

Wisconsin Department of Natural Resources SWIMS Project Summary

General Project Information

Project ID: AEPP-293-11
Name: LUMBERJACK RC&D COUNCIL: Integrated Education, Planning & Prevention Approach to Zebra Mussels in Keyes Lk & M
Type: Aquatic Invasives Grant
Subtype: Aquatic Invasives Education
Status: COMPLETE
Start Date: 04/01/2011
End Date: 12/31/2013
Purpose: Lumberjack RC&D Council, Inc is sponsoring a project focusing on developing a Keyes Lake Management Plan, a graduate zebra mussel (ZM) research project and AIS education, prevention, containment and monitoring within the Menominee River Watershed. Project partners include the Keyes Lake Improvement Association, Florence County LCD, UW-Stevens Point, and Wild Rivers Invasive Species Coalition.

Project activities include: 1) Education and Response: Host an annual project workshop; host AIS, native species and water clarity monitoring workshops; prepare press releases and newsletter articles; conduct watercraft inspections on ZM source waters; contain ZM at source waters using boat washes; focus on ZM monitoring using volunteers and scuba divers; develop Menominee River watershed ZM strategic plan. 2) Research: Complete a Master\2019s degree thesis focusing on quantifying the distributional pattern, habitat use, and population dynamics of ZM within and among lakes near Keyes Lake. 3) Planning for Keyes Lake Management Plan: Summarize existing lake info; analyze aquatic plant survey info and develop APM plan; perform watershed assessment; develop Keyes Lake Adaptive Management Plan. 4) Final report summarizing all 3 components listed above.

Project deliverables: 1) Master\2019s thesis; 2) Keyes Lake Management Plan and Menominee River Watershed ZM Strategic Plan; 3) Keyes Lake boat wash station; 4) AIS educational and communication activities/products; 5) Final report summarizing project activities.

Specific project conditions: All reports, plans and thesis need Dept review and approval

WDNR Lakes Coordinator will be provided with electronic (pdf or word) and hard copy of final report, strategic plan, Keyes Lake plan, thesis, and samples of educational and outreach products.

Objective:

Comments: Grantee is LUMBERJACK RC&D COUNCIL

Outcome:

Study Design:

QA Measures:

People

Name	Role	Status	Start Date	End Date	Organization	Comments
Lumberjack RC&D Council,	GRANT_RECIP	COMPLETE	04/01/2011	05/07/2014	Lumberjack RC&D Council	

Project Statuses

Date	Reported By	Status	Comments
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Actions

Action	Detailed Description	Start	End Date	Status
Develop/Distribute Newsletter		04/01/2011	12/31/2013	PROPOSED
Issue News/Media Release		04/01/2011	12/31/2013	PROPOSED
Grant Awarded		04/01/2011	12/31/2013	COMPLETE
Hold Workshops		04/01/2011	12/31/2013	PROPOSED
Watercraft Inspections Clean Boats, Clean Waters		04/01/2011	12/31/2013	PROPOSED
Monitor Invasive Species		04/01/2011	12/31/2013	PROPOSED

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Action	Detailed Description	Start	End Date	Status
Lake Management Plan Development		04/01/2011	12/31/2013	PROPOSED

Monitoring Stations

Station ID	Name	Comments
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Assessment Units

WBIC	Segment	Local Name	Official Name
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Lab Account Codes

Account Code	Description	Start Date	End Date
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Forms

Form Code	Form Name
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Methods

Method Code	Description
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Fieldwork Events

Start Date	Status	Field ID	Station ID	Station Name
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Documents

Title	Description	Author	Published	Comments
ZEBRA MUSSEL HABITAT SELECTION, GROWTH AND MORTALITY IN LAKES OF NORTHEASTERN WISCONSIN AND THE UPPER PENINSULA OF MICHIGAN	Invasive zebra mussels (<i>Dreissena polymorpha</i>) have been anthropogenically transported to various inland locations in the midwestern United States from the Laurentian Great Lakes. In northeastern Wisconsin and the Upper Peninsula of Michigan, additional colonization is occurring along natural corridors and by inadvertent human transport. High fecundity and filtering rates of zebra mussels and the ability to attach to substrates cause tremendous ecological and economic impacts. Because management options are limited once zebra mussels become established, there is a critical need to contain their spread. Identifying characteristics of new ζ source ζ population invasions may assist early detection monitoring efforts. Suitability models based on water calcium concentrations are currently used to identify lakes in which to focus pre-invasion monitoring efforts. Understanding lake-specific habitat limitations could refine monitoring efforts by identifying locations within lakes that have the greatest establishment potential. Additionally, quantitative comparisons of zebra mussel growth and mortality	Maureen M. Ferry	12/01/2013	

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Title	Description	Author	Published	Comments
	<p>among lakes across a range of colonization periods may provide information to managers and landowners on anticipated population trajectories following establishment. The objectives of this study were to: (1) determine if habitat selection by zebra mussels occurs within lakes; (2) determine if differential habitat selection occurs among lakes consistent with time since colonization and, if so, build a predictive model of potential habitat use; (3) determine if zebra mussel mean length-at-age and mortality rates differ among sampled populations. SCUBA diving was used to sample 10 quadrats at regular intervals along 12 transects (120 total quadrats) representing a variety of habitats in eight lakes. Within quadrats, water depth was measured and substrates were visually estimated to quantify habitat availability. Zebra mussel presence / absence were recorded for available substrates in each quadrat. Selection indices were used to evaluate zebra mussel habitat selection. Zebra mussels were randomly collected from one quadrat along each transect. Length and age for each collected individual was used to evaluate zebra mussel mean length-at-age and mortality. Von Bertalanffy growth curves were estimated to determine whether zebra mussel mean length-at-age varied among lakes and catch curves were used to determine whether zebra mussel mortality rates varied among lakes. Results suggest that zebra mussels selected for hard substrates (i.e., rock, wood, and shells), avoided soft substrates (i.e., silt, particulate, and sand), and used macrophytes in proportion to availability. Zebra mussel growth varied among lakes and there was no difference in zebra mussel mortality rates among lakes. Current monitoring efforts focus on veliger tows or substrate samplers which are effective only after a population is widely established. These results can be applied to early detection monitoring protocols to detect a pioneer zebra mussel population. Few studies have evaluated zebra mussel mean length-at-age and mortality in North America and this study can be used as a template to evaluate mean length-at-age and mortality across a variety of lakes to increase our understanding of zebra mussel biology.</p>			

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Budget

Combined Budgets:

Combined SLOH:

Combined Total:

Funding

Organization	Source	Type	Amount	Start Date	End Date
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