



*Results of the Rogue River
E. coli Study
- 2018*

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Purpose of study

- The purpose of this study was to characterize tributaries to the Rogue
- Determine if the WQS are being met

Purpose of study

- Locate issues or “hotspots”
- Determine if the problems occur in wet or dry weather (or both)
- Help guide future monitoring and watershed management plan development, which WILL help solve problems with cooperation

What is *E. coli* ?

- *E. coli* is a fecal bacteria
- Present in the digestive system and feces of mammals and birds
- It is present in almost everywhere, in small amounts



Why should you care ?

E. coli indicates the possible presence of other pathogens that can cause:

- gastroenteritis,
- cholera,
- giardia,
- cryptosporidiosis,
- hepatitis A/E
- and **horrible, horrible infections**



➤ Michigan has a water quality standard designed to protect human health during recreation





Applies
to ALL
surface
waters

How much E. coli is too much?

- Partial body contact – year-round
 - **1000 E.coli per 100mL**
- Total body contact – May 1-October 31
 - **300 E.coli per 100mL as a daily max.**
 - **130 E.coli per 100mL as a 30-day geometric mean**



Where does E. coli come from?? Hmmmmm.....



A photograph of a circular landscaped area with mulch and shrubs on a lawn. The area is surrounded by green grass. The title "Failing Septic Systems" is overlaid on the image in white text.

Failing Septic Systems

- 1.4 million systems in Michigan
- 13,000 in the Rogue Watershed
- 25% (or more!) may be failing

Illicit discharges from Homes/businesses



We estimate that 5% of homes/businesses have
Illicit sanitary connections to surface water
(That's RAW SEWAGE)

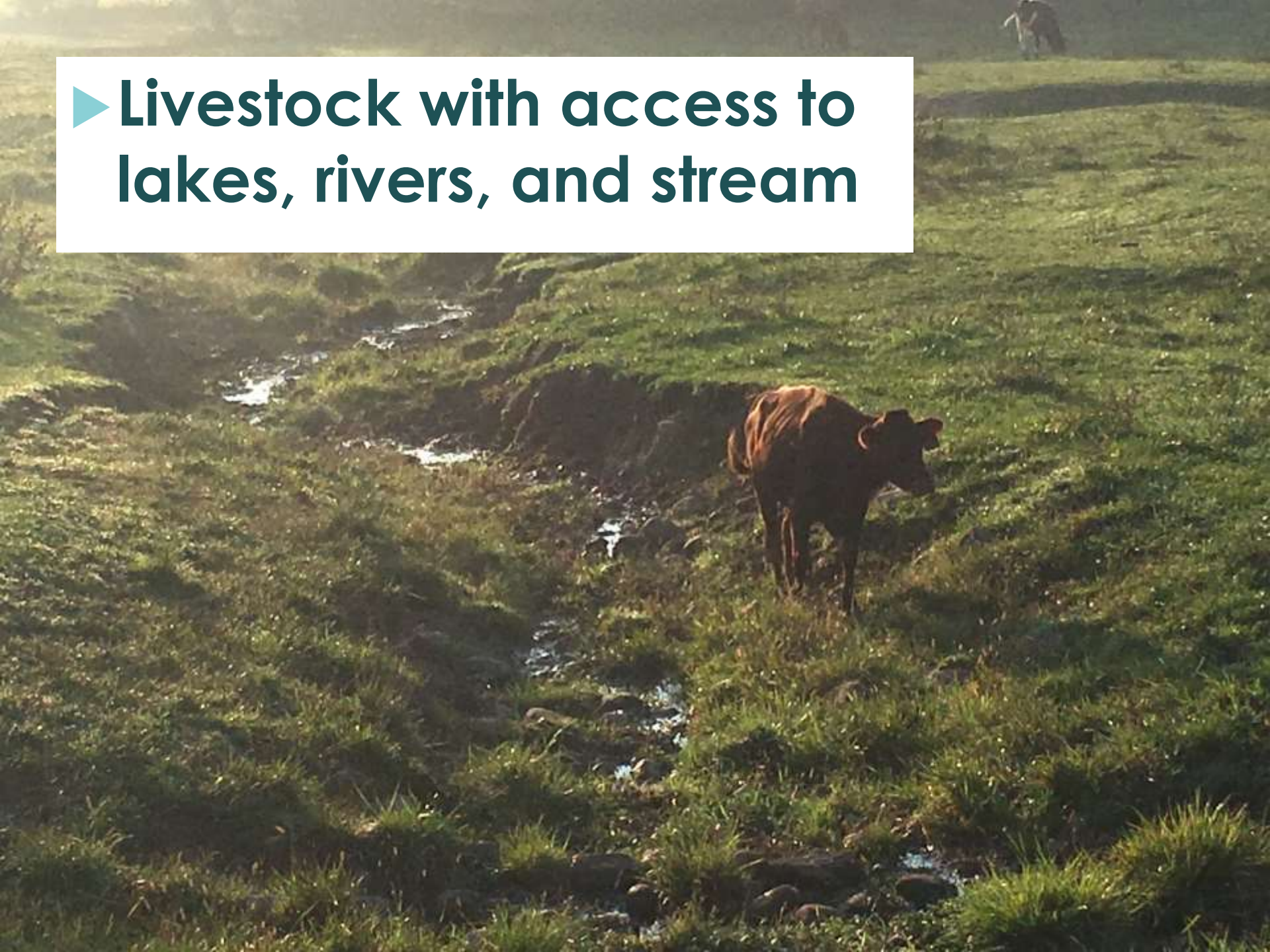


That's a tomato
seedling!

Livestock Agriculture



▶ **Livestock with access to lakes, rivers, and stream**



▶ **Livestock with access to lakes, rivers, and stream**



▶ Pasture runoff



Illegal Sources

Barn
Wash
Water



Pets



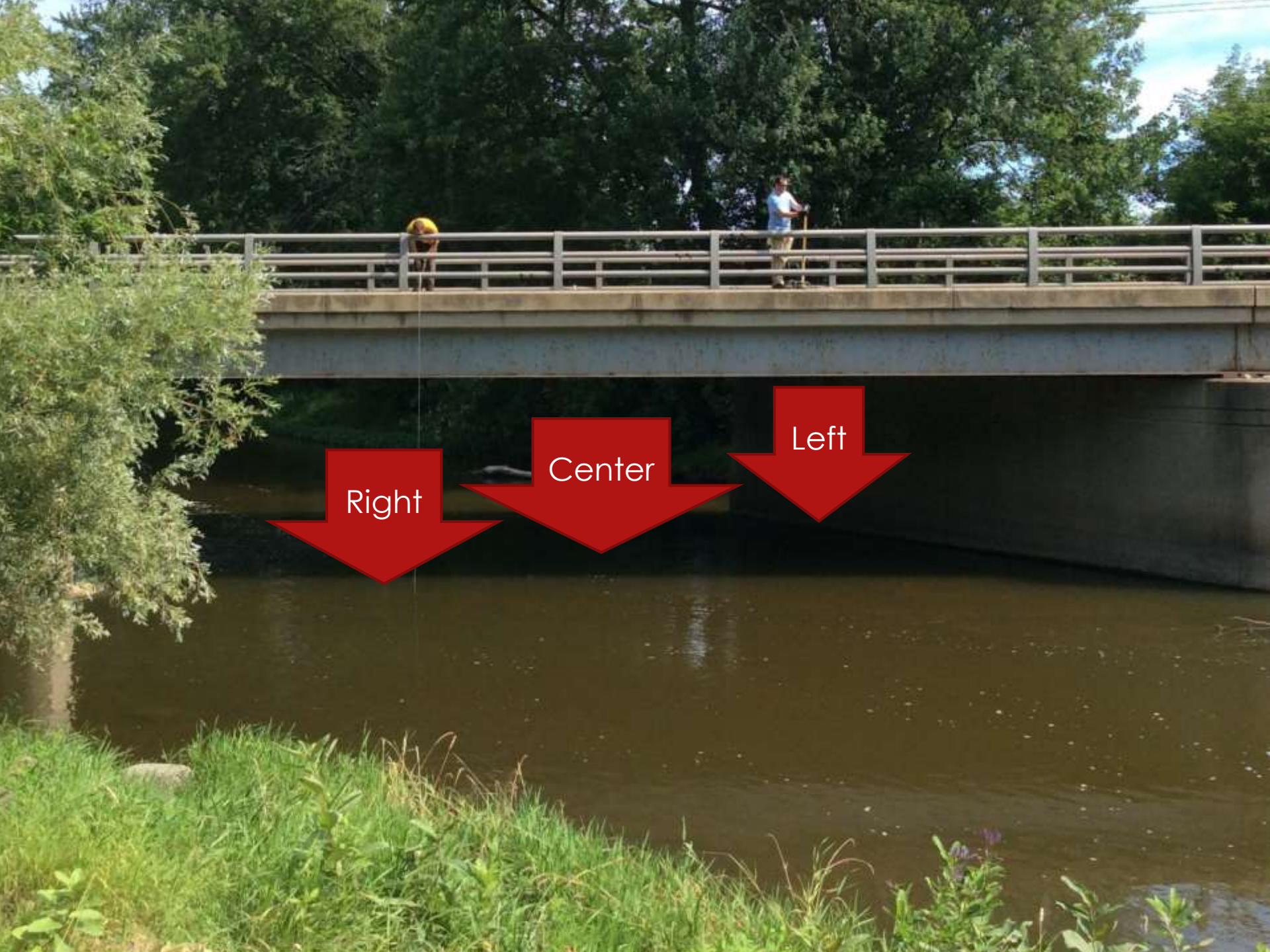
•Nuisance Wildlife



E. coli Monitoring - 2018

- Five weeks collected
- 7 sites
- June 5 – July 2





Right

Center

Left

Rain prior to sampling

- ▶ Helps to separate dry weather issues from wet weather issues.



Wet Weather

- ▶ accumulated yuck on the ground or in storm sewers and field tiles ends up in the river
 - ▶ Sanitary illicit connections to storm sewers or field tiles
 - ▶ Some failing septics (sewage on the ground)
 - ▶ Ag. field runoff
 - ▶ Pets
 - ▶ Wildlife



Dry weather

- ▶ yuck is being added to the river all the time
 - ▶ Failing septics
 - ▶ Illicit sanitary connections (straight pipes)
 - ▶ Ag. Illicit connections (barn wash water, milkhouse waste)
 - ▶ Livestock with direct access (crossing or wallowing)
 - ▶ Wildlife living IN the water (e.g. ducks)



Site Locations



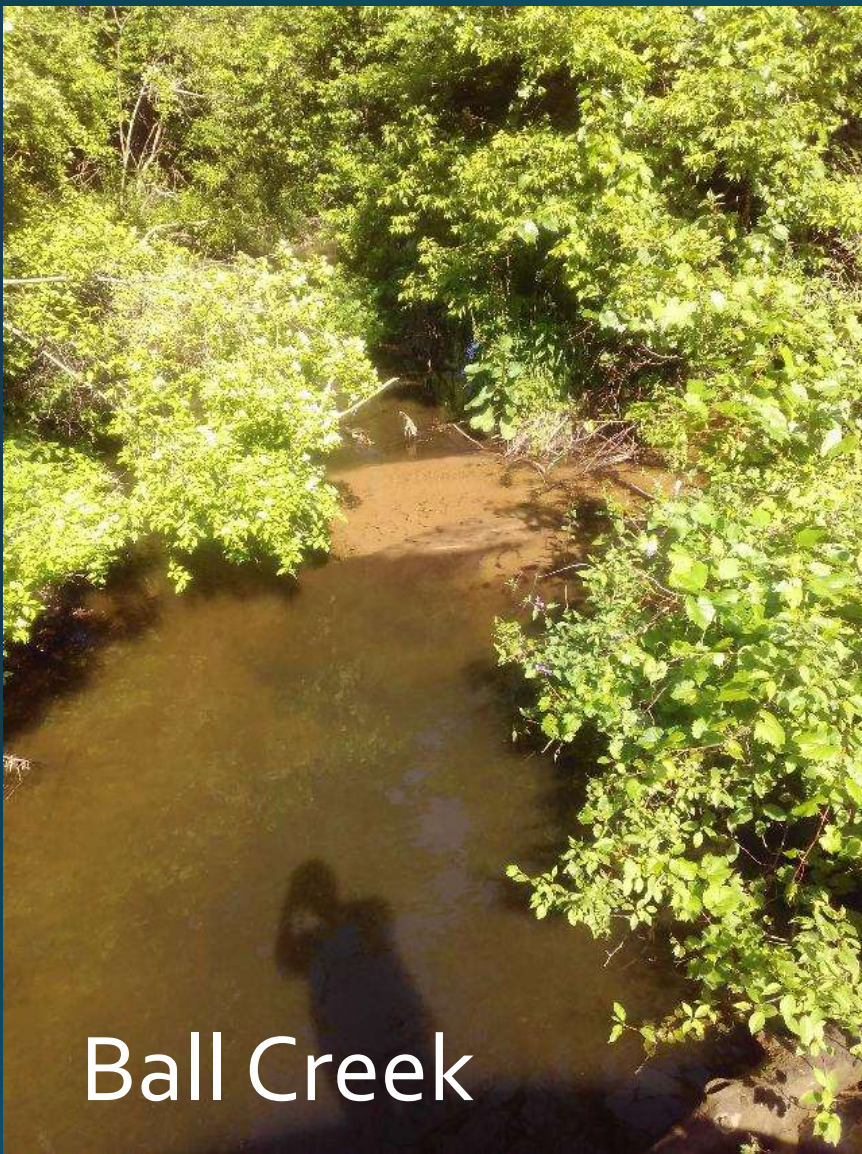
Legend

★ Sites

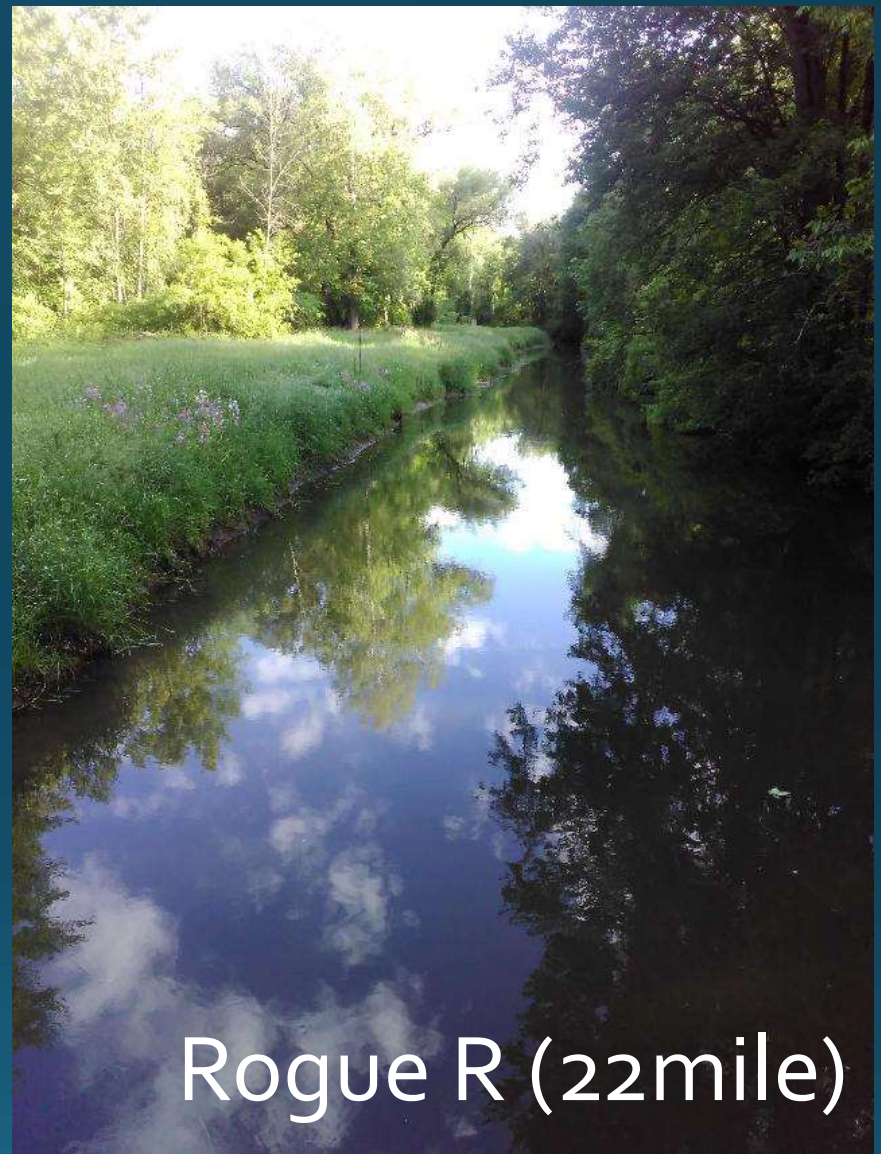
— rivers

□ Subwatersheds

■ cities

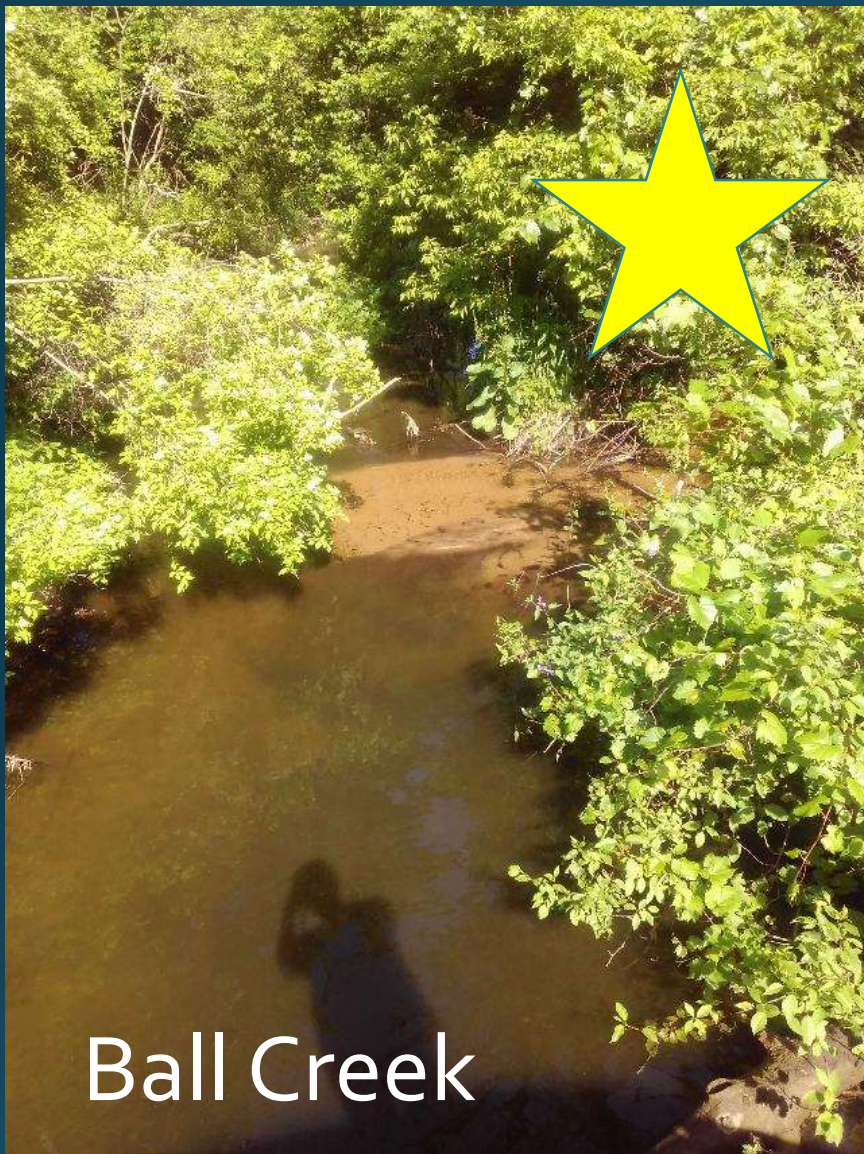


Ball Creek

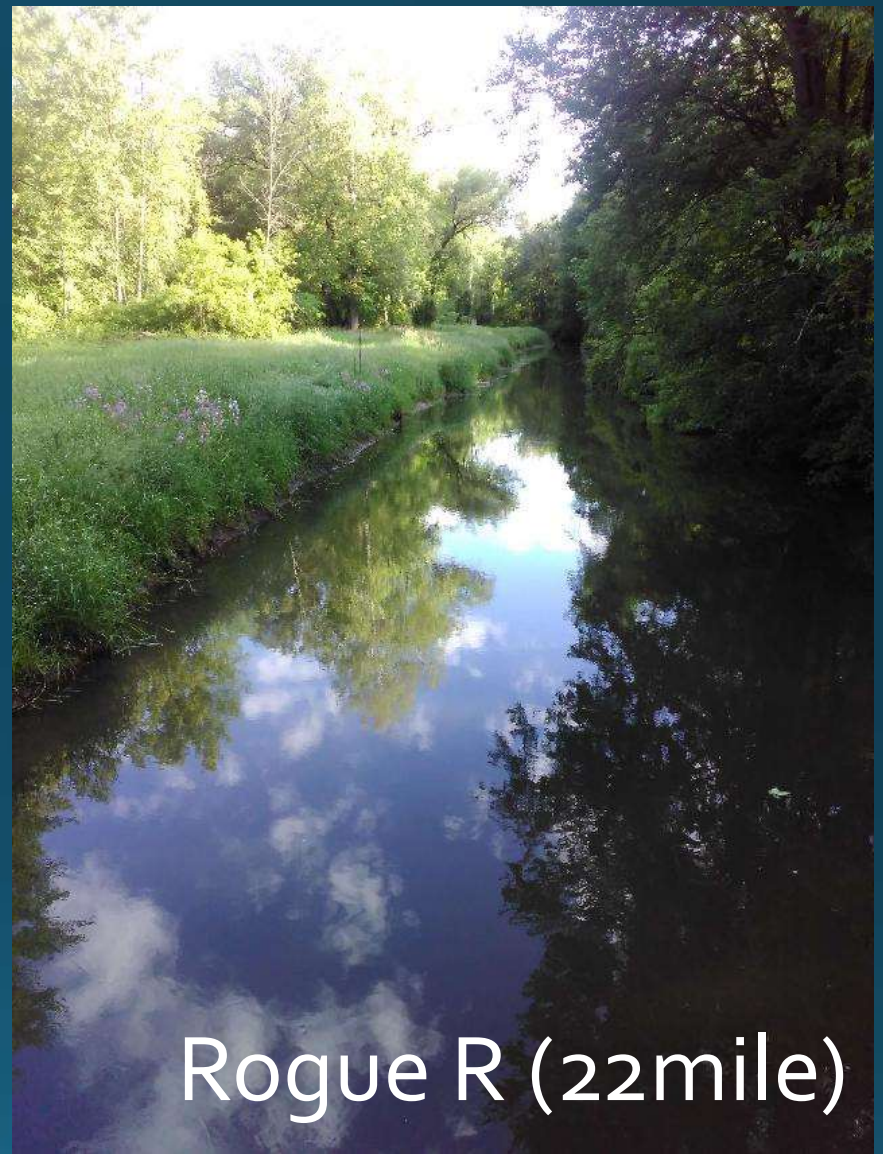


Rogue R (22 mile)

Which stream has the highest *E. coli*?

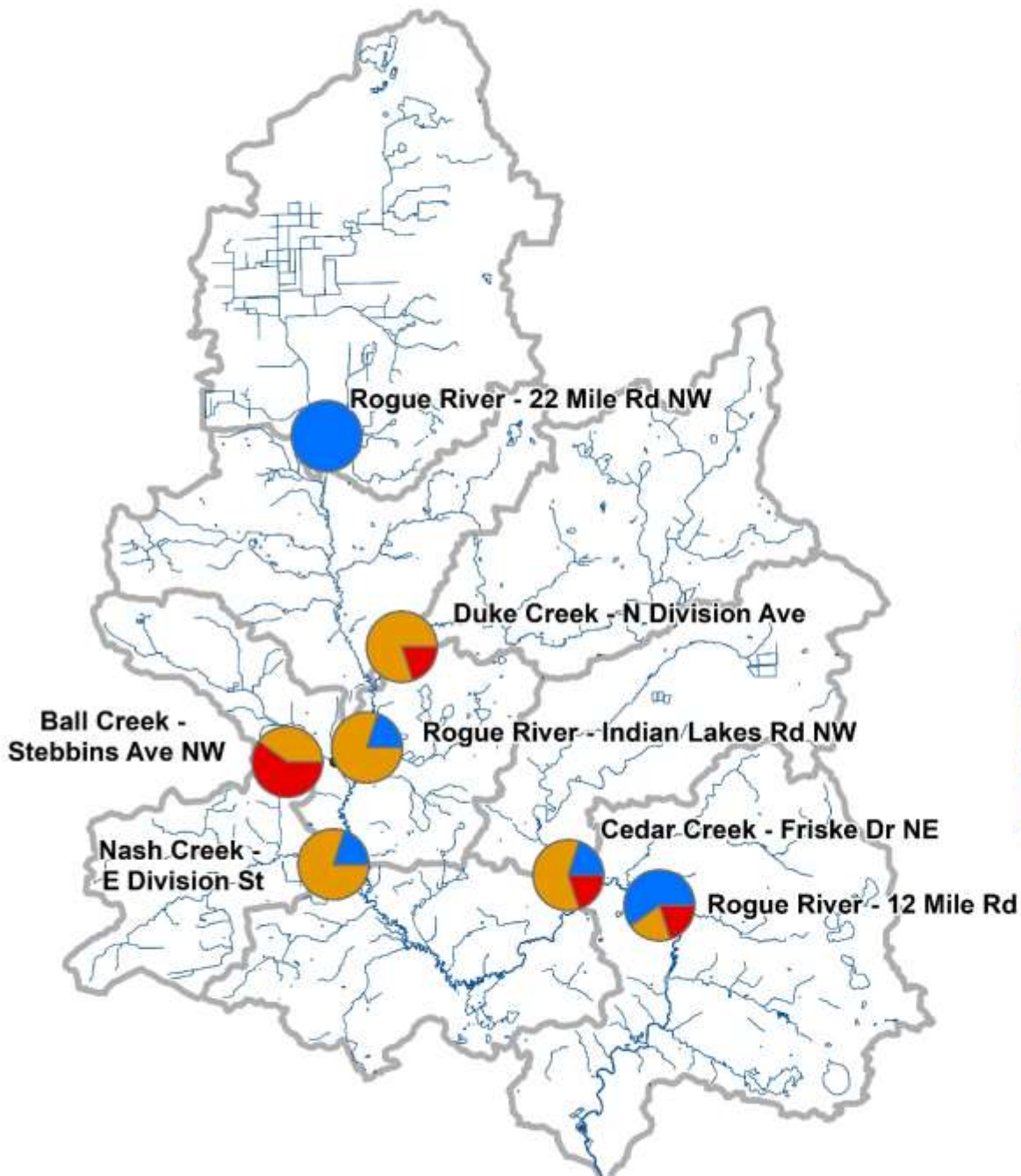


Ball Creek




Rogue R (22 mile)

Which stream has the highest *E. coli*?



Legend


 Subwatersheds

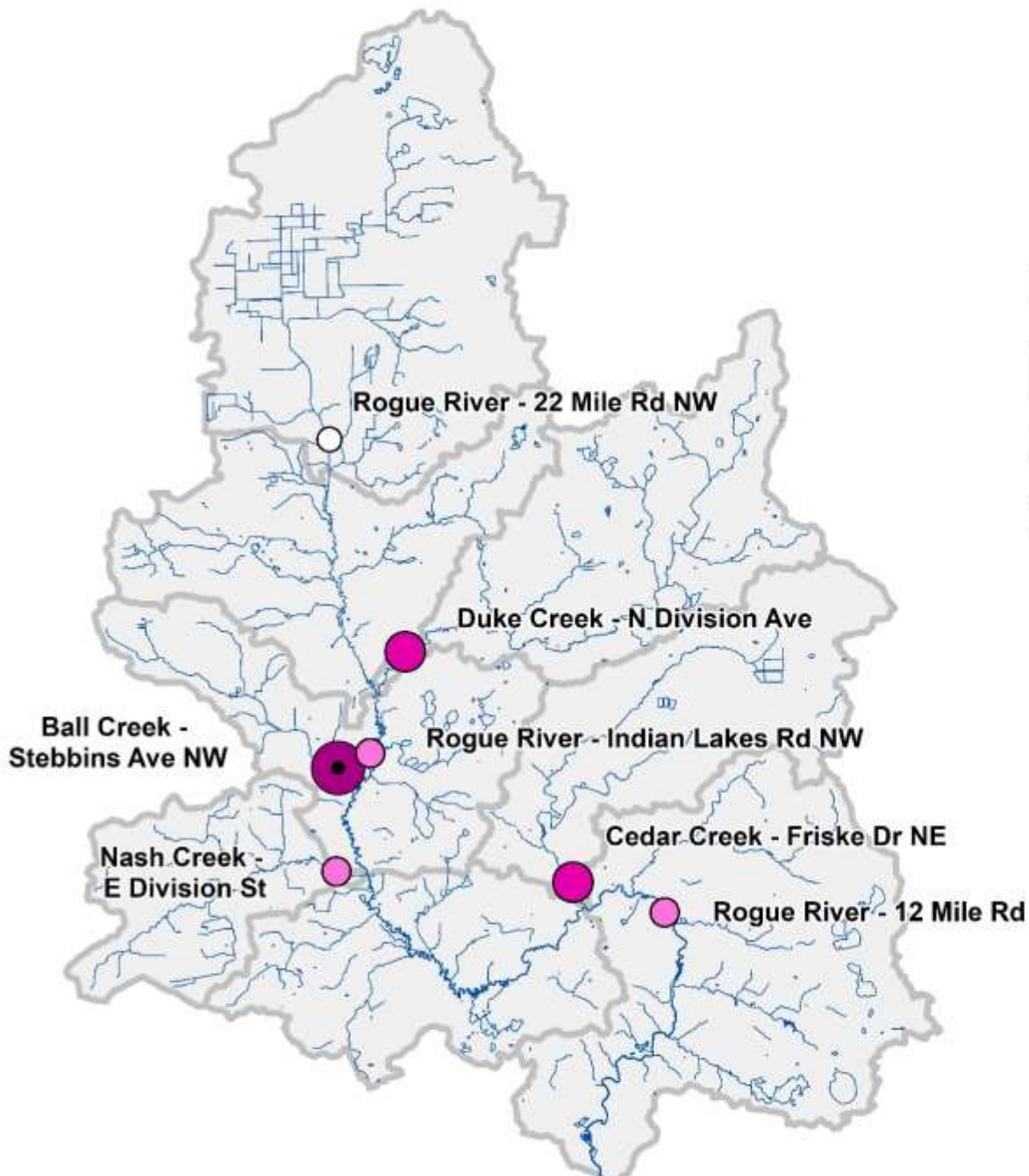
Exceedance of Daily WQS



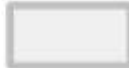
 meeting

 TBC only

 PBC (and TBC)





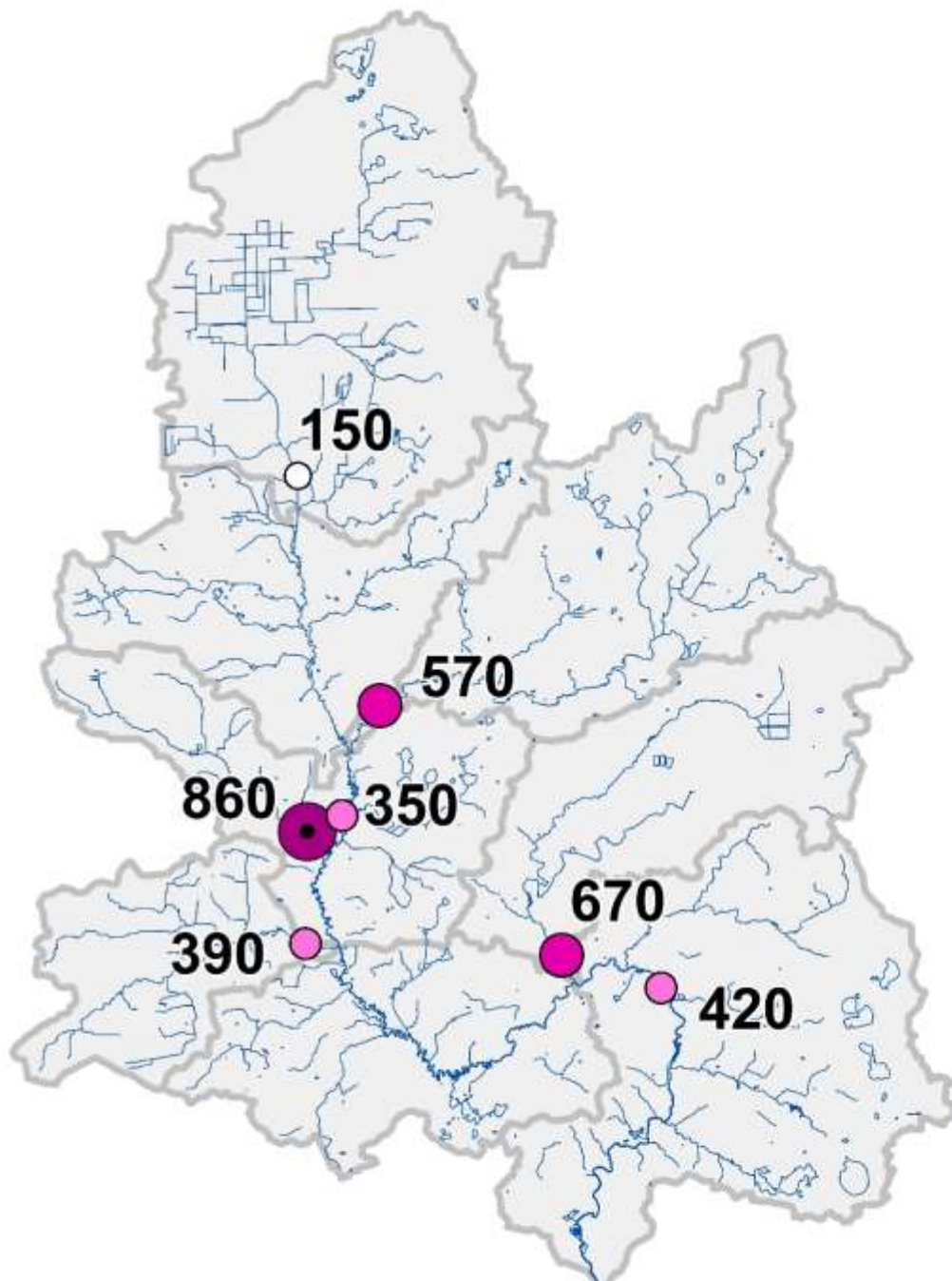
Legend

 Subwatersheds

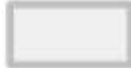
Sites

30-day Geometric Mean

-  150
-  160 - 420
-  430 - 670
-  680 - 860






Legend

 Subwatersheds

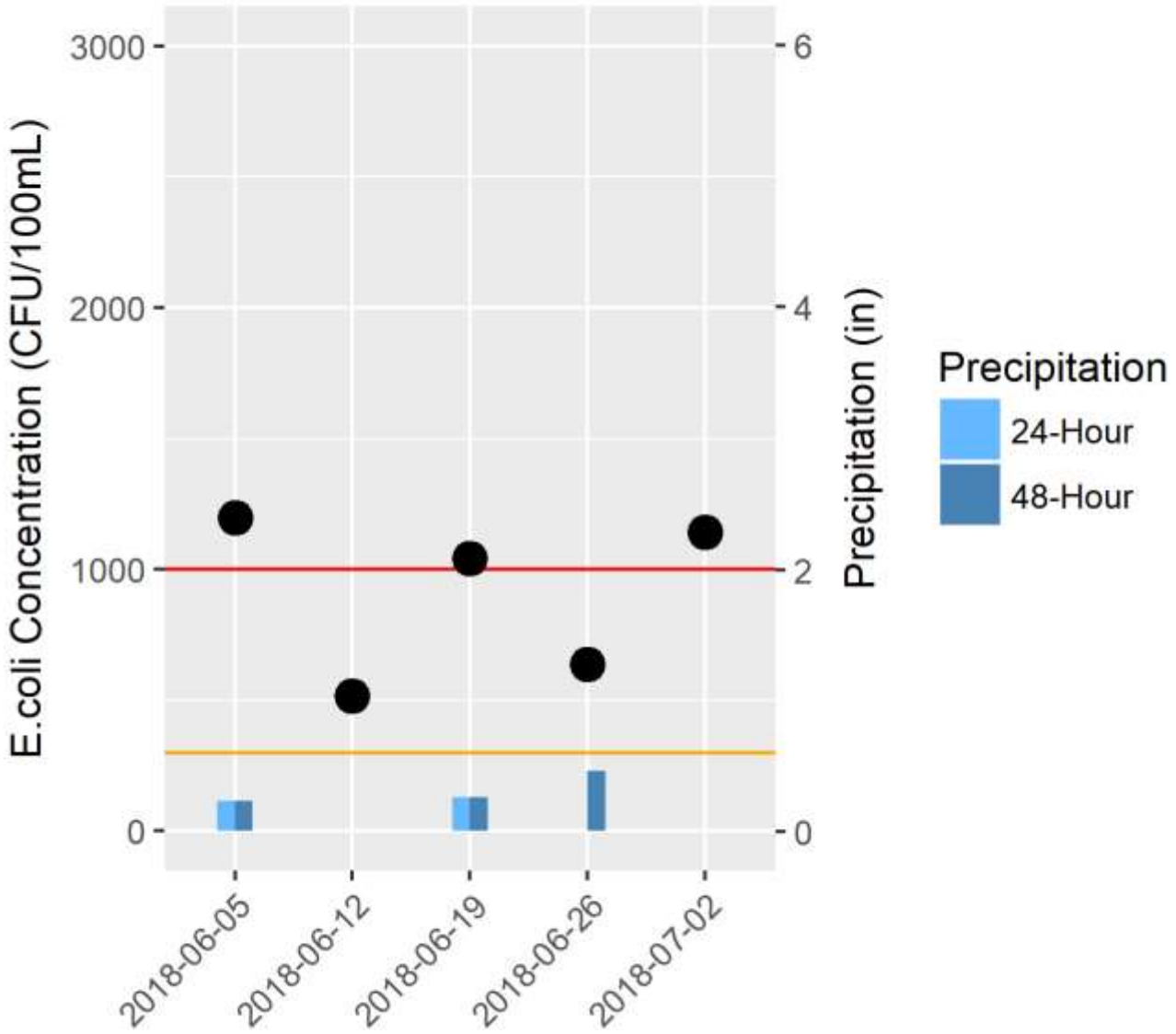
Sites

30-day Geometric Mean

-  150
-  160 - 420
-  430 - 670
-  680 - 860

Site ID: 410832

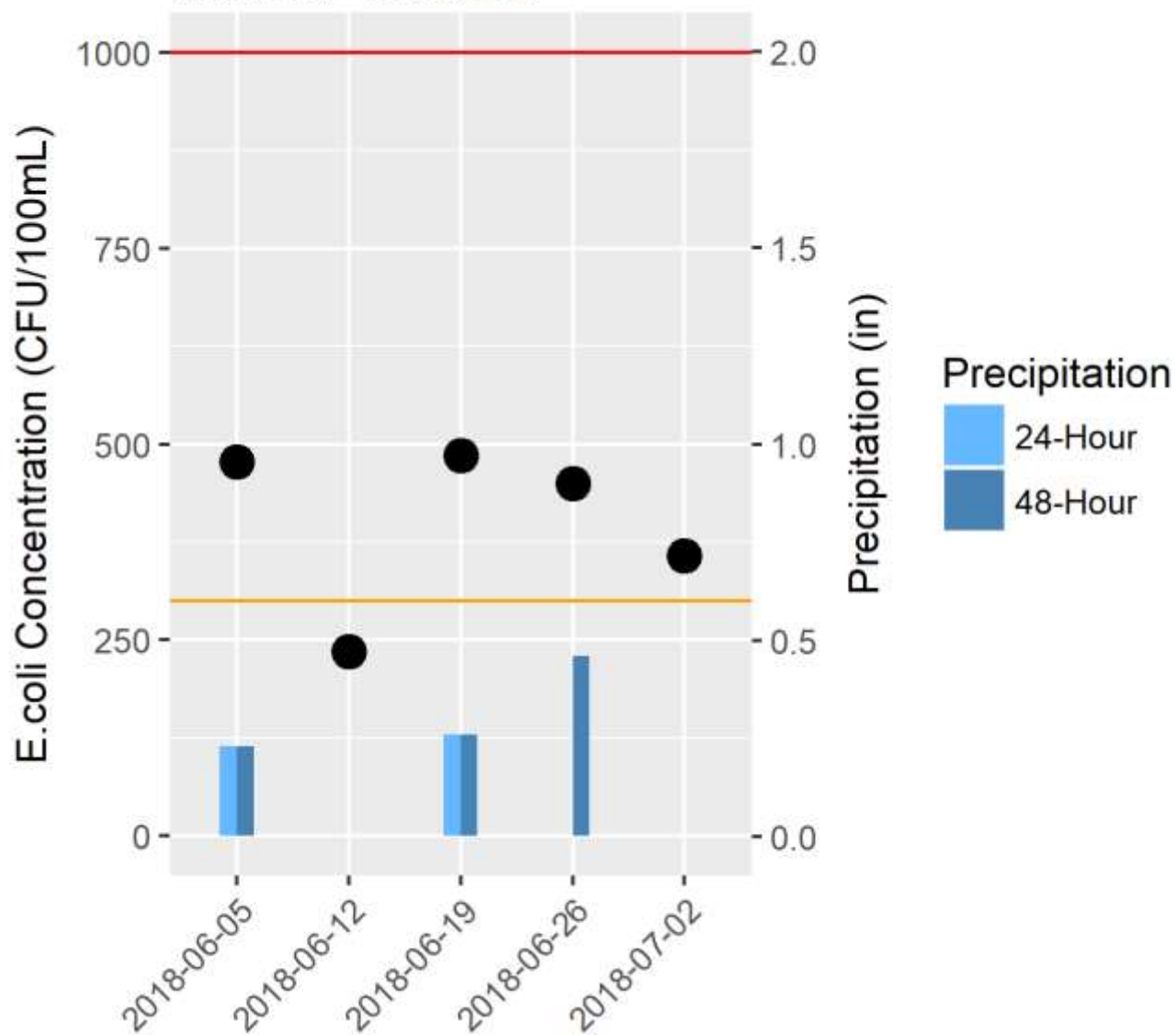
Ball Creek - Stebbins Ave NW



Ball Creek

Site ID: 410831

Nash Creek - E Division St



Nash
Creek



Nash Creek

A really bad day....

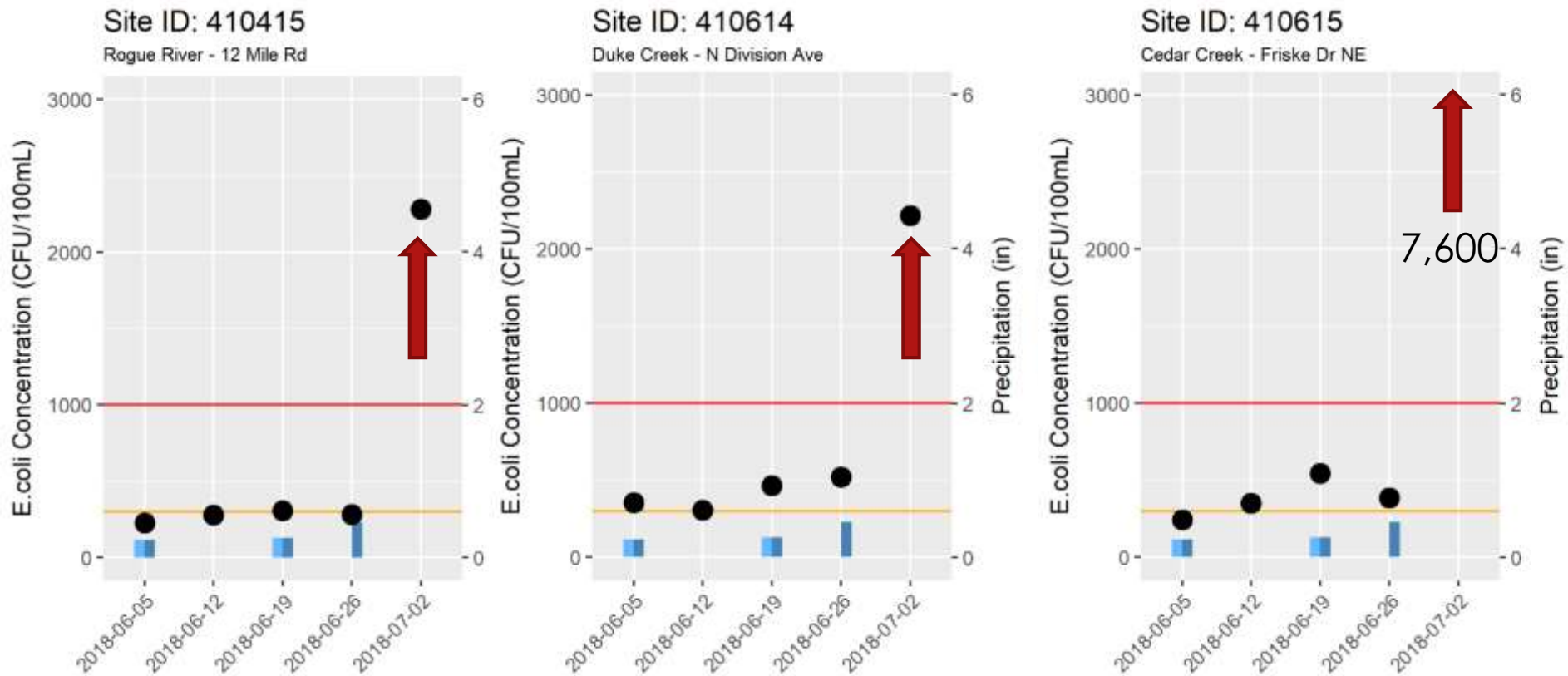


A really bad day....

Rogue – 12th

Duke Cr

Cedar Cr





We found
High E. coli
During Dry
Weather

Septic systems are likely a major source

- ▶ Septic systems may be too close to a ditch or river and/or in a flood plain



Septic Systems

- ▶ When was your system last pumped?
 - ▶ About every three years



Septic Systems

- ▶ The tanks age and leak, the field can get clogged or destroyed by roots....
 - ▶ Septics only last 30 years if treated well.
 - ▶ Septic systems are aging infrastructure! Therefore they must be maintained and eventually replaced.



Image credit: Barry-Eaton District Health Department

Illicit connections are likely a major source

- ▶ Again, 1 in 20 homes may not have any sewage treatment!
- ▶ A septic tank without a drainage field is common, and homeowners may not even know.



Image credit:
Barry-Eaton
District Health
Department



650 Illicit
Discharges

650 Illicit
Discharges

The infographic features a large, light pink arrow pointing to the right, which serves as a background for three red rounded rectangular boxes. The first box contains the text '650 Illicit Discharges', the second contains '124,150 gallons per day', and the third is empty. The background is a dark teal color with several light teal circles and a red vertical bar in the top right corner.

124,150
gallons
per day

650 Illicit
Discharges

124,150
gallons
per day

68 Olympic
swimming
pools!!



Illicit connections may be very far from surface water!!



Report Illicit Discharges

miwaters.deq.state.mi.us

- Raw sewage is a **SERIOUS** human health concern
- Report anonymously!
- **Call PEAS 800-292-4706 for 24-hour response**

**REPORT SPILLS,
POLLUTION,
UNAUTHORIZED ACTIVITIES**

Description *

If you've witnessed or become aware of spills, pollution, or any other unauthorized activities in wetlands, lakes, or streams, you can use our online tools to easily file a report, with complete anonymity if you choose.

If you answered Yes to the previous question, you'll receive additional questions...

Sanitary Code improvements

- ▶ Ideally, sanitary codes should require periodic inspections/pumping of ALL septic systems
- ▶ This would enable us to find failures and illicit discharges

Keep Livestock out of waterways!
Call 877-632-1783 or
email MDA-Right-To-Farm@michigan.gov



Manure Land-Application: Use care, proper timing, and good location





Plant wide riparian buffers with
tall sturdy vegetation (trees are
best)

Buffers between human
activities and rivers help to filter
out pol

There is no poop fairy



yourself!

Please clean up after your dog

DOG WASTE ATTRACTS RATS AND TRANSMITS DISEASE.

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[www.mi.gov/
ecolitmdl](http://www.mi.gov/ecolitmdl)



www.Michigan.gov/ecolitmdl

Public Outreach for the Draft Statewide *E. coli* TMDL

As part of efforts to inform and educate, the [draft Statewide *E. coli* TMDL](#) is now available for public discussion. **Comments received by March 17th will be incorporated into the next draft.**

A new statewide, interactive mapping tool is available to assist in identifying impacted areas as well as provide resources for getting involved in efforts to reduce the *E. coli* levels. The purpose is to empower local communities to protect our waters.

- [Draft Statewide *E. coli* TMDL](#)
- [Map Help Document](#)
- [E. coli Success Stories](#)

Educational presentations from MDEQ staff are also available. If your group is interested in a presentation, please complete the [TMDL presentation request form](#). Four webinars took place throughout February and March, 2017.

Recorded versions are available by clicking on the following topics:

- [General Overview of the Statewide *E. coli* TMDL](#)
- [Nonpoint Sources](#)
- [Information for MS4 Permittees](#)
- [Information for Industrial Stormwater Permittees](#)

Additional Resources

- [Permit Holders and Landowners](#)

