A scenic sunset over a lake. The sky is filled with vibrant orange and red clouds, reflecting on the water. In the foreground, there are dark rocks and a patch of snow. In the middle ground, a long building with a porch is visible across the lake, and several ducks are swimming in the water. The overall atmosphere is peaceful and serene.

# **Pelican River Watershed District 2017 Annual Report**

*“The mission of the Pelican River Watershed District is to enhance the quality of the water in the lakes within its jurisdiction. It is understood that to accomplish this, the District must ensure that wise decisions are made concerning the management of streams, wetlands, lakes, groundwater, and related lake resources which affect these lakes”.*

# Pelican River Watershed District

This 2017 Annual Report contains an overview of the District's programs, activities and finances. The main focus of the District continues to be data collection and lake management, lakeshore regulations and permitting, ditch inspection and maintenance, installation of best management practices, education and outreach, and general administration.

The staff began the year by hosting a Lakes Area Regulations and Best Management Practices seminar in February with 60 contractors, landscapers and realtors present. District staff was assisted with planning and presentation by the City of Detroit Lakes, Becker County Planning & Zoning and Becker Soil and Water Conservation District. The objective was to review rules and requirements of each regulatory agency and to identify concerns and difficulties of those working in the area.

A Cost Share program was introduced early in the year to promote raingardens, shoreline restoration, buffers and stabilization plantings to improve water and natural resources. Due to severe storms in the area in June and July, the program was extended to cover tree replacement in the near shore area. A total of \$7500 was paid to lakeshore property owners, a condo association and the City of Detroit Lakes for their approved projects.

Fortunately, there were no new invasive species identified in District lakes in 2017. Invasive plants, Curly-leaf pondweed and Flowering Rush, continue to be successfully treated with chemicals. The board of managers took a bold step and approved the sale of the District's last aquatic plant harvester, thereby ending a 50 year history of harvesting in District lakes.

Plans continue to be developed for the Rice Lake Nutrient Reduction Project with construction targeted to begin in the spring of 2018.

The staff held several meetings seeking input for the District's Revised Management Plan, which outlines all aspects of the District's work and spans a ten year period. Plan completion is scheduled for early 2018.

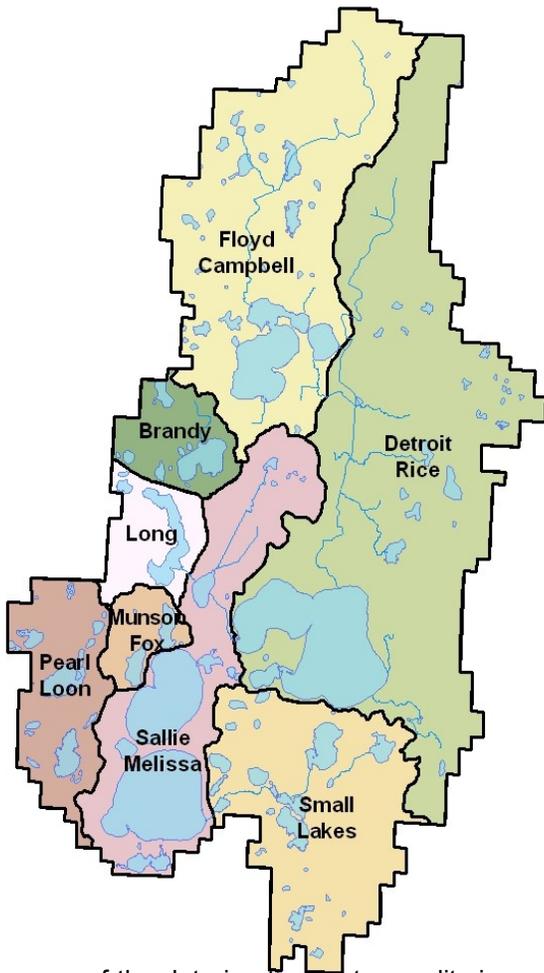
This 2017 Annual Report is submitted to the Board of Water and Soil Resources, the Commission of the Department of Natural Resources, and the Director of the Division of Waters. Copies are available at [www.prwd.org](http://www.prwd.org) and in the District office.

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# Background



Pelican River Watershed District (PRWD), is one of 45 watershed districts established under MN Statute 103D. The purpose of watershed districts is to conserve the natural resources of the state by land use planning, flood control, and other conservation projects utilizing sound scientific principles for the protection of the public health and welfare and the prudent use of the natural resources.

The District also acts as the drainage authority under MN Statute 103E for managing the public drainage systems within its boundaries for Becker County.

The District is 120 square miles and located primarily in Becker County (95%) with the balance (5%) in Ottertail County. PRWD is part of the Ottertail River basin which eventually discharges to the Red River of the North. Eight major lakes include the Floyd chain, Big/Little Detroit Lakes, Long, Sallie and Melissa which serve as the economic engine for the NW region of Minnesota. These lakes provide recreational opportunities for residents and visitors, including fishing, boating and swimming.

Because of the deteriorating water quality in area lakes and streams in the 1950s and 1960s, the Melissa and Sallie Improvement Association, along with the Lake Detroiters, advocated for a governmental unit that would be able to address lake related problems.

On September 15, 1965 a petition was filed with the Minnesota Water Resources Board requesting creation of a watershed district. The petitioners, the Becker County Commissioners, were seeking to slow down the eutrophication of the lakes, among other purposes.

On March 30, 1966, the Water Resources Board held a hearing at the Becker County Courthouse. The Director's report was presented and oral testimony on it and other matters was heard. At the May 27th meeting, the Pelican River Watershed District, as previously defined and delimited by the Director, was ordered. The order specifically noted that addressing pollution would be central to the District's mission. It also noted that navigation, soil erosion, and fish and wildlife enhancements would be District purposes.

A board of seven managers, appointed for three year terms by the Becker County Board of Commissioners, guides the work of PRWD.

<b>Year</b>	<b>Event</b>
1965	Petition to form District to Water Resources Board
1966	Order to establish PRWD
1967	Completed Overall Plan
1968	Established Harvesting Project, Melissa and Sallie
1969	Sponsored Lake Eutrophication Conference
1976	Spearheaded, and secured funds for, the purchase of Dunton Locks County Park
1983	Study of Main District Lakes by Instrumental Associates
1988	Expanded Board of Managers to 7 Members
1989	First Clean Water Grant received
1990	Established Detroit harvesting Project
1993	State designates Flower Rush as a nuisance exotic plant
1994	Revised Management Plan
1994-1999	Built Storm water treatment facilities
1995	Established monitoring program
1997	County assigns management of 3 public ditches
1997	Amended Management Plan (to accommodate ditch responsibilities and establish storm water utility)
1998	Established Storm water Utility
2003	Rules Revised, adopted permit system
2005	Revised Management Plan
2008	Highway 10 Overlook Restoration Project
2010	Flowering Rush Research Begins
2012	Campbell Creek Agricultural BMP's installed
2013	Flowering Rush in-lake operational herbicide treatments begin
2016	Curly-leafed Pondweed herbicide treatments begin
2016	Received \$1.5 million in grant funds to complete Rice Like Restoration
2017	Completed Flowering Rush Research implemented adaptive management plan. Implemented Cost-Share Program for Water Quality Practices.

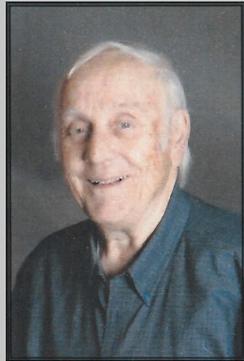
# Board of Managers

The Board of Managers holds their regular meetings on the third Thursday of each month at 6:15 p.m. at the Wells Fargo Bank Building, second floor conference room located at 211 Holmes St. West, Detroit Lakes, MN. All meetings are open to the public. The Becker County Board of Commissioners appoint the managers to 3-year terms.

2017 Managers	E-mail Address	Subwatershed	Service From	Term Expires
Dennis Kral, President	dskral@arvig.net	Big Floyd	1988	2019
Rick Michaelson, Treasurer	rickathy@arvig.net	Sallie	2013	2019
Janice Haggart, Manager	Janice.haggart@ndsu.edu	Muskrat	2005	2019
Orrin Okeson, Vice-President	okesonov@q.com	Campbell	1988	2018
Lowell Deede, Manager	Lowelldeede@q.com	Floyd/Small Lakes	2017	2018
Ginny Imholte, Manager	imholtegl@gmail.com	Big Detroit	1991	2020
Brad Refsland	Refsland@arvig.net	Long	2017	2020

District Administrator Guetter and four managers toured several areas of the District on August 10. Included in the tour was the installation of a large raingarden in the City Park. The City of Detroit Lakes was awarded \$1500 of Cost Share funds from the District for plants and plant material for this project. Managers also assessed the District storage building at Dunton Park, Flowering Rush growth near the tram, a Ditch 14 wetland, a sensitive area north of Fox Lake, the gravel mining area near Long Lake, structure locations of the Rice Lake project to be constructed in 2018, along with Floyd Lake storm damage area and Campbell Creek Best Management Practices. It was an insightful tour for those that were able to attend.

The District was saddened in February by the death of board manager, David Brainard, who had served from 1999 until his death. David lived his entire life in the District and added valuable insight to many projects and issues. His cheerful disposition and "top of the afternoon" greeting is greatly missed.



## District Consultants

Marlon Mackowick, District Engineer	Wenck Associates	3303 Fiechtner Dr., Suite 100 Fargo, ND 58103	Ph: (701) 297-9600 mmackowick@wenck.com
Todd Shoemaker, District Engineer	Wenck Associates	1802 Wooddale Dr., Suite 100 Woodbury, MN 55125	Ph: (651) 294-4585 tshoemaker@wenck.com
Karen Skoyles Attorney	Ramstad, Skoyles & Winter, PA	114 West Holmes St. Detroit Lakes, MN 56501	Ph: (218) 847-5653 skoyles@arvig.net
Tami Norgard Attorney	Vogel Law Firm	218 NP Ave. No. Fargo, ND 58102	Ph: (701) 237-6983 tnorgard@vogellaw.com

# PRWD Staff

## Full Time Staff

### Tera Guetter, Administrator

As Administrator, Tera implements PRWD plans, policies and programs on behalf of the PRWD Board of Managers. She oversees all PRWD operations, including staff, and also manages the annual budget and work plan. She oversees capitol improvement projects, grant programs, plan reviews, project coordination, and watershed restoration planning. Tera currently serves on the MN DNR AIS Advisory Committee. Tera joined the District in 1999 and holds a B.A. in Geology and Secondary Education from the University of Minnesota– Morris.

### Brent Alcott, Assistant Administrator

Brent manages the PRWD's water quality monitoring program, Rules and permitting program, as well as directing in-lake aquatic plant control treatments. He conducts water data collection, analysis, GIS mapping, reporting and oversees the installation and maintenance of monitoring equipment. He also works with permit applicants and coordinates site plan review and approvals. Brent joined PRWD in 2014 and holds a B.S. in Biology from University of MN-Duluth.

### Brenda Moses, Sr. Office Coordinator

Brenda takes care of the District's financials including payroll, accounts payable, budget, grant tracking, and policies. She manages the District's outreach and education program including developing education materials and working with school-age children. She also assists with the Rules permitting program, contracts, board packets, website and social media updates, and keeps the overall office running smoothly. Brenda joined the District in 2013 and holds an Office Management degree from NDSCS in Wahpeton, ND.

## Seasonal Staff

### Terry Anderson & Rob Kiihn

Terry and Rob work with the District from the end of May through the end of September. They pick up and dispose of the aquatic vegetation that residents take out of lakes Sallie, Melissa, Detroit and Curfman.

### Tyler Haaland-Zurn and Allison Shorter

Tyler and Ally are college students who work as summer interns collecting water samples from designated lakes. They also conduct shoreline surveys, plant surveys, enter data, and assist with educational activities.



*Student interns assist Alcott in collecting Flowering Rush Core samples on Big Detroit.*



*Guetter meets with area lake residents to discuss their priority issues and concerns.*



*Alcott presents on District Rules at Contractor Seminar in February.*



*Moses mentored 4th grade students from Rossman Elementary in stormwater practices.*

## Advisory Committee

**John Postovit**, 20344 Co. Rd. 131, Detroit Lakes, MN 56501 (218) 847-1165

**Roger Hemphill, DNR Hydrologist**, 14583 County Hwy 19, Detroit Lakes, MN 56501, (218) 846-8484

**Peter Mead, Becker SWCD**, 809 8th St. S. E., Detroit Lakes, MN 56501, (218) 846-7360

**Brad Green, City of Detroit Lakes**, 1023 Roosevelt Ave., Detroit Lakes, MN 56501, (218) 846-7145

**Tim James, MPCA**, 714 Lake Ave., Detroit Lakes, MN 56501, (218) 846-0749

**John Okeson, County Commissioner**, 13167 W. Lake Sallie Dr., Detroit Lakes, MN 56501, (218) 847-6244

**Richard Hecock**, 633 North Shore Dr., Detroit Lakes, MN 56501, (218) 847-6052

# 2017 Highlights

- January**
- ◆ Staff continues to work with the City of Detroit Lakes updating their Shoreland Ordinance.
  - ◆ District received notification of a grant award for 4 days (200 hours) from the Clean Water Funds through BWSR, to assist the City of Detroit Lakes with raingarden installation and maintenance on the Hwy 10 Overlook site.
  - ◆ Staff is busy preparing for “Lakes Area Shoreland Regulations Seminar” to be held February 22 at M-State in Detroit Lakes.
- February**
- ◆ The Rice Lake Wetland Project continues to move forward. Guetter meets with Houston Engineering to review easements. NRCS to complete plans for upper structure by March 1. Soil borings taken for lower structure placement.
  - ◆ David Brainard, a member of the Board of Managers since 2001, and current board secretary, passed away. His cheerful disposition and eagerness to serve will be greatly missed.
  - ◆ Lakes Area Regulations and Best Management Practices Seminar was well attended with over 60 contractors, landscapers and realtors present.
  - ◆ Alcott presented at the Lake Life Expo in Fargo and Lakes Area Home Builders Association in Detroit Lakes.
- March**
- ◆ The District was notified that it has received in lake treatment grants for Flowering Rush and Curly-leaf pondweed on Sallie, Melissa, Detroit and Curfman lakes, totaling \$16,397.
  - ◆ Community meetings are scheduled for March 27 and April 3 for input on the Revised Management Plan.
  - ◆ U of MN, Extension, AIS Detector Training-This 15-hour program is a combination of on-line and classroom training to help citizen volunteers identify AIS. Guetter worked to have a class held in Detroit Lakes on May 4.
- April**
- ◆ Due to an early spring, contractors and residents have begun contacting staff with permit questions and forms.
  - ◆ Tyler Haaland-Zurn will return from the U of MN, Duluth, to work for a second year as a student intern. He will be joined by Allison Shorter from SDSU.
  - ◆ Guetter presented at the State of Montana AIS meeting in Great Falls detailing our Flowering Rush success.
  - ◆ The Board of Managers elected to exercise its jurisdiction to enforce the riparian protection and water quality practices requirements and adopt the necessary ordinances to carry out its compliance and enforcement authority as authorized in Minnesota statutes for the Minnesota Buffer Law Enforcement.
- May**
- ◆ A Revised Management Plan meeting was held on May 10 for residence of Long, Sallie and Melissa lakes. It was well attended and people were very engaged.
  - ◆ Lake monitoring will begin on Monday, May 15.
  - ◆ Level 2 Salt Applicator Workshop was held on May 9th at the MPCA office. Attendees learned how to use the Winter Maintenance Assessment Tool. This is a free on-line program that allows users to input current practices and receive feedback on how to reduce salt use and protect water resources.
  - ◆ Ginny Imholte was reappointed as a board manager. Brad Refsland was appointed for a 3 year term and Lowell Deede was appointed for 1 year to complete the remainder of David Brainard’s term.
- June**
- ◆ Five staff members from Riley Purgatory Watershed District spent parts of June 1 & 2 with staff reviewing procedures and touring the District.
  - ◆ Guetter completed the year long Otertail Civic Engagement Cohort Training.
  - ◆ The District continues to use “adaptive management” techniques for control of Flowering Rush populations. This will conclude the 3 year study by Mississippi State University with this year’s spring data collection.
  - ◆ The District has received its first 3 Cost Share Applications for shoreline restoration.
  - ◆ Due to recent storms, the Board of Managers has extended the Cost Share program to include trees in the shore impact zone for a limited time.

# 2017 Highlights

## July

- ◆ Beaver continue to be an on-going problem in the Campbell Lake area, Rice Lake and near the 8th St. trailer park.
- ◆ July 11 storm caused major shoreline damage on Big and Little Floyd, Sallie and Melissa. Power outages over a 2 day period were the result of uprooted trees.
- ◆ Interns complete shoreline survey on Muskrat Lake. Will move on to Sallie and Melissa in the near future.
- ◆ The second Flowering Rush treatment was administered in late July

## August

- ◆ Guetter and four managers toured District Sites on August 10 including: the District's storage building at Dunton Park, Flowering Rush growth near tram, Ditch 14 wetland, Fox Lake area, gravel mining area, City Park raingarden installation, Rice Lake structure locations, Floyd Lake storm damage area and Campbell Creek Best Management Practices.
- ◆ District staff met with City staff to hear comments for consideration for updated water management rules.
- ◆ Conservation Corps assisted with installation of a raingarden in the City Park and with maintenance on the shoreline buffer on Hwy 10 overlook. The District was awarded a grant for the labor from the Clean Water Fund.

## September

- ◆ Staff continues to work with the City of Detroit Lakes to fine-tune their new Shoreland Ordinance.
- ◆ 2017 Monitoring Season is complete and analysis of data has begun.
- ◆ Staff participates in 9th Grade Water Watch Program at Detroit Lakes High School.
- ◆ A new Beaver Control Policy is adopted by the District
- ◆ Moses and Manager Deede demonstrated Watershed characteristics at the Tamarac Fall Festival.

## October

- ◆ Guetter and Moses attended a 2 day Social Marketing Seminar hosted by the MN DNR. They plan to collaborate with Becker, Ottertail and Hubbard County to try a new pilot program in regard to AIS.
- ◆ Guetter presented on Civic Engagement at the BWSR Academy.
- ◆ MN DNR announce elimination of 2018 Grant Funds for AIS Treatment.
- ◆ The two new contracted Beaver Trappers have eliminated 15 beavers out of the legal drainage system areas.

## November

- ◆ NRCS has completed plans for the Rice Lake upper structure and access road.
- ◆ New policies were written and adopted for Drainage Systems Tree Removal, Beaver Control and Dam Removal. Trapper Certification and Claims forms were also approved.
- ◆ Guetter and five managers will be attending the MAWD Conference in Alexandria November 30 through December 2.
- ◆ All stream monitoring equipment has been removed. Data has been reviewed and submitted to the MPCA EQUIS (Surface Water Quality Database).

## December

- ◆ Detroit Lake froze and reopened three times during the past month. The final freeze up date entered was December 6.
- ◆ The Final 2018 Budget was presented to the Board on 12/19/17. Levies, Assessments and Fees were approved and sent to Becker and Ottertail Counties.
- ◆ The Board approved Permit Fee increases for 2018 for permits requiring stormwater management plans to better reflect costs incurred by the District for Engineered reviews. Fees will increase on Planned Unit Developments, Sites that have more than 1 acre of impervious surface, and lots over 10,000 that have > 25% impervious lot coverage.

# District Rules & Permitting

A total of 77 permits were issued by the District in 2017, up slightly from the 62 issued in 2016. The permit review and issuance process continues to consume large amounts of staff time from ice out in the spring until late fall. Along with the smaller sites, there were several large commercial and government sites, and violations that naturally take more time to plan and resolve.

The District collected \$15,350 in permit fees but spent \$24,824.32 on Engineer Plan Reviews. The large government sites that needed more extensive stormwater management plans, such as the Becker County jail and the new airport, for which the District does not collect fees, are responsible for most of the difference between revenue and expense. These costs are absorbed by the District's Stormwater Utility Fund.

Shore Impact Zone Alteration	53
Impervious Surface Coverage	13
Subdivision	3
Bluff Impact Zone	2
Road/Parking Lot	4
Other	2
<b>Total</b>	<b>77</b>



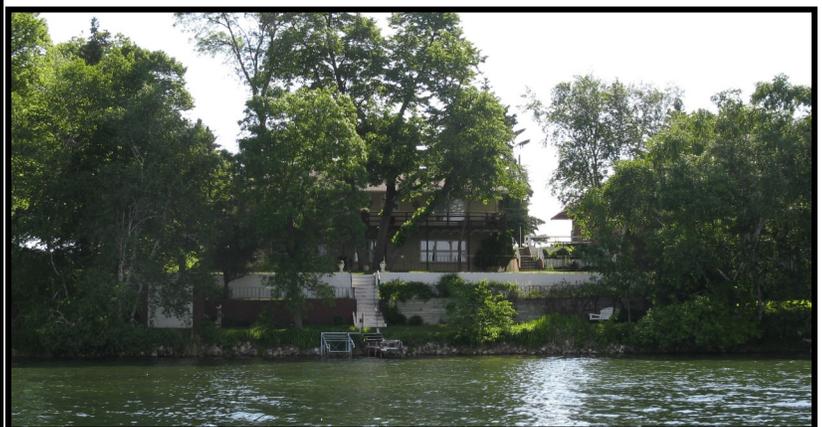
An updated Revised Management Plan, that outlines all aspects of the District work, is currently in progress. District staff and managers will be reviewing the District rules that are currently in place for permitting and evaluate if more stringent rules are needed to keep in line with current development. The District works closely with the City of Detroit Lakes and Becker County to help streamline permit requirements for property owners and contractors, as evident in the educational seminar held in February 2017 with contractors in mind (See Education and Outreach pages for more detail).

Holy Rosary Church paved a parking area that was previously gravel and installed some underground piping for infiltration to help manage the stormwater from their property, as shown on the lower left. Permits were also issued for parking areas at Long Bridge Restaurant and Foltz Trucking using stormwater Best Management Practices.



Many of the smaller permit sites were to install or repair rip rap as shown in the photo above. District staff encourages property owners to use vegetation along with the rock as a softer armor for the shoreline. This not only enhances the look and appeal, but also provides habitat and reduces wave action.

There has been an increase in the number of retaining walls removed on the shoreline as shown below. Some of the walls are failing with age and some were damaged in the summer storms. Retaining walls are not allowed unless an Engineer deems them necessary.



# Cost Share Program



PRWD launched a cost share financial assistance program for projects that promote efforts to protect and improve water and natural resources. Cost share funds are available to public and private landowners within the District for implementing projects that assist in:

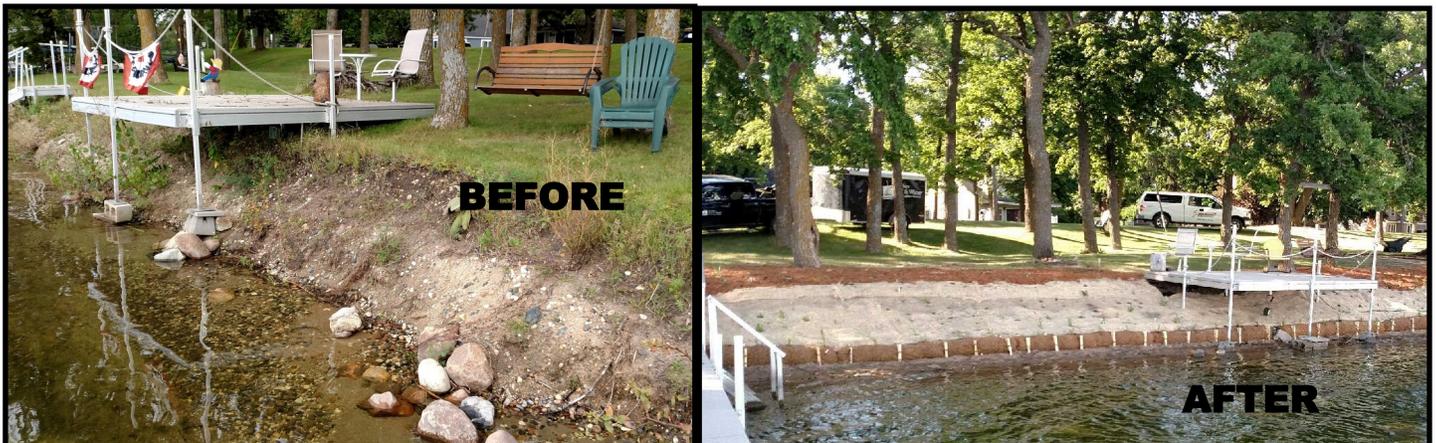
1. Protect or restore quality of lakes and rivers.
2. Protect or restore native plant communities and wildlife habitats with emphasis on lakes.
3. Priority will be given to shore land and streambank restoration projects.
4. Innovative approaches to treat storm water at the source.

Funding is a 75% match of eligible expenses with a maximum amount of:

1. \$500 for single family homes
2. \$1,000 for condo and apartment complexes
3. \$1,500 for Not-for-Profit, religious organizations, public and private schools, local government agencies, private businesses.

The District assisted seven individual property owners with shoreline restoration, one condo association with two raingardens, and the City of Detroit Lakes with a large raingarden in a city park. Because of the large number of trees destroyed in two summer storms, the managers also extended the program to cover tree replacement in the near shore area. Four property owners applied and received assistance with tree replacement. The cost to the District for this program in 2017 was \$7500. We will be placing signs on the properties in the spring to help draw attention to them and hopefully inspire more people to participate and add more plants to their property.

Below are some examples of the improvements made on two District lakes.

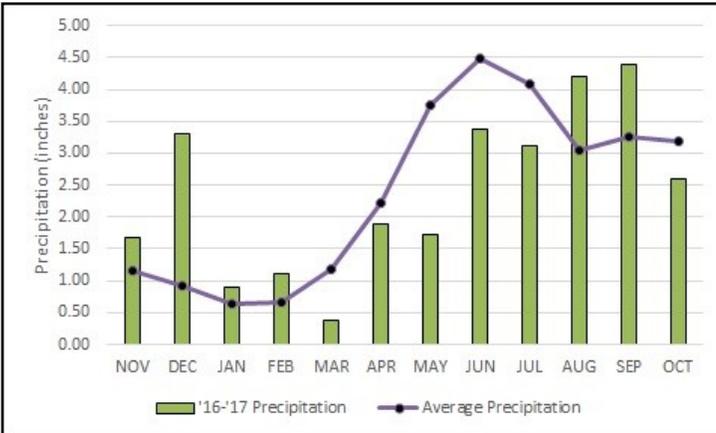
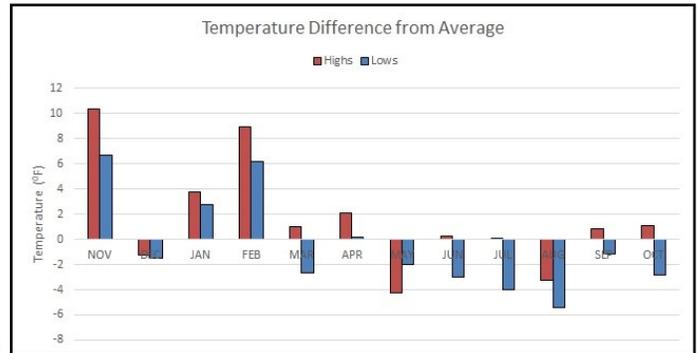


# Weather & Water Quality Influences

## 2017 Weather Trends

For the purpose of observing how weather patterns influence water quality, monthly temperatures and precipitation is reviewed from November through October rather than January through December. This allows the previous winter weather pattern to be observed, giving insight on any effects on the surface water quality in the summer months.

The 2016-2017 winter was warmer than average. November, for example, was 10 degrees above average. There was above average precipitation between November and February. Snowfall total in December alone was 22 inches, more than twice the average of 10.2 inches. After a January snowfall total of 13 inches, 3 inches above average, very little fell the remainder of the year. In late February there was a warm period and a rain event, which dropped 1 inch of liquid precipitation, and melted the remainder of the snow cover. The summer of 2017 was cooler and dryer than average. May-August experienced below average temperatures and March-July received below average precipitation. Four inches of rain fell in both August and September, thereby ending the dry spell. The rain event of September 20th was the

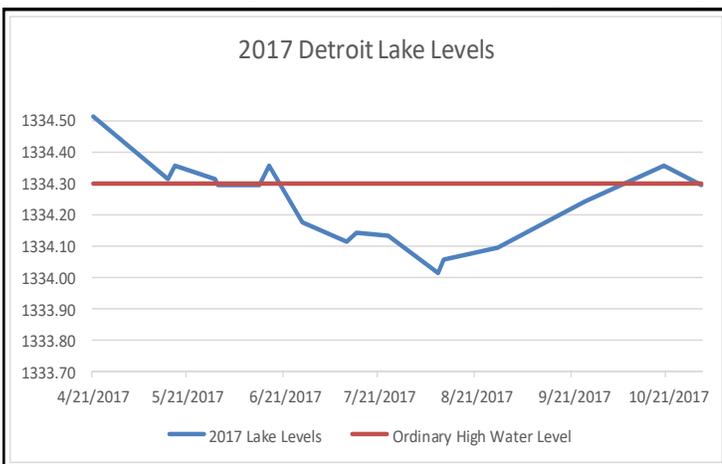


most significant, with 2.5 inches recorded at the KDLM radio station. Significant flooding was observed in Detroit Lakes following that event, especially in the Washington Ball Park area and on the corner of Washington Avenue and West Lake Drive.

**Summer Storms.** A June 24th storm delivered over 2 inches of rain overnight and caused significant tree damage across the district, especially on Detroit. Another storm on July 11th, delivered wind gusts up to 53 mph, and caused additional extensive tree damage along the southern shorelines of Big & Little Floyd, Sallie and Melissa lakes.

## 2017 Water Levels

Seasonal weather pattern variations greatly influenced lake water levels in 2017. Detroit's lake level fluctuated only by 6-inches from April—November. Only once in the last 33 years (1992) has Detroit water level fluctuated less. There was also little summertime variation of water levels on Sallie and Melissa with only 6 inches, and on the Floyd Chain only



3.5-inches of variation was recorded. This unusual water level pattern was caused by below average spring snowmelt and rainfall, and above average late summer precipitation. Typically lake water levels are at their highest after spring snowmelt and rainfall, with levels gradually declining during the summer and fall months.

# Monitoring Program

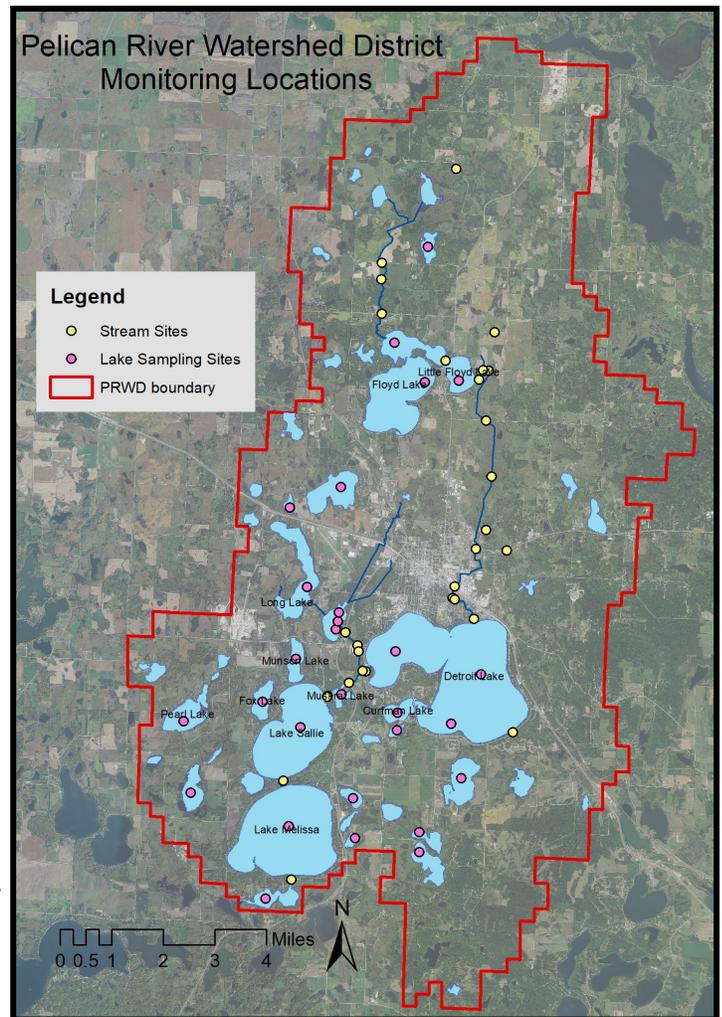
Dating back to the 1980's, the Pelican River Watershed District has operated a comprehensive monitoring program by closely monitoring the lakes and streams within the District boundaries.

The District keeps all water records in an in-house database, including many secchi readings collected through the MPCA's Citizen Lake Monitoring Program. The District's water quality data is also stored on the Minnesota Pollution Control Agency (MPCA) surface water database. The data is used to track water quality trends, determine long-range water quality goals, and help target and prioritize nutrient reduction locations, potential practices, and projects.

## Lake Monitoring

The District has 144 lakes within its jurisdiction and monitors 27 lakes on a rotating schedule, focusing on high recreational use waterbodies and interconnected waters. It is important to collect data over time to assess the lake's overall health and to develop a management plan to protect or enhance its water quality and ecological functions. Other District lakes are primarily small, pothole, or shallow lakes with little to no residential development around them.

The monitoring plan includes a schedule which monitors the main District lakes a minimum of three years within a 10-year cycle. Monitored lakes are sampled on a bi-weekly basis, from May-September. Water clarity is measured using a Secchi Disk. Total Phosphorous, Orthophosphate, and Chlorophyll-a are measured by collecting in-lake water samples which are delivered to RMB laboratories for analysis. Dissolved Oxygen, Temperature, and pH readings are taken at 1-meter intervals throughout the water column using a hand-held sonde.



2017 Lakes Sampled	Secchi Readings Recorded	Total Phosphorus Samples	Orthophosphate Samples	Chlorophyll-a Samples
13	124	95	95	95

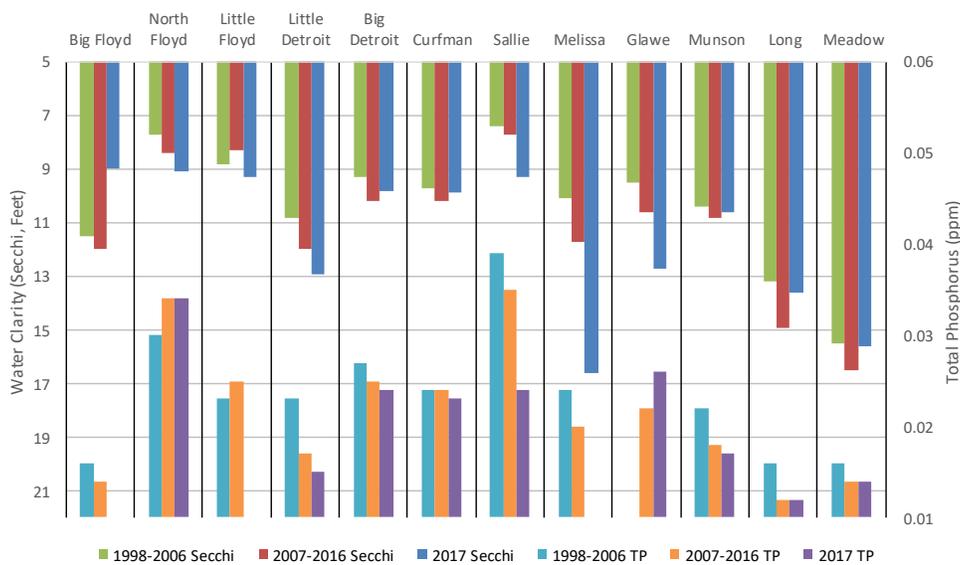
## Stream Monitoring

The Pelican River Watershed District also monitors stream water quality and levels on Campbell Creek, Pelican River, Ditch 14, and other minor areas at key locations where nutrient and sediment loading information can help pinpoint problematic areas. The District collects physical and chemistry water measurements including water temperature, depth, flow velocity, flow rate, turbidity, and nutrient concentrations (Total Phosphorous, Orthophosphate, and Total Suspended Solids-sediment) which are useful in analyzing how pollutants are transported and mixed in the water environment, and can be related to habitat requirements for fish and other aquatic wildlife. Water quality samples are collected on a bi-weekly basis, from spring melt through September. It helps us understand water level fluctuations over the course of the summer and during rainfall events. PRWD also collects samples during, and immediately following, rainfall events of greater than 1-inch over a 24-hour period to capture "first flush" nutrient load data. The District collects the data with grab samples-bottles, water level logging equipment, flow meter, and rain gauges.

2017 Stream Sites	Gage Readings	Total Phosphorus Samples	Orthophosphate Samples	Total Suspended Solids Samples
20	251	155	155	117

# Lake Water Quality

2017 results compared to 10-year average



From June through September, water chemistry, clarity, and lake profile (dissolved oxygen, temp, conductivity, and pH) data was collected bi-weekly on the following lakes: North Floyd, Little Detroit, Big Detroit, Curfman, Sallie, Glawe, Munson, Long, and Meadow.

Big Floyd, Little Floyd, and Melissa were also sampled for clarity (secchi disk) and lake profile (dissolved oxygen, temp, conductivity, and pH).

With the exception of Big Floyd, most District Lakes were at or above the average water quality values that have been observed

during the last 20-year sampling period. North Floyd, Little Floyd, Little Detroit, Sallie, Melissa, and Glawe were all above average while Big Detroit, Curfman, Munson, Long, and Meadow remained at, or very near, average for clarity and phosphorous. Big Floyd was significantly below average for water clarity. The figure above shows the mean total phosphorus levels and water clarity (Secchi) values compared to the two previous 10 year average time periods (1998-2006, 2007-2016). More detailed lake summaries are provided in the 2017 Monitoring Report.

Another method for determining the overall condition of a lake is with the use of the Trophic Status Index (TSI). With this method, lakes are classified on a scale of increasing productivity (increasing algal growth, decreasing clarity). Generally, the trophic state for PRWD lakes are classified within the mesotrophic category, with several lakes trending toward eutrophic, especially in warm late summer months.

Trophic state is defined as the total weight of living biomass. As trophic states increase, so does the amount of productivity (algal growth) a lake will have. Three variables are used to calculate the trophic state index (TSI), chlorophyll, Secchi depth, and total phosphorus. These three parameters are average to determine the TSI values. The chart on the right explains some typical observations of lakes at various TSI levels.

TSI Value	Typical Observed Lake Conditions
< 30	Oligotrophic; clear water; high DO throughout the year in the entire hypolimnion
30-40	Oligotrophic; clear water; possible periods of limited hypolimnetic anoxia (DO =0)
40-50	Moderately clear water; increasing chance of hypolimnetic anoxia in summer; fully supportive of all swimmable/aesthetic uses
50-60	Mildly eutrophic; decreased transparency; anoxic hypolimnion; macrophyte problems; warm-water fisheries only; supportive of all swimmable/aesthetic uses but "threatened"
60-70	Blue-green algae dominance; scums possible; extensive macrophyte problems
70-80	Heavy algal blooms possible throughout summer; dense macrophyte beds; hyper-eutrophic
> 80	Algal scums; summer fish kills; few macrophytes due to algal shading; rough fish dominance

2017 TSI Values compared to Average



The results of the TSI analysis on the 2017 monitoring data show that PRWD lakes are predominantly mesotrophic (TSI 40-50) with some lakes very near or just beyond the eutrophic threshold. The only exception for these results is St. Clair Lake an impaired waters for excessive phosphorus and chlorophyll-a, by the Minnesota Pollution Control Agency (MPCA).

\* TSI values based on Secchi data only

# Stream Water Quality

**Campbell Creek:** Campbell Creek is a partially ditched stream draining to North Floyd Lake. The northern segments of the Creek make up two legal drainage systems—Becker County Ditches 11 and 12. Ditch 11 originates at Moon Lake, a drained wetland, and flows into Campbell Lake. Ditch 12 begins at the outlet of Campbell Lake, flows through cropland and joins the natural creek channel a half-mile south of 230th Street, flowing through heavily wooded, steep topography. The last mile of Campbell creek, between 230th Street and North Floyd Lake, the topography elevation drops 45 feet. This abrupt elevation change, along with the upstream channelization of the creek, causes large water level fluctuations and increased flow speeds during spring snowmelt and summer rainfall runoff. The flashy water levels in the agricultural and the natural areas cause two types of sediment loss—topsoil erosion from the farm fields and stream bank erosion caused by natural channel realignment processes. Sediment leaving farm fields, stream bank erosion, and nutrients (phosphorus) attached to the sediment are the primary pollution concerns for North Floyd Lake.

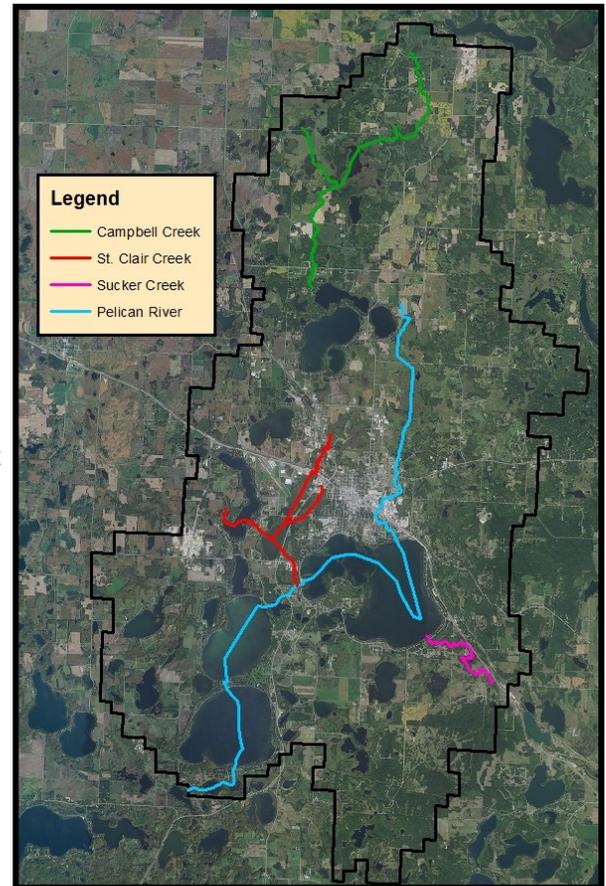
The District has set a water quality goal to reduce sediment and phosphorus loading from Campbell Creek to North Floyd Lake by 50% (197 Tons Sediment; 1,244 lbs Phosphorus).

In 2012-14, the District partnered with landowners, Becker Soil and Water Conservation District, and Natural Resource Conservation Service to address excess topsoil erosion. Over 25 farm field best management practices (sediment basins, buffer strips, and grass waterways) were installed. The District collects data which correlates snowmelt and rainfall events to associated sediment and nutrient transport loads. Project effectiveness monitoring shows some reduction in sediment and phosphorus loads, but the District's water quality reduction goals are still not met. There continues to be downstream stream bank erosion between Ditch 12 and North Floyd inlet.

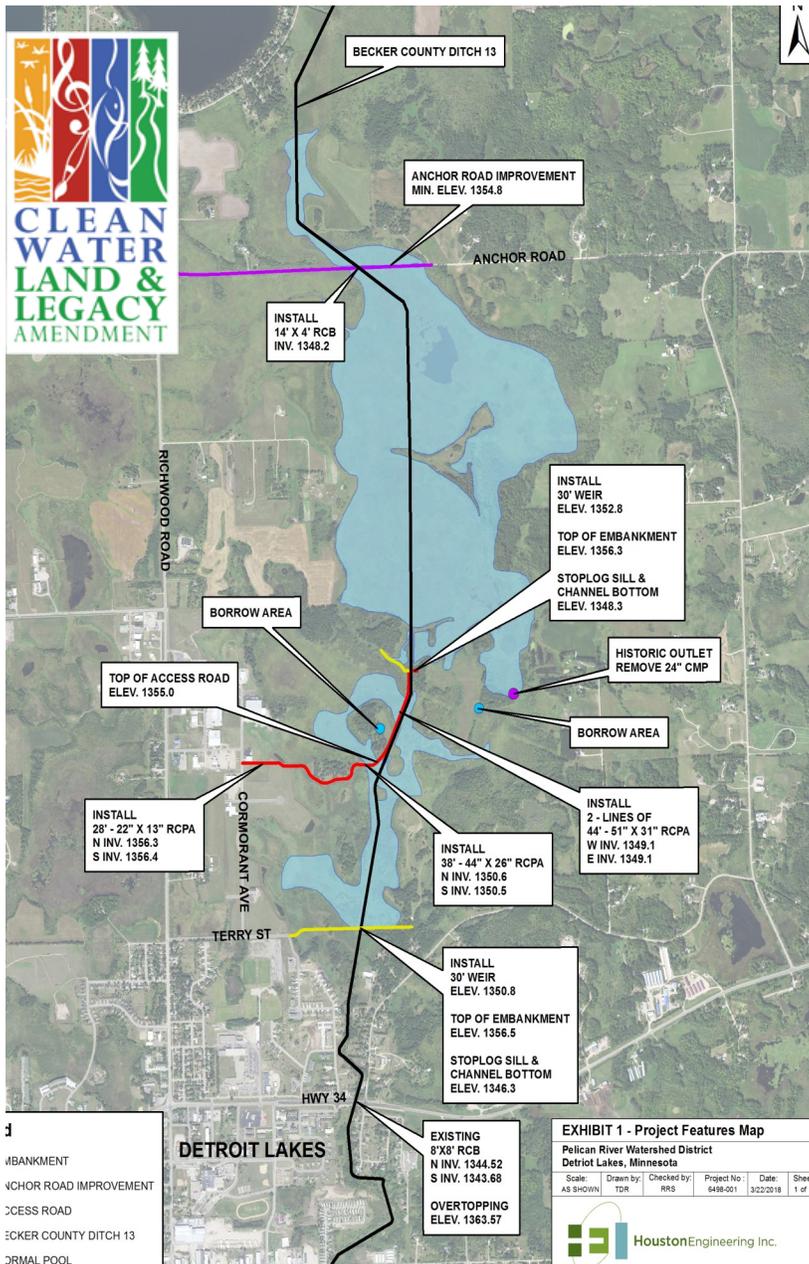
In 2017, there was a marked decrease in phosphorus and sediment loading largely due to weather influences and a beaver dam located at the outlet of Campbell Lake which greatly reduced stream flows and nutrient transport throughout the summer months. The stream water discharge from Campbell Creek to North Floyd lake was approximately 160 million cubic feet, or about a 18% decrease from the 10-year average discharge (May-October). This decrease in water volume resulted in significant reductions in phosphorus and sediment transport. The total phosphorus load during this period was approximately 660lbs., a nearly 50% decrease from the 10-year average, while the total sediment load was approximately 127 tons, a 35% decrease from the 10-year average.

**Pelican River:** The headwaters of the Pelican River flow out of Little Floyd Lake, through the Rice Lake Wetland complex and the City of DL industrial and residential areas, before discharging into Big Detroit Lake. Unlike the Campbell Creek area, where sediment attached phosphorus is the main pollutant for North Floyd lake, the Pelican River's primary pollutant source to Detroit Lake is soluble phosphorus from the upstream ditched Rice Lake Wetland organic peat deposits and untreated urban stormwater runoff (see also pages 14-15, Rice Lake Nutrient Reduction Project). In 2017, at the outlet of Rice Lake Wetland, 2484 lbs of phosphorus (March through October) was released into the Pelican River. The Pelican River water annual discharge to Detroit Lake was 385 million cubic feet, almost 50% less than the average flow, carrying 50% less phosphorus at 1,500 lbs. Weather patterns and a number of beaver dams greatly influenced the reduced discharge amounts.

**Ditch 14 :** On the west side of the City of Detroit Lakes, Ditch 14 & Branch 1 drain St. Clair Lake and a wetland area between HWY 10 & Becker County Road 6, where it connects to the Pelican River near the Detroit Lake outlet. St. Clair Lake is on the Impaired Waters list for excess phosphorus (see St. Clair Lake, pg 16). Total water discharge from Ditch 14 was approximately 350 million cubic feet, a nearly 100% increase from the average annual discharge. This significant increase was due to upstream groundwater dewatering associated with the Becker County jail and road reconstruction projects. The increased amount of water flowing through nutrient-impaired St. Clair Lake and wetlands increased the annual phosphorus load to the Pelican River by 20%, 1,525 lbs. Due to below average rainfall during this period, the increased load was not as high as it could have been.



# Rice Lake Nutrient Reduction Project



## Economic Sense—Healthy Lakes for fishing, swimming, & Wildlife

Detroit Lakes, the county seat of Becker County, is the economic development engine of northwest Minnesota. A regional summer and winter recreation destination, this area draws an average of 637,000 visitors each year, nearly 300,000 who visit specifically for fishing, boating, swimming, and other water recreation events and activities on Big and Little Detroit lakes.

Tourism is one of Becker County's chief industries, ranking along with agriculture. Becker County is fourth highest in gross tourism sales in the northwest region (\$72 M 2013, Explore MN) with Detroit Lakes being the primary destination (83%).

Big and Little Detroit lakes are located wholly within the City of Detroit Lakes and are considered "flagship" lakes due to their location, relative to the City of Detroit Lakes, their size, and related amenities.

Detroit Lake is considered a diverse, productive, and valuable fishery by MN DNR, supporting healthy populations of walleye, largemouth bass, black crappie, bluegill, northern pike, perch, muskellunge and lake sturgeon.

A mile long city-owned beach and 4.8 acre park area on Detroit lake provides a public swimming beach, a handicapped accessible fishing pier, and launch areas for boats, paddleboards, and kayaks.

Increases in nuisance and severe algae blooms would likely deter visits from recreational users (anglers, swimmers, boaters), affect demand/valuation of waterfront property, and decline in tourism revenue.



**Goal:** Cleaner water entering Big Detroit lake to reduce summertime algae blooms.

**Strategy:** Keep trapped nutrients (phosphorus) from flushing out of the ditched Rice Lake Wetland and polluting downstream Detroit Lake.

# Rice Lake Nutrient Reduction Project

## Working for Cleaner Lakes

Over the past two decades, the Pelican River Watershed District has focused on the Detroit Lake watershed area conducting diagnostic studies, monitoring, and modelling to pinpoint the largest contributors of phosphorus and sediment within the watershed area—untreated storm water runoff from impervious surfaces, nutrients from ditched wetlands, and soil erosion from ag fields and construction sites. The District is working closely with many partners including landowners, businesses, and other agencies to construct practices and implement development rules needed to achieve long range water quality goals for Detroit and downstream lakes Sallie and Melissa.

## Restoring the Rice Lake Wetland for the health of Detroit Lake

The studies and monitoring data identified the upstream Rice Lake Wetland, a ditched 280 acre wetland, as the primary source and contributor of “legacy” phosphorus loading to Big Detroit, contributing 3,000-4,000 lbs/year and 100 tons of sediment /year to the Pelican River. The project water quality goal is to reduce by 40-60% the spring and summer episodes of phosphorus release from the wetland. This can be achieved by increasing and stabilizing the water level to increase water residence time and trap the phosphorus to prevent it from leaching out of the peat soils and traveling downstream to Big Detroit Lake.

## Rice Lake Project Fast Facts

- ◆ **2 dams and access roads for maintenance**
- ◆ **Anchor Road Improvements**
- ◆ **Funding & Partnerships**—Natural Resource Conservation Service, Board of Soil and Water Resources—Clean Water Legacy Funding, Minnesota Pollution Control Agency, Department of Natural Resources, City of Detroit Lakes, and landowners.
- ◆ **Project Cost: \$2.5 Million**

## Additional Benefits..... For the health of Lake Sallie too!

A Diagnostic Study for Lake Sallie, a hyper-eutrophic lake, identified Detroit Lake and Lake St. Clair (TMDL impaired for phosphorus) as major upstream contributors to Lake Sallie’s water quality problems. Improving Detroit Lake’s water quality to in-lake phosphorus concentrations of 22ppb by reducing the high phosphorus loads from the Rice Lake Wetland was identified in the study as a critical factor for improving Lake Sallie’s impaired water quality.

## MN DNR Frank Wildlife Management Area

Within the upstream Rice Lake wetland restoration project area also, lies the MN DNR Frank Wildlife Management Area, a 309 acre recreational wetland and upland area open to hunting, trapping, and compatible wildlife uses. The WMA is managed to provide habitat for small mammals, furbearers, grassland species, and wetland species (mallards,



*The Rice Lake Wetland northern basin. Ditch 13 enters from Anchor Road and flows south from the wetland to Detroit Lake.*

# Lake St. Clair TMDL

A Total Daily Maximum Load (TMDL) study was completed by the Minnesota Pollution Control Agency and the Pelican River Watershed District in 2016 to address the nutrient impairment of St. Clair Lake. St. Clair is a 160 acres shallow lake and receives runoff from 7,380 acres (11.5 sq miles) of land. St. Clair does not meet Minnesota's water quality standards due to excessive nutrient and algal concentrations.

**Water Quality and Phosphorus sources.** St. Clair Lake was first listed on the EPA's 303(d) Impaired Waters List in 2008 for excessive in-lake Phosphorus (>60ppb) and Chlorophyll-a water quality standards, and just meets the secchi transparency standard. In 1915, the lake was drained (Ditch 14/Branch 1) from approximately 600 acres to its current size of 160 acres. The City of Detroit Lakes original Waste Water Treatment Facility (WWTF) was constructed in 1929 and discharged to St. Clair Lake. A



modern facility was constructed in 1976 which significantly reduced phosphorus loads to St. Clair lake and downstream water bodies. Unconsolidated nutrient enriched lake bottom sediment is as thick as 12 feet in portions of the lake, a high potential for internal loading from sediments. St. Clair was treated with alum in the fall of 1998, and the suppression of internal phosphorus loading from the sediment is evident in the datasets through 2013. Motorboat access is restricted to the MN DNR and the District for data gathering purposes.



**Phosphorus Reduction Goal:** the study determined

the phosphorus loading capacity of St. Clair Lake is 1,005 lbs/year to meet standards. The total phosphorus load reduction needed to meet standards is 286 lbs/year. Phosphorus loads are allocated between regulated/unregulated activities (wastewater treatment facility, construction/ development, Industrial) and natural background conditions (Long Lake outflow, groundwater, atmosphere). Towards meeting the goal the City of Detroit Lakes is constructing an upgraded WWTF, due to aging infrastructure and the need to discharge into St. Clair lake year-round due to the nearby airport expansion which requires removal of the land application facilities. In addition, stormwater treatment regulations and installation of targeted best management practices, including an alum treatment, will need to be implemented.

**2017 DATA.** In-lake phosphorus concentrations in St. Clair Lake were 107ppb (goal is <60ppb). The 1998 alum treatment suppressed lake sediment loading (approx. 22 lbs/year), with in-lake phosphorus concentration averaging 73 ppb from 1999-2012. Water clarity also shows a decline with an observed average of 2.1 feet, over a 1-foot decline from average during the ALUM lifespan (3.2 feet, 1999-2012).

## The Lake Sallie Connection

Lake St. Clair discharges via County Ditch 14 into the Pelican River, which flows into Muskrat Lake, and then to Sallie and Melissa Lakes. Sallie has been the subject of extensive City of Detroit Lakes and Pelican River Watershed District rehabilitation efforts over the past three decades that have resulted in measureable improvements in water quality. However additional reductions in nutrient concentrations are required to fully achieve lake water quality standards and beneficial uses. The water protection strategy for Lake Sallie has been to reduce and minimize loads from St. Clair (via public Ditch 14) and the non-point sources from the City of Detroit Lake's urban areas (stormwater runoff).



Prior to the construction of the original wastewater treatment facility in 1929, untreated wastewater was discharged into Lake St. Clair, which resulted in the phosphorus level in Lake Sallie to be approximately 54ppb, nearly 3 times that of nearby and similar lakes. In 1976, when the WWTF was upgraded, Sallie again responded to the load reduction with a decline in phosphorus levels ranging from 46 to 48ppb. The current facility, upgraded in 2002, further reduced the load to Lake Sallie resulting in the current in lake concentrations between 35 and 37ppb.

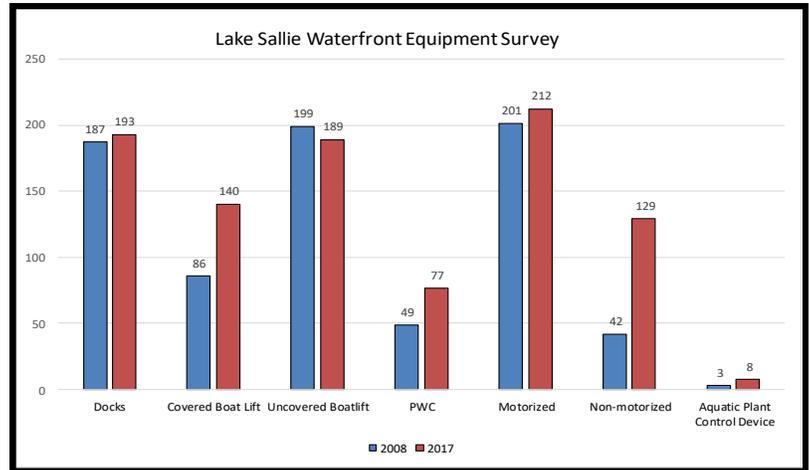
Stormwater Best Management Practices in the City of Detroit Lake have also aided in Lake Sallie improvements by reducing stormwater runoff loads to Little Detroit Lake, which outlets to Sallie.

# Shoreline Surveys

The Pelican River Watershed District conducts periodic assessments of the land use, lake use, and level of shoreline alteration on lots on District Lakes. In 2017, District staff completed surveys of Muskrat, Sallie, and Melissa Lakes. Each parcel was documented for shoreline alterations, the use of the Shore Impact Zone (SIZ), and the amount/type of waterfront equipment. The previous survey for Sallie and Melissa was done in 2008. 2017 was the first year that Muskrat has been surveyed.

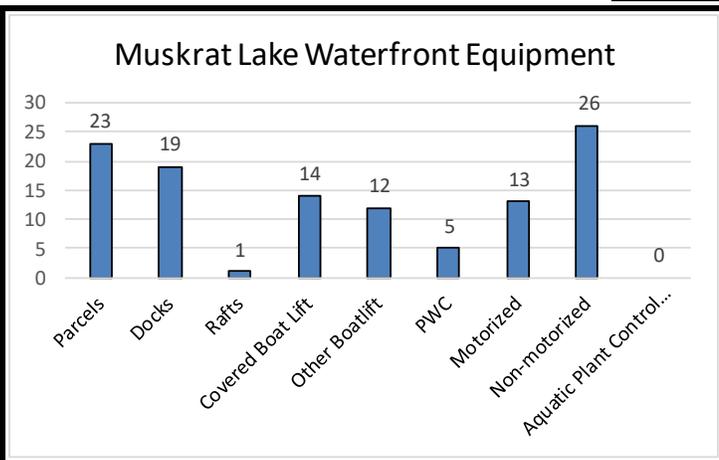
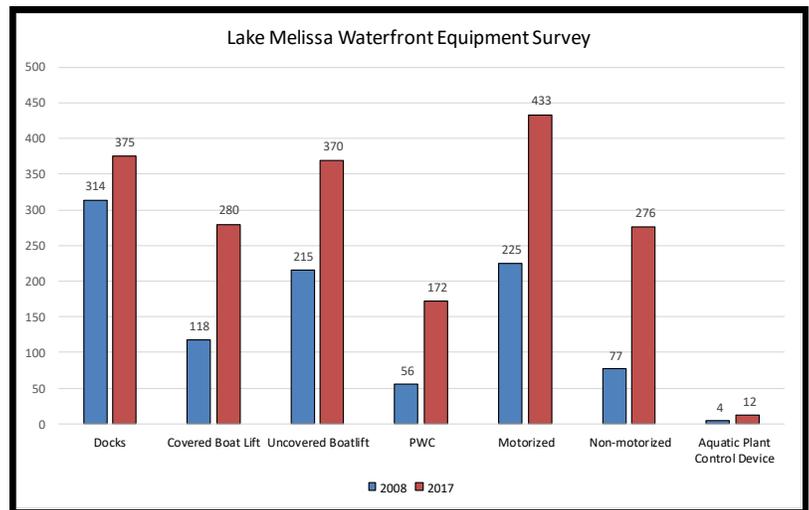
## Lake Sallie

In comparing the 2008 and 2017 survey, there is significant growth in the amount of recreational lake use equipment located on the shoreline of Lake Sallie. The number of docks present rose slightly, about 3%. The only decrease in equipment was uncovered boat lifts, a 5% decrease. However, when compared to the large increase in covered boat lifts, 60% increase, it becomes apparent that more homeowners have shifted from uncovered to covered boat lifts. Motorized boats, including ski boats, fishing boats, and pontoons remained nearly the same, however, there has been a large increase in proportion of pontoons that are present. PWC's (Personal Watercraft) increased by 60%. Interestingly, there was a very large rise, nearly tripling, the number of non-motorized equipment. This includes paddle boats, kayaks, canoes, and stand up paddle boards.



## Lake Melissa

There has been a drastic increase in the quantity of waterfront equipment along the shoreline of Lake Melissa. The number of boats increased to 433, a 92% increase, totaling 1.1 boats per parcel. As to be expected with a near doubling of motorized watercraft, the number of lifts, both covered and uncovered also nearly doubled. PWC's nearly tripled in the last ten years. Currently there is nearly 1 vessel for every two lake parcels. It was noted during the survey that many of the motorized watercraft were pontoons, shifting from predominantly fishing boats in 2008.



## Muskrat Lake

Muskrat Lake was surveyed for the first time in 2017. Of the 23 parcels on the lake, 14 of them remain in a natural (or near natural) condition in terms of vegetation and alterations, 8 minimally altered, and 1 moderately altered. It should be noted that over half of the shoreline remains undeveloped. Because of the navigable channel to Detroit Lake and a tram to Sallie, there is a higher concentration of watercraft, including PWC's, than in lakes similar in size and classification.

# Ongoing Projects—Plant Management

## Flowering Rush

The District continues to manage areas of Flowering Rush utilizing chemical treatments on lakes Sallie, Melissa, Detroit and Curfman. Research has shown that injecting the chemical, Diquat, below the water surface twice yearly, gives significant reductions in above and below ground plant biomass and densities.

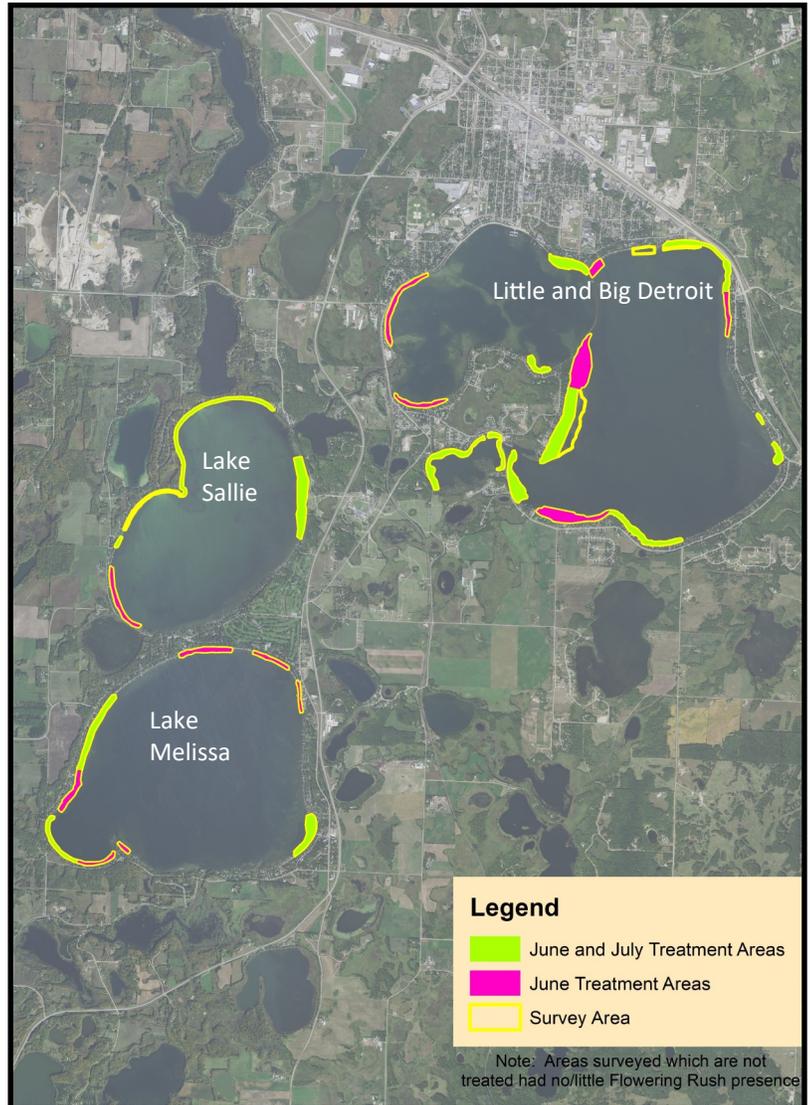
## Adaptive Plant Management Study

After successful reduction in lakewide plant density populations, in 2015, the District began an adaptive plant management study to determine if plant densities could be reduced or controlled over time with fewer chemical applications. The District tested three different application protocols over the summer season—no application, one application, and two applications. The results were positive, with one application resulting in maintaining plant densities and two applications resulting in decreasing populations. No treatment resulted in increased plant densities. The newly established protocols were continued with successful results in 2017.

## Treatment in Mixed Stands of Flowering Rush and Bulrush Study

Also in 2015, the District began a pilot study to determine the effects of applying subsurface Diquat in a mixed stand of Flowering Rush and native Hardstem Bulrush. After two years of treating a 5 acre test plot, it became apparent that the chemical application had no damaging effects on the Bulrush, while showing significant reductions in Flowering Rush. Native plants, including Pond Lily and Hardstem Bulrush, have begun to migrate into areas that were previously infested with Flowering Rush. The test area was expanded to 33 acres in 2017 and the District is planning to further expand and treat the entire infestation in 2018, approximately 53 acres.

In 2018, the reference site will be abandon and the District will treat the entire bulrush area, helping to control the source population for redistribution of propagules to other parts of Lake Sallie.



2017	Detroit	Curfman	Sallie	Melissa
June—FR Acres/Cost	146.9 Acres \$20,213	15 Acres \$2,064	42.7 Acres \$5,876	53.7 Acres \$7,369
July—FR Acres/Cost	83.6 Acres \$11,598	15 Acres \$2,064	44.7 Acres \$6,151	28.4 Acres \$4,329

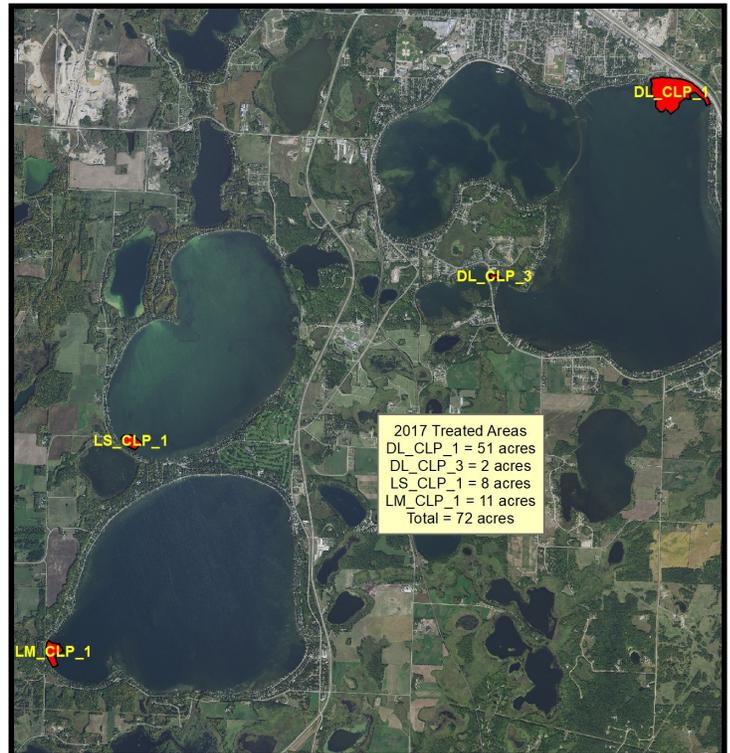


# Ongoing Projects—Plant Management

## Curly-leaf Pondweed

The invasive Curly-leaf pondweed has been a nuisance in District lakes for many years. Historically, this invasive species was managed with mechanical harvesters to allow for better boat navigation and recreational use. In 2016 the District moved from mechanical control to chemical. Since the plant has a unique and early growing cycle compared to the native plant community. This unique growth cycle allows chemical application early in the spring season, timed to control the plant before it grows to nuisance levels while minimizing damage to the still dormant native plant community. Two large CLP beds were treated on Detroit Lake and one CLP area was treated on both Lake Sallie and Lake Melissa.

During a post-treatment survey of Detroit and Sallie, two additional locations were identified with dense CLP plant growth. These areas will be surveyed and treated in 2018.



2017	Detroit	Curfman	Sallie	Melissa
May—CLP Acres/Cost	60 Acres \$24,654	N/A	7.96 Acres \$4,154	13 Acres \$6,993



## St. Clair Lake

A very large and dense Curly-leaf Pondweed population was observed throughout the northern and eastern shoreline. It is unknown how the invasive plant was brought to the lake or how long it has been there. The District will be mapping plant growth in 2018. This is concerning because St. Clair's maximum depth is only 7 feet and contains nutrient rich sediments. A Curly-leaf pondweed infestation has the capability to infest the entire lake at an extremely high growth density.

## Aquatic Plant Pick up Program

The Watershed District hires seasonal staff from Memorial Day through the end of September to collect aquatic vegetation around Lakes Sallie, Melissa, Big and Little Detroit, and Curfman. Property owners are asked to bring the vegetation from the shoreline to their driveway or yard near the street, where it is picked up and disposed of by our staff. This program is for aquatic vegetation only and does not include garden waste, branches, leaves or other waste. This program is paid for through a special assessment.



# Education & Outreach

## Lakes Area Regulations and Best Practices

Seminar was held February 22, 2017 from 8:30—3:00 at M-State in Detroit Lakes. PRWD staff began organizing the event in the fall of 2016 after experiencing a summer filled with rule violations. Local agencies contributing input, presentations and funds included the City of Detroit Lakes and Becker County. Becker SWCD also assisted with planning and presentation. Staff reached out to local contractors to see what difficulties they were having with each agency in regard to permitting, site plans, etc. so that we were prepared to address their concerns.



The event was attended by 60 local contractors, realtors and lake association members.

Attendees listened to presentations from local government agencies and were given the opportunity to ask questions. Agencies received input on various topics including: impervious surface coverage, rock landscaping, water oriented structures, and permits required from multiple agencies.

The District received positive feedback after the event and it was determined that once the City of Detroit Lakes has adopted their new Shoreland Ordinance and PRWD has completed an update of their rules, it would be beneficial to host another event.

## Revised Management Plan Public Engagement Meetings

PRWD staff held three meetings to engage the public on issues concerning three regions of the watershed. On May 10, people from lakes Long, Sallie and Melissa were invited to the District office to give their input and voice concerns. At their request, MPCA staff was available to answer questions concerning airport upgrades and the condition of Lake St. Clair and future actions that may be required.

On May 16, Guetter met with Floyd lake residents at the home of Board President, Dennis Kral. They stressed the need to protect the water quality through responsible shoreline development, AIS protection and drainage ditch management.

The final meeting was held May 23 with a diverse group of residents and realtors from the Detroit Lake region. Although their top priority was to keep lake water quality high, some felt that the current rules enforced by both the City and the Watershed District were too stringent for property owners on the lake. They were interested in the pending Rice Lake Nutrient Reduction Project and how that would impact the phosphorous in the lake.

The meetings proved to be very worthwhile and the feedback received will greatly assist the Watershed District in prioritizing goals and future projects.



# Education & Outreach

PRWD staff was once again very active around the community with educational activities. Alcott began the year at the Explore Lake Life Expo at the Scheels Arena in Fargo in late January. He was able to reach out to people who own property on the lakes and those that frequently visit the area. Alcott also presented to the local Home Builders Association in February outlining District responsibilities.

Moses designed new educational panels dealing with the Water Cycle, Water Facts, and Water Protection. This has been helpful in events such as the Water Festival that the City of Detroit Lakes sponsors each spring to area 4th graders. She also mentored five 4th grader students on Best Practices for stormwater around the community, which included stenciling by storm drains around the City.



Guetter travelled to Great Falls, MT in the Spring to present at the State of Montana Aquatic Invasive Species meeting to share the District's struggle, research and successful treatment of Flowering Rush in area lakes.

Alcott & Moses set up a booth at the Detroit Lakes High School to share different aspects of their jobs at the Freshman Expo and Senior Job Career Fair.

In May the District hosted a Level 2 Salt Applicator Workshop for area municipal and county employees who are responsible for road salt application. Participants were taught how to use an on-line tool to evaluate their applications practices.

Moses & intern Tyler Haaland-Zurn manned the District booth at the Becker County Fair in early August. This is an opportunity to reach out to young and old who live throughout the County to discuss water quality issues that interest them.

The District was invited to lake association meetings of Long, Detroit, and Floyd lakes. Alcott introduced the new Cost Share program and spoke on water quality issues.

9th Grade Water Watch, a program to help students learn about water monitoring, nutrients of concern, and how data is used to implement programs, was reintroduced at the local high school. Alcott assisted with planning and water monitoring procedures, while Guetter presented on the process of how local units of government make decisions regarding development and the environment. Students were then invited to have a civic debate of their own, weighing all factors, and deciding how their city should proceed with responsible development.



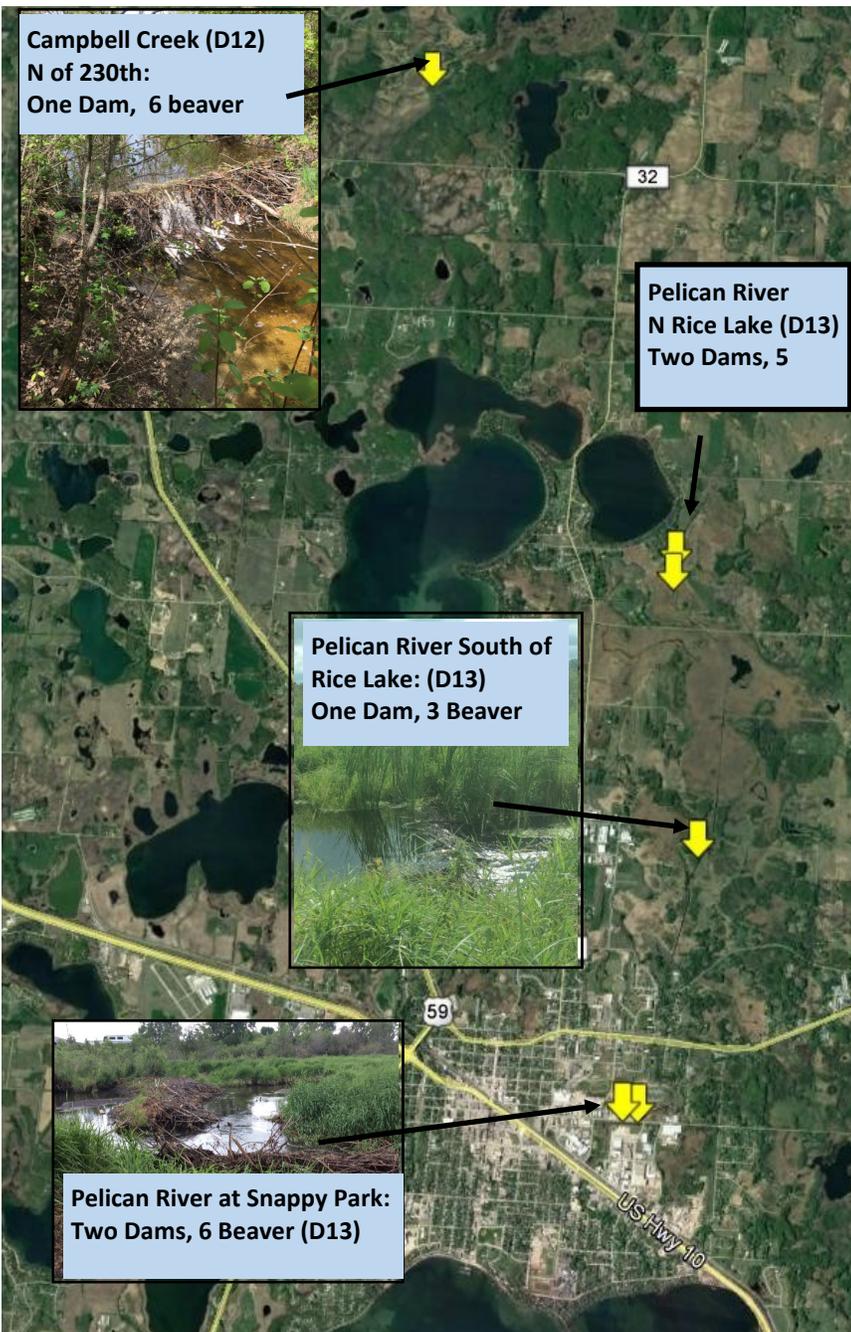
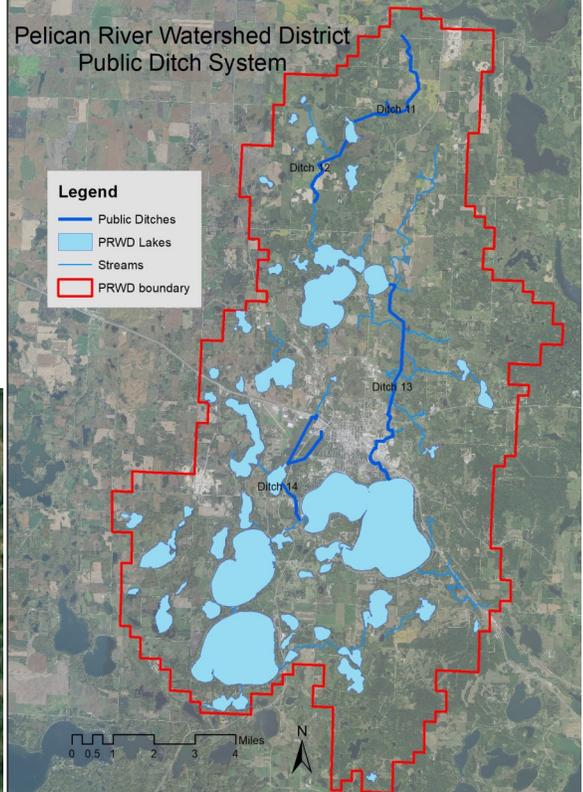
Also in September, Tamarac Wild Life Refuge hosted their annual Fall Festival. The 2017 theme was water quality and Moses used the watershed model to demonstrate to families how their actions affect water quality, regardless of where they live. Manager Deede also displayed his Becker County Watershed puzzle at the event.

The staff continues to be a guest on the local radio show, Hodge Podge on the third Friday of each month to keep area listeners updated on District projects and events.

# Drainage Systems

## Becker County Ditches 11, 12, 13 & 14

In the late 1990's, Becker County Commissioners transferred the drainage authority responsibilities of Becker County Ditch 11/12 (Campbell Lake/Creek area), 13 (Floyd Lake, Rice Lake, City of Detroit Lakes area, and 14 (St. Clair Lake, City of Detroit Lakes area) to the Pelican River Watershed District. These drainage systems were constructed from 1913 to 1918 for agricultural improvements. The management of these systems follows MN Statute 103E and the costs associated with the drainage systems are paid for by the benefiting properties.



The District regularly inspects the systems, checking for tree snags, beaver dams, flow restriction, and bank erosion.

**Ditch 11/12:** Inspections, 6 beaver trapped; one dam removed, and Administrative: \$2,272 expenses.

**Ditch 13:** Inspections, 14 beaver trapped; 4 dams removed, and Administrative: \$5,892 expenses.

**Ditch 14:** Inspections and Administrative: \$1,217 expenses.

### Administrative

The District is responsible for submitting annual compliance reports to the Minnesota Board of Soil and Water Resources.

In 2017, the Managers elected jurisdiction to enforce the MN Buffer Law on its drainage systems and to adopt the necessary Rules and administrative penalties as required by MN Statute.

The managers adopted a "Drainage Systems Policy" which addresses tree removal, beaver control, and dam removal and a "Trapper Certification" which outlines policies, procedures and payment for contractors hired to perform work in the Ditch systems.

# Operating Revenue & Expenses

The District is funded through ad valorem tax levies within the boundaries of the watershed district. These funds, along with grants and special assessments, are used to fund projects and programs. The District does charge permit fees to support their permit program. Tax dollars are collected from watershed residents through its statutory authority according to MN Watershed Act (M.S. 103D).

**Watershed Districts have the following programs:**

- ⇒ General/Administrative: conducting the business of the District
- ⇒ Regulations: administering the District's rules and permits
- ⇒ Planning: administering the District's watershed management plan and budgets
- ⇒ Maintenance of Projects and District owned facilities
- ⇒ Capital Projects
- ⇒ Public Relations: administering the requirements of reporting to and notifying the public

The budget must be adopted and certified on or before September 15th. M.S. Chapter 103D.911 requires that the managers hold a public hearing before adopting a budget. The chart below is a complete budget profile for 2017 and 2018 along with the actual funds spent in 2017.

	2017 Budget	2017 Actual	2018 Budget
<b>Revenue</b>			
Levy	687,000	\$687,928	642,000
Grants & Other	(129,492)	111,032	(77,627)
<b>Total Revenue</b>	<b>\$557,508</b>	<b>798,960</b>	<b>564,373</b>
<b>Expenses</b>			
Capital Outlay	35,000	0	36,500
Community Relations	16,500	4,463	6,500
Loan Payment	33,000	33,000	33,000
Ditch Expenses	6,390	4,815	5,650
Program Acts./Grant Match	265,520	117,328	368,050
Operating Expenses	81,330	59,677	80,100
Payroll	301,700	280,520	319,200
Rice Lake Project		249,632	
Contracted Services	101,600	68,900	141,650
<b>Total Expenses</b>	<b>\$841,040</b>	<b>\$818,335</b>	<b>\$990,650</b>

# 2018 Workplan

District-Wide Goals	Continuing	2018 New Activities
<b>Education</b> <ul style="list-style-type: none"> <li>◆ Publications, support of organizations, etc</li> <li>◆ Recruit more volunteers</li> <li>◆ Upgrade website</li> <li>◆ Awards/Demo Projects</li> <li>◆ Contractor Seminar</li> </ul>	(see also Water Management, and BMP's) Tours for Managers and Citizen Advisors Presentations for service groups, lake associations, classes, fair booth, water festival, City, County Assistance to educational programs Publish annual summaries, lake info sheets Website/Facebook Continuing education for managers and staff – workshops, conferences (GF); Support of LA's and COLA News articles/Monthly Hodge Podge radio	Collaborate with City of DL and Becker County – Shoreland, stormwater, trainings/seminars Revitalize PRWD Citizen Advisory Committee; Work/engage with organizations such as Becker COLA, Rotary, etc. Create new suite of Storm water management information (BMPS, Maintenance Guides, etc) Present to more Community and Lake Association groups
<b>Data Collection (monitoring)</b> <ul style="list-style-type: none"> <li>◆ Maintain monitoring program</li> <li>◆ Upgrade monitoring equipment</li> <li>◆ Prepare lake-specific evaluations</li> <li>◆ Integrate monitoring and GIS</li> <li>◆ citizen volunteers, agency coordination</li> </ul>	Update & implement monitoring plan and data Recruit additional monitoring volunteers Employ two summer interns for lake/stream monitoring Training/seminars/conferences/courses	Industrial Park – monitoring for CW Grant/City Shoreline surveys- Sallie, Melissa 1-seasonal intern for stormwater practice inspection; database, RMP assistance
<b>BMP's to Reduce Phos and Sediment</b> <ul style="list-style-type: none"> <li>◆ Promote BMP's</li> <li>◆ Promote, acquire buffer zones</li> </ul>	(see also Water Mgmt Reg and Educ sections) Encourage vegetative buffer easements along riparian areas Encourage other BMP's Restore-the-shore – HWY 10 overlook maint.	Assist MN DNR with buffer enforcement (waterways) CW Grant Funding for West Lake Drive & Industrial Park improvements (stormwater innovation; buffers) - July Raingarden in City of DL; Overlook Area Cost Share Assistance for Shoreland Buffers Develop GIS based database for BMPs Review areas from Drainage Inventory for potential projects
<b>Water Mgmt. Regulation (incl permitting)</b> <ul style="list-style-type: none"> <li>◆ Advocate regulations to promote water quality</li> <li>◆ Advocate rigorous and consistent enforcement of District and other rules</li> <li>◆ Coordinate with other units of government</li> </ul>	Continuous rigorous and consistent enforcement of Rules practice oversight on County and City activities relating to water quality Advocate for City, County and State water quality enhancement Serve on inter-agency committees and panels Update Website - Permit information/location links	Explore rule revision process with RMP Revised Management Plan (Wenck) Ottetail Basin WRAPS Permit Application Software – County BWSR grant; Work with county & city on streamlined permitting City of DL Shoreland Ordinance Update
<b>Lake Management Planning</b> <ul style="list-style-type: none"> <li>◆ Promote LMP concept; encourage adoption of special protection zones</li> </ul>	Continue to motivate and assist lake associations to become proactive in promoting planning Encourage the adoption of special protection zones (see also Water Management Reg) Project 1B/1C Aquatic Vegetation Management AIS prevention, rapid response, control	Manage AIS infestations Encourage continued inspection program at public and private accesses
<b>Septic System Management</b> <ul style="list-style-type: none"> <li>◆ Encourage septic BMP's, and rigorous enforcement of regulations</li> </ul>	Monitor permits for installation of ISP's Support BC Septic inspection program Encourage cluster systems (Sallie/Melissa) Promote alternative approaches Work with landowner groups and local govts.	Work with City of DL – Wastewater treatment plant upgrade; assist with grant funding opportunities
<b>Ditch Management</b>	Ensure proper ditch management – (Beaver)	Rice Lake Project Requirements Buffer compliance
<b>General Administration</b> <ul style="list-style-type: none"> <li>◆ Project overview, grants, reports, budgets, payroll, etc; office equipment maintenance</li> </ul>	Plan and manage finances; 2016 Audit Office Equipment Updates Annual Report	Office Equipment - Computers – (laptop, reception); Copier. MAWD strategic plan support