Lacamas Lake Treatment w/ EutroSORB (2024)
Scope of Work

Task one: Permit Compliance

When issued the permit will require two levels of public notification.

The first is a 10 day prior mailing to all property owners on the lake shore. Developing and sending this mailer would cost $850.00. The mailer should list all potential treatment date ranges in case we want to do more than one application.

The second is day of treatment posting of all properties and public access sites with signage indicating treatment is occurring. We will mobilize a team and perform this work the day prior to application. The cost will include mobilization, printing and materials to perform the task. $750.00

- **Task One Sub-Total: $1,600**
  - **10-day Prior Public Notification - $850**
  - **Day of Postings - $750**

Task Two: Pre- and Post-Monitoring

Perform a BioBase hydroacoustic survey prior to treatment. This system maps the bathymetry and calculates exact water volume. It also maps aquatic plant biovolume and sediment composition at the same time. This would provide us with a tool to see where organic sediments were locate d. This will also provide for a very accurate contour map that could be used with the dissolved oxygen/temperature profile so we know the location and volume of water under the thermocline to look at sediment treatments. This would cost $1,750.00 to mobilize mapping boats, collect the data and process it to make maps.

There should be a monitoring program in place to develop accurate dosing rates just prior to treatment to track results and to recommend additional applications as necessary through the summer. Our team would mobilize to the lake, collect profiles for dissolved oxygen, temperature, and pH. We would also collect water samples at surface, mid-depth and bottom waters and have them analyzed by a State Certified Lab for Total and Ortho Phosphorus, and Alkalinity. The cost for mobilization, boat and biologist and data collection would be $750.00 per event. The lab costs are estimated to be $600.00 per event. AquaTechnex would perform this work two weeks prior to treatment, two weeks post treatment and at least monthly thereafter through October to develop (if needed) a scope and estimate for additional doses. For the purposes of estimating costs associated with this work, it is assumed that treatment will occur in the May timeframe.

- **Task Two Sub-Total: $11,200**
  - **BioBase Hydroacoustic Survey - $1,750**
  - **Pre- and Post-Treatment Monitoring - $2,700**
  - **Monthly Monitoring (June-Oct) - $6,750**

Task Three: Phosphorus Mitigation Treatments

Based on water quality data collected by Geosyntec in the Lake Management Plan, we would recommend multiple low dose treatments spread across the summer to meet water quality objectives. For purposes of this quote, all tasks and amounts assume one application (unit cost per each application). We recommend implementing adaptive management principles of utilizing monitoring data to optimize dosing for effectiveness and costs. Due to the unique water chemistry of Lacamas Lake (80% soluble phosphorus < 50 ug/L concentrations and soft waters) EutroSORB WC would be the preferred treatment option due to effectiveness, costs, and margins of safety for aquatic organisms. Use of EutroSORB WC would rely on approval of the experimental permit from Washington Department of Ecology. EutroSORB G would also be an appropriate treatment providing sufficient margins of safety for aquatic organisms and low monitoring requirements. The water chemistry conditions listed above require a high dosing ratio for Alum to be equally effective at water column stripping. Alum would also need to be buffered to improve margins of safety in use, but still presents a risk to aquatic organisms. There are also considerable monitoring costs with utilizing Alum in Washington.

The EutroSORB WC option for water column stripping would be recommended through 2-3 treatments over the summer. The recommended application rate will be fine-tuned using current phosphorus data just prior to treatment, but for planning purposes assume 2,200 Prescription Dose Units (PDU) on the first application. The cost for mobilization of treatment boats and applicators, delivery of material and treatment would be $54,600.00 per application. Additional PDU's if necessary, would be at $18.00 each.

- **Task Three Sub-Total: $60,000**
  - **EutroSORB WC Treatment - $54,600**
  - **Contingency - $5,400**

Total Cost for One Application of EutroSORB WC = $72,800

Total Cost for Two Applications of EutroSORB WC = $136,250