2019/2020

Biennial Report

Flathead Basin Commission

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Cover Photo: Lake Five near West Glacier, Montana Office of Tourism and Business Development

If there is magic on this planet, it is contained in water. – Loren Eiseley

Mission Mountains

MESSAGE FROM CHAIR

On behalf of the Flathead Basin Commission (FBC), we are pleased to provide our biennial report for 2019 – 2020.

As the Natural Resource Department Head for the Confederated Salish and Kootenai Tribes, I have personally seen and experienced many changes to the basin over the years, including a significant increase (over 14%) in population and development (Headwaters Economics, 2020). I have served on the FBC since 2002 and became chair in 2018 and am currently serving an additional two-year term as chair. I wanted to serve this additional term because the commission's direction and approach in the past few years really resonates with me.

The focus on nonpoint source pollution, an on-going issue for the basin, is true to the original mission and mandate of the FBC, while continuing to focus on enhancing coordination and communication among and between basin partners. In the past two years, the commission has received federal grants, conducted many valuable projects and nearly restored the state operational budget that had been drastically reduced in 2017 due to decreased revenues in the natural resource operations account. While these revenues continue to decline, the FBC has been able to find creative solutions to stabilize our budget.

We are very much looking forward to the FBC's next two years, continuing to build relationships in the community and advise the governor's office, the state legislature, and citizens on the protection of the tremendous natural resources of the Flathead Basin.

Sincerely,

Rich Janssen, MBA (Chair)

Department Head, Natural Resources
Confederated Salish and Kootenai Tribes
rich.janssen@cskt.org
(406) 675-2700

MESSAGE FROM VICE-CHAIR

With the challenges COVID-19 has presented, FBC has had to adjust to meet the ambitious goals we have set. Protecting the high quality of the waters that flow into the Flathead River demands aggressive coordination between public agencies and private entities. To accomplish this without physical contact has required creativity and persistence. I can say with confidence that FBC has not let this challenge deter us from finding a way to coordinate and communicate with our partners to achieve water-quality improvement.

The past two years have seen groundbreaking accomplishments in nonpoint source pollution identification technology. Working with partners and contractors, we believe there is good reason to be encouraged that positive changes can be made to address this insidious and existential threat. Significant improvements in outreach and education have been accomplished and will continue to elevate the profile of FBC. Be assured that with this exposure, FBC will not only be at the table whenever there is a water quality issue but will be leaders in finding a solution.

Please review the biennial report thoroughly. I believe you will find interesting and valuable information on the status of important water quality issues in the Flathead Basin.

Sincerely,

Ed Lieser, MBA (Vice-Chair)

MESSAGE FROM COMMISSION ADMINISTRATOR

The past two years have seen a transformation of the Flathead Basin Commission, and it has been a joy and wonder to participate in the reshaping of this unique, partnership-focused organization. We now have all our partners back at the table and have embarked upon exciting and substantial projects to address some of the biggest threats facing the basin. I would like to thank all of the 'old' and new commission members, who have been engaged and responsive to the evolution of the FBC, as well as the many partners who make our work, coordination and projects possible. I would like to acknowledge the tenure and participation of Chip Weber, former Flathead National Forest supervisor, and Dean Sirucek, former supervisor of the Flathead Conservation District, who retired this past year. We are grateful for their contributions and passion for the conservation of natural resources in the Flathead Basin and we wish them tremendous happiness in their next chapter!

This past year we were pleased to welcome Kurt Steele, who replaces Chip Weber, representing the Flathead National Forest; Lech Naumovich, who replaces Dean Sirucek as representative of the Flathead Conservation District; Casey Lewis with the City of Kalispell; and our new (and outstanding) "Commission Coordinator" to provide additional support, Cassidy Bender. In the next two years, I hope to increase public and stakeholder participation in meetings, projects and committees. We have a lot of work to do, but a bright and promising future of protecting the quality of life, cultural diversity, and economic and ecological integrity of the basin. I'm honored to facilitate these efforts on behalf of the commission.

Sincerely,

Kate Wilson, Commission Administrator

Montana Department of Natural Resources & Conservation (DNRC)
Flathead Basin Commission
Upper Columbia Conservation Commission (UC^3)
kate.wilson@mt.gov
(406) 542-4282

About the Flathead Basin Commission

The Flathead Basin Commission (FBC) was created in 1983 by the Montana Legislature to monitor and protect water quality in one of the state's most important watersheds. The FBC is a uniquely structured non-regulatory organization that works to accomplish its important mandate in a consensus-building manner, stressing education, cooperation, broad-based community involvement, partnerships with agencies and nonprofit groups, and the voluntary participation of basin residents.

The 20-member commission represents a wide cross-section of citizens and local, state, tribal, and federal agency representatives who strive to identify the basin's water quality problems and work collectively to implement the most effective solutions. This biennial report summarizes the FBC's activities and initiatives in the 2019 – 2020 fiscal years. More information on the FBC, including updates on activities, basin water-quality issues, and the FBC's establishing legislation are available on our website (www.flatheadbasincommission.org).

Cassidy Bender
Commission Coordinator

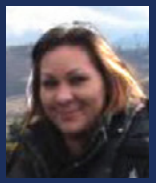
Montana Department of Natural Resources & Conservation - Flathead Basin Commission/Upper Columbia Conservation Commission Coordinator (Missoula) - **Staff**

Mark Bostrom
DNRC

Montana Department of Natural Resources & Conservation – Conservation & Resource Development Division Administrator (Helena)
Ex-Officio

Randy Brodehl
Flathead County Commissioner

Representing Flathead County Commission (Kalispell)
Voting Member



Jasmine Courville-Brown

Citizen/Confederated Salish & Kootenai Tribes (Ronan)
Voting Member

Steve Frye

Citizen (West Glacier)
Voting Member

Jason Gildea
EPA

U.S. Environmental Protection Agency – TMDL Planner (Helena)
Ex-Officio

Patrick Holmes
Natural Resource Policy Advisor
(Governor Bullock)

Representing the Office of the Governor
Natural Resource Policy Advisor (Helena)
Voting Member

Myla Kelly
DEQ

Montana Department of Environmental Quality
Water Quality Standards Section - Supervisor (Helena)
Ex-Officio

Mike Koopal
Member at Large

Citizen/Whitefish Lake
Institute (Whitefish)
Executive Committee
Technical Committee Chair - Voting Member

Casey Lewis

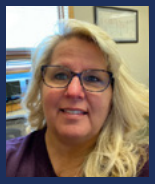
Citizen/City of Kalispell (Whitefish)
Executive Committee
Education & Outreach Committee Co-Chair
Voting Member

Jeff Mow
Glacier National Park Superintendent

Representing National Park Service
Glacier National Park Superintendent
(West Glacier)
Voting Member

Lech Naumovich
Flathead Conservation District

Representing Flathead Conservation
District (Kalispell)
Education & Outreach Committee Co-Chair
Voting Member



Kathy Olsen
DNRC

Representing Department of Natural Resources &
Conservation - Water Resources Regional Manager
(Kalispell)
Executive Committee
Voting Member

Dennis Philmon
BOR

U.S. Bureau of Reclamation
Hungry Horse
Project Superintendent (Hungry Horse)
Ex-Officio

Jack Potter

Citizen (Columbia Falls)
Voting Member

Mark Reller
BPA

Bonneville Power Administration
Montana State Liaison (Helena)
Ex-Officio

Jim Simpson
Lake County Conservation District

Representing Lake County
Conservation District (Polson)
Voting Member

Kurt Steele
Flathead National Forest Supervisor

Representing U.S. Forest Service
Flathead National Forest Supervisor
(Kalispell)
Voting Member

Dave Stipe
Lake County Commissioner

Representing Lake County Commission (Polson)
Voting Member

Jim Williams
FWP

Montana Department of Fish, Wildlife & Parks
Region 1 Supervisor (Kalispell)
Ex-Officio

About the Flathead Basin

The Flathead river basin/watershed comprises 6 million acres of forests, agricultural land, and towns. Many tributaries contribute to the watershed, including the Stillwater, Swan, and Whitefish rivers, which unite to join Flathead Lake, the largest natural freshwater lake west of the Mississippi River. The North, Middle, and South forks of the Flathead River contribute the greatest volume of water to Flathead Lake, which is a major portion of the headwaters of the Columbia River. The Flathead Basin is also part of the remarkable Crown of the Continent Ecosystem, which encompasses 18 million acres in Montana, British Columbia and Alberta, and is one of the most ecologically diverse and intact landscapes remaining in North America.

Many native species are found in the Flathead Basin, including the largest grizzly bear population in the North American interior, as well as populations of elk, bighorn sheep, black bears, deer, mountain goats, grey wolves, lynx, mountain lions and wolverines. The watershed serves as an important bird migration corridor as well as a key habitat for bull trout and westslope cutthroat trout.

Flathead Lake is nearly 28 miles long, 15 miles wide, with depths of up to 370 feet and a surface area of 126,000 acres (when full). It is the 79th largest of the natural freshwater lakes in the world. Kerr Dam spans the outlet of Flathead Lake, which controls the top ~10 feet of the lake and is operated by the Confederated Salish & Kootenai Tribes, who manage the southern half of the lake. Communities along Flathead Lake include Bigfork, Woods Bay, Bear Dance, Finley Point, Polson, Big Arm, Elmo, Dayton, Rollins, Lakeside and Somers.

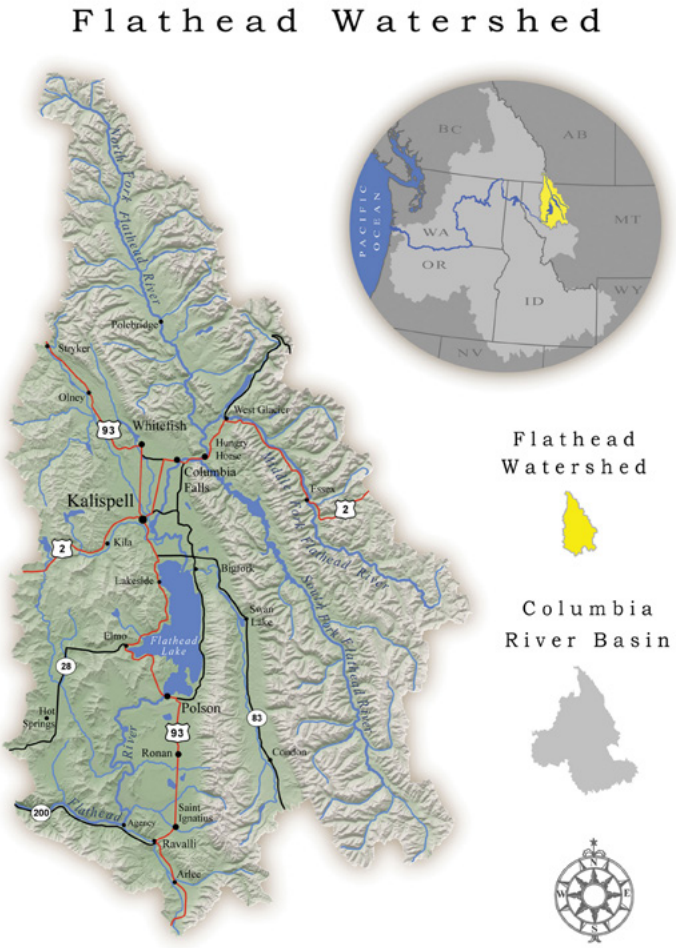
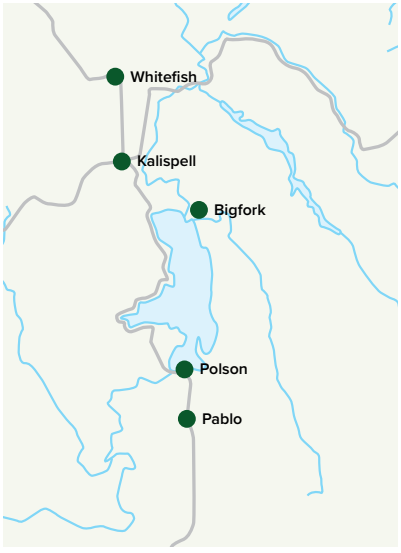


Figure 1:
Flathead River Basin (Mobile loGIStics Mapping & Montana Lake Book)

The population residing near and along Flathead Lake is estimated to be ~95,000. While Flathead Lake is considered to be oligotrophic (lacking in plant nutrients), decreases in water quality have led the U.S. Environmental Protection Agency and Montana Department of Environmental Quality to categorize it as “impaired” due to human-caused increases in nutrients and sediments.

There are numerous other lakes in the basin, many of which are deep and cold glacial lakes. Of those that get a fair amount of recreation-based traffic, many are within Glacier National Park, such as Lake McDonald, as well as Whitefish, Beaver, Foys, Holland, Lindbergh, Swan, Little Bitterroot, Ashley, Tally, and Mary Ronan lakes, as well as Hungry Horse Reservoir. Given the connectivity and nature of water, the activities in the Flathead Basin are of major interest to downstream states, tribes and other partners.

2019 – 2020 Summary of Accomplishments, Activities and Initiatives



The FBC has tackled many issues and projects in the past two years. Since our last report, meetings have been held in the following locations across the basin:

FBC MEETINGS

- October 10, 2018 (Kwatuqnuk Resort, Polson)
- March 20, 2019 (Whitefish City Hall)
- June 26, 2019 (Confederated Salish & Kootenai Tribes Tribal Council Chambers, Pablo)
- October 16, 2019 (USFS Swan Lake Ranger District, Bigfork)
- February 19, 2020 (Kalispell Wastewater Treatment Plant)
- July 8, 2020 (virtual due to COVID-19)
- September 23, 2020 (virtual due to COVID-19)

While the commission tracks and follows all natural resource issues and emerging threats to the basin, the primary area of focus has been on nonpoint source pollution with an emphasis on septic leachate and stormwater runoff. Below is a summary of some of the highlights from the past two years.

AQUATIC INVASIVE SPECIES

While the FBC previously focused extensively on aquatic invasive species (AIS), this has decreased in recent years due to enhanced prevention efforts on behalf of Montana Fish, Wildlife & Parks and the creation of the Upper Columbia Conservation Commission (UC^3). While the FBC is still interested and passionate about the prevention of AIS in the Flathead Basin, we play more of a support than a lead role and continue to monitor and assist where needed. In 2019 we supported the running of AIS focused ads in the basin. Check out cleandraindry.mt.gov for additional information about AIS efforts.

CLEAN. DRAIN. DRY.

WATER QUALITY – NONPOINT SOURCE POLLUTION

Nonpoint Source (NPS) pollution comes from sources that are difficult to pinpoint and are spread through runoff, precipitation, drainage, atmospheric deposition, or seepage. The water transports natural and human-made pollutants, depositing them into lakes, rivers, wetlands, and aquifers. NPS pollution includes excess fertilizers, pesticides, oil, sediment, salts, as well as bacteria and nutrients from livestock and septic systems. The U.S. Environmental Protection Agency (EPA) cites that states report NPS pollution as the leading cause of water-quality problems. These pollutants have significant harmful effects on drinking water supplies, recreation, fisheries and wildlife in the Flathead watershed. The FBC has prioritized two NPS issues to focus on: septic leachate and stormwater.

FBC members tour the Kalispell Wastewater Treatment Plant.

Septic Leachate

Septic systems consist of a tank that receives household effluent from toilets, sinks, showers and washing machines, and a drain field. Septic 'leachate' is the liquid that remains after the wastewater drains through septic solids. More than one in five households in the United States (~21.5 million) have individual or small, community septic systems. Septic systems that are properly planned, designed, sited, installed, operated and maintained can achieve satisfactory wastewater treatment. However, systems that are sited in densities exceeding the treatment capacity of regional soils and systems that are poorly designed, installed, operated or maintained can cause problems. Poor drainage, surface ponding, and groundwater and surface-water contamination can result. The most serious documented problems involve contamination of surface waters and groundwater with disease-causing pathogens, pharmaceutical compounds, and nitrates. Other problems include excessive nitrogen discharges and phosphorus pollution, which increase algal growth and nuisance aquatic plants, and lower dissolved oxygen levels. These pollutants threaten the clear clean water in our lakes. Over time this pollution can cause the lakes to turn cloudy with algae and fundamentally change

the ecosystem. The U.S. Bureau of Census has indicated that at least 10% of on-site systems are no longer working, with some communities reporting failure rates as high as 70%.

Nationally, some 28,821 miles of streams are designated as "threatened or impaired" by the EPA because of septic systems. In Montana, with few exceptions (such as Lewis and Clark County regulations), there is no requirement to maintain or inspect septic tanks once they are installed. Enforcement of operational requirements to keep septic systems from leaking raw wastes into groundwater and surface water is weak across much of outer suburban and rural America where most systems are installed. There are no federal rules that specifically address septic systems; it is up to the states, counties and tribes to regulate, so there is a lot of variability in implementation and enforcement of standards. Montana Department of Environmental Quality provides standards for design, but local governments oversee the issuance of septic system permits. Several studies, conducted over the past 30 years in the basin link the presence of human waste to surface waters from septic systems. The status quo is not adequate to protect water quality and septic system installations are only expected to increase in the coming years (see figure 2).

The FBC created a stakeholder-focused Onsite Wastewater Treatment Committee in the fall of 2019 to increase awareness, coordination and potential solutions to better address the septic leachate issue in the basin. The committee identified early on that a missing component was understanding spatial distribution and scale of the septic leachate problem. Given the power and availability of geospatial data for key septic failure risk factors, the team initiated a contract with River Design Group to develop a spatial model of septic risk for our watershed. The process started with the mapping of known risk factors for septic system failure: soil type, slope, groundwater depth, and proximity to surface water. These individual risk factors were combined to create a cumulative model of risk for Flathead County. Our team then incorporated the age and density of septic systems to highlight the highest existing risk areas. Unless something changes, the septic leachate issue is one

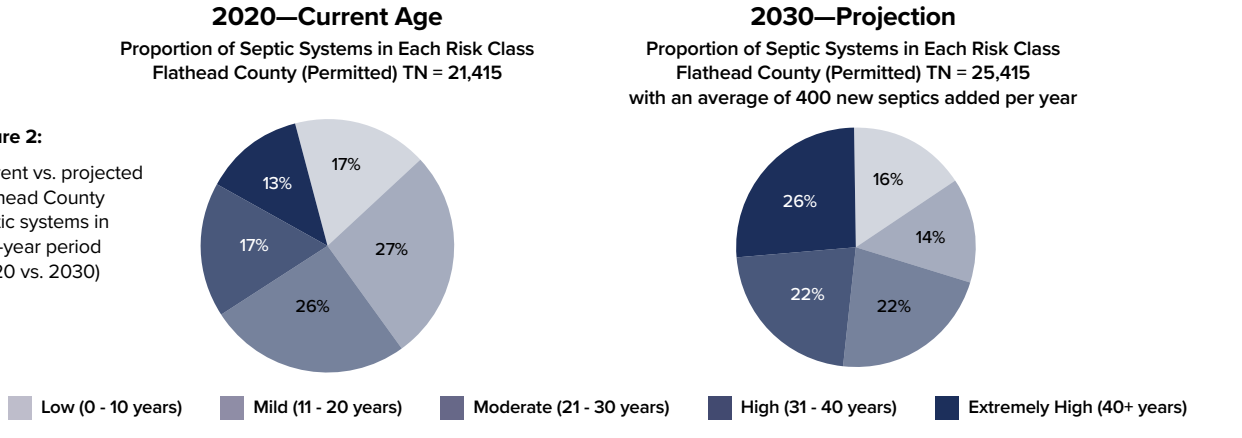


Figure 2:

Current vs. projected Flathead County septic systems in a 10-year period (2020 vs. 2030)

that is only going to get worse over time. Our analysis shows that of the nearly 22,000 septic systems permitted since 1978 over half are more than 20 years old and in 10 years' time nearly half will represent a high or extreme risk based on age.

Figure 3 shows the results from the septic risk analysis conducted with areas in red being the highest risk. These hotspots can help prioritize efforts to reduce the threat of contamination to groundwater and surface waters in the basin. Our analysis discovered a trend that the oldest systems in Flathead County are located in high densities around existing municipalities and waterbodies. New development is more dispersed and less focused around existing cities. Older septic systems (>25 to 30 years old) represent the greatest risk of failure or poor performance according to septic systems studies. This model demonstrates the potential risk for septic treatment failure based on the physical site conditions and the density and age of existing septic systems. We're currently working on adding the southern basin to the model (Lake County, CSKT) and validating the model results utilizing synthetic DNA tracers that can identify site-specific sources of leakage. The committee will continue to assess all means of addressing this issue, including but not limited to regulatory modifications, funding and incentives, enhancing training opportunities and targeted outreach.

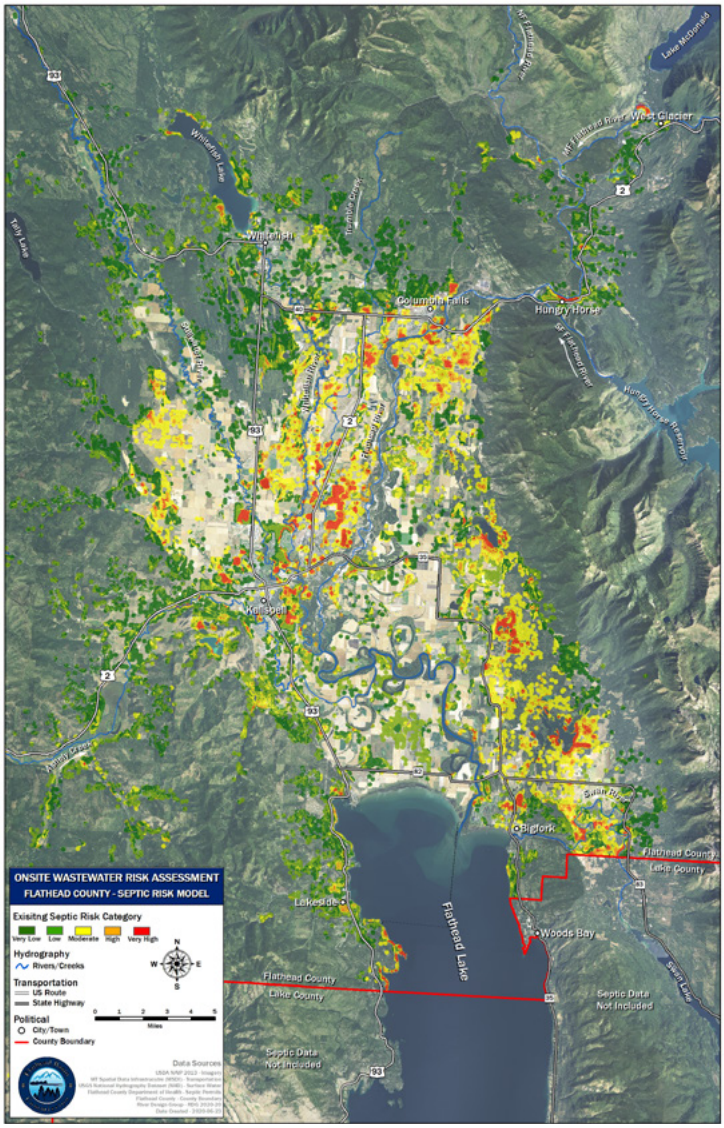


Figure 3: Septic Leachate Risk Model Developed by River Design Group & FBC

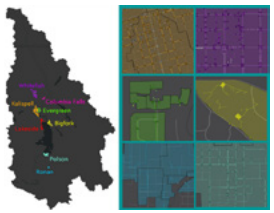
STORMWATER PROJECTS

The FBC, partnering with the City of Kalispell, also initiated a series of projects assessing and addressing stormwater in the basin. We were able to secure an EPA grant and a Big Sky Watershed Corps (AmeriCorps) member to lead the work. Emilie Henry did an outstanding job of developing a stormwater inventory for the basin, sampling during storm events for pollution, conducting outreach for a rain garden initiative and building a volunteer base for gathering data. We are excited to welcome Emilie back for a second term in 2021!

An Investigation into
Stormwater Management, Pollution, and Monitoring in the Flathead Watershed, Montana: Phase 1

Background & Purpose

The Flathead Basin Commission and the City of Kalispell partnered to investigate and raise awareness of stormwater in the Flathead Watershed. Together, they supported a Big Sky Watershed Corps member to execute the first phase of this stormwater investigation. The purpose of this project is to learn more about how stormwater is currently being managed in the watershed in order to protect waterbodies from nonpoint source pollution in the future.



Accomplishments

During Phase I, the team was able to:

1. Create an inventory of existing stormwater infrastructure in urban areas of the basin
2. Develop a model for prioritizing known sub-basins to inform future water quality monitoring efforts
3. Test two methods for detecting and monitoring nonpoint source pollution in the watershed
4. Educate residents about nonpoint source pollution and empower them to take action by building rain gardens on their properties

Highlights

Inventory of Stormwater Infrastructure

Developing the inventory primarily involved communicating with city and town representatives to request access to their stormwater infrastructure data, but in areas where such data had not been previously documented, as was the case in Polson, a citizen science data collection event was organized. During this event, members of the community gathered in downtown Polson to help map Polson's stormwater system.

Outfall Prioritization Model

Taking into account each sub-basin's size, predominant land use, and status of the receiving waterbody, the model determined 12 outfalls in the watershed to have the highest potential for stormwater pollution. These will be looked into more in Phase II as potential locations for water quality monitoring.

Methods for Nonpoint Source Pollution Detection

Stormwater sampling and dry-weather inspections of outfalls for illicit discharge detection were employed throughout the basin as methods for monitoring nonpoint source pollution.

Flathead Rain Garden Initiative

A partnership between the City of Kalispell and the Flathead Conservation District, the Flathead Rain Garden Initiative was able to empower residents to build eight rain gardens, which together manage about 95,000 gallons of runoff every year! The initiative hosted workshops to inform residents about how rain gardens can help mitigate nonpoint source pollution and provided residents with the resources and support to build their own.

Hosted	Managed	Engaged	Helped build
2 virtual workshops	**~95,000** gallons of runoff	**41** residents	**8** rain gardens

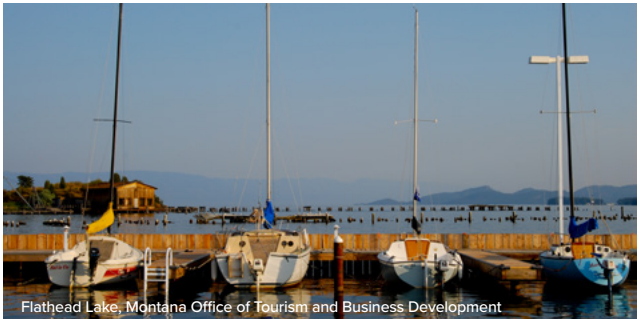
Figure 4: Infographic for current stormwater projects conducted by the FBC in partnership with the City of Kalispell

Events Sponsored in 2019 – 2020

The FBC, when possible, prioritizes the sponsoring of conferences, events and organizations that support increasing dialogue and collaborative solutions that are relevant to commission work. Priorities for sponsorship include Montana-based organizations and regional, national or international conferences being held in Montana that support the goals, mission and projects of the FBC. In (fiscal years) 2019 to 2020 these included the following:

- **Montana Lakes Conference**
  (March 2019, Whitefish)
  The Montana Lakes Conference gathered natural resource professionals to exchange information, scientific advancements, and management strategies that promote clean and healthy lake and reservoir ecosystems. Participants from academic, nonprofit, government, business organizations, and the public came to learn about improving the health of Montana's lakes through science and monitoring advances, watershed restoration practices, policy innovation, and collaborative stakeholder involvement.

- **Columbia Basin Transboundary Conference**
  (September 2019, Kimberley, British Columbia)
  The theme of the conference 'One River, One Future' was descriptive of the intention of this international conference addressing key issues related to the future of the Columbia River, its ecosystem, management and international implications. 280 participants, representing all corners of the Columbia Basin in Canada and the United States, took time to lend their voices to this unique, collaborative conversation about the international Columbia River Basin.


Flathead Lake, Montana Office of Tourism and Business Development

- **Montana Water Summit**
  (May 2020, Helena)
  Diverse Montanans and invited speakers from a variety of backgrounds explored hot spots—and solutions—related to land and water synergies, floodplains, land use, future use of water and more at the biennial Montana Water Summit.

PARTNERS AND ADDITIONAL RESOURCES

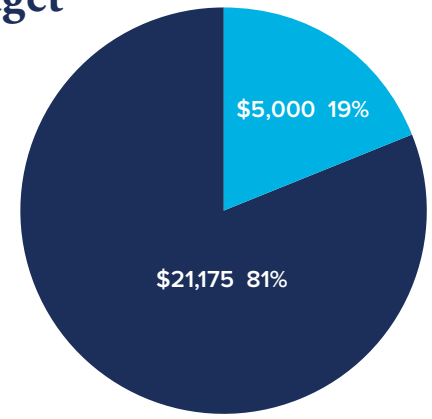
- City of Kalispell
- Confederated Salish & Kootenai Tribes
- Crown Managers Partnership
- Flathead Conservation District
- Flathead Lakers
- Flathead National Forest
- Flathead Watershed Sourcebook
- Glacier National Park
- Headwaters Economics (cited)
- Lake County Conservation District
- Montana Aquatic Invasive Species Program
- Montana Association of Conservation Districts
- Montana Department of Environmental Quality
- Montana Lake Book
- Montana Watershed Coordination Council
- River Design Group
- University of Montana's Flathead Lake Biological Station
- Whitefish Lake Institute

- **Pacific Northwest Economic Region**
  (August 2020, Big Sky, Montana*)
  The Pacific NorthWest Economic Region (PNWER) Foundation is a statutory public/private nonprofit created in 1991 by the states of Alaska, Idaho, Oregon, Montana and Washington, the Canadian provinces of British Columbia, Alberta, Saskatchewan, Yukon and the Northwest Territories. PNWER addresses natural resource issues such as invasive species that pose severe economic threats to the Pacific Northwest, and FBC staff currently co-chairs the PNWER Invasive Species Working Group. Due to rising COVID-19 cases in the summer of 2020, the summit was postponed to 2021.

- **North American Invasive Species Management Association**
  (October 2020, Whitefish, Montana*)
  NAISMA is committed to supporting, promoting, and empowering invasive species prevention and management in North America. The 2020 annual conference was planned for Whitefish in October of 2020 but was moved to a virtual conference due to concerns related to COVID-19. The 2021 conference is now planned for Missoula in September 2021, which is predicted to bring over 300 people from across North America to Montana to discuss and deliberate on invasive species issues. FBC staff currently serves on the NAISMA board and was also nominated to be president elect (2021 – 2022).

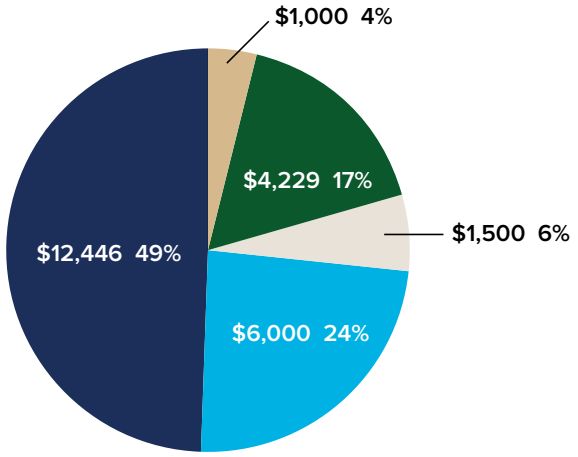
*Due to COVID-19, both PNWER and NAISMA conferences have been rescheduled for 2021 in Montana; the FY20 FBC sponsorship of these will continue through both years.

Budget



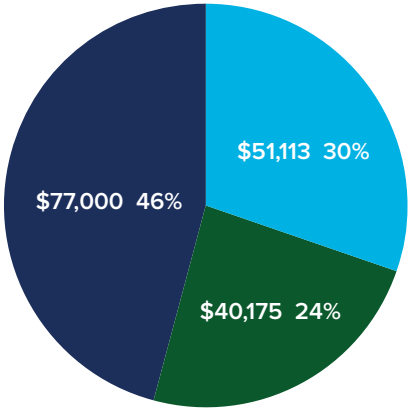
FY19 Sources of FBC Funds

- State Natural Resources Operating Account
- DNRC AIS Grant



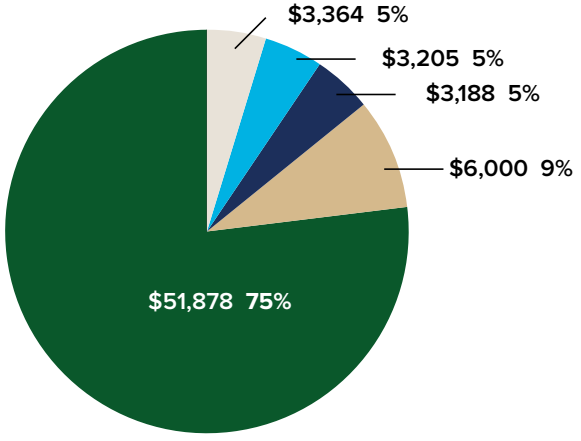
FY19 Expenditures: $25,175

- Staff Time/Benefits
- Projects/Website
- Sponsorships
- Edu/Outreach
- Travel/Meetings



FY20 Sources of FBC Funds

- State Natural Resources Operating Account - Operations
- US EPA Grant (multi-year)
- State Natural Resources Operating Account - Personnel



FY20 Expenditures: $67,635

- Projects
- Edu/Outreach
- Staff Supplies/Travel
- Sponsorships
- Travel/Meetings