

May 2000

THE MICHIGAN RIPARIAN

DEVOTED TO THE MANAGEMENT AND WISE USE OF MICHIGAN'S LAKES AND STREAMS

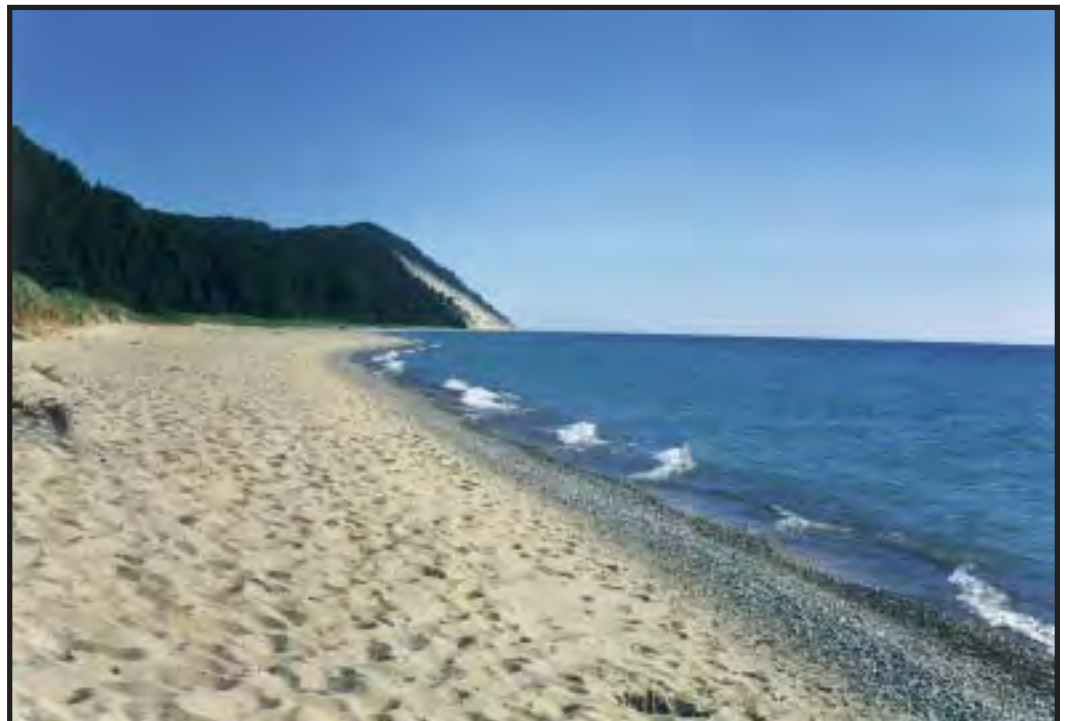
Published Quarterly - February, May, August and November



LOOKING NORTH

Pictures Taken At
Watervale Beach
Benzie County,
Michigan

LOOKING SOUTH



LAKE MICHIGAN SHORELINE

THE MICHIGAN RIPARIAN

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EDITORIAL

PROTECTING MICHIGAN'S INLAND LAKES



Don Winne

Townships and other local units of government must adopt ordinances which will prevent the destruction of inland lakes.

Draining and filling of wetlands contiguous to lakes is destroying fish spawning and growth habitat areas necessary for the birth and development of fish resources of inland lakes.

Channels are being excavated in wetlands and swamplands and retaining walls are constructed to prevent erosion of the soil into the newly dug channels. These walls also serve as retaining walls for fill so that the lots can be sold for dwellings. To stop this rape of the natural shoreline of lakes, local units of government must adopt ordinances which will protect wetlands from development. Other ordinances should make buffer strips parallel to the shoreline mandatory for limiting erosion and limiting the nutrient runoff from the upland.

Strictly enforced setbacks for dwellings and septic systems must be adequate to prevent septic effluent, with its nitrates and phosphates, from entering the lake. In the absence of local ordinances to protect lakes, shoreline property owners must take the initiative to adopt whatever practices are necessary to prevent the urbanizing of their waterfront property.

Best Wishes for 2000!

Donald E. Winne

The Michigan Riparian welcomes letters to the editor, articles for publication, comments, suggestions, and article ideas. If you wish to write an article or just have an idea for one, it would be best to write us a short note or give us a call to discuss it.
 -The Editor

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What Happened To the Great Lakes Fishery During the Last 150 Years. Part II.

(The following article was written by Jack D. Bails for the MICHIGAN NATURAL RESOURCES MAGAZINE, May-June 1986 issue. This article is printed by permission from the Michigan Department of Natural Resources.)

Cued to the early success of sea lamprey control, Michigan made a major management decision to launch a program aimed at rehabilitating the Lake Michigan fishery. This undertaking, which would become a model for other lakes, had two major thrusts. First, to increase the predator populations through accelerated hatchery production of both native and new species to feed upon the over-abundant alewife. Second, to institute new, meaningful controls on the commercial fishery through closures, gear restrictions, and limited entry. It was under these circumstances that Michigan introduced 660,000 coho salmon in 1966. By 1970, nearly 15 million coho and chinook salmon had been released in the Great Lakes. Under a joint effort by all Great Lakes states, more than 90 percent of those fish were stocked by Michigan.

The new introductions were followed by commercial fishing closures on yellow perch, walleye, and herring in Lake Michigan, supplementing bans already in place for protection of lake trout. A zone management system was unveiled for all Michigan waters of the Great Lakes. Under it, the use of non-selective, large mesh gill nets was sharply restricted to ensure survival of lake trout planted by the federal government and salmon, steelhead and brown trout stocked by the State of Michigan. Limited entry was also imposed on Michigan's commercial fishery. It restricted the number of licenses issued, the location a licensed fisherman could operate in, and imposed controls on new licenses—all to bring the amount of fishing effort in line with long-term sustainable production of fish.

The sport fisheries that surfaced in the 1970s from the introduction of salmon were phenomenal, exceeding the expectations of even the most optimistic planners. Based on the success story for Lake Michigan, the introductions of new species and fishing controls were "carbon copied" as management techniques by Great Lakes states throughout the basin. The renewed interest in the Great Lakes fishery in the late 1960s and early 1970s, however, heightened attention about two long-smoldering issues—Indian treaty fishing claims and water pollution.

GREAT LAKES STATES RESTRICT USE OF ORGANIC CHEMICALS & HEAVY METALS IN GREAT LAKES

Pesticides and other persistent or "hard" chemicals,



COHO (Silver) SALMON

660,000 Coho Salmon Released in Lake Michigan in 1966.



CHINOOK (King) SALMON

By 1970, nearly 15,000,000 Coho and Chinook Salmon had been released in the Great Lakes

heavy metals and other pollutants were identified as major factors suspected of inhibiting the reproduction, growth, survival and wholesomeness of preferred Great Lakes fish species. Wisconsin was the first Great Lakes state to severely restrict the use of DDT. It was followed closely by Michigan. Early findings from adult Lake Michigan salmon eggs in 1967 indicated that DDT levels were aborting many hatchery-reared fry. Later studies traced at least part of the problem to the presence of PCB (polychlorinated biphenyl), a widely used industrial chemical. Michigan hammered out controls to limit the use of PCB, which was found to be accumulating in fish and fish-eating birds throughout the Great Lakes basin. Even as those early control measures were imposed on DDT and PCB, however, mercury contamination was discovered in St. Clair River, Detroit River and Lake Erie fish populations in 1970. Immediate restrictions were put into force by both the State of Michigan and the Province of Ontario to curb industrial discharges of this heavy metal. In 1976, Michigan passed legislation to limit the use and sale of PCB, legislation that would later become a model for constraints at the

national level.

There was considerable fear in the early 1970s that the organic chemicals and heavy metals, which had been building up in the environment, would persist in the Great Lakes long after the direct and indirect discharges had been controlled. Fortunately, monitoring in the 1970s clearly pointed out that contamination levels were dropping, thanks to restrictions placed on the use and sale of chemical compounds. Unfortunately, throughout the '70s and '80s, new contaminants were found in Great Lakes fish or fish-eating birds. Raising new concerns were chlordane, dieldrin, and dioxin. Contaminants remain a problem in some areas today but we expect to see their levels decline in Great Lakes fish and wildlife as new information leads to better controls.

FEDERAL COURT ESTABLISHES INDIAN RIGHTS TO TAKE GREAT LAKES FISH

With the setting of fishing closures on lake trout and other limitations on the commercial fishery in Michigan came legal challenges. While the state's ability to regulate its own licensed commercial fishery was eventually upheld, its authority to regulate commercial fishing by Indians was successfully challenged—

(Continued on page 10)

first in state court and then, in 1972, in Federal District Court. The federal court case, brought by the United States and three Indian tribes against the State of Michigan, resulted in a far-reaching decision. It established the right of the three tribes to regulate commercial fishing by their members in the Great Lakes waters ceded in the 1836 Treaty of Washington. Similar fishery-related issues were raised in Wisconsin, Minnesota and Michigan waters of Lake Superior, involving yet another treaty.

The hundreds of millions of dollars invested in the Great Lakes fisheries by federal, state, and private entities since the 1960s began to pay large dividends by 1975. Concern that these returns would be eliminated to accommodate court-mandated Indian fishing rights led some to despair, and others to illegal acts of harassment against those tribal members exercising their rights.

Fish populations and associated recreational and commercial fishing continued to improve in many areas of the Great Lakes from 1975 through 1985. Walleye fishing in western Lake Erie and in the Lower Detroit River improved beyond the fondest hopes of those who recommended changes in the early 1960s. Whitefish made remarkable recoveries in lakes Michigan, Superior, and Huron. Yellow perch populations began to expand in Lake Michigan as alewife populations were brought under control by planted salmon and trout. Out of their recovery grew an excellent yellow perch sport fishery for the first time in more than two decades. Chub populations in Lake Michigan also were rebuilding, in response to quotas placed on that species. Natural reproduction of lake trout in many areas of Lake Superior spurred high hopes that these popular fish could be reestablished to self-producing status in all three of the Upper Great Lakes. Aided by hatchery stocking and new fish ladders over power dams built in the early 1900s, steelhead runs grew in nearly every large river tributary to Lake Michigan. In total, the Great Lakes sport fisheries from Lake Ontario to Lake Superior were reporting record catches and providing millions of new days of fishing recreation for all to enjoy.

In 1984 the sport catch of Great Lakes fishes in Michigan included: nearly 870,000 lake trout, 1.8 million coho, 1.9 million chinook, more than 500,000 brown trout and nearly a million steelhead that in combination provided 4.3 million fishing days of recreation to Michigan residents and tourists for those species alone.

By the early 1980s, it was evident that the combined tribal and licensed state commercial fishing effort for whitefish was beginning to exceed safe biological levels for taking certain stocks in the 1836 treaty waters. These waters, all within the State of Michigan, encompass

Lake Michigan north of the Grand River—including northern Lake Michigan west to the Bays de Noc–Lake Huron north of Alpena and all of Lake Superior east of Marquette. By 1983, the three tribes involved, the U.S. government, and the State of Michigan jointly petitioned the U.S. District Court for emergency midseason closures to protect whitefish in certain areas. In 1984, the need for closures came earlier and for a larger area. By late 1984, it was apparent that a more permanent resolution was needed. In addition to concerns about whitefish, lake trout rehabilitation had suffered serious setbacks in all three Upper Great Lakes as treaty fishermen, using non-selective gill nets, took large numbers of lakera while netting for whitefish. Sport fishermen, too, were highly effective at catching lake trout in lakes Michigan and Huron. Thus, new state controls

had to be sought for the sport fishery to allow slow-maturing, planted lake trout a chance to spawn.

Federal District Judge Richard Enslin, astutely recognizing the desirability of a negotiated settlement over a judicially mandated allocation, worked out an alternative measure involving the appointment of a court master. The five parties—three tribes, the United States and the State of Michigan—met at the court’s direction in a marathon negotiating session in Sault Ste. Marie, Michigan, beginning on March 25, 1985. Other interested groups were granted status during negotiations and invited by the court to participate. They included the Michigan United Conservation Clubs, Michigan Steelheaders, Michigan Charter Boat Association, Grand Traverse Area Sportfishing Association, and a representative of Michigan’s licensed commercial fishermen. For those who participated, the negotiations appeared to make little progress the first few days despite the admonition by Judge Enslin that a resolution negotiated among the parties would be much more acceptable and lasting to all concerned than any court-conceived, mandated resolution. As the deadline for negotiations drew to a close, a flurry of activity and compromises on all sides made it

clear that those present held proper management and long-term protection of the resource as the top priority. Following an all-night session, an agreement was finally reached March 18 on an allocation plan through the year 2000. The agreement was formally ordered by the

court on April 10, 1985, despite the fact that one of the tribes was unable to obtain ratification from its members.

The first year of the agreement has not been without problems. As might be expected in a negotiated document of such length and detail, its success will depend largely on the extended good faith of the parties. Monthly meetings of the Executive Committee—made up of a representative of each of the three tribes, the U.S. Department of the Interior, and the Michigan Department of Natural Resources—have guided implementation. Among other things, the agreement calls for a total displacement of both tribal and state licensed commercial fishermen from certain areas to allow for commercial fisheries to be allocated primarily to either the tribes or the state, depending on location. The map (see inset) identifies the allocation of areas, which will occur by 1990. Areas have been set aside for lake trout rehabilitation and as refuges, separate from those areas where large mesh gill nets will be used by the tribes. Future lake trout stocking will be concentrated in the refuges and rehabilitation areas, where mortality rates due to fishing can be minimized. All parties agreed to keep the harvest of all species within “total allowable catch.” Such catch quotas are jointly calculated to ensure that individual fish populations are not over-harvested. Initial payments by the State of Michigan and the U.S. Government to the tribes, as called for in the agreement, will assist in the management transition and in establishing enforcement, fisheries research, fish marketing, and fisheries management capability by the tribes.

What does the future hold for the Great Lakes? Past ignorance concerning the true price of excessive harvest of fish populations can no longer be used as an excuse for inaction. The impact of environmental contaminants on Great Lakes fish populations and on fish-eating birds—including our national symbol, the bald eagle—is well documented and cannot be ignored. However, great strides in controlling both traditional pollutants, and toxic chemicals entering the Great Lakes during the 1960s and 1970s, have demonstrated the value of such control programs in preserving and enhancing water quality.

Much remains to be accomplished to improve the Great Lakes fishery. The goal of a self-sustaining lake trout population in lakes Huron and Michigan is elusive but nonetheless desirable. Lingering treaty fishing issues in western Lake Superior must be addressed. Airborne transport and deposition of toxic chemicals must be better understood so that

AGREEMENT LIMITS “TOTAL ALLOWABLE CATCH” AND SETS REFUGES & REHABILITATION AREAS

TREATY FISHERMEN AND SPORT FISHING THREATEN SURVIVAL OF LAKE TROUT

15 YEAR GREAT LAKES FISH AGREEMENT WITH INDIANS APPROVED March 28, 1985

SIX MILLION FISH HARVESTED FROM GREAT LAKES 1984

Edwardsburg High School Students Learn about Lakes

By Dee Bourdon
Truth Regional Reporter

In Michigan, lakes are a way of life. And the advanced placement biology students at Edwardsburg High School are helping to keep it that way.

This summer, 16 students in the class gave something back to their community and, at the same time, gained some hands-on experience in their field of study.

As part of a Michigan Lakes and Streams Association's pilot program, the students spent several days learning how to collect and identify aquatic plant life in Painter-Juno-Christiann lakes, east of Edwardsburg.

The results will help educate others about the lakes that are such an integral part of their lives.

Howard Wandell, limnologist and Michigan State University consultant and former supervisor of the inland lakes management unit of the Michigan Department of Natural Resources, was at EHS to get the group started.

After a lesson on plant identification and collection methods, the 16 students and 10 volunteers from PJC Association, headed out onto the three lakes to begin collecting the samples of aquatic vegetation.

"Knowledge of types of aquatic vegetation is critical as indiscriminate use of herbicides can lead to eradication of native species and sometimes encourage over population of more aggressive non-native species," Wandell said.

With federal and state funding cutbacks the past few years, Wandell said, many of the activities associated with area lakes and streams protection has fallen to volunteers.

Wandell told the group there are between 300 and 400 species of fresh-water lake vegetation and he began by walking them through a method of identification of a species.

Don Winne, president of Michigan Lakes and Streams Association, was on hand to oversee the pilot program. The students were being photographed and the project will be available on the Association's Web site for other schools to emulate.

Winne, a retired Elkhart public school teacher and administrator, gave most of Michigan's inland lakes a "thumbs-up" when asked about their health.

"The state of most of our inland lakes is generally

pretty good," he said, "except in those areas that are overdeveloped and overused. Those (lakes) are in trouble."

He said most of the inland lakes in trouble are those lakes near the shoreline. "They are at the bottom of the water chain," he said of lakes that receive all the sediment and waste from rivers flowing to one of the several Great Lakes that make Michigan a peninsula.

"White Lake in Muskegon County is in real trouble," he said as an example.

"They are not only at the end of the water chain," he said, "but they were also the recipient of waste from a local tannery that operated there for years."

Lakes with small watersheds and no sewer systems also have problems, he said.

Winne said those lakes with a shorter flushing time also appear to be healthier than those that take a longer period of time to completely recycle themselves.

For example, two of central lower Michigan's largest lakes, Houghton and Higgins lakes are right next to each other in Roscommon County.

Higgins is 10,000 acres in size but has an average depth of 58 feet. It takes about 21 years to completely recycle the lake. Houghton Lake is 20,000 acres in size but only an average depth of 8.2 feet and can recycle itself in 21 days, Winne explained.

Juno Lake is 184 acres and can flush itself in 45 days, he said.

Lakes with large drainage areas have more plant life, he said of Christiann Lake. The drainage area for this lake begins in northern Cass County and runs through to Elkhart – an estimated 96,000 acres.

This will be an ongoing program, Winne said, with the association goal to train biology teachers who in turn can train a new group of students each year "to be aware of our water resources and how to keep them healthy."



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BROWN TROUT



BROWN TROUT

Shafts of dawn break through larch and poplar
Catching the outer edge of the swiftly moving stream
Aggressive waters gnaw persistently at the further
bank,
Where grasses, heavy with dew, lean precariously over
the current
And gnarled roots cling tenaciously to ancient stone
In elemental struggle, age-old clash of wills—
“Immovable” object losing way to irresistible force.

An old and weary tree has lost its grip
Its water-weathered hulk a heavy spar
Extending at an angle up against the silver current,
Damming the stream that claimed it.
Swift waters butt against the impassive form
Dropping sand and stone, lifting their lively rush to
break
In sparkling music at the surface.
They swirl free and take a new direction—
Around the skeletal reach of sunken wood
Following its pointed finger to attack the nearer shore.

Back in the hollow hidden by the trunk
A deep and silent pool has formed—
A shaded stillness where icy clarity
Reveals a floor of pebbled sand, no under current
betrayed,
Save by some waving strands of grassy moss.
A shifting blend of speckled hues conceals
The subtle motions of the invisible trout—
A well fed, seasoned survivor.
Wily, Brown—
His veteran eye waits, focused, practiced in patience.

Then softly, from above, a satisfactory “plop”
A pause—and breakfast starts its lazy way
downstream.
The glinting surface suddenly explodes—
The fly is gone, vanished with speckled shadow—
All is calm
Above, the morning air begins to warm,
The next fly lands, its mimic form
Settles and begins the downstream float,
Its feathered wings concealing my dark hook.

Ruth Ellen Bonnell

BLACK CAPPED CHICKADEE

Dear Friend of the Chickadee:

The robin, currently our state bird, spends six months in the southern part of the United States wintering from Florida to Texas along the Gulf Coast. It should be called a “snowbird” as are the many humans that do the same. The robin has been our “state bird” for 70 years in spite of the fact that it is not a true native of our state and leaves us without a “state bird” for half of the year.

We believe it is time to make a change at the beginning of the new millennium and choose the BLACK-capped CHICKADEE to be Michigan’s state bird.

The Black-capped Chickadee is a true native of our state and, in winter especially, is a feathered small child of the woods. The Chickadee actually seems to enjoy a snowstorm and announces the fact by its language and actions, the meanings of which are unmistakable. In the bitterest weather, they frolic and frisk from tree to tree, happy and carefree, laughing and joking.

Their name “Chickadee” is their call, “chicka—dee—dee—dee.” If you have a musical ear, and can whistle a high key, you can imitate these songs. If you are very still and patient, while you do this, they will come close to you, often landing on your hat or shoulder.

Their food habits are beneficial. While seeking food, they feed on the eggs of the tent caterpillar, gypsy moth, and a myriad of insects which plague the farmer and gardener. Spiders are also an important element of their food, the Chickadee seeking them in winter hibernation and when the spiders are active in summer.

We hope that you will join us in petitioning your legislator for his or her interest in making the Black-capped Chickadee Michigan’s State Bird during the current legislative session.

Petitions are available from Pete Petoskey, 2830 Cobb Rd, Lewiston, MI 49756, (517) 786-2147.

Thank you for your help with this project.

Sincerely,

Merrill L. Petoskey





Attorney Writes

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KEEPING IT IN THE FAMILY

More than with most real estate, the owners of riparian properties tend to have sentimental attachments to the land and often desire to keep the property in the family. If a riparian desires to keep property in the family (or alternately, to sell the riparian property and still protect the family's retained real estate interests), there are a wide variety of options available which should be carefully examined and considered.

Selling Riparian Property

If it is determined that riparian property will not be kept in the family and shall be sold, there are many things which should be kept in mind. Never enter into a purchase agreement (whether you are selling or purchasing property) without first having your attorney thoroughly review the document. Contrary to popular myth, a signed purchase agreement regarding land is a binding document. For some reason, many people view a purchase agreement for land as simply being a letter of intent, which they can walk away from later or unilaterally change. Unfortunately, in most instances, that is not the case. Accordingly, to be fully comfortable with a purchase agreement, all matters should be fully negotiated before you sign any agreement.

Many people ask why they need to utilize an attorney for a real estate matter, particularly if the property is only worth \$50,000 or \$100,000. For most waterfront real estate transactions, a competent real estate attorney can assist you for between \$300 and \$700—remember, this is only an estimate and actual legal fees could go higher or lower. Real estate transactions involving riparian properties tend to be more complicated than those involving non-water related properties. Accordingly, more things can go wrong. I have seen countless situations where a property owner has attempted to save several hundred dollars on attorney fees on a real estate transaction, only to spend tens of thousands of dollars in attorney fees and court costs later when something goes wrong. Many problems could have been avoided had a real

estate attorney been involved from the beginning.

I am constantly amazed at how few sellers of property utilize deed restrictions. Deed restrictions can be particularly useful if you are selling only a portion of your property and you will be retaining adjoining or other property in the area. By utilizing deed restrictions, you (and potentially the future owners of your retained property) can keep a certain amount of control over the property sold. For example, at the time of sale, you can place a deed restriction on the property being sold preventing the property from being further divided, precluding the land from being used to “funnel” other properties onto the lake, prohibiting mobile homes, etc. Again, this must be dealt with prior to entering into a sales agreement and such deed restrictions should be drafted by your attorney.

If you intend to sell property, it is also extremely important to insert the appropriate language in the purchase agreement stating that the purchaser is taking “as is” and that you are not making any guarantees or representations other than title. Conversely, if you are purchaser, it is important to insert contingencies into the purchase agreement which will allow you to check various matters out (and to get out of the deal if necessary) prior to closing.

Saving it for the Family

If you desire to keep a riparian property in your family either by means of a gift or through your will or a trust, there are a variety of techniques which can be used. Again, it is extremely important that you have your estate planning done with the assistance of competent legal counsel. Setting up devices which pass on your riparian property by means of a gift, trust or will can have potentially negative unintended consequences if not done properly, including significant tax problems. The day when a property owner can safely simply add his or her children to a property title by deed as co-owners or keep an unrecorded deed in the safe to be recorded at his or her death are long gone. In

(Continued on page 15)

fact, such techniques can often cause severe legal problems.

If you desire to keep a riparian property in the family, that is normally best done by either a trust or limited liability company ("LLC"). A trust or LLC can contain virtually any provision desired by the property owner and can control use of the property for many years into the future. The best trusts and LLCs contain provisions regarding who will get to use the property in the future, payment of taxes and other expenses, procedures for deciding issues, restrictions on the use of the property, and disposition of the property if future owners no longer desire to keep the property.

In summary, any riparian contemplating selling a property or setting up legal devices to keep it in the family should keep two general propositions in mind. First, never do anything without utilizing competent legal counsel. Second, in consultation with your legal counsel, think matters out regarding the future very carefully. Once you have sold the property, it is gone and you can rarely get it back. If you decide to permanently pass the property onto your children or other relatives or friends, be careful how matters are set up. If not done properly, it can lead to unintended consequences, such as fighting or becoming a burden to future owners.

RECENT ANTI-FUNNELING CASE

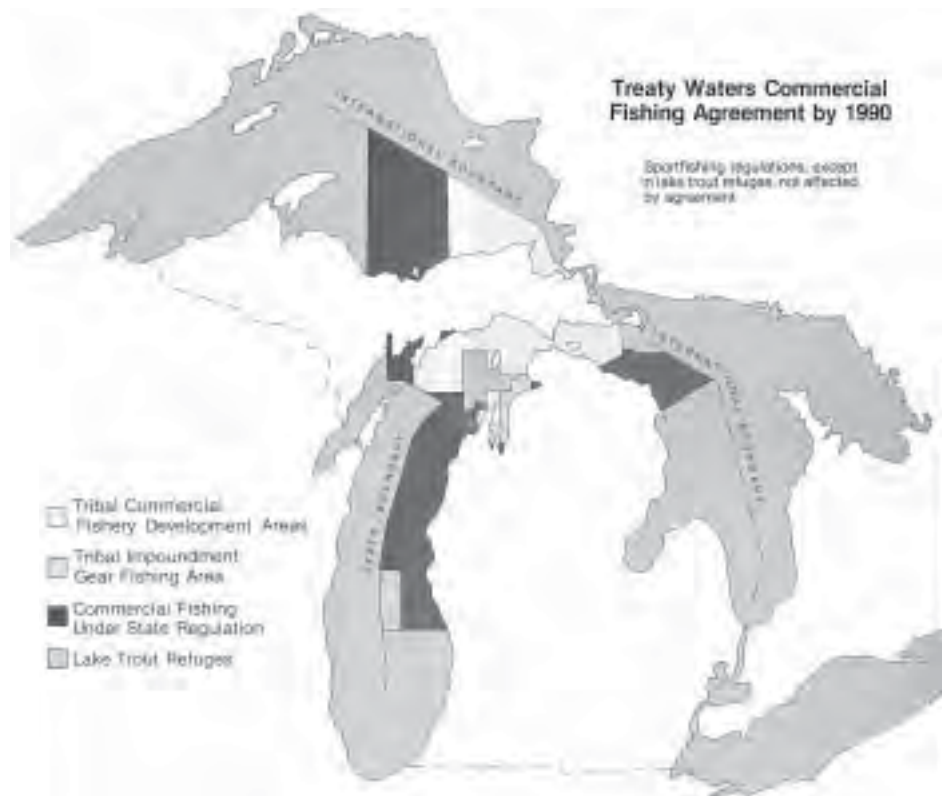
For years, both The Riparian Magazine and ML&SA have preached that anti-funneling ordinances must be carefully drafted and should be as precise and uncomplicated as possible. If not, they can be subject to court challenge. A recent Michigan Court of Appeals decision confirms the wisdom of that warning. In Evans v Gabriel (dated December 28, 1999 — Case No. 212759), the Michigan Court of Appeals in an unpublished decision held that a township anti-funneling ordinance provision was too vague to apply to a newly-created access easement. Since the ordinance only governed "a development which shares a common family dwelling", the Court held that it only applied to common areas such as private parks and jointly-held properties, rather than access easements.

The moral of the story is that anti-funneling ordinances should be carefully drafted or they may not withstand court scrutiny.

workable controls can be placed into effect on a regional basis to protect the Great Lakes. Capital improvements in public facilities for pollution control, fish production, and boating made within the last 20 years need to be maintained and updated as investments that will pay continued dividends. Finally, cooperation must continue to improve among management agencies and organizations with a stake in the Great Lakes fishery.

By learning from the past and investing in the future of the Great Lakes fishery, we reject the notion that our role is simply to pass on to our children what we have inherited. Our obligation to them, and to the resource, demands much more from us. □

Great Lakes (Part II cont'd)



APPEALS COURT DECLARES EASEMENT RIGHTS DO NOT INCLUDE DOCKING AND BOAT MOORING PRIVILEGES

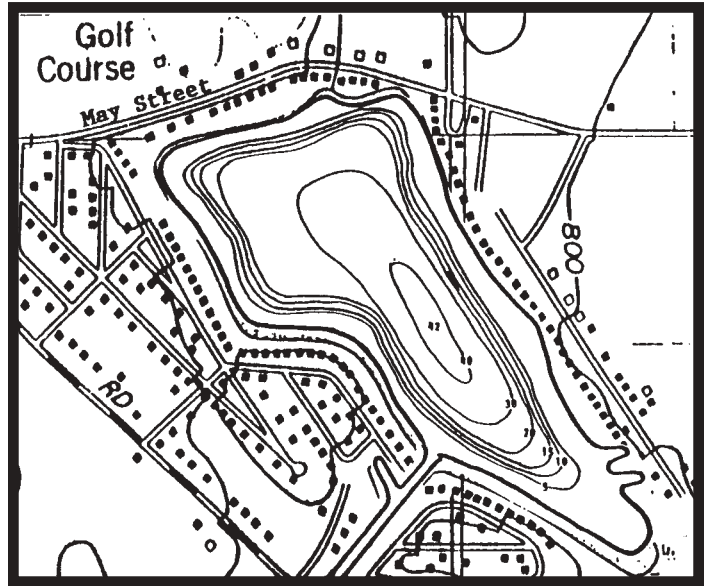
Lake Access Easement Res Judicata

The doctrine of *res judicata* did not apply to an easement dispute because the litigation issue was expressly prohibited from being raised by the court in the previous litigation. **Gross v. Mills**, No. 211776. Decided September 28, 1999 (unpublished).

In a previous lawsuit, a trial court decided that plaintiffs Dempsey and Joann Gross were the fee owners of certain property on Garver Lake, and defendants Dick and Diane Mills had an easement over the westerly ten feet of the property for access to the lake. The court had refused to address the Gross' claim that the Mills be prohibited from maintaining a pier along the easement on the basis that the court hoped the two parties could resolve the matter without court intervention now that a determination had been made regarding property ownership and the easement itself. In 1997, the Gross' filed suit requesting a declaratory judgment determining that they own the riparian rights associated with the waterfront property and that the Mills' use be limited to an easement for access to and from the lake and for enjoyment of the lake surface. Plaintiffs sought a permanent injunction prohibiting defendants from constructing, installing or maintaining a dock or pier, regularly anchoring or harboring boats there, altering the lake frontage and bottom area, or interfering with plaintiffs' use and enjoyment of their frontage and riparian rights.

Following an evidentiary hearing, the court determined that neither acquiescence nor adverse possession applied in the case since the dispute involved an easement, thereby prohibiting a claim of adverse possession. Further, the defendants had failed to establish the requisite 15 year period of continuous and uninterrupted use and the court failed to uncover an agreement between the parties such that plaintiffs should be prohibited from claiming that the defendants' use violated the easement. The court clarified that under Michigan law, an easement does not include riparian ownership rights but rather the easement holder has only the right to traverse the land to access the water body. The court ruled in favor of the plaintiffs, finding there was no genuine issue of material fact because the deed language did not afford the defendants additional rights.

On appeal to the Michigan Court of Appeals, the Mills argued that because the issue of their rights to the easement had been raised in the previous lawsuit, the doctrine of *res judicata* bars litigation of this same issue in the current case. The Court disagreed, noting that the doctrine of *res judicata* should not be applied where it would create an injustice, the doctrine of *res judicata* does not apply where the facts of the case have changed, and the action of the previous court prevented litigation on this



GARVER LAKE

easement issue. The Court disagreed with the Mills' argument that they had acquired a prescriptive easement through open and notorious use of the deeded easement for the statutory required 15-year period.

“Once the court determined that defendants held merely an easement, their use of property was permissive as to the deeded easement. Defendants cannot establish the statutory period of continuous use of the land for purposes beyond the deeded easement after 1992 because after the lawsuit, plaintiffs began removing the original walkway and pier material. Further, when defendants attempted to install the new section of pier in 1997, plaintiffs filed the instant action.”

The Court also disagreed with the Mills' argument that though they only had an easement in riparian land, it did not prohibit the Court from finding that they have a right to erect a pier or permanently anchor boats. *“Unless the language granting an easement evidences otherwise, an easement in riparian land generally affords only the right to use the surface of the water in a reasonable manner for such activities as boating, fishing, and swimming.”* The Court affirmed the trial court's ruling.

Rusties on a Rampage

Rusty crayfish invade Michigan lakes, replace native crayfish species, and rule the lake-bottom

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Few anglers think of themselves as contributing to an environmental problem when they release their excess live bait at the end of a fishing day. Yet rusty crayfish (*Orconectes rusticus*), purchased at bait shops and later released by anglers in Michigan, other midwestern states, and Ontario have wreaked havoc on other species of crayfish. They have also caused large changes in lakes, including declines in water weeds, reductions in small invertebrate animals that are the food of many fishes, and perhaps decreases in sport fish populations. These are changes that most anglers and riparian owners do not like.

My colleagues and I have been studying the spread and impact of rusty crayfish in northern Indiana, Michigan, and Wisconsin for more than 17 years, building on work started by others in the mid 1970s. Although most of our work has been in inland lakes of northern Wisconsin, similar phenomena appear to be occurring in the lakes of Michigan, including the Great Lakes. During the last few years, rusties have invaded many more lakes. Where ever the rusties become abundant, the native species of crayfishes disappear and other changes occur.

While the earlier crayfish inhabitants of Michigan no doubt have effects on their lake environments, they appear to be benign members of the ecological community. In contrast, the rusty crayfish has become notorious in the northern midwest, thriving at the expense of native crayfish, plants, and probably fish. Our research in the recent past has explained how rusties come to dominate the lake bottom, focusing on comparisons of the rusty with the native virile and northern crayfishes.

These three species of crayfish are similar in appearance, behavior, and habitat preference. The rusty crayfish, though, is distinguished by the single large, round reddish spot on each side of the shell of the crayfish, just forward of the tail. The habitats in many northern midwestern lakes are like those of the streams occupied by the rusties in their native range. The well-oxygenated water has adequate calcium, enabling crayfish to maintain their calcium carbonate exoskeleton. All three species favor shallow rocky areas, where each individual selects and defends a lake-bed shelter. Typically, a crayfish excavates a cave under the edge of a rock or sunken log, leaving a small mound of sand and gravel at the opening. The crayfish then backs into its home, leaving only its eyes and massive pincers (or chelae) visible, and warily watches its lacustrine world. Most crayfish remain in hiding during the day and emerge to forage only at night.

In an 1880 monograph, Thomas H. Huxley described crayfish as opportunistic and enthusiastic feeders: "Larvae of insects, water-snails, tadpoles, or frogs, which come within reach, are suddenly seized and devoured, and it is averred that the water-rat is liable to the same fate. Passing too near the fatal den, possibly in search of a stray crayfish, whose flavour he highly appreciates, the vole is himself seized and held until till he is suffocated, when his captor easily reverses the conditions of the anticipated meal." Huxley may have overstated the case in regard to live small mammals on the crustacean's menu; but crayfish do vigorously attack vulnerable animals. Large prey, typically fish, are usually sick or dying when attacked. Stories abound of rusty crayfish reducing fish on a angler's stringer

to bones in an hour. Crayfish use the small pincers on their first two pairs of walking legs to reduce large pieces of food to a whirling cloud of small particles.

Yet crayfish are omnivores. Although they prefer high-protein animal food, such as fish eggs, carrion, and insect larvae, much of their diet consists of generally more abundant but less nutritious plant food. At night, they scrape attached algae, or "scum flora," a complex green or brown film of organic detritus, bacteria, and algae, from the surface of rocks, logs, and water weeds. Their consumption of the water weeds themselves is especially important, as suggested by the thick arrow in the boxed figure (see page 18).

The common Michigan species all have a similar life cycle. Like other crustaceans, crayfish periodically molt, shedding and re-forming their hard exoskeleton to allow for growth. Adult male *Orconectes*



Rusty Crayfish
Orconectes rusticus

Virile Crayfish
Orconectes virilis

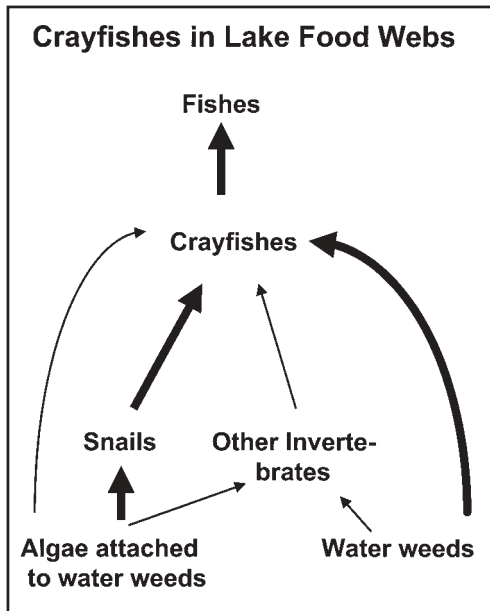
Northern Crayfish
Orconectes propinquus

Photo by David Lodge, PhD.

Rusties thrive at expense of native species.

Historically, the most abundant naturally occurring crayfish species in Michigan lakes were the northern crayfish (*O. propinquus*) and the virile crayfish (*O. virilis*). But in the last few decades, rusties have left their native range centered in southern Indiana, and invaded the lakes of the upper midwest. The rusty probably got a free ride from anglers vacationing in Michigan. Fishermen hardly foresaw ecological disruption when they dumped their extra bait, including rusties, into the lake at the end of the day. Such practices accelerated the rusties' advance, and the crayfish proceeded to thrive beyond anyone's expectations.

(Continued on page 18)



molt at least twice a year: into non-breeding form in early summer and reproductive form in late summer. Mating may take place at any time from late summer through early spring, but the female stores sperm in a pocket in her abdomen until April or May. She then lays as many as 200 eggs and fertilizes them externally. They remain

attached to her abdomen until they hatch into bulbous-headed, thin-tailed pink juveniles. The young remain close to the female for about two weeks, molting several times and gradually taking on the appearance of miniature adults.

In recent years, we have surveyed the crayfishes in over 150 lakes and streams in the northern midwest to learn which species are there and what their population densities are. We have repeatedly sampled some of those lakes so that we know when the rusty crayfish invaded and how quickly it has spread throughout a lake. In lakes invaded by rusties, previously resident crayfish species inevitably disappear, within a few years in small lakes. In about 75% of the 150 lakes and streams that we have sampled in northern Wisconsin and the Upper Peninsula, the native virile crayfish has been completely exterminated by the rusty crayfish. When I first began conducting research on crayfishes in 1983, it was easy to find populations of the virile crayfish, but now it is almost impossible.

From the start, the rusty crayfish has an advantage over its other crayfish lake-mates. Its eggs hatch earlier in the spring and its young grow faster. At maximum adult size (four inches from head to tail, plus about half that length in chelae) the rusty is considerable larger than the northern and has much larger chelae than the virile crayfish. Greater size confers an advantage in skirmishes with other crayfish and in warding off predators.

Size and aggressiveness contribute to Rusties dominance.

Aggressiveness is also a hallmark of the rusty and has most likely evolved, as has large size, primarily for congeneric competition and protection from fish and other predators. Our experimental results explain how both size and behavior enable the rusty to literally dislodge competitors. The bullying rusty is more than a match for the relatively docile, easily handled virile crayfish. The mere approach of a rusty sends the virile into a speedy retreat, and rusties usually prevail over other resident species too. In addition to directly observing encounters between species in small aquaria, we have also conducted experiments in large outdoor tanks, each with the same arrangement of different habitats—rocky areas, areas with water weeds, and open sandy/muddy areas—to simulate natural lakes. In these arenas, as in

natural lakes, all three species of crayfish—when no other species are present—prefer the rocky habitat, but also use vegetated areas. However, when all three species are together, the rusty ends up occupying the rocky areas while the other species are forced to reside in the less preferred habitats where they have less shelter from predators.

Competition among crayfishes for shelter is an outgrowth of the strong force of predation by fishes. Eviction from a shelter dramatically increases risk of being eaten, but the risks are lower for rusties. Rusties have frequently startled the scuba divers on our research team by directly facing us as we approached the lake bed and raising and opening their pincers in a threat. Other crayfish species do not do this or do it much more rarely. Several times, we have seen smallmouth bass attack a rusty, only to have the tables turned. The bass ends up swimming away with a crayfish clamped on its lower jaw. Presumably, the crayfish eventually lets go, and the bass is eager to find less feisty prey. Likewise, we have often been pinched, with blood drawn, by defiant rusties standing their ground and resisting capture.

Nevertheless, a crayfish—even a rusty—exposed on the lake bottom is much more likely to become a meal than one hidden under a rock, and during molting and one or two days afterward, the “soft shell” crayfish without a shelter is completely defenseless. Although many birds and mammals eat crayfish residing in shallow water, fish are the most common predators. As a crayfish grows larger, little fish, other crayfish, frogs, and dragonfly larvae no longer pose a threat. Only large fish, particularly mature smallmouth and largemouth bass and walleye hunt adult crayfish. By dominating available shelters, the rusty more easily escapes predation.

Our experiments in lakes and in large outdoor tanks have confirmed that rusties are much less vulnerable to getting eaten than other crayfish species. The larger a crayfish is, the less likely it is to get eaten if it is exposed, and rusties are larger than other crayfishes. Second, even when comparing two individuals of the same size, the rusty’s aggressiveness decreases its vulnerability relative the other species of crayfish.

Rusties superior to other species.

The rusty crayfish, then, can evade capture and drive competitors into the mouths of predatory fish by expropriating available shelters. But a more subtle mechanism of species replacement is also at work. In some lakes, many crayfish show characteristics intermediate between the rusty and the northern crayfish. Recent work with my colleagues Drs. Bill Perry and Jeff Feder has confirmed that these individuals are indeed hybrids, and that individuals of mixed blood comprise as much as 30% of the population in the lake zones where species overlap. These and additional results suggest that the end result is the genetic assimilation of the northern crayfish into the rusty. Thus, hybridization augments the competitive superiority and lower vulnerability to fish predation that drive the replacement of resident crayfishes by the rusty crayfish. Rusties are superior in every sort of ecological interaction that we have studied.

Although the disappearance of native crayfishes is an important conservation concern, probably the most noticed impact of rusty crayfish is the reduction of water weeds. Some rusty populations have attained densities of 20 adults per square yard. Populations of other species are rarely as high as those of rusties, and because rusty individuals are larger than other species, the total living biomass of rusties often far exceeds that of the competitors it replaced. In laboratory experiments, we also learned that rusties have higher feeding rates

than other species, even when comparing crayfish of the same weight. This, combined with larger size, longer feeding periods, and greater use of different substrate types, such as open, sandy lake beds and vegetated habitats, account for the rusty's more obvious effects on its plant and animal foods.

To quantify the impact of rusties on vegetation and invertebrate animals in a Wisconsin lake, we compared plant growth over a summer in large (9 square yard) cages containing rusties to that in identical cages without crayfish. At the end of the summer, cages without crayfish had a luxurious growth of many different species of water weeds that harbored an abundant fauna of invertebrates. In stark contrast, the cages with rusties had no vegetation and very few invertebrate animals. The rusties had clear-cut the lake bottom, and consumed the snails and insect larvae, as well as the plants.

We have seen similar results in other laboratory and in-lake experiments, but we have also learned that in the presence of abundant predatory fish, the impact of crayfish on plants and prey animals is lessened. By affecting the behavior of crayfishes even when the crayfishes are not consumed, fish predators indirectly benefit plants and invertebrates. Rusties in the presence of fish predators were less active and ate fewer animals and plants than crayfish in identical tanks without fish. These results suggest that lake management that favors maintenance of large predatory fishes may reduce the impact of rusties on lake habitats.

Crayfish short circuit food chain.

Maintenance of water weeds and invertebrates is, in turn, important in supporting the reproduction and survival of many fish species. Water weed habitat is where perch and other fishes spawn. In addition, the production of vegetation fuels the production of insects that feed small prey fish that in turn are eaten by large sport fish. Rusties short-circuit this food chain at two levels. Crayfish consume the plants, replacing other invertebrates as the top grazers. Snails and insects that use the remaining plant habitat are also liable to be eaten by crayfish, rather than by small fish, as they were in the past. Through the consumption of those invertebrates and of fish eggs, as well as destruction of habitat, crayfish are replacing small fish, and may be ultimately replacing bass, walleye, and muskellunge as the top predators.

The shorter the food chain, as vegetarians point out, the greater its overall efficiency. But the end product of the new food chain in northern midwestern lakes—rusty crayfish—is not as popular as bass, walleye, and musky. If adult rusties were more easily caught and readily consumed by these and other sport fish, lakes with rusties might sustain more such desirable fish. Crayfish are, after all, a high-protein packet. That is out-weighed, however, because crayfish are also an evasive prey, and sheathed in a heavy, indigestible covering. Consequently, crayfish, especially adults, are not a preferred or optimal diet for fish.

No practical way to reduce rusty crayfish populations.

There are no known acceptable and practical ways to substantially reduce rusty crayfish populations. Harvesting crayfish by trapping may provide a novel food and jobs, but it is unlikely to significantly reduce the crayfish population. Current trapping methods catch

mostly males, but leave enough to fertilize the females, which in turn have less competition from males for food and shelter. The result is a continued crayfish boom. Poisons that kill crayfish also destroy many other animals. I believe that intensive trapping combined with fish management favoring large predatory fishes might reduce crayfish populations, but the appropriate experiments to test this idea have never been done.

Wisconsin banned rusty crayfish as bait in early 1980's.

Failing the development of control methods, what is most important is to prevent the future spread of rusties and other exotic crayfishes as much as possible. In a forthcoming publication, several co-authors and I point out that the rusty crayfish invasion is only one of many crayfish invasions that have caused serious problems worldwide. In North America, which harbors 70% of the world's crayfish species, many crayfishes are being inadvertently spread by humans, threatening other crayfishes and changing freshwater ecosystems as they go. Because of the damage done by the rusty crayfish, the state of Wisconsin banned the use of live crayfish as bait in the early 1980s. More lakes continue to be invaded, though, because once introduced in one lake, crayfish can move through streams to other lakes. In Michigan, it is currently legal to use live crayfish as bait, and thus invasions are probably continuing at a very rapid rate. The most effective way to slow the spread of rusty crayfish and other nuisance crayfish species would be for all states to ban the use of live crayfish as fish bait.

Acknowledgments

Many colleagues and graduate students have contributed to the studies on crayfishes over the years, especially John Magnuson, Jim Kitchell, Roy Stein, Alan Covich, Lou Weber, Mark Olsen, Anna Hill, Jim Garvey, and Bill Perry. Funding has come from the National Science Foundation, the Environmental Protection Agency, and NOAA Sea Grant. The natural resource agencies in Michigan, Wisconsin, and Indiana have been very helpful.

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Legend for photograph:

Maximum-sized male individuals of the three species of *Orconectes* crayfishes discussed in this article: rusty crayfish (left); virile crayfish (middle); and northern crayfish (right).

TRESPASS ON THE BOTTOMLANDS OF ANOTHER

by: Clifford H. Bloom
Attorney at Law

In the “Attorney Writes” column found in the February, 2000 issue of *The Riparian Magazine*, trespass is discussed in general. This article deals with trespass on the bottomlands of another in more depth.

Except for unusual circumstances, a riparian property owner on an inland lake in Michigan owns a pie-shaped portion of the bottomlands to the center of the lake. See *Hall v Wantz*, 336 Mich 112 (1953). Unfortunately, since there are very few (if any) perfectly round lakes, exactly how riparian property lines radiate under the water toward the center of a lake and at what angles are matters of considerable dispute for most lakes. Surveyors with an expertise in attempting to set riparian boundaries can give opinions, but those opinions are nonbinding. Ultimately, only a Michigan circuit court can definitively set bottomland property boundaries under the waters of a lake.

In general, there are three possible techniques which can be utilized by the courts to set riparian bottomland boundaries. If a lake is close to being round, a court can set a specific point in the middle of the lake, with the property lines of various riparian lots radiating in a pie-shaped fashion to the center of the lake. For oval, spider or other irregularly-shaped lakes (which includes most of the lakes in Michigan), there are two techniques frequently used by courts to set bottomland boundaries. The “thread method” involves placing one or more lines roughly in the middle of a lake’s fingers or bays, with the property lines of riparian lots radiating to the nearest thread line or perpendicular to that line. The other alternative for irregularly-shaped lakes is to simply set bottomland areas in proportion to the widths that adjoining riparian lots bear to the overall area of the lake bottomlands in total. Obviously, any of these techniques can result in bottomland boundaries which vary dramatically in angle from boundary lines on dry land.

Why is it important to know one’s bottomland boundaries? It is important because ownership of the bottomlands entitles a riparian to exclude others from most uses of those bottomlands unless they have

permission from the riparian owner. Generally, only the riparian has the right to place docks, shorestations, raft anchors, volleyball nets, buoys, etc., on his or her bottomlands. The same is true of anything other than the temporary mooring of a boat or watercraft. Just as with dry land, a person who owns the bottomlands under a lake generally has the right to exclude others from the use of such bottomlands. There are two exceptions to the rule that a riparian has the right to exercise exclusive control over his or her bottomlands. The first exception states that once someone is on the waters of an inland lake, they have the right to float, boat, swim, snowmobile, ice fish, etc. anywhere on the lake they desire and over the bottomlands of others so long as they do not touch those bottomlands. In other words, although the bottomlands in most inland lakes may be the private property of adjoining riparians, the waters of inland lakes generally belong to the people of the State of Michigan as a group. The second exception involves temporary mooring which is incidental to navigation. Put in lay person’s terms, a person has the right to throw out an anchor temporarily on the bottomlands of another in order to fish or steady their boat while they are in the boat. Obviously, this limited right to anchor temporarily is necessary and practical.

Recently, in the Berrien County Trial Court case of *Suva, et al v Currier, et al*, (Berrien County Trial Case No. 98-3580-CZ-S), adjoining riparian property owners asserted that users of an easement could not trespass on their adjoining riparian bottomlands. The plaintiffs, in their trial brief, argued as follows:

1 In Michigan, the owners of riparian properties on inland lakes normally own the bottomlands under the water in a pie-shaped fashion to the center of the Lake. See *Hall v Wantz*, 336 Mich 112 (1953).

1 [T]he owner of property bounded by an inland water course owns the bottomland of the lake or stream to the centerline... As previously noted, the title of a riparian

(Continued on page 21)

landowner extends to the middle of an inland lake. *West Michigan Dock & Market Corp v Lakeland Investments*, 210 Mich App 505, 509-510 (1995).

2 A person does not have the right to walk on the bottomlands of another without permission. Every unauthorized entry upon the private property of another constitutes a trespass. See *Giddings v Rogalewski*, 192 Mich 319 (1916).

3 In *Johnson v Burghorn*, 212 Mich 19 (1920), the Michigan Supreme Court held that the right of members of the public to float on the water does not include the right to anchor or attach traps to the subaqueous lands of a riparian owner or to the ice covering it for the purpose of catching fur-bearing animals. In *Patterson v Dust*, 190 Mich 679 (1916), it was held that while a riparian owner's property rights to subaqueous lands are subject to the right of the public to float on the waters above and the right to temporarily anchor as an incident to the right of navigation, members of the public do not have the right to anchor indefinitely on the riparian owner's bottomlands, create a nuisance such as littering and impair the riparian owner's use and enjoyment of his property rights.

In *Hall v Alford*, 114 Mich 165 (1897), the Michigan Supreme Court stated:

4 It does not follow that, because a person is where he has a right to be, he cannot be held liable in trespass. A person has the right to drive his cattle along the public highway, but he has no right to depasture the grass with his cattle in the highway adjoining the land of another person. Also a person has the right to travel along a public highway, but this gives him no right to dig a pit, or remove the soil, or encumber it in front of lands belonging to others. The defendant had the right of using the waters of the bay for the purpose of a public highway in the navigation of his boat over it, but he had no right to interfere with

the plaintiff's use thereof for hunting, which belonged to him as the owner of the soil. The public had a right to use it as a public highway, but every other beneficial use and enjoyment belonged to the owner of the soil. 114 Mich 165, 171 (1897).

5 The only exception recognized in Michigan case law for touching the bottomlands of another without permission is the narrow exception recognized in *Hall v Wantz* involving temporary anchoring on the bottomlands of another while fishing or navigating. That narrow exception is based on the premise that such temporary anchoring while fishing in a boat or while navigating is clearly incidental to an exercise of navigability (i.e., floating in deep waters). See also *Delaney v Pond*, 350 Mich 685 (1957); *Thies v Howland*, 424 Mich 282, 288 (1985).

Judge Scott Schofield agreed with the plaintiffs that walking on the bottomlands of another without permission was a trespass and wrote in his opinion as follows:

6 Walking on bottomlands in shallow water without the permission of the riparian owner is a trespass. This does not fall within the narrow exception recognized by Michigan courts for temporary boat anchoring as an incident to navigation. See *Hall v Wantz*, 336 Mich 112 (1953); *Hall v Alford*, 114 Mich 165 (1897); *Giddings v Rogalewski*, 192 Mich 319 (1916). Defendants and their invitees therefore are permanently enjoined from trespassing (i.e., walking without permission) on the bottomlands of Lots 1 and 6.

Although the above is only a portion of Judge Schofield's opinion (the case involved additional issues) and circuit court opinions are not binding outside of the judicial circuit involved, this opinion is interesting in that it is one of the few times where a Michigan court has specifically addressed the bottomlands wading trespass issue.