

Madison Watershed Planning Meeting: *Bringing Groundwater to the Surface*

April 26, 2017

6:00—7:30 PM

Ennis School Cafeteria

To view additional meeting materials please visit the “Watershed Planning” page at madisoncd.org

Introductions

Guest Speakers: Ethan Kunard (Madison CD), Mike Richter (MBMG), Ginette Abdo (MBMG), Andy Bobst (MBMG)

Watershed Planning Background

Goal: To Lead the community in a collaborative effort to develop long-term solutions to our current, and future, water resource concerns. The steps in this process include:

- Identify water resource concerns.
- Identify opportunities to make improvements that mitigate those concerns
- Develop and implement management practices or restoration efforts to reach the desired conditions

Groundwater quality and supply was identified as one of the areas of greatest interest when we asked the community to provide feedback on water resource concerns in the Madison. As a result, the intent of this “groundwater” meeting was to inform community members about conditions of groundwater, and to explore some of the areas of concern related to groundwater. The topics people were most interested in, or concerned about, included:

- A general need for more information about groundwater (e.g., availability, uses, management practices, groundwater supply trends, etc.).
- Need to better understand the groundwater and surface water relationship in the Madison and how that affects water supply and water quality.
- Concerns about increased development impacting groundwater with an expanding number of wells and septic systems.

Groundwater Meeting Objectives

Using the above feedback, the Madison Conservation District organized a meeting about groundwater with the following objectives:

- Present research on groundwater management and conditions, including: current uses, water supply trends, water quality conditions, and future demands.
- Discuss how groundwater management fits into the ongoing Watershed Management Planning efforts.

Groundwater Use in the Madison

During the meeting, the Madison CD provided information about groundwater use in the Madison. Key points included:

- The overwhelming majority (~83%) of wells in the Madison are used for domestic water supply
- The largest groundwater use, in terms of volume, is for irrigation (~50%).
- The number of wells in the Madison has increased drastically in recent decades (currently more than 3,000 wells in the Madison Watershed).

*For more information and statistics about groundwater use please refer to the meeting handout and presentation

Groundwater Conditions

We had three guest speakers from the Montana Bureau of Mines & Geology speak about groundwater data collection efforts in the Madison. Mike Richter discussed the well-monitoring network in the Madison, and then discussed the notable trends observed since monitoring began. Key points included:

- There are two main aquifers that are utilized in the Madison Valley. Near the valley bottom is a “basin-fill” aquifer. This aquifer is generally connected to the surface water, and generally has an abundant water supply due to its ability to recharge annually. Closer to the mountains is a “bedrock” aquifer. In this aquifer, water flows through fractures in the bedrock, and is therefore not capable of storing as much water as the basin-fill aquifer.
- Monitoring shows that wells in the basin-fill aquifer tend to closely correlate to snowpack and streamflow, and generally show an annual fluctuation that is relatively consistent with climate conditions.
- Monitoring shows that wells near developed areas in the bedrock aquifer also tend to fluctuate, but in some cases are not recovering at a sustainable rate. For example, near the Virginia City Ranches subdivision there appears to be a steady depletion of groundwater over the past decade indicated by the one monitoring well in that location.

Ginette Abdo and Andy Bobst with Montana Bureau of Mines & Geology then discussed plans to begin a groundwater investigation study in the Madison Watershed. This study will look into affects that development has on the groundwater supply in the area west of Ennis (from Blaine Spring Creek to North Meadow Creek). This information can then be used to help with decision-making related to development within this area in future years.

Attendee Feedback

Toward the end of the meeting, everyone in the audience had an opportunity to voice their concerns and/or challenges related to groundwater management. Additionally, those community members provided potential strategies and solutions for addressing those concerns. The table below summarizes the feedback received from meeting attendees.

Concerns and/or Challenges	Solutions and/or Opportunities
Exempt wells	Can/should these be addressed through water rights mitigation?
	Reduce water demands, and use water wisely
Inefficient use of water	Homeowner education & work with HOAs to encourage/require irrigation restrictions.
	Re-use grey water for irrigation.
	Provide examples of best practices
Chemotherapy and/or pharmaceuticals in groundwater	Gather data with "tracer tests"
Impacts of groundwater withdrawals to wetlands	Wetlands, and areas with wetland potential, need to be prioritized and protected
Not fully understanding groundwater and surface water connectivity	Use isotope analysis to better understand connectivity and movement of groundwater
Need more natural storage	Identify locations with potential for natural storage (e.g., wetlands and floodplains).
	Create incentives for landowners to create natural storage opportunities on their land
Reduction in groundwater supply with reduced snowpack	Identify locations with potential for natural storage (e.g., wetlands and floodplains).
	Create incentives for landowners to create natural storage opportunities on their land
Need to understand locations and overall impacts of "losing streams" in the watershed	Collect more data
Effects of septic systems (effluent) and groundwater pumping in fractured bedrock aquifer	Individuals should test their wells regularly and ensure properly functioning septic systems. Homeowner education.
	Homeowner education.
There is no direct cost for using water in Montana	Education to help people understand the value of a limited resource

Next Steps

Our next meeting will be **May 31st at 6:00 PM** (El Western Conference Center), and we will be discussing example management practices and strategies that can help address the water resource challenges we have discussed to this point.