

## **INTRODUCTION PATHWAYS, DIFFERENTIAL SURVIVAL OF ADULT AND LARVAL ZEBRA MUSSELS (*DREISSENA POLYMORPHA*), AND POSSIBLE MANAGEMENT STRATEGIES, IN AN ADIRONDACK LAKE, LAKE GEORGE, NY**

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**Abstract:** The introduction pathway and source of zebra mussel larvae into Lake George, NY were determined and a general bioassay was developed to assess the zebra mussel colonization risk of a water body. The presence of zebra mussel larvae (veligers), recruitment, and adults were monitored in Lake George from 1995-2003. All observations of zebra mussel veligers; were at marinas, boat ramps, or areas heavily used by fishing boats. Models and observation suggest that human activity is the primary mechanism by which zebra mussels are transported overland. Although one small colony of zebra mussels was discovered during this period, no evidence was found of recruitment or permanent colonization by zebra mussels in Lake George. A series of bioassays to assess both larval and adult growth and survival was developed and indicated that Lake George water limited the survival of zebra mussel larvae but not of adults. These bioassays confirmed model predictions that zebra mussel recruitment is limited by the moderate water alkalinity in Lake George, but that adults were able to survive and grow. The unique water chemistry that limits zebra mussel colonization, and the close proximity of Lake George to other mussel-populated waters, make Lake George an ideal natural laboratory to study the introduction process of zebra mussel adults and/or larvae into a landlocked lake. Although zebra mussels have colonized the major waterways of Eastern North America, the establishment of zebra mussel populations in landlocked lakes is occurring much more slowly. Public outreach and education efforts that appear to aid in limiting the introduction of zebra mussels are also discussed.

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