



Storm Surges and Seiches - Lesson 2 Activity: Impacts

Part 3 Data sheet

People like lake shores. As a result, shores tend to become highly developed. Property values are high. Lakes, however, can be unpredictable. Storm-driven waves can destroy houses, especially if the level of the lake has risen since the houses were built. Could this be a problem at Eastlake, Ohio? Use the topographic map of Eastlake, Ohio to answer the questions below.

1. Locate the mouth of the Chagrin River on the topographic map. Draw a topographic profile of the area of houses on the northeast side of the river from the lake to Jefferson School. Start in the lake. This map was drawn in 1994. The average lake level height in 1994 was 571 feet.
 - Plot the average and highest water level for 1994 on your profile (Look up record high lake level in table below or online at USACE Historic Great Lakes Levels.)
 - Plot the elevation near Jefferson School (using elevation on topographic map).

Topographic map of Eastlake, Ohio





Lake Erie water levels (convert meters to feet)

DETROIT DISTRICT
 United States Army Corps of Engineers

[Return To The Previous Page](#)

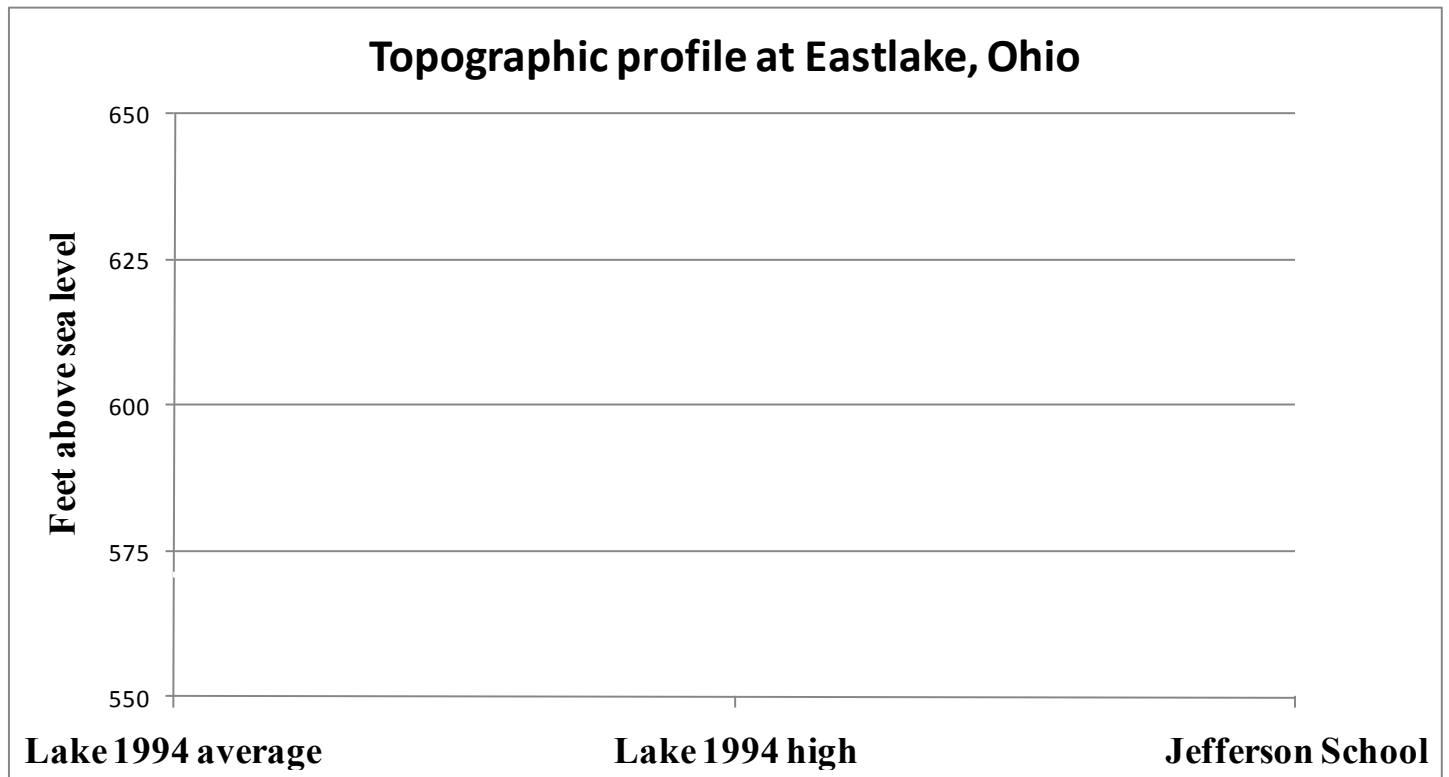
Great Lakes Water Level Table for Lake Erie

Lake Erie: 1994
 (Meters, IGLD 1985)

Historic Great Lakes Water Levels												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1994	174.21	174.18	174.28	174.48	174.54	174.53	174.58	174.53	174.42	174.31	174.24	174.21
Record High	174.86	174.78	174.88	174.98	174.97	175.04	175.03	174.94	174.83	174.94	174.85	174.90

NOTICE: All data contained herein is preliminary in nature and therefore subject to change. The data is for general information purposes ONLY and SHALL NOT be used in technical applications such as, but not limited to, studies or designs. All critical data should be obtained from and verified by the United States Army Corps of Engineers, Detroit District, Engineering and Technical Services, Great Lakes Hydraulics and Hydrology Office, 477 Michigan Ave., Detroit, MI 48226. The United States of America assumes no liability for the completeness or accuracy of the data contained herein and any use of such data inconsistent with this disclaimer shall be solely at the risk of the user.

Create topographic profile





2. Do you think the highest lake level in 1994 caused any flooding in the housing division? If so, where?

3. In addition to changes in lake level related to yearly weather (precipitation, evaporation), storms raise lake levels temporarily. Strong winds blowing from west across Lake Erie have raised the lake level as much as 8 feet at Buffalo. If a storm raised the lake level near the Chagrin River as much as 3 feet above the 1994 record high, how large an area would be flooded?

4. If a storm also caused 5 foot high waves, is it possible houses might be damaged?