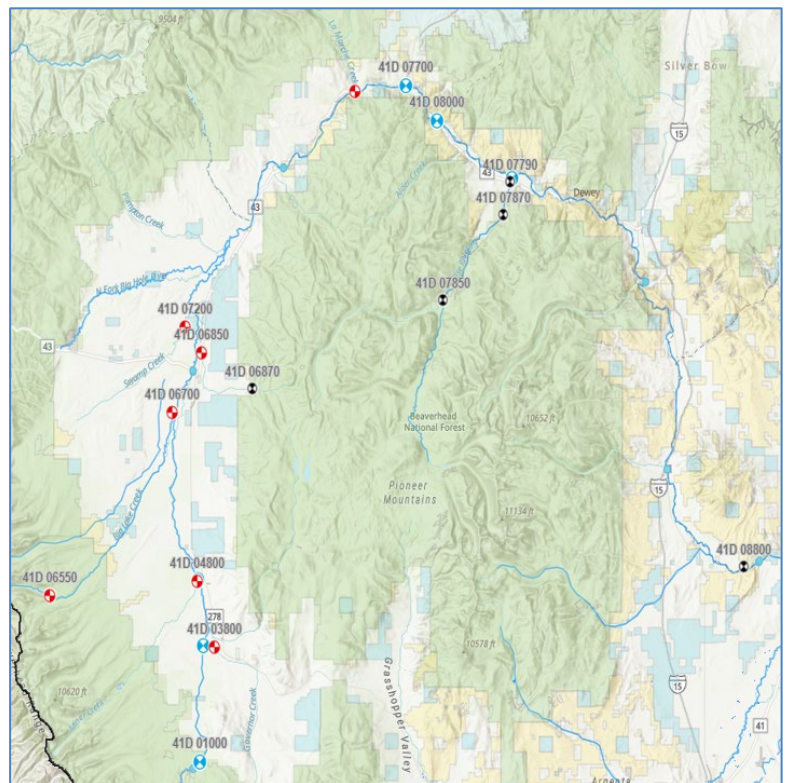
BHWC monthly meetings are held at the Divide Grange with a virtual (Zoom) option provided thanks to Southern Montana Telephone Company, who donated the internet service. Meeting minutes and recordings are available at <https://bhwc.org/monthly-meetings/> (scroll down for meeting minutes archive). Printed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

Reports

Streamflow and Snowpack Report – Kaitlin Boren, Department of Natural Resources and Conservation

- *Streamflows: (October 16th, 2024):*
 - Wisdom (06024450): 29 cfs
 - Peak temperature, July 20th: 78.08 F
 - Peak Streamflow, April 5th: 1,180 cfs
 - Low Streamflow, August 8th: 3.16 cfs
 - Monthly average temp:
 - July 64.6 F
 - Aug 61.7 F
 - Sept 55.01 F
 - Mudd Creek (06024540): 81 cfs
 - Peak Streamflow, April 5th: 2,400 cfs

- Low Streamflow, Sept 10th: 34.8 cfs
 - Big Hole River near Wise River (41D 08000):
 - Peak Streamflow April 5th: 2,532 cfs
 - Low Streamflow Sept 11th: 89.3 cfs
 - Maiden Rock (06025250): 239 cfs
 - Peak temperature July 21st: 72.1 F
 - Peak Streamflow April 5th: 3220 cfs
 - Low Streamflow Sept 6th: 167 cfs
 - Monthly average Temp:
 - July 62.7 F
 - Aug 60.4 F
 - Sept 55.5 F
 - Melrose (06025500): 252 cfs
 - Peak temperature July 9th: 75.4 F
 - Peak Streamflow April 5th: 3360 cfs
 - Low Streamflow Sept 12th: 143 cfs
 - Monthly average Temp:
 - July 65.4 F
 - Aug 63.2 F
 - Sept 55.5 F
 - Glen (06026210): 287 cfs
 - Peak temperature July 23rd: 78.3 F
 - Peak Streamflow April 5th: 3330 cfs
 - Low Streamflow Sept 1st: 142 cfs
 - Monthly average Temp
 - July 65.4 F
 - Aug 63.2 F
 - Sept 55.5 F
 - Hamilton Ditch (06026420): 146 cfs
 - Peak temperature Aug 2nd: 79.9 F
 - Peak Streamflow June 11th: 2,830 cfs
 - Low Streamflow Sept 2nd: 51.1 cfs
 - Monthly average Temp
 - July 68.7 F
 - Aug 66.6 F
 - Sept 60.8 F



- Stream And Gage Explorer (StAGE): <https://gis.dnrc.mt.gov/apps/stage/>

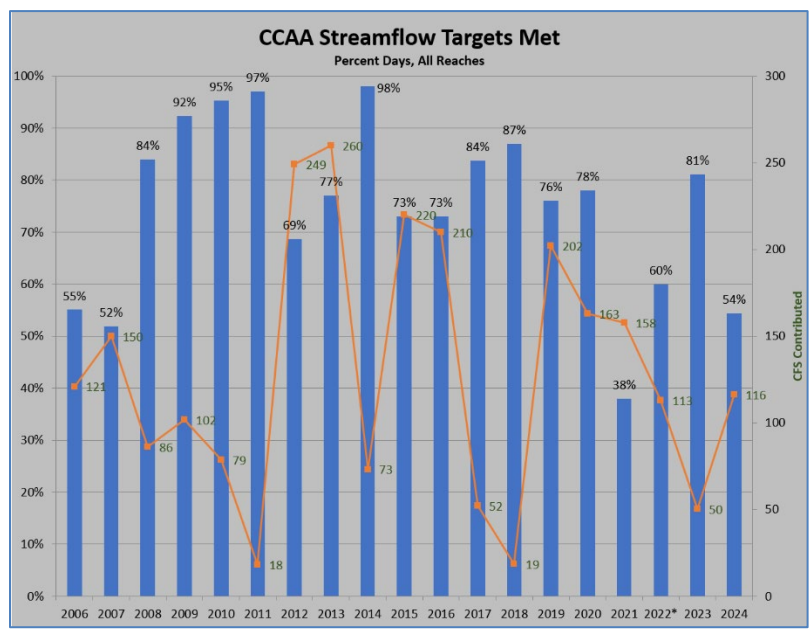
- **Precipitation:**
 - End of Water Year: September 30th
 - See summary to right
- **Outlook:** The 8-14 day outlook predicts near normal temperatures and slightly above normal precipitation.
- **Seasonal Outlook:** The seasonal outlooks predicts equal chances of above or below normal temperatures and slightly above normal precipitation.

Water Year 2024 Summary					
Station	Network	Elev. (ft.)	Obs	NRCS Median	% NRCS Median
Barker Lakes	SNOTEL	8,250	30.5	33.6	91%
Basin Creek	SNOTEL	7,180	12.7	23.4	54%
Bloody Dick	SNOTEL	7,600	19.6	25.1	78%
Calvert Creek	SNOTEL	6,430	15.6	19.2	81%
Darkhorse Lake	SNOTEL	8,945	37.6	44.8	84%
Moose Creek	SNOTEL	6,200	24.1	30.6	79%
Mule Creek	SNOTEL	8,300	22.7	30	76%
Saddle Mtn.	SNOTEL	7,940	24.6	35.3	70%
Slagamelt Lakes	SNOTEL	8,620	38		
Basin Index					77%

- **La Niña watch:** La Niña is favored to emerge in September-November (60% chance) and is expected to persist through January-March 2025. The continuation of negative subsurface temperatures and enhanced low-level easterly wind anomalies supports the formation of [a weak La Niña](#).

- **U.S. Drought Monitor:** The Big Hole watershed is currently in extreme drought.

- **CCAA Streamflow Contributions:**
 - Combined Targets Met 54% of the WY
 - Drought plan targets met 91%
 - 60 cfs at Wisdom for spring
 - Springtime Flow Targets for reaches met April 1st-June 30th
 - 91% in A-C
 - 95% in D
 - 100% in E
 - Summertime Flow Targets met July 1st-Sept 30th
 - 34% in A-C
 - 15% in D
 - 26% in E



Director's Report – Pedro Marques, Executive Director

- **Water and Fish:**
 - Drought and Conservation
 - FWP meeting- language of DMP shift
 - USFWS and Partners renewing CCAA
 - USFWS appealing decision
 - Melrose ATV Incident
- **People:**
 - KG helping with meetings
 - Remote work.
 - Same phone #



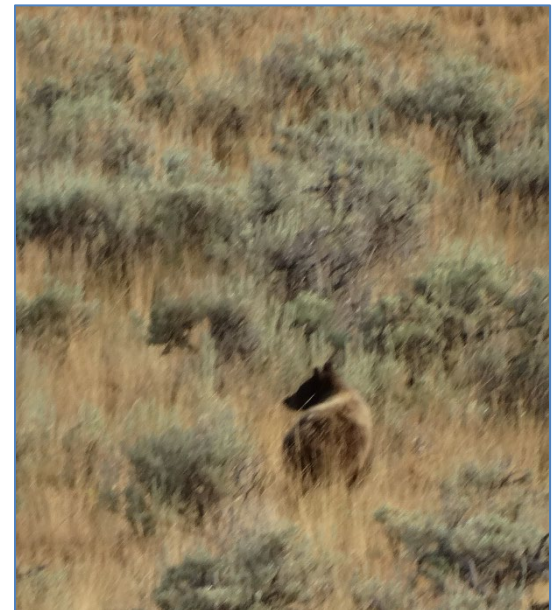
- WHATSAPP
 - Board and friends- BHWC Archives and Strategy days!
- Comms:
 - Clark Fork Coalition uplands tour
 - U. Montana Masters student tour
 - WLA and High Divide
 - DEQ and French Creek Delisting

Steering Committee Report – Jim Hagenbarth, Chair; Dean Peterson, Vice-Chair; Steve Luebeck, Treasurer; and Roy Morris, Secretary

- The Steering Committee is pleased with the progress BHWC is making.

Communications and Wildlife Report – Tana Lynch, Associate Director

- Communications:
 - Events:
 - Upcoming:
 - Patagonia tabling event
 - October 24th, Dillon
 - UMW Community Water Conversations panel
 - December 3rd, Dillon
 - Publications:
 - [Reminder: Fishing closures during spawning begin for sections of Big Hole, Ruby and Beaverhead rivers](#)
 - FWP, October 3rd
 - [Ripples of Change: The Impactful Work of the Big Hole Watershed Committee](#)
 - International Business Times, May 31st
 - [Montana DNRC considering 'cloud seeding' to increase Big Hole Watershed snowpack](#)
 - KXLF, September 17th
 - Fall Newsletter in-progress!
- Wildlife Program Update:
 - Upper Big Hole Range Rider
 - Season ended September 30th
 - Livestock Loss Board awarded BHWC \$17,500 (2025)
 - HRI/Landowner Led Groups meeting to discuss funding
 - RCPP, AtBC
 - Butte, Oct. 28



New Business

- None

Break – 10 minutes

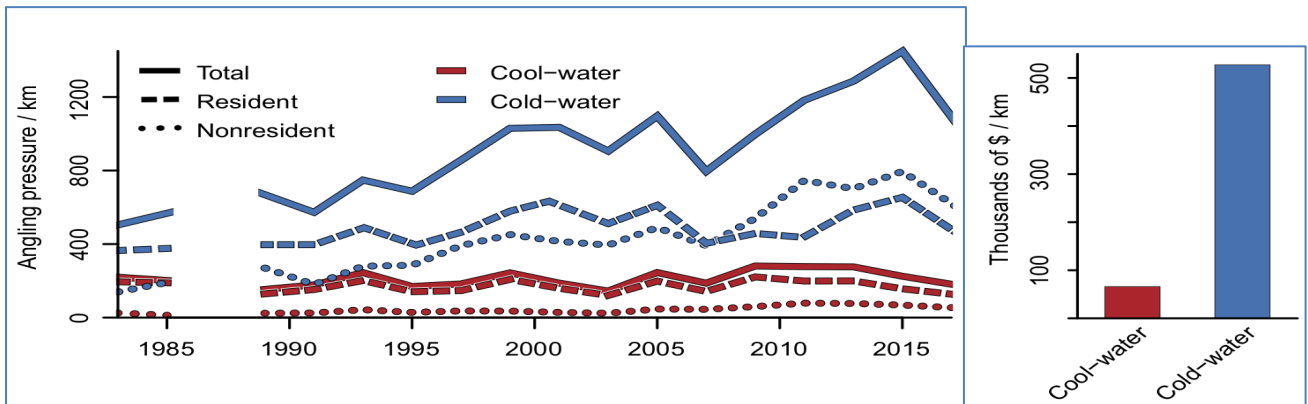
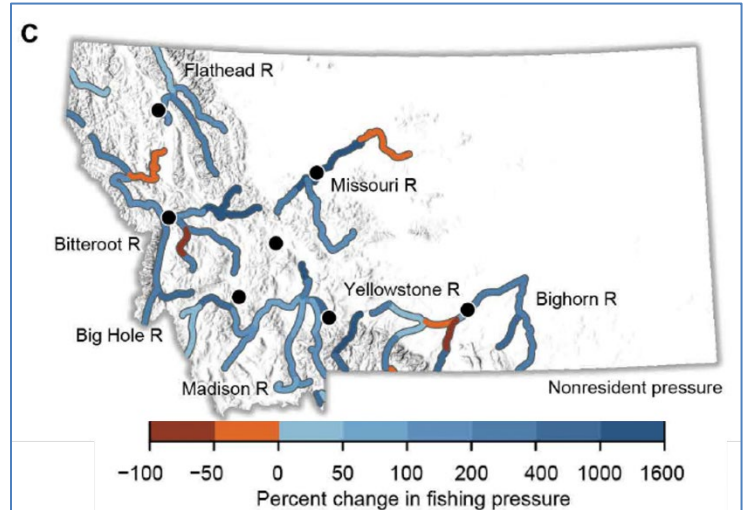
Meeting Topic:

Trout Population Trends in Southwest Montana

What we know and hope to learn in the Big Hole and beyond

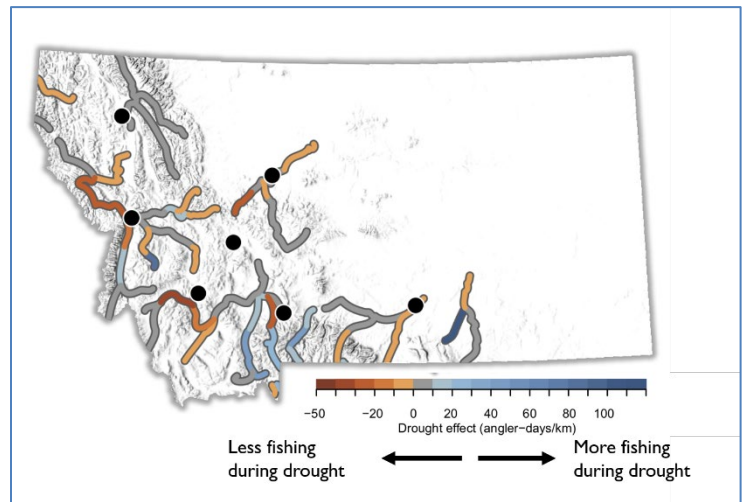
Presented by:
Dr. Timothy Cline, Montana State University

- Trout have enormous socioeconomic value.
 - Hunting + Fishing: \$1.3 Billion ANNUALLY
 - Fishing: \$950 million
 - Rivers/streams: \$760.4 million
 - Residents: \$103.1 million
 - Nonresidents: \$657.4 million
 - Source: Montana Fish Wildlife and Parks, 2018
 - Participation in these fisheries and

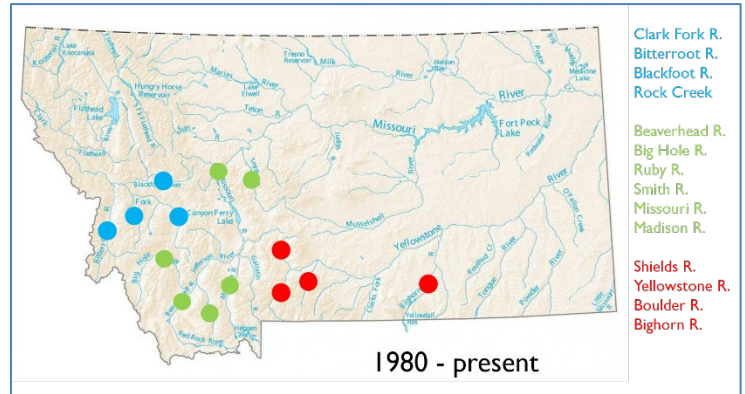


their economic value is strongly dependent on the natural systems that support them (e.g., climate, weather, ecosystems).

- Trout fishing has grown substantially
 - 2.3x increase in pressure on the Big Hole since 1985.
 - Cline et al. 2022, *Science Advances*
- Cold-water fisheries are valuable
- Montana's trout fisheries are changing
 - Climate affects where and when people fish

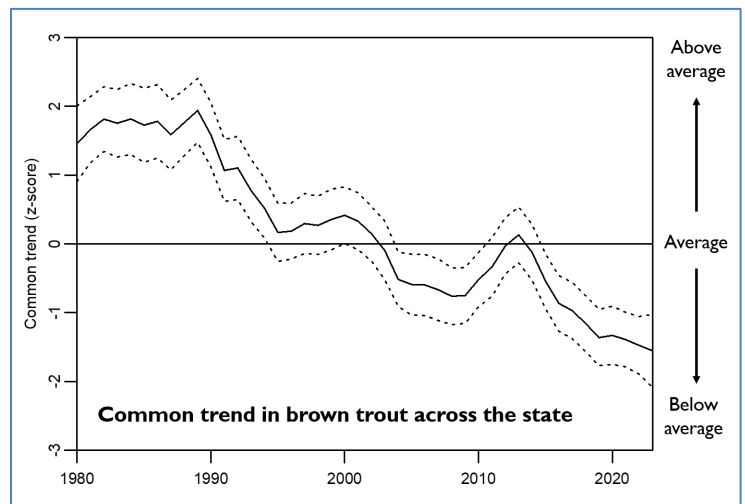


- Changing conditions may change where and when trout are found and how many
- Anglers move in response to drought
 - Drought shifts angling pressure from drought-sensitive rivers to drought-resilient rivers
 - Anglers have options, but there are local impacts to fishing economies
- Trout in trouble? State biologists start noticing declines in brown trout abundance
 - In 2019, Montana FWP asked for a comprehensive evaluation of brown trout population trends across the state



- Assembled brown trout population data from 36 sections across 14 rivers (1980-present)
- Common trend in brown trout across the state.
- Changing streamflow conditions across Montana rivers.

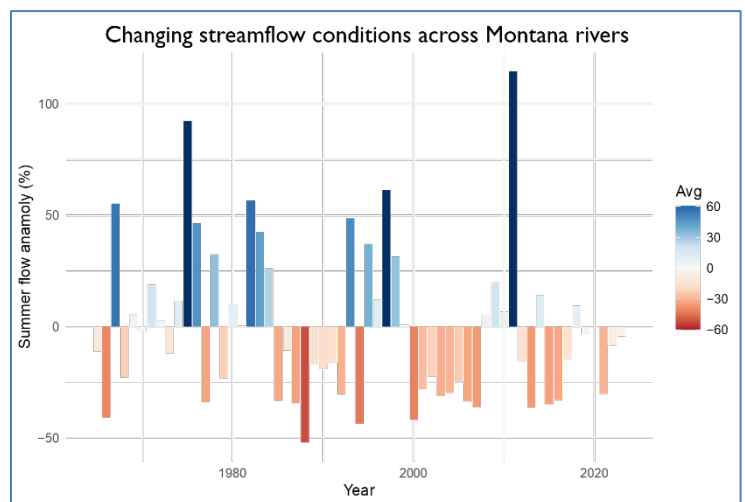
- Take home points:
 - Brown trout abundance has declined since the 1980s and has continued in recent years
 - Patterns seen in the Big Hole are consistent with regionwide and statewide patterns
 - Overall trends are strongly related to streamflow



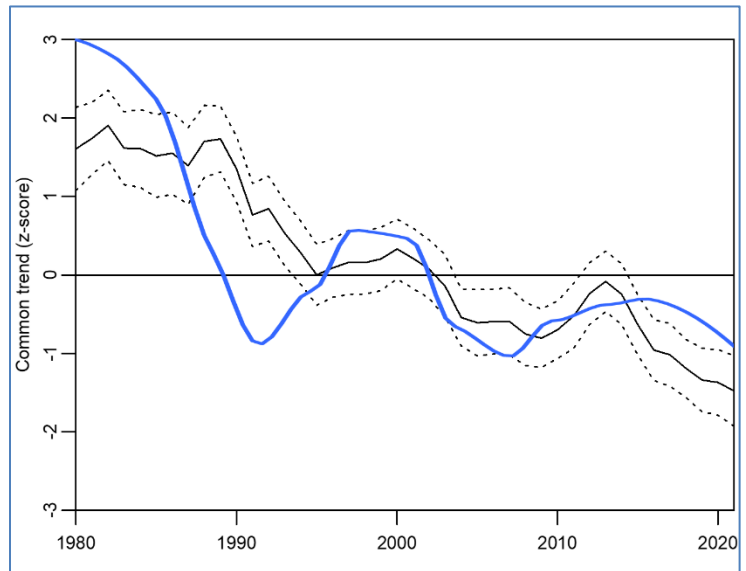
- Study: *Developing a drought early warning system for cold-water fisheries Management across the Northern Rocky Mountains (2022-2024)*
 - Researchers: Timothy Cline, Clint Muhlfeld, and Gregory Pederson, USGS Northern Rocky Mountain Science Center
 - Partners: NIDIS, USGS, MSU, MFWP, BoR

- How does streamflow affect the abundance, demographic rates, and production of trout populations in Montana?

- Population regulation
- Population modeling:
 - Previous research investigating drivers of decline in brown trout and rainbow trout populations identified drought and associated low streamflow as the dominant drivers of population declines in recent years.



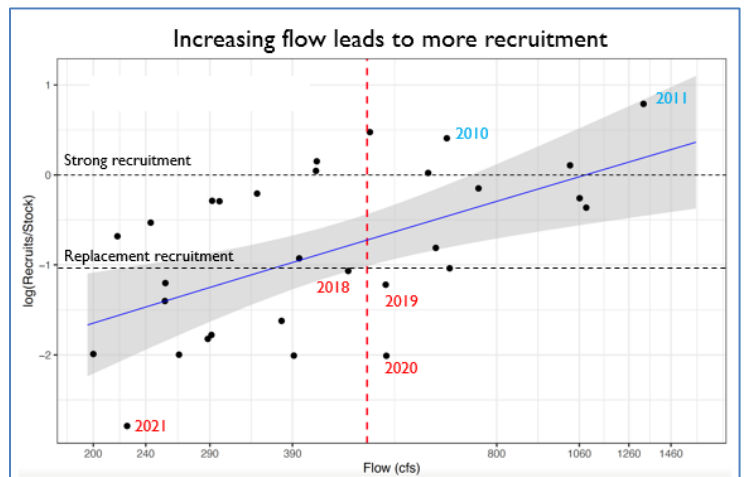
- This work will build on those valuable efforts to understand the mechanisms through which drought affects trout populations (i.e., recruitment, mortality) across life-stages and species.
- These underlying mechanisms are critical for accurately forecasting drought risks to populations and for developing management and policy to secure valuable freshwater fisheries and well-being and livelihoods they support in the future.



- Changing trout populations in the Big Hole
- Survival and recruitment trends
- Increasing flow leads to more recruitment
- Similar flow effects on recruitment across the state
- Streamflow drives population production

● Population trends in SW Montana

- Population trends in SW Montana are consistent with regional and statewide patterns
- Limited evidence for streamflow impacts on survival
- Widespread effects of streamflow on recruitment



- The population has remained stable with replacement recruitment
- Need above average flows to rebuild populations

● Collaborating on trout declines in Southwest Montana

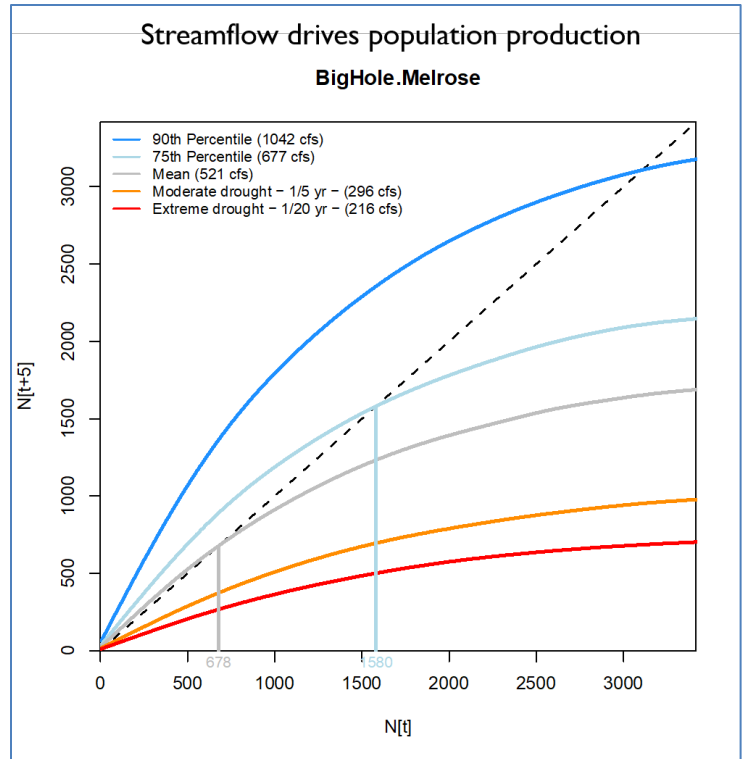
- Montana State University and Montana Fish, Wildlife and Parks
- Adult mortality and recruitment

● Understanding trout mortality – tagging

- Tags allow us to track the fate of fish over time
- Questions:
 - How does mortality differ among rivers and sections?



- How does environment affect mortality (flow, temp, etc.)?
 - Two tag colors – Yellow (\$100) and Blue (raffle)
 - Allow FWP and MSU to estimate reporting rate and ultimately, mortality
- Understanding recruitment dynamics
 - What is the relative contribution of tributaries and mainstem habitats to recruitment?
 - Does tributary contribution change from year-to-year and why?
 - Do environmental conditions explain variation in juvenile abundance across space and time?
- Tributary vs. mainstem recruitment
- What factors influence recruitment?
- References:
 - Cline, T. J., Muhlfeld, C. C., Kovach, R., Al-Chokhachy, R., Schmetterling, D. A., Whited, D. C., Lynch, A. (2022) [Socioeconomic resilience to climatic extremes in a freshwater fishery](#). *Science Advances*: v. 8 p. eabn1396



- Please note: Due to technical difficulties, we were unable to record the October 16th Zoom meeting during which Tim gave his presentation. However, a similar presentation of Tim’s is available on YouTube (about 26 minutes in) at: <https://youtu.be/OoeXqs4Lxp0>.

Upcoming Meetings

- Wednesday, November 20, 2024: **BHWC Monthly Meeting: FWP Wildlife Update**
 - 7:00 PM at the Divide Grange Hall

Adjourn