

FEATURE

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On Assignment



Field Notes From
Photographer
Jay Dickman

Down the Drain?

Step into the world of writers and photographers as they tell you about the best, worst, and quirkiest places and adventures they encountered [in the field](#).



By **John G. Mitchell** Photographs by **Jay Dickman**

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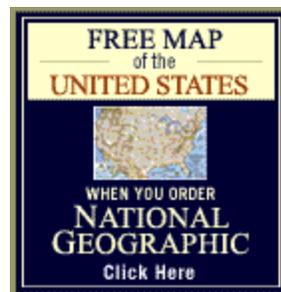
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The Great Lakes hold a fifth of Earth's surface fresh water, and they've shrunk dramatically. If it keeps up, shipping and fisheries could be left high and dry.

Get a taste of what awaits you in print from this compelling excerpt.

It takes a long time to learn how to get along with a lake. A decade isn't half enough. A generation might do. Then, if you have lived that long beside a lake the size of Michigan, you begin to understand that there's something about the fluctuating level of the water that makes no apologies for any inconvenience it may cause. Here is a wide sandy beach; there, a cottage perched at the lip of a crumbling bluff. Now you see them, now you don't. It's enough to keep a person guessing. The lake couldn't care less.

On the Old Mission Peninsula in Lake Michigan's Grand Traverse Bay, Ted Cline gave up guessing years ago. Since 1957 he and his wife, Jean, have lived here in a home overlooking the bay. From the edge of the lawn, steps go down to a wide sand beach, almost to the water when the level's up. But not long after the Clines moved in, they had to take a walk to wet their feet—the level of Lake Michigan had fallen lower than at any time since surface measurements were first recorded in the 19th century. A shade over 20 years later the lake was up again, higher than it had been in a century, lapping at the foot of the Clines' steps.



ONLINE EXTRA

[Learn](#) why Great Lakes water leaves Chicago with a one-way ticket to the Mississippi River.

FORUM

Water levels in the Great Lakes are now up, but recently drought and



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Feeling the Heat



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Last summer I stood with Cline above the lake and saw how it might have looked back in that earlier record-low time of 1964. For now, after years of drought and simmering annual temperatures, the levels of the Great Lakes had fallen once again, all the way from Duluth, Minnesota, to Kingston, Ontario, at the head of the St. Lawrence River. This is not just a matter of inconvenience to a hundred thousand riparian landowners along U.S. and Canadian shores, though more than a few of them are being put to the expense of extending their docks. It is a matter of concern to the multitudinous cities and farms dependent on lake water, to the boating and fishing segments of the region's multibillion-dollar tourism industry, and to the operators of deep-draft ships that ply these inland ports and waterways to hitch North America's heartland to the markets of the world.

warmer temperatures significantly lowered levels. What concerns do you have about diminishing freshwater supplies? [Join the discussion.](#)

And right here the wide, weedy beaches and rocky shoals of the Old Mission Peninsula said it all: Another couple of years of climatic deprivation and the greatest of these lakes might well bottom out at levels lower than any recorded in historic times.

"Oh, the lake will come back up someday," Cline said. A retired surgeon and World War II leatherneck dive-bomber pilot, he has seen much of the upper Great Lakes from the cockpit of his private plane, flying aerial photography assignments for books and magazines. Now, at the top of the steps above his dehydrated beach, I could only say to Cline, "I hope you're right."

Get the whole story in the pages of [National Geographic magazine.](#)

MORE TO EXPLORE

In More to Explore the *National Geographic* magazine team shares some of its best sources and other information. Special thanks to the Research Division.

Did You Know?

Gravitational interactions of the moon, sun, and Earth cause currents in the Great Lakes. These currents are tidal, which means that water levels rise and fall each day according to the gravitational attraction of the sun and moon.

While the tidal currents in the Great Lakes are weak as compared with ocean currents, other forces can act upon the lakes to cause significant movement of water. The Great Lakes can form seiches—oscillations of surface water that can change water levels by three feet in just moments. A seiche, a French word meaning "to sway back and forth," is formed when wind and air pressure change and cause the surface of a lake to rock back and forth. While small-scale seiches go unnoticed, large seiches are powerful enough to bang anchored ships together. Seiches can also impact the biology of lakes by pulling nutrients and other sediments into the upper layers of the lakes.

—Nora Gallagher



Related Links

Gifts of the Glaciers

www.seagrant.wisc.edu/communications/greatlakes/GlacialGift/

The University of Wisconsin Sea Grant website offers an outstanding resource for Great Lakes issues and current research.

History of the Great Lakes

[192.206.48.3/wirp/ICW-21.html](#)

Learn about the ways in which the Great Lakes shaped human culture. From the Ojibwa and Potawatomi to early European explorers, the lakes provided sustenance and means of transport for people in the region.

Native Americans of the Great Lakes

www.glitc.org/

Visit the Great Lakes Intertribal Council website for descriptions of Native American groups living in the Great Lakes region and for digital clips of Native American traditions such as the powwow.

Lighthouses and the Great Lakes

www.kwimages.com/

Explore this extensive photo collection of lighthouses from the Great Lakes region. Also find e-books, screensavers, and links to lighthouse events, locations, and history.

Water Levels of the Great Lakes

www.great-lakes.net/teach/envt/levels/lev_1.html

Changing water levels are part of the natural ebb and flow of lakes. Discover the three types of water level fluctuations, how levels are measured on the Great Lakes, and what caused the recent drop.

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