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# THE LAND BY THE LAKES



*Nearshore Terrestrial Ecosystems*

**Lead Authors:**

**Ron Reid - Bobolink Enterprises - Washago, Ontario**

**Karen Holland - U.S. Environmental Protection Agency - Chicago, Illinois**

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**Comments?**

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### 3.1.4 Lake Level Fluctuations

45) Lake level fluctuations contribute to erosion, sediment transport, and sand dune maintenance (The Nature Conservancy, 1994). Great Lakes water levels fluctuate on the average of xx metres ( 12" to 18") , early. Over a period of years, the Lakes may rise or fall by as much as five to six feet. Levels are affected by the amount of water entering and leaving the basin (Great Lakes Commission, 1986).

46) Three types of water level fluctuations occur. First, water may be temporarily displaced due to high winds or atmospheric pressure. This is a short term fluctuation called a seiche. Second, seasonally the volumes of the Lakes change as a result of storm actions, runoff, evapotranspiration, or groundwater flow.

47) Runoff, all water flowing through streams and rivers that goes into the Lakes, contributes to the rising and falling of Great Lakes levels in the short-term. The marshes and lakeplains of the basin act as sponges. When saturated, as they are currently, runoff occurs with greater volume and frequency. Between 1940 and 1985, precipitation in the Great Lakes basin increased by 6% and runoff increased by 14% (Great Lakes Commission, 1986).

48) Third, long-term water level fluctuations are due to precipitation and temperature and evapotranspiration changes in the watershed (Center for the Great Lakes, 1985).

49) Precipitation is the primary factor affecting long-term Great Lakes water levels. Between 1900 and 1940, low precipitation created unusually stable lake levels, spurring shoreline development. After 1940 higher precipitation forced recognition that the water levels of the Lakes vary depending on seasonal as well as long-term precipitation fluctuations (Great Lakes Commission, 1986).

50) To a lesser extent than precipitation, the combination of temperature and evapotranspiration affects Great Lakes water levels. In general, as the temperature cools, evapotranspiration slows. An increase in precipitation along with a decrease in temperature and lower evapotranspiration results in an increase in combined precipitation and runoff (Great Lakes Commission, 1986).