

The Ebb and Flow of Contaminants in the Aquatic Community.

D. Michael Whittle¹ (whittlem@dfo-mpo.gc.ca), R.W. Russell, A.A. Carswell and H.A. Morrison². ¹DFO, Great Lakes Laboratory for Fisheries & Aquatic Sciences, 867 Lakeshore Road, Burlington, ON L7R 4A6 and ²Aqualink, 4936 Yonge Street, Suite 507, Toronto, ON M2N 6S3

Despite Lake Erie's previous history with eutrophication problems, it has always been viewed as the cleanest of the Great Lakes with respect to toxic chemicals. In the early 1970s harvest of the fishery was curtailed because of mercury levels. Subsequent cleanup measures reduced the input of mercury. Controls on the use of DDT, PCBs and dieldrin were implemented during the same time period and resulted in declining contaminant burdens in the Lake Erie aquatic ecosystem. The invasion and proliferation of exotic species in the late 1980's changed the dynamics of contaminants in Lake Erie by altering the form and function of the food web. Previously contaminants entering from upstream sources were attached to particulars in the water column which transmitted through the system relatively quickly. The massive *Dreissena* population caused a shift from a pelagic to a benthic food web. Contaminants were focused in the benthic community and retained within the system longer to increase exposure of the aquatic community. Increases in contaminant burdens were observed not only in traditional benthic feeding fish species but also in pelagic populations. Some recent compensation has occurred but the previous rapid decline of contaminants in Lake Erie has slowed and may be further influenced by the expansion of other exotic species and perhaps the advent of climate change.