Schloesser, D.W., T.F. Nalepa, and G.L. Mackie, 1996. **Zebra Mussel Infestation of Unionid Bivalves (Unionidae) in North America**, Great Lakes Science Center, National Oceanic and Atmospheric Adminsitration, University of Guelph

Reprinted from American Zoologist 36:300-310 (1996)

Zebra Mussel Infestation of Unionid Bivalves (Unionidae) in North America

SYNOPSIS

In 1989, zebra mussels received national attention in North America when they reached densities exceeding 750,000/m ^{2} in a water withdrawal facility along the shore of western Lake Erie of the Laurentian Great Lakes. Although water withdrawal problems caused by zebra mussels have been of immediate concern, ecological impacts attributed to mussels are likely to be the more important long-term issue for surface waters in North America. To date, the epizoic colonization *(i.e.,* infestation) of unionid bivalve mollusks by zebra mussels has caused the most direct and severe ecological impact. Infestation of and resulting impacts caused by zebra mussels on unionids in the Great Lakes began in 1988. By 1990, mortality of unionids was occurring at some locations; by 1991, extant populations of unionids in western Lake Erie were nearly extirpated; by 1992, unionid populations in the southern half of Lake St. Clair were extirpated; by 1993, unionids in widely separated geographic areas of the Great Lakes and the Mississippi River showed high mortality due to mussel infestation. All infested unionid species in the Great Lakes (23) have become infested and exhibited mortality within two to four years after heavy infestation began. Data indicate that mean zebra mussel densities >5,000-6,000/m ^{2} and infestation intensities >100-200/unionid in the presence of heavy zebra mussel recruitment results in near total mortality of unionids. At present, all unionid species in rivers, streams, and lakes that sympatrically occur with zebra mussels have been infested and, in many locations, negatively impacted by zebra mussels. We do not know the potential consequences of infestation on the 297 unionid species found in North America, but believe zebra mussels pose an immediate threat to the abundance and diversity of unionids.

Entire Paper

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Keywords: Zebra mussel, Bivalve, Impact
Product Type: Research, Basic Biology
User Type: General