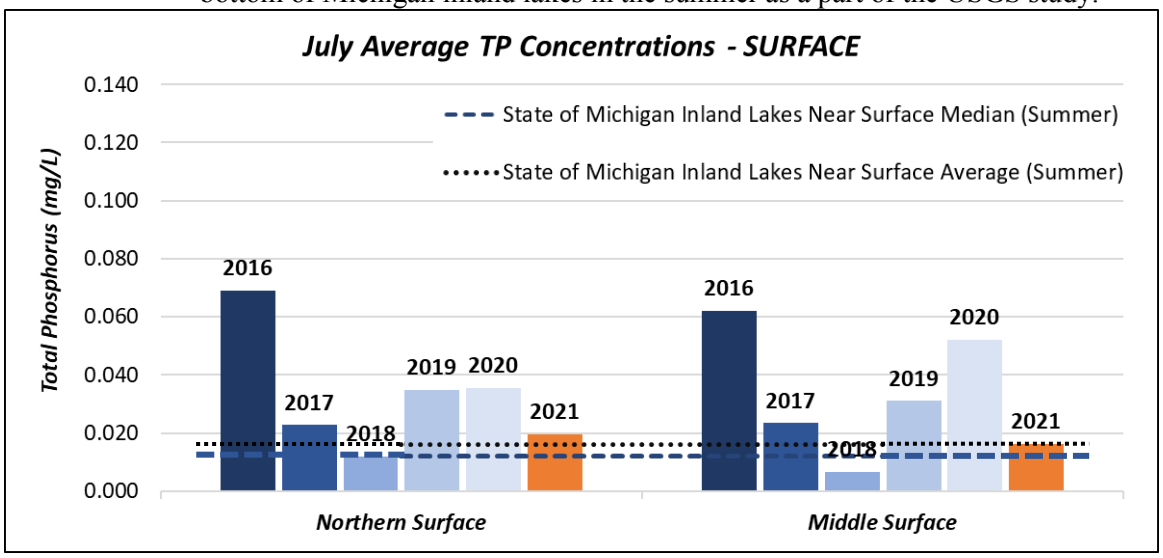
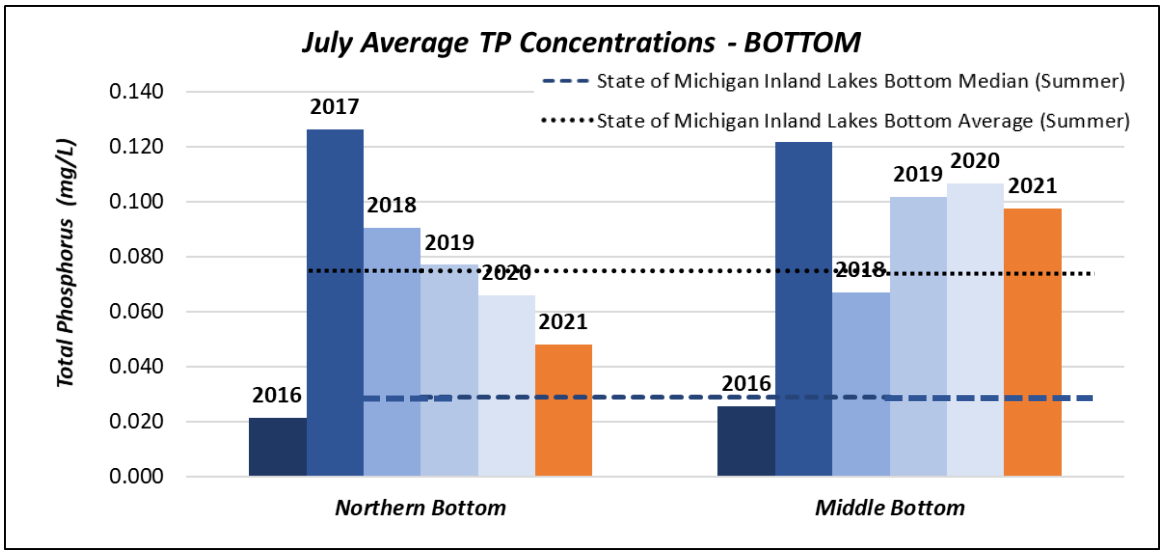
PAW PAW LAKE WATER QUALITY UPDATE
JULY 2021

The text below compares July 2021 water quality data to previous July water quality data (2016 – 2020). For more historical water quality data on Paw Paw Lake, please refer to the 2020 Paw Paw Lake Water Quality Summary Report.

Summary of July Sample Results

- Total phosphorus (TP):
  - Lower in all areas of the lake compared to July 2020, 2019.
  - Lowest surface TP concentrations observed since July 2018
  - Decreasing TP concentrations in northern lobe bottom samples since 2017.
  - Middle Lake bottom TP concentrations are higher than North Lobe.
  - Values are within a normal range for Paw Paw Lake and inland lakes in Michigan.
    - USGS Water Quality Characteristics of Michigan's Inland Lakes Report was used as a comparison for Paw Paw Lake data in the following graphs. Median and average total phosphorus concentrations were calculated for the surface and bottom of Michigan inland lakes in the summer as a part of the USGS study.





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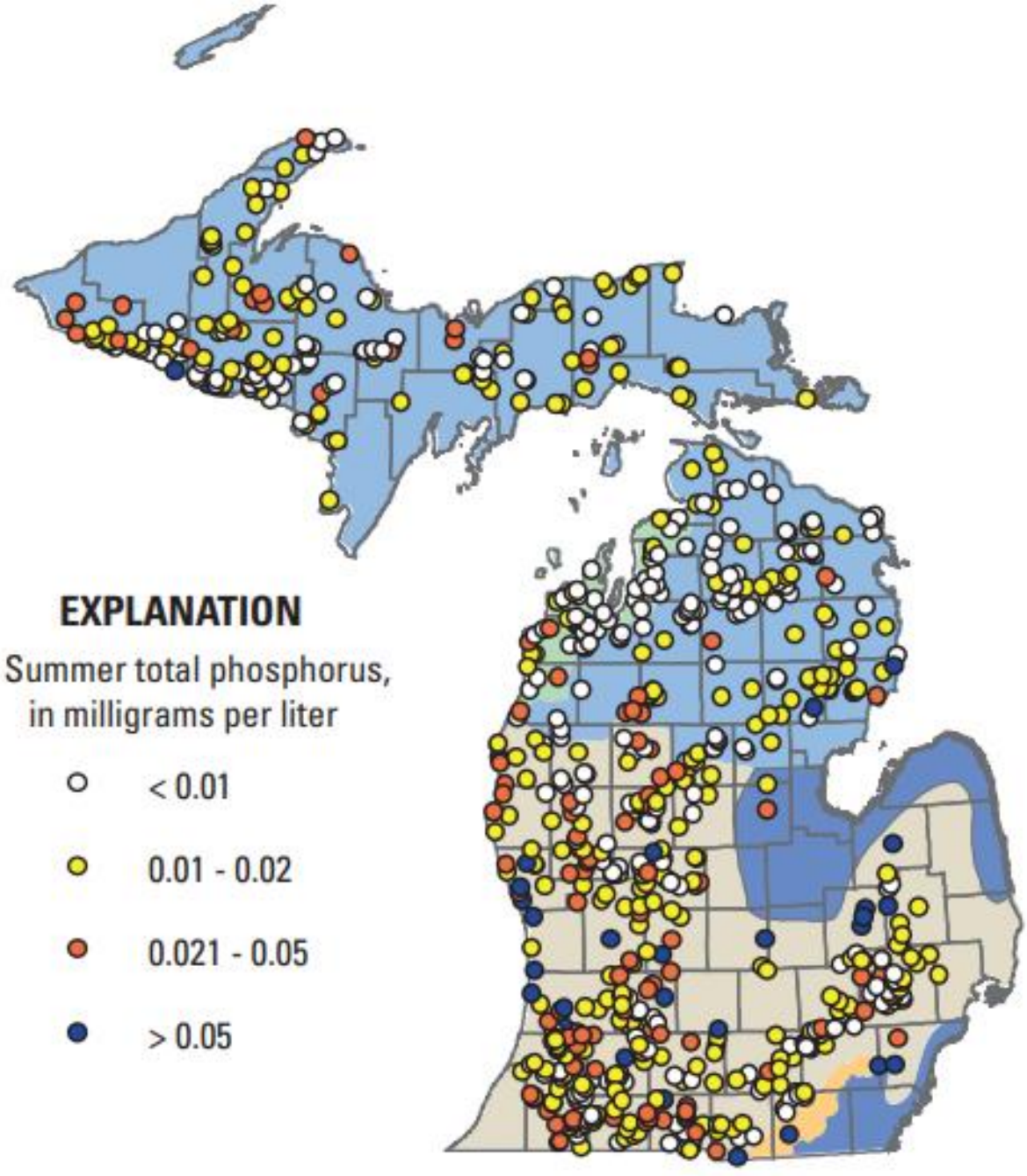
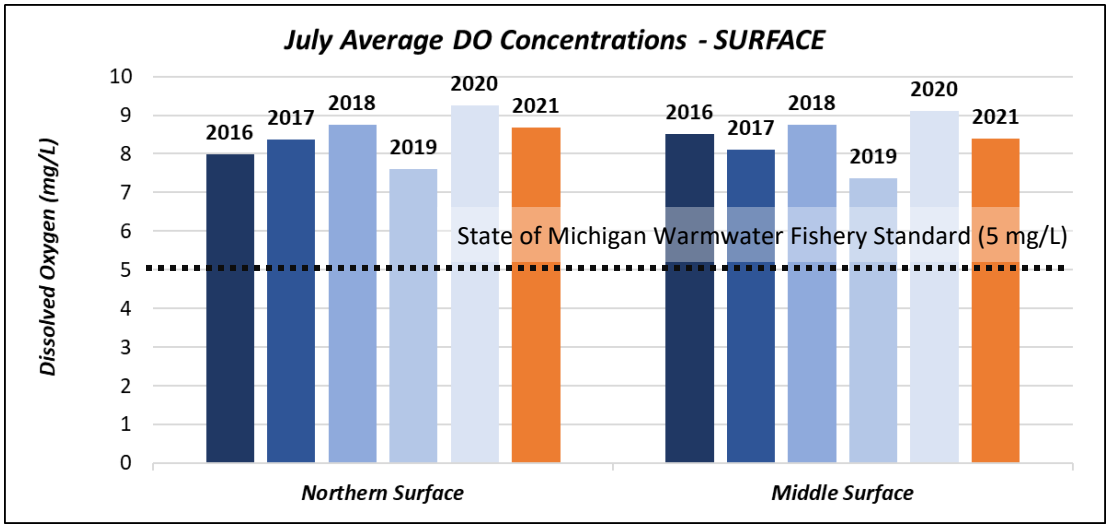
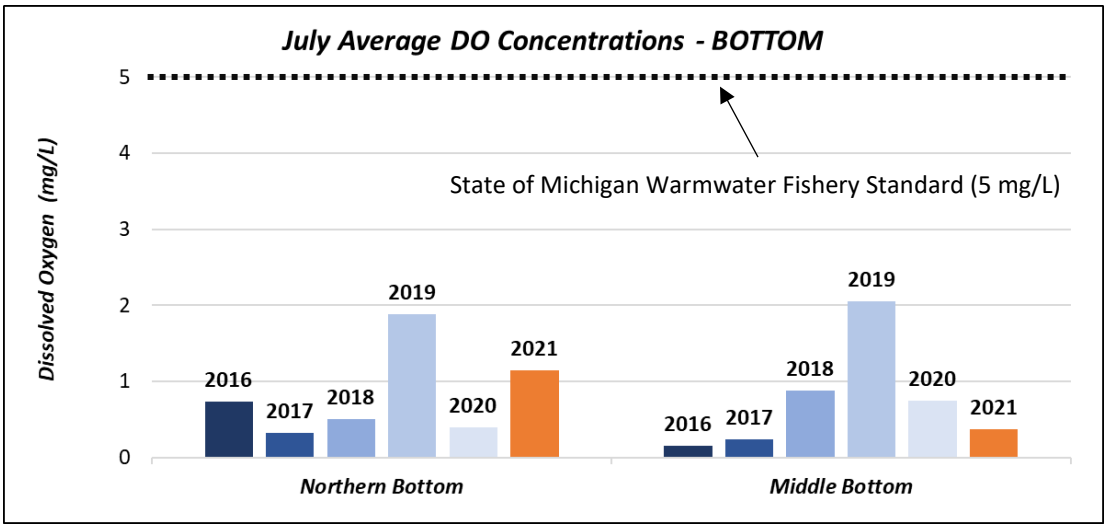
Surface Total Phosphorus Concentrations in Michigan Inland Lakes (Source: USGS)

The map below comes from the USGS Water Quality Characteristics of Michigan's Inland Lakes Report. The map geographically displays measured, average total phosphorus concentrations in the summertime on Michigan's inland lakes (samples were collected at the surface of the lakes).

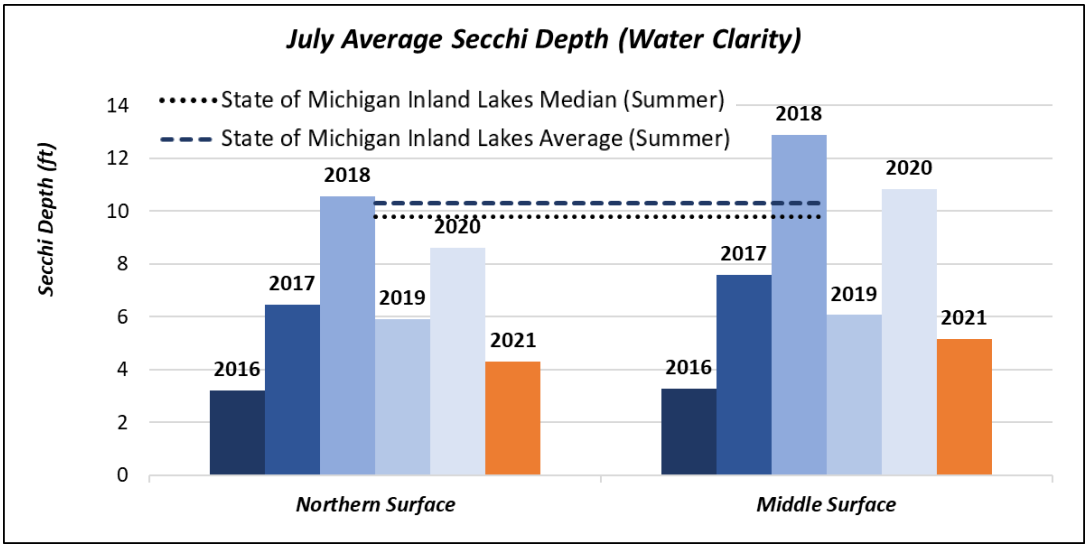


- Dissolved Oxygen (DO):
  - Surface DO concentrations vary (as expected) but have consistently been within a healthy range to support a warmwater fishery. A warmwater fishery needs at least 5 mg/L of dissolved oxygen.
  - Consistently low DO concentrations in both lobes since 2016 in the bottom of the lake. This is fairly common in Michigan inland lakes in the summer.
  - DO levels have remained consistent in July for the past 6 years.





- Secchi Depth (Water Clarity):
  - Water clarity in July 2021 has decreased compared to July 2020. Clarity is similar to July 2019 levels.
  - While water clarity is often sought after by many riparian's, crystal clear waters in a lake leads to a less productive lake from a fisheries standpoint.
  - Paw Paw Lake Secchi Depth data was compared to State of Michigan inland lake average and median data collected in the summer. Again, State of Michigan data was obtained from the USGS report on Michigan's inland lakes.



- Temperature:
  - July 2021 surface water temperatures are about 6 – 6.5 °F cooler than July 2020.
  - The bottom of the lake temperature continues to be consistent with previous years (2016 – 2020).

Sample Site Locations (Refresher)

Sample site locations utilized for July are shown in Figure 1 below. The sites include NL 1, NL 2, NL 4, ML 2, ML 5, and ML 7 and were monitored in 2016, 2017, 2018, 2019, 2020 and 2021. Sites are separated into "North Lobe" (NL) and "Middle Lake" (ML) sample sites.

At each of the sample sites, a "Surface of Lake" (epilimnion) and "Bottom of Lake" (hypolimnion) sample is collected (see Figure 2 for reference).

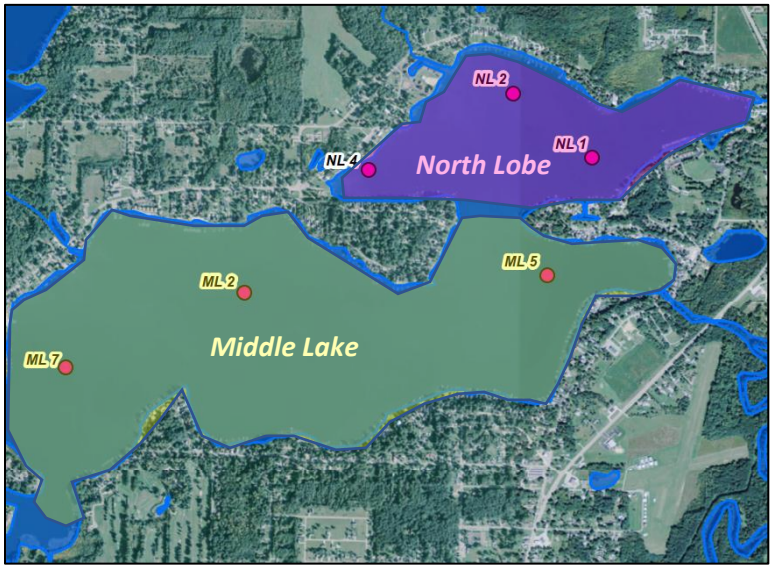


Figure 1 - Paw Paw Lake sample sites monitored in May 2016, 2017, 2019 and 2021. "North Lobe" and "Middle Lake" zones of the lake are shown as well.

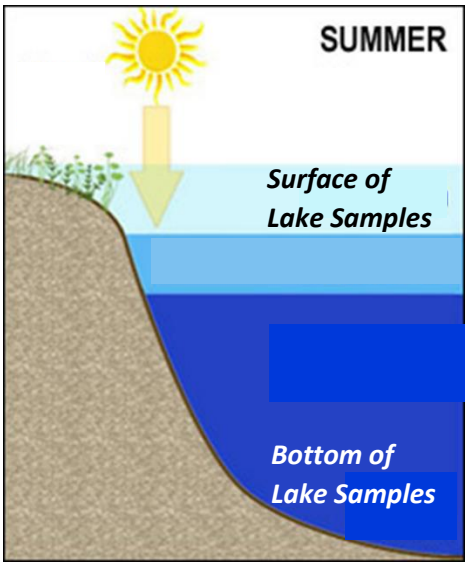


Figure 2 - Layers in a stratified lake. On Paw Paw Lake, a sample is collected in the epilimnion and hypolimnion at each sample site.

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