



MD PELLET BIO-
DREDGING PROGRAM
ON TWO PONDS
DORCHESTER AT
CARILLON HOA
PLAINFIELD, IL.

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Introduction:

Dorchester at Carillon HOA is an active 55+ community. With construction completed in 1999, the subdivision contains a total of 117 stand-alone homes. The two ponds that are the subject of this report are located within the subdivision. Pond 1 is a .93 surface acre body of water with an average depth of 5 feet. Pond 2 is .12 surface acres with average depth of 3.5 feet. Members of the community interact with this water in multiple ways. Several houses surround and have their yards end at the water's edge. Also, the ponds are adjacent to the community golf course, and have a frequently used walking path in the immediate vicinity. These ponds exhibit characteristics of elevated nutrient levels (eutrophy) as is common in residential areas. These characteristics include excess vegetation, algae growth, increased turbidity etc. Emergent plants, consisting mostly of arrowhead and american pondweed dominate the perimeter of the ponds along with filamentous algae. Community members became concerned about the amount of organic detritus (muck) accumulating in the bottom of the ponds. Working proactively, we decided to utilize MD Pellets from Naturalake Biosciences. Since there had been no previous investigation in regards to sediment deposition, we wanted to get a baseline muck depth in order to see how much had accumulated since the ponds were constructed.

Objective:

Our objective was to get a snapshot of the muck depth in the ponds pre and post bio-dredging treatment. We also wanted to be able to compare the muck depths pre and post bio dredging to assess the efficacy of the treatment.

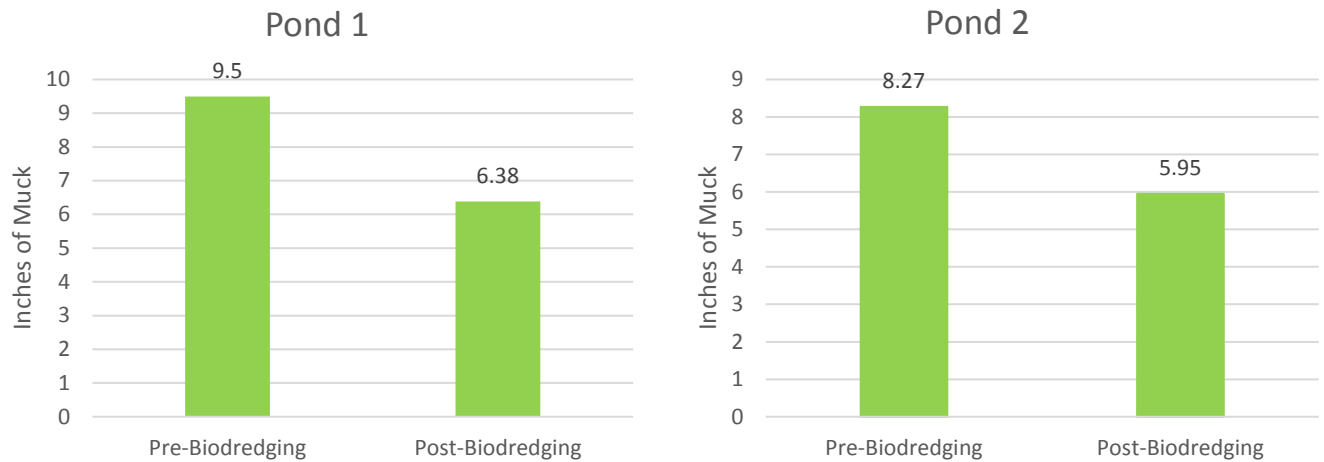
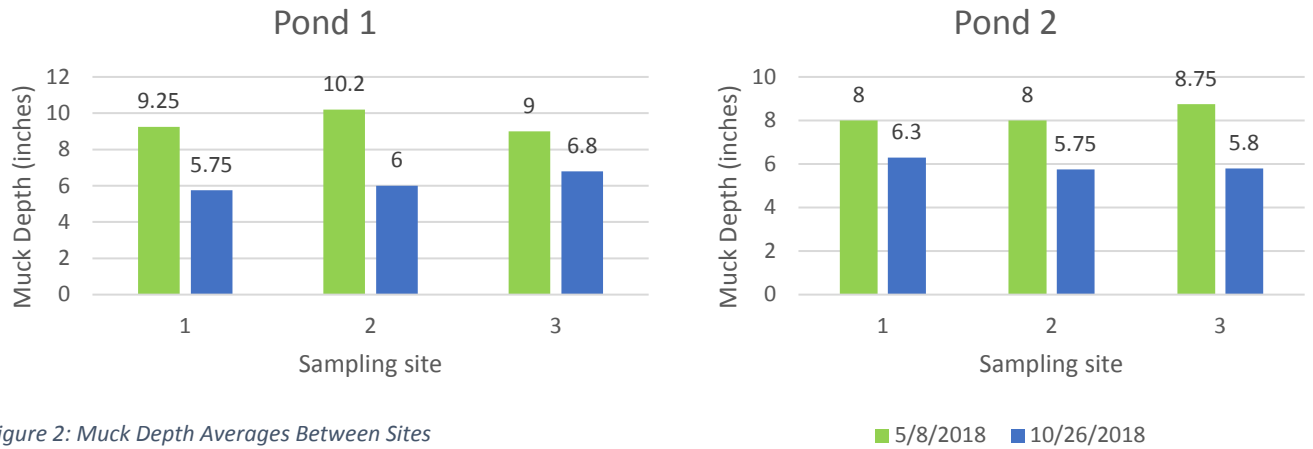
Materials and Methods:

Sediment measuring

Pre-treatment muck depth readings were taken 5/8/18 using a 15 ft. graduated tube with a plunger on one end called a Sludge Judge. **Figure 1** The Sludge Judge was lowered into the water column and pushed into the sediment. The plunger closed and contained the water and sediment in the tube. The tube was brought up and the sediment depth was recorded. Initial sediment depths were taken at three different locations in each pond. Post treatment muck depth readings were taken 10/26/18 using the same sludge judge at approximately the same locations. Average muck depths were found at each site **Figure 2**. Overall averages were calculated by averaging site averages for each pond, pre and post treatment **Figure 3**.



Figure 1: Image of Sludge Judge



Pellet Application:

MD pellets, made by Naturalake Biosciences, were applied monthly from June through September. Pellets were applied by hand as evenly as possible from shore using a scoop. Large initial doses were applied and then rates tapered down as the applications progressed. Exact application rates can be found in **Figure 4**.

Results:

From the initial sampling date 5/8/18, to the final sampling date, 10/26/18, the average muck depth across all sites decreased 3.12 inches in Pond 1, and 2.32 inches in Pond 2. This is a relative decrease of 32% and 28% respectively.

Discussion:

Although only a couple inches of muck were degraded, we consider these results very promising. The relative percentage of muck removal for both ponds was right around 30%. Due to the smaller size of pond 2 we were able to use very high amounts of pellets per acre while still remaining economically friendly to the homeowners. The similar amount of muck degradation between ponds is curious when also considering

differences in pellet per acre rate. This may point to diminishing returns in higher rates of pellets. Lower rates applied at more frequent intervals could prove more effective. More research is required to properly answer this question however. We plan on continuing to monitor the rate of deposition in Dorchester at Carillon. After reviewing similar studies and relevant literature we plan to increase the number of sample sites to a grid pattern across the entirety of the pond. We also plan to take muck depth readings at the time of each pellet application. It is our opinion that this will give better insight into the dynamics of sediment deposition between applications. Data collected this year will serve as a baseline for comparison next year. Overall, Naturalake Biosciences' MD pellets seem to be a very effective, economically viable form of preventative maintenance for muck deposition.

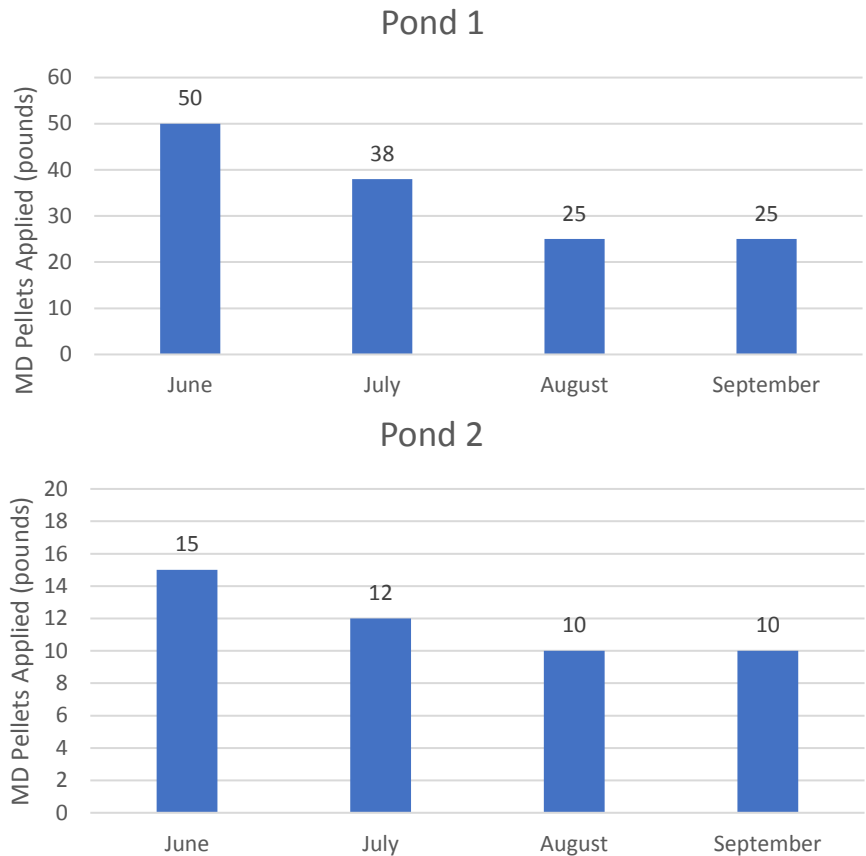


Figure 4: Pounds of MD Pellets Applied

