

**Scope of Services**  
**Bear Lake Improvement Project: 2023**  
**Annis Water Resources Institute (AWRI) – GVSU**

AWRI will provide the following services related to monitoring Bear Lake during the 2023 sampling season:

**A. Monitoring (\$24,929)**

1. The following parameters will be sampled on a monthly basis from April through October at 4 sites and at 2 depths (0.5 m below water surface and 0.5 m above sediment):

- Temperature, DO, turbidity, conductivity, and pH using a YSI Sonde
- Chlorophyll *a* via spectrophotometry
- TP (total phosphorus), SRP (soluble reactive phosphorus), NH<sub>3</sub> (ammonia), NO<sub>3</sub> (nitrate), and TKN (total Kjeldahl nitrogen) using Standard Methods
- Total fecal coliform via Colilert methodology
- Microcystin concentration using ELISA
- Phytoplankton community structure to finest possible taxonomic level (collection via Van Dorn bottles; analysis via light microscopy)

2. Trib Monitoring (\$7,819)

- 3 sites (Bear Creek gazebo, Fenner's Ditch, Bear Lake channel)
- Monthly baseflow: April to October baseflow (n=7) plus 2 storm events (Total = 9 events)
- Measure Total Phosphorus and Soluble Reactive Phosphorus

**B. Reporting**

1. A final report will be provided to the Bear Lake – Lake Board by 31 January 2024 (assuming sampling is completed in October 2023). The report will summarize the data and results, identify possible threats to Bear Lake, and offer recommendations.

2. If desired, a presentation will be given to the Lake Board on our findings and results.

**C. Compensation**

Total compensation for task elements listed above not to exceed \$32,748, to be billed on a quarterly basis.