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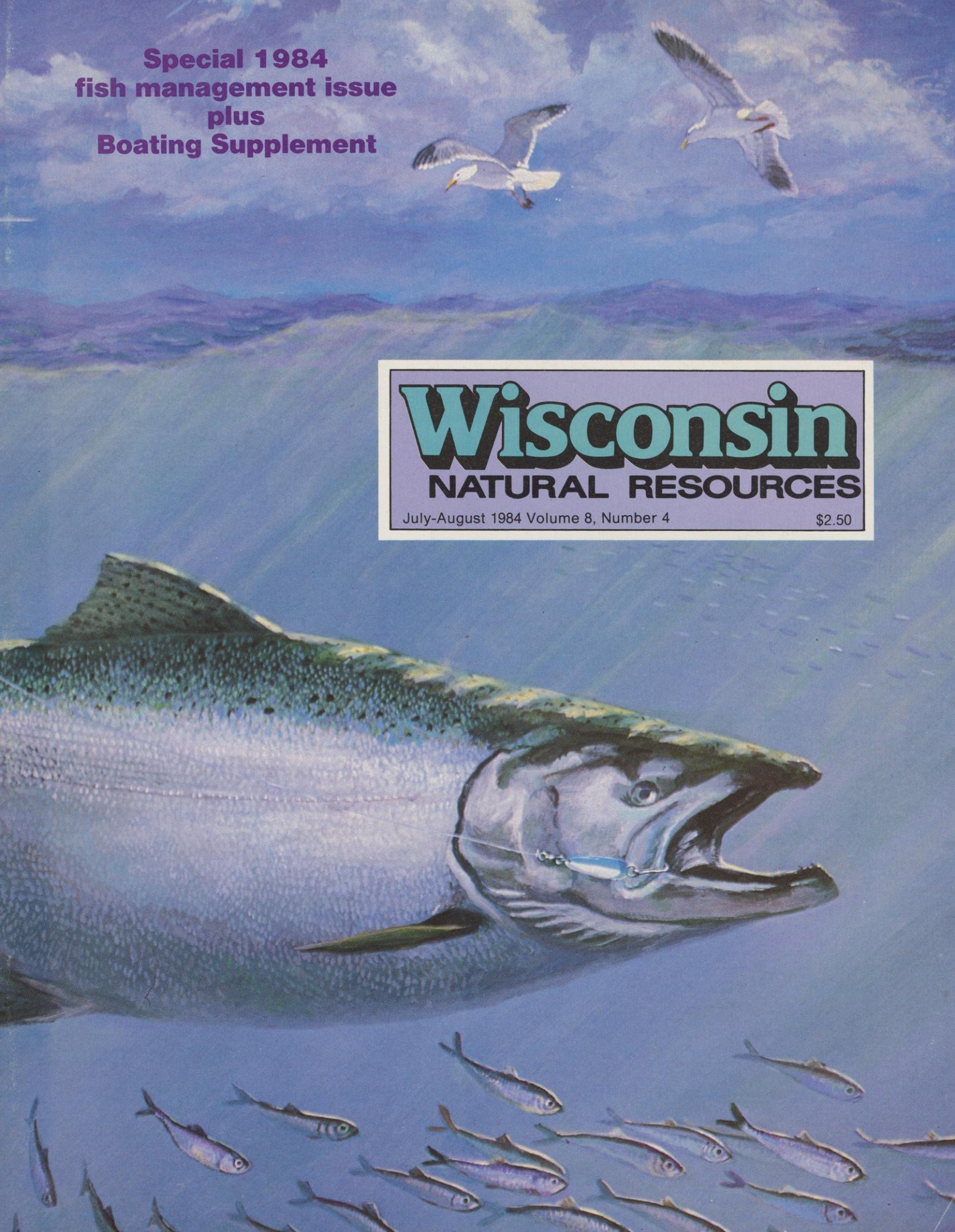
Special 1984
fish management issue
plus
Boating Supplement



Wisconsin NATURAL RESOURCES

July-August 1984 Volume 8, Number 4 $2.50

Photo by William F. Pflieger

Rosyface shiner

BRIAN KAMNETZ, Editorial Intern

The bright sunshine of late May glitters and sparkles on the clear water of the stream, brightening its gravel bottom. Suddenly a school of rosyface shiners dashes into the shallows and breaks into several groups of eight to 12 minnows. Each group bunches tightly together above various nesting depressions made by other fish and begins vibrating so rapidly the surface of the water boils. Both sexes crowd one another closely, the sides of their bodies in contact while they make small shifts in position. After five or six seconds the thrashing and lashing ceases, and is followed by relative calm for about 30 seconds, after which the whole process is repeated over and over for about five minutes. Then, quite suddenly, the school is gone, returned from whence it came.

The rosyface shiner, also known as rosy-faced minnow and skipjack gets its name from the reddish hue of its head in mating season. Males are brighter red than females. One of 45 species of minnow in Wisconsin, the rosyface is about 3½ inches long and lives about three years.

George C. Becker in his book *Fishes of Wisconsin* described the rosyface in action:

"A school of approximately 100 fish swam a circular course through two pools and its connecting riffle. At times a small group of about 15 to 20 fish broke away from the main body and circled by themselves. The speed at which the schools moved was at all times uniformly swift. Three days before spawning was observed, the coursing movement of the schools ceased, and they maintained a stationary position immediately below the upper riffle."

The rosyface shiner prefers the moving water of rivers to lakes and ponds. Abundant in parts of central Wisconsin and common in southwestern Wisconsin, it is uncommon in the northeastern parts other minnows, most often the hornyhead chub.

It does not do well in turbid water, probably because it is a sight feeder.

Although considered an excellent bait for bass and other game fish, the rosyface shiner does not survive well in crowded tanks. It is a common bait in areas where it is abundant.
of the state and rare or absent in far northern and south central Wisconsin.

Most of the year it lives in swift, medium-sized clearwater streams, usually over gravel, rubble and sand at depths of from one to five feet. It eats insects and algae, preferring algae when young and insects when mature.

In winter, rosyface shiners are believed to leave the riffles and live in deeper pools and eddies. They cease feeding completely before spawning, then eat only limited amounts of insects. The rosyface is one of several species of minnow which deposits eggs over spawning areas of

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This special edition was a cooperative effort between the Bureau of Fish Management and personnel in the six DNR districts. Special thanks to all fish managers who shared their experiences in words and pictures.

Special Edition Coordinator: Greg Matthews

Cover: This Wisconsin State record Chinook salmon was caught off Algoma in August of 1983 by Gary Jacobson of Edina, MN. The fish weighed 43 pounds, 30 ounces. For more on charter boat fishing see page 43.

Painting by Artist Virgil Beck, Box 66, Stevens Point, WI 54481.

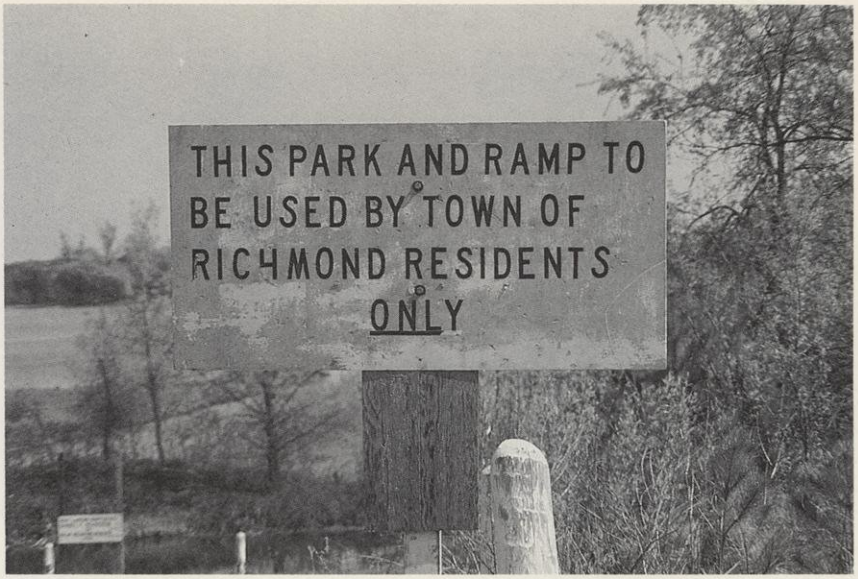
Canoe landing at Governor Dodge State Park.
Photo by Jim Escalante

Boat ramp blues

DNR makes sure you won't go broke paying for access to state waters

JOHN A. NELSON,
Public Information, Milwaukee

Public access is unavailable on some lakes.
Photo by Randy Schumacher



DNR photo

Photo by Randy Schumacher

The scenario is common in Wisconsin. An angler or boater is going to spend a day on state waters. A car drives up to a parking lot next to a lake, a boat is backed into the water, loaded with gear and headed out for a day of recreational boating.

Most users of Wisconsin's waters expect nothing less than quick, easy and, in most cases, free access to lakes and streams. The Northwest Ordinance of 1787, on which the Wisconsin constitution is based, states that waters will remain forever free and open to navigation. However, getting on a southeastern Wisconsin lake is not always quick and easy — and in most cases — not free or even cheap. Those who must pay aren't paying to navigate the waters, but for costs of the facilities provided at access sites.

Fish managers like Ron Piening are trying to ensure that public access is available in southeastern Wisconsin waters at a "reasonable" fee. There are 309 lakes in DNR's seven-county Southeast District, but only 38% offer adequate access.

Most southeast access sites are owned and operated by municipalities and deciding whether the sites are "adequate" is not always easy. Standards that define "adequate public access" are found in the Wisconsin Administrative Code. If the standards aren't met, no DNR fish management services such as lake surveys or fish stocking are provided.

State statutes allow a municipality to charge reasonable fees for the use of public boat launching facilities. DNR looks at the amount of the fee and size of the access site in relation to lake size.

The Natural Resources Board, DNR's policy making body, considers $3.00 for residents and $5.00 for nonresidents to be reasonable. These are the same as the daily user fees for state parks.

Piening, who is responsible for administering access fees in southeastern Wisconsin, says if a municipality operating a public access site can show that $3.00 for residents and $5.00 for nonresidents will not adequately cover expenses, a petition can be filed with DNR for permission to charge higher fees. However, costs must be justified before higher fees will be approved.

Although rules covering access fees are statewide, so far they have been applied only in south-

Boaters fill up the parking lot at this access point.
DNR photo

Two anglers unload their boat at a public landing maintained by DNR.
DNR photo

A boat launching area
opens this lake to visitors.
Photo by Randy Schumacher

eastern Wisconsin where public use of state waters and access fees are highest.

When judging the adequacy of a fee, DNR also considers whether there is adequate parking within a quarter mile of the access site. In addition, the standards say there should be no more than one car/trailer parking space for every 10 acres of surface water on lakes of over 50 acres. Carry-in boat access with parking for a maximum of five vehicles is considered sufficient for lakes of 50 acres or less .

The standard factors are not cast in stone. DNR takes other elements into account such as lake depth, commercial facilities open to the general public, existing lake uses and the number of boats already utilizing the lake.

Once a municipality decides that it needs to charge a fee higher than allowed by law, it must then seek "a determination of reasonableness" from DNR.

Prior to the last boating season, for example, Waukesha County decided that it needed to charge $3.50 — 50 cents more than allowed by law. Waukesha County gathered information on launch site operating costs to justify a higher fee. Costs included attendant salaries, launch ramp maintenance and repairs, toilet facilities, lighting and other expenses that could be directly related to site operation.

Costs not allowed include administering park facilities not necessary to site operation and purchase and maintenance of park lands adjacent to the site. Sometimes only portions of expenses can be charged against the access site.

For instance, if a municipal law enforcement officer spends 20% of his or her time patrolling the launch site, only 20% of the salary can be charged. Once a municipality has gathered pertinent cost information, it then petitions DNR for review.

One of Piening's responsibilities is inspecting submitted costs to determine whether they are allowable.

There is a 60 day review period during which any person may comment on the fee proposal.

After the 60 day review, the Southeast District director, with a recommendation from Piening and the district fish manager, either grants, modifies, or denies the increase. Anyone offering written comment during the review period will have 30 days to appeal the decision. If a hearing is requested, it will be conducted by a hearing examiner from the Department of Administration — not DNR.

This is an involved process but it's necessary to make sure that users of Wisconsin's waters enjoy adequate public access at a reasonable fee.

Troubled times for our inland seas

JACK F. ZIMMERMAN,
Area Fish Manager, Wisconsin Rapids

A fish manager reflects on the successes and frustrations of managing two of Wisconsin's largest inland lakes.

To stand on the sandy shore and gaze out at the vastness of Petenwell or Castle Rock Flowage is like viewing some great inland sea. The state's second and fourth largest inland lakes, respectively, lie side by side like two sleeping giants in central Wisconsin.

They were created in the late 1940s by dams built across the Wisconsin River and are part of a system of 25 hydroelectric dams constructed to provide electrical energy to the paper industry and an expanding Wisconsin economy.

As the dam gates closed, water backed up over abandoned farmland, prairies and forested knolls. The birth of 16,000-acre Castle Rock and 23,000-acre Petenwell was quiet and unassuming.

Things went well in these inland seas for a while. Game fish multiplied while waterfowl populated wetlands and marshes. Hunters and anglers smiled knowingly at the untapped resources developing in central Wisconsin.

But change came. It began slowly at first. Algae blooms turned the blue-black waters bright green for weeks at a time. Northern pike and panfish crowded together at stream mouths during winter when oxygen levels were low. Dead fish were found scattered along shore in spring when the ice retreated. Northern pike were replaced by hardier fish that could tolerate low oxygen, such as bullheads and carp. Walleyes began tasting funny and people stopped eating fish.

Fiber and sludge discharges from upstream paper mills, continuous sewage flow from overloaded treatment plants and storm sewers, plus silt, fertilizer and chemical runoff from ditches and streams draining agricultural land was choking the life from these inland seas.

Castle Rock and Petenwell were acting as settling basins for all upstream pollutants. If this frightening human impact were not reversed, two inland seas were destined for a slow, agonizing death.

About this time, DNR had begun an aggressive program to combat pollution problems statewide under the "Clean Water Act" of 1972.

Regulations and legislation were created for identifying and monitoring pollution sources. Standards for "fishable-swimmable" waters were established and clean-up orders issued. Polluters were put on notice that the time had come to "clean up their acts." With industrial discharge limits set and grants available to cities for upgrading sewage treatment plants, the picture began to slowly change again for the better.

A rock outcropping typical of the Castle Rock area.
Photo by Ken Anderson

Fewer pollutants and reduced oxygen demand in the river meant a gradual improvement in dissolved oxygen levels. But just as walleyes and other game fish began to recover and multiply the inland seas were dealt another cruel blow.

Mercury was discovered in game fish and carp tissues. New technology had allowed DNR to search for trace amounts of potentially harmful substances, and fishery experts were shocked to learn these were present in state waters. Fishing was temporarily shut down while officials ascertained the problem's scope.

Minimum acceptable standards were established by the Food and Drug Administration for mercury in fish and extensive annual monitoring initiated. Advisories were issued recommending limited weekly consumption of fish and the Wisconsin River and its flowages again opened to fishing. Mercury sources were found and eliminated and people waited to see if the inland seas would cleanse themselves.

Fishery personnel began extensive sampling of Petenwell and Castle Rock to determine whether fish populations were responding to continually improving water quality conditions. Nets were set and boomshockers probed the dark waters to measure, count and analyze the fishery. Creel census takers talked to anglers, gathering data that would measure fishing effort and success. Fish

flavor improved dramatically.

In about six years, mercury had dropped to below minimum levels in all fish and nature was again smiling on the inland seas. Managers were so optimistic about the future that they allowed contract fishing for buffalo and carp. Commercial fishermen with large mesh entanglement nets and seines removed carp by the thousands each year. It seemed that carp overabundance was the only factor now preventing our inland seas from realizing their full potential as game fish producers.

Carp root in bottom sediments, keep silt in suspension, disturb spawning activities and compete with game fish for food and space. As contract fishermen harvested the carp and buffalo, fish managers saw an opportunity to introduce muskellunge into the Petenwell. The balance between game and rough fish was being tipped in favor of the game fish for the first time in many years.

The state began stocking 4,000 three to four inch muskies annually. DNR managers worked with "Muskies Today," a local club dedicated to reestablishing muskies in the Wisconsin River. Through lots of effort, money and good old American ingenuity, the club completely refurbished an abandoned sewage treatment plant to create a rearing pond where they raise up to 8,000 ten to 14 inch muskies annually. The sewage plant, which earlier contributed to pollution that plagued these inland seas, now raises muskies that will help restore the fishery.

Until the summer of 1983, conditions had never looked better for the Castle Rock and Petenwell flowages. Walleye, crappie and white bass were naturally reproducing, channel catfish began appearing and smallmouth bass, a fish known to prefer waters with a clean, stable environment, were on the increase. Then, samplings suddenly turned up dioxin levels in large carp taken from Petenwell.

Reeling from yet another environmental blow, the inland seas were closed to commercial fishing. More fish samples were tested in time-consuming, extremely costly analysis at specialized laboratories in Nebraska where contaminants are measured in parts per "trillion." Both dioxins and furans, chemical contaminants of PCB products and herbicides, were found in many Wisconsin River fish samples. Only the largest Petenwell carp slightly exceeded the federal limits for dioxin.

The fact that so little is known about the possible dangers posed by these complicated chemical compounds makes it difficult to determine what regulations are required to protect the public interests.

The jury is still out on the latest case against these troubled waters. Commercial fishing has been reopened on Castle Rock, which showed no serious fish contamination. Federal guidelines for the eating of fish containing furans aren't established yet because the problem is so new.

Petenwell remains closed to rough fish removal by commercial fishermen. Sport angling continues since game fish have shown very low contaminant levels. It will take a greater sampling effort and more money to discover how extensive the contamination problem may be and where the contaminants are coming from.

I personally believe this remarkable water system will bounce right back from this latest setback, just as it has throughout its troubled history. These inland seas, despite the difficulties and with the help of man who created them nearly 40 years ago, will go on to produce a quality fishery that will long outlive its troubled past.

Taste and flavor in Wisconsin River fish

For years fishermen and paper companies along the Wisconsin River have argued about why river fish smell and taste bad, especially in early spring and late summer. Old-time fishermen claim the fish tasted fine before pulp and paper mills colonized the river.

Robert Lindsay, a UW-Madison flavor chemist, has discovered that nonodorous members of a group of compounds called terpenes, released in wastewater from paper mills, can change into highly odorous compounds called alkyl phenols once they hit the river.

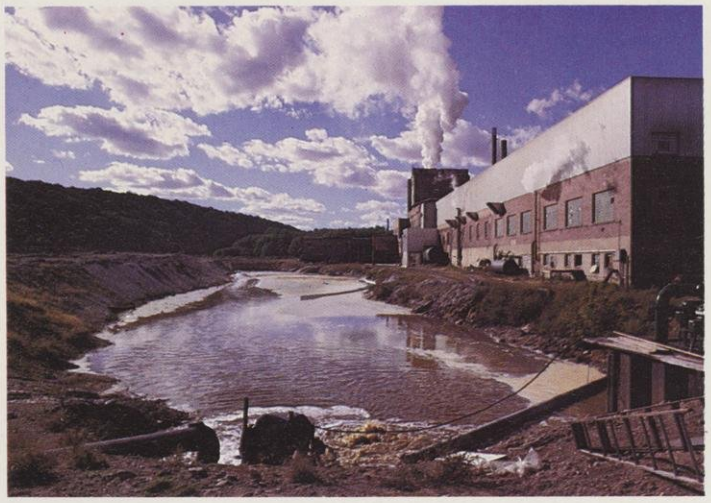
One of these, isopropyl phenol, can be taken up by fish to produce some of the chemical or medicinal flavors disliked by the anglers. The alkyl phenols, which build up all winter, are most noticeable in late winter and early spring. During summer, different microorganisms develop that apparently convert terpenes into compounds with musty fragrances that also flavor fish.

Terpenes are regularly leached into the water from rotting logs and decaying vegetation. The paper making process greatly supplements this normal leaching process, even though mills treat the wastewater.

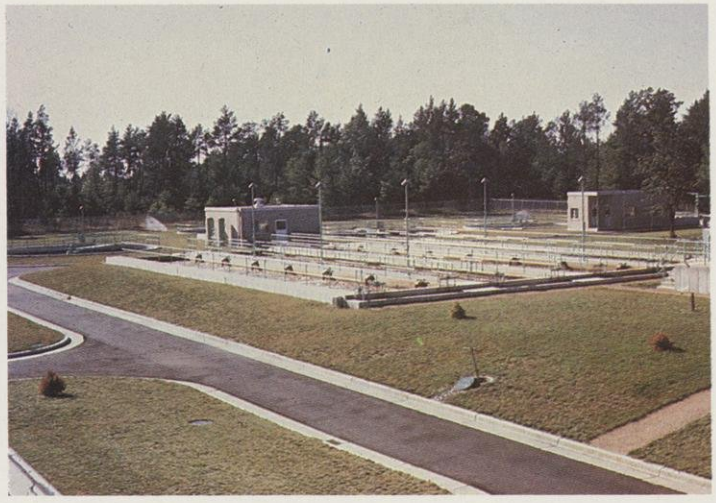
Neither terpenes nor the material they change into are known to be human health hazards, according to Lindsay.

Now that the problem is identified, it is hoped that waste treatment methods can be developed that will remove the problem compounds.

The Petenwell Dam on the Wisconsin River near Necedah helps create a huge, scenic flowage that offers lots of recreational opportunities.
Photo by Dean Tvedt



Solid pollutants settle to the bottom of this holding pond at a paper mill along the Wisconsin River.
Photo by Staber Reese



The sewage treatment plant at Wisconsin Rapids helps preserve water quality in the Wisconsin River.
DNR photo

The right slot?

JEANNE SOLLEN,
Public Information, Milwaukee

If all goes well in certain southeast Wisconsin lakes, big bass will eat little bluegills and both will thrive.

Four southeastern Wisconsin lakes are part of a fish management experiment that may have great import for other state bass-bluegill lakes.

The experimental lakes are Beulah in Walworth County, Rockland (or Nortons Lake) in Racine County, Browns Lake in Racine County and Pretty Lake in Waukesha County.

All have fishery problems and were chosen for the project because of their similarities. Brown and Pretty lakes harbor severely stunted bluegill populations. In Beulah and Rockland lakes, the bluegills are in somewhat better, but still mediocre condition.

Largemouth bass that share the lakes with the small bluegills also cause concern. They serve as natural predators, but too often don't reach a size big enough to be either effective predators or desirable catches.

DNR is trying to restore the lakes' biological balance by enforcing two alternative largemouth bass size limits. Limits are set to improve the quality of both interacting species by making them, if somewhat less abundant, then certainly bigger and more attractive to anglers.

Now two-thirds of the way through the six-year project, George F. Boronow, DNR fish manager at Bong Recreation Area in Kenosha County, says, we're seeing positive signs.

"It's too early to say it's working, but all four lakes are showing improvement in largemouth bass populations. That's the first step in the process."

The second step, also visible in all the lakes, is an increased average size of bluegills taken home by anglers. Between 1980 and 1982, bluegills at each of the four lakes showed slight but unmistakable size gains. For the same years, all the lakes showed an increase, sometimes dramatic, in the number of bluegills taken per acre.

The management project took shape after Boronow and his associates realized — as did many anglers — that some area bass-bluegill lakes were out of biological balance. Too many bluegills were competing for food, resulting in stunted populations. Largemouth bass in the same lakes weren't reaching their optimum size. Few bass were over 12 inches. Yet the lakes were fully capable of producing large, even trophy size bass.

Three situations, two of them undesirable, were common: bluegills were stunted; they were a mediocre six inches long but no bigger; there were plenty over six inches and many up to eight inches, even some 10-inchers.

The optimum is not the norm, however, in many lakes. Boronow and his associates worried that, as time went on, more lakes would fall into the mediocre and even severely stunted categories. They began working on a strategy for coping with the problems. At first bluegills were the only object of their planning. Soon the other principal species, largemouth bass, entered the picture.

"When we started, we thought we were looking only at a severely stunted bluegill population," Boronow explained. After collecting two years of baseline data on lake conditions in 1980 and 1981, it was learned that the predator species was in trouble too.

"The lakes chosen for these tests offer the potential for good largemouth bass fishing," reported Boronow in spring, 1982. "Good reproduction occurs annually, and they all have a few

Bluegills are tagged during a fish management survey.
Photo by Dean Tvedt

A largemouth bass heads for this lure as a bluegill turns away to look for more manageable prey.
Painting by Artist Virgil Beck, Box 66, Stevens Point, WI 54481

trophy size largemouth. However, there are not many of an intermediate size over 12 inches. Apparently, more intermediate ones are caught than is healthy for these lakes."

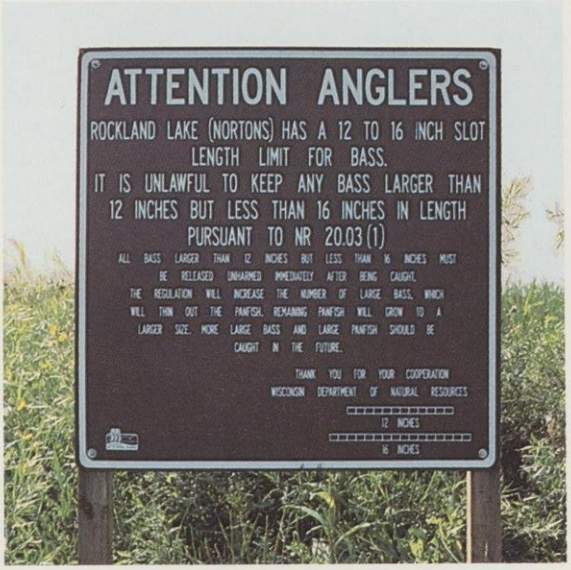
Since the intermediates are normally active feeders, their absence let bluegills run wild and overpopulate the lakes. Food competition among the bluegills resulted in a large number of small, skinny fish. The bluegills also competed for food with small bass, further limiting the bass stock and resulting in fewer largemouth able to grow to a desirable size.

A scientific approach guided efforts as managers moved toward a plan, Boronow said.

"We decided to collect a large amount of baseline data that really describes the existing situation before we attempted treatment. Then, with any management technique we utilize — in this case size limits — we'll be able to see any changes that take place."

Their research also included surveys of fish populations and creel census.

The project is receiving cooperation from the UW-Stevens Point College of Natural Resources.



Slot size limits will improve the bass population in this lake.
DNR photo

A few scales are removed from a crappie. They will be examined to estimate the fish's age and growth rate.
DNR Photo

One of its graduate students, Keith Michaelis, helped with field surveys, collected data on the lake before the management project began, and conducted data analysis.

A second graduate student, Linda Prendergast, has similarly assisted the project and will write her thesis on the size limit's first two years. A third student will help complete the work.

DNR held public hearings before initiating size limits. Most comments were favorable, Boronow said. Strenuous efforts went into explaining the program to anglers. Boronow personally contacted every organization that he felt had an interest. Lake associations publicized the project in their newsletters. The press covered the project and large informational signs were posted at access sites.

Anglers have cooperated well, Boronow says.

"I am downright excited at how people have accepted the idea. . . If they didn't cooperate, the whole project would go down the tubes."

Largemouth bass size limits reflected the fact that few large ones were surviving, yet all the lakes had the potential for producing and sustaining big ones.

The size limits decided upon for largemouth bass are:

Beulah Lake and Rockland Lake: a 12 to 16 inch slot length limit (all largemouth bass larger than 12 inches and smaller than 16 inches must be released immediately after being caught).

This limit allows small bass to continue to be thinned out by fishing, but protects the larger bass during the time of life when they are doubling their weight and feeding heavily on panfish.

Browns Lake and Pretty Lake: a 16 inch minimum length limit (bass less than 16 inches must be released unharmed after being caught).

This limit protects bass at the time of most rapid growth, as does the preceding limit, but it also protects small bass where they compete for food with stunted bluegill populations.

The experimental lakes were deliberately selected to represent a variety of conditions, said Boronow.

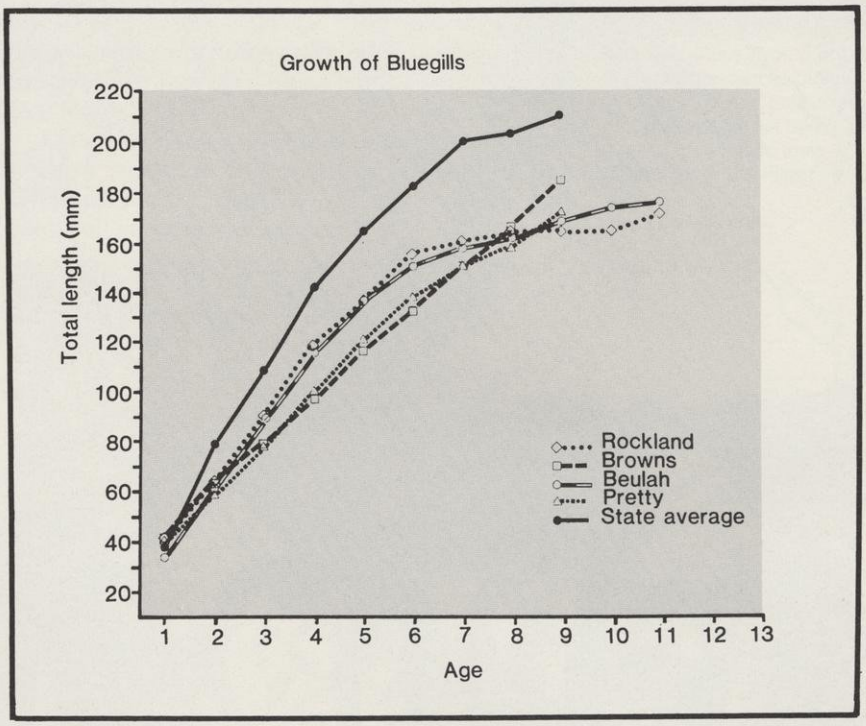
"The lakes have many species but are inhabited mainly by bass and bluegills," he says. "They will give us a feel for how applicable this program will be in the future. We don't have too many lakes that fall into the severe category, but we think we have a lot of lakes that fall into the mediocre category or are moving into it.

"If we get some desirable results, the program could be applied throughout the area. A lot of lakes in the region are basically bass-bluegill lakes, bass being the predator, bluegill the prey."

So far, results look encouraging but the evaluation is only at midterm.

"We're getting some positive responses but don't know if we can sustain the trend. We will continue (the limits) another two years and make no final decision until we look at four years of data."

Final survey evaluation will take place in fall, 1985, and the final report and decision on continuing size limits will come in spring, 1986.



Average size of bluegills taken (in inches)

Lake	1980	1982
Beulah	6.10	6.54
Rockland	5.98	6.45
Browns	5.20	5.53
Pretty	5.59	5.80

Number of bluegills taken per acre

Beulah	30.0	68.0
Rockland	84.3	116.5
Browns	15.0	32.3
Pretty	18.3	105.5

Fishing and hunting rights of Wisconsin Indians: A history

TERRY RUTLIN, Editorial Intern

Snarled up rights from old land treaties are being straightened out by the court.

One hundred and fifty years ago, when Wisconsin's lakes were not managed, the Chippewa nation signed two treaties ceding the northern third of Wisconsin to the United States Government.

The treaties granted the Chippewa, in part, the right to harvest fish on ceded lands as they had traditionally done in the past. But today with increased fishing pressure, DNR officials are concerned about the methods, mainly spearing and gill netting, the Chippewa use to get fish. Both methods are very efficient and could lead to overharvesting.

DNR concerns also stretch into the social arena. Many non-Indian fishermen feel the Indians are taking more than a fair share and this is causing tension in northern Wisconsin.

The federal court recently took up this matter and based its decisions on treaties negotiated by our ancestors many, many years ago.

The movement of settlers west in the early 19th century initiated a new way of life for the Indians. The Lac Courte Oreilles, a tribe of the Chippewa nation, lived in northern Wisconsin, northeastern Minnesota and in Michigan's upper peninsula during the early 1800s. They relied mainly on hunting, fishing and gathering for their subsistence.

Settlers, as they moved west, needed land and resources for settlements and in 1837, with a $10,000 treaty appropriation, Wisconsin Territorial Governor Henry Dodge sat down with Indian chiefs to negotiate a peaceful treaty.

With this first of three major treaties, the federal government sought rich tracts of pine timber located in the northern third of the state. The area, Dodge thought, was unarable and void of game, but the Chippewas thought otherwise. An Indian spokesman, Aish-ke-gi-ko-shi, told Dodge the Chippewa nation would agree to cede the land only if the Indians could retain hunting, fishing and gathering rights on the ceded land. Dodge relayed this stipulation to the President of the United States. In part the treaty reads:

"The privilege of hunting, fishing and gathering wild rice, upon the lands, the rivers, and the lakes included in the territory ceded, is guaranteed to the Indians during the pleasure of the president."

In exchange for the lumbering rights the United States paid annuities to the Indians, gave money to those of mixed blood and paid some Indian debts. The government distributed the payments at La Point, Wisconsin.

A few years later the United States again took interest in Indian land. Rich copper deposits were found along the south shore of Lake Superior and in 1841, the federal government appropriated $5,000 for treaty negotiations.

The second treaty, signed in 1842, ceded copper rich areas just north of the land ceded in 1837 along with lands located in Michigan's upper peninsula. This treaty retained for the Indians the same rights to hunt, fish and gather as the 1837 treaty.

Also, at this time, the commissioner of Indian Affairs suggested relocating the Indians to lands west of the Mississippi. The commissioner reasoned this would decrease Indian reliance on hunting and fishing and force them to take up more civilized pursuits like farming. Some tribes moved. The Lac Courte Oreilles did not.

Anti-Indian sentiment rose among whites in the neighborhood as tensions mounted. Two accounts of conflicts between Indians and whites surfaced, and after investigation, white men were determined the instigators in both cases.

A report issued in 1847 by the Commissioner of Indian Affairs apologetically said:

"I fear, that in our accounts of outrages and crime, we have done the Chippewas, if no other tribe, injustice in many cases; for I find on comparing them with almost any civilized community of the same size for four years, there will be found the smaller aggregate of crime on part of the savage; and every crime of magnitude which has been committed may be traced to the influence of the white man."

Even with these findings President Millard Fillmore issued a removal order on February 6, 1859 revoking hunting, fishing and gathering rights retained by the tribes in the 1837 and 1842 treaties.

DNR & Chippewa Agree on 1984 Fishing

DNR and Wisconsin's Chippewa Indians have agreed on open water fishing regulations for 1984 as part of the tribe's court-ordered treaty rights. The agreement came in June after a federal judge, in effect, struck down unilateral rules established by the tribe and told the two parties to keep negotiating. It allows subsistence fishing with hook and line by tribal members and calls for increased bag limits on certain species as well as some extended seasons. The Chippewa will also be permitted a tightly-regulated spearing season.

Prohibited under the pact are the sale of fish, gillnetting, fishing in inland trout waters during the spawning season, spearing in Lake Superior tributaries and fishing in state fish refuges.

DNR says the agreement will allow a meaningful exercise of treaty fishing rights for the six Chippewa tribes without having a significant impact on the fisheries of northern Wisconsin.

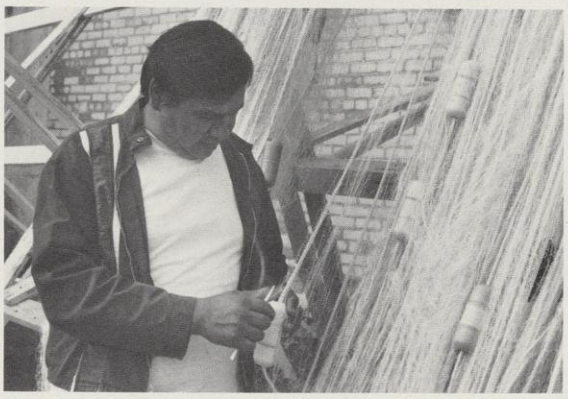
A joint tribal-DNR research group formed during negotiations will study the impact of traditional Chippewa fishing methods on inland lake fish populations. The group will look at the effect of gillnetting, and at what spearing spawning walleyes does to the total population. A system to monitor both state and tribal muskie harvests will be developed.

The agreement applies to Wisconsin Indian lands ceded to the federal government in treaty negotiations. It covers all or part of 30 northern Wisconsin counties.

The order required Indians to leave treaty land.

The United States, in a move to force relocation, changed the place for annuity payment pick-up from La Pointe, Wisconsin, which is on treaty land, to Sandy Lake in the Minnesota Territory.

William Wolfe (left), the son of Lac Courte Oreilles Chief Peter Wolfe (right) went to Washington D.C. for treaty negotiations which were still being conducted in the 1930s.



A Chippewa Indian repairing a gill net.

About 900 Chippewas stayed in Wisconsin and many who attempted the trek to Sandy Lake died.

Prompted by the hardships of the journey, Chippewa Chief Buffalo wrote President Fillmore a letter requesting annuity payments be returned to La Pointe, Wisconsin. Fillmore received two more letters; one from an Indian agent stating the Indians "would rather submit to extermination than comply with the removal order," and another from the Wisconsin Legislature saying the "Chippewa Indians are a peaceable, quiet and inoffensive people." The Legislature also asked the President to void the removal order and set up Indian reservations in Wisconsin.

On September 30, 1854, the third major treaty, the La Pointe Treaty, was signed. It established nearly 750,000 acres of reservation land in Wisconsin and returned the annuity payments to La Pointe.

The state, over the next 100 years, claimed the Indians relinquished their hunting, fishing and gathering rights on ceded lands outside the reservation when they signed the La Pointe treaty. In 1974, two Lac Courte Oreilles Indians tested the claim. The pair were arrested for spearing fish through the ice on the Chippewa Flowage, located outside the reservation. The Indians took the case to court filing suit against Sawyer County law enforcement officials, and the State of Wisconsin and the secretary of DNR. In 1978, Judge James A. Doyle ruled against the Indians, stating the Indians did give up their rights to hunt, fish and gather food outside the reservation when they signed the 1854 treaty. He also cited the Chippewa refusal to obey the 1850 removal order as a factor in his decision.

The Lac Courte Oreilles band appealed Doyle's decision and in January 1983, the Seventh Circuit Court of Appeals in Chicago, with a two to one vote, overturned Doyle's decision.

The court stated that the Chippewa Indians in northern Wisconsin retained their rights to hunt, fish and gather on the lands that they ceded to the federal government in 1837 and 1842. The State of Wisconsin then appealed the case to the US Supreme Court. In October, 1983 the US Supreme Court declined to overturn the Seventh Circuit Court's decision. The case, however, was sent back to the federal district court in Wisconsin for that court to determine the exact extent of the treaty rights to hunt, fish and gather and also to determine what state hunting or fishing regulations tribal members must obey. The Court will be making these decisions during the next one to two years.

Recognizing that, in the interim, there are tribal treaty rights, the six Wisconsin Chippewa tribes and the State of Wisconsin negotiated agreements for last fall's deer hunting season and last winter's ice fishing and trapping seasons. Open water fishing rules for 1984 have just been agreed upon. New agreements will continue to be negotiated each year pending final court rulings.

Coulee smallmouth: plowed under and suffocated

GREG MATTHEWS,
DNR Public Information,
Madison

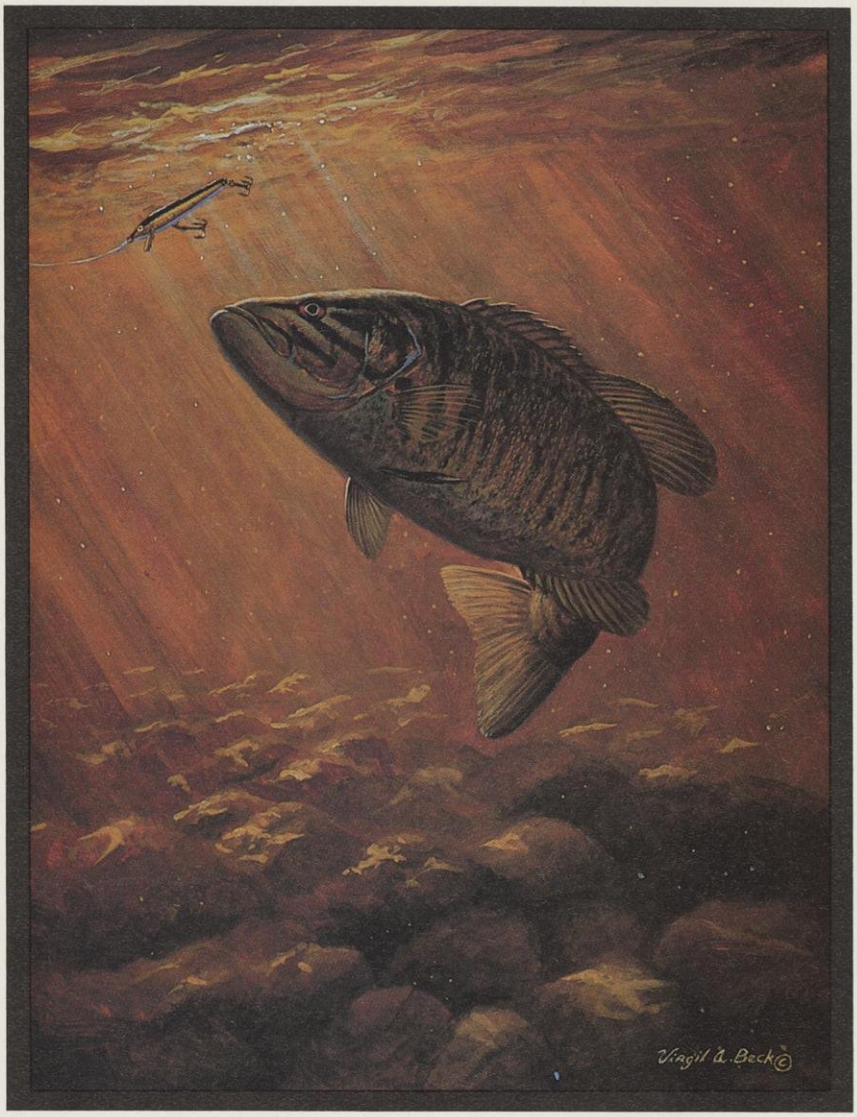
Researchers suspect that the once great smallmouth bass streams of southwestern Wisconsin have succumbed to erosion, farm chemicals and manure.

The coulee region of southwest Wisconsin was not covered by glacial ice sheets 10,000 years ago. Its rugged, hilly topography features deep gulches and ravines that harbor numerous streams and rivers.

Known as the driftless area, in the 1950s the coulee region was regarded as one of the finest smallmouth bass producing spots in North America.

But no longer! Smallmouth are either absent or nearly so in streams where they were abundant 15 years ago.

"It used to be that anglers came from all over the Midwest to fish smallmouth in streams such as the Grant, the Platte and Rattlesnake Creek. It isn't that way anymore," says Roger Kerr, DNR fish manager stationed at Boscobel for the past 12 years.



This could be the last smallmouth bass in some coulee country stream. Chemicals, barnyard runoff and erosion are destroying habitat.

Painting by Artist Virgil Beck, Box 66, Stevens Point, WI 54481

Opportunities to land smallmouth bass are declining in southwest Wisconsin's coulee region.

Photo by Roger Kerr

"Except for the Galena (Fever) River system in western Lafayette County," says Kerr, "smallmouth have become so scarce in this portion of Wisconsin they no longer support a fishery."

There are 821 miles of existing and potential smallmouth bass streams in southwest Wisconsin. Physical characteristics of a typical watershed include fairly steep topography with 40 to 80% adjacent to row crops and only zero to 20% wooded. The stream banks are generally heavily pastured and actively eroding.

Kerr points out that "this is the most highly concentrated area of smallmouth bass streams in Wisconsin. As recently as the mid-1960s most, if not all of them supported excellent bass populations. The fish seemed to decline in most streams during the 1960s and they've never recovered."

Biologists from four upper Midwest states are studying the problems. So far evidence points toward a combination of soil erosion and associated pesticide and barnyard runoff as potentially devastating threats to aquatic life in coulee region smallmouth bass streams.

Questions are being raised concerning the organophosphate and carbamate groups of pesticides used to combat such crop-damaging insects as corn rootworm, corn borer and cutworm.

Areas potentially impacted by the pesticide/soil erosion problem are centered in the coulee regions of northwest Illinois, northeast Iowa, southeast Minnesota and southwest Wisconsin. Biologists from these four states, informally known as the Quad State Group, along with representatives of the US Fish & Wildlife Service, have met twice in the last two years to discuss and compare data on their common nonpoint pesticide/soil erosion problems.

Wisconsin DNR researchers are studying the large number of "unexplained" fish kills that began in the late 1960s and continue today.

Says Kerr, "The decline in smallmouth bass numbers seems to be associated with agricultural practices. Fish kills have become extremely common in southwest Wisconsin. Generally, they occur after a heavy rain in late spring or summer or (after) a liquid manure facility has been emptied."

Modern farming practices require application of herbicides and pesticides on fields near streams and "very little is known about how these substances, alone or mixed with silt and manure, affect smallmouth bass," according to Kerr.

Gene Van Dyck, DNR's Dodgeville Area fish manager, points out that "some (fish kills) were traced to point source pollutants, such as discharges from liquid manure storage facilities, cheese factories, canneries and municipal wastewater facilities. But a large number still remain unexplained."

Van Dyck, who has worked as a coulee region fish manager for over 15 years, says "smallmouth bass fishing used to be an important recreational resource out here, equal to trout fishing on a sustained basis. That's not the case anymore. These smallmouth streams are no longer a viable recreational outlet."

Based on their own data pooled with information from other coulee region states, Wisconsin biologists have developed the following chain of events for fish kills:

Organophosphates and carbamates are short-lived in the environment, but many are highly toxic to fish. These chemicals adhere to clay particles and lie inert in the soil until activated by moisture.

If intense rainfall occurs shortly after pesticide application, then eroded soil containing the lethal chemicals washes into bass streams where they have the potential for causing significant fish mortality.

Smallmouth bass are particularly sensitive to organophosphates and carbamates when they're on the spawning beds in late spring and early summer. In addition, silt may cover bass spawning areas, settling on eggs and suffocating them.

It's not clear what exactly causes death. It's known that dissolved oxygen in the water drops an hour or so after the highest water flow. Also, the concentration of both ammonia and particulate matter may be extremely high following rainfall.

"Although pesticides are suspected of actually killing fish, they are probably not the sole cause," emphasizes Van Dyck. "The kills are likely the result of all the previously mentioned factors acting together to produce a toxic effect."

Van Dyck thinks that stream gradient — degree of descending slope — is a critical element in the fish kills.

"The upper portion of smallmouth bass streams and their small tributaries, while located immediately adjacent to steep topography, are themselves relatively flat. Eroding soils, chemicals and barnyard runoff settle out in these areas and this is where fish kills occur," says Van Dyck.

"Coulee region trout streams have steeper gradients than the bass streams and they have not experienced the kills associated with nonpoint source runoff", he adds.

Kerr points out that smallmouth bass seem to be "ultra sensitive" to chemical contamination while other species are apparently unaffected. This phenomena was "field demonstrated" in the Sinsinawa River near the village of Hazel Green in southern Grant County.

"In 1976 this stream was one of the few in southwest Wisconsin that still had a good bass population. In 1977 a kill occurred after a hard rain. In a stretch where 105 bass were taken in a survey in 1976, only three bass were captured in 1978," says Kerr, "but other fish were abundant as ever. Obviously, the 1977 kill had decimated the bass population, but it had virtually no effect on other species."

Gordon Priegel, DNR Southern District staff specialist, believes the fish kills are "hooked into

Natural streambank along the Livingston Branch of the Pecatonica River in Iowa County.
Photo by Anne Forbes

the region's topography which features a series of ridges dissected by steep-walled valleys. The terrain is conducive to sediment transport if soil conservation isn't practiced on hillsides."

Interestingly, where the topography is different in central Iowa, Minnesota, Illinois and Wisconsin, although the same pesticides are regularly applied to row crops, similar fish kills have not taken place. The terrain adjacent to these streams is gently rolling or flat.

Yet another element may be involved — barnyard runoff. "Numerous barnyards in the area lack waste collection facilities," according to Van Dyck. "The waste could be running off continuously to lie in the flat upper reaches of streams or sitting in the barnyard until transported by intense rainfall."

Fish kills might then result when the stream's biological oxygen demand jumps, lowering the water's oxygen supply.

"Liquid manure storage facilities, when managed properly, pose no threat," explains Kerr. "All too often, however, they're allowed to fill completely."

"Then the owner pulls the outlet plug and lets the manure run into a ditch or stream because he doesn't have time to haul it to his fields."

Solutions to these problems include good conservation tillage practices which keep valuable topsoil and associated chemicals out of streams; pesticide application methods which minimize the amounts transported to streams during heavy rainfall; and appropriate manure storage facilities.

Smallmouth bass kills seem to result from a combination of lethal chemicals, animal waste and siltation.

DNR has begun a pilot research project to determine the most important environmental factors influencing the distribution and abundance of smallmouth bass in southwest Wisconsin.

Additional objectives involve evaluating stream classification procedures, assessing a stream's ability to support a sport fishery and finding ways to predict the potential success of a watershed management project. It's hoped the results will lead toward methods that will revive the once wonderful smallmouth fishery in Wisconsin's coulee region.

Cattle and bank erosion along Pats Creek Lafayette County.
Photo by Anne Forbes

Yellowstone Lake

Bad agricultural practices keep knocking off the fishery

GREG MATTHEWS
DNR Public Information, Madison

Yellowstone Lake is again a lake. For a while last fall it was a 455-acre mudflat.

Yellowstone, an impoundment of the Yellowstone River, is the focal point of the state park bearing its name. It's also a lightning rod pointing towards poor agricultural practices and their impact on water quality and sport fishing.

A carp/crappie complex had become dominant in the lake, spurred in no small part by some area farmers failing to practice soil conservation in Yellowstone's watersheds.

"People are attracted to this park because of the lake. A declining fishery means declining park revenue and fewer tourist dollars spent in surrounding communities. We needed to rehab the lake's sport fishery," said Gene Van Dyck, Dodgeville Area fish manager.

"Rehabilitation" meant lake drawdown and rough fish eradication through chemical treatment using the rough fish toxicants antimycin and rotenone. Water returned to Yellowstone Lake this spring and an appropriate number of brood stock were introduced in time to spawn — largemouth bass, bluegill, crappies, garfish, bowfin, burbot and bullhead. A large number of northern pike and walleye fry and a significant number of catfish fingerlings were also planted.

Fishing at Yellowstone will be closed until June 15, 1985 to allow the new stock to take hold. But the question on Van Dyck's mind is how long the new fishery will last.

Yellowstone Lake opened in 1954. It was built by DNR's Bureau of Wildlife Management and geared towards waterfowl production.

"The rapid development of a desirable sport fishery quickly changed the major emphasis from wildlife to fisheries," Van Dyck said.

Lands in the Yellowstone watershed and waters flowing into the lake are quite rich. In the late 1960s, dense stands of rooted aquatic vegetation — vital for maintaining water quality — disappeared and a carp/crappie complex took over the lake. Water quality, along with the sport fishery, immediately declined. In 1968, Yellowstone Lake was chemically rehabilitated.

"I believe that the disappearance of this rooted aquatic growth was directly related to large inflows of sediment into the lake during the early summer months," said Van Dyck.

Again, a carp/crappies complex took over and both water quality and sport fishing severely declined.

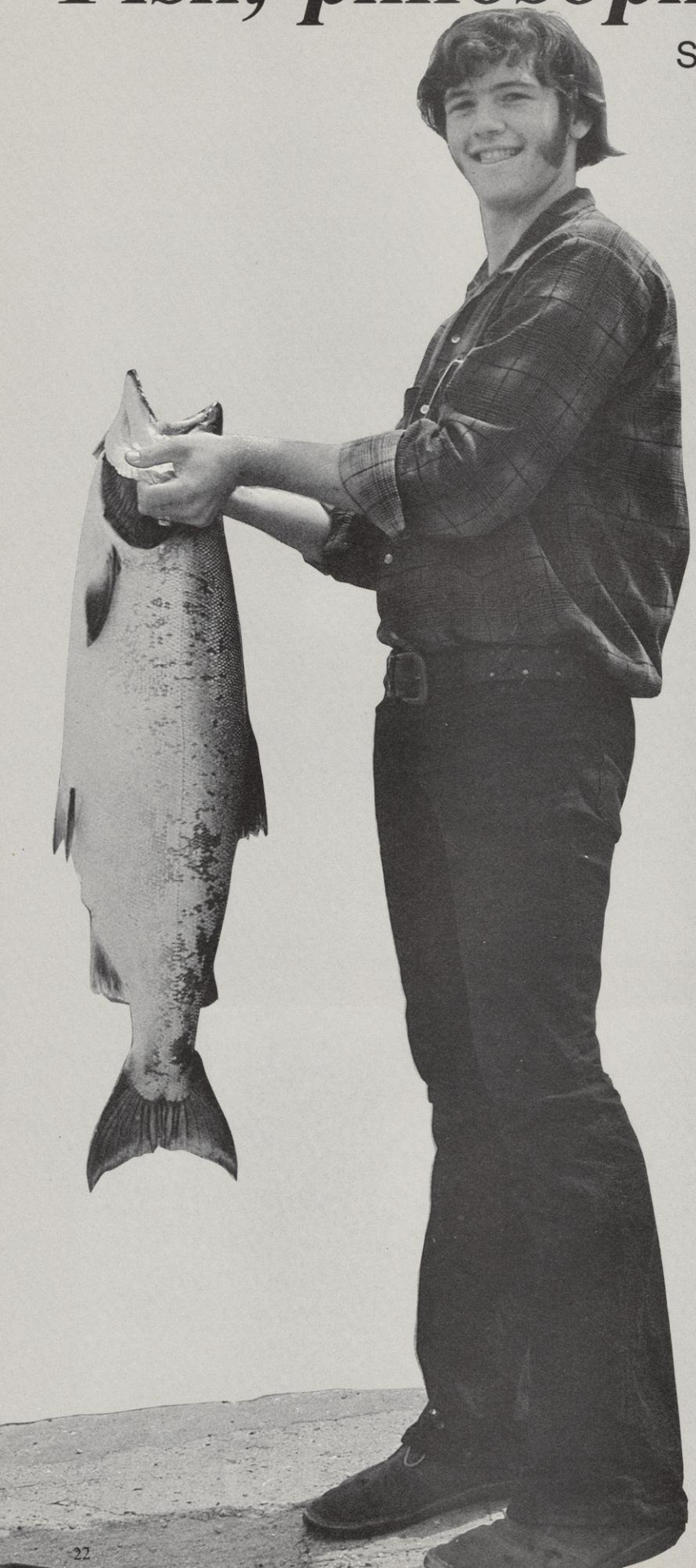
"We may be looking at drawdown and eradication in another 10 years if agricultural practices aren't improved on surrounding watershed croplands and barnyards," Van Dyck concluded. "It's a shame money has to keep being spent on something so correctable."

Opening dam for Yellowstone Lake drawdown.
Photo by Greg Matthews

After drawdown, water remains only in the bed of the Yellowstone River.
Photo by Greg Matthews

Fish, philosophy & people

Sensitive, well-trained managers and concerned citizen anglers working together with respect for the environment can do wonders.



JAMES T. ADDIS, Director
Bureau of Fish Management

The past two days have been spent laying the groundwork for quality fishing in Wisconsin. It wasn't work on some esoteric population model or even a long range plan but actually something much more important and difficult — interviewing trainees to replace retiring fish managers.

After two tough days I'm confident about the future of Wisconsin's fisheries programs. The young men and women were bright, solidly educated and highly ethical. Their feeling for and commitment to the fishery resources and the people who own them was deep, almost reverent. They are well versed in ecology and fishing science, but just as important all demonstrated an eagerness to work with people. People, professional managers, activist citizens and activist anglers are after all the underpinning of effective resource management.

Behind each project described in this special fishing issue of the magazine is a caring, feeling person. Each seeks to protect and improve the ecological community for your use and enjoyment and wants the resource to be managed at its highest potential.

I empathize with the anguish that Jack Zimmerman felt when after spending nearly 20 years rehabilitating the Petenwell Flowage that success is tainted by toxic contaminants. Despite it all, his story still ends with hope and optimism.

George Boronow believed that bass and panfish fishing could be improved in the intensively used southeastern Wisconsin lakes. Despite pessimism and doubt from many people, both professionals and anglers, George forged ahead. While it's too early to guarantee he will be successful, so far it looks good.

Access to lakes and streams is an increasingly difficult problem for anglers. Ron Piening has spent much of his career working to develop good fishing boat access at a reasonable price. He has found himself the target of many angry lake property owners and at times local officials because of his insistence on enforcing state laws and

rules governing access. Ron believes deeply in DNR's responsibility to hold Wisconsin waters in trust for all the people. Through his efforts, coupled with professional and citizen support, gradual progress is being made on fishing access.

Sea lampreys, alewives, smelt and heavy commercial harvest led to a collapse in recreational fishing for walleye and perch in Lake Michigan and Green Bay. But DNR managers Lee Kernen, Terry Lychwick and Brian Belonger had a vision that with intensive management the fisheries could be rehabilitated. They knew that like most new ideas their proposals were controversial and would require many hours of explanation to tough, often antagonistic commercial and sport anglers. Yet because of their belief, these men took on the challenge. Their efforts, coupled with some fortuitous natural events have resulted in greatly improved walleye and perch fishing while at the same time maintaining the commercial perch harvest.

Successes like these happen often, yet it would be wrong of me to imply that all is rosy.

Awesome challenges haunt the future from both within and outside the traditional fishing community. Pollution,toxics and acid rain are still major threats to both the resource and to people. Much of the waste society produces eventually enters our surface and groundwater. These wastes contaminate fish with millions of pounds of poisons each year. They taint fish flesh and change the character of water so that it no longer supports a wide range of aquatic life.

Great progress has been made in abating municipal and industrial waste problems. But not so with soil erosion and other sources of nonpoint pollution such as storm and agricultural feedlot runoff. To date no one has been able to marshall the support of all affected interests to attack these problems. But attack them we must if we are ever to make our waters fishable and swimmable.

Another problem is the continuing conflict between commercial and recreational fisheries that at times seems unending. There is also conflict between recreational anglers as they compete for limited dollars and resources. We frequently hear from lake associations that prefer we stop stocking muskies and replace them with walleyes. Increasingly, inland anglers resent the enormous success of the Great Lakes fishery and the attention it gets in the media.

This growing tendency toward fragmentation is a threat. In the past, successful responses to critical issues were heavily dependent upon unanimity of purpose. We must avoid the pitfalls of provincialism and remain true to our long and intense commitment to ecological values and a clean uncontaminated environment in which healthy fish and aquatic life can thrive.

Another threat to fisheries is ignorance. All too often we seek to evoke responses to crises that are poorly defined and little understood. Both professional managers and the lay public share this trait. Often the need to act overrides the need to understand — to act right. Both ecological and fisheries sciences are in their infancy. Therefore, we are far short of both theoretical scientific understanding and the applicable technology to fully apply what theory we do understand. On a day to day basis managers are still forced to overextend science, manage on a trial and error basis and depend heavily on intuition and hunch.

If substantial progress is to be made, anglers must increasingly support efforts to systematically assess the results of management practices. The public must recognize that, although expensive assessment projects don't provide immediate gratification, they do affect future success. Scientific management pays off!

The last and most insidious threat to the future of angling is apathy. Without an activist angling public who promote, conjole and shape professional views, past success will fade.

Our world, it seems, is becoming more complex. We are bombarded by a mind-boggling myriad of crises and issues so intense that they defy our comprehension and deaden our spirit. But the frustration, anger and dismay we often feel reflects mostly that we care for each other and for the ecological integrity of this planet.

We can face emerging issues (accommodating Chippewa treaty fishing is a good example) yet remain steadfast in our principals — government by law, caring for individual rights, a deep respect for ecological integrity and care for each other.

Barry Commoner, a well known ecologist, in his book "Man and Technology" suggests there are four laws of ecology, laws which apply to you and me, to our institutions and to our lakes:

Everything is connected to everything else.

Everything must go somewhere.

Nature knows best.

There is no such thing as a free lunch.

Anglers, citizen activists and government leaders must begin to demand obedience to these laws by all of us. Then and only then will our future be assured.

DNR Fish Management Publications

publications

- Wisconsin Lakes
- Wisconsin Trout Streams
- Wisconsin Walleye Waters
- Wisconsin Fishing
- Common Parasites of Wisconsin Fish
- Can We Remove PCB's From Fish?
- Rough Fish, underutilized, delicious (some) and inexpensive
- Wisconsin Muskellunge Waters
- A Fine Kettle of Fish — $1.95 (order from Box 7185, Madison, WI 53707)
- Wisconsin Trout Stream Habitat Management

Single sheets

- Little Kids Can Catch Fish
- Musky, Hybrid Musky, Northern Pike Identification
- Great Lakes Salmon and Trout Identification
- How to Prepare Boneless Northern Pike Fillets
- Crayfish — Questions and Answers
- A Comparison — Lake Sturgeon vs. Shovelnose Sturgeon

Lake Michigan Life Histories

- Coho Salmon
- Chinook Salmon
- Lake Trout
- Rainbow Trout
- Brook Trout
- Brown Trout

Life histories

- Brook Trout
- Brown Trout
- Lake Trout
- Bluegill
- Black Crappie
- Largemouth Bass
- Northern Pike
- Yellow Perch
- Smallmouth Bass
- Walleye
- White Crappie
- White Sucker
- Rock Bass
- Lake Sturgeon
- Muskellunge

Single copies (except A Fine Kettle of Fish) may be picked up at DNR offices.

What the good Lord giveth

JOHN BETH,
Reedsburg

I had just finished a beautiful day of fishing on one of the northern Lake Michigan tributary streams. The tired sky was fading and the western horizon burned with gold. The river had given up a heavy male brown trout and I was grateful. I drove just a short distance back to town in time to stop at the breakwater. I enjoy watching the fishermen come in at the end of the day and like to see what was caught and listen to the "one that got away" talk.

I couldn't help but notice a young man all but winded from carrying a huge female salmon toward his car.

"Nice fish you caught there," I complimented.

"Yea she's a real hawg alright. . .biggest one I ever hooked!" he replied.

"What ya catch it on?"

"Ahh. . .Cleo I think it was."

As he opened his trunk to load the fish I saw a bright orange and black bumper sticker saying "What the Good Lord giveth, the DNR taketh away!" I asked whether he had some gripe with DNR.

His answer was well rehearsed. "Them &%#@* guys have never done nothin' right yet!"

"I see from your jacket you live right here in town, must be nice to be able to fish here any time you please."

"Yea," he said, "It's unreal how these fish are doin' in this lake, huh? I catch a LOT of 'em."

"How do you think they got there?" I asked.

"They put 'em there! What'd ya think!" he snapped.

"Who. . .the Good Lord?"

"NO fer Crise sake. . .the guys who plant 'em!"

"Ooooh. . .You mean the DNR."

At first there was silence. Then he looked at me with a certain doubt.

"What are ya gettin' at?"

I let him have it.

"Let's thank the Lord for everything else about this glorious day we've both lived," I said, " but He put chinooks in the Pacific Ocean. . .guess who got them here? What the Good Lord giveth. . .DNR has made available for us too.

"The presence of those fish in these waters is the result of a great deal of research, time and effort by fish management people. It's not the Lord stocking hundreds of thousands of trout and salmon in the lake this year. I'm quite sure of that. It's your terrible enemies the DNR. The next time you dump a salmon in your trunk, think about that billboard on your bumper. You taketh. . .the DNR only 'putteth back!' And let's leave the Lord out of this."

I could hardly hear him when he muttered "I didn't put it there."

"You could take it off, couldn't you?" I asked.

"I guess a guy don't always see things just right, does he? I never thought about it like that," he said. With that, he found a loose corner on the sticker and slowly peeled it off. He then crumpled it and dropped it in the open trunk, right next to the prize salmon.

"Thanks," I smiled.

"Thank you," he said, and then asked "You work for them?"

"Not any more than you do," I said, "Hope you get another one tomorrow!"

"You too," he grinned.

The breakwater was empty now and I prepared to leave too. I wondered if my sermon was the proper thing to do. I had never been in that exact situation before, and was surprised at my answer and what I'd said. But if nothing else, I'd reawakened my own thoughts on the matter and I wonder in earnest how many people have ever taken the time to thank a DNR fish management person even once for the greatest fresh water fishing lake in the world — for the continued priceless opportunity to do battle with the kind of the game fish that only a few short years ago was only a dream — thousands of miles and thousands of dollars off. Sadly, too many take the fish and the whole program for granted and only look for reasons to complain. Anyone can find or fabricate something to blame on DNR. The public wallows in the wonderful fishing and takes credit for "funding" such accomplishments, yet fails to acknowledge their partner in wildlife and resource management, the people who do it — DNR.

Every fish that "tortures your tackle" in this lake is a testimonial to the combined efforts of many. The dignity and credit should be shared by the three participants — DNR fisheries people, the anglers and the magnificent fish.

ANGLER'S ALMANAC '84

Prepared by Bureau of Information and Education

WISCONSIN DEPT. OF NATURAL RESOURCES

Regulation Changes

• Spring ponds and streams in Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington and Waukesha counties now have a daily bag limit on trout of two in the aggregate. This reduction does not include Lake Michigan tributaries upstream to the first dam nor lakes or ponds stocked on a put-and-take basis.
• During the extended seasons on Lake Superior tributary streams only two rainbows may be included in the daily bag limit of five aggregate trout and salmon. See the fishing regulations for details on extended seasons.
• Trout and salmon snagging is no longer permitted on the Fox River in Brown County nor on the Oconto River and its tributaries in Oconto County. Night fishing is permitted on these rivers and streams.
• The muskellunge season opens on May 26 north of US Highway 10.
• The trout season in Vernon County ponds opens January first.
• Motor trolling is prohibited on all Vilas County waters except Smoky Lake.
• Turtle traps must be raised and the contents removed at least once each calendar day in inland waters and in Iowa and Michigan boundary waters. They can be emptied at any hour on the day after they're set. They must be raised at least every 48 hours in Minnesota boundary waters. There is a closed season on taking turtles from May 1 to June 15 except on the Mississippi River and other boundary waters where there is no closed season.
• Fish refuges are established on portions of Spider Creek, Sawyer County and Fisher and Catherine lakes, Iron County.
• A slot-size limit is established on largemouth bass in Kimball, Mueller and Sawyer lakes, Langlade County. Season and bag limits conform to statewide regulations but no largemouth bass between 12 and 16 inches may be kept.

Fishing for lake trout is too good!

By Lee Kernen

Anglers are catching too many lake trout in Lake Michigan. In the past three years the sport catch has leaped from 51,000 fish in 1981 to 111,000 in 1982 to 220,000 lake trout in 1983! This growth is mostly due to increased emphasis on lake trout by charter boats.

DNR efforts to establish natural reproduction cannot succeed in the face of such a harvest. Lake trout must be at least five years old to spawn, and historic populations contained many fish 10 to 15 years of age. The sport harvest focuses on six and seven year old fish, prime spawning stock.

Sport fishermen will soon be asked to be more conservation-minded when fishing Lake Michigan. Lake trout bag limits must be decreased and a closed season will be necessary to reduce the harvest and protect the fishery.

Unless this action is taken soon, the lake trout fishery will decline anyhow due to overharvest.

Fish managers are working hard to provide other species to "take up the slack" as the lake trout harvest is reduced. Skamania rainbow trout, a new strain introduced in Lake Michigan by the state of Indiana, have been stocked at Oconto and Racine. DNR is also working towards increased coho stocking to insure that Lake Michigan anglers will continue to enjoy North America's best trout and salmon fishing.

DNR stocked the Wilson Park lagoon in Milwaukee with rainbow trout for the early season this year. Ponds are traditionally stocked for the special benefit of young and old anglers, but this is the first time trout have been planted. Other lagoons stocked were Humboldt, Kosciuszko, Sheridan, Washington and Brown Deer.

Anglers between the ages of 16 and 65 who fish the lagoons need a current fishing license and an inland trout stamp. Free fishing licenses are available to persons over 65 and to those with certain handicaps. Additional information on the free licenses is available by calling 414-592-9500.

Photo by Robert J. Mikula

INDIAN RESERVATIONS

Indian Reservations in Wisconsin represent a unique mixture of federal, state, and tribal law. Resource users should ascertain the current tribal resource policy at the tribal headquarters before entering a reservation to hunt or fish. Failure to do so may lead the user to violate tribal laws.

Prepared by Sheena Carey
Layout by Eric Weaver

Panfishing do's and don'ts

By Vern Hacker

1. Sinkers or split shots have only one function — to counterbalance your bobber so that the slightest nibble carries it below the surface-and presto, one more fish! Remember, *your bobber should just barely hang at the surface.*

2. Never put the split shot or sinker near the hook. The bait should drift down in the water naturally. Often fish will bite at the split shot, so *keep it up near the bobber and away from your bait.* Let your baited hook be the main attraction.

3. The bigger your hook, the bigger the fish you catch-right? *Wrong!* A long-shanked, light, thin-wire No. 8 or 10 hook gives your bait much better action in the water, is not as damaging to the bait, making it more lively, and fish usually inhale bait, hook and all without realizing the hook is there. This applies to big bass and walleyes too. Don't buy mixed hook assortments. The hooks are invariably too thick. Buy boxes of hooks all of the same size, and remember — *thin wire!*

4. The lighter the line, the more strikes you'll have. You may not land every fish, but just think how you can brag about "the fish that got away!"

5. Don't, unless you're casting and reeling rapidly, use a cable leader attached to your hook. Don't attach your hook to a metal clip. *Always tie your hook directly to the line.* Leaders and clips chase fish away.

6. The largest bluegills and other panfish are the smartest and they bite the lightest. Go back to fact No. 1.

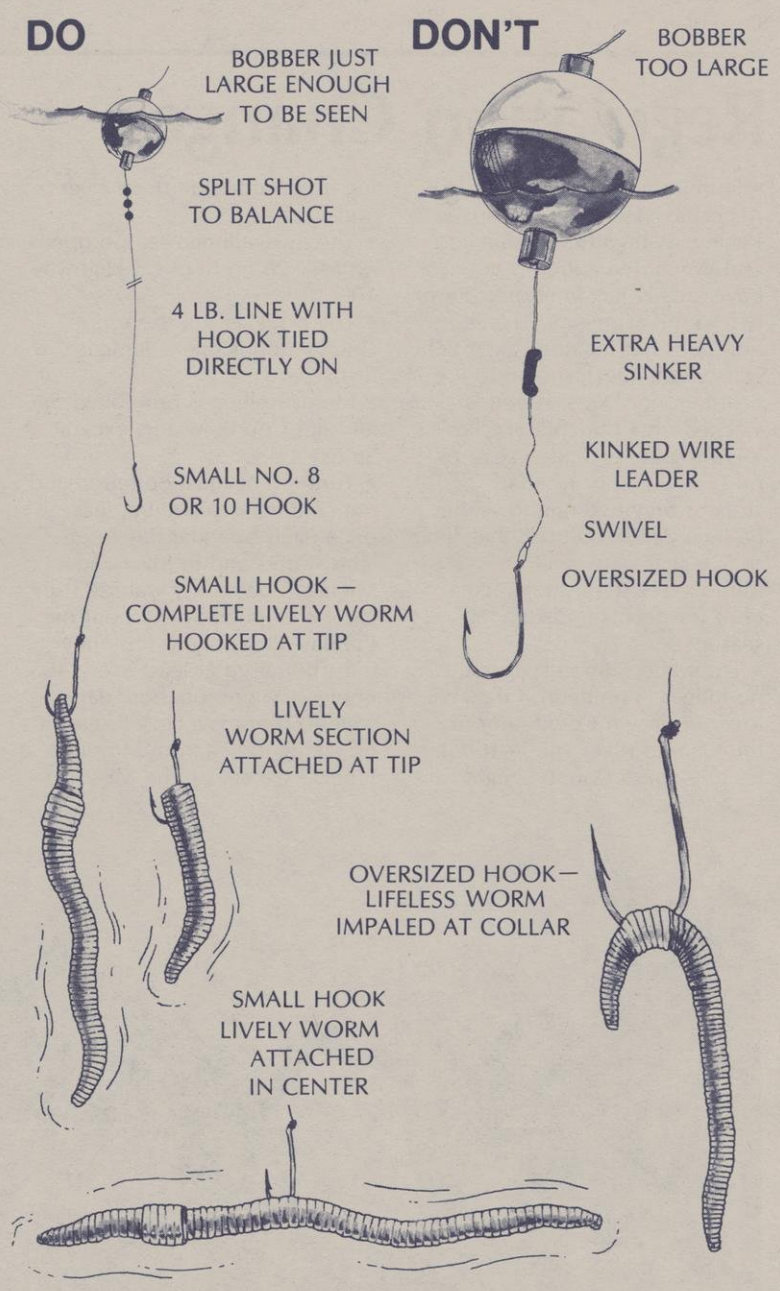
7. A small, thin hook does not need to be buried in the bait. The more lightly bait is hooked the livelier its movements and the more fish it attracts. Fish usually do not recognize a hook as something dangerous.

8. The clearer the water, the lighter the tackle you should use. The line is particularly important. Go to two-pound test in really clear waters.

9. Move around until you find the fish. Using proper tackle, you can usually find panfish within a few minutes. Don't waste time at an unproductive spot. Often the first fish to hit your bait at a fresh spot is a *big* bluegill or perch. It is followed by a succession of increasingly smaller fish. When the fish become too small or "quit biting," then move again.

For big panfish — bluegills, sunfish, perch or crappies — cut the nightcrawler in half. Run your hook into the broken end. Allow the point of the hook to project out of the side of the worm. Or, if you're using angleworms, hook it lightly through the middle. Both ends will wiggle.

For bass or walleyes, hook the worm through the tip-it's tough and will withstand a surprising amount of light casting. Never hook a nightcrawler through the "collar." It just doesn't look natural.



How to clean a Bullhead

By Jerry Perkins, Fish Technician, Barron

Using this method and with a little practice, a person can clean a fine mess of Bullheads in less than a minute each.

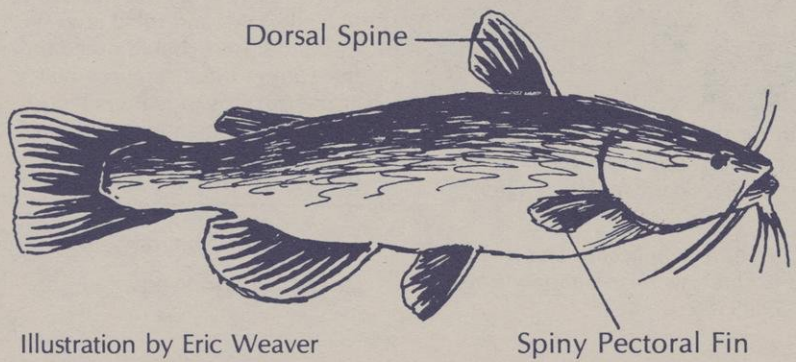


Illustration by Eric Weaver

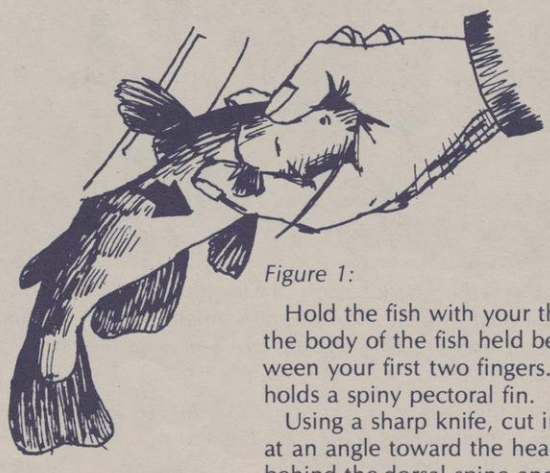


Figure 1:

Hold the fish with your thumb up and the body of the fish held belly down between your first two fingers. Each finger holds a spiny pectoral fin.

Using a sharp knife, cut into the back at an angle toward the head from directly behind the dorsal spine and down the backbone. Do not sever the backbone.

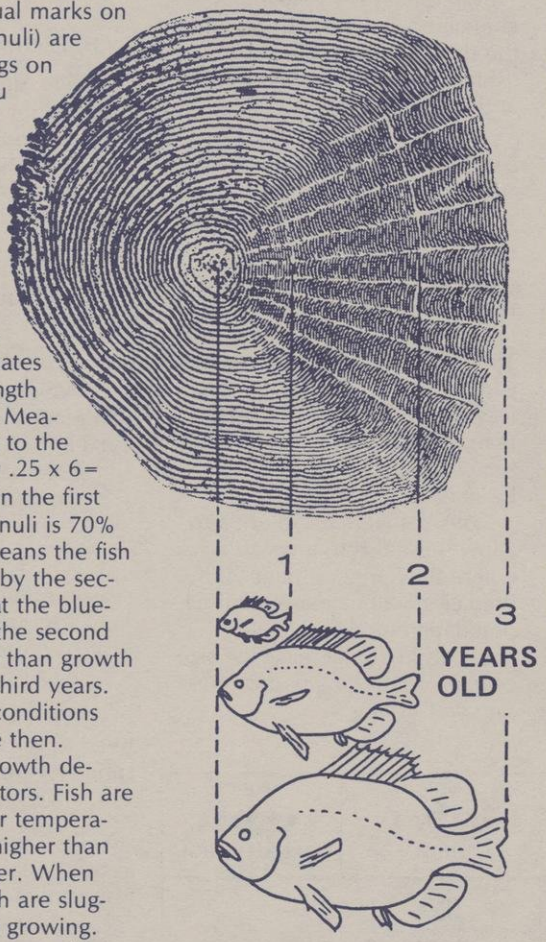
Fish scales are like tree rings

By Howard E. Snow

Did you know that a fish scale grows in proportion to the length of the fish? The annual marks on the scales (called annuli) are similar to growth rings on trees. They'll tell you the fish's age when caught, its growth rate and what size it was in previous years.

Suppose you catch a six-inch bluegill. A scale tells you it's three years old. The first annuli approximates 25% of the fish's length during the first year. Measure from the center to the edge of the scale, or .25 x 6= a 1.5 inch long fish in the first year. The second annuli is 70% of the length with means the fish was 4.2 inches long by the second year. Notice that the bluegill's growth during the second year is much greater than growth during the first and third years. This means growth conditions were more favorable then.

Variation in fish growth depends on several factors. Fish are cold-blooded — their temperature is only slightly higher than the surrounding water. When the water is cold, fish are sluggish and almost stop growing. When water warms up again, they grow faster. This is why annual marks show up on the scales. The process is comparable to tree growth in dry and wet years — when there isn't enough moisture, trees grow slowly. A wet year then causes rapid growth, which creates a wider annual ring.

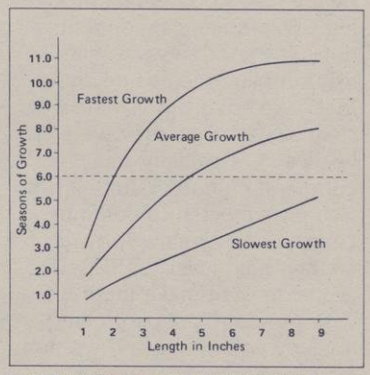


An enlarged illustration of the scale from a 6-inch bluegill. Lines are drawn from the annuli. Annuli are similar to tree growth rings.

Although it can vary, the growing season for Wisconsin fish is about five months per year. The number of fish in the lake and the amount of available food for each fish also determine the growth rate. When fish are overcrowded, growth is usually very slow. In such cases, predation is very important. Predators consume small panfish, help ease overcrowding and encourage faster growth.

Another growth factor is the water fertility. Excessive fertility causes overabundant vegetation which limits predation on small forage fish and causes overcrowding.

On the average, a bluegill in northern Wisconsin reaches a length of six inches by its fifth year of life. However, a six-inch bluegill could be as young as two years or older than nine, depending on growing conditions. Both the fastest and slowest growth rates shown are for northern Wisconsin. Data analysis for southern Wisconsin, however, indicates that this closely approximates maximum growth for the entire state. We don't obtain age and growth information just to satisfy curiosity. It is an important part of determining the status of well-being of a fish population and is necessary for wise management of our waters.



Fastest, slowest and average growth rates of bluegills from 44 northern Wisconsin lakes.

How Old is Your Fish?

SPECIES	AVERAGE LENGTH (INCHES)*									
If Bluegill is	1.7	3.3	4.4	5.5	6.3	6.9	7.6	7.8	8.1	9.3
If Perch is	2.8	4.3	5.7	7.2	7.9	9.0	9.6	10.3	—	—
If Pumpkinseed is	2.2	3.2	4.5	5.3	6.0	6.2	6.8	7.1	—	—
If Rockbass is	2.2	3.6	5.0	5.6	6.8	7.7	8.4	9.7	10.3	—
If Crappie is	2.8	4.8	6.7	8.0	9.1	9.6	10.1	10.7	10.7	—
If Northern Pike is**	9.6	14.2	16.5	18.9	21.7	23.8	26.2	25.2	30.0	—
If Largemouth Bass is**	3.8	7.2	9.6	12.1	13.3	15.3	16.5	17.6	18.2	19.7
If Walleye is**	5.6	10.2	12.8	14.7	17.0	17.9	18.8	20.5	22.1	—
THEN ITS AGE IS ABOUT (YEARS)	1	2	3	4	5	6	7	8	9	10

* Based on average lengths at the end of each growing season in northern Wisconsin.

** Check for legal size limits.

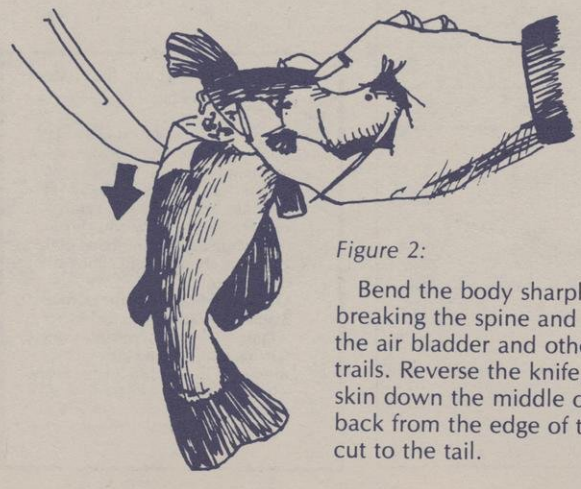


Figure 2:

Bend the body sharply down, breaking the spine and exposing the air bladder and other entrails. Reverse the knife, slit the skin down the middle of the back from the edge of the first cut to the tail.

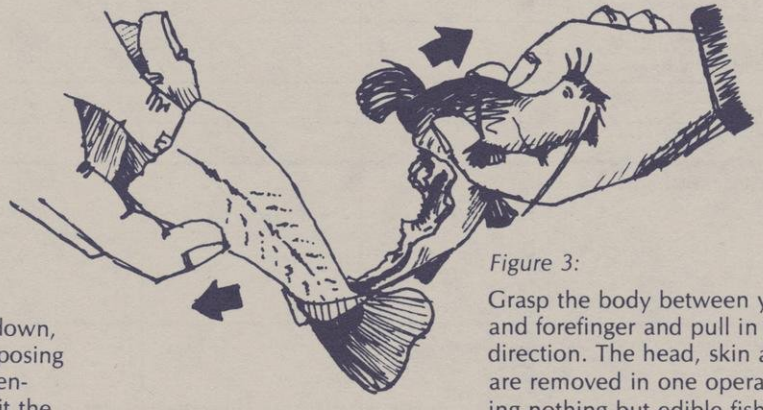


Figure 3:

Grasp the body between your thumb and forefinger and pull in the opposite direction. The head, skin and entrails are removed in one operation, leaving nothing but edible fish.

Then roll the fish in cornmeal and deep fry or pan fry. Enjoy with cole slaw, rye bread and butter.

Lake Michigan stocking plans

The number of trout and salmon stocked in Lake Michigan reached an all-time high of more than 7.3 million in 1983.

Fish managers feel that Lake Michigan is producing fish at full capacity, and future plans will hold stocking at or near current levels.

The highly successful stocking of Lake Michigan is marred only by the lake's continuing problems with chemical contamination. The good news is that DNR fish sampling records do show that Lake Michigan fish are a lot cleaner now than they were ten years ago, especially smaller coho and chinook salmon. This trend is expected to continue. Unfortunately, many fish still contain high levels of PCBs and pesticides that make them unwise for many people to eat particularly youngsters and women who wish to have children.

As a result, the state plans to stock more fish with shorter life spans, such as coho and chinook salmon. These fish live in the lake only a few years — not long enough to absorb lots of chemicals. Stocking of longer lived species will be cut back.

The state Divison of Health has also updated its fish consumption advisory (see below) that warns people about eating fish from certain waters. The advisory is based on several years of DNR fish sampling data and studies of the effects that toxic pollutants have on human health.

With 350,000 people expected to go after Lake Michigan fish this year, state natural resources and health officials are urging the public to take the guidelines seriously. Besides carefully choosing the safest fish to eat, people should also remove all skin and fat (which harbor chemicals) from the fish before cooking it.

By scrupulously following the guidelines, people can still enjoy the thrill of Great Lakes sport fishing, and protect their health at the same time.

Slot Size

A slot-size limit means that anglers may keep fish below the minimum size and above the maximum. For example, on certain waters the slot-size on largemouth bass is 12 inches to 16 inches. This means an angler can keep any largemouth bass less than 12 inches or greater than 16 inches in length. Fish between 12 and 16 inches must be released.

Slot-sizes were established to allow these fish to grow to a size where they prey on panfish. Predation will increase panfish population growth. Slot-size limits also help increase the size of largemouth bass populations for sport fishing.

Concentration of Toxic Pollutants in Fish from certain Wisconsin Waters

	GROUP 1 LOW	GROUP 2 MODERATE	GROUP 3 HIGH	GROUP 4 EXTREMELY HIGH Do NOT Eat These Fish!
LAKE MICHIGAN and TRIBUTARIES **Lake Michigan, Green Bay and Sturgeon Bay** Also applies to trout and salmon migrating into tributaries	Rainbow smelt Yellow perch Bullheads	Walleye (except Little Sturgeon Bay) Brook trout Lake whitefish Northern pike White sucker Rainbow trout (steelhead) Chinook salmon under 25" Coho salmon under 28"	Lake trout under 25" Walleye (Little Sturgeon Bay only) Smallmouth bass (Little Sturgeon Bay only; other sites not sampled) Brown trout Chinook salmon 25" or more Coho salmon 28" or more	Lake trout 25" or more Carp
Lower Fox River downstream from Lake Winnebago to Green Bay	Rock bass White sucker Yellow perch	Northern pike Walleye	White bass Carp	
Upper Fox River from Portage north to but not including Buffalo Lake		Bullhead	Black crappie Northern pike	All other fish species
Sheboygan River from Sheboygan Falls dam to Coast Guard station in Sheboygan, **including Greendale and Weeden's Creeks**				All fish species except trout and salmon (refer to Lake Michigan advisory for trout and salmon)
Onion River from County Hwy. EE to mouth				All fish species
Milwaukee River from Cedar Creek to mouth, **including Milwaukee Harbor and Kinnickinnic and Menomonee Rivers.**	Yellow perch	Redhorse		Bluegill Carp Northern pike
Root River from Horlich Dam in Racine to Lake Michigan	White sucker	Carp Northern pike		
Pike River from Carthage College to Lake Michigan				Carp
LAKE SUPERIOR and TRIBUTARIES	Bullheads Lake chub Yellow perch Rainbow smelt Lake herring Lake whitefish Northern pike All trout and salmon Carp Suckers Walleye			
WISCONSIN RIVER Petenwell Flowage from Nekoosa Dam to Petenwell Dam	Walleye Northern pike Crappie Bullhead Yellow perch			Carp
MISSISSIPPI RIVER from Prescott to and including Lake Pepin	Drum Walleye Bluegill White bass Carp under 22" Catfish under 21"		Carp between 22 and 26" Catfish between 21 and 30"	Carp over 26" Catfish over 30"

Questions most asked by anglers regarding general open fishing season

By Hal Schwenn

1. Why does the musky season open on the 26th of May north of Hwy 10?
   a. To protect muskies during the spawning period.
   b. To eliminate harvest of fish in their most vulnerable state---12% of the annual catch occurs in the first two weeks of the season.
   c. To curtail illegal harvest.

2. Which fishing regulation pamphlet is correct, 1984 or 1983-84?
   a. 1984 pamphlet is correct — see significant regulation changes on page 5.

3. Why is there a closed season on taking turtles from May 1 to June 5?
   a. To protect them during egg-laying period.

4. What kind of stamp do I need to fish Lake Superior tributary streams?
   a. Inland trout stamp.

5. Do I need a special license to fish on lakes in an Indian reservation?
   a. See local warden for latest information on Indian reservation fishing.
   b. It is Wisconsin's current position that if public access or navigable water access is available, no special license is required.
   c. No one has the right to trespass.

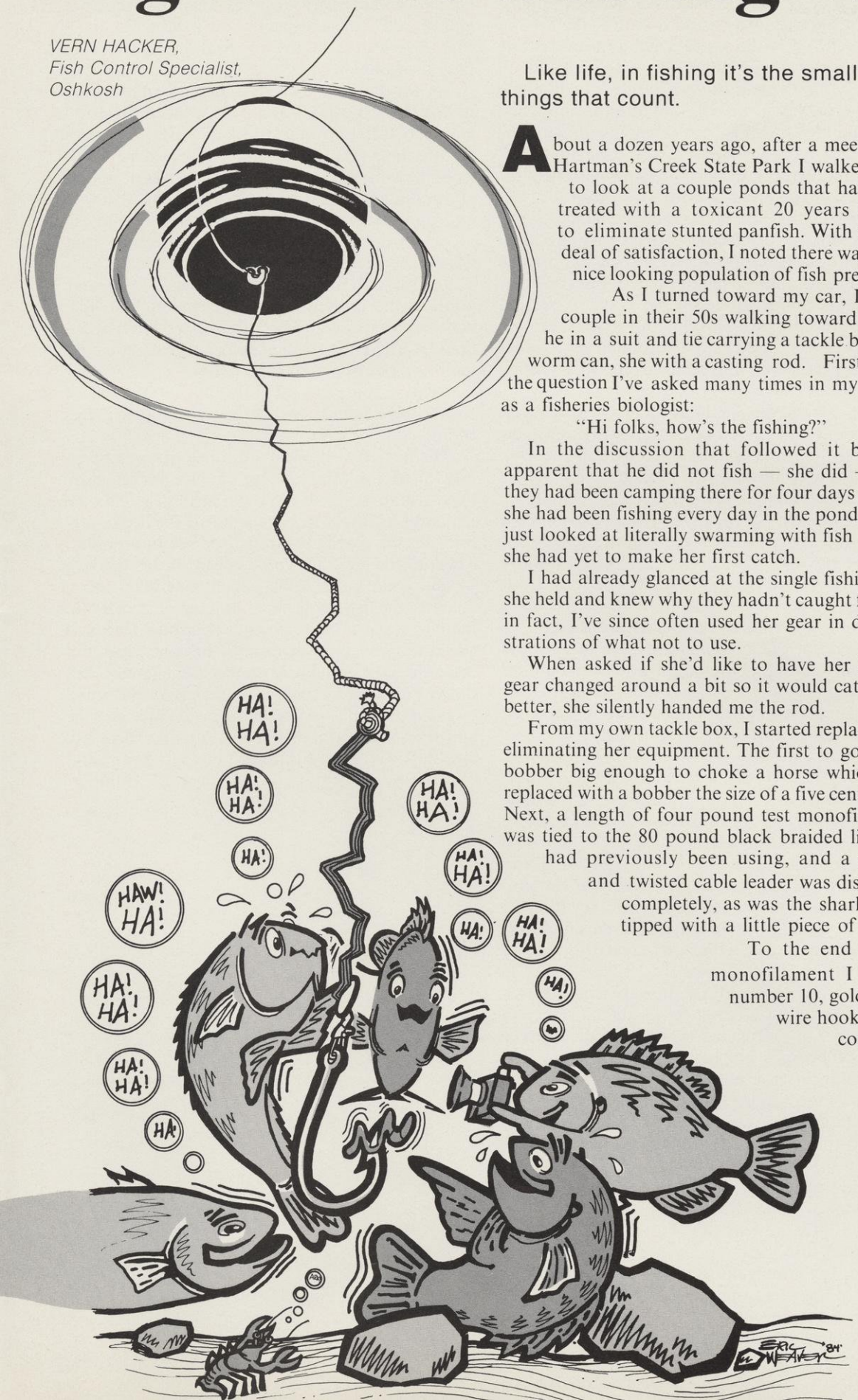
Health precautions for fish eaters

The Wisconsin Division of Health advises that:

- People who wish to eat fish from waters listed in the chart should limit consumption to fish that pose the lowest health risk. **Remove all fat and skin from these fish before cooking** (see cleaning and cooking tips on the back of this hand-out).
- **Everyone should avoid eating fish from Group 4.**
- **Consumption of fish from Groups 2, 3 and 4 should be avoided by infants, children, pregnant women, nursing mothers and girls and women in their reproductive years who wish to bear children.** Those who wish to eat fish from the waters listed in the chart should eat Group 1 fish only.

Light lines and big worms

VERN HACKER,
Fish Control Specialist,
Oshkosh



Like life, in fishing it's the small things that count.

About a dozen years ago, after a meeting at Hartman's Creek State Park I walked over to look at a couple ponds that had been treated with a toxicant 20 years before to eliminate stunted panfish. With a great deal of satisfaction, I noted there was still a nice looking population of fish present.

As I turned toward my car, I met a couple in their 50s walking toward me — he in a suit and tie carrying a tackle box and worm can, she with a casting rod. First came the question I've asked many times in my career as a fisheries biologist:

"Hi folks, how's the fishing?"

In the discussion that followed it became apparent that he did not fish — she did — that they had been camping there for four days — and she had been fishing every day in the ponds I had just looked at literally swarming with fish — and she had yet to make her first catch.

I had already glanced at the single fishing rod she held and knew why they hadn't caught fish, — in fact, I've since often used her gear in demonstrations of what not to use.

When asked if she'd like to have her fishing gear changed around a bit so it would catch fish better, she silently handed me the rod.

From my own tackle box, I started replacing or eliminating her equipment. The first to go was a bobber big enough to choke a horse which was replaced with a bobber the size of a five cent piece. Next, a length of four pound test monofilament was tied to the 80 pound black braided line she had previously been using, and a rusted and twisted cable leader was discarded completely, as was the shark hook tipped with a little piece of worm. To the end of the monofilament I tied a number 10, gold, thin-wire hook, and a couple of

split shots. Small lead beads were clinched on the line to counterbalance the bobber so that it literally struggled to stay at the surface. Then came the piece de resistance, half of a fat, juicy nightcrawler, hooked into — and out of — the broken center portion of the worm leaving the end of the crawler to wiggle deliciously.

After these preparations I handed the lady the rod and told her to cast the bait into the pond. She did, and the bobber kept on going down. She turned to me and said "What's the matter?" When told to reel it in, she pulled up — so help me — a 12½ inch perch! And if you fish a lot, you know not many 12½ inch perch are caught.

The look on her face was one of wonderment with her eyes as big as saucers. I removed the fish and dropped it into a pail, and then put the other end of the nightcrawler on the hook. A second cast produced a nice bluegill, and when I left five minutes later she had caught a total of seven bluegills plus the perch and she was literally floating three inches above the ground.

As I drove away, I thought about how much happiness I had caused just by showing her a few simple fishing tips. I have since written them up several times, but herewith reiterate them. These methods are usable for cane poles, light spinning tackle and even fly rods. They are best used for bluegills, crappies, perch, sunfish and suckers, but don't be surprised if an occasional bass or walleye comes your way. Without a bobber, stream trout can be caught.

The major points to remember are these:

The end of the line where the fish bite should consist of very light two to four pound test monofilament line — the more invisible to fish the better. If you are using heavy line, make sure the last four feet are always light weight line.

Next, buy only small, sharp, thin-wire hooks. Don't buy assortments with hooks of varied sizes. Buy packages of 100 hooks at a time, all the same size — number 10 or 12. I really like gold hooks best. I'll explain why later.

The bobber should always be small and about the size of a five cent piece, preferably of two colors, red and white or red and yellow so that you can see it better, especially if you are using ultralight spinning tackle which you can easily cast 50 to 60 feet.

Below the bobber, clinch on a split shot or two — just enough to counter-balance the bobber so that it literally struggles to stay on the surface when the worm is hooked on. Bear in mind that the split shot serve only as weights to lower the bobber in the water. They should be placed just below the bobber. Using split shot near the bobber and thin-wire hooks allows the bait to drift down in the water tantalizingly. Panfish rush up to it and just have to gulp it down.

So lots of times the hook is completely swallowed. That's the why-for of the 100 hooks at a time, and the gold color previously recommended. It's important to keep your fish alive as long as possible so they taste good when they're cooked. So I never try to remove a swallowed hook, which kills the fish. Instead, cut the line leaving two to three inches sticking out of the fish's mouth and it stays alive. Then, when you clean the fish, put all those with line aside. The gold hooks are easily visible and can be picked out and reused. I also suspect — or have a hunch — that fish are attracted to gold better than to brown or blue hooks.

As for baits — the best in my opinion are nightcrawlers that have been placed in good worm bedding material in a white, six inch styrofoam container. Carefully select each crawler to make sure it's perfect and place about 100 in each container. The best place to keep them — and they'll last three to four months — is in the extra refrigerator downstairs. Remember that heat is the enemy of nightcrawlers.

To fish with them, break one in half. Run your hook in the broken part and then out the side, with barb exposed. (The fish doesn't know it's a hook.) The ends of the crawler move enticingly and that's what attracts the fish.

Next, if you can't catch fish at one spot, move to another. Don't waste time where fish aren't biting.

The tastiest fish of all are those that are properly cared for after they're caught. Never store dead fish in water. Keep them alive in a fish basket and remember to cut the line if they're deeply hooked. Or place all the fish on ice in a cooler. Then all the fish that you catch with this method — and you'll catch a lot — will taste good too.

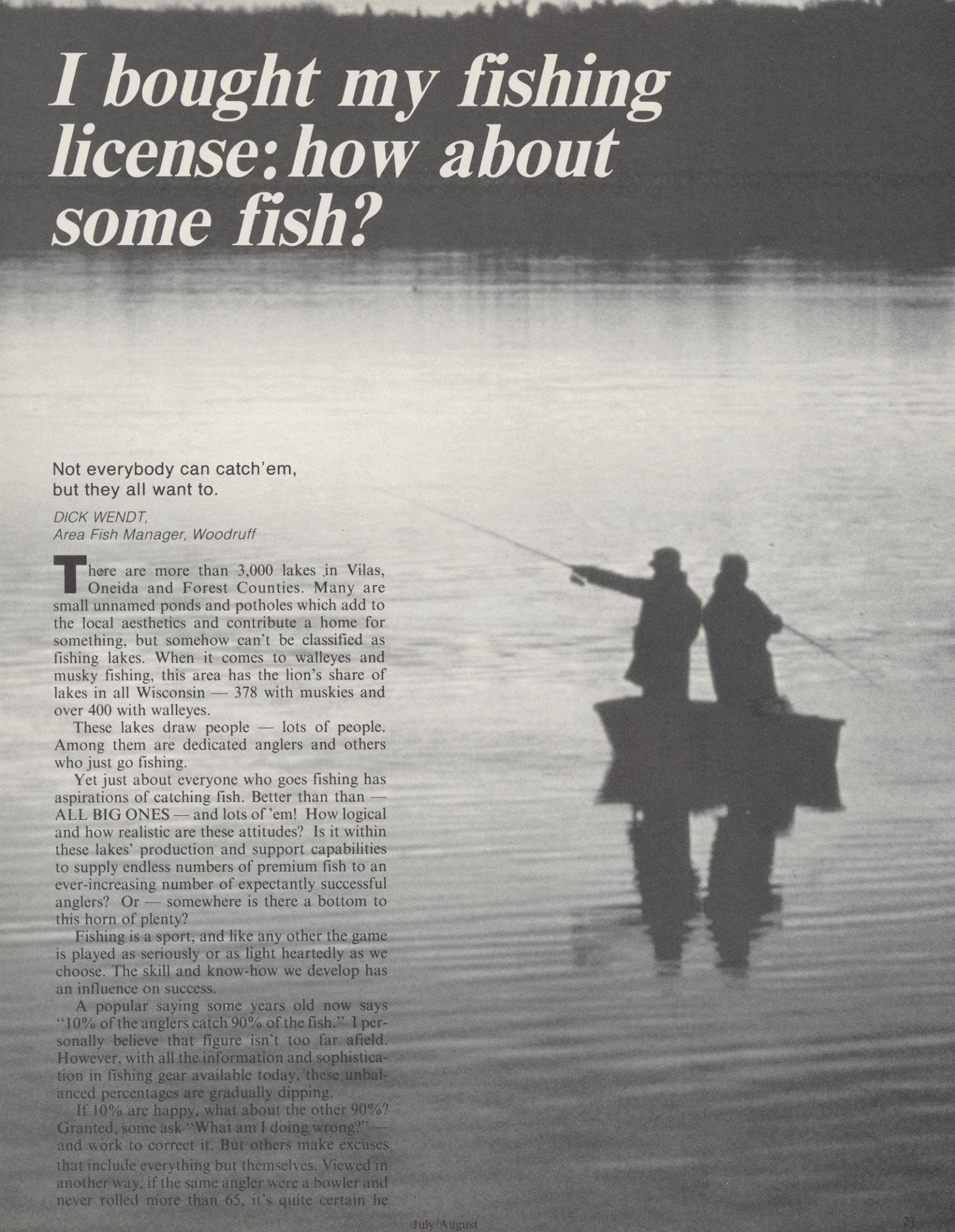
After the fish are cleaned, filleted or scaled, dip them in a scrambled raw egg, then into seasoned bread crumbs, cracker crumbs or corn meal and fry only long enough to make them tender and flaky. Fillets make a super sandwich on rye bread — salad dressing spread on the inside of each slice and then a half dozen fillets. Doggonit, now my mouth is watering. I think I'll have to go fishing!

For more information See the Angler's Almanac, at page 24.

I bought my fishing license: how about some fish?

Not everybody can catch'em, but they all want to.

DICK WENDT,
Area Fish Manager, Woodruff



There are more than 3,000 lakes in Vilas, Oneida and Forest Counties. Many are small unnamed ponds and potholes which add to the local aesthetics and contribute a home for something, but somehow can't be classified as fishing lakes. When it comes to walleyes and musky fishing, this area has the lion's share of lakes in all Wisconsin — 378 with muskies and over 400 with walleyes.

These lakes draw people — lots of people. Among them are dedicated anglers and others who just go fishing.

Yet just about everyone who goes fishing has aspirations of catching fish. Better than than — ALL BIG ONES — and lots of 'em! How logical and how realistic are these attitudes? Is it within these lakes' production and support capabilities to supply endless numbers of premium fish to an ever-increasing number of expectantly successful anglers? Or — somewhere is there a bottom to this horn of plenty?

Fishing is a sport, and like any other the game is played as seriously or as light heartedly as we choose. The skill and know-how we develop has an influence on success.

A popular saying some years old now says "10% of the anglers catch 90% of the fish." I personally believe that figure isn't too far afield. However, with all the information and sophistication in fishing gear available today, these unbalanced percentages are gradually dipping.

If 10% are happy, what about the other 90%? Granted, some ask "What am I doing wrong?" — and work to correct it. But others make excuses that include everything but themselves. Viewed in another way, if the same angler were a bowler and never rolled more than 65, it's quite certain he

wouldn't think of writing Brunswick to complain about the ball.

Fishing is a little like playing a slot machine. In both cases, lots of people participate — persistence and luck produce some rewards. But relatively few hit the jackpot!

In 1980 we began fact-finding studies on a 534 acre lake in Vilas County. Little Arbor Vitae Lake has an excellent walleye population and a better than average number of muskies. The lake also includes bass and an assortment of common panfish species. Our 1980 creel census was part of a research project that involved population estimates and exploitation rates of fish in this lake, with special emphasis on walleyes and muskellunge.

First, we needed to know how many muskies and walleyes were in the lake. In a system of netting and tagging, population estimates were made of the present standing walleye crop of over 12 inches and muskellunge over 30 inches. Our stratified creel census was designed to measure fishing pressure, angler species preference and the angler's harvest. This was done by on-site personal contact by a creel census clerk with the angler. Some real eye-openers emerged.

Our creel census ran from the general fishing season's spring opener to late fall, just before ice-up. During this time span we learned that 33,800 hours of fishing effort was exerted on this 534 acre lake. This amounts to 8,450 trips, averaging four hours per trip.

What were all these anglers after? Data revealed that 2,907 (34.4%) were fishing for "anything" or miscellaneous fish species other than specifically walleyes or muskies; 2,290 (27%) claimed to be out specifically for walleyes; and 3,253 (38%) were out flogging for muskies. . .each with high hopes of getting one.

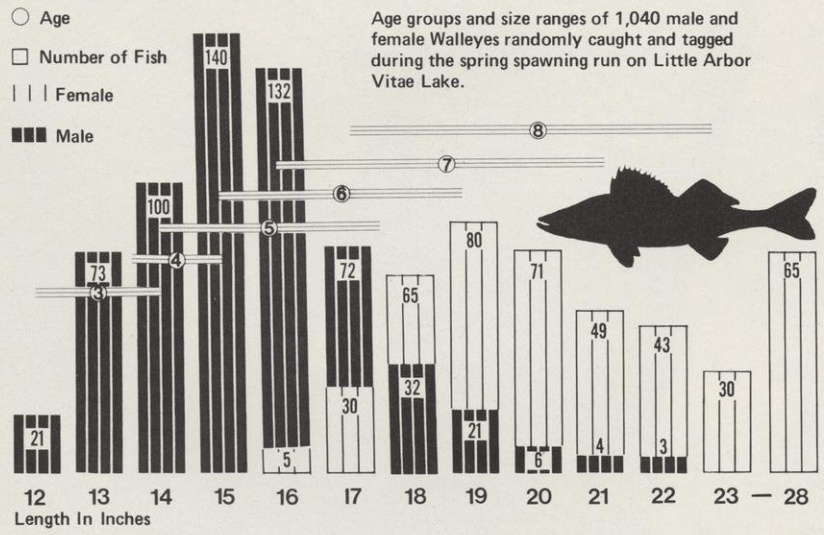
Now let's start putting some meat and hide on this skeleton. In the "miscellaneous" grouping, 26,474 fish were caught — a mixed bag of bass and panfish. For some persons, fishing was great! For others, rotten! And then there were those in between.

Now let's put the walleye fishing in perspective. Population estimates told us this lake had a standing crop of 4,368 walleyes over 12 inches at that time. To develop our population estimate, a thousand walleyes were netted, tagged, measured and sexed, then returned to the lake.

Just imagine, 4,368 walleyes pursued by 2,290 fishermen.

Did they wipe 'em out? Nope! Our creel census told us that 1,285 walleyes were caught and hauled off the lake. About 160 more were caught but tossed back. Evenly distributed, every fisherman should have had about one-half a walleye. But that's not the way it works!

Some folks reached the legal limit and figured fishing was great. Others were skunked. But, sta-



Anglers tell a DNR census clerk how many fish they've caught.
DNR photo

Catch, Little Arbor Vitae Lake 1980 — May through November

Walleye	1,444.
Muskie	527.
Black Crappie	4,208.
Bluegill	5,212.
Rock Bass	494.
Yellow Perch	14,349.
Panfish	906.

tistically speaking, when you got your limit, 10 others had to go without.

How many times did you have your five? Some did it consistently. How about that old phrase? "10% of the anglers - 90% of the fish." It's an axiom that has implications far beyond the shoreline of Little Arbor Vitae Lake, or the boundaries of Wisconsin.

How about muskies? This lake has a good musky population, but even good musky populations are, by nature, low density. Because Little Arbor Vitae has the reputation of being a good musky lake, 38.5% of the anglers were lured there by muskies, totaling 3,253 fishing trips. Often, the same people were out there plugging away day after day with peak use in July and August.

Magazine racks are chock-full of tall tales on how to catch muskies. Seminars are taught on fishing techniques and use of lures that drive muskies wild. Musky clubs have meetings and fishing outings and thrill each other with stories of tragedy and triumph. Spanking new musky lures hit the market, each pledging to do what other lures can't.

But. . .anytime a story is written about musky fishing, some mention is usually made of "the King's" instinctive personality. Traits, like moody, secretive, stubborn, mysterious and disinterested, are a few. It's a good thing a musky is born with these complementary and life preserving attitudes. Should these magnificent creatures lose them. . .their kind could be wiped out in a single season.

At the start of the 1980 season Little Arbor Vitae had a calculated estimate of 264 muskies over 30 inches. Throughout the season 3,253 angler trips were made in their pursuit — every cast was wishful.

A total of 528 muskies were caught — legal and sublegal. One angler in six could say, "I caught a musky." But only one in 17 could proclaim, "I caught a legal musky!" Of the 190 legals caught, some were tossed back to fight another day. A credit to many anglers and fishing clubs, "Catch and Release" is becoming a popular show of sportsmanship.

All told, then, 149 muskies were delivered the

Landing a musky on a Vilas County lake.
DNR Photo

A man and boy enjoy their day on the water.
Photo by C. Mattison

coup de grace and went home with the angler. Everybody wanted one, but only one in 22 got one.

This is the story of just one lake, a good one. It appears that success does not favor the majority.

More fish stocking is not the answer. Little Arbor Vitae is stocked regularly with muskellunge fingerlings. Muskies have a very delicate and precarious beginning. If it were not for the DNR's stocking efforts, the musky fishing we enjoy today would fall into noticeable decline.

We have a pretty good "handle" on walleyes in Little Arbor Vitae Lake. Brood stock is doing an excellent job of recruiting youngsters through natural reproduction. Investigational surveys showed bumper crops of walleye fingerlings growing their way to adulthood.

Experience tells us the crappie population is at the low end of their cyclic peaks and hollows. Through the years, and too regularly to be an unrelated coincidence, an upswing in the crappie population forecasts a slump in the natural recruitment of young walleyes. To maintain and regain these lost year-classes, walleye fingerling stocking becomes necessary.

Is it within a lake's production and support capabilities to supply endless numbers of premium fish, even with stocking, to an ever-increasing number of anglers? Yes, but only if you have some magic way of bypassing the laws of nature and fish population dynamics. However, that's another subject, another story and a fish manager's frustration.

The Northern Highland Fishery Research Area

Ever wonder where DNR's fishing regulations come from? A lot of them "come from" our own research.

STEVE SERNS and ANNE FORBES

Five lakes in DNR's Northern Highland Fishery Research Area — Escanaba, Nebish, Pallette, Spruce and Mystery are the laboratory for many of Wisconsin's fishing regulations. The lakes, located about 10 miles south of Boulder Junction in Vilas County, are all within the boundary of the Northern Highland State Forest. Although the project is well-known to fish biologists throughout the US and Canada, many Wisconsin residents don't even know this unique outdoor laboratory exists.

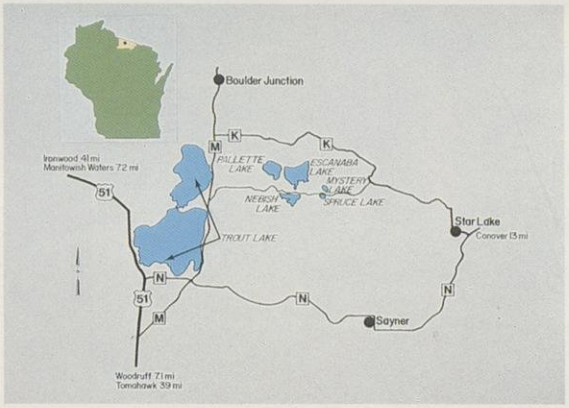
The project was established in 1946 in response to requests by local anglers that a group of lakes be set aside for long-term sport fishing research. Its unique claim to fame is a complete record of fishing harvest that goes back 38 years. At first the main interest was to monitor the effect on fish populations of continual open seasons with no size or bag limits. Over the years, however, the five lakes have been used for studies ranging from basic biological investigations to evaluation of specific fish management tools. The results have provided information that helped manage northern Wisconsin's sport fishery.

Because detailed studies require a complete census of anglers and their catches, everyone who fishes here must obtain a free permit from the checking station on Escanaba Lake A fishing license is required. The number of each species and the age, length and weight of each fish caught is recorded. Biologists may also check the fish's sex, and take a stomach sample to see what it ate.

But the catch is only part of the story. As everyone who's chased a musky knows, what's in the lake and what you catch can be two different things. So biologists use other sampling techniques such as electroshocking where the fish is

A tagged walleye gets its measurements taken.
Photo by Anne Forbes

Fish managers will examine how well these netted fish are faring.
Photo by Anne Forbes



These five lakes are the special fishery research project.
Photo by Anne Forbes

temporarily stunned and examined or fyke netting where it is live trapped to get an accurate picture of fish population and age distribution. Air and water temperature, water level and weather data are also recorded.

Northern Highland research falls into two basic categories: it provides data on basic fish and aquatic biology, and evaluates specific management practices. Examples of the first include studies of fish age, growth, abundance, eating habits and reproduction. The second test affects such things as size limits, fingerling stocking, finclipping, chemical treatment and artificial removal of eggs from spawning females.

These study results provide information on long-term fish community trends and fluctuations which are needed for fish management decisions. Fish populations and fishing quality can be compared over many years. Knowledge of how population changes in one or more species affect another lead to a better understanding of fish community dynamics. Studies also document the long-term influence of environmental changes and fishing regulations on fish reproduction and growth.

For example, the studies found out that the annual walleye catch in Escanaba Lake is primarily affected by the natural food supply, and only secondarily by fishing pressure. When the natural

supply is low, anglers can catch up to half the adult walleyes. However, in a year with an abundant supply of natural food, anglers catch only about 20% even with no size or catch limits and a year-round season.

Do size limits mean more large fish? Northern Highland research says not necessarily. A minimum size limit on northern pike in Escanaba Lake resulted in reduced growth rate and increased natural mortality because of severe overpopulation of fish below the size limit. The size limit did not increase the number of large northerns in either the lake population or the angler's creel. Rather, there was a drastic decline in the catch.

Another study in Nebish Lake showed that finclipping walleye fingerlings, a practice used to identify stocked fish at a later date, did not affect growth and survival. There had been some worry that it might.

Nebish Lake also provided answers on chemical treatment. Before and after studies of fish populations and number of anglers indicated that careful chemical treatment could improve both fishing quality and opportunity.

Studies on natural reproduction were conducted from 1958 to 1980. They showed that May water temperatures had a decided influence on walleyes in Escanaba Lake. In years when there was a high day-to-day temperature variation, natural reproduction was generally poor. Similar data collected for smallmouth bass in Nebish Lake from 1974 to 1981 showed that the number of fingerlings in the fall was directly related to the average June through August water temperatures — the warmer the water, the more fingerlings. This information allows fish managers examining spring temperature data to predict poor spawning success and plan supplemental stocking where necessary.

Since the summer of 1982 there has been a a 10-inch minimum size limit for smallmouth bass at Nebish Lake. The impact of this regulation on growth, mortality, harvest, yield and number of anglers will be measured and compared with data from a period with an eight-inch size limit and years when there was no size limit at all on smallmouth.

DNR and the University of Wisconsin have conducted many other research projects on the Northern Highland Fishery Research Area over the past 37 years. If you're interested in a list of the research publications from those studies, contact the DNR Bureau of Research, Box 7921, Madison, WI 53707.

And get involved in this research — try fishing the "five lakes" this year. But remember to pick up and return your free fishing permit.

ESCANABA LAKE ANGLING STATISTICS*

Period	No. Anglers	No. Walleyes	Wt.	Walleyes/ Angler	No. Panfish	Panfish/ Angler
1946-50	2.333	1.641	0.91	0.7	8.098	3.5
1951-60	5.350	3.506	0.79	0.7	16.031	3.0
1961-70	3.903	2.245	0.79	0.6	11.417	2.9
1971-80	3.582	2.508	0.79	0.7	1.658	0.5

*Averages

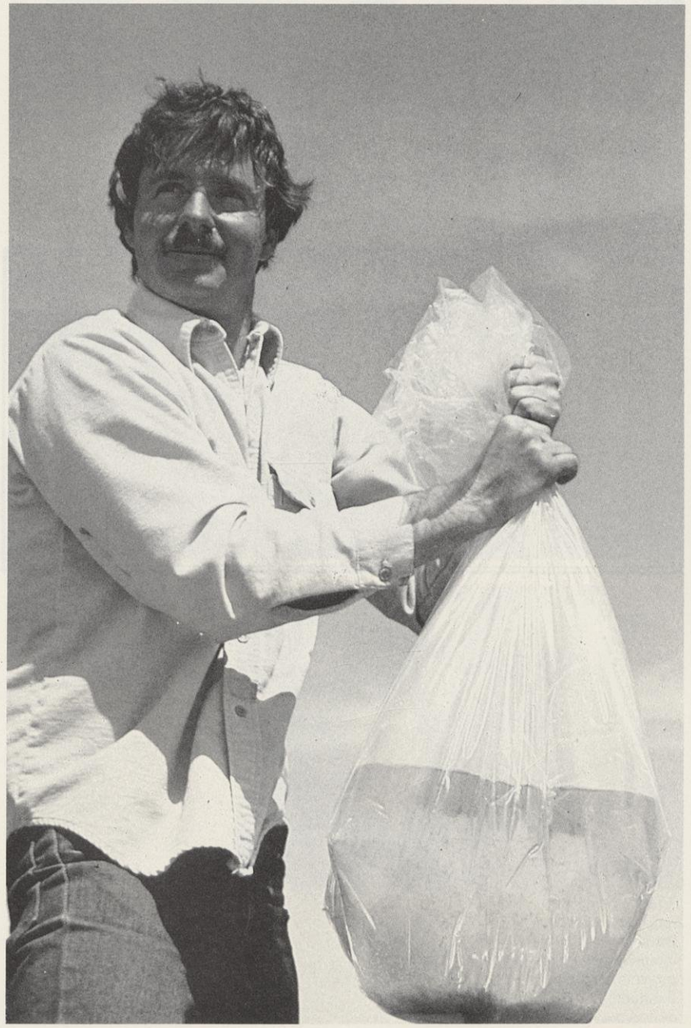
Special permits are required for anglers who want to fish in lakes where intensive fishery research projects are being conducted.
Photo by Steve Serns

Fish managers in action

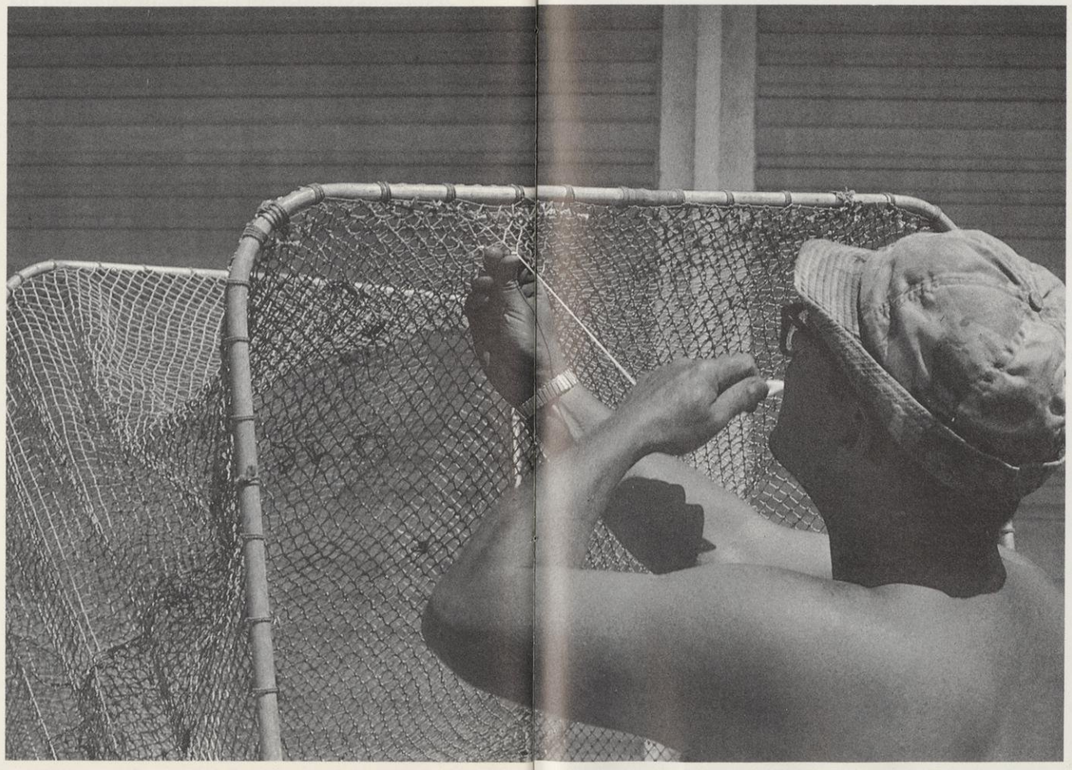
Wisconsin's great fishing doesn't just happen. Behind that big stringer are biologists and technicians trained to give Mother Nature a nudge.

DAVE OTTO
Green Bay Press-Gazette

Walleye fry cooped up in this bag will soon be stocked in bigger water.
Photo by Paul Peeters



Center: A fyke net is repaired at the Nevin Fish Hatchery.
Photo by Jim Escalante



DNR fish managers working in the field tackle a variety of problems. Existing fish may need protection. Stocking may be necessary to fill an ecological void. A dying lake may have to be rejuvenated to once again provide sport fishing.

To accomplish such projects, fish managers must be able to draw on their own technical expertise and at the same time be able to sell their plans to the public and to rule makers.

Three current projects in the Lake Michigan District offer good examples of the never-ending efforts to improve both fish populations and fishing opportunities.

For fish manager Terry Lychwick, at Sturgeon Bay, a major goal is the return of a self-sustaining walleye population to the waters of lower Green Bay.

The big, fertile bay had always held a smattering of walleyes, but nowhere near the numbers fish managers felt it could. So, back in 1973, massive stocking started. The first were released at Sturgeon Bay and by 1977 walleyes were even stocked in the Fox River below the De Pere dam. In 1978 and 1979, Green Bay's west shore was stocked. To date, almost three million fingerlings and 83-million fry have been released in the Fox River and Green Bay.

It's the job of fish managers like Terry Lychwick to determine which stocking methods are most successful for which areas and to monitor the new walleyes for signs of ultimate success — natural spawning and a successful year class.

To keep track Lychwick does fyke net surveys each spring during spawning time to study year class distribution and make population estimates. These nets show, for example, that a whopping 13 to 15 thousand walleyes are spawning along the rocky shores from Sawyer Harbor to downtown Sturgeon Bay, with an equal number of spawning fish probably using the Little Sturgeon Bay area.

In fall, boom shockers monitor populations from Sturgeon Bay to Little Sturgeon,and later on the Fox River below De Pere. According to Lychwick this part of the Fox will hold at least 30,000 walleyes in a year with normal river flow.

Several thousand walleyes are tagged each year, and returns from anglers help Lychwick and his crew determine movement between walleye populations in the stocked areas. So far, indications are that most fish stocked in the Fox River and at Sturgeon Bay stick close to home.

Lychwick also has found that not all stocking is the same. Fingerlings survive best in the colder waters of Sturgeon Bay, for example. But the Fox River, warmer and more fertile is "in sync" with the holding ponds where young walleyes are reared so stocking millions of tiny fry works well in the river. This is a great advantage, since fry are both easy and economical to stock.

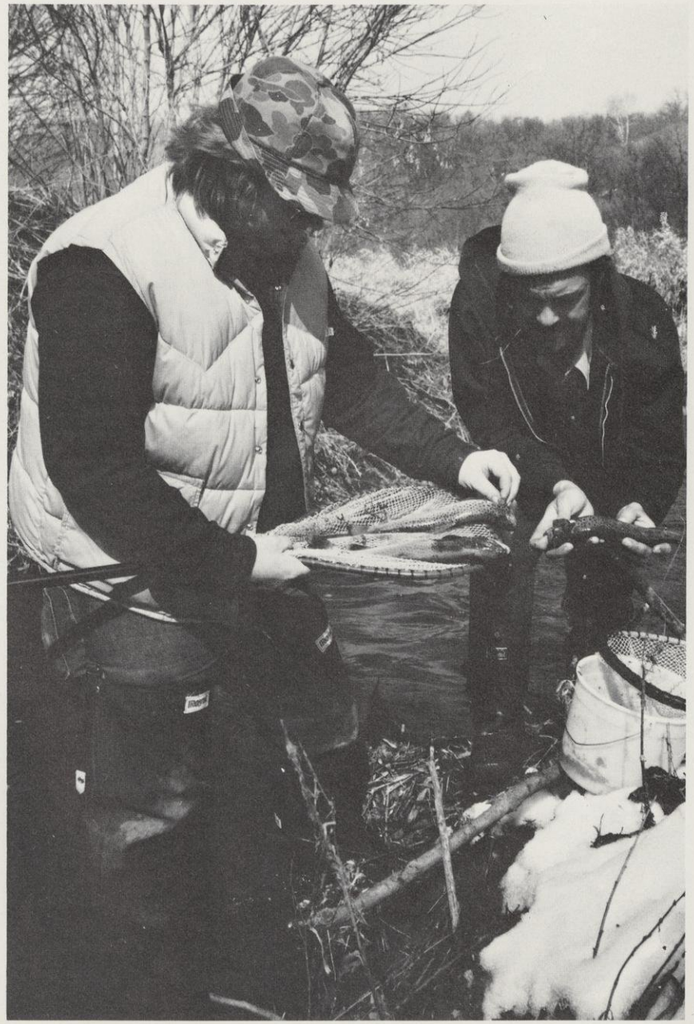
Because put-and-take fishing is not the goal, Lychwick was excited when evidence began building that in 1980 natural walleyes were produced in Green Bay. Stocking has been on an every other year basis in the Sturgeon Bay area to try and monitor natural spawning. Fox River stocking will be halted beginning in 1985 for the same reason.

No young walleyes were released in Sturgeon Bay in 1980, but 1980 year class fish began showing up in shocker surveys in 1982 and good numbers of mature 1980 males were spotted on the spawning grounds in the spring of 1983. There is also some indication of natural reproduction by the 1982 year class — a year that also saw excellent perch hatches on Green Bay.

"They can do it," Lychwick said of the spawning success of the walleyes. "But one year class doesn't sustain a fishery. We have to show these walleyes can pull off a good hatch every three or four years."

Lychwick has spent a lot of time explaining the walleye program to organized groups in the Green Bay area, and he said the program has enjoyed "tremendous support."

Dodgeville Area fish manager Gene Van Dyck (right) and water resources biologist Roger "Bear" Schlesser examine dead trout taken out of Trout Creek, Iowa County, after a fertilizer spill.
Photo by Greg Matthews

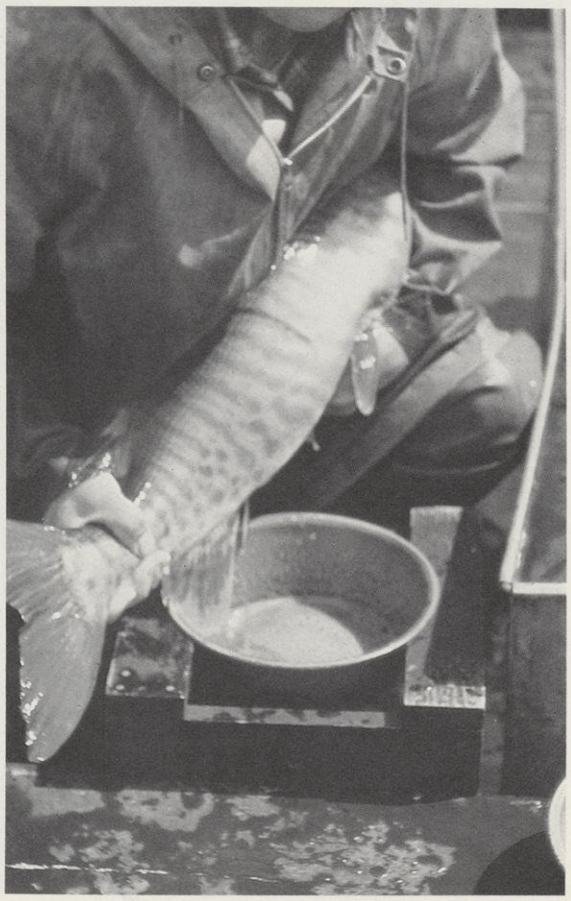


"We're constantly answering questions from anglers about these walleyes," Lychwick said. "We can't go out and make the fish bite, but we do what we can to help. People catching fish — that's what it's all about."

For Brian Belonger, a fish manager stationed at Marinette, the problem was perch. He didn't have to worry about introducing perch to Green Bay — they were already there. But their numbers were declining to a point where both a commercial and sport anglers couldn't share the resource in numbers that would satisfy all concerned. Green Bay's perch needed some protection.

But this was easier said than done. On one hand, sport anglers were demanding a return to the good old days of hook and line perch fishing on the bay. On the other hand, there were commercial fishermen, many of whom depended on perch for a substantial portion of their annual income.

Belonger felt he had the problem identified. The perch fishery was dependent on boom or bust year classes. A good hatch would be almost fished out as soon as it spawned once — and sometimes before that. What was needed was some protection to get several year classes of spawning perch in the bay. Then, when conditions were right, the perch could take full advantage of prime spawning years when they did come around.



Eggs stripped from a female musky will be sent to a hatchery.
DNR photo

But, to sell this protection idea — via such tools as closed refuge areas, commercial harvest quotas and reduced sport fishing bag limits — to anglers and lawmakers, Belonger and his cohorts needed facts. Lots of them.

To get them meant being on almost on a first name basis with many of Green Bay's perch. Belonger and his crew, over a five year period, have looked at 25 to 35-thousand perch a year. They tagged 14,000 one year and took scale samples from 3,000 per year to check for age.

Fyke nets are set each spring to monitor perch spawning at five traditional sites along the bay shore. After the eggs hatch, seine runs are made at 11 or 12 locations to try and pick up the tiny one and two inch young-of-the-year that will give fish managers an idea how successful the hatch was.

In early summer, fish managers become beachcombers running shoreline transects to find dead perch and determine mortality on undersized ones released from trap nets. They meet commercial boats at the dock in summer to check on relative perch abundance, age, growth rates and sex ratios. Creel census clerks along the bay shore provide an idea of how many perch hook and line anglers take.

In fall, Belonger and his crew make trawling runs in five locations. By netting the same spot and depth each year, they glean more information on abundance, size and sex ratios. Finally, as ice begins forming in late November, boom shocking at the mouth of Duck Creek provides perch samples to show how the year class grew that season.

Armed with this array of information, Belonger was able to convince the Natural Resources Board to set a 200,000 pound quota for commercial perch fishermen on Green Bay in 1983. The daily bag limit for sport anglers was also cut from 50 to 25. The result has been that thousands of perch remain in Green Bay to grow and become prime spawners.

Mother Nature cooperated to provide ideal spawning conditions in the spring of 1982. With this large year class now entering the fishery, the commercial quota will probably be increased for 1984 and 1985. The concept of a commercial quota to maintain proper year class balance of perch in Green Bay is now a reality, but Belonger and his crew will have to keep coming up with solid facts and figures each year to sustain it.

It hasn't been easy to bring this drastic change to an area like Green Bay where the Friday night perch fry is a hallowed tradition. But, armed with research findings, Belonger has convinced at least some of the commercial fishermen that protection now will mean more perch for everyone in years to come; and has also convinced the sport anglers.

Paul Peeters, area fish manager working out of Two Rivers, knows that inland fishing resources in east central Wisconsin are limited. "Every lake we have is important," Peeters emphasizes.

That's why he and area anglers felt Carstens Lake, seven miles southwest of Manitowoc — all 21 acres and 28 feet of it — was worth the effort to bring new life to it's dying fishery.

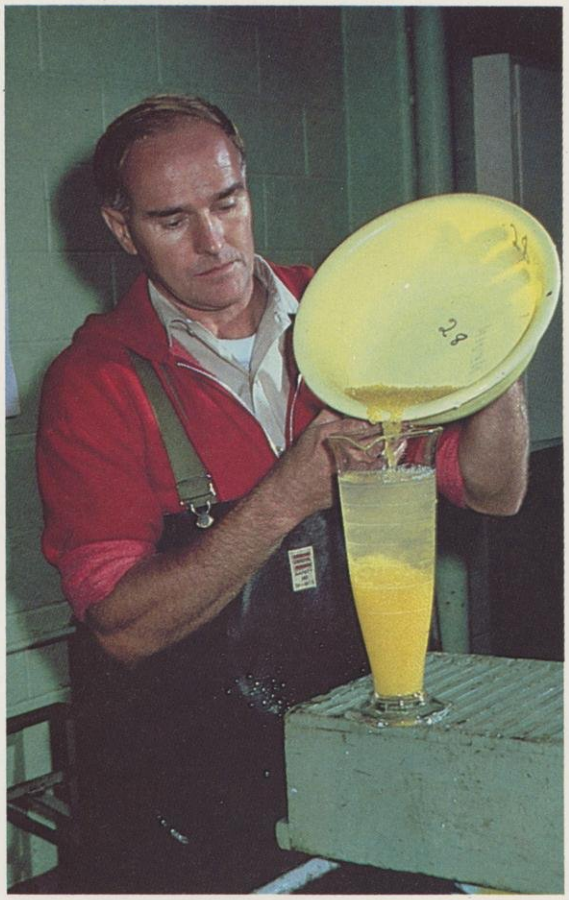
Carstens Lake had been good for bass and crappies and even produced some eye-popping northerns in its day. But that was before carp took over. A winterkill in 1976-77 all but eliminated game fish in the little lake, opening the way for carp entering through Pine Creek, which drains the lake. Soon Carstens Lake held only carp, bullheads and stunted crappies. Disappointed anglers began asking Peeters if something couldn't be done.

"Carp removal is expensive, and it only works if it is total and you take measures to prevent carp from getting back in the lake," Peeters explained.

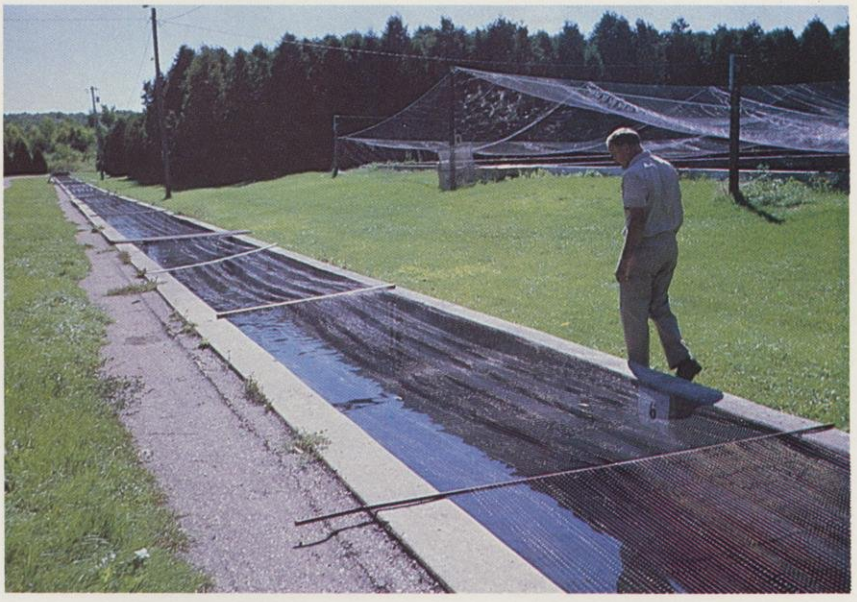
The first breakthrough came when a landowner below the lake on Pine Creek talked to Peeters about installing a dam to create a wildlife pond. The landowner was willing to consider a dam spillway to act as a carp barrier. The Soil Conservation Service designed a dam to Peeter's specifications. But the added cost was $10,000 — more than the landowner could absorb. And DNR cannot spend funds for improvements on private property.

So Peeters turned to the local rod and gun club and found it more than willing to help. The Manitowoc County Fish and Game Protective Association and the Pine River Sportsmen raised enough cash, along with a grant from the Agricultural Stabilization and Conservation Service to finance the extra cost of the carp-proof spillway. And the clubs also provided valuable labor on the barrier and in removal of dead fish during the subsequent lake treatment.

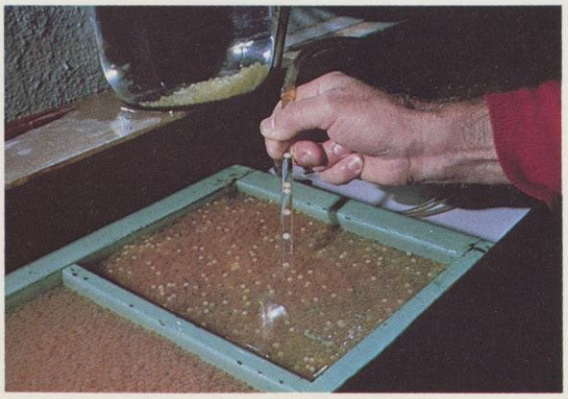
The carp barrier was completed in the summer of 1982 and, several months later, Peeters and his crew chemically treated Carstens Lake with rotenone. More than 12,000 pounds of fish were removed — 85% of this total being carp. Only eight largemouth bass and 12 northern pike were found. "As far as we can tell, the treatment was a complete success," Peeters reported.



Measuring eggs at the Nevin Hatchery.
DNR Photo

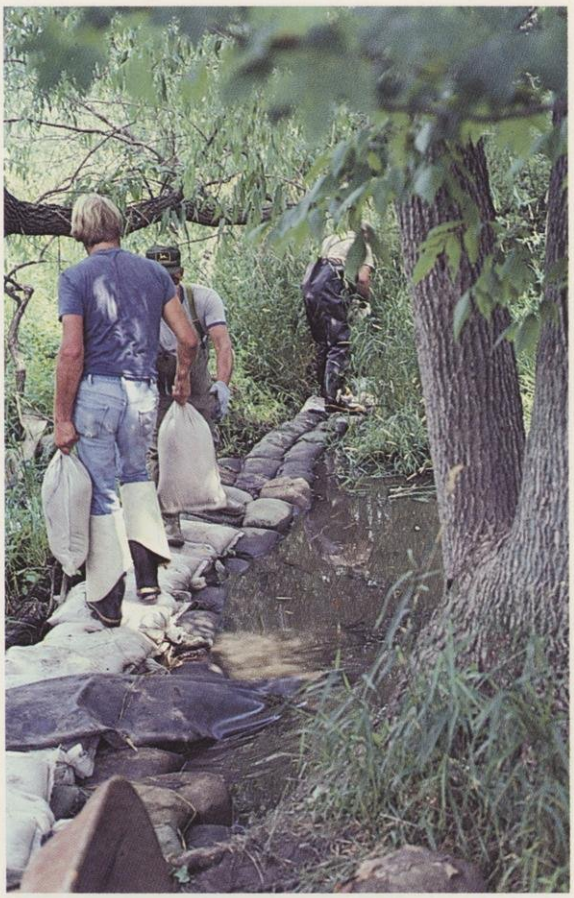


Hatchery raceway used in rearing young fish.
DNR Photo



Right: Removing dead eggs.
DNR Photo

Left: The beginning.
DNR Photo



This sandbag dike on Pine Creek kept water out of Carstens Lake in Manitowoc County prior to chemical treatment.
Photo by Paul Peeters

Next came restocking. "It's very important to restock a lake in the proper sequence," Peeters explained. "You must establish a predator population before you introduce faster-maturing panfish. Otherwise you run the risk of a lake filled with stunted panfish."

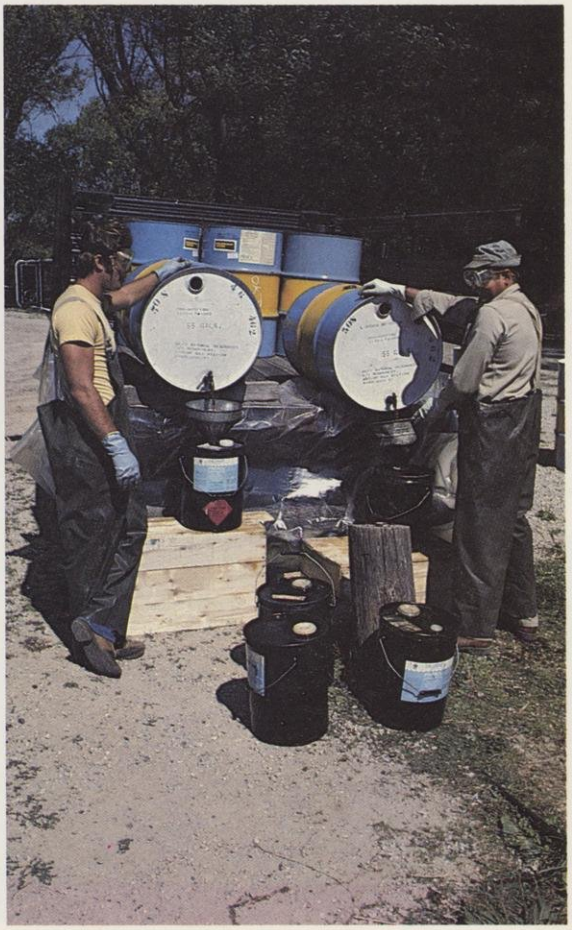
So Carstens Lake received 300 six to 10-inch northern pike in the fall of 1982. The next spring, 39 adult largemouth bass and 80 golden shiners were stocked. "These bass and shiners pulled off one tremendous hatch," Peeters noted. And 600 male perch were also stocked to provide fishing opportunities.

"We'll probably put some yellow perch brood stock in the lake in 1984," Peeters said. "Then we'll play it by ear. We may add some bluegills or crappies down the road, but right now we want to see if this bass, northern pike and perch combination keeps things in balance."

Peeters is grateful for all the help he received from local clubs in bringing Carstens Lake back to life. But there's one kind of "help" he can do without — namely the unauthorized stocking of other fish species in the lake.

"Please don't put any other fish in Carstens Lake," he's telling the local folk. "Not only is the practice illegal, but it could upset the goals of the entire project."

Rough fish removal.
Photo by Paul Peeters



Lower Left: Anchor posts serve as pivot points for spring pond dredging.
Photo by Don Bragg

Lower Right: Preparing toxicant used in rough fish eradication.
Photo by Paul Peeters

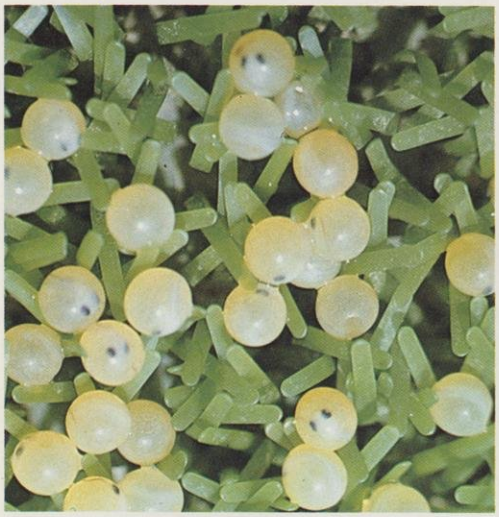
Pulling nets in to corral fish during survey work.
Photo by Jim Bishop

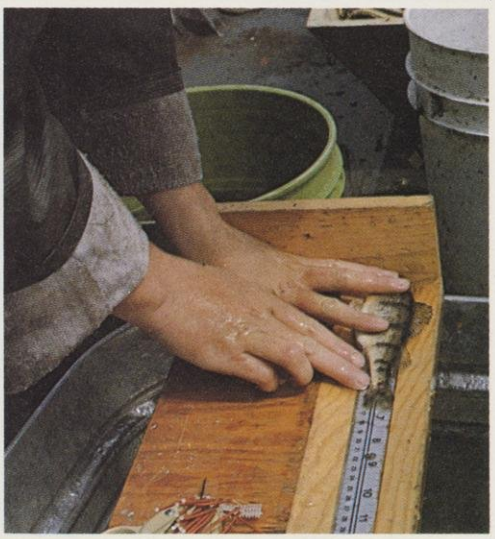
Center Right: Loading brook trout onto a conveyor prior to stocking in state lakes and rivers.
Photo by Don Bragg

Center Left: Lake trout eggs raised on astroturf mats in Big Green lake, Green Lake County. The mats, placed atop each other in a sandwich-type arrangement, offer cover from predators after the young fry hatch.
Photo by Dale Brege

Lower Left: Trap used to transfer muskellunge fingerlings at the Woodruff Hatchery.
Photo by Don Bragg

Lower Right: Sizing perch on Lake Michigan.
Photo by Mark Holey

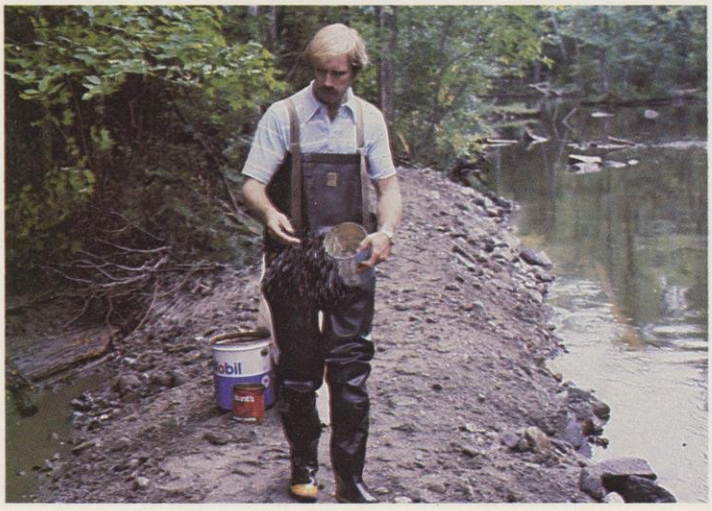




Electro-shocking along Mt. Vernon Creek, Dane County. Looking on are children participating in a DNR environmental workshop.
Photo by Jim Escalante

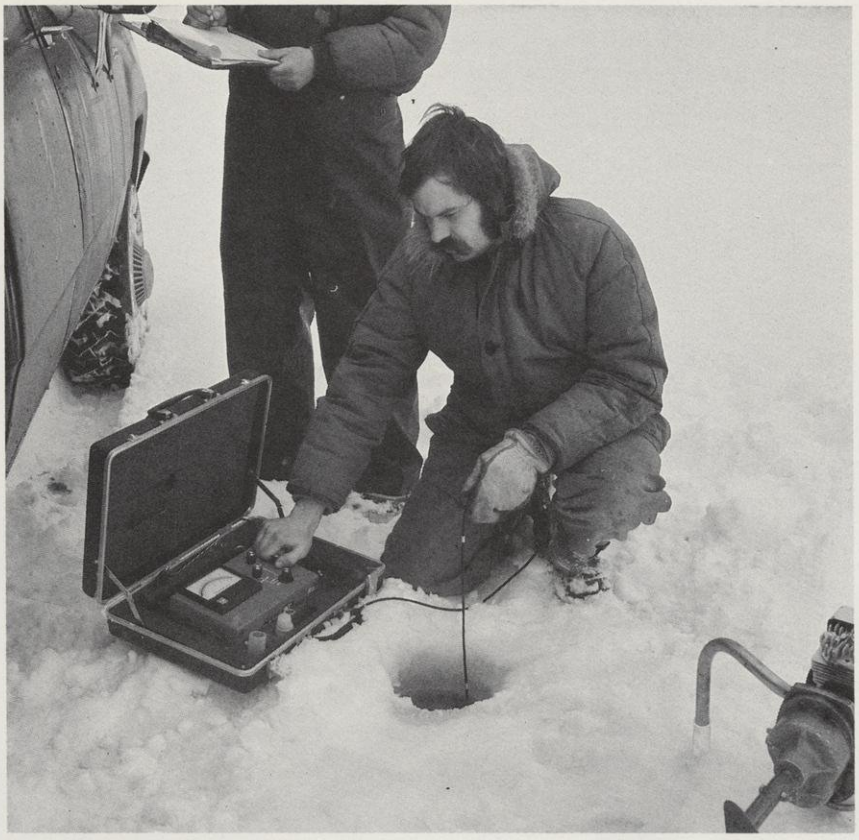
Center Right: Implanting a radio transmitter into a musky fingerling. The transmitter emits a signal enabling DNR fishery researchers to track the fish's movement.
Photo by Jim Bishop

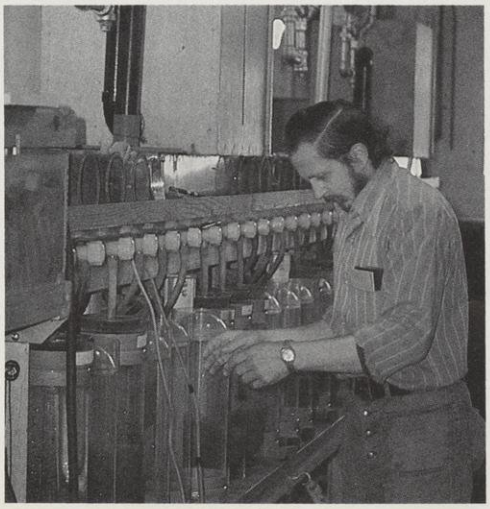
Center Left: Field work for DNR fisheries biologists often involves going where the fish are — in this case underwater at Big Green Lake.
DNR Photo



Seeding riprap on the Prairie River. Photo by Dave Kunelius

Trawling on one of Wisconsin's big lakes. Photo by James Addis





Working at the Woodruff Fish Hatchery. DNR photo

Netting fish from Blue Spring Lake, Jefferson County for evaluating an experimental 14-inch size limit on largemouth bass. Photo by Greg Matthews

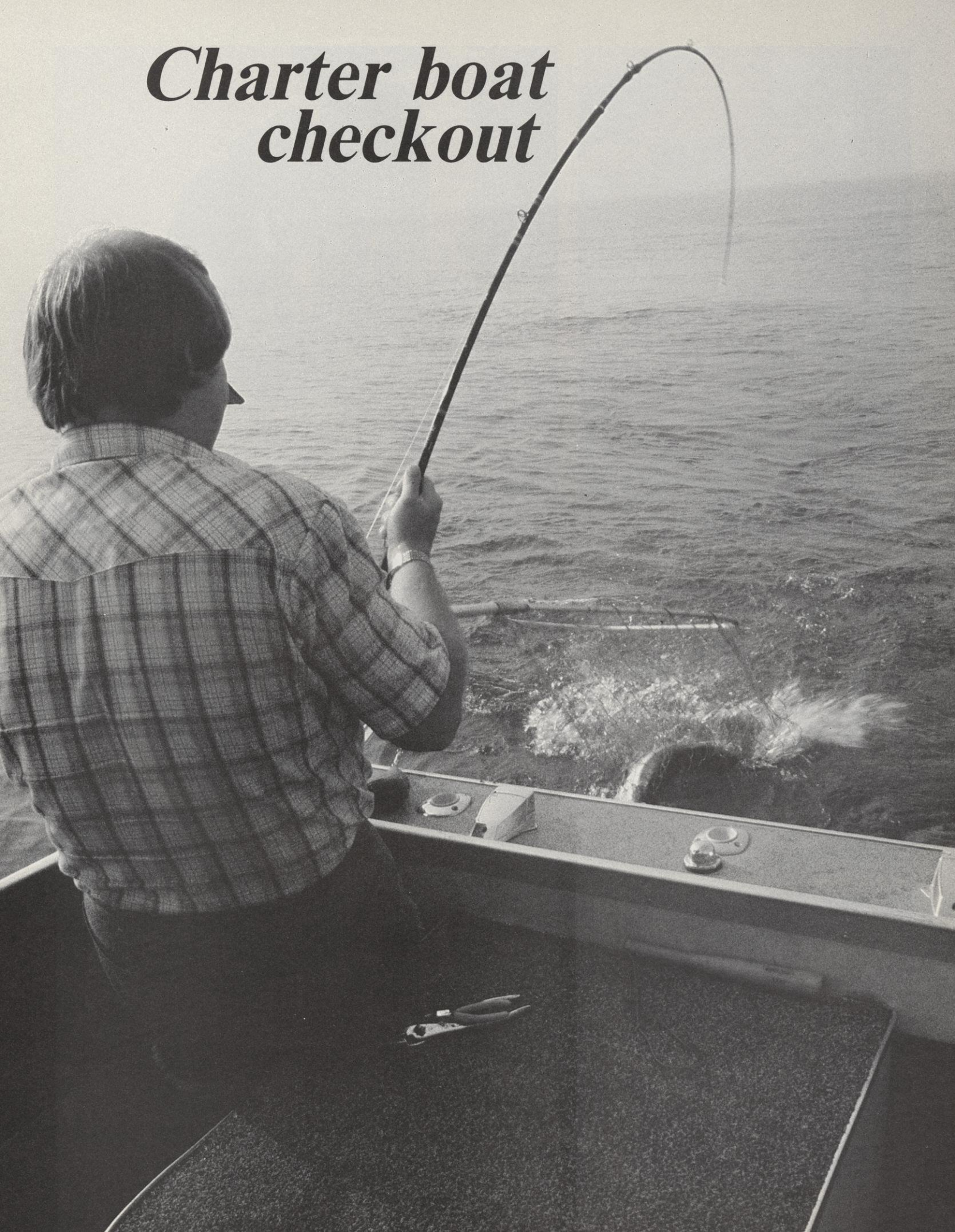
Upper Left: Measuring fish on Blue Spring Lake.
Photo by Greg Matthews

Upper Right: Taking oxygen samples from Potter's Lake, Walworth County.
Photo by Dean Tvedt

Center Left: Seining fish from pond at Nevin Fish Hatchery.
Photo by Dean Tvedt

Center Right: Members of the Cousteau Society confer with DNR fish managers prior to filming a documentary on the Mississippi River.
DNR Photo

Charter boat checkout



A good, quick way to learn how to catch big fish on Lake Michigan is to hire a charter.

JOHN BETH,
Reedsburg

The bank clock at Kewaunee read 78 degrees, 3:49 a.m. as we turned down the dusty road toward our Lake Michigan charter boat.

Our pier was already beginning to hustle with excitement at 4:00 a.m. and the public landing across the river was even more lively. The Chinook were hitting! Boats on trailers lined up waiting to launch.

Our boat captain, Rob, like all good ones, made sure details were in order — gas, oil, gear and other items. When he called "Ready to go," we boarded the 22-foot Starcraft and met Tom, our fifth member.

As we moved slowly through the morning fog, Rob told us fishing had been good all week and that yesterday they were hitting near the "power plants" south of town. "The boats are going to be thick down there. I'm going north a few miles. I think we'll find fish there!"

The fog was quite heavy, but with Rob's experience, a good compass and sonar, we were ready to start fishing by around 4:30. "This fog should burn off in a few hours. It's been in the 90s here all week." Like most charter captains, he prefers the early morning hours to any others.

Rob began to set out lines. The rods are 7 1/2 to 8 foot fiberglass with medium to heavy action. They have to flex to work in the down-riggers and need strength to fight big fish. The reels are large capacity, level wind casting reels. A good drag and dependable mechanics are a must. Casting reels are most common because line won't twist as easily as with a spinning reel during long encounters with big fish. Twenty to 25 pound test monofilament is most common. In some cases lighter tackle is used, but this is a good rig.

We ran seven lines out. "Top to bottom," Rob explained. A down-rigger lowers bait to a specific trolling depth with a weight attached to the line. A metal wire reels the weight up and down by crank or electronically. A quick disconnect device allows the baited line to snap free from the weight when a fish hits. Then the down-rigger is reeled up, the angler pulls the rod out of the rod holder and the fight is on.

Other popular devices are planing boards and diving planes, trolled along each side of the boat. A strike from a fish will snap the "trigger" into a different planing position so it can be more easily managed.

Outriggers are crane-like booms that hold a trolling lure out and away from the boat. They have the appearance of long poles reaching out from the boat at various angles.

Flashers, dodgers and cowbells are all names of attractors often used ahead of lures trolled to attract nearby fish. The lure at the end of the line is the target. Lures like the popular J-Plug slide up the line and leave only the hooks attached to the fish.

Along with two "divers" and four down-riggers, we ran a "flat" line off the back. This is simply a lure trolled 75 to 150 feet off the stern. It will run shallow, but must be back far enough to be out of the wash of the motor.

We trolled at five miles per hour in 32 feet of water with lines down five, 12, 17 and 25 feet. Rob says trolling speed is very important but the key is water temperature. Different species of fish are always looking for the temperature that best suits their feeding and comfort range. Just a couple degrees can be critical.

Suddenly, Rob yelled "Fish on!" At 4:50 a king belted one of the lures and my brother Gene fought it to the net. A pearl J-Plug fooled the bright silver king, 18 pounds of fine fish. The other lines that were pulled up during the catch were quickly reset.

We were still running mostly on sonar, following the bottom contour. The fog was lifting and darkness gradually yielding. The lake was calm and mirror-like. A fog horn and seagulls called from the distance as the sun began to burn through the fog.

With miles of open water, one can only wonder, "How can you even begin to find the fish?" A substantial amount of electronic equipment is used by the charter captain to make a trip successful.

Most charters have these standard features: A "flasher" or sonar to determine bottom depth and also depth of objects between the boat and bottom. It is also a good navigational tool. If a captain has seen some "marks" on the flasher, he will turn on a "printer-recorder" that actually charts a picture of what's below. Some operators run this machine continually. Many of the printers are very sophisticated and can even chart zooplankton, thermoclines and other specific details. Prices for this equipment can run from several hundred to over a thousand dollars.

A trolling speed indicator and a good compass are invaluable. A CB radio and VHF/FM/marine radio are not only for safety but also for communication between boat operators. I noticed a good supply of life preservers, a first-aid kit, fire extinguisher and a bathroom — all very important!

The Great Lakes can be dangerous when wind and foul weather pick up. Boat operators are respectful of its moods and carefully watch for changes.

Many boats use two motors, for several reasons. Speed for running in and out, safety if one fails and often a single motor for trolling.

Many clients on a charter boat are inexperienced at Great Lakes fishing. The captain clues

Fisherman Gene Beth, waits for a strike.
Photo by John Beth

Licensed charters

The number of charter licenses issued for Lake Michigan have shown a marked increase in recent years. They are up from 172 in 1981 to 363 in 1983 and are expected to be higher this year. Charter fishing boat operators are required to keep accurate records of fish catches and report to DNR.

The Lake Michigan and Green Bay charter boat harvest was 93,000 fish in 1983. Other figures show that boats launched from ramps caught 252,000 fish, 1,630 moored boats caught 212,000, piers produced 46,000 and the shoreline and power plants 33,000 fish. The stream catch, including snagging, was 72,000 for a grand total of 708,000.

When you go charter fishing, remember. . .

1. A Wisconsin fishing license and Great Lakes stamp.
2. A cooler. Bring a picnic in it, then use it to take your fish home.
3. Comfortable shoes that don't slip.
4. Sunglasses and light rain gear (be ready for variable weather).
5. A camera. Pictures of fish before they're on ice are best.
6. Be considerate of others. Be on time or early.
7. Be patient and listen to the captain. If you want a 100% guarantee of fish, go to a market.
8. Ask questions while setting up your charter trip. Most captains are glad to explain details both prior to and during your trip. Remember, it's their business.
9. Share your experiences with interested friends. The charter industry relies a good deal on reputation of a captain and his boat. They will appreciate some kind words to others.

them in and often teaches the old timers a thing or two too. He has a large investment in the boat and insurance and has spent a good deal of time and effort in study for tests that qualify him for a charter operator's license. Charters run from $30 to $45 per person for a half day of fishing. Boat sizes and personal preference of the operator determine the number of fishermen on each trip.

Finally it was my turn for "fish on". It happened at 5:15. To avoid time-consuming tangles most charters bring up the lines and keep the boat moving when a fish hits. I felt good about having the freedom to fight the fish without lines all around me because chinook often make long fast runs in many directions. But this one came in quickly. Rob's expertise with the net was fast and effective. The fish though, was somewhat unusual — three or four pounds. We laughed — no picture here.

At 5:50 it was "fish on," again. Tom, our youngest member, battled dearly and boated an 18 to 20 pound "silver" king. Rob sedated it with a "fish billy" and then we had three in the "box." A pearl J-Plug on a down-rigger at 22 feet did the trick.

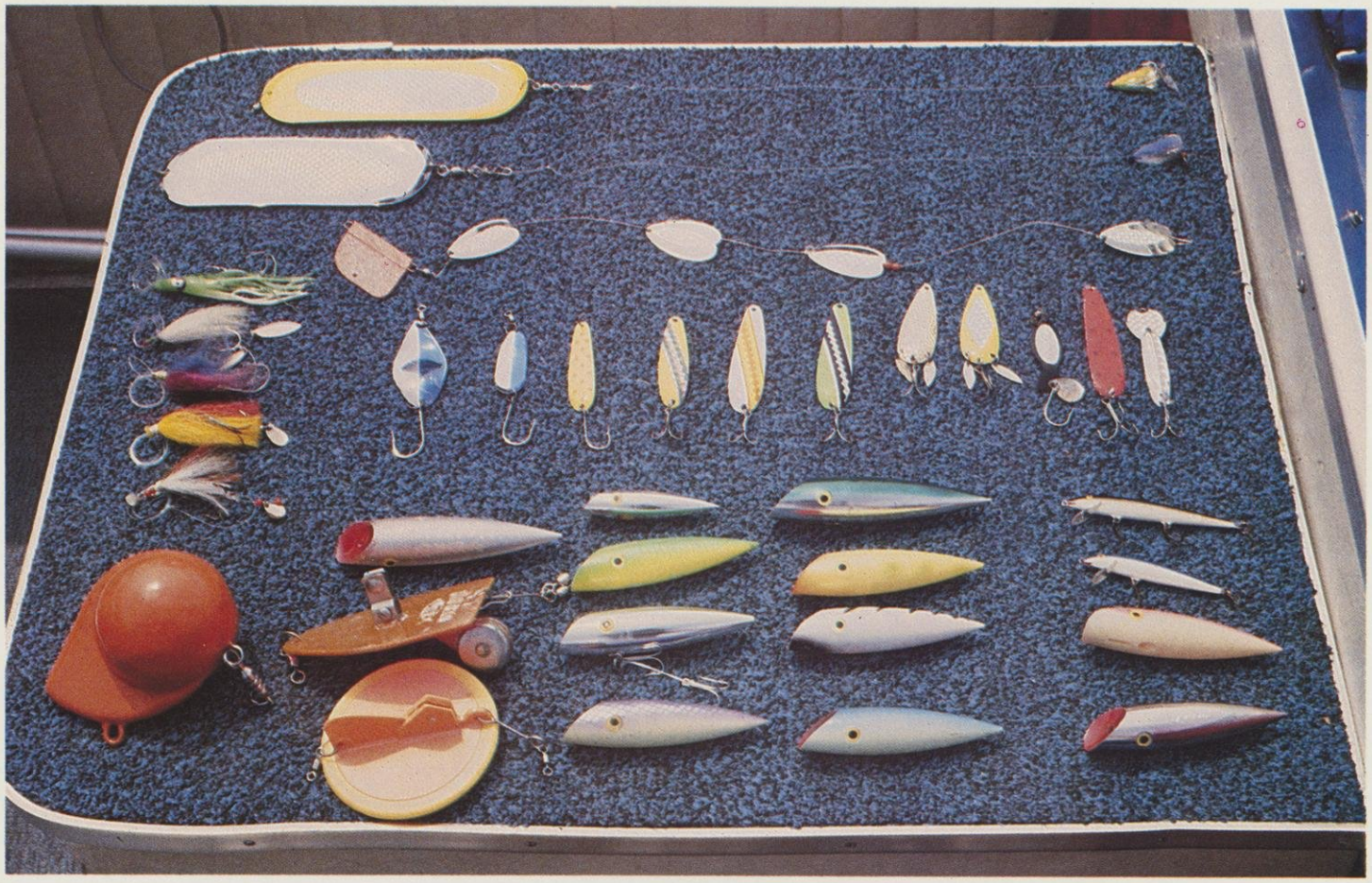
As I waited for my turn at the next hit, I admired the fish we had taken. A little later I too was rewarded with an 18 to 20 pound king. As the morning went on, all aboard caught fish. I was impressed by the constant effort of Captain Rob to educate, evaluate, assist and keep things going smoothly for our trip.

We were all interested in the science of charter fishing and the art of being a good captain. And as for productivity, this was as close to guaranteed fishing as I've ever seen! Chinook are still the prize of the lake but lake trout, coho, browns and rainbows are caught too.

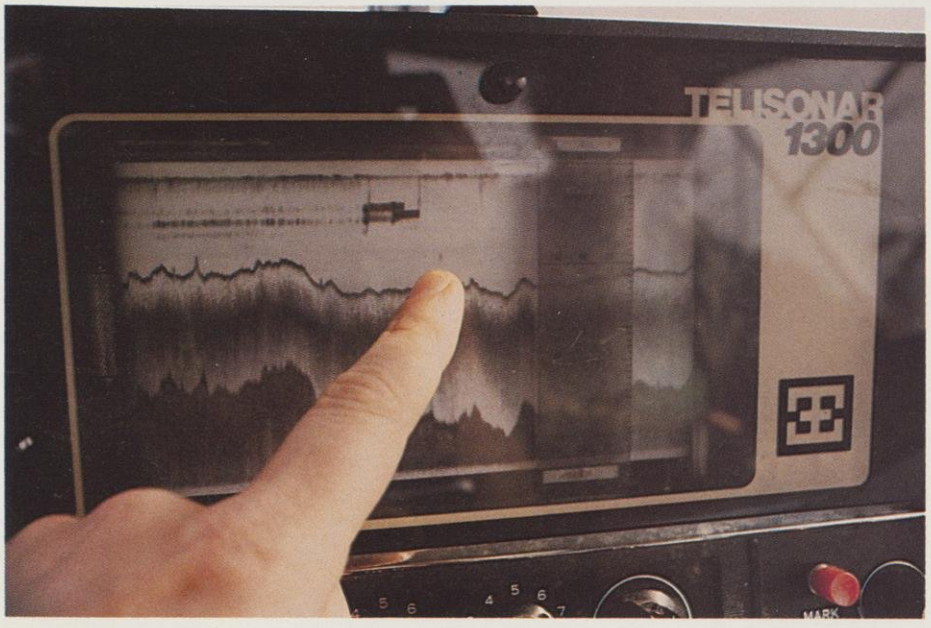
When I asked Rob about the business he had many fond memories of happy fishermen, all amazed at how Lake Michigan produces. Soon Rob will be in medical school and only fish for fun but I'm sure his many charter boat experiences and adventures will be re-lived in the minds of all the people who fished with him successfully. Charter fishermen help anglers understand the Great Lakes fishery.

Not too long ago Lake Michigan never saw charter fishing for Chinook. DNR's hatchery efforts have made it all possible. When the rod snaps loose, pounding in its holder, and the drag peels out anglers know it's all worth while. Now hundreds of them have a chance to tell a real fish story.

When you're ready to try "The Big Pond" your best initial investment might be a trip on a good charter. Equipment is sometimes useless machinery but a captain can make it work for you. His experience and study rubs off. You have all the fun and the charter captain does all the work. He even cleans the fish!

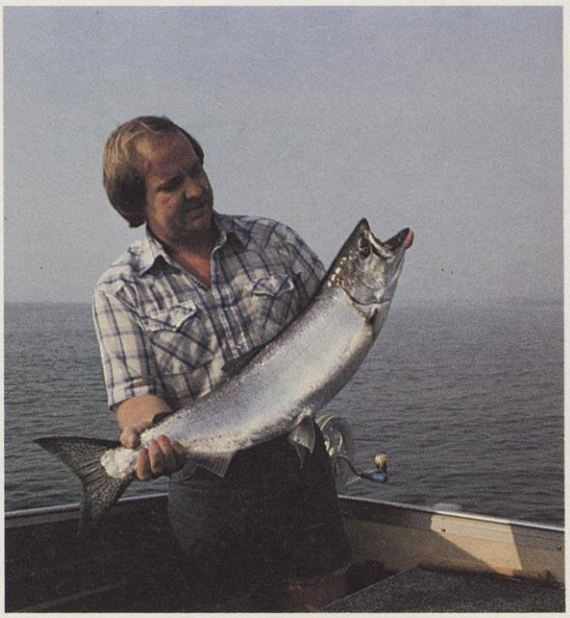


From top down, left to right: — assorted attractors; flashers, dodgers and cowbells.
Row two — flies and spoons of various colors, sizes and actions.
Bottom — down-rigger weight, Deep Six and Dipsy Diver planing devices, J-Plugs (note hooks on lines strung through them, body floats to surface, hooks and line stay in fish). Most of these lures are found on Lake Michigan charters.
Photo by John Beth



Staples of the charter: Radios, flasher, printergraph, compass and other electronics.
Photo by John Beth

Left to right: boat owner, Bob Vlach, Gene Beth, Tom Kotyze and Captain Rob Vlach. Big fish and smiles.
Photo by John Beth



Author with a summer king, 18 pounds.
Photo by Gene Beth

Beaver and trout streams

BRIAN KAMNETZ, Editorial Assistant

A beaver-control program to save Wisconsin trout streams from destruction was initiated in October of 1983 and will be funded through September of 1985.

A primary objective is to reduce beaver activity by 5% each year on prime trout water. Progress will be determined by checking half-mile segments of stream. DNR is especially hoping for improvement in the northeastern part of the state, where the program has been emphasized. The average harvest in that area has been about 900 beaver each year. But this year about 1,600 have been taken to date. The special permit season closes in September.

An aerial survey to be conducted soon will determine whether beaver reduction is working. If it is, the next step will be to repair the damage already done. Dams will be removed, and narrow, deep-flowing trout stream water will replace wide, shallow, warm waters beaver create. Spawning areas will have to be repaired because beaver dams dump layers of sediment on gravel trout need for spawning.

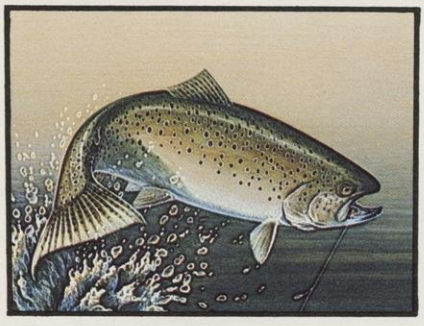
Funds for trout stream repair will probably come from trout stamp income. However, DNR is reluctant to commit them until the beaver overpopulation problem is solved.

Photo by Greg Scott

Great Lakes Salmon And Trout Stamp.

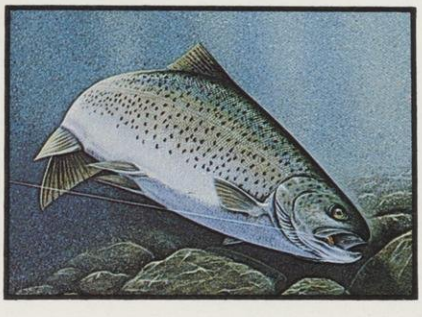
Income is about $800,000 a year from sale of Wisconsin's $3.25 Great Lakes Salmon and Trout Stamps. The money goes for hatcheries, stocking and work on restablishing natural spawning of late trout. Last year this fishery produced about 700,000 fish.

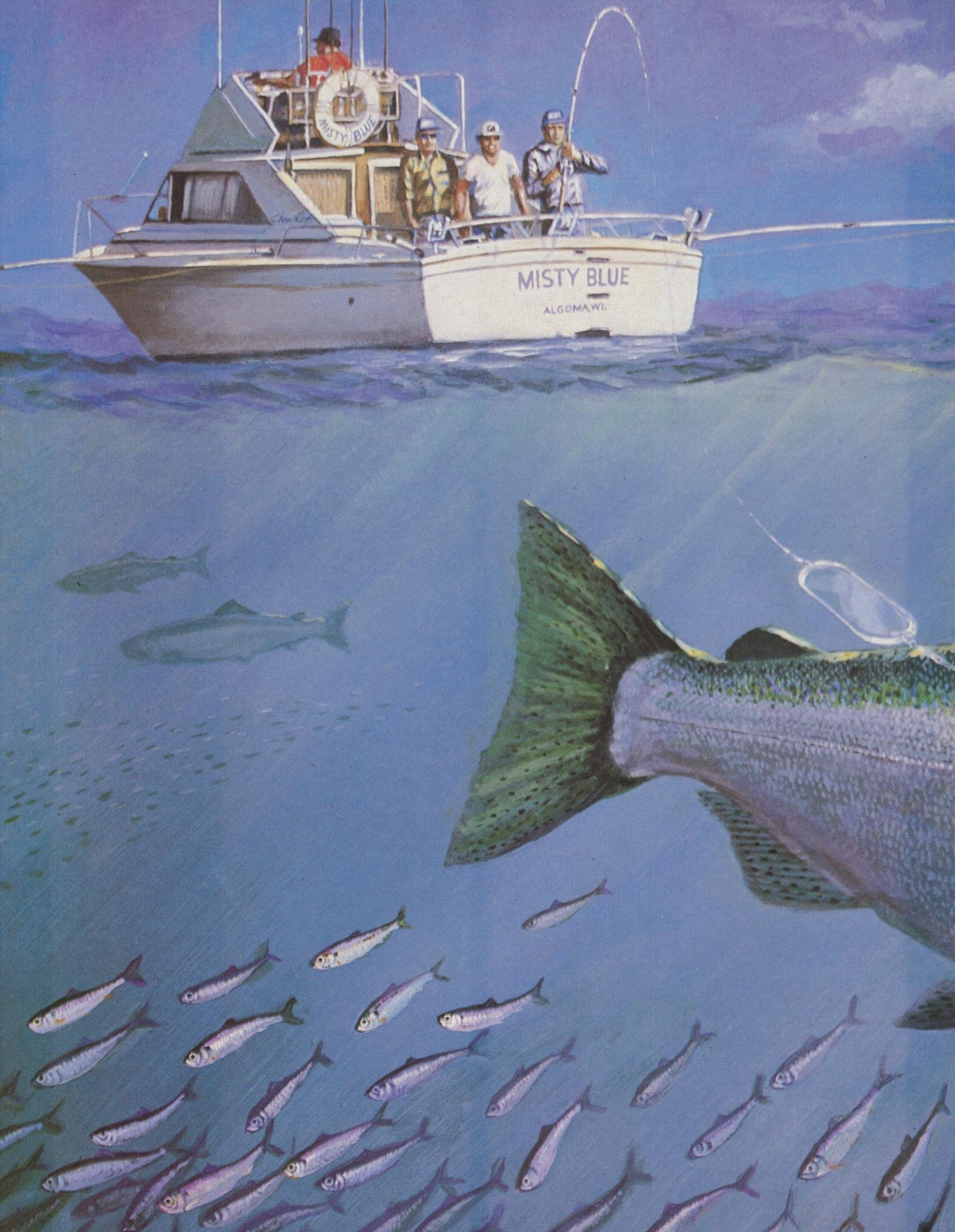
Artist Samuel Timm, 2314 Manitowoc Rd., Green Bay 54301, swept Wisconsin fish stamp competition this year with two brown trout paintings. They'll be issued in 1985.



1985 Trout Stamp

Wisconsin's $3.25 inland trout stamp produces about $425,000 annually to be spent on stream improvement. Since 1978 work has been done on about 165 miles of stream which have shown increases of 50% to 300% in numbers of trout. Typical improvements produce narrower, deeper, swifter streams with increased cover.

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