Ground Water Investigation Program

Montana Bureau of Mines and Geology

2016 Lolo Watershed Symposium

September 14, 2016

MBMG

Montana Bureau of Mines and Geology

State Geologist/ Director

Research

Communication

Geology | **Hydrology** | **Analytical Laboratory** | **Publications** | **Data Center** | **Data Preservation**





Ground Water Investigation Program (GWIP)

Addresses specific groundwater questions across Montana

- ✓ Competition for water resources;

  Answer locally identified questions, crucial for water management;

- ✓ Focused, intensive studies in a structured, widely accepted program

*Understanding impacts and **lack** of impacts, both are equally important*

Provide information so aquifers can be managed, Not just <u>used</u>

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GWIP Project Areas

GWIP adds to Montana's capability to deal with complex water resource issues

- Active projects
- Completed projects
- Scheduled projects
- In review

Types of issues:

- stream depletion from pumping wells
- effects of changing land use on water resources
- the impacts of irrigation practices on groundwater surface water
- evaluating mitigation success and offset plans in closed basins.

Lolo Creek Project

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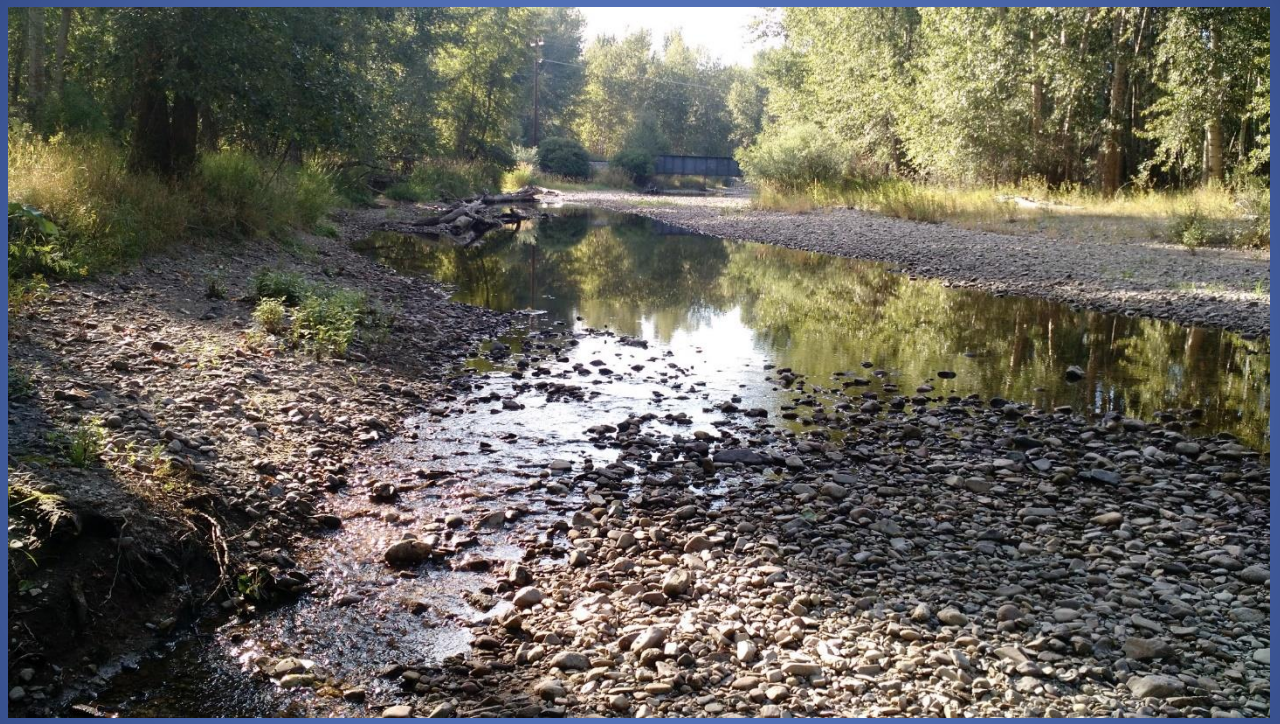

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Purpose

The purpose of this GWIP project is to document and determine the cause(s) of changes in streamflow that occur in Lolo Creek's lower reach.

Lolo Watershed Group

Nominated: April, 2015
Ranked: October, 2015
Started: Spring, 2016

Tonight's Topics

- Study focus
- How work meets that focus

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Products

Documentation and explanation of causes that impact streamflow including predictive tools

Process

- Theories
- Data collection
- Interpretation (maps)
- Predictive models

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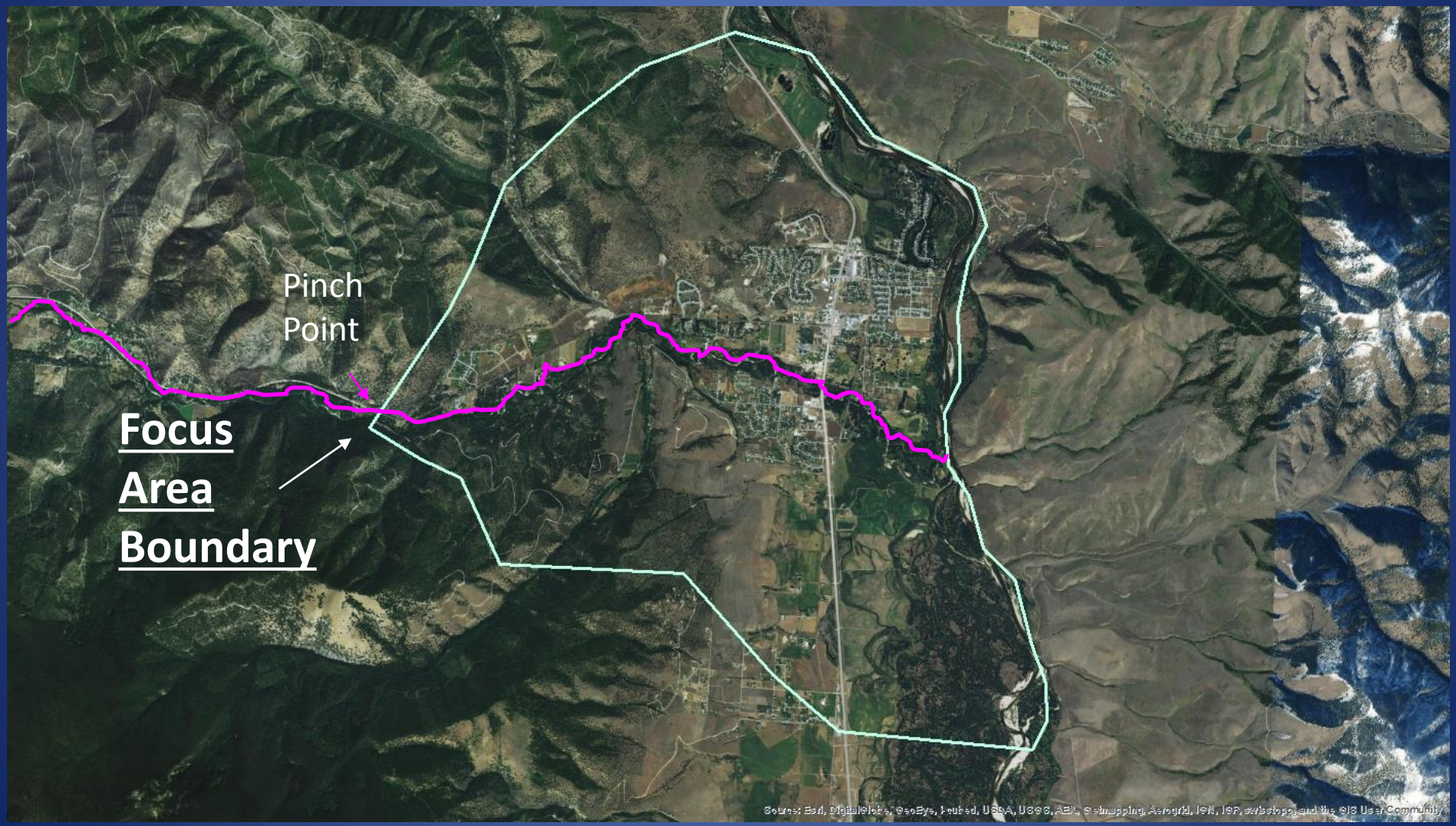
With help from the DNRC, we will measure watershed components at the Lolo Watershed scale, but will focus on detailed measurements in the smaller watershed that is our **Focus Area**



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To understand how and why water flows in Lolo Creek, we will,

Document and Quantify:

- surface water flow
- groundwater/surface water - interaction and patterns
- groundwater use and flow
- precipitation amounts and trends

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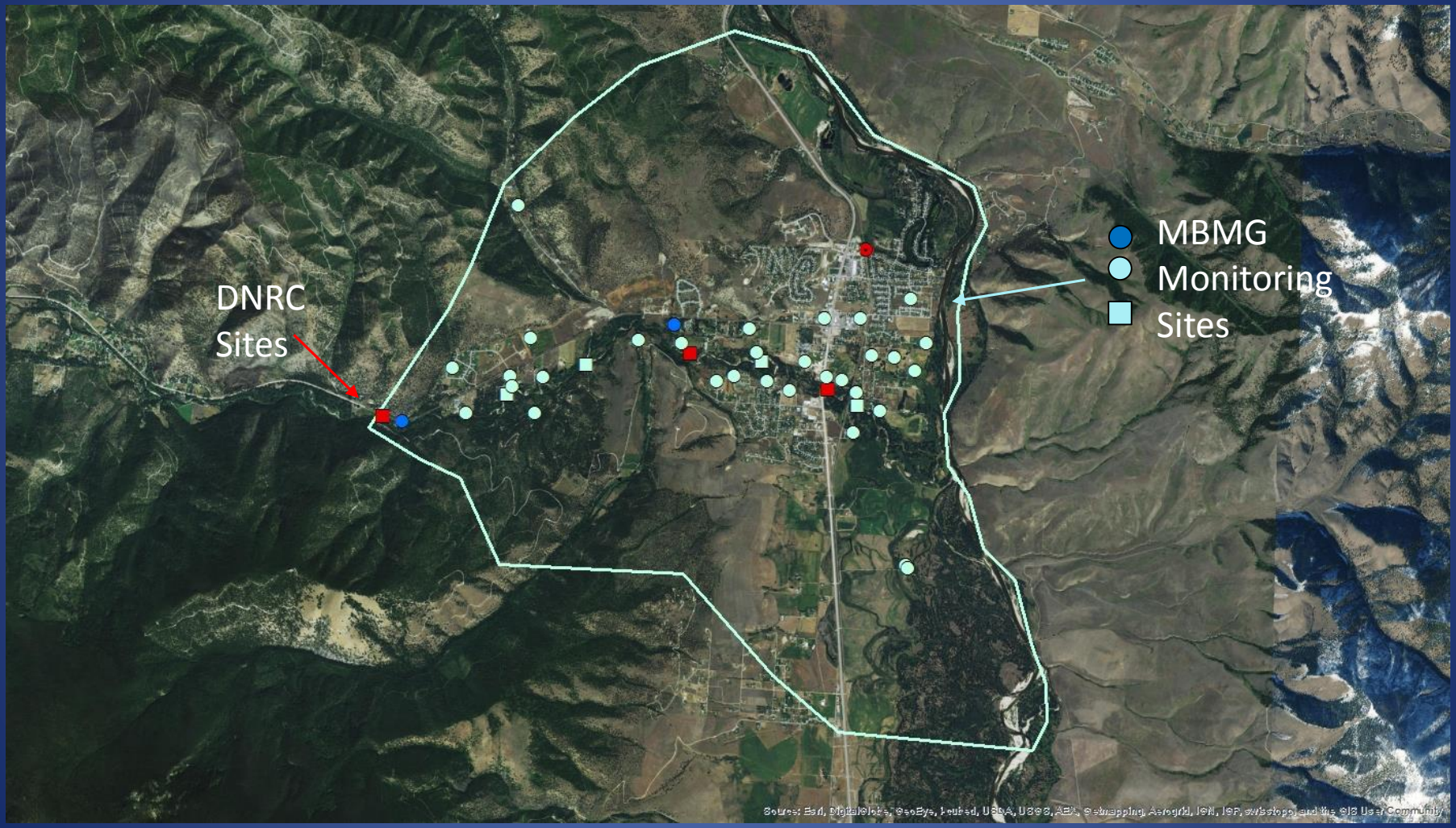
Monitoring Sites



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Drilling Program

drilling dedicated monitoring wells where we need data
Starting 9/26/2016……

- Filling in groundwater-data gaps
- Characterizing the aquifers

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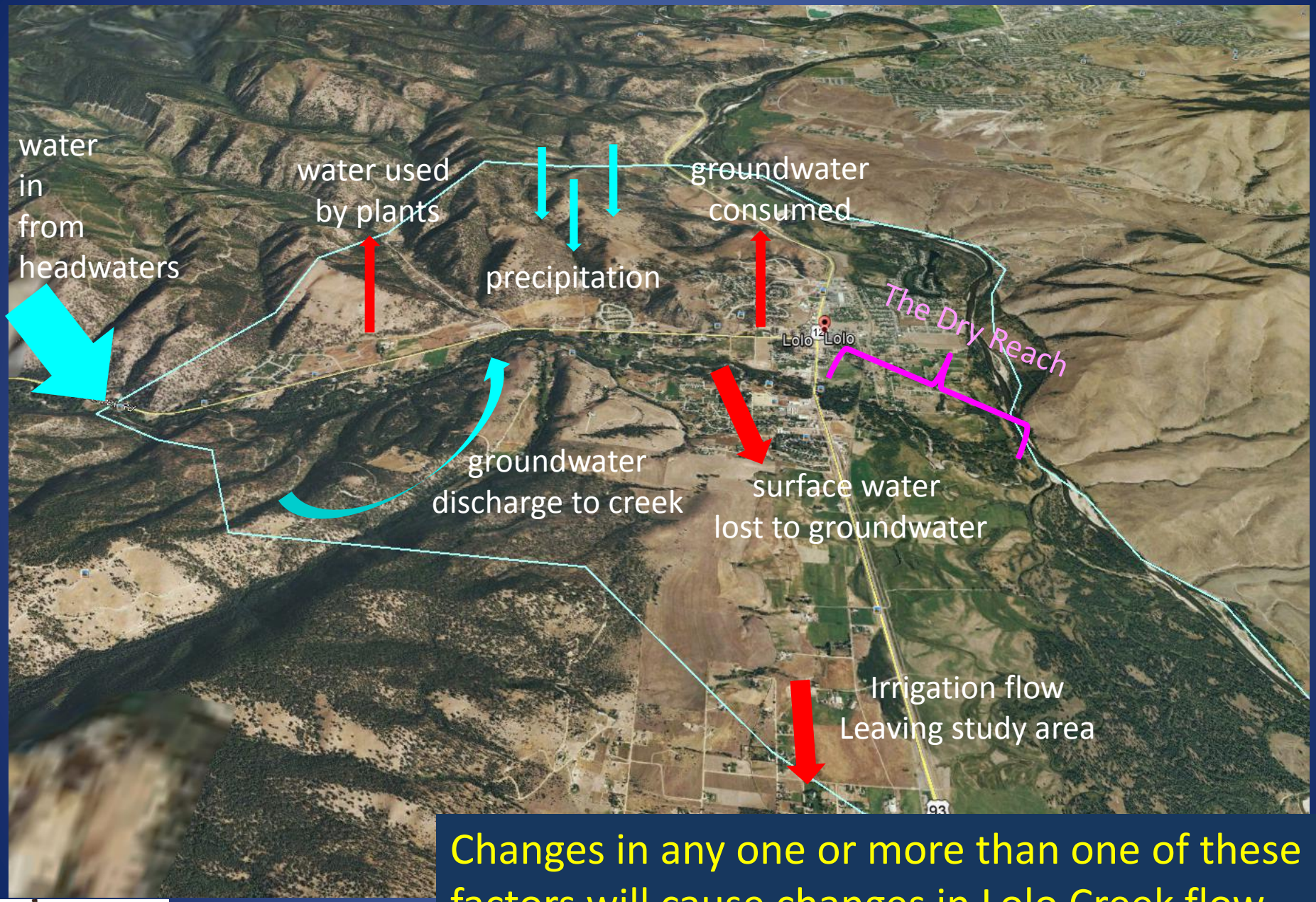
What determines the flow in Lower Lolo Creek?



Changes in any one or more than one of these factors will cause changes in Lolo Creek flow.

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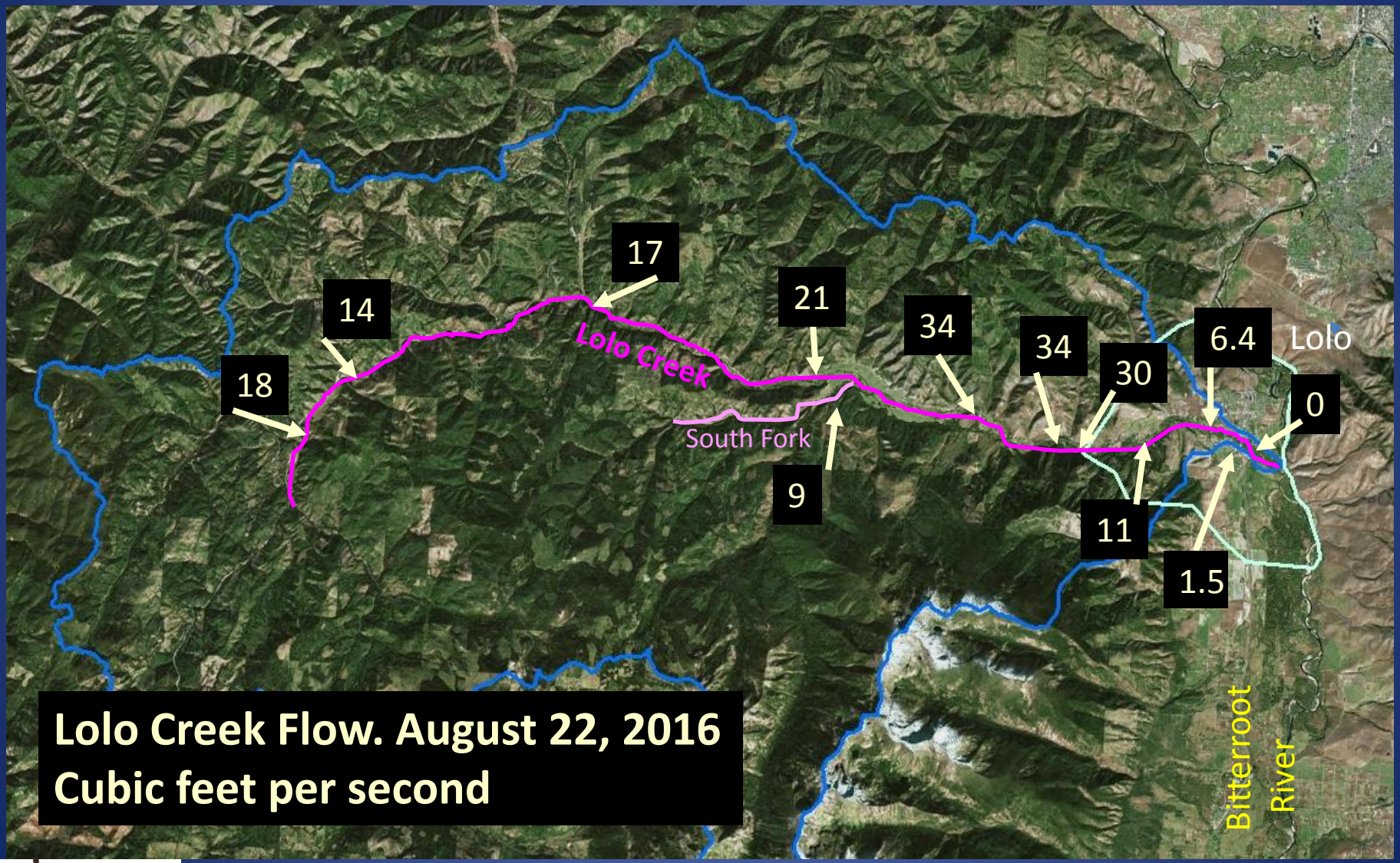
Streamflow was measured on August 22, 2016 by combined team of MBMG and DNRC.



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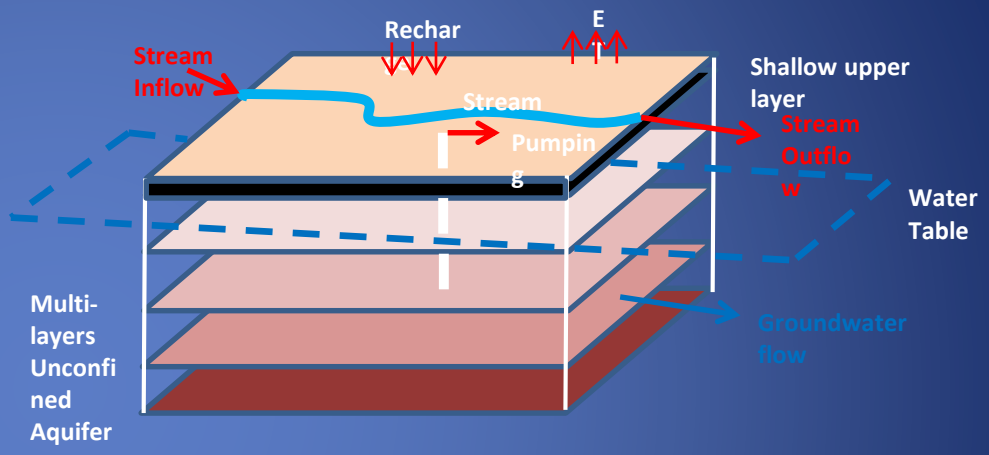
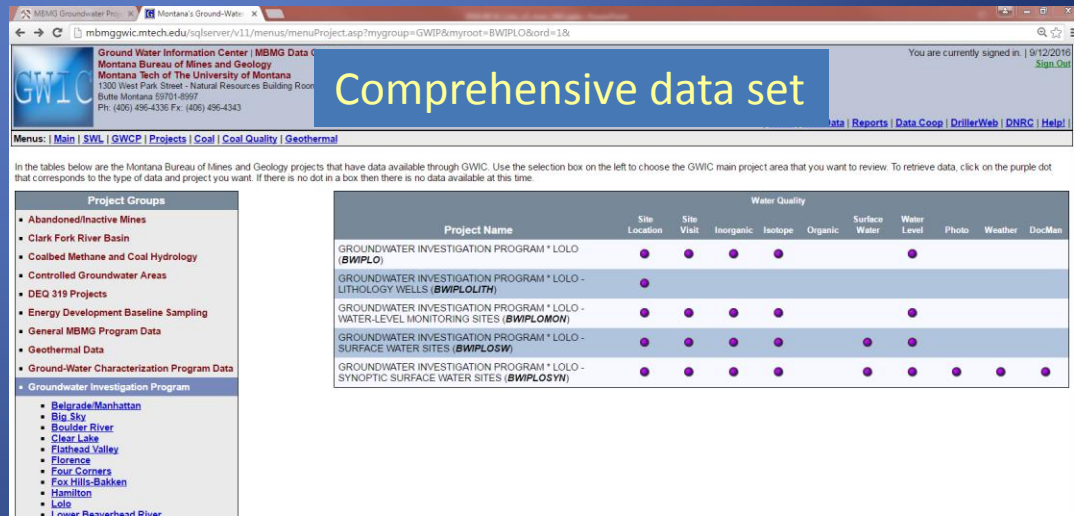
The bottom line: Products

Interpretive Technical Report

Numerical models



Public presentations to answer your questions.



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