

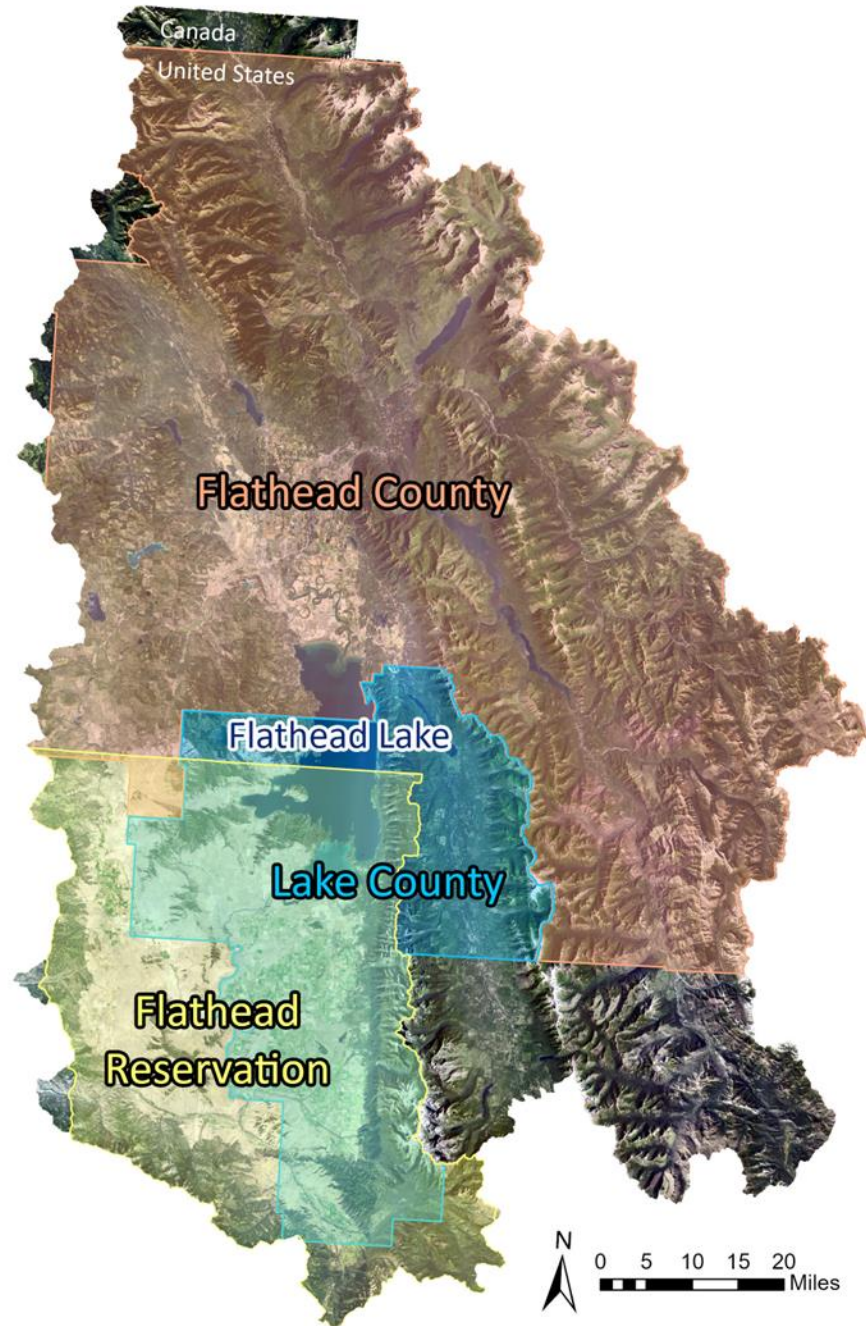
Septic Leachate Pollution + Water Quality Workshop Outcomes

Kate Wilson
Commission Administrator
Flathead Basin Commission

About the

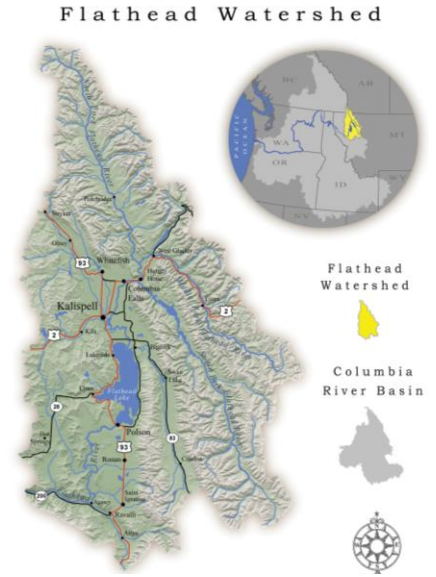
The Flathead Basin was established in 1983 by the Montana Water Quality Control Act. The Basin is a high quality environment; there are tributaries, resources and ecosystems.

- “Administratively attached to the Flathead National Forest”
 - Director’s Office, Washington
- Staff, office, fleet cars
 - Kate Wilson, Administrative Assistant
 - Emilie Henry, NPS Contract



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Statutory Duties

- (1) to **monitor the existing condition of natural resources** in the basin and coordinate development of an annual monitoring plan. This plan must involve a cooperative strategy among all land and water management agencies within the Flathead basin and identify proposed and needed monitoring which emphasizes but is not limited to the aquatic resources of the Flathead basin.
- (2) to **encourage close cooperation and coordination** between federal, state, provincial, tribal, and local resource managers for establishment of compatible resource development standards, comprehensive monitoring, and data collection and interpretation;
- (3) to **encourage and work for international cooperation and coordination between the state of Montana and the Province of British Columbia** concerning the undertaking of natural resource monitoring and use of consistent standards for management of resource development activities throughout the North Fork Flathead River drainage portion of the Flathead basin;
- (4) to **encourage economic development and use of the basin's resources** to their fullest extent without compromising the present high quality of the Flathead basin's aquatic environment;
- (5) to, in the discretion of the commission, **undertake investigations of resource utilization and hold public hearings** concerning the condition of Flathead Lake and Flathead basin;
- (6) to submit to the governor and, as provided in [5-11-210](#), to the legislature a **biennial report**
- (7) to **meet** **semi-annually within the Flathead basin**, alternating the meeting site between the cities of Kalispell and Polson.

Septic Leachate Overview

- Nonpoint source pollution: one of greatest threats to water quality
- Septic leachate pollution: studies in MT dating back to 1977 – little movement in 50 yrs
- MT “passing grade” for new systems (state level)
- Cumulative impacts not considered
- Existing, aging systems largely not addressed
- Rapid growth occurring mostly outside of cities/towns
- Increasing number of WQ - septic issues in MT
- Homeowner knowledge/uptake of maintenance BMPs unknown (suspected to be low)
- Difficult to correct once widespread issues
- Education not enough (to change behavior)
- Existing state law: Only a handful of counties have gone above & beyond minimum standards (design/installation only)



Efforts

Onsite Wastewater Treatment Committee

- Diverse stakeholder group: regulators, counties, MACO, League of Cities + Towns, tribes, NGOs, conservation groups, real estate reps
- Goal: Actionable measures to reduce water quality impacts from septic leachate

GIS/Mapping Project + Synthetic DNA study (Whitefish & Lake Mary Ronan)

- Contractors: Cornell University + RDG
- Validate results of model + proof of concept
- Currently underway

Flathead Basin Wastewater Partnership

- Lake County - BSWC (Ronan)
- Septic Maintenance Reimbursement program/supporter

FBC + Partners Water Quality Campaign

- NPS call to action; appeal to pride of place

UM/FLBS National Science Foundation Grant

- Based on FBC work
- Workshop June 8-10 at FLBS – experts + dec makers

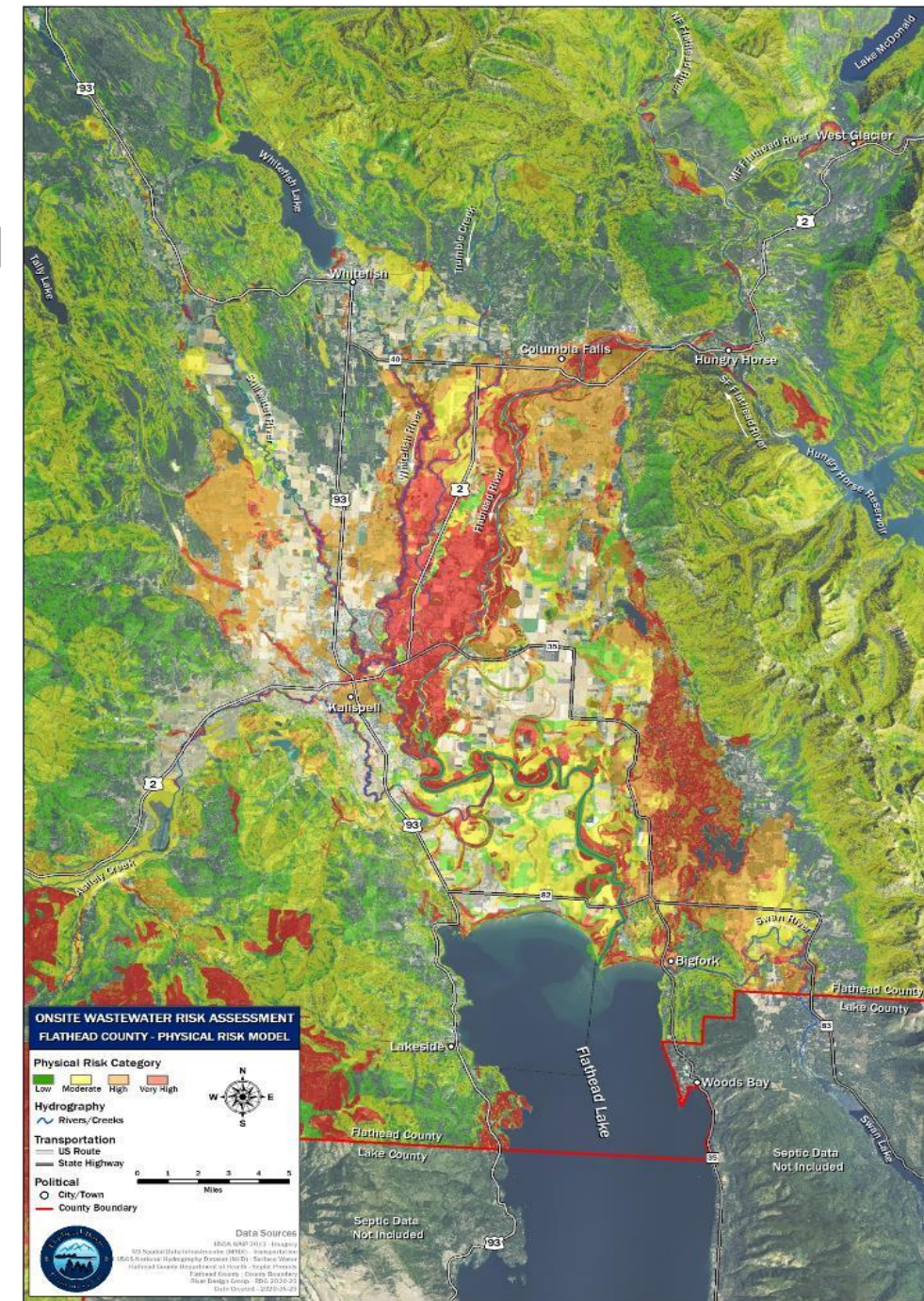
Physical Risk Model

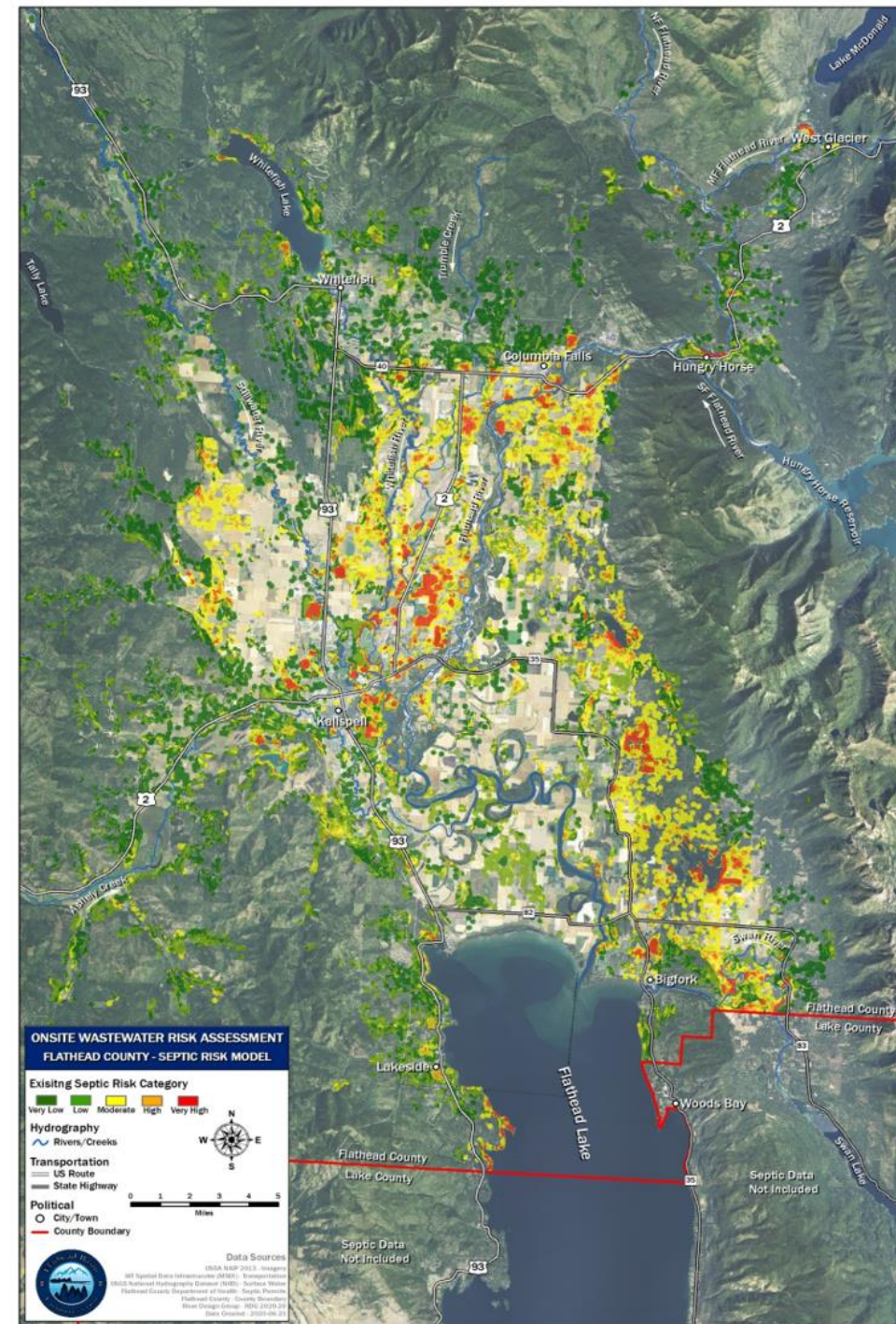
- All physical risk layers added together to create overall physical risk model
- This map show the potential risk for septic treatment failure based on the physical conditions
- Flathead & Lake Counties

Physical Risk Model (Cumulative)	
Risk Category	Value
Very Low	0 – 2
Low	2 – 3
Moderate	3 – 5
High	5 – 7
Very High	7 – 15

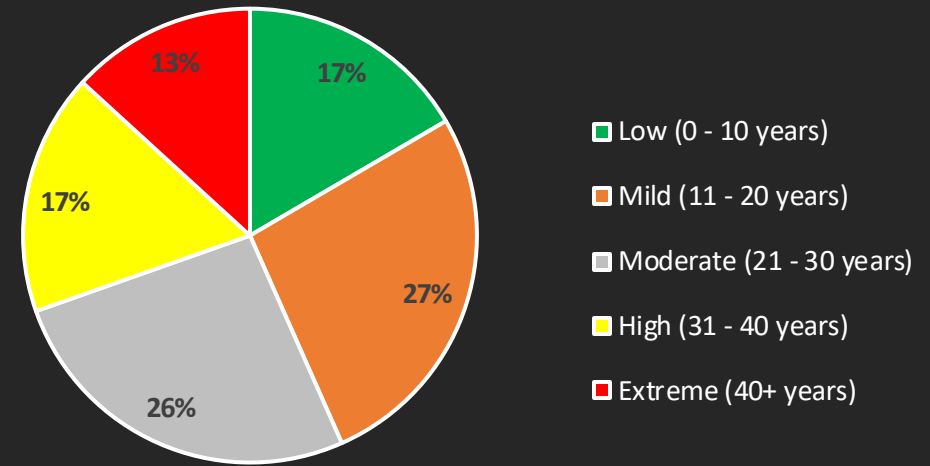
Completed!

Existing Septic Risk Model (Components)			
Feature	Category	Value	
Nitrogen Risk (Soil)	Low	0	
Nitrogen Risk (Soil)	High	3	
Phosphorus Risk (Soil)	Low	0	
Phosphorus Risk (Soil)	High	3	
Groundwater < 10'	High	3	
Groundwater 10' - 15'	Moderate	2	
Groundwater 15' - 20'	Low	1	
Groundwater > 20'	-	0	
Slope (%) 0 - 10	-	0	
Slope (%) 10 - 15	Low	1	
Slope (%) 15 - 25	Moderate	2	
Slope (%) 25 - 60	High	3	
Slope (%) 60 - 90	-	0	
Surface Water 500' – 5000'	Low	1	
Surface Water 100' – 500'	Moderate	2	
Surface Water 0' – 100'	High	3	

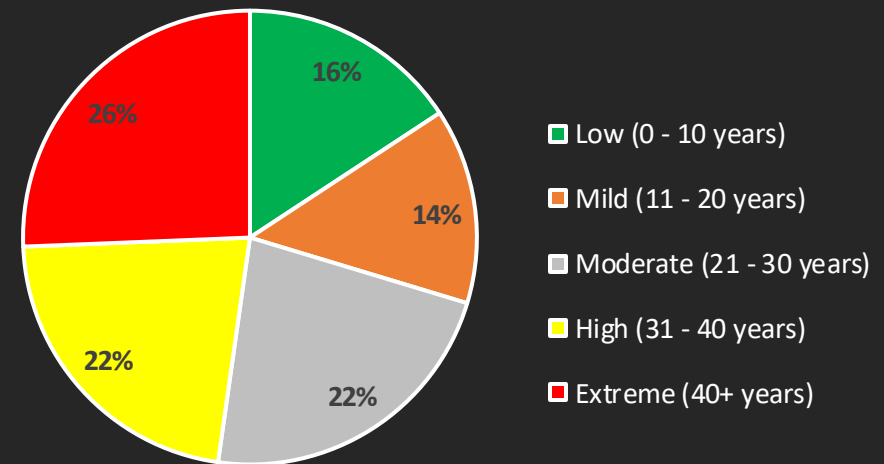




2020--Current Age
 Proportion of Septic Systems in Each Risk Class
 Flathead County (Permitted) TN= 21,415

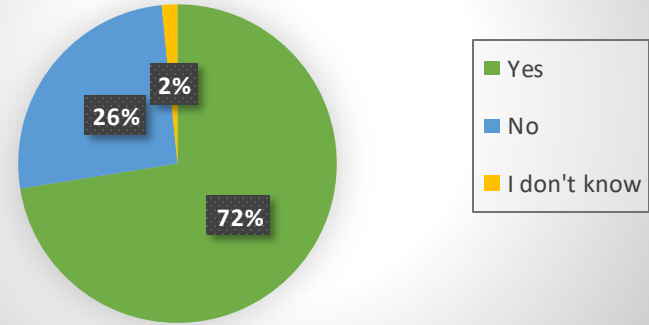


2030--Projection
 Proportion of Septic Systems in Each Risk Class
 Flathead County (Permitted) TN= 25,415

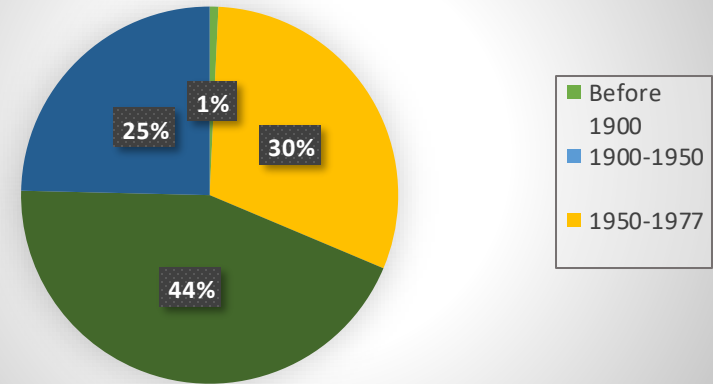




Is there a septic system at this address?



Date of System Installation



- Best estimate for septic systems on landscape in Flathead County= 27,150
- Estimated 5,735 unpermitted systems
- 30-40 years of age (14%)
- >40 years of age (18%)

Septic Systems & Water Quality Workshop

June 9-10, 2022

OBJECTIVES:

- * Connect science, technology, policy and education
- * Share lessons learned from policies and programs
- * Foster stakeholder communication
- * Define challenges and knowledge gaps
- * Prioritize research and scalable technology
- * Provide support/key findings to the FBC



FLATHEAD LAKE
BIO STATION
UNIVERSITY OF MONTANA



Septic Risks and Water Quality Workshop

What

Science-technology-policy-education connections; share lessons learned from programs and policies; define challenges; identify data gaps

How

Knowledge sharing; prioritize research and scalable technology; broadly-based stakeholder involvement

Who:



Workshop Overview

Attendance: ~50

- *Legislative & local leaders:* Sen. Hertz, Rep. Fern, CSKT Tribal Council Chair Tom McDonald
- *Researchers & scholars:* Dr. Elser (MT), Dr. Kapps (GA), Dr. Church (MT), Dr. Rose (MI), Dr. Vadeboncoeur (OH), Dr. Halvorson (MT), Mike Vlah (NC), Dr. Shaw (MT), Dr. Allen (MT), Montana legislative services staff
- *Regulatory & water quality agencies:* DEQ, DNRC, Missoula City-County Health Dept, Lewis & Clark Health Dept., Kitsap County Health District (WA), municipalities
- *Interested parties & organizations:* Conservation Districts, Flathead Lakers, Trout Unlimited, Citizens for a Better Flathead



Workshop – Key Discussion Topics

Natural Science

- Collecting data that connects public health/env degradation to septic systems
- Enhance current monitoring efforts
 - Remote sensing/networks, tracers, viruses/pathogens, citizen/community science
 - Consider costs, scalability, equitability, accessibility
 - Long term & near shore monitoring
- Compile & present data to the public & stakeholders in a visual manner

Social Science

- Identify barriers to maintenance BMPs
 - Lack of understanding/knowledge
 - High & rising costs
 - Fear of changing community
 - Low regulatory oversight
- Address barriers
 - Increase knowledge
 - Increase regulations
 - Advocate for funding
 - Incentives
 - Enhance coordination
 - Digitize permit database



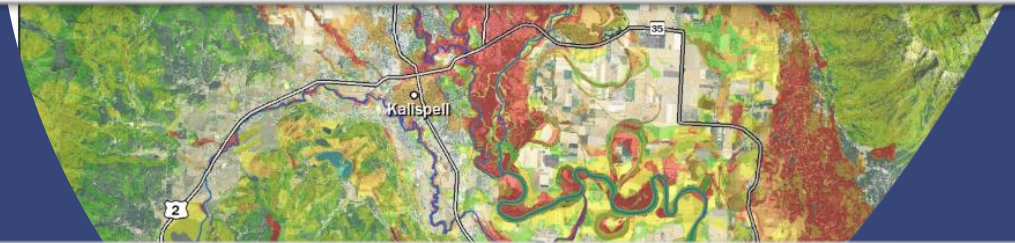


Recommendations for future work

- Host remote sensing workshop to explore emerging technologies
- Map groundwater flows to identify target locations for more extensive sampling
- Build lab capacity in MT
- Support the Flathead County's Septage & Biosolids Project
- Utilize existing tools to implement a community/citizen science + guide

Recommendations for future work (cont.)

- Provide support for counties, water & sewer districts to make improvements (e.g., connect to sewer, apply for ARPA/Infrastructure grants, etc.)
- Refine definition of a “failing system”
- Explore “model regulations” for counties concept
- Explore RME database (free to counties)
- Engage all municipal entities in the basin in better addressing issue
- Consider legislative/rule-making options:
 - Inspection upon property transfer
 - Disclosure upon property transfer
 - Data standards state-wide (+ digitization)
 - Funding/grant & incentive programs



Workshop - Key Takeaways

- Gathered **diverse group of experts, advocates, decision makers, and field staff** to discuss complex scientific, social, and economic perspectives.
- The **magnitude of the septic issue needs to be better understood, quantified and shared** to mobilize the public/decision-makers.
- **A multi-pronged solution that:**
 - moves toward centralized systems,
 - better addresses replacements, upgrades & maintenance of existing systems,
 - Incorporates cutting-edge waste management technologies**Is required to solve this complex water quality issue**



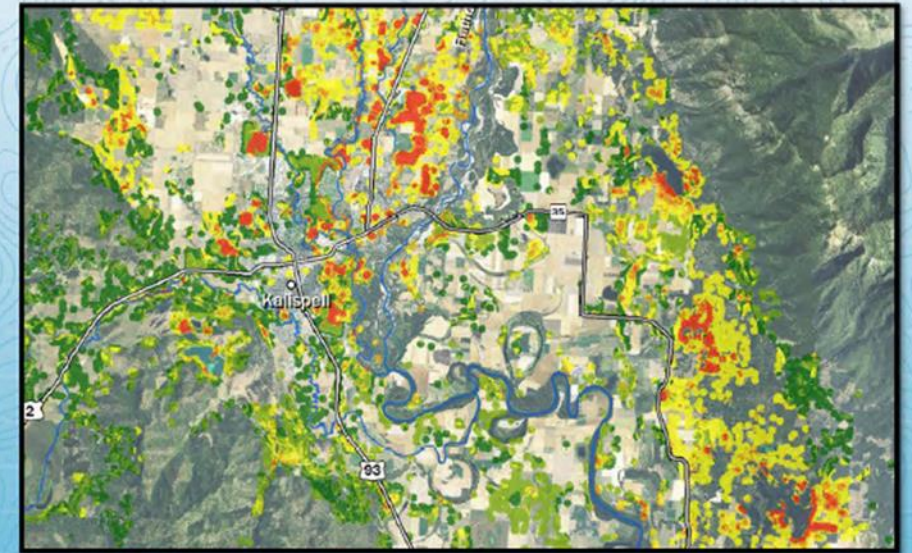
Montana Waters: Clearly Connected

- Playing on pride of place, clear water quality, and connection of water/land/people!
 - **A platform to educate the public on top threats to Montana's Water:**
 - Septic leachate
 - Stormwater pollution
 - Harmful algal blooms
 - Increased development
 - And much more!
- Montana Waters campaign to launch via website, events, and publications: **summer 2022!**
- Campaign logo & customizable materials will be available to all partners via the Montana Waters website
- First call to action: on septic leachate pollution

FBC Septic Leachate Work – Next Steps

- External peer review process (GIS risk map)
- NSF Workshop recommendations to Onsite Wastewater Treatment Committee + FBC movement
- Results of synthetic DNA study
- Webinar + “Road Show” (GIS risk map)
- Publicly available GIS risk map
- Lake County/CSKT gaps – potential for better data standards for all counties?
- Analysis of options
 - Legislation, ordinances, outreach/edu, financial incentives, etc.
- Better funding mechanisms for maintenance + replacement
- Development and growth awareness + use of tool (counties, municipalities)

Onsite Wastewater Risk Analysis GIS Technical Report



Prepared for

Flathead Basin Commission

655 Timberwolf Parkway
Kalispell, MT 59901



COMPLETE OUR 2 MINUTE SURVEY FOR A CHANCE TO WIN A \$250 AMAZON GIFT CARD!

WHY THE SURVEY? We are interested in knowing where septic systems exist in the Flathead Basin in order to study their potential impact to our waterbodies.	 YOUR SURVEY CODE: FOR REQUEST, VISIT: https://www.surveymonkey.com/r/flatheadseptic to complete survey. Deadline to win: February 28, 2020.	WHO IS THE FLATHEAD BASIN COMMISSION? We are a non-regulatory organization committed to protecting the natural resources of the Flathead Basin. We... <ul style="list-style-type: none">• Work with partners to keep local waterbodies clean.• Collect water quality data.• Support actions that improve and protect water quality. Visit flatheadbasincommission.org to find out more!
INSTRUCTIONS Scan QR code with phone camera or visit https://www.surveymonkey.com/r/flatheadseptic to complete survey. Deadline to win: February 28, 2020.	 SCAN QR	

THIS SURVEY IS ONLY FOR RESIDENTS WHO OWN PROPERTY IN THE FLATHEAD BASIN.

Thank you!

What questions or suggestions do you have for me?
