Pond Lily Management Using Cattzilla by Naturalake Biosciences

Ornamental Pond Case Study

Aquatic Plus
POND MANAGEMENT

Introduction

This report has been compiled by Aquatic Plus Pond Management (APP), in an effort to showcase and share a significant practical success under demanding constraints. For the purposes of this report "Ornamental Pond" refers to a waterbody adjacent to two commercial locations used for dining and entertainment. To protect the privacy of clients and associates; no specific address or location name will be included in this report.

Aquatics Plus Pond Management; as a company, takes a great deal of pride in serving our clients' needs in regard to aquatic resources as well as business timing, budget and other constraints. Residential clients will have different needs than commercial clients inevitably. Within the commercial client category, there are a wide-ranging variety of descriptions. Those involved in hosting and entertainment have a particular interest in aesthetics and appearance of their water features. In the case of our subject property, the pond features very prominently in the experience of patrons and employees of two adjacent dining facilities. Outdoor patios with dining tables overlook, and indeed overhang the pond.

Aquatics Plus Pond Management has been contracted since 2016 to manage vegetation and organic debris accumulation within this same water feature. The pond consists of 0.25 acres with a maximum depth of five feet and an average depth of three feet. Source water originates from the stormwater control system on the property. No water quality data was collected and no fish stocking or aquatic life management plan has ever been enacted for this water feature. It can be assumed that volunteer life occurs in the pond and annual treatments are conducted with this constraint in mind.

The emergent vegetation within the pond consists of a series of long established lily beds. Course organic debris from the growth and breakdown of these beds, as well as adjacent vegetation, contribute a great deal of organic matterinput to the pond. It can generally be said that the capacity of this pond to breakdown organic material is overloaded. Fine particulate organic matter is layered on the bottom in depths up to eight inches in some places. With such an imbalance in organic inputs vs capacity, we rely on bacteria and enzymatic catalysts to help us achieve our goals.

Objectives

Client objectives have been clear since the onset of this contract in 2016. The first objective is to apply contact herbicide to the Lilies. This will even out the look of the pond by eliminating all emergent vegetation. The second objective is to create a condition within the pond such that the large particulate organic matter from the decaying lilies decays as quickly as possible. An overall goal has always been to minimize follow up treatments and transition time from treatment to clarity.

The 2019 treatment was the first season that we have used Cattzilla at this Project Area. In keeping with the overall goal of accelerated breakdown, we have had success with this

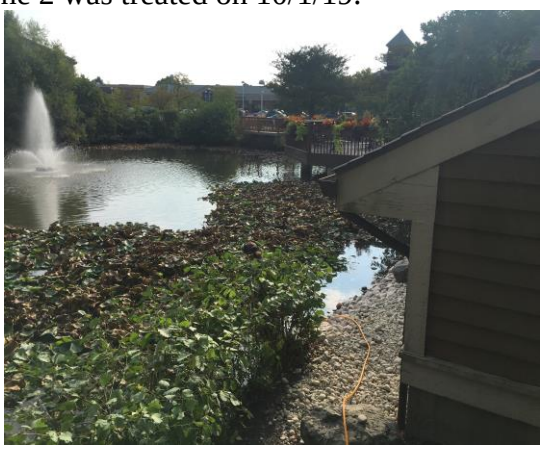
product in our cattail removal contracts. This was the first treatment applied to emergent vegetation other than cattails. The Liliy beds at this project site are significantly more dense than the average. It was hoped that we would experience the same boost in the efficacy of our herbicide application here as we have seen with cattail beds.

Method/Approach

The Project area has been divided into three Treatment Zones to be treated progressively until goals are met. Each treatment includes Temperature Driven Solutions Winter Bio and Muck Pellets applied at label rates, followed by contact herbicide solution prepared in a 30 gallon mix tank. For each treatment, the preceding treatment zones are assessed and spot treated for remnant “green” tissue. Cattzilla was added directly to our herbicide application at the rate of 2 gallons per surface acre into the mix tank.

Treatment Zone 1 consists of a continuous lily bed along the west patio and north shore. This zone was treated on 09/11/2019.

Treatment Zone 2 Stretches out to the center of the pond from the east bank. A portion of this zone is overhung by a dining deck. Zone 2 was treated on 10/1/19.



Treatment Zone 3 has multiple smaller beds along the south bank. These beds sit in deeper water than the other beds but are no less dense. Zone 3 ws treated on 10/11/19.

Results

The treatments met and exceeded or expected results. The first treatment on 09/11/19 achieved a complete defoliation in Treatment Zone 1. The spot treatment on 10/01/19 was applied to stems as they were all that remained of the emergent plant material. Course organic material from the foliage was broken down completely in this zone. Treatment was applied to Treatment Zone 2 on 10/01/19 in the same manner as Treatment Zone 1.

Treatment Zone 1 10/01/19

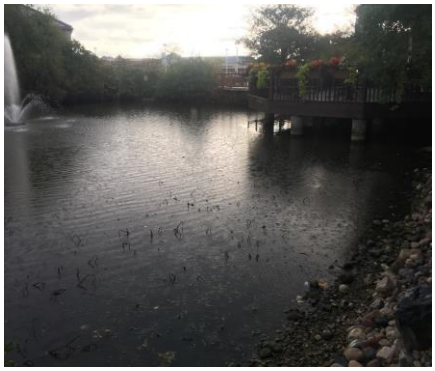
The final planned treatment took place on 10/11/19 and included a treatment application in Treatment Zone 3 as well as spot treatments in Zones 1 and 2. We found that complete defoliation had been achieved in Treatment Zone 2 in one treatment as well. Treatment Zone 1 was completely clear of emergent plant material and course organic material 30 days after the first application. Treatment was applied to Treatment Zone 3 and the few remaining stems in Treatment Zone 2.

Treatment Zone 2 10/11/19

Treatment Zone 1 10/11/19

A follow up site visit and assessment was conducted on 10/30/19. We found that our treatment goals had been achieved. There was no emergent plant material remaining on the margins or across the surface of the pond. No discoloration or stress to aquatic life was evident and the course organic material in the pond generally originates from external sources.

Treatment Zone 1 10/30/19



Treatment Zone 2 10/30/19

Treatment Zone 3 10/30/19

Discussion

Aquatic applicators understand that some products work best in conjunction with other products. In our experience; the addition of Cattzilla to our herbicide treatments under certain constraints, significantly increases the efficacy of that treatment and reaches management goals more efficiently. In past seasons, as many as three follow up visits have been required to kill and breakdown these beds to our standard. We were able to save man hours and product cost. Additionally, the time between initial treatment and completion was reduced significantly.

Constraints on contracted management goals will vary widely. Not every treatment requires rapid breakdown for aesthetic reasons such as described above. Nutrient management is a key to success in any management plan however. Cattzilla can be an essential tool to provide applicators the ability to manipulate the breakdown of large particulate organic materials.