Wisconsin Department of Natural Resources
SWIMS Project Summary

General Project Information

Project ID: ACEI-009-06

Name: DANE COUNTY: Potential Effects of Zebra Mussels in the Madison Lakes

Type: Aquatic Invasives Grant

Subtype: Aquatic Invasives Control

Status: COMPLETE

Start Date: 10/1/2005

End Date: 12/31/2008

Purpose: To learn about potential impact of zebra mussel infestation on lakes, researchers will monitor benthic organisms in comparison lakes, Madison lakes with only the first signs of Zebra Mussel infestation (no reproducing population), and SER lakes with established infestations.

Objective:

Comments: Grantee is DANE COUNTY

Outcome:

Study Design:

QA Measures:

People

Name	Role	Status	Start Date	End Date	Organization	Comments
DANE COUNTY,	GRANT_RECIPIENT	COMPLETE	10/1/2005	12/31/2008	DANE COUNTY	

Project Statuses

Date	Reported By	Status	Comments

Actions

Action	Detailed Description	Start Date	End Date	Status
Aquatic Invasives Research	10100250	10/1/2005		PROPOSED
Grant Awarded	ACEI-009-06Potential Effects of Zebra Mussels in the Madison Lakes	10/1/2005		COMPLETE

Monitoring Stations

Station ID	Name	Comments

Assessment Units

WBIC	Segment	Local Name	Official Name
798300	3	Yahara River	Yahara River
805400	1	Mendota Lake	Lake Mendota

Lab Account Codes

Account Code	Description	Start Date	End Date

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Forms

Form Code	Form Name

Methods

Method Code	Method Description

Fieldwork Events

Start Date	Status	Field ID	Station ID	Station Name

Documents

Title	Description	Author	Published	Comments
Change in a lake benthic community over a century: evidence for alternative community states	Abstract Aquatic communities are one of the most studied systems where alternative states or regime shifts have been detected. We used data spanning a century of time to test whether the zoobenthic community of Lake Mendota, Wisconsin, USA, was relatively stable through time, variable, or whether there was any evidence of alternative community states. We used multivariate statistical analyses to test for community structure similarity and whether detected differences corresponded to major changes in the local environment. Surprisingly, the benthic community in Lake Mendota was not statistically different from the mid 1960s to the present. Similarly, the benthic community was not significantly different from 1914 to the 1950s. However, between the 1950s and mid 1960s there was a dramatic change in the zoobenthic community, including the loss of key taxa and a decrease in the diversity of several major taxa. This dramatic change cannot be attributed to any single environmental factor, and is correlated with multiple factors acting simultaneously, including increased urban development, human population density, intensive agriculture, and the introduction of a major invasive species, Eurasian watermilfoil. The long-term similarity in the benthic community before and after the shift suggests two alternative states that switched with the confluence of multiple stressors.	Alexander Y. Karatayev, Lyubov E. Burlakova, M. Jake Vander Zanden, Richard C. Lathrop, Dianna K. Padilla	7/13/2012	

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Final Report Karatayev & Burlakova December 31 2008	Invasions of non-native species rank among the leading threats to aquatic ecosystems and biodiversity, and zebra mussels (Dreissena polymorpha) are certainly among those North American invaders with the most dramatic and potentially adverse impacts. Although lakes Mendota and Monona are not yet colonized with the zebra mussel, the establishment of high D. polymorpha densities in the Madison lakes could be rapid, and may happen during the next decade. The goal of this study was three-fold: 1) provide pre-invasion information on the community composition, density, biomass and production of benthic habitats in the Madison lakes; 2) predict the effect of zebra mussel invasion on benthic communities in the Madison lakes through comparisons with data to be obtained in southeastern Wisconsin lakes and an extensive long-term database from Eastern European lakes; 3) estimate the potential effect of zebra mussels on benthic and pelagic communities and associated fisheries in the Madison Lakes.	Dr. Alexander Y Karatayev, Dr. Lyubov E. Burlakova	12/31/2008	

Budget

Combined Budgets:

Combined WSLH:

Combined Total: $0.00

Funding

Organization	Source	Type	Amount	Start Date	End Date