Missouri Headwaters Watershed Tour

Co-Hosted with the Missouri Headwaters Partnership
Thank you to our sponsors!
2019 Watershed Tour Objectives

- Observe the *Watershed Approach* to conservation exemplified by local watershed groups and Missouri Headwaters Partnership conservation activities
- Connect with water and natural resource professionals
- Identify resource sharing and partnership opportunities
- Take part in MWCC’s effort to scale up local community conservation success across Montana
- Have Fun
- Leave Inspired
Focus Areas:
- Political Policy & Engagement
- Climatic Resiliency and Water Strategy
- Wildlife
- Regional Growth & Land Use
- Long-term Conservation Funding & Capacity

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MHP was formed in 2002 “to create a regional collaborative organization that promotes economic and ecological sustainability by supporting the natural resource integrity, water quality, water quantity, and economic and ecological values of the landscapes and communities of the Missouri River headwaters basin”
➢ Leverage and deliver resources across the landscape;

➢ Engage communities in drought preparedness planning; and

➢ Implement projects to build ecologic and community resilience throughout the Basin
A hub for water-related data and resources for the Upper Missouri Headwaters basin.
The Missouri Headwaters Basin includes seven million acres of land tucked into the southwest corner of Montana. Miles of high-quality mountain fed waterways wind their way through rich agricultural valleys, rural communities, and rapidly expanding urban and business centers. Over 100,000 people live in this unique landscape with thousands more visiting from all over the world each year.

This historically agricultural area is growing rapidly due to its renowned blue ribbon fisheries, unique wildlife, and access to public lands.

Resource managers are tasked with balancing changing land-use patterns and increasing demands on water. Different goals and values among stakeholders often lead to disconnected upland, riparian, and floodplain conservation strategies.
## Summary of Conditions

Click section listed below or on Map for detail display below the Map Legend

Conditions based on the last 3 days (9/7/2019-9/10/2019)

<table>
<thead>
<tr>
<th>Stream</th>
<th>Section</th>
<th>Streamflow (cfs)</th>
<th><strong>H</strong>2O Temp (F)</th>
<th>Status</th>
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<tbody>
<tr>
<td>Beaverhead River</td>
<td>1 Beaverhead River Section</td>
<td>Not collected (3 day trend)</td>
<td>Not collected (3 day trend)</td>
<td>Open</td>
</tr>
<tr>
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<td>2 at Barretts</td>
<td>420 (3 day trend)</td>
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<td>Open</td>
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<td>No gage exists (3 day trend)</td>
<td>Not collected (3 day trend)</td>
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<tr>
<td>Beaverhead River</td>
<td>4 at Dillon</td>
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<td>-</td>
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<tr>
<td>Beaverhead River</td>
<td>5 at Twin Bridges</td>
<td>481 (3 day trend)</td>
<td>55 (3 day trend)</td>
<td>Open</td>
</tr>
<tr>
<td>Big Hole River</td>
<td></td>
<td></td>
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</tbody>
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 Montana FWP stream restrictions in this area! Click section in "Summary of Conditions" below for detailed information and here for official information.
Drought Panel Discussion
Big Hole Watershed Committee

Drought in the Big Hole Watershed:
- River Closures
- Irrigators contribute CFS back to rivers
- Ranchers forego hay crops in June/July
- Irrigators shut off water in August/September

Strategy for engaging community on drought:
- Strong partnerships between residents, anglers, agency resource managers
- If stakeholders don’t manage resources in partnership, someone else must
Big Hole Watershed Committee

Defining resilience/success:
- Continued dedication
- Showing up for meetings
- Following consensus-based model for decision making
- Natural water storage restoration projects
Drought in the Beaverhead Watershed:

- Need to sell/reduce stock
- Fish die-offs or fishing restrictions put in place
- Unfilled reservoirs
- Limited irrigation water

Strategy for engaging community on drought:

- Joint Board (Irrigators, FWP, BoR) work together to determine water allocations from Clark Canyon Reservoir
- Droughty Resiliency Plan helps BWC think about...
  - Projects
  - Where to work
  - Current, unmet monitoring needs
- Cocorahs Network
- Radio Update
Beaverhead Watershed Committee

Defining resilience/success:
- Projects meant to hold water on the land longer
- Projects meant to create better late-season base flows
- Soil health education
- Increased surface flow and groundwater monitoring
- Residents planning for and adapting to dry years
- Community understanding of water supply and use issues
Drought in the Centennial Valley:

- Low rainfall/snowpack that results in:
  - Decreased irrigation and stock water
  - Decrease in vegetation that impacts management practices
  - Increased wildfire risk
  - Impacts to wildlife and fisheries
Centennial Valley Association

**Strategy for engaging community on drought:**
- Range Rider program
- Invasive Weeds program
- Act as disseminator of information on monitoring, hydrological resources, drought, and water resources

**Defining resilience/success:**
- High degree of literacy about drought among community members
- Define and collect hydrological data useful for landowners and stakeholders
Drought in the Ruby Watershed:

- **Agricultural Drought**
  - Low water supply
  - Low crop productivity
  - Decreased streamflow means decreased water for irrigation/stock

- **Socioeconomic and ecological impacts**
  - Dewatering of streams
  - Increased social conflict between stakeholder groups
  - FWP fishing closures
Ruby Valley Conservation District/Watershed Council

**Strategy for engaging community on drought:**
- Information sharing with community
- Data collection
  - Develop a more accurate water budget
- Restoration projects
  - Restore stream and floodplain functions
  - Conifer removal to increase riparian health

**Defining resilience/success:**
- Shared sacrifice from ranchers/anglers
- Community prepared for drought before it happens, able to adapt
- Current measure: Instream flow requirements on the Ruby River
Drought in the Madison Watershed:
- Agricultural
- Environmental
- Economic

Strategy for engaging community on drought:
- **Goal:** Bring drought and water supply concerns from the background to the foreground
- Education meetings and community discussions
- Short publications communicating drought vulnerabilities
- Online resources to encourage community engagement
Defining resilience/success:

- **Success**: Community-wide consideration to water resource needs 5, 10, and 20 years from now
- Past successes:
  - Provided education and resources to better inform members of our community
  - Created in-depth characterization of the ways drought is likely to create vulnerabilities in community
  - Changed community’s understanding of water supply challenges in the watershed
  - Strengthened relationships with agency and nonprofit partners to work on creating resiliency in the Missouri Headwaters
Greater Gallatin Watershed Council

Drought in the Lower Gallatin Watershed:
- Reduced agricultural production
- Increased wildlife risk
- Stressed municipal water supplies
- Reduced snowpack and earlier runoff
- Declining groundwater levels, deepening of wells
- Hoot owl restrictions limiting fishing availability
- Impacts to winter recreation economy
- Rapid growth and development exacerbates drought impacts

Strategy for engaging community on drought:
- Stakeholder interviews
  - Better understand local perceptions of drought and identify concerns
- Community drought forums
- Partnerships with key stakeholders
  - City of Bozeman, Association of Gallatin Agricultural irrigators, Gallatin Conservation District, Gallatin River Task Force
- Gallatin Water Tomorrow
Greater Gallatin Watershed Council

Defining resilience/success:

- Develop collaborative approach to bolstering water availability
- Solutions require combination of
  - Natural water storage
  - Water slowing
  - Conservation
  - Forest management practices
Drought in the Lower Gallatin Watershed:

- Reduced surface water supplies from reduced snowpack or early snowmelt
- Local economy entirely dependent on natural water supplies to drive winter/summer tourism/recreation, provide jobs, keep businesses open
- Reduced groundwater storage
  - Decreased connection with surface flows and capacity to service public, private water system users
- Increased wildfire duration, frequency, size

Strategy for engaging community on drought:

- Small group meetings
- Public survey
  - Outreach in local papers, farmer’s market, newsletters, social media
Gallatin River Task Force

Defining resilience/success:
- Engaged local community that cares about water resources
- Trusted source for water resources in community
- Strong partnerships
- Have building blocks
  - Wetland/riparian mapping
  - GIS analysis for storage priority areas
  - Montana Bureau of Mines and Geology Groundwater Investigation Projects
  - Long-term streamflow and water temperature data
Drought in the Broadwater:  
- Streams and ditches running dry  
- Farmers/ranchers being affected

**Strategy for engaging community on drought:**  
- Arm the public with useful data and information  
  - Not everyone has time to search for information  
  - An easily accessible data source is very powerful

**Defining resilience/success:**  
- Measured by the ability for a community to work together to implement conservation practices, help neighbors downstream  
- Ex: Deep Creek users “sharing the shortage”