

# Mitigating Impacts of an Invasive on Recreation: Fanwort Control at Belmont Lake State Park

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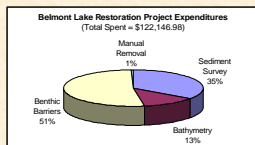
## Introduction

Belmont Lake is the central feature of a popular State Park recreational area on Long Island. There is substantial growth of an invasive aquatic weed, fanwort (*Cabomba caroliniana*), within the 26 acre lake that has adverse impacts on recreation. Patron enjoyment of the park is reduced in several ways: hiking/passive use through adverse visual impacts, fishing through line entrapment, and boating through entanglement due to the heavy infestation of non-native aquatic plants. New York State Parks was fortunate to receive a member item from Assemblyman Sweeney to begin much needed restoration efforts at this site. During 2008 and 2009, State Park staff worked to control fanwort in the lake and complete assessments of the lake's bathymetry and sediments towards developing a comprehensive lake management plan.

## Methods

Control efforts were focused on mitigating impacts of fanwort on recreation and included the use benthic barriers, the stocking of grass carp, and a weed pull. For overall lake control of fanwort, Grass Carp have been stocked since 2001. In 2008, 280 additional Grass Carp were stocked in the lake. To control Fanwort growth in high-use recreation areas, two types of benthic barriers (Solmax and Aquascreens) were installed within the boat rental area in 2008 and 2009. In addition, State Parks staff and Long Island Green Conservation Corps members undertook a manual weed pull along the southeast shore in 2009.

To monitor results, EMB staff conducted lakewide plant surveys in accordance with NY Department of Environmental Conservation methods throughout the study period. Belmont Lake State Park staff completed detailed fieldsheets at the boat rental area to determine the effectiveness of the two types of barriers in limiting Fanwort growth. Research plots (1m x 1m) were also created to determine the efficiency of hand pulling to control Fanwort growth. The total cost for this work was \$122,147.



## Results: Grass Carp

Without a control, the efficiency of Grass Carp in reducing Fanwort growth is impossible to document. Plant growth, however, has not been reduced to levels that do not impact recreation. Grass Carp have not survived well in the pond and have often been absent when fish surveys were undertaken a few years after stocking. Instituting a more intense Grass Carp stocking program may result in better control of fanwort.

## Site Location



## Acknowledgements

This work would not have been possible without a generous member item from Assemblyman Bob Sweeney (D-Lindenhurst). Park and Regional staff, in particular Ron Foley, John Kowalchuk, Scott Fish, Sal Buonomo, and Pat Zito were instrumental to the project's success and managed several components of the project. Within EMB, Chase Chaskey and David Rosengarten (SCA AmeriCorps) provided significant support. In addition, several OPRHP staff and Long Island Green Conservation Corps members undertook the 2009 weed pull. Finally, Tom Lyons and OPRHP Executive Staff provided important project oversight.

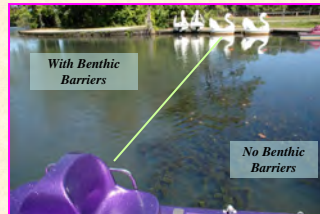
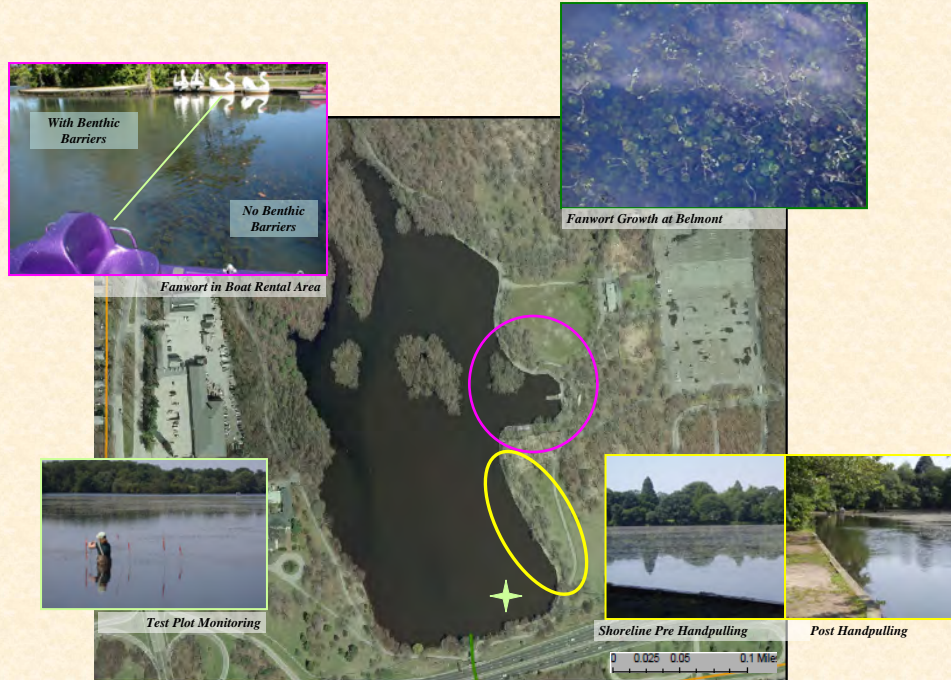
## Volunteers and Consultants

Several other groups provided support with sample analysis, mapping, report preparation, installation and removal of benthic barriers, permitting and the weed pull, including: Allied Biological, Cashin Associates, P.C., Lycott Environmental, the Student Conservation Association, the New York State Department of Environmental Conservation (DEC), and the New York State Department of Health (DOH) Wadsworth Laboratory. Thanks is also owed to these groups.

## Further Information

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## Results: Benthic Barriers

Both the Solmax and Aquascreen benthic barriers reduced fanwort growth significantly. There was 100% fanwort growth in these areas before barrier placement. Throughout 2008 and 2009, there was less than 5% fanwort growth within these areas. Some residual fanwort control was also achieved in 2010.

The benthic barriers were most effective when placed early in the season, prior to any plant growth. In 2008, the barriers were placed when plants were 2.5 feet in height and more maintenance was needed.

The Aquascreen barriers were easier to install and required less upkeep. More gas buildup was observed and needed to be vented from the Solmax barriers, which were not porous. For example, on 5/22/09, there were seven areas with gas buildup within the Solmax treated area and none within the Aquascreen treated area. Most days had no gas buildup within either treatment area.

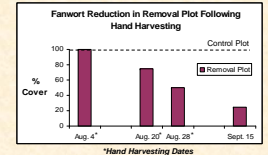
## Results: Weed Pull

A total of 23 people removed fanwort from the southeast shore of the lake. Plants were removed by staff wading in the water or in paddle boats. During the work day, 2.44 tons of plant matter was removed from the lake and composted. This left a 375 foot shoreline area free of weeds for fishing. Within weeks, fanwort regrowth was observed within this area.

## Results: Research Plots

### Removal Plot Findings:

- Majority of fanwort reached surface of water column within two weeks (Plant Heights = 15.75 - 45 inches).
- Fanwort was smaller, having less branches and generally being shorter.



## Conclusions

There were pros and cons for each effort. Benthic barriers eliminated fanwort growth, but only in a small area and at a fairly high expense; grass carp mitigated impacts lakewide, but did not have very pronounced results; and the weed pull eliminated fanwort in a popular stretch of the lake for fishing, however the effects were short-lived.

Overall, recreational opportunities at the park were improved and the information gathered will be a very important component of a comprehensive lake management plan.

Continuing efforts are needed, however, to improve conditions at this site. With additional funding, Parks would continue restoration work with the use of multiple controls, including an expanded Grass Carp stocking program, benthic barrier placements, and mechanical harvesting.