

# STATE WATERS

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Quantity, Quality, Connected

# Quantity

- How much?
- When?
- Where?
- Who has the right to use it, and for what purpose?

# Quantity

- Primarily addressed through the water rights system
- Primarily addressed by the Department of Natural Resources and Conservation (DNRC)



# Quality

- What condition is it in?



# Quality

- What could/should it be useful for?



# Quality

- Primarily addressed through the Montana Water Quality Act
- Primarily addressed by the Department of Environmental Quality (DEQ)



# Connected

- Quality  $\neq$  Quantity
- However, if you change one, you almost always change the other (more on that later . . .)

# **Water Quality Planning**

**Water-Use Classification**

**Standards**

**Assessment/Listing/Delisting**

**TMDL**  
**(Total Maximum Daily Load)**

**Implementation**

**Point Source** (regulatory)

**Nonpoint Source** (voluntary)

**Monitoring**

**TIE**  
**(TMDL Implementation Evaluation)**

**Removal from  
List of Impaired  
Waters**

# Put Another Way . . .

- Use-classification designates the beneficial uses that a waterbody should support
- Standards are developed to protect uses
- TMDLs are created to achieve standards
- Discharge permits (MPDES) and voluntary efforts implement TMDLs
- Monitoring and re-assessment determines if standards are met and beneficial uses are supported
- TIEs evaluate implementation successes and failures

# Water-Use Classification

- System for designating the beneficial uses that a particular stream or lake should be able to support
- Alpha-numeric classification (A-1, B-1, B-2, C-1, etc)
- 17.30, Subchapter 6 of the Administrative Rules of Montana (ARM), at [www.mtrules.org](http://www.mtrules.org)

# A Word About “Beneficial Use”

- The meaning depends upon context:
  - Water rights: generally refers to the actual use of water for a purpose (e.g. *‘a water right holder puts water to a beneficial use’*)
  - Water quality: refers to the suitability of water for a purpose (e.g. *‘water in the Yellowstone must be maintained suitable for agriculture and industrial water supply’*)

# A Better Term?

- Designated Use?
- Prescribed Use?

# Standards

- “Adopted to establish maximum allowable changes in surface water quality and to establish a basis for limiting the discharge of pollutants which affect prescribed beneficial uses of surface waters.” 17.30.603(1) ARM
- 17.30, Subchapter 6 of the ARM
  - DEQ Circular 7 (DEQ-7) incorporated by reference
  - Links to a handful of other pertinent rules and statutes

# Assessment

- Data collection and analysis
- Determines whether or not a waterbody is supporting its beneficial uses (*\*remember, think “suitability”*)
- May determine if water quality standards are being met
- May determine cause and/or source of impairments

# Listing / Delisting

- 303(d) vs List of Impaired Waters
- Impairments are waterbody-specific
- Impaired use, probable cause, probable source
- Revised List comes out every 2 years
- Searchable at:
  - [www.cwaic.mt.gov](http://www.cwaic.mt.gov) *or*
  - <http://deq.mt.gov/wqinfo/CWAIC/default.mcp>

# CWAIC



**mt.gov**  
Montana's Official State Website

**DEPARTMENT OF ENVIRONMENTAL QUALITY**

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 **Clean Water Act Information Center**

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### Welcome To CWAIC

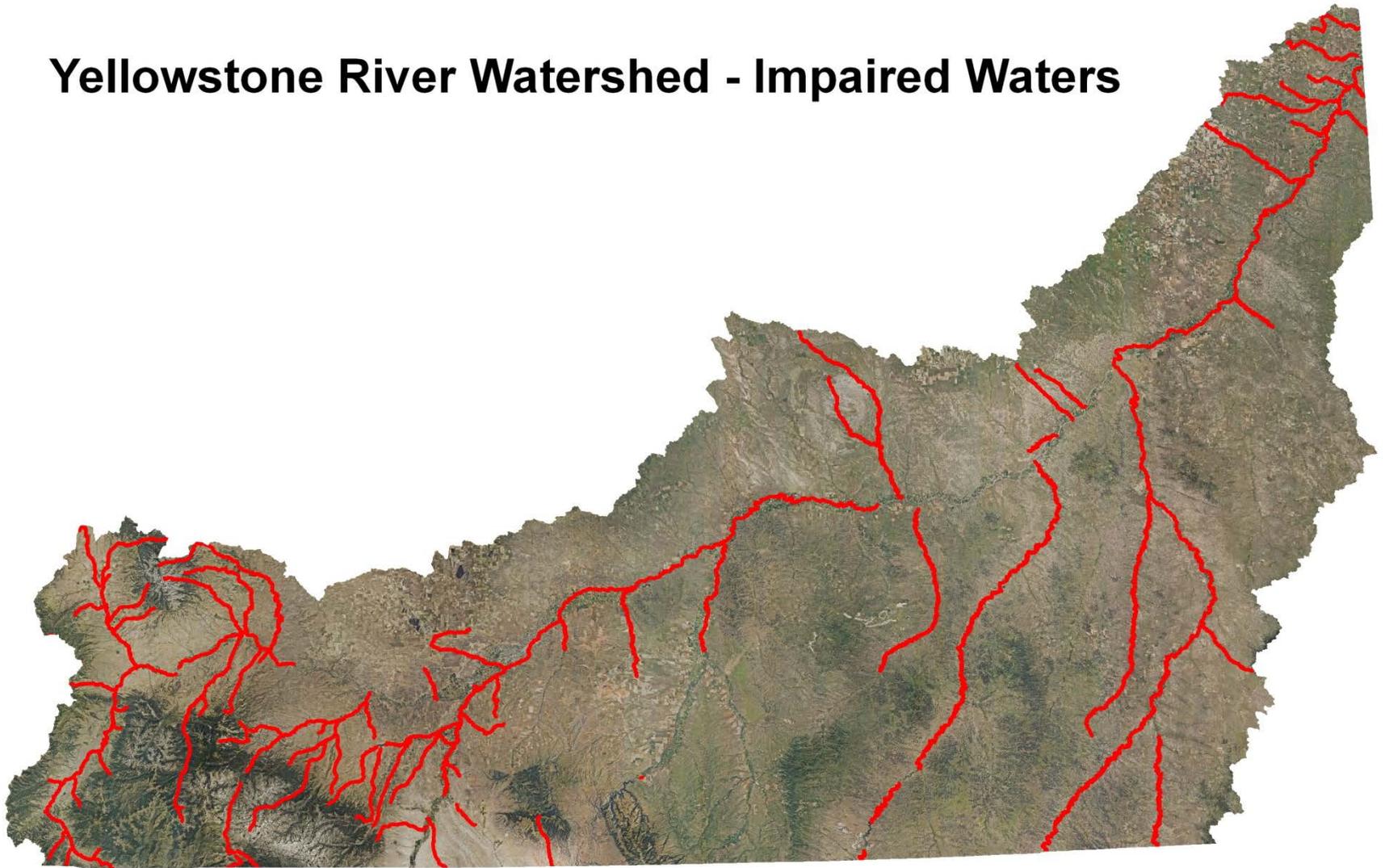
Welcome to the Montana Clean Water Act Information Center (CWAIC). Here you will find information about the quality of Montana's rivers, streams, lakes and wetlands in relation to Montana's Water Quality Standards. CWAIC displays the results of water quality assessments derived from available water monitoring data and information. CWAIC also provides access to Montana's Water Quality Integrated Report (305b & 303d), public comment submittal form, and online mapping tools. CWAIC does not provide access to the raw water quality monitoring data and information used in making assessments.

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# Yellowstone River Watershed - Impaired Waters

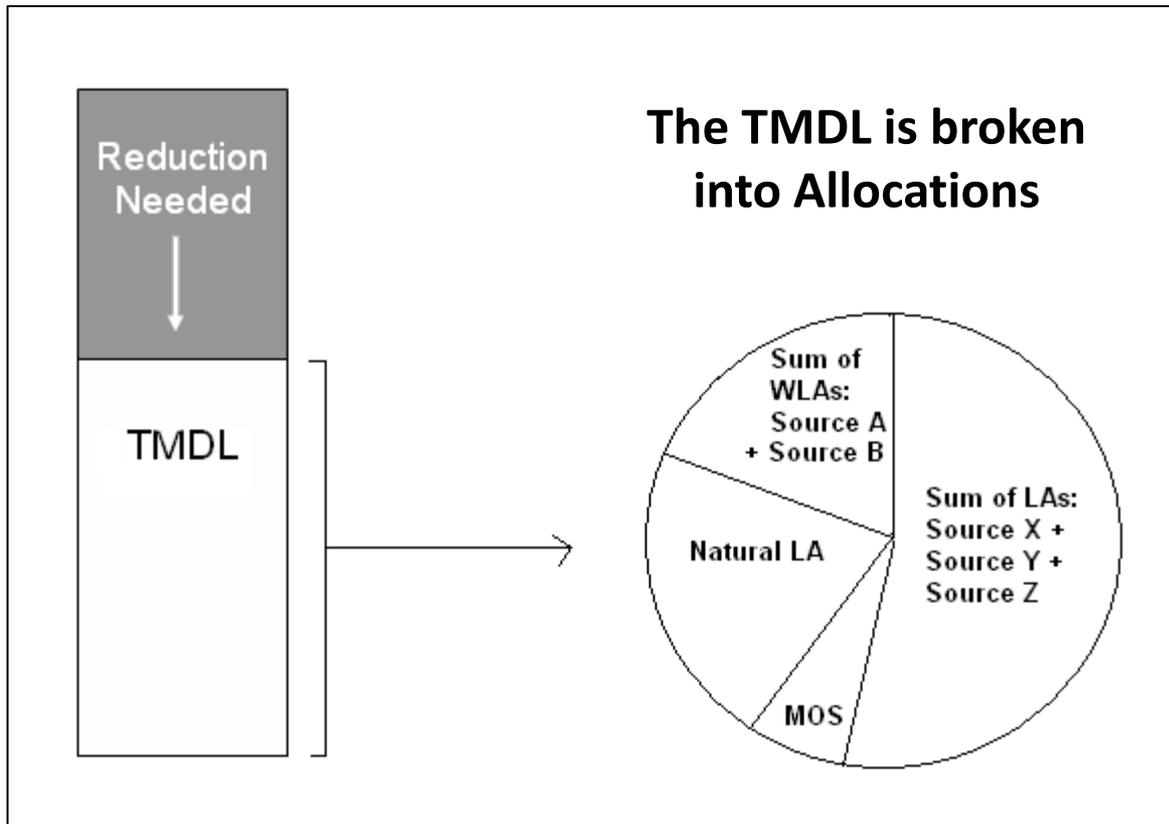


From 2012 Montana List of Impaired Waters

# TMDL

- **Total Maximum Daily Load** is the amount of a pollutant that a stream can receive and still meet water quality standards.
- Typically expressed as a load per given time & also as a percent reduction (16/lbs per day; 2.6 tons/year; 30% total load reduction)

# TMDL



**WLA** = Waste Load Allocation

**LA** = Load Allocation

**MOS** = Margin of Safety

**TMDL = Sum of WLAs** for point sources + **Sum of LAs** for nonpoint sources + **MOS** that accounts for the uncertainty in the relationship between pollutant loads and the quality of the receiving stream



# Current TMDL Development

- Western Montana focus (until end of 2014)
- Otter Creek is an exception
  - Iron, sediment, salinity
  - Must have TMDL completed in order to issue discharge permits for the anticipated Otter Creek Coal Tracts mining operation
- For updates, contact Christina Staten, Project Coordinator, at 406-444-2836, or go to <http://montanatmdlflathead.pbworks.com>

# Implementation – Point Source

- Point sources are defined in statute/rule
- Typically applies to wastewater treatment plants, Concentrated Animal Feeding Operations (CAFOs), large industrial sources, fish hatcheries, some storm water

# Implementation – Point Source

- Montana Pollutant Discharge Elimination System (MPDES) permits must be consistent with TMDL waste load allocations (WLAs)
- Implementation is mandatory/regulatory

# Implementation – Nonpoint Source

- Nonpoint source pollution encompasses everything that is not defined in statute/rule as being a point source
- The most significant sources (in Montana) include agriculture, forestry, mining, transportation, urban/suburban runoff

# Implementation – Nonpoint Source

- A TMDL is not enforceable for nonpoint sources; – implementation is VOLUNTARY
- However, some implementation does occur as a result of laws that are not directly related to TMDLs (e.g. zoning, phosphorus detergent ban)

# Implementation – Nonpoint Source

- Implementation typically occurs through the individual efforts of citizens, groups, and agencies
- DEQ encourages the development of Watershed Restoration Plans (WRPs) to ensure locally led, scientifically sound, watershed-wide restoration. (e.g. Shields Valley Watershed Group WRP)

# Monitoring - Agencies



# Monitoring – Public/Private

- Watershed Groups
- MPDES permit holders
- Private citizens
- Companies
- Environmental groups

# Monitoring

- DEQ may use information from any of these groups in order to evaluate whether water quality standards are being met
- To be usable by DEQ, data must meet specific quality assurance requirements
  - Sampling methods
  - Lab and field analyses
  - Data storage and handling
  - Age of data

# TIE

- TMDL Implementation Evaluation
- Catalog implementation efforts
- Evaluate/Estimate their effectiveness
- Recommend next steps

# TIE - Conclusions

- More time
- Additional land, soil and water conservation practices
- Ready for re-assessment
- TMDL, designated uses might not be appropriate

# TIE

## Completed

- Big Creek
- Deep Creek  
(Townsend)
- Cooke City
- Upper Lolo

## Next Up

- Careless Creek
- Ruby River
- Elk Creek
- Swan

# “Delisting”

- Removal of a pollutant/waterbody combination from the list of impaired waters
- Requires re-assessment
- Assessment methods can change
- DEQ Water Quality Planning Bureau

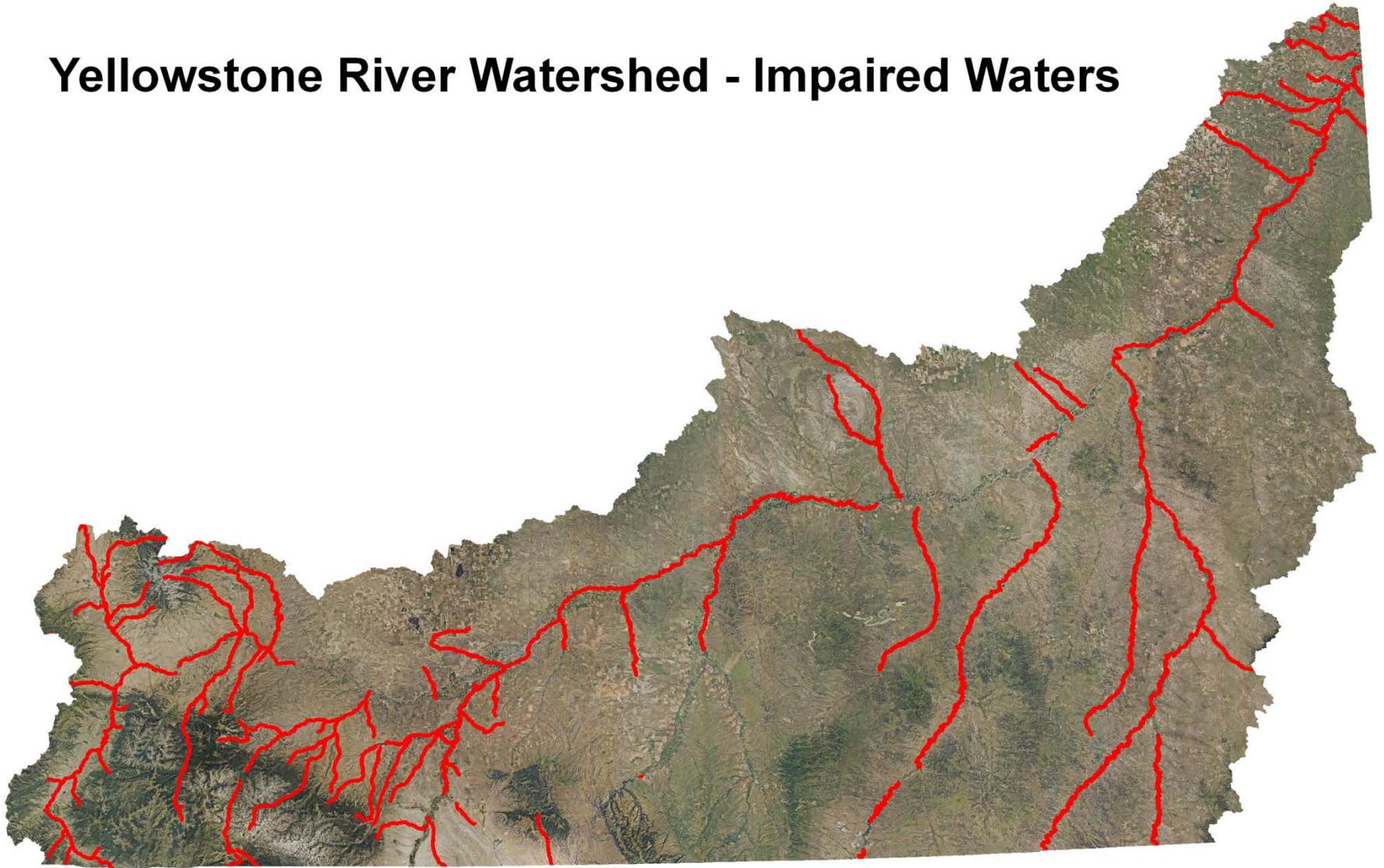
The End Goal . . . . .

# Happy, Happy, Happy



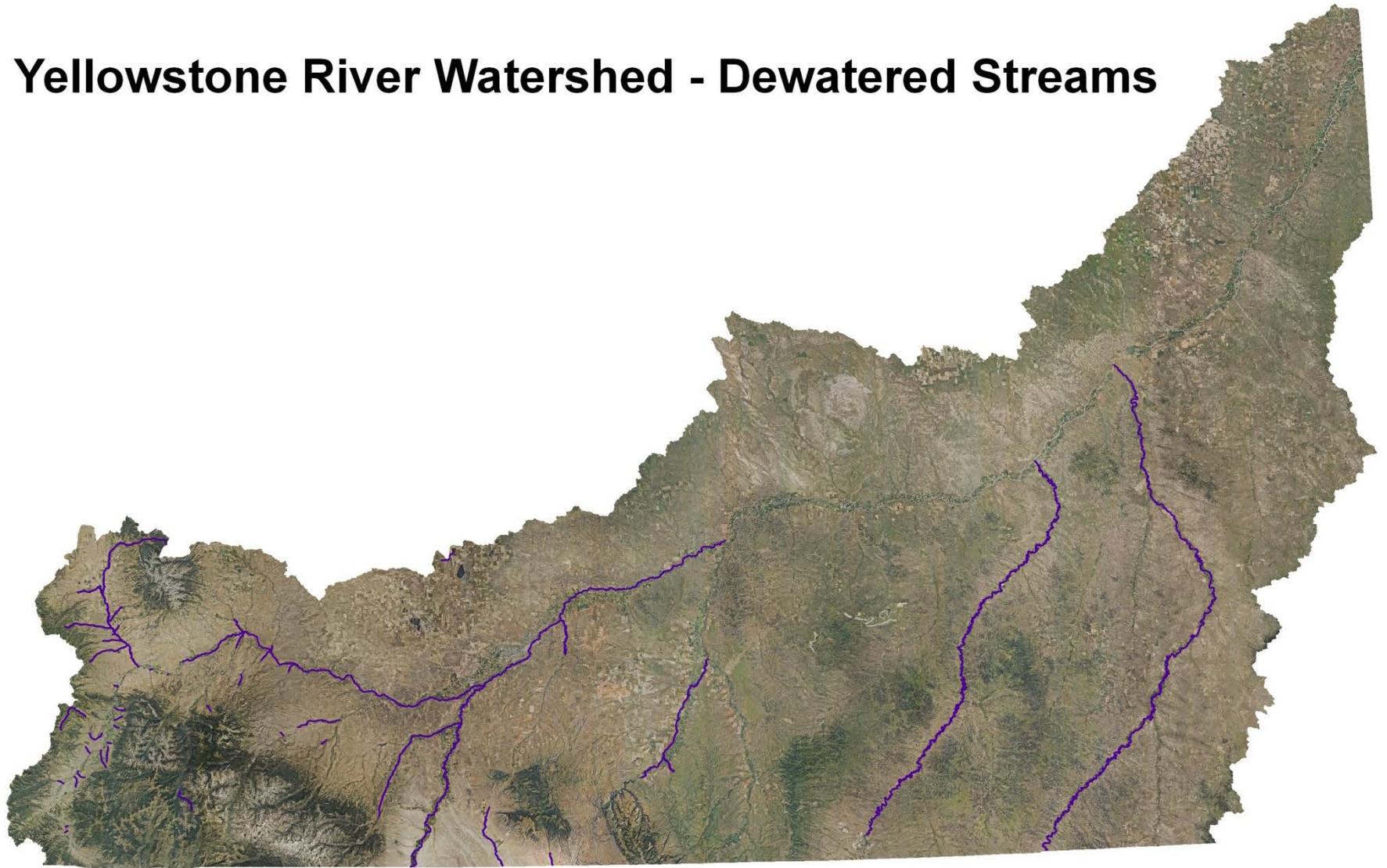
# **How are Quantity and Quality Connected?**

# Yellowstone River Watershed - Impaired Waters

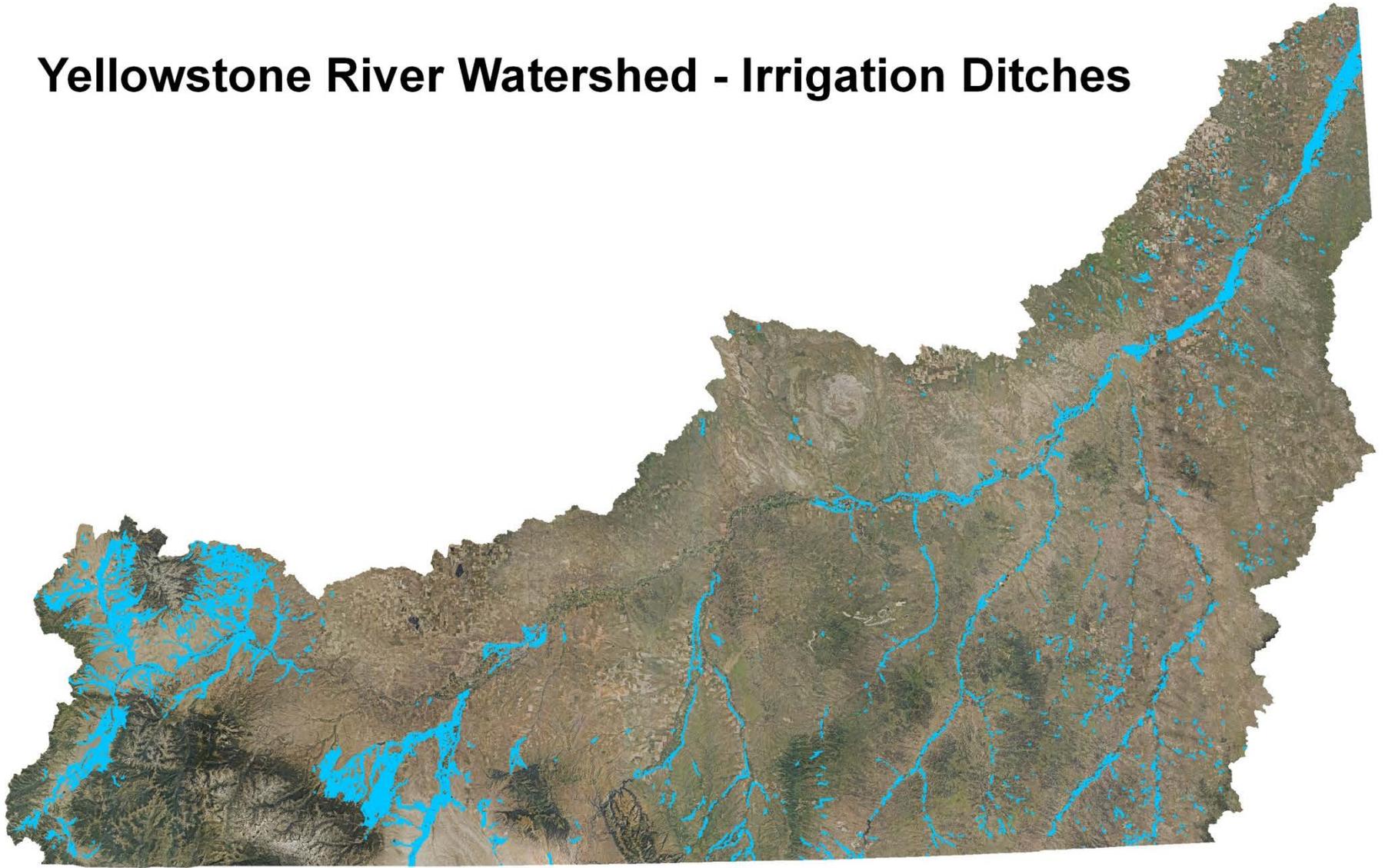


From 2012 Montana List of Impaired Waters

# Yellowstone River Watershed - Dewatered Streams



# Yellowstone River Watershed - Irrigation Ditches



From "WRSditch" GIS Layer

# Billings Wastewater Treatment Plant

- MPDES permit to discharge treated wastewater to the Yellowstone
- The permitted discharge rate is determined based on water quality standards, **and** the quantity of water in the River
- Basically, no water = no dilution = no discharge

# Muddy Creek (Sun River Drainage)



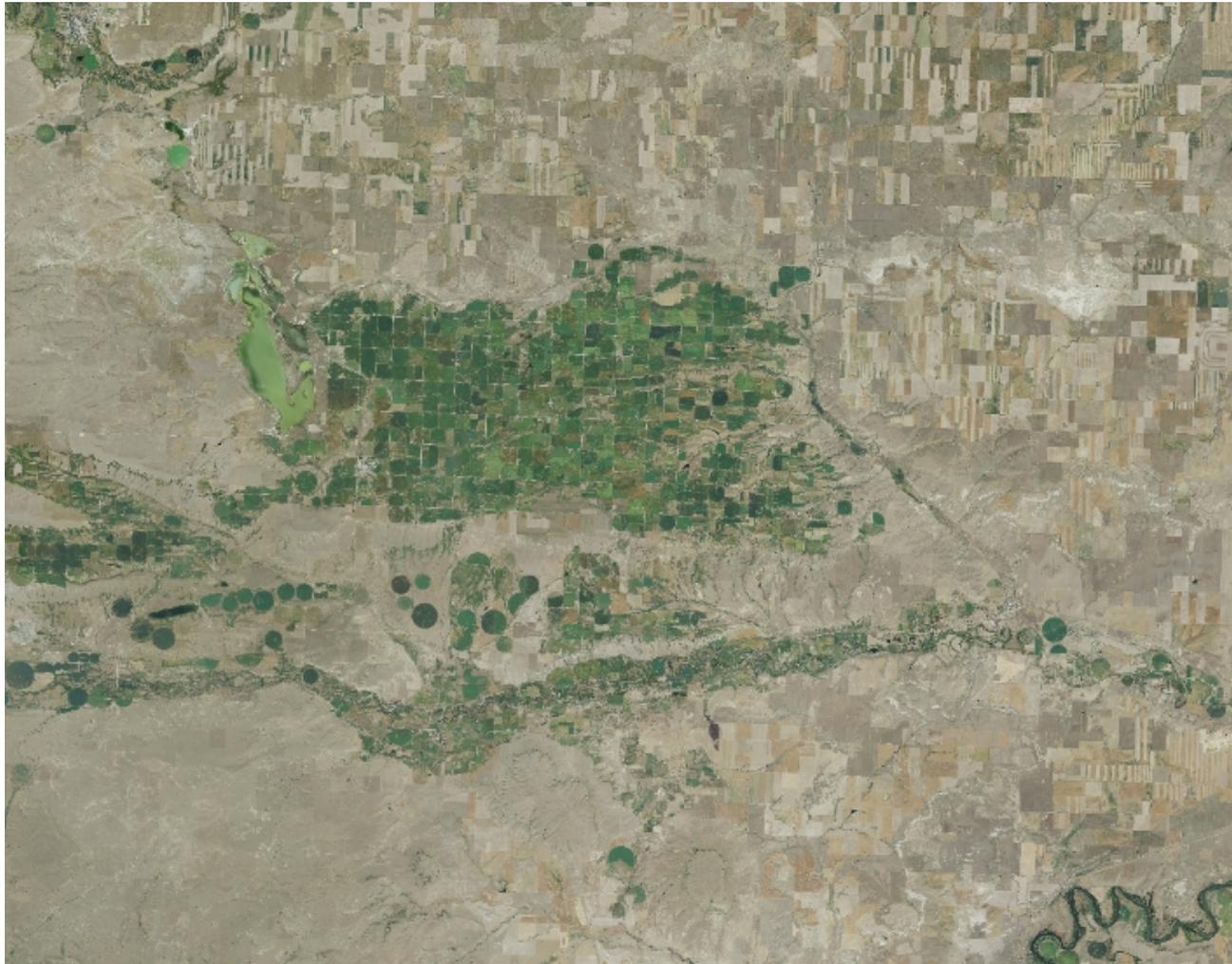
# Muddy Creek (Sun River Drainage)



# Muddy Creek (Sun River Drainage)



# Muddy Creek (Sun River Drainage)



# Musselshell Flood - 2011



# Musselshell Flood - 2011



# Musselshell Flood - 2011



# First Fisheries Studies in 30 Years



**Questions?**