Water Column

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Pier Pressure

by Bill Jones

On many of our Indiana lakes, one can hardly see the shore for the all the piers. On one hand, piers provide a useful link for humans between the land and the lake. They provide access for people to actually go over the water to their watercraft, to fish, or to swim. On the other hand, piers necessarily cross over the most important ecological area within a lake – the shoreland zone.

The shoreland zone is a transition between the land and the water. In the field of ecology, such transitional or edge communities are called *ecotones*. Plant and animal diversity is often higher in ecotones than in either individual habitat, in this case the water or the lakeshore. In lakes, the shoreland zone is the most biologically productive and important lake habitat as well.

Piers are so numerous on some lakes that it is difficult to see the shore. (Graphic provided by Pete Hippensteel.)

A thriving plant and animal community on the lake edge provides many benefits, including:

- Food and shelter for fish, other aquatic organisms, and shoreland animals
- Filtering out sediments and nutrients from land runoff
- Stabilization of lake sediments
- Reducing the erosive action of waves on shorelines

In the 1940s, homes, piers, and lakeshore vegetation could co-exist, even on Lake Tippecanoe.

How well can the shoreland zone work to maintain ecological functions in our lakes when we ring our lakes with piers and seawalls? In years past, one pier (or less) per property and shoreland vegetation could co-exist. But today, some homes have individual piers for a motorboat, sailboat, personal watercraft, pontoon boat . . . and the

list goes on. Today's demand for water recreation leaves little room for shoreland ecological functions. How many piers does one home need?

Due to concerns raised by citizens, the Indiana Lake Management Work Group has been discussing piers and pier policies at recent meetings. The Indiana Administrative Code (IAC), which establishes regulations applied by state agencies in the issuance of permits or licenses, is sufficiently vague when it comes to piers. A "General License" is one for which no permit application or fee is required, so long as it meets the provisions of: *312 IAC 11-3-1 General licenses for qualified temporary structures; dry hydrants; glacial stone refaces, which states:*

Sec. 1. a. The placement and maintenance of a temporary structure, a dry hydrant, or a glacial stone reface is authorized without a written license issued by the department under IC 14-26-2 and this rule if the temporary structure, dry hydrant, or glacial stone reface qualifies under this section.

b. In order for a temporary structure to qualify, the structure must satisfy each of the following:

1. Be easily removable.
2. Not infringe on the access of an adjacent landowner to the public freshwater lake.
3. Not unduly restrict navigation.
4. Not be unusually wide or long relative to similar structures within the vicinity on the same public freshwater lake.
5. Not extend more than one hundred fifty (150) feet from the legally established or average normal waterline or shoreline.
6. If a pier, not extend over water that is continuously more than six (6) feet deep to a distance of one hundred fifty (150) feet from the legally established or average normal waterline or shoreline.
7. Not be a marina.
8. Be placed by or with the acquiescence of a riparian owner.

Areas left unaddressed by this General Pier Rule include group piers. Group piers may serve a lakeshore apartment or condominium and while they don't exceed the maximum length stated in (5.) above, they may have multiple side branches to accommodate 20 or more watercraft. Group piers have been a citizen concern on many Indiana lakes for many reasons, including their impediment to lake access by adjacent property owners.

A "group pier" for 38 boat slips under construction. This is one of two 150-foot long piers proposed at this site on Lake James. However, an Administrative Law judge recently ruled that these piers were "unusually wide or long for the area" and don't qualify for a "General Permit." (Photo by Pete Hippensteel.)

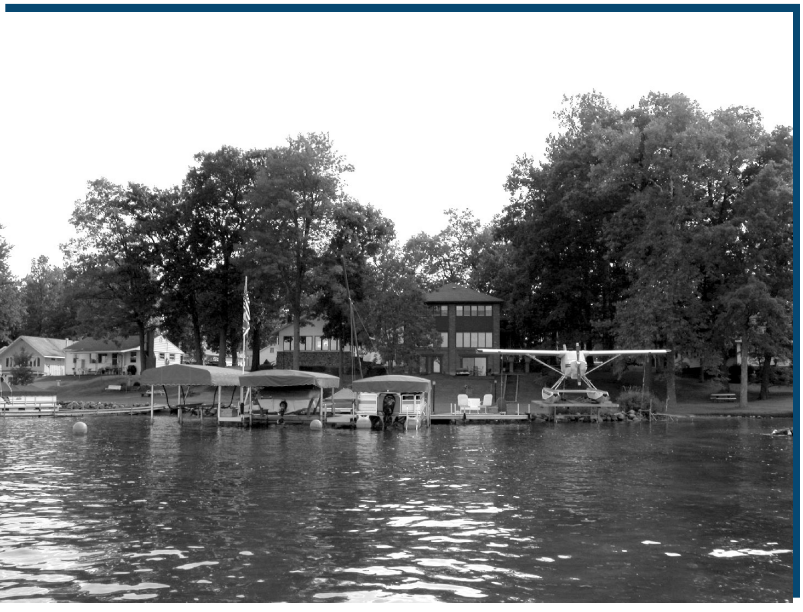
Another pier problem occurs when homeowners link adjacent piers. This creates a formidable barrier and virtually cuts off access to nearshore areas from the water, for example, by anglers. Since public waters are for everyone, this is a restriction on the public use.

The Indiana Lake Management Work Group recommended that the "Pier Rules" be amended to define group piers and exclude them from a general permit. This new rule was approved by the Natural Resources Commission and became effective on February 6, 2005. *The new rule defines a "Group Pier" as:*

Sec. 11.5. "Group pier" means a pier that provides docking space for any of the following:

1. At least five (5) separate property owners.
2. At least five (5) rental units.
3. An association.
4. A condominium, cooperative, or other form of horizontal property.
5. A subdivision or an addition.
6. A conservancy district.
7. A campground.
8. A mobile home park.
9. A yacht club.

Today's demand for water recreation leaves little room for shoreland ecological functions. How many piers does one home need?



Additional changes that the Work Group is working on include: pier size limits, prohibition on piers that encircle or isolate any part of a lake, and clear definition of dates when temporary piers must be removed from public freshwater lakes.

Lake Study Says to Leave the Dead

As a sign that sanity can exist amidst apparent chaos, many people hang little plaques above their disarrayed desks that say things like, "A messy desk is a sign of productivity," or "Clutter is a sign of a creative genius." Whether that's true for office desks is debatable, but a team of researchers from the University of Wisconsin-Madison (UW) Trout Lake Station is working to prove a comparable analogy in nature - that "messy" lake shorelines with downed trees all along their rims are nature's sign of productivity and creative genius.

Their research is triggered by the realization that human development along northern lakeshores is rapidly stripping away the dead trees and other natural debris that had been common to lake ecosystems since the last glaciers departed 10,000 years ago. Scientists have long thought that woody shoreline habitat was critically important to aquatic food chains, but exactly how important it is to specific organisms has never been demonstrated.

With the clock ticking as more and more shorelines are developed, the UW researchers are trying to accurately determine how fallen tree trunks and branches, or "coarse woody habitat," affect insect, frog, and fish populations. To do so, they've been given the unique scientific opportunity to manipulate the entire shorelines of two undeveloped lakes in the Northern Highland State Forest north of Minocqua.

What makes the study even more unusual is that one of the lakes, Camp Lake, is naturally divided into two separate basins, while the other lake, Little Rock Lake, is hour-glass-shaped and has been separated at its narrowest point by two heavy curtains for nearly two decades. Thus, researchers are able to manipulate the shoreline of one basin on each lake while leaving the other one natural for use as a reference, or control, for the experiment.

While similar in its natural state in most ways to Camp Lake, Little Rock historically had a high density of downed trees along its shoreline. In 2002, the researchers removed trees from the north basin leaving only the trees that were too buried in the sediments to be moved.

Little Rock's south basin, however, was left alone, where its high number of naturally downed trees give it a wild appearance, a look that many shoreline owners might consider "messy" or "chaotic."

Data collected in the north basin have shown significant changes in the basin's fish populations and their behaviors. The biggest change has occurred in the population of yellow perch. Perch numbers have dropped to nearly zero, because yellow perch usually deposit their sticky eggs over submergent vegetation or submerged brush and branches in shallow water. Bass predation upon them has also increased due to the lack of woody habitat for the perch to use as a refuge. Thus, the absence of toppled trees in the water appears to have the potential to severely reduce perch populations.

The largemouth bass population has also suffered as the yellow perch have declined. They've had to switch from eating yellow perch, a favorite prey item, to eating more of a terrestrial diet. Rather than looking out into the water for their supper, they now look up to the surface in hopes of finding insects or frogs or snakes on the surface of the water. Stomach analysis has shown that the bass are even eating rodents swimming along the shore. The net result: the growth rate of largemouth bass has significantly declined, and their long-term reproductive success may be at risk.

Camp Lake, only a mile west, provided the researchers with the opposite opportunity for manipulation. Camp Lake historically had a very low number of naturally downed trees along its shoreline. In March, 2004, trees were hauled in and placed on the shoreline ice of its south basin. Each tree was placed at about ten-meter intervals all the way around the 40-acre basin. When the winter ice melted, the trees, which included an array of species and sizes and shapes, sank into the water. The north basin, which is connected to the south basin by a tiny channel, was left in its natural state – a "clean" shoreline with very few downed trees.

In the south basin, the impacts were immediate. "Next to every new log that we put in the water, there's now a largemouth bass nest, and sometimes two. And if you look in the branches of the trees in the water, there's a mass of toad eggs in nearly every one," said researcher Greg Sass. Sass swims the shoreline every week with snorkeling and Scuba gear to count and mark the largemouth bass nests. Several years of prior baseline research by Sass and

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Take a look at
http://www.spea.indiana.edu/clp/
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others had shown that fish seldom moved between the basins. So while connected, the basins acted as if they were two separate lakes. But now the fish were migrating through the channel and into the south basin to nest, presumably because of the better habitat provided by the downed trees. In contrast, very few bass now nest in the north basin.

Matt Helmus, another researcher, explains that the woody habitat provides a substrate for plants like algae and aquatic insects to latch onto for use as a home and for food. The tangle of branches further acts as a protective refuge for insects and small fish. "These trees are where the action is," says Helmus. "The little fish hide inside, but every once in a while get chased out, and then a predator will have a meal. The trees create refuge areas, and become hot spots for aquatic life."

Most anglers already know this. To find fish, one usually has to find structure, some kind of architecture in the water like aquatic plants or downed trees that provide cover and food. "In shallow lakes, open water has nutrients and plankton, but typically little refuge," says Sass. "Most of the predator-prey relationships are focused on the edge of refuges in these lakes."

Still, dead and downed wood still gets a bad rap. We talk about getting rid of the "dead wood" in an organization. We think of death as the end of being of value or service, but it turns out that even in death, a tree has a life of its own. While everyone sees the same shorelines, not everyone understands them.

"Coarse woody habitat is a natural occurrence," says Anna Sugden-Newberry, the third researcher on the team. "It's part of being in the Northwoods. If you move up here and have lakeshore property, you have to treat it differently and look at it differently than city property. Just because trees are in the water doesn't mean they are debris or going to waste. They're a living community."

So, it turns out cleanliness is not next to Godliness – at least along lakeshores. "One learns a landscape finally not by knowing the name or identity of everything in it, but by perceiving the relationships in it," wrote Barry Lopez. Sass believes that if people knew the effects of the changes they were making along their shorelines, many people would manage their property differently. "Wood is critical to spawning success for many fishes," Sass says. "It's an interaction that has gone undisturbed for thousands of years."

"We need to look with an ecological lens," adds Sugden-Newberry. "We don't see that what we do on land affects aquatic life." Shoreline owners not only reduce coarse woody habitat by removing fallen trees, but also by thinning and removing trees and shrubs from along the shoreline to improve their view of the water, thus greatly reducing the amount of wood that can ultimately fall into the lake.

An earlier study on northern lakes estimated that it would take 200 years to replace the downed trees that have been removed from nearly all developed shorelines. Another study in Ontario aged trees that had accumulated in a lake and found the average age of logs was 443 years. Some logs had been in the water for as long as 1,000 years, demonstrating that trees will provide extremely long-term habitat in our lakes if we simply leave them alone.

"It's frustrating," laments Sugden-Newberry. "We can change our shorelines quickly, but it takes a very long time for them to recover. And that's hard to manage."

For more information on the studies conducted by the UW Trout Lake Station, see their Web site at http//limnology.wisc.edu.

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Indiana Lakes Management Society Spring 2005 Lakes Conference

Holiday Inn City Center
South Bend, Indiana
April 8th – 9th, 2005

"Preserving, Restoring and Enhancing Indiana Lakes"

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Who? Each year, the Indiana Lakes Management Conference brings together homeowners, lake users, lake associations, community leaders, lake management professionals, scientists, and government officials to exchange ideas on how to best manage and protect Indiana's lakes.

What? The conference features one and a half days of interesting and diverse sessions related to Indiana lake enhancement programs, lake management techniques, and opportunities for you to get involved in improving our lakes.

This year, for the first time, we will open with a general session then offer two separate program tracks – technical and lake association. Two unique programs will run concurrently to offer a greater variety of information and educational learning opportunities.

A large exhibit area will present the latest in Lake Management products, services, and educational materials. Finally we will hold a business meeting with officer elections and propose new by-law and articles of incorporation changes.

Why? Conference presentations, discussions, and activities will encourage education, cooperation, and action for improving the health and quality of Indiana's lakes. Coffee breaks and a Friday evening reception and banquet will provide many opportunities for participants to talk with lake managers, lake associations, and other members to share ideas, techniques, and experiences.

For hotel reservations call 574-232-3941 or Toll Free 1-800-465-4329.

ILMS Registration Announcement

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Truck Stop Plan Opposed by Lake George

Appalled by the possibility of a truck stop planned for less than 200 yards from the south shore of Lake George, members of the Lake George Conservancy Inc. are working to raise $1.7 million to buy the property in question.

In December, the conservancy, a non-profit corporation founded in October 2003, learned of a potential sale of two parcels of land totaling about 58 acres – west of Interstate 69, east of old U.S. 27, and north of the Indiana Toll Road. The sale, Conservancy president Bill Schlatter believes, would lead to a fourth truck stop at the I-69 exit.

The Conservancy wants to buy the land, which is separated from lakefront homes by Old 27, before the truck stop company can acquire it.

It's not a done deal, but the conservancy has a pending agreement, Schlatter said. It plan to keep the wooded property in its natural state, perhaps adding walking trails. The property is now zoned environmental control, said Mark Sanborn, Steuben County Plan Director.

That designation allows for plenty of commercial uses, including a convenience store and warehouse, but does not allow for a truck stop, said real estate agent John Hasselswerth, who is handling the property for the current owners. But new owners could request a zoning change to build a truck stop or travel center.

Schlatter worries about water and air pollution from another truck stop, as well as traffic problems.

For more information, contact the Lake George Conservancy, Inc. at P.O. Box 564, Fremont, IN 46737.

Source: Laura Johnston, Fort Wayne Journal Gazette

Perspectives

Late Spring (Primrose)

Push away last year's wet clogging leaves, long dead
tulips already shoulder their way up
somewhere deep down, a bud

today clouds tumble playfully and scud
tempting to scoop some earth, release a potted primrose
with roots outgrowing sterile nursery compost

but the forecast is for frost
sweet showers instead are cruel snowflakes
pull on a winter coat

yesterday's come back like a sore throat
even the chill cannot be felt through woolen sleeves
it seems I misinterpreted a promise

Source: www.epoems.org

Got a question about your lake? Or lakes in general? Or about something you've read? Write to us at the WaterColumn and we will do our best to answer it.

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