

Foreword

In 1969, a prominent British newspaper published an article on the death of Lake “Eerie”. In fact, the article was an obituary of a grand and noble lady who fell into an unwanted and tragic relationship with abusive and exploitive Homo sapiens and finally succumbed to relentless assaults on her health and integrity. The author was especially impressed that a tributary (Cuyahoga River) to the lake had burst into flames resulting in burning some bridges spanning the river at Cleveland, Ohio. He justly chastised we North Americans for being so uncaring about such a valuable natural resource.

In truth, the decline of the Lake Erie ecosystem had reached bottom in the late 1960s. The prognosis for the lake was indeed bleak; but help was on the way. Perhaps Lake Erie was fortunate in being proclaimed “dead”. The death-knell was an alarm call to environmentalists, the International Joint Commission, the Great Lakes Fishery Commission and the public who pressured policy-makers to provide support for research and remedial programs.

In the 1960s, the Canadian Government established the multi-disciplinary Canada Centre for Inland Waters under the direction of Dr. Richard Vollenweider, renowned for his scientific understanding of the eutrophication of lakes. The mandate of the Centre was to study the physics, chemistry and biology of the Great Lakes and recommend management policies for preservation and restoration of the resource. In 1969, Dr. Vollenweider had the foresight to hire a young phycologist, Dr. Mohi Munawar, to study the phytoplankton of the Great Lakes. Over the decades, Dr. Munawar has done much more than study the phytoplankton, lake by lake, although that in itself is a lifetime achievement as evident from his 200+ publications. With enormous energy, tremendous leadership and vision, and passion for the Great Lakes and other large lakes of the world, he founded The Aquatic Ecosystem Health and Management Society and its prestigious journal, “Aquatic Ecosystem Health & Management”. He has organized or co-organized 42 symposia on Great Lakes and global freshwater ecosystems. The proceedings of 18 of these symposia have been published in the Ecovision Series. “Checking the Pulse of Lake Erie” is the latest addition to the series.

The progress of research on Lake Erie has been marked by several milestone publications during the long struggle to restore the system. The reports of the U.S. Federal Water Pollution Control Administration (1968) and the International Joint Commission (I.J.C. 1969) described Lake Erie in the depths of degradation. “Lake Erie in the Early Seventies” (Burns 1976) recorded the status of limnology and fisheries in the lake before remedial programs were implemented. “State of Lake Erie” (SOLE) (Munawar et al. 1999) described the state of the lake in response to remedial actions and at early stages of the invasion of dreissenid mussels. “Checking the Pulse of Lake Erie” (POLE) is an update on SOLE under continued efforts at restoration and impacts from nonindigenous species. POLE contains 20 manuscripts contributed by almost 50 authors from a broad spectrum of disciplines and research interests.

As expected, impacts from the invasion of dreissenid mussels are featured in many papers and, where possible, pre- and post-invasion conditions are compared. Ecosystem changes due to the invasion are suggested in papers dealing with lake circulation, phosphorous, dissolved oxygen, contaminants, phytoplankton, zooplankton, benthos and fisheries. Climate change is also implicated in current and future thermal and hydrodynamical regimes. Several papers indicated that water quality, which greatly improved from 1970 to mid 1990s, has declined in the past decade. While concentrations of some contaminants have declined in the ecosystem, others continue to show increasing trends. The term “dead zone” has resurfaced recently. However, several authors in this volume found healthy microbial and phytoplankton communities in the oxygen-stressed hypolimnion of the central basin and suggest that use of the term be discouraged. Fourteen years ago, we and others published a long list of nonindigenous species that are established in Lake Erie (Mills et al. 1993). It is discouraging to note that invaders continue to establish at a rate of one per year and that the lake remains at risk of further invasions.

Clearly, all is not well with the health of Lake Erie. “Checking the Pulse of Lake Erie” is an important and excellent update and useful benchmark in the Lake Erie historical record. Dr. Munawar and the authors are commended for producing another milestone in the ecological history of the Great Lakes.

References

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