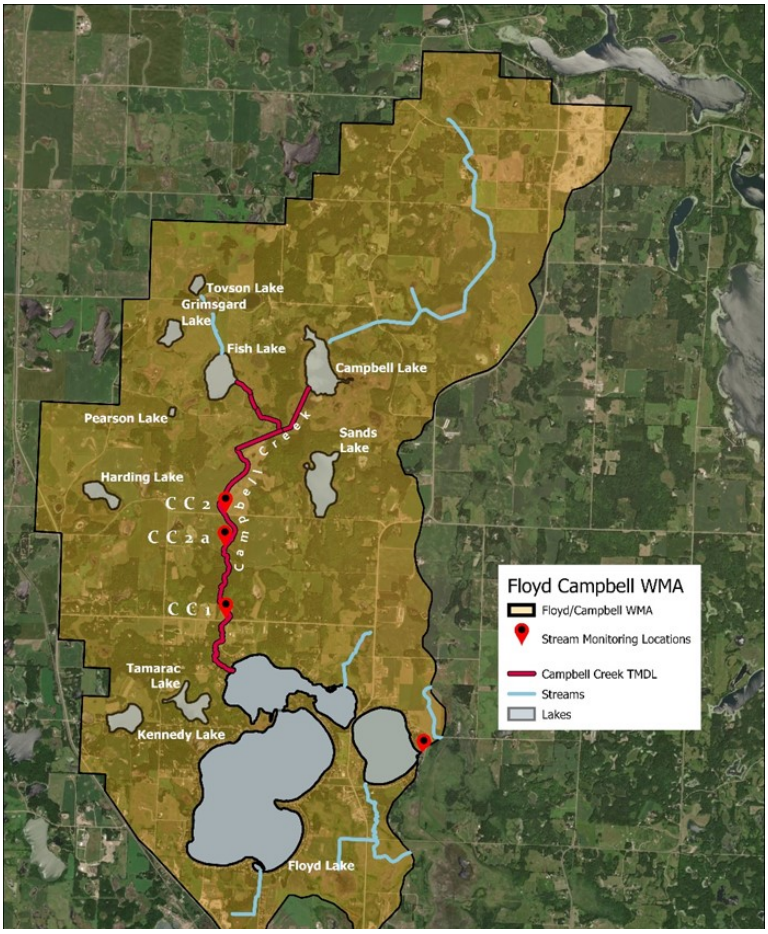
Floyd-Campbell

Water Management Area

Spring 2021



COVID-19 may have slowed us down a bit in the spring of 2020, but by the time the summer monitoring season was upon us, we were ready to roll. Protocols for staff and seasonal interns were established so that the work of the District could be completed as safely as possible.

In 2020, the District performed a water quality survey, aquatic plant survey, and a zooplankton survey on the Floyd Chain of Lakes.

Total phosphorous on Big Floyd was 15 ppb compared to the 20-year average of 15.5 ppb, North Floyd was 28 ppb compared to the 20-year average of 32 ppb, and Little Floyd was 20 ppb compared to the 20 year-average of 23.5 ppb.

Campbell Creek continues to receive heavy sediment loads from streambank erosion. In 2020, the District continued its cooperative partnership with the MN DNR to study stream channel erosion on Campbell Creek from Campbell Lake to Floyd Lake. Staff noted downcutting of the channel bed, undercut banks, and extensive erosion to outer stream banks. Once the degraded areas are pinpointed, strategic restoration practices will be installed to limit the amount of sediment traveling downstream. The District has been selected for Federal Section 319 Funding to address water quality in the Campbell Creek area. Once funds are finalized, planning and execution of the Campbell Creek Restoration can begin!

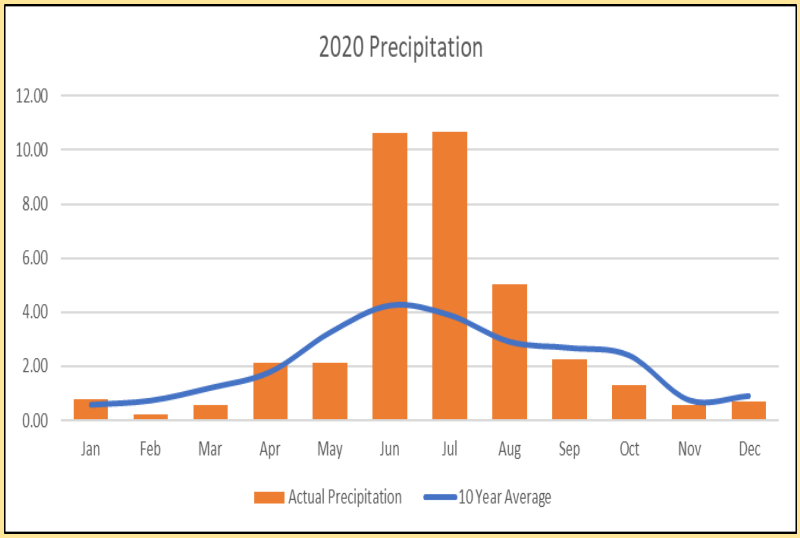
A Shoreline Survey was conducted on Sands Lake in 2020. Sands has remained mostly undeveloped with 83% of the shoreline being natural.

In 2021, the District is scheduled to perform a water quality survey and shoreline survey on the Floyd Chain of Lakes, and a water quality survey on Campbell Lake.

2020 Monitoring Results & Weather

Water Management Area	Lake	2020 Average			Historical Averages (2000-2019)			MNPCA Lake Standards		
		TP (ppb)	Chl-a (ppb)	Secchi (feet)	TP (ppb)	Chl-a (ppb)	Secchi (feet)	TP (ppb)	Chl-a (ppb)	Secchi (feet)
Detroit/Rice	Big Detroit	18	3	15	25	9	10	<40	<14	>4.6
	Little Detroit	15	3	15	20	5	11	<40	<14	>4.6
Floyd/Campbell	Big Floyd	12	4	14	16	5	12	<40	<14	>4.6
	North Floyd	26	11	10	32	15	8	<40	<14	>4.6
	Little Floyd	25	10	8	24	10	9	<40	<14	>4.6
Sallie/Melissa	Sallie	26	5	15	34	15	8	<40	<14	>4.6
	Melissa	20	4	17	21	8	11	<40	<14	>4.6
	St. Clair*	57	18	4	88	43	3	<60	<20	>3.3
Brandy	Oak	49	44	5	-	-	-	<60	<20	>3.3
Pearl/Loon	Spear	30	7	9	-	-	-	<60	<20	>3.3
	Loon	14	4	9	22	8	7	<60	<20	>3.3
Small Lakes	Glawe	23	6	9	23	6	10	<60	<20	>3.3
	Meadow	13	4	13	17	4	16	<40	<14	>4.6

2020 Weather.
The big story of 2020 is heavy rainfall events throughout the year, but especially during the months of June and July. Between April and September, there were a total of 20 rainfall events which precipitated > 0.5" of rain and 11 events which precipitated >1" of rain, with the largest event on June 8th and 9th precipitating a total of 4.41" The wettest months of the year were June and July, with 10.63" of rain in June and 10.66" in July. This is 6.38" and 6.76" over the June and July 10-year average for Becker County (MN DNR Climate Data). Snowfall for 2020 (38.9") was below average (48.27") for the year. An anomaly occurred in October with 9.4" of snow falling, however, warmer temperatures melted the deposited snow shortly thereafter.

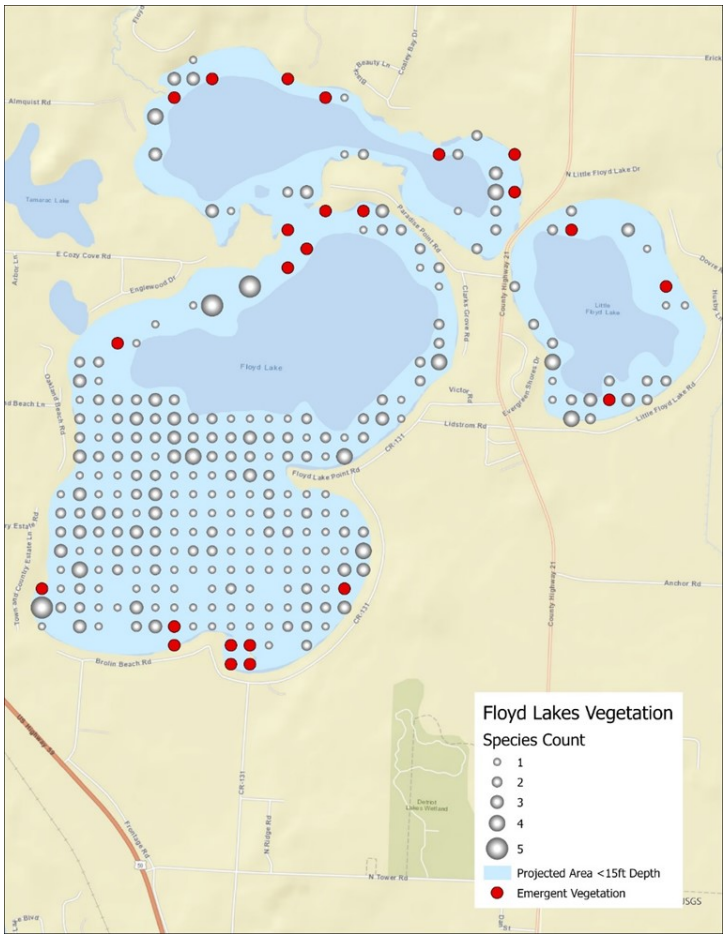


Ice in/Ice out.
A citizen scientist submits ice-on and ice-ff data for the Floyd Lakes each year. The District has data from 1971 to 2020 to track trends in relation to climate change. In 2020, there were 219 days without ice cover on Floyd Lake, and 164 days of ice cover in the winter of 2019-2020. The number of ice cover days is a slight decrease from the 10-year average of 222, but an increase from the historic average of 215 days. The number of ice cover days from the winter of 2019-2020 was increased from the historic average of 149 days and the 10-year average of 143 days.

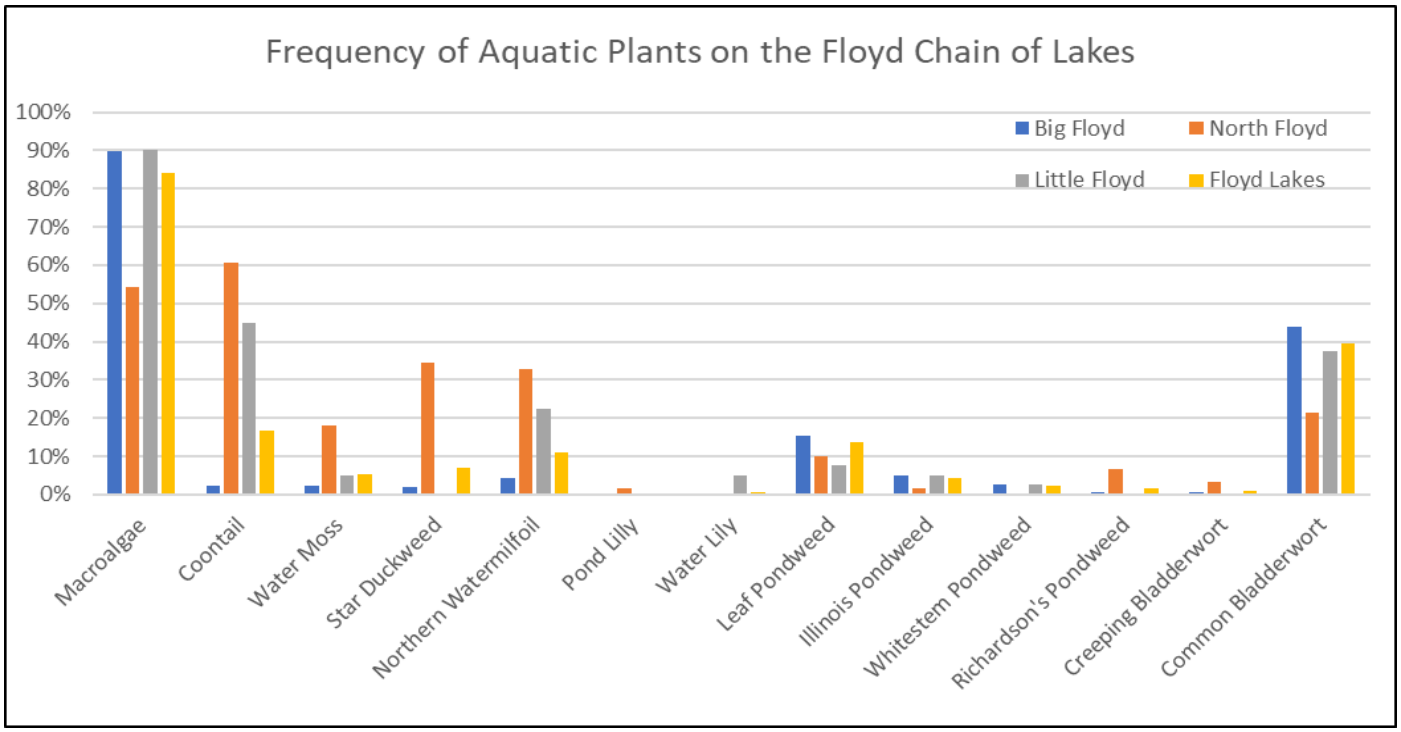
The Ordinary High Water (OHW) for Big Floyd, Little Floyd and North Floyd is set at 1354.8' MSL

2020 Vegetation Survey—Floyd Chain of Lakes Summary

The District performed a point-intercept vegetation survey on all three of the Floyd Chain of Lakes in 2020. A total of 344 points were sampled to assess the aquatic vegetation community. 13 Species were observed, 9 of which were submerged species and 4 floating/ emergent species. The most common species observed were macroalgae (*Chara spp. Or Nitella spp.),* with 308 of the 365 points having one or the other. No AIS were observed during the survey, but the District staff did note zebra mussels attached to some of the plants sampled. Curly Leaf Pondweed was identified by District Staff in the spring of 2021 on the Northeast side of Little Floyd Lake.



Overall, the aquatic vegetation community of the Floyd Lakes is healthy. High densities of rooted native plants help hold sediments in place, create habitat for fishes and macroinvertebrates, increase DO, and uptake nutrients from the water column. Tall species such as pondweeds, coontail, or bladderwort can provide excellent cover for smaller panfish, decreasing predation and encouraging healthy populations. Species of macroalgae such as *Chara* or *Nitella* species stabilize bottom sediments and provide a food source for multiple species of waterfowl.



Social Media Update, Rice Lake & Permitting

Website. ***www.prwd.org.***

Check out the new site! District staff has worked very hard through the winter months with a website designer to update the website. We launched the new page on May 1, and will continue to update the information in the coming months. You are able to go into the *Our Water* section and click on your lake to see the latest information. We hope you find it user friendly and informative. The section titled *Our Work*, is loaded with information on current projects and programs and the *Resources* section, contains both current and historical reports and data regarding District activities. We welcome any and all feedback on the new site.

Facebook.

If you aren't seeing our posts on your Facebook feed, you may need to "like" or "follow" us to see current information. Due to difficulties with the old District Facebook page, we closed it down and started up a new page in early 2021. In the Process, we lost some of our followers. Check it out for current PRWD updates.

Water Resource Coordinator, Adam Mortenson, received a new Flow Tracker device to collect data on District streams.

Rice Lake Project Moves Forward

Several contractors from the area were present on March 23 for the Rice Lake Project bid opening. The contract was officially awarded to Williams Excavating of Ashby, MN at the Regular Board meeting of the PRWD Managers on April 22. It is anticipated that construction of Phase I will be complete by fall 2021.

Houston Engineering designed the project's features including an upper embankment structure and a rock fishway water control structure which incorporates a 15ft wide low water crossing and drawn-down capability; upper access road improvement to the existing access; installing a road terminus and removal of 2 large road culverts on the vacated Anchor township road segment; and replacing the Rice Lake Wetland historic outlet channel culverts with a rock weir grade control structure to improve fish passage.

Stormwater Management/Permitting

PRWD staff was active with stormwater management projects throughout the District in 2020, despite the pandemic that kept many businesses closed. The largest projects were within the City of Detroit Lakes, including the new Police Department building and parking lot where stormwater runoff is captured and infiltrated underground. Construction on a new city park off South Shore Drive, as well as Phase 2 of the Long Pine Estates addition near Long Lake also began. The Detroit Lakes school building improvements are nearing completion and all sites have comprehensive stormwater management plans. The permit issued to Trinity Lutheran church in 2020 was extended until 2021 to account for delays.

A total of 70 permits were issued in 2020. Please remember to contact District staff before beginning any projects on your property.

Climate Change

Impacts on our Lakes

Our climate is changing and our lakes will continue to experience direct and indirect impacts from these changes. Warmer temperatures and changes in precipitation will drastically impact our lakes. Responses to climate change, adaptation options, and societal support vary across the state. There is no "one size fits all" adaptation strategy. Minnesota's climate adaptation strategy must take a multi-faceted approach that is resistant, resilient, and responsive to the effects of climate change.

RESISTANCE: Protecting high value lakes against climate changes.

RESILIENCE: Improve capacity of lakes to return to prior conditions by reducing stress and vulnerabilities.

RESPONSE: Develop actions that intentionally accommodate change and minimize undesired outcomes.

TEMPERATURE 2050

- Annual average temperature will have increased 3-9 degrees F.
- Number of days with >90 degrees F will triple
- Future warming is projected to be greatest during the winter with increases of 5-11 degrees F

PRECIPITATION 2050

- Annual average precipitation will increase by approximately 2" per year.
- Rainfall frequency and intensity will increase, including more extreme rainfall events (more than 6" in 24 hrs.)
- Increased precipitation in winter and spring will result in higher groundwater levels.

Climate Impacts—Water Quality

- Warmer summer water temperatures and higher nutrient runoff will increase harmful algal blooms in lakes creating health risk for humans and pets.
- Precipitation increases will lead to higher E.coli concentrations, a health risk for humans, and increase recreational beach closures.
- Warmer temperatures and increased nutrient runoff from extreme precipitation events will reduce cold-and cool-water fish habitat, increasing likelihood of summer fish kills.

Adaptation Strategies

1. Increase communication with stakeholders about drivers of water quality and how climate change may worsen water quality issues.
2. Incentivize companies and farmers to reduce nutrient runoff in the watershed.
3. Continue implementation of total maximum daily load (TMDL) programs.
4. Use best management practices for nutrient reductions such as grazing and pasture management, creating riparian and buffer zones, and installing saturated buffers tor educe nutrient loads.
5. Protect and restore wetlands.

Climate Impacts—Lake Levels

- Increased precipitation will lead to higher than normal lake levels causing flooding and property damage.
- In areas with long-term drought conditions, low lake levels will limit boat launch and dock usage.
- Fluctuating lake levels influence water clarity, water temperature, and nutrient cyling, which could exacerbate algal bloom conditions in at-risk lakes.
- Low lake levels will reduce fish and macroinvertebrate habitat, impacting the quality of lake fisheries.

Adaptation Strategies

1. Educate the public about natural lake level fluctuations, and set expectations for more variability in the future.
2. Incentivize agricultural and urban development practices that minimize water use and encourage water infiltration such as limiting groundwater extraction around at-risk lakes and setting zoning regulations that protect the riparian area from development.
3. Protect and restore wetlands and lake habitat in riparian and littoral zones.