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## (R-4) PROJECT REFERENCE CITY OF PORT ST. LUCIE WATER QUALITY ENHANCEMENT v2

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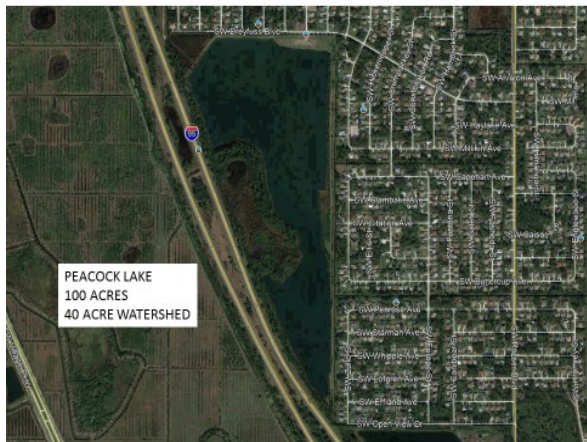


Aquatic Vegetation Control, Inc. (AVC) provided a water quality enhancement program in a 100 acre lake.

### Project Description

- Owner: City of Port St. Lucie
- Contracting Agency: City of Port St. Lucie Public Works Department
- Project Location: Peacock Lake, 1950 S.W. Dreyfuss Blvd.
- Project Size: The Lake and the treatment area are 100 acres.
- Project Purpose: Reduce the nutrients to a level that will encourage a healthy ecosystem and lower the Trophic State Index of the lake. The objective is to provide a solution to remove phosphorus.

### Peacock Lake Description:



Peacock Lake is a 100 acre borrow pit with an average of 18 feet of depth and a maximum depth of 24 feet. The lake has less than 40 acres of forested watershed and does not receive any other storm water runoff. Most of the lake has emergent plants growing along the shoreline. In December 2017 we observed a bloom of Microcystis in the lake. The park was closed due to the Microcystis levels in the lake and the potential for toxicity to residents and animals.



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**Materials:**

Aquatic Vegetation Control, Inc. set up a 250 gallon Bio-Generator on the common area north of the lake. A delivery pump and aerator were put online to aid in the augmentation process to reduce total phosphorus (TP).

**Methods:**

AVC initially placed the Bio-Zyme ([trmbiozyme.com](http://trmbiozyme.com)) directly into the lake in bulk form. We later installed a 250 gallon tank and distributed the finished product in the lake bi-weekly.

**Results:**

The incubated Bio-Zyme was placed directly into the lake on the north shore adjacent the Bio-incubator. At 6 months, the TP levels were reduced from 0.05 mg/l (Jan. 18, 2017) to 0.015 mg/l (July 3, 2017). The park was re-opened on April 15, 2017. Eighteen months after the program started the TP level was below minimum detection of <0.005 mg/l (July 11, 2018). The incubator was temporarily taken offline to achieve a goal of 0.03 mg/l TP which we feel is good for lake management and the environment. The TP is monitored every four months. This strategy has been working well until the TP was <0.005 mg/l (Mar. 11, 2020) and again temporarily taken offline.



**Peacock Lake 100 acres  
No watershed**

**Total Phosphorus reduced from  
0.05 mg/l - 0 mat  
0.015 mg/l - 6 mat  
<0.005 mg/l - 18 mat**

Date	Bio-Zyme Bulk	Laboratory	Total Phosphorous rate mg/l
1/9/17			
1/16/17	5 lbs.		
1/18/17		Pace	0.05
1/23/17	5 lbs.		
1/30/17	5 lbs.		
2/6/17	50 lbs.		
2/21/17		Flowers	0.04U
3/27/17	50 lbs.		
3/30/17		Jupiter Env.	0.024
4/9/17		Jupiter Env.	0.021
5/23/17	10 lbs.		
5/31/17	10 lbs.		
6/8/17	10 lbs.		
6/13/17	10 lbs.		
6/20/17	10 lbs.		
6/27/17	10 lbs.		
7/3/17	10 lbs.		
7/3/17		Jupiter Env.	0.015
7/11/18	300 lbs.	Jupiter Env.	<0.005