

Droughts drain northern lakes

Falling water levels trouble residents, raise pollution

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Drought Conditions

Scientists and property owners say they are worried about the long-term effects of a prolonged drought on fishing and water quality in northern Wisconsin as they've watched some lakes drop to their lowest point in 70 years.

As people flock to the north this weekend, drought conditions also are evident in tinder-dry forests that experienced a surge in fires last week.

Many lakefront property owners are being forced to push out docks and motor around new shallows as water levels have dropped, in some cases, as much as 8 feet from their highs.

Levels are likely to drop even more in some reservoirs controlled by dams, and utilities say that they're generating less hydropower than in the past.

The main culprit: less rainfall over the last four years.

But a University of Wisconsin-Madison scientist says the problem goes back much further than the last couple of years.

Using statistical modeling, Chris Kucharik found that the northern quarter of the state has received 15% to 20% less rain from the decade of the 1950s to the decade ending in 2006.

"This doesn't even include the drought years after 2006," said Kucharik, an assistant professor of agronomy and environmental sciences.

"You continue to run a deficit of rain, and the response to the system is the lakes," he said.

Some lakes are at their lowest levels in seven decades. Those most affected are seepage lakes that rely on groundwater and runoff for recharging themselves instead of streams and rivers.

On Anvil Lake in Vilas County, one of the few lakes that have been continuously monitored, the water level is down 7.2 feet - the lowest since 1943.

In Marathon County, the falling water level is a factor in a massive fish kill in March on the Big Eau Pleine reservoir.

And then there is the case of Shell Lake in Washburn County, where chronic flooding for property owners came to a head in 2003.

Officials spent \$1.5 million to build a 4 1/2 -mile pipeline to the Yellow River in 2004 to serve as a release valve for chronic flooding.

But the spigot has been turned off since July 2005, and on the cusp of summer, the state's largest inland seepage lake is down 8 feet from 2003, and some boats aren't able to move into shallow bays.

Scientists stumped

Scientists aren't sure why the north is so dry, since southern Wisconsin has seemingly been awash in water. Lake Delton became a symbol of devastation last June when high waters ripped open a new channel and quickly drained the popular tourist destination.

Lake levels run in cycles, and scientists think the current decline is longer than in cycles of the past.

State Climatologist John Young also speculated that the weather system of the Dakotas that produces drier air might be pushing eastward.

A 2003 study of climate change in the Upper Midwest by the Union of Concerned Scientists raised the possibility of falling lake levels 100 years from now.

Using computer modeling, it predicted one scenario of higher temperatures, lower precipitation and greater evaporation that could cause water levels to drop.

Young and Kucharik said it's premature to tie recent conditions to global warming.

"I would be uncomfortable calling it climate change," Young said. "This is climate variability."

But climate scientist John Lenters of the University of Nebraska-Lincoln said he thinks climate change is at play.

As a postdoctoral researcher at UW, his work on northern Wisconsin lakes showed air temperatures in the north were warming faster than global temperatures.

In one case, he found that summer surface water temperatures on Sparkling Lake in Vilas County rose 2.8 degrees Fahrenheit per decade between 1989 and 2005.

Northern Wisconsin isn't only getting warmer, it's getting more sunshine, and Lenters said the combination is causing more evaporation.

On most northern lakes, fishing doesn't appear to be affected, for now, although the DNR is getting complaints about boat access as shorelines recede.

"At some point there will be impacts" if conditions don't turn around, said Mike Staggs, director of the DNR's Bureau of Fisheries Management.

Biologists say the first few yards of a lake are the most fragile.

The logs, branches and plant life that line some shorelines provide protection for small fish, fish eggs and other aquatic life.

If the debris is removed or the new shoreline has no natural protection, fish populations can be hurt, DNR studies have found.

These days, the material is sometimes carted off by property owners who want to claim new beach.

"It's not a beach," said Sandy Gillum, a property owner on Anvil Lake and vice president of the Wisconsin Association of Lakes.

"It's exposed lakebed and it belongs to everyone."

"There's been a temptation to clean up the shoreline. We don't want to do that," said Tim Asplund, a water resources management specialist at the DNR.

Fish safety

Another consequence of falling lake levels is it could make fish less safe to eat.

A long-term study on Little Rock Lake in Vilas County shows mercury levels rise as water levels decline.

A paper published in 2008 in the Canadian Journal of Fisheries and Aquatic Sciences found sulfur that fell on the lake as acid rain now lies on newly exposed shoreline.

As rain washes the sulfur back into the water, chemistry takes over and stimulates mercury to more toxic methyl mercury.

Mercury comes from emissions of coal-fired power plants.

Thus, as Wisconsin and other states take steps to reduce mercury emissions at power plants, lower water levels could conspire to increase methyl mercury, said one of the authors, Carl Watras of the DNR.

"There are vagaries of nature that can turn the table on us," Watras said.

Water levels have gotten the attention of the Wisconsin Association of Lakes, which held a workshop in Eagle River that drew 225 people on May 2 - the opening day of the inland fishing season.

Another workshop is planned for July 28 in Minocqua.

"We realized we had to deal with the issue this year," Gillum said.

Summer troubles

But on the Big Eau Pleine reservoir, residents have been plagued by low water since 2000.

By mid-summer, boats have to be pulled to shore.

Currently, the 6,830-acre impoundment is down about 2 feet.

On July 5, the Wisconsin Valley Improvement Co. is expected to open the dam - and dams on other reservoirs - to supply water to the Wisconsin River.

As water levels fall in the summer, it needs more water for electric generation and for communities to safely discharge treated municipal waste.

When the dam gates open, things change dramatically.

"You can almost see the water drop," said Tim Garrigan, president of the Big Eau Pleine Citizens Organization.

Last summer, the reservoir was down 10 feet on July 15 and fell to nearly 17 feet down by Oct. 10.

It suffered a major fish kill early this spring.

All parties agree that water levels were to blame, but so were farm runoff and a broken aerator that reduced oxygen levels.

The Big Eau Pleine Citizens Organization wants the dam operators to send less water down the Wisconsin, and is planning to petition federal regulators for relief.

But Wisconsin Valley Improvement says it has to keep water flowing downstream.

"The outlook for this summer is not real good," said Sam Morgan, vice president of operations. "We haven't had a lot of rain for five years and there's not a lot of groundwater."

That's not good news for business at Hotchkiss' Last Cast, a bar on the Big Eau Pleine.

On opening day of the fishing season, "I didn't have one fisherman come off the water at all," said owner Deb Hotchkiss