

Lake Erie Water Quality in the 90s: A Time of Transition.

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Lake Erie began to recover from excessive nutrient loads and the near extirpation of the Walleye in the 1970s. In the mid-1980s nutrient loads had been reduced by half and there had been an explosion of the Walleye population. By the late 1980s, the nutrient load goals had been attained but an increasing number of exotic species such as *Bythotrephes* sp. and *Dreissena* sp. began to appear and these have changed the system forever. By the 1990s the Walleye explosion had subsided and the population resumed its former upward trajectory. In the late 1990s there has been pressure by some fishing interests to increase nutrients loads in order to increase fish yields and this raises the question of the long term controls on algae and the effects of nutrient controls and exotic species mainly *Dreissena* sp. Data for the offshore areas was examined. Phosphorus declined by 20 ugP/l in the west basin and by about 3 ugP/l in the central and east basin before the mussel invasion. Most of the productivity decrease or chlorophyll decrease occurred due to the nutrient controls prior to the mussels. Mussels seem responsible for a loss of about 20% of the remainder. Secchi transparency offshore changed little post-mussels. The effect of the mussels on the offshore seems variable or, at least, is still evolving. Losses of phosphorus in 1994 to 1995 (unprecedented low) were largely recouped in 1996 and 1997. There seem to be new processes operating that affect the offshore and, by inference, the majority of the lake area as well as the nearshore area that should be even more intensely affected. This seems to be a time of transition from the old Lake Erie paradigm towards a new paradigm which is slowly developing as more and more exotic species appear. For this reason no fundamental change in nutrient policy is advocated.