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(R-6) PROJECT REFERENCE SFWMD STA MUCK & TUSSOCKS REDUCTION v2

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Aquatic Vegetation Control, Inc. (AVC) provided an operational evaluation reducing muck and tussocks in a 900 acre Storm Water Treatment Area (STA) for the South Florida Water Management District.

Project Description

Owner: State of Florida

Contracting Agency: South Florida Water Management District

Project Location: Storm Water Treatment Area 1 West

Project Size: The cell was 900 acres; the treatment was placed in a 25 acre area in the center of a 50 acre plot on the North West edge of the cell.

Project Purpose: Reduce the unstable muck bottom and break up the floating tussocks to improve the physical characteristics of the cell. The ultimate objective is to provide a solution to remove phosphorus.

STA Description:

STAs are designed to remove nutrients (mainly phosphorus) from water before it is moved into natural ecosystems. The northern portion of the project cell in STA 1 West is shallower with sawgrass and willow. Midway to the south is more open due to herbicide application. Large areas of floating tussocks, with knee to waist deep muddy water exist near the project area. The tussocks and muck reduce the flow and inhibit the STA's effectiveness. The objective for this project was to create an environment for emergent plants to grow and take up nutrients.



Picture #1 Floating tussocks, significant coverage



Picture #2
Prior to initial application
Visibility into the water 1-2 inches.



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Materials:

Aquatic Vegetation Control, Inc. set up a 500 gallon Bio-Generator on the levee near the treatment site. The Bio-Generator contained the delivery pump and internal aerator.



Methods:

AVC incubated the Bio-Zyme product in the 500 gallon tank and distributed the incubated product by way of airboat in the treatment area weekly.

Results:

The 6 month treatments started October, 2016 and continued through March of 2017. The following photos were taken at the final inspection for a report to the project manager. At the end of March, the impact of the Bio-Zyme Program initially moved south with the flow of the water to encompass over 350 acres. One year later, the entire 900 acre STA affected was 18 times the trial area and over 36 times the acreage treated. The muck decreased about 12 inches under the water surface and all the tussocks were eliminated. The water level in the site had not increased at the years' end. Fire flag was planted to complete the emergent plant objective. The bottom sediments became consolidated and firm compared to previous mush. The water clarity was greatly improved. Most of the treatment benefits are still visible today in March of 2020, 3 years post treatment. For additional studies see the web site (trmbiozyme.com).

