

# Best Management Practices for Aquatic Vegetation in Iowa Lakes

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**Duration:** July 2006 to June 2009  
**Funding Source(s):** Iowa Department of Natural Resources

## Goals and Objectives:

- Perform literature review of methods used to assess aquatic plants in lakes and implement a standardized methodology to monitor temporal and spatial changes in plant communities.
  - To improve and use Iowa's comprehensive lakes database to understand relationships between growth of aquatic plants and lake morphology, water quality, fish and fishing.
  - Evaluate physical, chemical, biological, and mechanical methods used to manage aquatic plants, including cost comparisons and their efficacious use.
  - Prepare oral and written reports, publish results and prepare a procedures manual of BMPs and a comprehensive approach to aquatic vegetation management in Iowa.
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## Introduction:

Many different aquatic plants inhabit lakes and ponds. Aquatic plants are an important component of well-functioning lake ecosystems, producing oxygen, food, and cover for fish and other aquatic organisms. Sediments and their associated nutrients often cause excessive plant growth. Given the dominance of agriculture in Iowa, nutrients and soil lost from "leaky" watersheds combine to create ideal habitat for growth of aquatic plants in lakes and ponds and hasten eutrophication. Under these conditions, plant growth can become a nuisance and reduce recreation, especially shoreline angling and boating. These nuisance growths present special problems to lake managers and those interested in lake-based recreation. The goal is to develop an ecosystem-based plant management strategy for Iowa lakes.

## Progress:

In July 2006, this project was initiated using 13 lakes located throughout Iowa; five lakes contain grass carp, *Ctenopharyngodon idella*. These lakes range in size from 13 to 163 ha and have 0-45% vegetation coverage that includes algae, submergent and emergent vegetation as well as some exotic plant species. To date, we have standardized the vegetation and larval fish sampling protocols. In addition, zooplankton, phytoplankton and water chemical parameters will be assessed with the goal of determining the role of aquatic vegetation in relation to all biotic components of a lake.

## Future Plans:

This project discusses development of a strategy to address the control of nuisance aquatic vegetation with the ultimate goal of producing a set of BMPs needed to manage plants in Iowa's ponds and lakes. This information will provide lake managers with the best methods and techniques to sample, assess, and manage nuisance aquatic vegetation. Plans developed from these strategies will link critical watershed characteristics, lake bathymetry, water quality, and density and diversity of aquatic plants to management options that benefit fish and fishing. Considerations will include the cost and benefit of various alternatives and the likelihood for success. Management alternatives will be comprehensive in nature and include one or more of the following: lake drawdown, lake aeration, chemical control, biological control, physical removal, and alterations to the watershed/lake basin.