



ADVANCING PUBLIC TRUST SOLUTIONS  
TO SAVE THE GREAT LAKES

## LAKE MICHIGAN WATER LEVELS – CLIMATE CHANGE IS TAKING OUR WATER

*By Liz Kirkwood and Bob Otwell*  
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The exposed shoreline along Lake Michigan is creating a local buzz as residents watch this beautiful lake recede. Levels of Lake Michigan and Lake Huron are at historic lows and 2012 marked the fourteenth consecutive year of below average water levels.

Three key factors that influence water levels are: (1) precipitation, (2) evaporation, and (3) runoff from land. Since 1950, precipitation has held relatively steady at 32 inches per year. Evaporation, however, has changed dramatically. A look at data from NOAA between 1950 and the mid-1980s reveals that total evaporation over the two lakes averaged 24 inches per year. In the last decade, though, the average annual evaporation has increased by 25 percent to 30 inches. Warmer water temperatures, coupled with less ice cover during the winter have contributed to increased evaporation rates, which in turn lead to continued lowering of lake levels. By altering the hydrologic cycle of precipitation, evaporation, and runoff, climate change is directly affecting Lake Michigan.

Other factors also have affected lake levels, including (1) the historic diversion of water out of Lake Michigan at Chicago to flush sewage down the Mississippi River, and (2) the dredging of the St. Clair River, which lowered the outlet of Lake Huron. But all in all, climate change remains the greatest diversion out of these lakes.

With this issue of record-low water levels front and center on everyone's minds, it provides a timely opportunity to develop holistic policy solutions to prevent further impairment and diversions. The Great Lakes are a shared public "commons" that can be protected by applying an overarching legal framework called the public trust doctrine. Public trust solutions equitably balance protected public water uses including navigation, commerce, fishing, drinking water and swimming.

This ancient legal doctrine is deeply rooted in our history. Two thousand years ago, the Roman Emperor Justinian established water as a commons held in trust for its citizens. In 1215, British Courts also ruled that the water was held in trust, and that the Crown could not interfere with the public's right to fish, boat, or swim. In 1892, the U.S. Supreme Court declared the Great Lakes to be held in public trust for all to enjoy. This trust means that government and citizens have a duty to pass on the integrity of these waters to future generations.

If we look at the lakes under the public trust lens, the Chicago diversion does not meet the standard because it takes water out of the watershed. Moreover, modern wastewater treatment has eclipsed the need to divert water to the Mississippi. As observed over the past decade, impacts to the lake levels from climate change are real and growing. We must continue to work locally, nationally, and internationally to reduce fossil fuel use, and demand action from our government leaders. Other parts of the country are experiencing loss of life and billion dollar impacts from tornados and hurricanes attributed to our changing climate. In the Great Lakes basin, what will our reality be?

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