

TODAY'S WEATHER:

www.wunderground.com/us/mi/kewadin

STORM CENTRAL

www.gtlakes.com/storm-central/



Photo BY TNN – East Bayshore Beach Scene

Stopping by Woods on a Snowy Evening
BY ROBERT FROST

Whose woods these are I think I know.
His house is in the village though;
He will not see me stopping here
To watch his woods fill up with snow.

My little horse must think it queer
To stop without a farmhouse near
Between the woods and frozen lake
The darkest evening of the year.

He gives his harness bells a shake
To ask if there is some mistake.
The only other sound's the sweep
Of easy wind and downy flake.

The woods are lovely, dark and deep,
But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep.

<https://www.poetryfoundation.org/poems/42891/stopping-by-woods-on-a-snowy-evening>



TNN NEWS ALERT!
Spring heralds the return of snowbirds and sun. Northerners

who toughed out winter turn to planting and realtors to selling houses. Buyers'/Sellers' hopes for home prices motivate the selling season. TNN asked an area Realtor about local market trends in contrast to national trends. Insight and answers will soon be published in the first ever -

[Spring Equinox Edition of TNN News](#)

In 1962, President John F. Kennedy declared, "Anyone who can solve the problem of water will be worthy of two Nobel Prizes - one for peace and one for science."

WSJ notes that we are still waiting for that person.

It is in honor of this can-do American spirit that TNN seeks ways and means for members to adapt and improvise for resilience on their own property in concert with neighbors. Examples of local action are featured in this Edition. To be sure large public projects are planned which favor well connected special interests like shipping and hydropower. But a chorus of private and public shore owners is emerging along all the Great Lakes. (Page 2). And the Dutch way with water has evolved.



TNN President Keith Termaat monitors flood prevention developments in his native Netherlands. He was born below sea level in red area of Netherlands near Amsterdam. In these low-lands, cities, people, homes, and land have been protected by natural and engineered solutions like pumping for 500 years and building on terps (mounds) since 500 BC.

DUTCH WAY WITH WATER - EXCERPT

RICS.Org August 1, 2018 [PLEASE READ THE ENTIRE ARTICLE ON-LINE](#)

<https://www.rics.org/ssa/news-insight/future-of-surveying/sustainability/the-dutch-way-with-water/>

After centuries building dikes, the Dutch adopt a pragmatic approach to rising sea and river levels: living in harmony with water rather than trying to control it. "Bring in the Dutch!" has long been the rallying cry in flood-stricken locations. And for good reason: Over one-half of the Netherlands, and 65% of its GDP is below sea level.

But in spite of centuries of "the war on water," floods can and do happen. In 1953, the Netherlands suffered a catastrophic flood in which more than 1,800 people died. Government's response was a huge national project called the Delta Works: a series of dams and surge barriers shortened and thereby strengthened the coastline.

Forty years later, the "enemy" came from the other direction: the rivers that flow east through the Netherlands into the North Sea. At the last minute, the dikes held, but 250,000 people had to be evacuated and much of the country was in disarray. Again, the response to the floods was a huge government project, but this time: the mentality of the "war on water" had made way for a realization that working with natural processes makes cities and the countryside more resilient.

Rather than tradition of raising dikes - idea is to create space for controlled flooding.

FOUR SMART FLOOD-PREVENTION PROJECTS – Major and local

Meuse River-Room for the River project <https://worldlandscapearchitect.com/mound-plan-overdiepse-polder-the-netherlands-bosch-slabbers-landscape-urban-design/>



The Polder, on the south bank of the River Meuse, is one of over 30 'Room for the River' projects. Preventative measures were taken to enlarge the drainage capacity of the river during high water. So called 'river widening.'

Residents and entrepreneurs came up with the Mound (Terps) Plan which date to 500 BC to raise farmsteads above the flood plain. History has repeated itself, the age-old

solution to living ↑ on terps in flood-prone areas, reappeared as a 21st-century solution. The dike along the river was lowered; farms were rebuilt on mounds along the outer edge of the polder (at arrow - note curved road where land floods at high water). (cont'd page 3)

**OPEN LETTER TO US HOUSE/SENATE
 - RIPARIANS REQUEST \$10 MILLION**

Letter to U.S. legislators in Great Lakes region requests \$10 million to re-design regulation of L. Superior and L. Ontario.

TNN Board approved TNN signing on to the letter by its partner Restore Our Water International (ROWI). Similar letter to be sent to Canadian legislators.

ROWI led this broad legislative initiative to the US House Districts and Senate along the Great Lakes. Signers of the letter include Save Our Shorelines (SOS), Great Lakes Coalition (GLC), Lake Ontario Coalition, ROWI Canadian counterparts, TNN and other; \$5,000 funded by SOS.

Congressional appropriation is required to make this happen. The U.S. Secretary of State would reach out to the Canadian counterparts to also contribute funding.

L. Michigan-Huron water levels are not directly regulated but strongly influenced by L. Superior and L. Ontario regulation.

LAKE MICHIGAN-HURON

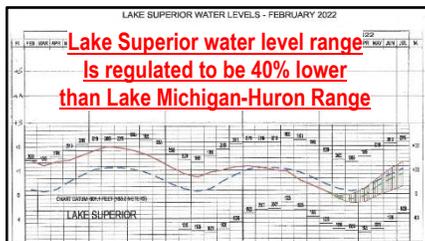
Water Levels (top figure) have a 6 foot range from record low to record high. This range is unnatural and damaging.

LAKE SUPERIOR

Authorities regulate water levels to a 4-foot range from record low to record high. **The marked-up chart below illustrates the less damaging range along Lake Superior.**

ROWI POLICY L. MICHIGAN-HURON

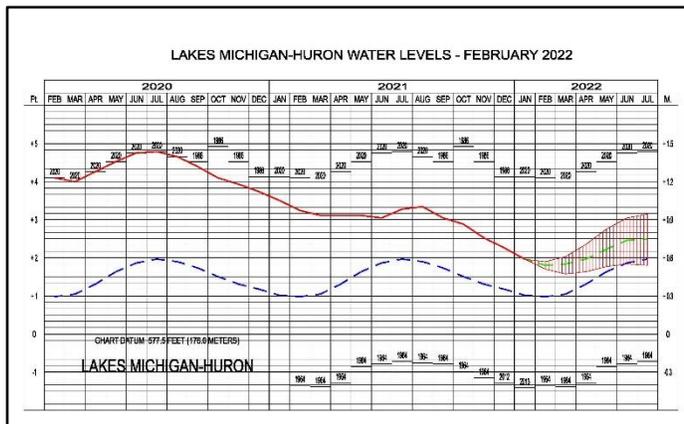
Reduce damage to waterfront property, wetlands, and aquatic life along Lake Michigan-Huron. Letter asks Congress to fund a study to regulate Lake Superior (and L. Ontario) in a way to lower high's and raise the lows to a more natural and historical range



US ARMY CORPS 6-12 MONTH SCENARIO PROJECTS FAVORABLE LAKE LEVELS

By Kevin Zimmermann, WHBL - Jan 31, 2022 | 6:29 AM

<https://whbl.com/2022/01/31/us-army-corps-6-12-month-scenario-projects-favorable-lake-levels/>



Worries about recent high water on Lake Michigan may have some concerns allayed given a recent outlook from the U.S. Army Corps of Engineers.

US ACE monitors water levels, responds to their outcomes, issued a "scenario," to plan for likely trends in next 6 to 12 months

This winter is shaping up to be the second consecutive La Niña winter. Based upon such patterns in the past, 2022 is likely to present much less of a threat than the past few years. Normal seasonal trends already have levels declining, and even with an expected rise during the warm months, we shouldn't be anywhere near record levels seen in 2020.

If the results of past back-to-back La Niña winters are a clue, forecasters are more confident that we'll stay much closer to seasonal normal for the rest of the year.

CLIMATE CHANGE INDICATORS: GREAT LAKES WATER LEVELS AND TEMPERATURES

BY: EPA <https://www.epa.gov/climate-indicators/great-lakes> PLEASE READ ENTIRE ARTICLE IN THE LINK

Key Points: Great Lakes water levels have fluctuated since 1860. Over recent decades, water levels declined slightly for most Great Lakes, as the past few years show notable increase toward the top of historical range. (Editor's Note: Lake levels dropped 2 feet since January 2021.)

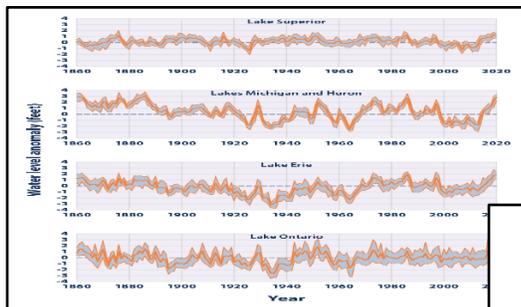


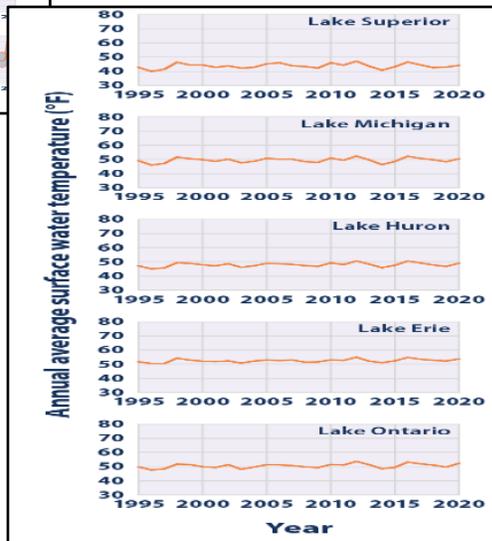
Figure above shows **water levels** for each year, the shaded band is the range of monthly average water levels; the line in the middle shows the annual average. Lakes Michigan and Huron are shown as one lake as they are connected.

Figure at right shows average surface **water temperature** for each Great Lake, as measured by satellites. The graphs show annual averages for the full time period.

Satellite temperature records exist for just 25 years as reported by EPA. A variety of temperature proxies have been proposed.

Surface water temperatures since 1995, have increased slightly for each of the Great Lakes

Recent temperature rises have been driven mostly by warming during the spring and summer months.



ADAPT/IMPROVE FOR RESILIENCE

(Photo:- reshaped ditch on private property, after public drain maintenance was done post floods)



Hundred year storms and neglected infrastructure allowed 5000 homes to flood in SE Michigan, Overwhelmed restoration services could not help.

All work was done by family, friends, and a handful of trusted contractors. Supply chain delayed restoration is complete.

It's about infrastructure!

DIY ADAPT/IMPROVE FOR RESILIENCE

(Photo: French drain dewaters into ditch).



High and low water damage alongshore is not uncommon. Neither is down-state flooding from collapsed earthen dams; storm/sewage drain overflows and pumping failures. Common thread: no maintenance, outdated public drains, restore natural range of water level

It's about infrastructure!



SEVERE ANTRIM BAYSHORE EROSION

Photo Wind-blown sand formed 40+ feet of beach).

Friends of TNN, were

forced to strengthen bluff/beach alongshore plus overcome downstate floods. Seawalls protect homes from the storm. For off-shore breakwater on covered beach, gales of November in two years shifted sand inland just offshore the Antrim coast. Two feet of new sand buried breakwaters as designed. Then water levels dropped 2 feet. A low water period may follow.

It's about infrastructure!

AFTER TWO LOW YEARS, ICE COVER ON GREAT LAKES NEARS AVERAGES.



<https://www.woodtv.com/weather/weather-news/after-two-low-years-ice-on-great-lakes-nears-average/>

DUTCH WAY WITH WATER

Smart flood-prevention projects – major and local (cont'd)

Successful float – Spakenburg Harbor

The fishing village boasts the world's longest self-closing flood barrier, sunk into a trench along the harbor. When lake water levels rise, the surge pushes the 1000 foot barrier's Kevlar panels up to hold the water back. When the water subsides, the floating panels descend.



Bridge not too far Nijmegen on the River

The biggest, most ambitious, and most expensive Room for the River project is at Nijmegen, on the River Waal. The city jumped at the opportunity to pair water safety measures with a major urban overhaul and the construction of a new residential area. It created a new dike, which is 3km long and can be as much as 5m deep when the river runs high. The river's edge was redesigned as an attractive park. (Please read the entire article at the link for details).

<https://www.rics.org/ssa/news-insight/future-of-surveying/sustainability/the-dutch-way-with-water/>

REFERENCE: American made flood proofing solutions are commercially available at the link below., Disclaimer: provided in the public interest and is NOT an endorsement by TNN.

https://www.floodproofing.com/files/ugd/dfbb94_e263b9c18eb34cf0a4903e2f98aba604.pdf

CHANGES IN SURFACE WATER TEMPERATURES IN NORTH AMERICAN LAKES.

<https://www.epa.gov/climate-indicators/climate-change-indicators-lake-temperature>



Change in Summer Surface Water Temperature of North American Lakes, 1985–2009

Only black rimmed red circles are statistically significant - 9 in total.

Looks like:

Just 2 of 9 water temperature changes in central North America are statistically significant.

7 of 9 water temperatures near oceans are statistically significant.

PLEASE DONATE TO TNN, A 501(c)(3) Charity

Dear Neighbor,
TNN operates virtually – no physical facility - no staff – all volunteers. TNN engages support partner projects within the limits of your donations.

TNN News is curated to your interests. Deductible donation finance projects to address challenges to lifestyle & environment. Current Priority: Upgrade website.

We appreciate your renewed commitment.

Keith Termaat, TNN President

Mail check to: Township Neighbors Network – P.O. Box 887, Elk Rapids, MI 49629

For checks use attached form. PAY PAL on website.