LAKE HURON

Lake Huron is the second largest Great Lake and the fifth largest freshwater lake in the world. It has the longest shoreline of the Great Lakes, counting the shorelines of its 30,000 islands. One of these islands, Manitoulin Island, is the largest freshwater island in the world. Georgian Bay and Saginaw Bay are the two largest bays on the Great Lakes. Early explorers listed Georgian Bay as a separate sixth lake because it is nearly separated from the rest of Lake Huron by Manitoulin Island and the Bruce Peninsula. In fact, Georgian Bay is large enough to be among the world’s 20 largest lakes. Huron receives the flow from both Lake Superior and Lake Michigan, but water flows through Lake Huron (retention time) much more quickly than through either of them.

Huron was the first of the Great Lakes to be discovered by European explorers. Shipwrecks are scattered throughout the lake, with five bottomland preserves in Michigan and a national park in Ontario designated to protect the most historically significant ones. The Lake Huron basin is heavily forested, sparsely populated, scenically beautiful, and economically dependent on its rich natural resources.

WATER USE

The Great Lakes provide water for many purposes: residential, commercial and institutional facilities; agricultural operations; industrial processes; electric power generation; navigation; sanitation; recreation; and habitat for fish, waterfowl and other aquatic organisms. In 1987, the Great Lakes states and provinces established at the Great Lakes Commission a regional water use data base for the Great Lakes basin and the individual lakes. However, as of 1989, it was not yet possible to obtain accurate information for all categories of water use in Lake Huron.

ECONOMIC IMPORTANCE

Tourism: Important source of income for regional economy. Five bottomland preserves and one underwater park. The lake area has thousands of seasonal homes.
Agriculture: The world's major producing area of yellow perch, walleye and chubs. Seeking yellow perch, walleye, bass, trout and salmon are major salt producers in the area of Ontario north of Lake Huron. There are major salt producers at Goderich and along the St. Clair River.

Industry: One of the largest U.S. chemical producers is located along the southern shoreline. The largest petrochemical center in Canada is at Sarnia, Ontario. Michigan ranks fourth and sixth in the U.S. in the sale of Portland and Masonry cement, respectively, and much of the production occurs in the Lake Huron basin.

Mining: World's largest limestone quarry: major limestone and gypsum producer: 10 percent of the world's nickel reserves and 17.4 percent of nickel production: 10 percent of the uranium produced by non-communist countries. Copper, platinum, silver and gold deposits are located in the area of Ontario north of Lake Huron. There are major salt producers at Goderich and along the St. Clair River.

Fishery: Commercial fishing — Major species caught in Canadian waters: lake whitefish, catfish, carp, lake trout and chubs. Value in 1986 was $2,306.402 (U.S.) for 4,232,566 lb (1,923,894 kg). Major species caught in Canadian waters: lake whitefish, yellow perch, walleye and chubs. Value in 1986 was $86,966,480 (CDN) for 2,550,761 kg (5,611,674 lb). Sportfishing — Nearly 9 million angler days spent seeking yellow perch, walleye, bass, trout and salmon in 1985. Estimated annual economic impact of $129 million (U.S.) from angling in U.S. waters and $8148 million (CDN) from Canadian waters.

**Improvement:** Some shoreline property is acquired for public use as it comes on market.

**Problem:** Water quality. Industrial, navigational, municipal and recreational uses of the Great Lakes add pollutants to the ecosystem. Some of them may stay in the water or lake sediments for hundreds of years and affect other uses of the water. Pollution is usually most severe in major population centers on Great Lakes rivers, harbors and connecting channels. The types of problems include: toxic substances in water, sediments and fish; damage to other organisms living in or depending on the water; elevated levels of bacteria; high levels of phosphorus and other nutrients; heavy metals; and aesthetic problems. Overall, the water quality of Lake Huron is excellent. However, problems have been identified in Saginaw Bay and certain nearshore areas.

The types and severity of water quality problems vary throughout the Great Lakes basin. However, the International Joint Commission (IJC) and Great Lakes jurisdictions have designated 42 "areas of concern" (AOCs) because of their special water quality problems. Lake Huron has five AOCs, the fewest of any of the Great Lakes.

**Sources:** Primary sources of pollution include agricultural runoff, municipal wastewater treatment plants, automobile, chemical and petrochemical plants, atmospheric deposition, a pulp and paper mill and hazardous waste sites.

**Effects:** The effects of water quality problems vary with the types of pollutants in the area. Suspended solids: turbidity (reduced visibility that diminishes recreational and aesthetic enjoyment), which disturbs aquatic systems. Phosphorus: eutrophication (over-fertilized water, where excessive plants and algae grow). Toxic substances: contaminated fish, human health risks and resulting economic losses.

**Improvements:** In 1985, the Great Lakes states and provinces agreed to clean up and restore the AOCs in the basin. Each jurisdiction is developing "remedial action plans" (RAPs) to control and stop existing sources of pollution and restore water quality in

**RESOURCE ISSUES**

**Problem:** Inadequate public access to shoreline.

**Source:** Private ownership and development.

**Effects:** Limits public recreational use and tourist revenues.

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Other publications in this series are: Great Lakes Basin (E-1865, MICHU-SG-89-503); Lake Superior (E-1866, MICHU-SG-89-504); Lake Michigan (E-1867, MICHU-SG-89-505); Lake Erie (E-1869, MICHU-SG-89-507); and Lake Ontario (E-1870, MICHU-SG-89-508). For additional copies, contact one of the organizations listed above, your county Extension office, or the MSU Bulletin Office, 10-B Agriculture Hall, East Lansing, MI 48824-1039.

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Lake Huron

Lake Huron, the second largest of the Great Lakes, has more than 30,000 islands.

**LAKE HURON DIMENSIONS**
(includes Georgian Bay and the North Channel)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LENGTH</td>
<td>206 mi / 331 km</td>
</tr>
<tr>
<td>BREADTH</td>
<td>183 mi / 294 km</td>
</tr>
<tr>
<td>DEPTH</td>
<td>194 ft / 59 m average; 748 ft / 229 m maximum</td>
</tr>
<tr>
<td>VOLUME</td>
<td>850 mi³ / 3,540 km³</td>
</tr>
<tr>
<td>WATER SURFACE AREA</td>
<td>22,973 mi² / 59,500 km²</td>
</tr>
<tr>
<td>DRAINAGE BASIN AREA</td>
<td>50,700 mi² / 131,300 km²</td>
</tr>
<tr>
<td>SHORELINE LENGTH</td>
<td>3.827 mi / 6.157 km</td>
</tr>
<tr>
<td>ELEVATION</td>
<td>581 ft / 177 m</td>
</tr>
<tr>
<td>OUTLET</td>
<td>St. Clair River to Lake Erie</td>
</tr>
<tr>
<td>RETENTION/REPLACEMENT TIME</td>
<td>22 years</td>
</tr>
<tr>
<td>POPULATION</td>
<td>1,606,518 (U.S.); 941,300 (Canada)</td>
</tr>
</tbody>
</table>

**LAND AND SHORELINE USE**

The percentages below were calculated in the 1970s, based on information collected by the former Great Lakes Basin Commission. A study group formed by the International Joint Commission began to assemble current shoreline use information in 1987.

**LAND USE (Percent of total)**

<table>
<thead>
<tr>
<th>Use</th>
<th>Canada</th>
<th>U.S.</th>
<th>Basin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>21</td>
<td>40</td>
<td>27</td>
</tr>
<tr>
<td>Residential/industrial</td>
<td>1</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Forest</td>
<td>75</td>
<td>52</td>
<td>68</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**SHORELINE USE (Percent of total)**

<table>
<thead>
<tr>
<th>Use</th>
<th>Canada*</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>34</td>
<td>42</td>
</tr>
<tr>
<td>Recreational</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Agricultural</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Vacant (Can.)</td>
<td>35</td>
<td>—</td>
</tr>
<tr>
<td>Forest (U.S.)</td>
<td>—</td>
<td>32</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
<td>7</td>
</tr>
</tbody>
</table>

*Shoreline Use: Canadian percentages were for the southern half of its Lake Huron shore, the only part surveyed for shoreline use. The northern half is mostly forest.