

## RESEARCH CONNECTION

# Public knowledge of and attitudes toward aquatic invasive species and their management in Riding Mountain National Park, Manitoba

By Gina L. Musgrave, & Christopher D. Malcolm, Ph.D.



## Why this research is important

National parks are popular summer destinations known for natural and outdoor recreation opportunities. They are also important places for conserving the natural environment; unfortunately, human activities can affect wildlife and their habitat.

The purpose of this project was a human dimensions study of RMNP users to explore their knowledge of AIS and their attitudes and opinions toward AIS management in the park. It is important to understand human knowledge and perceptions of AIS and their management because human behaviors in relation to AIS are influenced by variables such as knowledge, attitudes, concerns, and environmental attitudes ([Kemp et al., 2017](#); [van Riper et al., 2019](#)). An increased human dimension understanding of zebra mussels and smallmouth bass in Clear Lake will, therefore, aid Parks Canada in more effective public education regarding the state and management of these AIS.

## What you need to know

Riding Mountain National Park (RMNP) is a popular destination known for its natural and outdoor recreation opportunities. Visitation to the park considerably increases during the spring and summer months, particularly for water use activities; the main water recreational area is Clear Lake, located next to Wasagaming, the main tourist town. RMNP and the province of Manitoba are currently concerned about the spread of aquatic invasive species (AIS). RMNP has had an AIS inspection program since 2014 in hopes of protecting their water bodies. The presence of zebra mussels was first detected in the park in 2023 when a cluster was found in Clear Lake. Zebra mussels are arguably the most well-studied invasive introduced species in the world and certainly in aquatic ecosystems (Simberloff & Rejamek, 2011). High dispersal and high reproductive rates provide the potential for high ecological impact invasions (Simberloff & Rejamek, 2011) and management challenges in the future ([Havel et al., 2015](#)). For the spring and summer of 2024, RMNP enacted restrictions on all types of watercrafts in Clear Lake in an attempt to limit the spread. Smallmouth bass were first detected in Clear Lake in 2020. Fishers are asked to retain and euthanize all smallmouth bass caught.

### How the research was conducted

We collected data using an anonymous online survey for RMNP users hosted on Microsoft Forms during the period from May 1 to September 6, 2024. The survey was accessible with a QR code on posters in the park, including Wasagaming businesses, emails sent to cabin and cottage owners association members, and a link on a message on the RMNP Facebook page, posted three times throughout the study period.

The survey included questions about respondent demographics, types of recreation the participants engage in on the water bodies of RMNP (e.g., boating, fishing), knowledge about AIS, both in general and within RMNP, and attitudes toward AIS management in the park.

### What the researchers found

We received 369 completed surveys from a variety of RMNP user types. The majority of respondents claimed to have a general or advanced understanding of AIS, which did not translate to a high level of AIS knowledge about Clear Lake beyond zebra mussels and smallmouth bass as AIS; northern pike, walleye, and whitefish as native species; and low trophic species, whether invasive or non-invasive, were particularly less known. Although a vocal majority of people vilified the RMNP watercraft restrictions, more respondents strongly agreed and agreed with them. Many comments backed up the restrictions, while comments from those who disagreed and strongly disagreed were often accusatory of RMNP. Respondents were much more concerned about the presence of zebra mussels in Clear Lake than smallmouth bass. This may be because the zebra mussel issue has received much more media and management action (i.e., watercraft restrictions). Participants were much less knowledgeable regarding smallmouth bass. There was also greater support for eradicating zebra mussels than smallmouth bass. Many comments alluded to zebra mussels as ecologically destructive, and while there was some concern about trophic competition from smallmouth bass, others thought smallmouth bass provided more recreational fishing opportunities. We recommend that RMNP provides

more general information about AIS, uses more science-based messaging regarding zebra mussels, and provides more public education about the smallmouth bass presence in Clear Lake.

### How this research can be used

This research helps gain an understanding of visitors' knowledge and opinions towards aquatic invasive species. The results from this study will help RMNP managers craft effective public education, outreach, and management approaches regarding aquatic invasive species in the park.

### About the researchers

**Gina Musgrave** is a fourth-year geography major with a focus in Environmental Studies at BU. She also worked as a summer student at RMNP in 2023 and 2024.

**Christopher Malcolm** is a professor in the Department of Geography and Environment, specializing in human dimensions of wildlife management, ecotourism, and recreation. [Malcolmc@brandonu.ca](mailto:Malcolmc@brandonu.ca)

### Keywords

Riding Mountain National Park, human dimensions of wildlife, aquatic invasive species, public education

### Acknowledgements

The authors would like to thank the survey participants, RMNP for vetting this research, and the Brandon University Research Ethics Committee for approving the survey instrument and administration methods. Research Connection is a periodical publication intended to provide information about the impact of Brandon University's academic research and expertise on public policy, social programming, and professional practice. This summary is supported by the Office of Research Services; the Centre for Applied Research and Education in Indigenous, Rural, and Remote Settings; and the federally funded Research Support Fund.

Editor: Christiane Ramsey [Ramseyc@brandonu.ca](mailto:Ramseyc@brandonu.ca)  
<http://www.brandonu.ca/research-connection>

## BRANDON UNIVERSITY

Brandon University, founded in 1899, promotes excellence in teaching, research, and scholarship, and educates students so that they can make a meaningful difference as engaged citizens and leaders. This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License. Thank you to ResearchImpact-RéseauImpactRecherche (researchimpact.ca) for their permission to adapt the ResearchSnapshot clear language research summary format.

