

Frequently Asked Questions for Aeration and Bioaugmentation

Lake Harmony

11/01/17

1. What is Aeration and Bioaugmentation ?

Aeration is Inversion Oxygenation / Destratification

- ☒ Custom engineered
- ☒ Laminar non-turbulent flow
- ☒ Restores and maintains aerobic conditions by removing toxic gases and carbon dioxide
- ☒ Oxygenates entire water column and into the sediment pore water
- ☒ Prevents release of nutrients from anoxic sediments – reducing/eliminating internal loading.
- ☒ Reestablishes the aerobic environment required to accelerate biological breakdown of organic nutrients.

Bioaugmentation

- ☒ Biological augmentation involves the supplemental application of non-toxic, natural, beneficial microbes, enzymes and minerals to clean a body of water.
- ☒ Stimulation of Indigenous Microbes – use of food grade electron donors and cofactors to stimulate indigenous microbial populations to improve organic and inorganic bioremediation.
- ☒ Primary purpose is to reduce organics and shift algal populations from blue green to diatoms.
- ☒ Proprietary product formulations
- ☒ Customized product formulations
- ☒ Driven by science

2. Why would this method work for Lake Harmony?

As noted in the conclusion from the Restorative Lakes Sciences report

Aeration is designed to reduce organic matter and also reduce associated sediment nutrients. The LFA would likely reduce some organic muck but would also yield additional benefits such as increased dissolved oxygen concentrations throughout the entire water column and as a result, reduce release of phosphorus that is fueling cyanobacteria (blue-green algae) growth. The water clarity of the lake should increase over time and the amount of algae should decline.

3. What are the benefits of this system?

- ☒ Improve water quality / clarity
- ☒ Reduce phosphorus, nitrogen, hydrogen sulfide
- ☒ Organic muck reduction
- ☒ Algae control – shift to diatoms
- ☒ Weed control
- ☒ Reduce pathogenic bacteria
- ☒ Eliminate odor
- ☒ Reduce fish kills / improve overall fishery
- ☒ Reduce iron, manganese and other metals

- Compliance with discharge standard

4. How will we pay for such a system?

An anonymous homeowner will provide the initial expenditure of the equipment and installation. All or part of the funds will be returned to the donor over a specific period of time. This will be accomplished with support of Lake Harmony Homeowners, funds from LHA, LHE, LHG and from on-going fund raisers specific to this project.

5. Who will be collecting donations?

All donations shall be collected through the Lake Harmony Watershed Preservation Group (LHWPG) via the Web site or cash donation and are fully tax deductible.

6. Who will own the System?

Lake Harmony Group (LHG)

7. Where will the pumps be located?

The pumps and Sheds will be located at two LHG access streets. Chestnut/Alder

8. Are the pumps noisy?

The pumps will be housed in a sound reducing shed. Pumps (without the sound protection) have the noise of a central home air conditioner.

9. Will the bubble system and air lines interfere with boating and fishing?

No, The lines will be submerged and located so they do not interfere with boating and the bubble action at the pod locations will actually enhance fishing,

10. Who will maintain the system?

Clean Flo International and then after year one - Lake Harmony Group

11. Why do we treat the lake every year and with what chemicals?

LHWPG hires Natureworks to treat the lake every July for weeds and other invasive plants.

12. Would he have to treat the lake if we install the aeration system?

We could eventually eliminate the use of any chemicals to treat the Lake

13. Can we run the system in the winter and what will happen if we do?

We can turn the system off in the winter but this will reduce the overall efficiency of the system. If we leave it on for at least two years we will reap the benefits of a cleaner and deeper lake at a faster rate.

14. Do you plan on dredging also and where on the lake?

Yes. As noted on the Bios can from 2013 and 2017 both the North side and South side of the lake contain inorganic sand and rock sediment. This is mostly from years of runoff and overbuilding. We are looking at the possibility maintenance dredging around specific problem areas with the

cooperation and support of LHA /LHA and homeowners.

15. Where can I learn more about this process?

You can access the Clean Flo presentation and related documents on the Lake Harmony Watershed Preservation Group (LHWPG) web site at www.lhwpg.org or the Lake Harmony Group site at www.lhg.com or contact Clean Flo directly - Brian Kling bkling@CLEAN-FLO.com
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