



BY JOHN H. HARTIG, FULBRIGHT SCHOLAR AND GREAT LAKES SCIENCE-POLICY ADVISOR, INTERNATIONAL ASSOCIATION FOR GREAT LAKES RESEARCH

The Great Lakes are a shared resource between Canada and the United States, accounting for one-fifth the standing freshwater on the Earth’s surface. Approximately 34 million people in the U.S. and Canada live in the Great Lakes Basin. Both countries depend on the Great Lakes for drinking water, transportation, economic opportunities, power, and recreation. For example, 48 million people in the U.S. and Canada get their drinking water from the Great Lakes. Cargo shipments on the Great Lakes St. Lawrence Seaway system generate \$US 34.6 billion of economic activity and 227,000 jobs in Canada and the U.S. The Great Lakes directly generate more than 1.5 million jobs and \$60 billion in wages annually and provide the backbone for a \$5 trillion regional economy that would be one of the largest in the world if it stood alone as a country. Recreation on the Great Lakes – including boating, hunting, fishing, and birding opportunities – generates more than \$52 billion annually for the region. Commercial, recreational, and tribal fisheries in the Great Lakes alone are collectively valued at more than \$7 billion annually and support more than 75,000 jobs.

The Great Lakes have literally powered economic growth in Canada and the United States, including mining, steel, automotive, lumber, pulp and paper, chemical, power, and more. This growth and development resulted in many benefits, but some unintended consequences, including legacy pollution of the Great Lakes. The most polluted areas of the Great Lakes are called Areas of Concern (AOCs). AOCs have one or more beneficial use impairments:

- Restrictions of fish and wildlife consumption
- Tainting of fish and wildlife flavor
- Degradation of fish and wildlife populations

- Fish tumors or other deformities
- Bird or animal deformities or reproductive problems
- Degradation of benthos
- Restrictions on dredging activities
- Eutrophication or undesirable algae
- Restrictions on drinking water consumption, or taste and odor problems
- Beach closings
- Degradation of aesthetics
- Added costs to agriculture or industry
- Degradation of phytoplankton or zooplankton populations
- Loss of fish and wildlife habitat

Since 1985, the federal, state, and provincial governments, in partnerships with many stakeholder groups, have been developing and implementing remedial action plans to restore uses in these AOCs. As of early 2018, seven AOCs have been delisted, two have been designated as AOCs in Recovery, 18 have implemented all remedial actions deemed necessary for use restoration, 67 of 146 known use impairments have been restored in Canadian AOCs, and 73 of 255 known use impairments have been restored in U.S. AOCs. All agree that progress has been slow, but it must be remembered that it took well over century to create many of these impairments and it cannot be expected to restore beneficial uses in a short period of time. Progress in restoring uses in the United States has accelerated under the Great Lakes Restoration Initiative that has provided \$650 million for AOC restoration since 2010 and in Canada under Canada-Ontario Agreement and the Great Lakes Protection Initiative.

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Recent experience is showing that this restoration is now helping reconnect people to their waterfronts in ways that enhance community well-being and indeed return economic benefits. One good example is the Detroit River that during the 1960s was considered one of the most polluted rivers in the United States. Considerable pollution prevention and remediation have occurred in and along the Detroit River resulting in substantial ecological recovery, including the return of bald eagles, peregrine falcons, osprey, lake sturgeon, lake whitefish, walleye, mayflies, wild celery, and more. This restoration has laid the foundation for the revitalization of the riverfront with the building of the Detroit RiverWalk. The Detroit RiverWalk is now one of the largest, by scale (5.5 miles in downtown Detroit), urban waterfront redevelopment projects in the United States, resulting in over \$1 billion in economic benefits in the first ten years. The Detroit RiverWalk has utilized democratic design to achieve benefits for all. It has also helped reconnect citizens to continentally-significant natural resources and has helped Detroit become an urban getaway for outdoor recreation.



HYPERSPECTIVE PRODUCTIONS

Another good example is Hamilton Harbour located at the western end of Lake Ontario near the cities of Hamilton and Burlington, Ontario. Hamilton is considered the “steel capital” of Canada and contaminated sediments are a major problem. Underway is the largest contaminated sediment remediation project in the Canadian Great Lakes in Hamilton Harbour’s Randle Reef. It is a 148-acre contaminated sediment hotspot that is costing \$139 million to remediate. Local businesses are projected to realize by 2032 about \$600 million in gross accumulated benefits with recreational users and the federal government realizing \$496 million and \$338, respectively.

The cleanup of such legacy pollution in Great Lakes AOCs has become a springboard for local communities to convert areas that were once a detriment to economic growth into valuable community and economic assets for all. Economic benefits assessments have proven to be important tools to sustain long-term momentum in restoration work, manifest return on investment, and attract funding partners to finish the job of cleaning up the remaining 36 AOCs. ■

For more information on economic benefits of restoring AOCs visit: <http://iaglr.org/aoc/>.