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Combined Effects of Temperature and Salinity on the Zebra Mussel, *Dreissena Polymorpha*

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COMBINED EFFECTS OF TEMPERATURE AND SALINITY ON THE ZEBRA MUSSEL, DREISSENA POLYMORPHA

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In 1986 the European mussel, Dreissena polymorpha, was introduced into the Great Lakes by a ship from overseas. Since its discovery in 1988, the zebra mussel has received much attention because of its economic ramifications to waterfront industries. The mussels attach themselves to almost any hard surface, including water intake pipes which may reduce the intake of water from the freshwater rivers and lakes. Removal of the mussels is costly and the pipes often become clogged again. This study examines factors that may be lethal to the mussels.

My research examined the influence of temperature and salinity on survival of adult zebra mussels, which are thought to be closely related to marine mussels. It has been suggested that zebra mussels may have a higher tolerance to salinity which has been attributed to their possible relationship to marine species. In addition, I compared lengths and heights of shells to dry tissue weights of the animals. This can be used as a method for determining growth. The combined effects of temperature and salinity on adult mussels were determined by exposing mussels at 11 and 22 C° to one of three salinities (0, 5, or 15‰). Adult mussels were collected from Sterling State Park MI and transported to the laboratory where they were maintained for a week until acclimated. Twenty animals were chosen at random for each of the six test groups and subsequently weighed. The mussels were then measured and placed at the appropriate temperature. The salinity was gradually increased over the first two weeks by adding Instant Ocean to freshwater collected from Lake Evergreen. The mussels were monitored daily for four weeks. Dead mussels were removed from the test dishes and weighed. The mussels were then dried for two days and weighed again to determine the dry tissue weights. The relationship of dry tissue weights to shell lengths and shell heights was then determined. The results will be presented at the Conference.