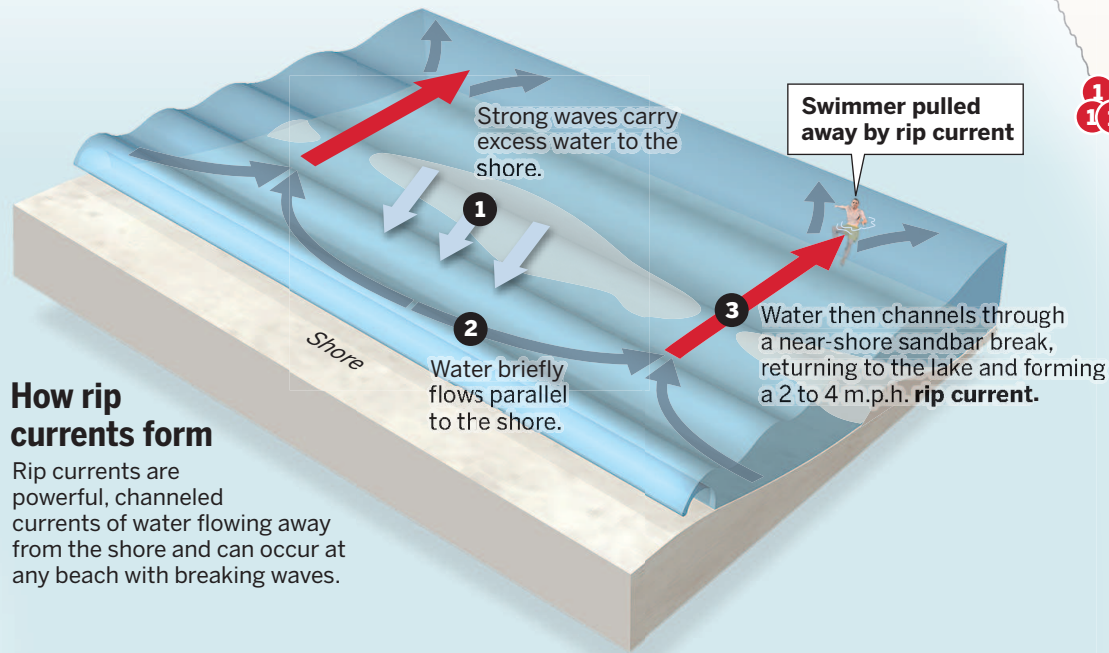


Danger lurks underwater



How rip currents form

Rip currents are powerful, channeled currents of water flowing away from the shore and can occur at any beach with breaking waves.

Rip currents—dangerous underwater streams—will soon get a National Weather Service warning when conditions are right

By Tim De Chant and James Janega
TRIBUNE REPORTERS

After years of studying drownings in powerful, sudden currents on the Great Lakes, the National Weather Service in coming days will begin issuing “lakeshore hazard” messages—forecasts about the deadly combinations of waves, sandbars and physics now known to cause rip currents.

The currents, which can accelerate beyond the pace of Olympic swimmers, are created when water is piled onto shores by heavy winds and cuts channels through sandbars as it rushes back to open water. Such streams sometimes push unsuspecting swimmers into deep water.

The Weather Service tracked at least 60 lake incidents, the majority involving rip currents, from 2002 through 2007 in which people drowned or barely survived. The service used the information to devise its new alert system, which is being rolled out days after a Chicago Heights teen drowned after being caught in a suspected rip current while swimming at the Indiana Dunes National Lakeshore.

Rip currents can be hazardous to swimmers off the beaches of Chicago and the North Shore, but they are more common along the shoreline of Indiana and southwest Michigan. That shore’s mix of wind, waves and sand is primed to create such currents, and the Weather Service identifies it as one of the most dangerous areas for rip

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Safety

IDENTIFYING CONDITIONS

Case studies from six years on the Great Lakes have identified four factors that cause rip currents:

- High wind speeds
- Winds blowing directly toward a sandy beach
- Wave heights of 3 feet or more
- Long distances between wave crests—5 to 10 seconds between waves or more

IF CAUGHT IN A RIP CURRENT

You will either feel yourself being pulled away from shore or notice you are making no progress as you try to swim back.

- Remain calm and don’t swim directly for shore—that’s how people tire and drown.
- Swim parallel to shore until you exit the current—usually only a few strokes—then angle back for the beach. Worst case scenario? A 40- to 50-yard ride into deeper water, and a calmer swim back, says Mike Bremer of the National Park Service.

Lake Michigan incidents

From 2002-07

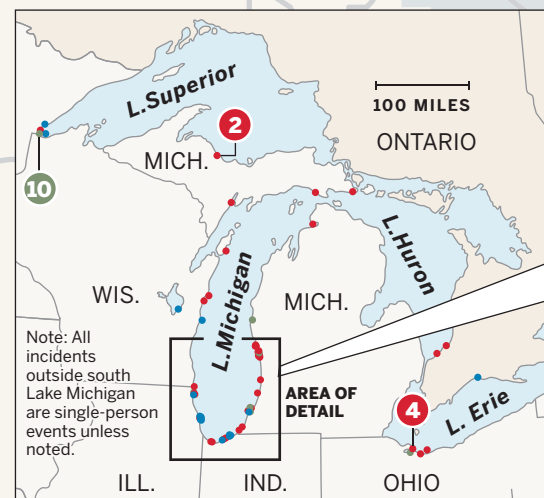
In the Great Lakes, there have been at least 60 drowning and near-drowning incidents from 2002 through 2007, most caused by rip currents. These strong water forces account for about 80 percent of all rescues made by lifeguards. One especially dangerous area for rip currents is the southeast shore of Lake Michigan.

KEY

- Rip current drowning
- Rip current rescue
- Other drowning

Number of people involved per incident

Great Lakes overall



currents in the Great Lakes. The new alerts are expected to help both the public and officials exercise greater caution.

“You would think it’s a simple concept. But people are dying,” said Mike Bremer, the National Park Service’s chief ranger at the Indiana Dunes, where the body of DaVante Jackson, 14, was recovered Wednesday. “There’s got to be something we’re missing somewhere.”

Meteorologists say they will issue forecasts based on conditions known to produce the currents. Likewise, the most dangerous beaches were identified through drowning reports. But even concerted efforts may fail to predict all rip currents, area rescuers say, because there simply are too many.

On the other Great Lakes, the areas with the most rip current emergencies were a 50-mile stretch of Lake Erie between Cleveland and Huron, Ohio, and a narrow spit of sand along Lake Superior between Duluth Harbor and the wider lake.

But the wide beaches on the southeast corner of Lake Michigan, hemmed in by towering dunes and submerged ranks of massive sandbars, accounted for at least 26 deaths and seven rescues from 2002 to 2007, said Dave Gunther, a Weather Service meteorologist who compiled the incident reports.

Some rip current warnings were issued in the last two years but were buried in other severe weather forecasts. The need for separate alerts is clear, he said.

“We’ve been wanting to do this for some time,” Gunther said. “Starting this year, there’s going to be a more detailed forecast.”

The National Weather Service has issued warnings about dangerous rip current conditions for years on the Atlantic, Pacific and Gulf Coasts of the United States.

It is thought that nearly 100 people in the United States drown each year after being pulled into deep water by rip currents, and they are blamed by the U.S. Lifesaving Association for more than 8 in 10 surf-related rescues.

In planning rip current forecasts for the Great Lakes, researchers traced interest to a summer day in 1985, when high water levels and windy conditions pounded 9-foot waves against the beach at Whitefish Dunes State Park in Door County, Wis.

A young man bodysurfing with friends disappeared in waters so chaotic that Coast Guard rescuers tied themselves to their boat to keep from being thrown off the deck. The cause remained unknown until investigators



Tribune photo by John Smierciak

A Kemil Beach sign warns of the potential for rip currents along the Indiana Dunes National Lakeshore. A teenager drowned last Sunday after being caught in a suspected rip current.

“You’re in Lake Michigan, but it feels like you’re in a river, standing up to your waist with a strong flow going past.”

— Pat Whalen, unit supervisor for Grand Haven State Park, Michigan

analyzed the conditions surrounding his disappearance and found they bore eerie similarities to rip currents long known to be a risk factor on ocean coastlines, said Phil Keillor, a retired coastal engineer for Wisconsin Sea Grant.

More deaths on the lakes in coming years confirmed the suspicion. On July 4, 2003, seven people died south of St. Joseph, Mich., along Lake Michigan’s eastern shore in a terrible reminder of how treacherous the lake can be and the central role that rip currents play.

Four factors are thought to determine whether rip currents will form in the Great Lakes. Wind must blow quickly and directly toward shore, and it must cause waves that are both tall and wide to pile onto the beach.

As the wind piles water on the shore, sandbars temporarily hold it there above the lake surface. Gravity eventually wins out, pulling water past the sandbar and back into the open lake. A current forms where the water widens tiny channels in the sandbar into an open rip—a violent burst that creates a river through the waves back into the lake.

‘You can feel the pull’

At the crowded Oak Street Beach in Chicago, lifeguards spot the currents because people instinctively move away. In Wilmette, officials restrict bathers to knee-deep water at the first sign of rip currents, about four times a

summer. But nowhere on the lake are they as powerful or dramatic as on the Indiana and Michigan coast.

“You can actually see it in the water—there’ll be 3- to 4-foot waves, and in the middle of that is an area where there are no waves,” said Pat Whalen, unit supervisor for Grand Haven State Park in Michigan. “Even when you’re in only 3 feet of water, you can feel the pull over your legs. You’re in Lake Michigan, but it feels like you’re in a river, standing up to your waist with a strong flow going past.”

And at a time when water levels on Lake Michigan are a foot below average, lake scientists say the low water adds to the problem by exposing wider stretches of beach on which to strand water—a situation comparable to low tides, which are known to increase the danger of rip currents on America’s saltwater coasts.

Though the mechanism for creating currents is familiar, rescuers on Lake Michigan’s southeast shoreline say rip currents occur faster and more often than forecasters can predict them. Even a strong passing thunderstorm can cause one.

“It can change before you realize it,” Whalen said.

The Chicago Heights teen drowned last Sunday, when weather service models would have predicted only a light to moderate risk of rip currents on the Indiana shoreline, Gunther said.

And the area where Jackson and 10 other youths clambered into the water on a crowded stretch of national lakeshore, investigators found a series of three sandbars, each sandwiching a trough deeper than the last, Bremer said. The youths had just left Indiana Dunes State Park, where lifeguards sensing trouble had emptied the water. The national park wasn’t staffed with lifeguards.

Witnesses saw a suspected current pull three of the youths off the farthest sandbar.

One boy was able to swim away by himself, while another was rescued by friends. Jackson disappeared under the waves and his body wasn’t found for days.

Even with the new forecasts, beach officials say they still will rely on their own vigilance and experience.

And along the southeast shore of Lake Michigan, they say, crowds will continue to wade into iffy conditions, whether they are aware of rip currents or not.

“We’re within an hour’s drive of about 9 million people,” Bremer said. “And this is the beach.”

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