# Gallatin Local Water Quality District

## *Annual Report of Activities and Services*
## *Fiscal Year 2017*

***July 1, 2016 to June 30, 2017***

***Prepared by Tammy Swinney, District Manager***
***September 2017***

# INTRODUCTION

The Gallatin Local Water Quality District (District) annual report is an opportunity to review our activities and services provided to the community. As a non-regulatory department of Gallatin County, the District focuses on providing services related to groundwater and surface water resources through education and outreach, monitoring and research, and information collection and dissemination. Built into all of our programs and activities is the general philosophy that the District is a place where citizens can receive satisfactory answers to questions related to water resource issues. This same level of service is extended to local groups, organizations, and governmental entities.

# ACTIVITIES AND SERVICES

## Education, Outreach, and Public Assistance

Reaching out to improve public awareness and understanding of local water quality, water resources, and the District is an ongoing activity for staff. Opportunities to collaborate with local organizations and other county departments allow the District to reach a larger audience and reduce duplication of efforts.

Education and outreach highlights for fiscal year 2017 included several events that reached 235 adults. Staff provided watershed and water quality information at the Montana State University Extension Small Acreage Landowner Course. Information on proper well and septic system maintenance and water quality were presented to realtors at a "Conserving Land and Water" continuing education course and to local health professionals at a Workforce Development Training Seminar. Hands-on learning opportunities were shared with local citizen scientists through the Gallatin Stream Teams monitoring program annual training and summer sampling field season. Staff provided assistance and training to residents of a local homeowners association on how to measure and monitor static water levels in their wells. An overview and results of the District's arsenic screening project were presented to the Board of Health Environmental Subcommittee. Information on drought, drought resiliency, and watershed health was presented as part of the Missouri Headwaters State Park Summer Speaker Series. The restoration work of the wetlands and portions of the East Gallatin River and Bozeman Creek were highlighted at the Greater Gallatin Watershed Council's Annual Fall Tour at the Story Mill Community Park Site. Finally, staff participated in Watershed Day at the Montana State Capital sponsored by the Montana Watershed Coordination Council where outreach on District work was made available.

Watershed education was provided to 1,347 children during the fiscal year. Staff and our Big Sky Watershed Corps Member participated in the Gallatin Valley YMCA 'Thingamajig' Summer Camp Event, the Montana Outdoor Science School (MOSS) Water Quality Summer Camp and the MOSS Watershed Festival. Seventh and eighth grade students at Headwaters Academy learned about careers in science and water resources and participated in a water quality sampling project to test for *E. coli* bacteria in Matthew Bird Creek. Finally, our Big Sky Watershed Corps Member and staff led several watershed health activities that reached more than 1,165 fourth graders over three days at the annual Gallatin Valley Farm Fair.

**Figure 1.** With assistance from Leah Bellus, Big Sky Watershed Corps Member, fourth grade students at the Gallatin Valley Farm Fair used an EnviroScape© model to understand the interaction between nonpoint source pollution and the landscape.

The District website www.glwqd.org was maintained and updated regularly throughout the fiscal year with information on updated FEMA floodplain maps, channel migration zone mapping of the West Gallatin River and East Gallatin River, and links to Gallatin County Extension drought resiliency reports.

Staff responded to more than 45 requests for information and assistance from citizens, agencies, consultants, and other county departments (not including subdivision reviews) that utilized a minimum of 0.25 hours staff time per request. Staff fielded over 300 phone calls during the fiscal year for information and assistance and assisted numerous walk-ins to the office, many of which were individuals seeking to pick-up a well test kit. More than 170 Well Educated test kits were distributed to local well owners along with well testing information.

Another aspect of the District's efforts in education and outreach involves serving on committees, forums, and attending board and council meetings of collaborative organizations both at the local and state level. This level of community assistance allows the District to stay current on water-related issues of interest and provide technical input when requested. During fiscal year 2017, staff served on the Big Sky Sustainable Water Solutions Forum as a local stakeholder. This collaborative effort has been undertaken by the Big Sky community to plan for the future. Staff also regularly participated in meetings of the Association of Gallatin Agricultural Irrigators, Greater Gallatin Watershed Council, the Montana Watershed Coordination Council, and attended the Montana Bureau of Mines and Geology Groundwater Assessment Steering Committee meetings. Staff participated in the Montana Section-American Water Resources Association annual conference in October where results of District monitoring and research projects were shared with professional colleagues from across the State.

## Education and Outreach Effectiveness Measures

The District's Five-Year Strategic Plan includes an objective to "Measure effectiveness of District education and outreach efforts on water quality" as part of the Education and Outreach Goal. During the 2017 fiscal year, survey results from the Gallatin realtor continuing education course, "Conserving Land and Water", were positive with 84% "very satisfied" and 16% "somewhat satisfied" with what they learned related to wells, septic systems, and water quality concerns in the county. Surveys were not conducted at the other education events attended by District staff, typically because the formats (outdoors, limited presentation time) were not ideal for conducting surveys. District staff intend to improve efforts to incorporate pre/post surveys into future education events that we participate in and explore other outcome indicators for tracking performance associated with education and outreach activities as part of the fiscal year 2018 work plan.

## Information Collection and Dissemination

An important function of the District is to serve as a clearinghouse of water-related information for the public. This involves collecting, organizing, storing and ensuring water quality data is available to anyone interested in water resources information. Many of the activities associated with this District goal can relate back to our education and outreach goal and the monitoring and research goal.

The District utilizes a groundwater quality database to house District-collected data and historical data collected by other entities previously only available in paper format. Water quality data from the Well Educated Program is also uploaded to it and constitutes a majority of data in the database. The database is in a GIS-viewable and data-retrievable format. This gives District staff the ability to analyze and compile data for information requests from consultants, agencies, and the public. During the fiscal year, a great amount of staff time was devoted to improving well location accuracy in the database. Additionally, procedures have been implemented to ensure latitude and longitude coordinates for wells added to the database in the future are accurate. While the database is not currently available for general viewing on the website, District staff compile and provide data for all information requests.

Surface water quality data is reviewed and submitted to the Montana Department of Environmental Quality's water quality database (EQuIS). In fiscal year 2017, District staff reviewed and entered stream data collected from four stream sites by the Gallatin Stream Team volunteers at the end of the 2016 summer field season. As part of the East Gallatin Nutrient Monitoring Project (conducted in partnership with the City of Bozeman), staff performed rigorous data quality review prior to submitting all laboratory and field data to EQuIS for 19 East Gallatin River and tributary stream sites.

The Montana Bureau of Mines and Geology (MBMG) in partnership with the Montana Department of Natural Resources and Conservation has developed an online mapping program for stream gaging stations and surface water monitoring sites. In late fiscal year 2017, the District began working with MBMG on their long-term plan for the Surface Water Assessment and Monitoring Program (SWAMP) to allow the District and other entities to upload or enter

our own stream discharge data and surface water quality data on the site. As the District develops and implements a surface water trend monitoring program, MBMG SWAMP will provide us with another venue for storing and disseminating surface water data. www.mbmg.mtech.edu/swamp/

Groundwater level data collected by staff are reviewed and entered into the MBMG Groundwater Information Center (GWIC) database. In fiscal year 2017, this included static water level measurements collected from 61 monitoring wells by staff and downloading of water level data from data loggers as part of the MBMG Groundwater Assessment Program-GLWQD groundwater monitoring network. A total of 245 manual water level measurements and 117 data logger downloads were completed in fiscal year 2017. All water level data collected for each well is available for public viewing and download from the District website (www.glwqd.org/monitoring-well-network) and the GWIC website: http://mbmggwic.mtech.edu/sqlserver/v11/reports/StatewideNetwork.asp

## Monitoring and Research

District staff conduct monitoring and research activities on groundwater and surface water that is used for baseline data needs, to evaluate long-term trends in water quality and quantity, and to assess water quality issues of concern. Focused projects and activities may be undertaken by the District, as funding allows, and in partnership with other agencies and organizations.

The District-wide groundwater monitoring network now contains 61 wells (36 dedicated monitoring wells maintained by the District and a combination of 25 monitoring and domestic wells which are part of the MBMG Groundwater Assessment Program. Sixteen monitoring wells were added to the network in fiscal year 2017. Most of these wells were formerly used by the MBMG Groundwater Investigation Program. Water level measurements are collected quarterly from all 61 wells along with transducer logger downloads from the District wells. This data is maintained in-house and also entered into the MBMG GWIC database. District staff worked with MBMG personnel to identify monitoring wells from the Big Sky Groundwater Investigation Program project to add to the statewide network during the fiscal year.

**Figure 2.** Water chemistry sampling is now being conducted on the District's groundwater monitoring

The District's Long-Term Groundwater Monitoring Network Plan was implemented in fiscal year 2017. Water chemistry sampling for a suite of inorganics, nutrients, and metals was completed on 18 of the District wells. This data is available to the public upon request and efforts are underway to have the water quality data accessible through the MBMG GWIC website.

The District's surface water monitoring efforts were project-focused during fiscal year 2017. A major component to that effort included assistance from the Gallatin Stream Teams, a volunteer stream monitoring program which is coordinated in partnership with the Greater Gallatin Watershed Council. Volunteers have been collecting data since 2008 on local streams and are an integral part of the District's plans for implementing a larger surface water trend monitoring network.

**Figure 3.** Katie Makarowski with MT Department of Environmental Quality explains the importance of data integrity, quality assurance and quality control for monitoring at the annual Gallatin Stream Teams training.

Training is conducted to ensure Stream Teams volunteers are following standard operating protocols and the data is credible for use in decision-making. District staff review all data collected to ensure accuracy and enter it into the Montana Department of Environmental Quality EQuIS water quality database. The field forms and laboratory reports are maintained in the District office. Data collection efforts continue to be focused on nonpoint source pollutants (nutrients, sediment) to build upon existing baseline data, understand water quality trends, and identify areas of concern.

**Figure 4.** Gallatin Stream Team citizen scientists measuring stream discharge on the East Gallatin River at the Story Mill Community Park site.

Every year, District staff and our Big Sky Watershed Corps Member provide technical expertise including sampling plan development and volunteer training in preparation for the field season. During the summer of 2016, volunteers were on the water once a month from July through September conducting monitoring activities on the East Gallatin River and Bozeman Creek at the Story Mill Community Park site as part of a grant project with the Greater Gallatin Watershed Council. With guidance from District staff, our Big Sky Watershed Corps Member provided oversight during the sampling events to maintain data collection integrity.

**Figure 5.** Stream Teams is about engaging in science and enjoying our local waters.

Efforts are underway to develop a surface water trend monitoring plan for the District. During fiscal year 2017, District activities were focused on gathering input from numerous agencies and organizations on water quality and quantity data needs, where future efforts may be focused for information gathering, and ways the District could work collaboratively with these partners to enhance all our data collection efforts. A draft trend monitoring plan will be presented to the GLWQD Board for review in fiscal year 2018.

The East Gallatin River Nutrient Monitoring Project has been a multi-year project conducted in cooperation with the City of Bozeman. This extensive data collection effort on the East Gallatin River extends from the confluence with Bridger Creek north to the confluence with the Gallatin River. Water chemistry (nutrients and chlorophyll-*a*) and stream discharge data were collected at 6 sites on the East Gallatin River and on 13 tributary streams in August and September of 2016. In addition, six data sondes were deployed to collect continuous water quality data for several weeks on the East Gallatin River. Data collected from the project is being utilized by the City of Bozeman to develop a nutrient model for the river.

**Figure 6.** Setting up for data collection activities on the East Gallatin River.

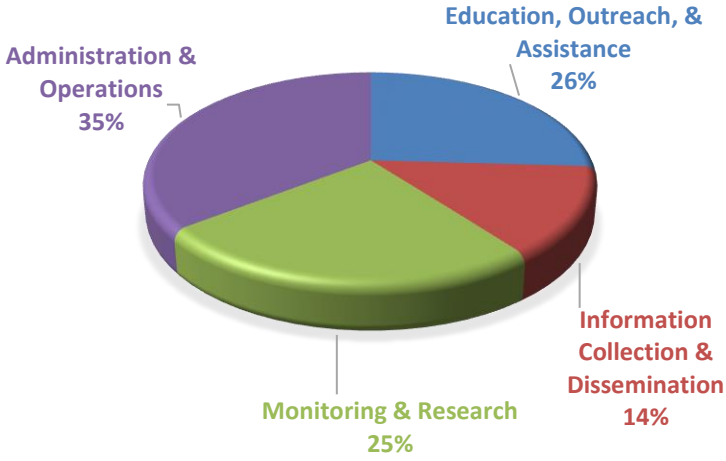
The urban waterways gaging project which began two years ago in cooperation with the City of Bozeman Stormwater and Water Conservation Programs continued in fiscal year 2017. The stream gaging equipment was reinstalled for the spring-fall water season at sites on Bozeman Creek, Matthew Bird Creek, and Story Mill Ditch. The District also worked with the City to help them install data sondes at additional sites selected by the City. Because of changes to the Bozeman stormwater permit that require a more intensive monitoring and data collection strategy, the project ended in spring 2017. However, staff will continue to deploy our TruTrack water level loggers at select locations in the District as part of the development of a surface water trend monitoring program.

## Time and Effort for District Activities and Services

Figure 7 illustrates time and effort by staff on District projects and services, most of which are summarized in the previous sections. Monitoring and research activities comprised 25% of staff time in fiscal year 2017 compared to 37% in fiscal year 2016.

Information collection and dissemination totaled 14% of effort compared to 5% last year. This does not fully reflect staff time spent in this category, as monitoring and research by its very nature has an information collection component to it that incorporates data review, analysis, and report writing. A portion of the increased time devoted to this service category from the previous year is a result of time spent working to repair the groundwater database and ensure data integrity.

FIGURE 7. TIME & EFFORT FOR FISCAL YEAR 2017




Staff time devoted to education, outreach, and assistance made up 26% of effort compared to 30% last year. Activities in this category included developing and conducting presentations and participating in workshops, updating education materials, the Well Educated Program, web site maintenance, providing assistance to the public, participating on local committees, and performing subdivision reviews.

The remaining 35% of staff time was dedicated to District administration and operations which included personnel management, Big Sky Watershed Corps Member Site Host supervision and associated activities, finances, budgeting, work plans, project development, grant writing, and contract and grant management.

A Montana Conservation Corps field team assisted the District with the East Gallatin River monitoring project field work in fiscal year 2016. Without their assistance, District time and effort on the project would have likely doubled. The District served as a Host Site for two Big Sky Watershed Corps Members during the fiscal year. In the first half, the District shared a Member with Gallatin County Environmental Health Services and during the second half of the year, a Member was shared with the Greater Gallatin Watershed Council. The Big Sky Watershed Corps Members conducted numerous education workshops, coordinated the Gallatin Stream Teams Program for the 2016 and 2017 field seasons, assisted with both groundwater and surface water monitoring projects, and assisted with updating the Gallatin Watershed Sourcebook. The additional organizational capacity was valuable in allowing the District to complete project obligations and begin the development of new endeavors.

# FINANCES

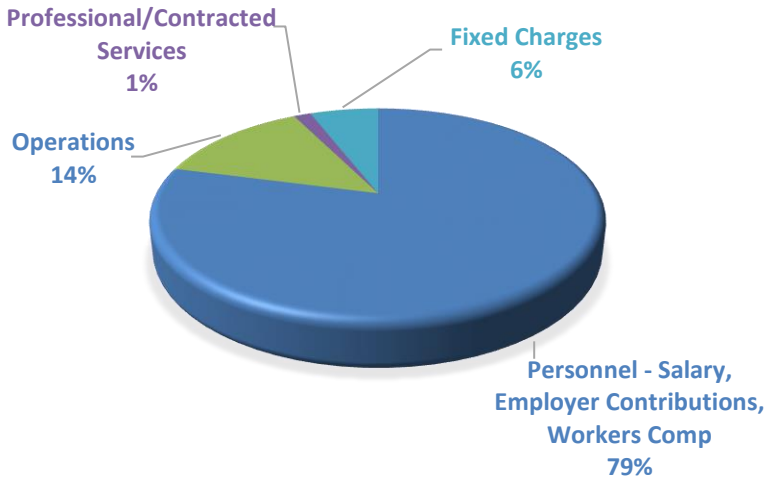
## Expenditures

Year-end expenditures totaled $253,689. Figure 8 illustrates those expenses by account category as percentages of the total. Personnel costs are the District's largest expenditure at 79%. The District employs three full-time personnel and hires temporary employees and work study students as necessary.

Operating costs were at 14% for the District in FY2017. This includes building maintenance, office and field work supplies, postage, printing, advertising, food, clothing/uniforms, phones and computers, repair and maintenance, travel, and staff training. Changes to the County's Motor Pool resulted in the District taking over the ownership and maintenance of a Honda CR-V in January. Any impact to the District's overall expenditures related to historical motor pool charges were not observed during the last half of the fiscal year.

Fixed Charges include liability insurance for the District and administrative costs incurred by the County. The administrative fixed cost are determined by the Finance Department and are based on a percentage of District Fee revenues and grant funds received. These costs to the District cover services provided by the County Treasurer, Accounting, and Auditing departments. In fiscal year 2017, these were 6% of District expenses.

FIGURE 8. GLWQD EXPENDITURES FISCAL YEAR 2017




Professional/Contracted Services includes costs for laboratory services and totaled 1% of District expenses in fiscal year 2017. This is the only category in the budget that can be used to cover costs associated with water quality monitoring outside of grants and contracts. This year, the expenses were for the first round of water chemistry sampling of the groundwater monitoring network wells. Cost-share requirements for hosting a Big Sky Watershed Corps Member would also be charged to this category. Historically, District expenses for this have been minimal as a result of sharing a Member with another organization and/or through grant funds and were not a factor for this fiscal year.

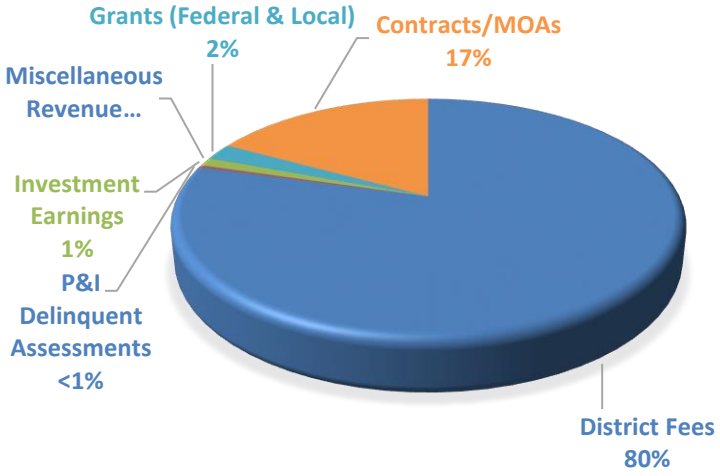
Capital Reserves-Cash is based on estimated cash carryover from the previous fiscal year minus funds required to be set-aside for operating reserves. County Finance Policy requires 20-30% cash set-aside for operating reserves to mitigate effects of payments the District needs to make

and meet the needs for a stabilized cash flow. Capital Reserves-Cash is considered restricted funds (emergency cash reserve) and cannot be used during the fiscal year. Capital Reserves-Cash for fiscal year 2017 were $135,275.

## Revenue

Revenue sources for fiscal year 2017 are presented as a percentage of total revenue by category in Figure 9. Revenue received totaled $324,305. The District Fee for Real and Personal Property is based on $6.60 per Fee Assessed Unit (FAU) within the District boundary (37,658 FAU provided by the Treasurer's Department). District fees totaled 80% of revenue in fiscal year 2017 and include past-due fees from previous fiscal years. Funds received for delinquent fee assessments, miscellaneous revenue and investment earnings generated less than 3% of total revenue.

FIGURE 9. GLWQD REVENUE SOURCES FISCAL YEAR 2017




Memorandums of Agreement (MOAs) generated 17% of District revenue. The specific sources included two MOAs with the City of Bozeman for surface water projects and an MOA with the Greater Gallatin Watershed Council for Stream Teams and technical support as part of the Story Mill Restoration Project. A grant from the Department of Natural Resources and Conservation Watershed Management Program totaled 2% of District revenue and was used to begin preliminary work on development of a surface water trend monitoring network.

# SUMMARY

District staff continue to strive for efficiency and to maintain a productive work environment. Conservative budgetary planning means the District remains fiscally strong and we can continue to implement the programs and activities that are crucial for meeting the District's mission to *protect, preserve and improve groundwater and surface water*.

# DISTRICT STAFF

**Personnel for FY2017**:

District Manager_____Tammy Swinney
Water Quality Technician Specialist_____Torie Haraldson
Water Quality Specialist/Hydrogeologist_____Christine Miller
Big Sky Watershed Corps Members_____Nina Lawonn (2016), Leah Bellus (2017)