

# Public interest vs. private homes: Climate change and erosion fuel disputes along Lake Michigan's shoreline

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Steve Coombs' lakefront home used to quake when waves crashed along Ogden Dunes' receding shoreline.

"At one point, my wife said, 'Should we just move out? Should we just go to a hotel?' I mean, it's very unnerving," he recalled.

But fleeing the "biggest asset that we own" wasn't an option for Coombs, who said he enjoyed 60 yards of sand between his home and the lake when he bought it a decade ago.

"There are some people who say, 'Well, you folks built houses where they shouldn't have been built,' but that's not the case," Coombs said. "Years ago, there was all kinds of shoreline and sand here. In Ogden Dunes, we have houses over 100 years old."

Today, an international port impedes sand flow to Ogden Dunes' shore. That, combined with recent near-record high water levels, intense storms and dwindling ice coverage, has caused severe erosion.

Without stretches of sand to separate their homes from the lake, residents in the Indiana town of 1,200 are seeking to build revetments, or stone retaining walls that break the waves. However, environmentalists oppose these structures, citing the long-term consequences they will have on Lake Michigan's shoreline.

It's a battle that involves multiple projects, state and [federal officials](#), a national park, and the expanded application of a legal principle rooted in 16th century British common law.

To craft their argument, environmentalists are leaning on the public trust doctrine, which has historically been used to protect navigation and commerce. It requires governments to preserve certain natural resources such as the Lake Michigan shore for public benefit and is likely to become a common legal tool in disputes along the Great Lakes as climate change worsens erosion and courts roll back [environmental regulations](#).

## **Landowners versus public interest**

The revetments Ogden Dunes wants to build would stop the water from reaching residents' doorsteps in most cases. But, they would also harden the shoreline, hindering the natural wax and wane of beaches, and interrupt the flow of sand to neighboring beaches.

In June, Save the Dunes, an environmental organization committed to conserving Indiana's famous sand dunes, cited the public trust doctrine in an administrative appeal against Ogden Dunes' latest revetment project. It accuses the Indiana Department of Natural Resources of prioritizing the interests of a small group of private property owners over those of the public.

The revetment will encroach on public beach access, destroy lakefront habitats and cause erosion in the Indiana Dunes National Park, according to the organization. It is asking for the Natural Resources Commission, an autonomous DNR oversight board, to rescind the permit.

"You have the interests of a few beachfront landowners versus that broader public interest. And in our view, the public interest must prevail here, not only as a matter of law, but for future generations and for the sake of Lake Michigan," said Kim Ferraro, senior attorney at the Conservation Law Center, which is representing Save the Dunes.

Indiana's public trust doctrine gives the government ownership of the land below Lake Michigan's ordinary high-water mark—the point where vegetation is no longer able to survive if regularly wet.

In a statement, the DNR said it approved the permit because, "nearly all of this project is located landward of the ordinary high-water mark, which means that most of it is beyond the state's public trust area and jurisdiction."

Save the Dunes disputes this assessment.

"We really want to make sure that the public understands and knows what their rights are when it comes to accessing the beach and how private interests can chip away at that. That's why we need to stand up sometimes and say, 'No, this is the line. Yeah, this line,'" said Betsy Maher, Save the Dunes' executive director.

Regardless of where a revetment is built, the doctrine requires the DNR to assess the impact any project will have on public trust land.

"Every Indiana citizen has a stake in this. (The public trust doctrine) is not a private property right in that you can't divide it up. It's not divisible. It is a collective right," said Robert Fischman, a professor of law and public and environmental affairs at Indiana University at Bloomington.

While each state's public trust doctrine varies, use of the legal principle along the shoreline has not been exclusive to Indiana. In Illinois, for example, a billionaire private equity executive is currently at odds with Winnetka residents who say his plans to build breakwater structures would cut off the lakefront access endowed to them by the Illinois' doctrine.

The public trust doctrine is based in property law so it is more durable than the variety of environmental regulations across the country that can be subject to political whims. As recently appointed justices and government officials have taken anti-regulatory stances, the doctrine has become more important for environmentalists, said Fischman.

"We—environmental lawyers—are looking at common law doctrines like nuisance and trespass, negligence and the public trust, to fill in the gaps where environmental regulations are failing," echoed Ferraro.

## Impeding the flow of sand

Coombs got lucky. During near record-high water levels in 2020, the town organized to build a revetment in front of 32 homes, including his. It was an emergency measure funded by \$5.5 million in homeowner contributions, of which he paid \$210,000.

"The house no longer shakes ... and as a family, we feel a sense of relief and safety," Coombs said.

Now, more lakefront residents in Ogden Dunes want to armor the shoreline in front of their homes. The plans being challenged by Save the Dunes would permit a 2,970-foot long, 10-foot wide revetment in front of 34 more houses.

While such a revetment is a relatively low-cost, effective protective measure in the absence of ample sand, it is not a long-term, holistic solution, according to Cary Troy, an associate professor of civil engineering and principal investigator at the Great Lakes Coastal Processes Lab at Purdue University.

"If you're not prepared for high water periods, it's really the only measure that you have in the short-term that can keep property safe from the erosion of the lake. But they do have these long-term effects that you can't undo once you put them in place," he said.

Lake Michigan's current moves sand in a conveyor belt fashion along the coastline. The biggest waves come from the north. Since the Indiana shoreline angles down from east to west, the large waves from the north carry sand the same direction. However, revetments restrict wave action, impeding this natural flow of sand.

Indiana Dunes National Park is to Ogden Dunes' west, so armoring the

town's shoreline with revetments will likely starve the park's beaches of sand, enabling waves to eat away at the dunes over time.

Ironically, Ogden Dunes has been experiencing similar sand blockage since 1966 when the Ports of Indiana-Burns Harbor was built to its east. The port's 5,830 feet of breakwater structures jet into the lake and catch sand before it can continue its westward journey to Ogden Dunes.

"All we're trying to do is protect ourselves from the wrong that has been perpetuated for decades now," Coombs said.

Save the Dunes advocates say they understand Ogden Dunes is suffering the consequences of the international harbor's infrastructure, but shoreline hardening needs to stop somewhere, especially before it threatens the Indiana Dunes National Park.

"We're really sympathetic to the challenges (Ogden Dunes is) facing," Maher said. "But we're also concerned about the national parkland that will be directly impacted."

Ultimately, "it's hard to paint Ogden Dunes as a villain here. I think Ogden Dunes is both a victim as well as a potential victimizer," said Fischman, the Indiana law professor.

## **Sustainable but slow**

While revetments might not be the most environmentally sound solution, Ogden Dunes Town Council President Scott Kingan said the potential fallout from inaction can't be dismissed.

"If protective measures are not taken, homes, septic systems, roads, power lines, public water systems, and other debris will eventually be consumed by the lake and may cause an environmental disaster with far-

reaching consequences," he wrote in a statement responding to the appeal.

Save the Dunes agrees that something must be done but, instead of revetments, advocates for beach nourishment, the process of manually adding sand to the beach.

"(Beach nourishment) is the best solution," Maher said. "If we bring the sand in, the sand will accumulate."

This was also the erosion control measure recommended in a 2014 environmental impact statement conducted by the National Park Service and is routinely used to maintain Miami's iconic South Beach.

The catch: Beach nourishment is a slow process, and residents whose homes are being threatened do not feel that they have the time to pursue it, especially with the recent high water levels.

While the damage to the lakefront was extensive during 2019 and 2020, it would have been much worse if the lake hadn't receded to record-low water levels in 2013 that significantly expanded the beaches.

"This should be sort of a near-miss or a cautionary tale for the shoreline because there's no guarantee that when we have the next high water period, we're going to have a nice long period of low water where the beaches can grow to buffer that high-water erosion," Troy said.

The lake rose 6 feet between 2013 and the summer of 2020, when it reached near-record highs. Lake levels have always fluctuated, but climate change is contributing to more pronounced variations over shorter periods of time, according to researchers.

Water levels are currently closer to the lake's long-term average, but the

next rise could be right around the corner.

"We're in sort of a luxury period where we actually have the time to develop some longer-term, more holistic measures to alleviate the erosion. Now would be the time to engage coastal engineers and consultants to develop that menu of options for the shoreline," he continued.

But beach nourishment year-over-year is significantly more expensive than a one-time revetment installation, and Ogden Dunes' proposed revetment would be built entirely from homeowner contributions.

"(The town) certainly does not have the resources or means to fix a problem that it did not create, which would entail replacing nearly 10,000,000 cubic yards of sand that has been blocked by the (Burns Harbor) structures since they were first built in 1966 or the estimated 194,000 cubic yards per year needed on an ongoing basis," said Kingan, citing a 2012 U.S. Army Corps of Engineers analysis.

Beach nourishment is a large project that Ogden Dunes has been interested in for decades. More than 20% of households contribute to Restore the Shore, a charitable fund run by the municipal government with eventual goals of financing beach nourishment. But, the town will need state and federal support to pursue the time-intensive, costly project in the foreseeable future.

The prospect of material government support seems unlikely, however. Despite the Army Corps devising plans for beach nourishment along the Ogden Dunes shoreline in 1984 and a formal National Park Service recommendation for the remediation process in 2014, there has been no coordinated effort to assist the town.

This year, another Army Corps study to explore long-term solutions for



erosion along Lake Michigan's shoreline was approved.

In a statement, a spokesperson for Ports of Indiana said port stakeholders support the study and moving toward a federally funded long-term solution.

"Sand migration in this area has negative impacts on the federal shipping channel and regional industry as well as the recreational beaches on the national park and private residences," the statement said.

But Ogden Dunes residents remain cynical.

"Politicians just love to pass the buck and say, 'Hey, look at this agreement, the state's responsible.' Then, the state's like 'Wow, you know, you can read that two different ways, the Army Corps is responsible.' And, really we're caught in between big governmental forces," Coombs said.

Through its appeal of Ogden Dunes' latest revetment permit, Save the Dunes aims to urge the state and federal governments to think about the Indiana shoreline holistically and support erosion measures that protect the lakefront for all, not just a few.

"We're calling out DNR and the U.S. Army Corps of Engineers and the National Park Service to find a solution that gets the beach nourishment that the town needs," said Ferraro. "Those big businesses, the big industries over there (in Burns Harbor) also need to be part of finding a solution here because they're creating that problem for the town," said Ferraro.

While Save the Dunes' appeal is under review by the DNR's oversight committee, a small town with limited resources remains at odds with the long-term health of Indiana's iconic sand dunes and the rights of all

Hoosiers to enjoy the lakefront.

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