

## 2009 School Seminar Series

Waikato Management School  
Te Raupapa



# Modeling the Human-Induced Spread of Aquatic Invasive: The Case of the Zebra Mussel

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### Abstract

Ecological evidence indicates that transient recreational boating is the principal overland vector of dispersal for several freshwater invasive species. Understanding boating behavior, and how behavior responds to policy changes, is central to understanding the effectiveness of efforts to halt or slow the spread of aquatic invasives. We develop a framework that combines a recreation demand model of boating behavior with a discrete duration model describing the spatial and temporal spread of an aquatic invasive. The integrated approach allows us to link invasion risk probabilities directly to boating behavior, policy levers, and behavior changes arising from policy shocks. With an application to zebra mussels in Wisconsin we show that explicitly accounting for behavioral responses can dramatically change predictions for the effectiveness of particular policies, in some instances leading to increases in invasions risks at some sites.

Keywords: invasive species, recreational boating, zebra mussel, random utility maximization model.

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