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The two towers on the cover picture are part of the *Portage Lake Lift Bridge* which connects Houghton and Hancock in Michigan's Keweenaw Peninsula.

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In This Issue:

Court: Lakefronts Can Be Zoned 7
Court Decision Update 8
Some Questions and Answers About ML&SA's New Lake Water Quality Testing Program 9
A Summary of House Bills 5604-5606 . 11
Sediment Threatening Great Lakes Basin Area 12
The Newaygo Soil and Water Conservation District Is Doing Something About Sedimentation 12
Protecting Wetlands Through Conservation Easements.....14
New ML&SA Members 16
ML&SA 31st Annual Conference 17
ML&SA Member News 20
Oil and Gas Wells: What They Can Do To Your Air and Water 24
New Concerns Emerge As Zebra Mussel Spreads.....26
Merrill L. Petoskey Addresses Natural Resources Commission 28

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EDITORIAL

Donald Winne

Protagonist or Spectator

There seems to be no end of mankind's ingenuity to discover all aspects of planet earth. The explosion of knowledge in biology, chemistry, physics, astronomy and all other areas of research boggles the mind. This increased knowledge is resulting in the development and manufacture of new substances and products never known before. While some of these products are helping us to conquer diseases and correct maladies, some are causing health problems and contaminating our water supplies. Is our mad rush to make life more comfortable and to create machines to lessen manual tasks putting our survival at risk?

All of life is dependent upon untainted water. Are we becoming mere spectators to what we are doing to our water supplies, and to all of life which is dependent upon untainted water? There are signs that we are concerned about clean water, but will it be a case of too little too late?

One tenth of one percent of the earth's water is found in the atmosphere and on the land and about 4.9% is found in the ground. The other 95% is in the oceans. We must be careful what we do to the water whether it be in the sky, on the land or in the oceans. We must all be protagonists for clean water. **Our efforts to protect our water must be greater than our actions which pollute.**

Donald E. Winne

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Court: Lakefronts Can Be Zoned

From Petoskey News-Review, Friday, June 5, 1992

Hayes Township was either way ahead of itself — or way out of line — when it created zoning to regulate docks and lake access on Lake Charlevoix in the 1980s.

The Michigan Court of Appeals ruled in 1987 the township was out of line when it tried to limit docks to one for every 100 feet of lake front. Access to the water was similarly limited to residents of one home for every 100 feet of shore.

Developer William Fox had 2,800 feet of frontage and could have built 28 docks and 28 homes with access to the water at the Oyster Pointe Club — but he wanted more.

He insisted the township didn't have the right to regulate how many docks he could put on the lake or how many residents of his project could go down to the water.

The township insisted it did have the right.

The dispute grew into a four-year legal battle that reached the Michigan Supreme Court. The Supreme Court heard arguments, but refused to rule on the case after the township and developer settled, so the last verdict was an appeals court decision that said zoning laws allowed townships to regulate land use — only.

Hayes Township was out of line by trying to regulate the water, the appeals court said.

But a Michigan Supreme Court ruling last month could change all that.

Townships have the right to regulate riparian rights, including boat docks, under their zoning power, the court ruled May 22 in Hess vs. West Bloomfield Charter Township.

In an opinion written by Justice James H. Brickley, the court said zoning laws give townships the right to regulate land development and use.

Owning waterfront land includes the right to build docks — and the state's zoning laws include the right to regulate them, the court ruled.

Seberon Litzenburger, the attorney who represented Fox, expects the decision to expose zoning laws to more lawsuits because it allows regulation — but doesn't spell out the details.

"I think it raises more questions than it answers," he said.

To Timothy Arner, at attorney who helped defend Hayes Township in the Fox case, it affirms what the township argued years ago.

Arner is "sure we would have prevailed" if the Supreme Court had ruled in the Fox case.

Hayes Township was "on the cutting edge" when it enacted the zoning that allowed it to regulate docks and lake access, Arner said.

Now, after a three-year setback, Hayes Township officials seem ready to dust off the old zoning ordinance and start over.

"I assume we're going to work on getting it back in there, something that is legal," said township clerk Ethel Knepp.

Charlevoix County Planning Director Larry Sullivan plans to send information out to townships after his department reviews the case. He expects communities that were interested in waterfront zoning, but hesitated after the Hayes case, to explore waterfront regulation again.

The Hess case will be important for township zoning because it gives a broad interpretation of power, Arner said.

Litzenburger doesn't think the ruling can be applied to Lake Charlevoix, though. The Hess case involved a much smaller lake in Oakland County — and he believes the ruling won't work on larger lakes like Lake Charlevoix.

With three cities and six townships on the shore of Lake Charlevoix, letting each regulate waterfront "would be a crazy quilt of regulations on one body of water," Litzenburger said.

"If each township starts regulating docks...It would create chaos," he said.

Arner, however, argued residents have a right to decide how land and waterfront will be used in their townships. While Hayes Township residents might choose restrictions on docks, residents of other townships might choose looser regulation, he said.

"People ought to have a right to determine what's going to happen in their locality (and) township," he said.

Attorneys who defended Hayes Township are enjoying a sense of vindication since the Supreme Court agreed with the position they took in 1985.

"I'm happy to hear it," said Bill McTaggart, who also represented the township and is now retired. "It's what we contended from the beginning."

Court Decision Update

By Donald E. Winne, ML&SA Executive Director

Michigan Supreme Court Decision in Hess vs. West Bloomfield Township (May 22, 1992) Reverses Appeals Court Decision in Fox vs. Hayes Township Case (September 8, 1987)

On September 8, 1987, the Michigan Court of Appeals ruled that Townships did not have the power to regulate the number of dock slips a riparian owner may build or possess. The Appeals Court held that the Legislature did not intend to allow Townships to regulate boats and docks through their zoning powers. The Appeals Court argued that since the word water did not occur in the Township Rural Zoning ACT (TRZA), the Township could only regulate land use and land development.

The State Supreme Court in its decision in the Hess vs. West Bloomfield Township case (May 22, 1992) declared that the regulatory authority possessed by townships under the Township Rural Zoning Act encompassed more than activities which are located on "dry land". The Supreme Court argued that townships could not protect bodies of water from destruction or impairment without the ability to regulate riparians rights.

The Supreme Court also argued in the Hess Case that the strict interpretation by the Court of Appeals in the Fox Case was contrary to the provision of the Michigan Constitution (Article VII, Section 34) which provides that:

> **"The provisions of this constitution and law concerning counties, townships, cities and villages shall be liberally construed in their favor".**

(Continued on Page 8)

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Court Decision Update

(Continued from Page 7)

The Supreme Court refers in the Hess Case to the Article IV, Section 52 of the Michigan Consitution which provides that:

> **"The conservation and development of the natural resources of the state are hereby declared to be of paramount public concern in the interest of the health, safety and general welfare of the people. The legislature shall provide for the protection of the air, water and other natural resources of the state from pollution, impairment and destruction."**

"To construe the TRZA (Township Rural Zoning Act, Act 184, P.A. of 1943) in the manner asserted by plaintiff and the Court of Appeals majority in Fox, supra, would essentially prohibit townships from protecting the natural resources located within their communities that happen to be associated with bodies of water."

"We conclude that TRZA permits townships to regulate riparian rights, such as dockage of boats, as part of their zoning power. This interpretation is consistent with the underlying purpose of the enactment of the TRZA and its subsequent amendment, and is appropriate in the light of the constitutionally mandated liberal construction. We reverse the trial court's grant of summary disposition and remand for further proceeding consistent with this opinion."

■

Since the Michigan Supreme Court has upheld West Bloomfield Township's Zoning Ordinance, a number of persons around the State have asked for more information about the Ordinance. Upon request by Don Winne, Executive Director of ML&SA, Sharon A. Law, Clerk of West Bloomfield Township, mailed a copy of their Zoning Ordinance to ML&SA's office.

The Zoning Ordinance No. 56 was adopted on June 1, 1966. "The format was changed and all amendments incorporated into the text by action of the township board on June 21, 1982. Subsequent amendments are reflected in history notes in parenthesis following the amended section." The text, index and amendments covers 224 pages. The Supreme Court decision quoted specific parts of that ordinance now identified as Chapter 26.

The sections of West Bloomfield Township Zoning Ordinance, Chapter 26 quoted in the majority opinion written by Justice H. Brickley were **Sec. 26-73, Uses permissible on special approval.**, and **Sec. 26-78, Waterfront property.**

Section 26-78, Division 1 of Article IV - Zoning Districts of the West Bloomfield Zoning Ordinance follows:

ARTICLE IV - ZONING DISTRICTS

Division 1. R-10, R-12.5, R-15, R-30 One-Family Residential Districts

Sec. 26-78. Waterfront property.

In R-10, R-12.5, R-15 and R-30 one-family residential districts, the following provisions for waterfront property shall apply:

(1) Where a parcel of land contiguous to a body of water is presented for subdividing, a recreational park bordering on the body of water may be dedicated for the purposes of swimming and picnicking, the privileges of which are to be reasonably enjoyed by the owners and occupants of lots included in any plat or plats recorded within the parcel and only such owners and occupants provided that the recreational park is dedicated at the time for the use of owners and occupants of lots contained in such a recorded plat or plats at least twenty (20) lineal feet of water frontage and one hundred fifty (150) feet in depth shall be reserved therein for the rights of each lot of the size required by this chapter; provided, however, that no recreational park so created shall have less than three hundred (300) feet of water frontage. The launching of boats from recreational parks shall not be permitted nor shall boats be allowed to be docked at recreational parks.

(2) For residential developments other than platted subdivisions, but including cluster developments and cluster developments which are platted but for which no lakefront lots are created within the development, the maximum number of boats which can be launched from the commons area or stored in any manner within the commons area or on the water shall be determined by zoning district and shall not exceed the following:

District	No. of Spaces/Ft. of Lake Frontage
R-10	2 boats/70 feet
R-12.5	2 boats/80 feet
R-30	2 boats/125 feet
R-15	2 boats/100 feet
RM-6, RM-9, RM-12	2 boats/70 feet

a. The creation of any lakefront lots within the development shall preclude the use of boats in any manner from the commons area.

b. Prior to the issuance of a building permit the owner or developer shall provide the township with evidence that the limitation on the number of boats to be docked shall be included in the open space agreement in the instance of a cluster development. In the instance of development in any RM district, evidence of such limitation shall be submitted to the township board and be reviewed by the township attorney.

(3) In the case of lots bordering a lake, river or canal, accessory buildings are permitted within an unrequired front yard but not within the front yard setback.

(4) In the case of lots bordering a lake, river or canal, the rear yard setback on the street side of the lot shall be equal to the front yard setback of the districts in which the lot is located. Accessory buildings shall not be located within the setback.

(Ord. No. 56 (as amd.), § 7.1-30, 6.1-66; Ord. No. C-265, § 11, 4-23-90)

MICHIGAN LAKE & STREAM ASSOCIATIONS
and
THE MICHIGAN RIPARIAN
— OPEN HOUSE —
August 29 and 30, 1992

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Some Questions and Answers About Michigan Lake and Stream Associations' New Lake Water Quality Testing Program

By Wally Fusilier, Ph.D., Limnologist, Michigan Lake and Stream Associations

Michigan Lake and Stream Associations continues to offer new programs to its member lake associations. The newest program is a low-cost lake water quality testing program which is offered exclusively to ML&SA member associations.

How does an association get involved in the program?
Your association sends a check to ML&SA treasurer Pearl Bonnell for the number of samples you want to take in your lake. When she receives the check, she notifies us to send the appropriate number of sample bottles to your lake association. Someone in your lake association takes the samples of your lake and ships them back to the laboratory the fastest way possible.

How much does the program cost?
The testing costs $35 per sample, or 3 samples for $100. Additional samples (after the first 3) cost $30 each.

What tests will be run on the samples?
The following tests will be run on each sample: conductivity, alkalinity, pH, total phosphorus, total nitrate and chlorophyll-a.

Are the samples processed quickly?
Yes. pH, conductivity and alkalinity are run as soon as the samples arrive in the lab. Chlorophyll samples are filtered and frozen for later analysis. Phosphates are digested, and along with nitrate samples, refrigerated for later analysis.

How many samples should be taken in a lake?
Preferably more than one. The problem with taking only one sample is if unusual results are found, there is no way to determine if that test result represented the actual conditions in the lake, or if the water sampled happened to be different than other areas of the lake.

When should lakes be sampled?
For very good reasons, lakes should be sampled twice a year, in spring after the ice melts and the winds mix the lake; and in late summer when the water is warmest and maximum thermal stratification occurs.

Can we use the same sampling program to sample streams, drains or ditches flowing into our lake?
Yes. We can run the same tests on stream, drain or ditch samples, but chlorophyll-a won't be useful in this context. Phosphorus and nitrates, on the other hand, will be extremely useful. You should let us know if any of your samples were taken from a stream, ditch or drain.

How do we know where to sample?
If you send us a map of your lake, we can mark where we think samples should be taken. Or you can decide for yourself. When you send your samples, also send a map of your lake showing where you took them.

What is the purpose of this testing program?
To characterize the water quality of your lake. The six tests we'll run, along with Secchi disk data you collect, plus dissolved oxygen and temperature, are tests a recent panel of lake experts selected as being important measures of lake water quality. The results of these tests will be used to calculate the Lake Water Quality Index, a measure of lake water quality which does an excellent job of characterizing the water quality of a lake. The index rates lakes about the same way teachers rate students; 90-100 = A, 80-90 = B, 70-80 = C, 60-70 = D, and below 60 = E.

But we can't run dissolved oxygen and temperature.
In spring, we'll assume these two measures of water quality are okay, because we've never seen a lake where they weren't. In summer, if your association pays for at least 3 water quality samples ($100) we'll visit your lake and take top to bottom dissolved oxygen and temperature measurements in the deepest hole in the lake, assuming we know where that is, or can find it. We can also take the water quality samples for you at that time.

Our lake doesn't allow boats with motors. Is that a problem?
Not really. Just have your association pass a resolution permitting us to be on the lake with a motor, then send a copy of that resolution to the local law enforcement agency. But we do need to use a motor on our boat. On most lakes, we can get to the sample site in less than 10 minutes, so we're not talking about an all day boat disturbance.

Can a member of our association go out on the lake with you when you visit our lake?
Yes, but we'll be visiting quite a few lakes per day, so we won't have a lot of time to spend on each lake. You'll have to let us know who the person will be (name, address, telephone number) and send us a map showing how to get to his or her house. We'll contact the person a day or so before we visit the lake.

Can we take you out on the lake on one of our boats?
Not really. Our boat is specifically set up to study lakes. It has special features which enable us to efficiently take the samples and measurements we need.

When will we know the results of the laboratory testing?
We're working on that right now. Initially, we thought we would publish the results of the testing program in an atlas of lakes in the fall, like we did last year. However, we've found lake associations want to know the test results quicker than that. And of course, as soon as they get the results, they want to know what the results mean in terms of the water quality in their lake.

Are these the same kinds of tests consultants use when studying lakes?
Yes. By being involved in this program and sampling your lake yourself, you can get the same type of information.

Can you give us some idea about what the tests will tell about our lake?
You should understand that whole books have been written on this subject, so the following should be considered a brief introduction. And every lake is different.

It can be fairly complex, because the results of several tests can tell us what is happening in your lake. For instance, poor water quality in summer can be characterized by high phosphorus concentrations, shallow Secchi disk measurements, high dissolved oxygen concentrations, high pH values, and lower alkalinity values.

(Continued on Page 10)

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Some Questions and Answers About Michigan Lake and Stream Associations' New Lake Water Quality Testing Program

(Continued from Page 9)

Alkalinity

The alkalinity test will tell us if you have a hard or soft water lake. Hard water lakes are more resistant to water quality problems because the metal ions which make the water hard have the ability to precipitate phosphorus to the bottom sediments. Alkalinities are generally higher in spring than in summer. There are at least two reasons for this. First, since the lake is warmer in summer, and carbonates are less soluble in warm water than in cold water, they can precipitate. That can cause a lower alkalinity. The second reason is plants can remove carbon dioxide from the water, which in turn removes the carbonates. That again causes a lower alkalinity.

Hard water lakes generally have alkalinities in excess of 125 milligrams per liter (or parts per million). The panel of lake experts felt alkalinity measurements between 75 and 200 milligrams per liter indicated excellent water quality.

Hard water lakes are more resistant to acid rain because the carbonates prevent the lake from becoming acid.

Conductivity

Conductivity is a simple measure of the amount of electric current a water will conduct, but more realistically, it gives a good estimate of the amount of materials dissolved in the water. The experts felt, and we agree, that the fewer materials dissolved in the water, the better the water quality. Normal conductivity readings range from about 200 to 700 micromhos per centimeter (at 25°C).

Total Phosphorus

Total phosphorus, which is measured in parts per billion (micrograms per liter) is an important indicator of the water quality of a lake. The lower the better. We like to see phosphorus concentrations below 10 micrograms per liter. Generally lakes start to have problems when the phosphorus concentration gets to about 30 micrograms per liter. We've seen phosphorus concentrations as high as 350 micrograms per liter in the bottom of lakes which have run out of oxygen in the bottom waters. If that water was at the surface, you wouldn't even want to look at your lake because of the huge algal bloom that would be present.

Total Nitrate

Total nitrate, also measured in parts per billion, is also an important indicator of lake water quality. The experts felt any concentration below 200 parts per billion indicated excellent water quality. High nitrate concentrations are more acceptable than high phosphorus concentrations because nitrate is used to build proteins, so it is actually used up by aquatic plants and algae. Phosphorus on the other hand, is not used to build anything. It's involved in energy transfer, so it's effective at a much lower concentration.

The ratio of nitrogen to phosphorus can tell us if your lake is nitrate or phosphorus limited. Many times we see lakes which are phosphorus limited in spring, and nitrate limited in summer. This is one reason it's important to take samples of your lake in both spring and late summer. In such a case, no lawn fertilizers should be used on the lawns in the area of the lake. In fact, it's never a good idea to use fertilizers on lawns near lakes.

pH

pH (or Hydrogen ion concentration) is traditionally a measure of lake water quality. The panel of experts felt any pH between 6.0 and 8.0 indicated excellent water quality. Acid lakes (which are generally soft water lakes) can have pH values below 6.0. Normal pH values range from about 7.5 to 8.2. pH values higher than that start to indicate carbon dioxide removal by the aquatic plant community. We've seen pH values as high as 9.5 in lakes with excessive plant populations. These generally occur in late summer.

Chlorophyll-a

Cholorophyll-a, which like phosphorus and nitrates, is measured in the parts per billion range. It is generally used to estimate the amount of free algae growing in the water. The experts felt, and we agree, that the lower the better. We like to see chlorophyll-a values below 3 micrograms per liter. We've seen them as high as 60, but in that lake, the Secchi disk disappeared in eight inches of water. Sometimes we see higher spring chlorophyll-a, and sometimes we see higher summer chlorophyll-a. This is one of those characteristics which seem to be lake dependent.

Temperature and Dissolved Oxygen

Because of the formation of the thermocline (the layer of water in a lake where the temperature many times determines, along with other factors, the concentration of dissolved oxygen. In very high quality lakes, we'll find oxygen below the thermocline in late summer. This doesn't occur often, but when it does, it indicates the lake has excellent water quality. There are a host of complex chemical interactions which are dependent on temperature and dissolved oxygen. For instance, if a lake is deep enough to form a thermocline (most thermoclines form in 15 through 25 feet of water) and the lake loses the oxygen below the thermocline, iron from the bottom sediments can come back into solution, and when that happens, the phosphorus which was originally precipitated by the iron also comes back into solution. This can have serious effects on water quality later in the year.

The reason the lake runs out of oxygen below the thermocline is bacteria continue to decompose organic material which precipitates to this deeper water, but the thermocline prevents the surface 15 or so feet of water from mixing with the bottom water. And since the main source of oxygen in a lake is from the air, the bottom water is prevented from coming in contact with the air, so the oxygen which is depleted during bacterial decomposition is not replenished by coming in contact with air. Shallow lakes don't form thermoclines, but sometimes that's even worse. Since thermoclines prevent the water in the bottom of the lake from mixing with surface water, lakes without thermoclines can mix from top to bottom whenever the wind blows. In this case, nutrients in the bottom sediments can be resuspended in the water column, and create instant algal blooms. This is just a short discussion regarding the importance of knowing the dissolved oxygen and temperature, top to bottom, in a lake in summer, but it gives you some idea why we feel it is important to know this information.

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Secchi Disk Measurements

Secchi disk transparency measurements have been traditionally considered a measure of the water quality of a lake. Generally, the deeper, the better. However, the Secchi disk information ML&SA people collected last year changed our thinking about what Secchi disk readings mean. The data in the *Atlas of 50 Michigan Lakes* indicated Secchi disk readings not only give some indication about the quality of the water in a lake, they also help describe the characteristics of a lake. Although some feel averaging Secchi disk readings is appropriate, we feel averaging the data loses information. In other words, how the Secchi disk readings change (or don't change) through the summer gives us important information about a lake that averaging simply hides.

The shallowest Secchi disk reading we've taken is about 6 inches. The deepest we've seen in Michigan is 45 feet in Clear Lake in Montmorency County in spring. Generally Secchi disk transparency measurements range from 12 to 20 feet in spring, and 7 to 15 feet in summer. However, if you look at the Secchi disk graphs in the atlas, you'll see the variation we just described doesn't hold true for most lakes described in the atlas. It's much more common to have relatively uniform Secchi disk readings through the entire summer. That's a plus for a lake.

That's sort of a short summary of what the data we're collecting means. However, your lake might be completely different. We're trying to help you understand your lake and we urge you to get involved in this meaningful, low-cost lake water quality monitoring program. As we noted above, consultants would charge you thousands of dollars for the same information.

As Dr. Dan Canfield, President of the North American Lake Management Society wrote recently: "Citizens know government agencies do not routinely monitor the water quality of most waterbodies, and they are concerned that someone should be watching their waterbody."

This lake water testing program is just another reason lake associations should join Michigan Lake and Stream Associations. ML&SA Executive Director Don Winne and his crew continues to work to provide meaningful programs for member associations.

House Bills 5604-5606 Would Give Townships Some Authority To Regulate Gas and Oil Drilling

House Bill 5604
Sponsor: Rep. Jan Dolan
House Bill 5605
Sponsor: Rep. Susan Grimes Munsell
House Bill 5606
Sponsor: Rep. Georgina Goss
Committee: Conservation, Recreation and Environment
Complete to 4-6-92

A summary of House Bills 5604-5606 as introduced 3-4-92:

Currently, under the act regulating the supervisor of wells and those regulating county and township zoning regulations, jurisdiction over oil and gas wells is vested exclusively in the state supervisor of wells. House Bills 5604 and 5605 would amend the respective acts to grant local units of government control over certain aspects of gas and oil drilling in their areas. House Bill 5606 would provide for further regulation of gas and oil drilling by the state supervisor of wells. The bills are tie-barred to each other.

Currently, the county and township rural zoning acts specify that oil and gas wells are under the exclusive jurisdiction of the state supervisor of wells, and may not be regulated by counties and townships. **House Bills 5605 and 5606** would amend the County Rural Zoning Enabling Act (MCL 125.201) and the Township Rural Zoning Act (MCL 125.271), respectively, to allow counties and townships to adopt ordinances regulating oil an gas wells, and to require than an appeal from a county or township ordinance regulating oil or gas wells be filed with the supervisor.

Under the bills, a county or a township could adopt an ordinance to regulate or provide for:

— The hours during which oil, gas, brine, or any other substance or material could be transported to, or removed from, the site of a well, not including the period of time during which an oil or gas well was actually being drilled, nor an emergency situation that required transport to, or removal from, a site, provided that the owner or producer filed an explanation of the emergency and the need for extended hours of operation with the sheriff.

— The access routes to and from an oil or gas well.

— The appearance of the site of an oil or gas well.

— The filing of a manifest within a designated period of time with the local health department, indicating that brine or any other substance had been disposed of in an injection well. The manifest would list the nature and amount of the disposed substance, and the location and time of disposal.

House Bill 5604 would amend Public Act 61 of 1939 (MCL 319.6 et al.), which prescribes the powers and duties of the state's supervisor of wells, to require that the transporters of brine or other substances comply with the provisions of House Bills 5605 and 5606 within the time period designated in an ordinance. The bill would also require the following:

Surely, Security, or Cash Bonds. Under the bill, the bond required of oil and gas well operators would have to be in an amount equal to at least $5,000 for a single well, or not less than $50,000 for a bond that covered all an operator's wells.

Permits. Beginning on the effective date of the bill, a well could not be drilled within 1,000 feet of a residence or within 1,000 feet of the boundary of a lot in a recorded subdivision plot, unless the owner of the residence or property consented in writing.

Permit Applications. Applications would have to contain a listing of the zoning category for the location of the proposed well, and a blank requiring verification of the zoning category by a zoning official of the governmental unit where the well was to be located.

Mineral Rights; Drilling Operations Agreement. If the mineral rights to a parcel of property had been severed from the surface rights, a permit would not be granted unless the owner of the mineral rights entered into a drilling opera-

(Continued on Page 30)

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Sediment Threatening Great Lakes Basin Area

By Wayne Whitman

A serious pollutant is threatening the waters of our state and the entire Great Lakes basin. We usually think of an oil spill or a leak of toxic chemicals when we hear about a serious threat to our waters. These certainly are serious pollutants, and spills and leaks have occurred in the Great Lakes basin.

But there is another serious pollutant being released into our waters and the Great Lakes every day. It is often overlooked because it is so common and does not appear to be a pollutant. This substance generally has three major components — sand, silt and clay. It is our topsoil. When it leaves the land we seldom see it again and it almost never returns. It becomes sediment.

Sediment is a very serious pollutant. It is widespread and comes from many sources. Sediment from eroded cropland carries nutrients and pesticides. "Urban" sediment carries lawn and garden fertilizers and pesticides, and oils, solvents, salt, etc. from parking lots, city streets and construction sites. Stormwater washes sediment and other contaminants into drains and streams and down storm drains directly into surface waters.

Sedimentation is the result of soil erosion. Some soil erodes naturally, but most soil erosion occurs because our land use activities leave soil exposed. The natural forces of wind and water move this unprotected soil into our lakes and streams where it accumulates and gradually degrades our environment. Everyone needs to recognize how serious this threat is and the long term consequences of ignoring it. It is one of the most common and preventable kinds of pollution.

Awareness of the problem is half of the solution. When you see open soil, think about how far wind and water can move it from the source and where it will end up. When soil gets into our streams and lakes it is pollution.

Action is the other half of the solution. Do something to prevent further erosion. A little seed and straw mulch can go a long way toward stabilizing open soil. Planting cover crops is another excellent conservation practice.

Talk with farmers and contractors about their practices. For many, environmental protection is standard procedure. When problems do occur, it is often simply an oversight. Once people become aware of a problem, most will try to solve it.

We all need to be more aware of how subtle and serious a threat soil erosion and sedimentation really is.

Long-term gradual degradation of our environment is not sustainable. A little more prevention now will be well worth it in our future.

The Newaygo Soil and Water Conservation District Is Doing Something About Sedimentation

The following article about the Brooks Creek Watershed Project was submitted to Don Winne for publication in The Michigan Riparian *magazine. The manager of the Project is Wayne Whitman and his overview of the Project follows:*

Water Quality In Newaygo County

The Brooks Creek Watershed Project

The Newaygo Soil and Water Conservation District is taking a pro-active approach to protecting water quality. The District received a Watershed Planning Grant in 1990 to study land uses and their impacts on water quality. The area of study is known as the Brooks Creek Watershed (see map on page 13).

The major emphasis of the one year planning study was to identify and find ways to prevent nonpoint source (NPS) water pollution. NPS pollution is typically runoff and sedimentation in surface waters. It comes from non-specific and diffuse sources such as cultivated fields, grazing land and urban areas. When soil and nutrients reach lakes and streams they pollute the waters and disrupt the ecology. The planning project resulted in development of a comprehensive Watershed Management Plan.

This Management Plan for the Brooks Creek Watershed calls for implementation of certain conservation practices that work the best to prevent NPS pollution and, thereby, protect water quality. Accordingly, these types of practices have been dubbed "Best Management Practices" (BMPs). The implementation phase of the Watershed Project will provide both technical and financial assistance to help private landowners install needed BMPs.

Many of the BMPs are directed toward agricultural production. Among the priority areas to be addressed are needed animal manure facilities, grassed waterways for crop fields and livestock fencing along watercourses. Other BMPs in the implementation work plan are sediment basins, erosion control structures and streambank stabilization work.

Urban runoff can be just as damaging to water quality as poor farming practices. Two very significant urban sources of NPS water pollution are construction sites and vast impervious surfaces such as streets, parking lots and roofs. The City of Fremont, located in the upper portion of the Brooks Creek Watershed, is no exception to urban sprawl and the subsequent increases in urban stormwater runoff. In order to stem the tide of urban runoff, a Stormwater Management Plan is part of the overall Watershed Management Plan. This will include a hydrologic study of the Brooks Creek to analyze the correlations between streambank erosion, increased hydrologic loadings and increased urbanization.

The Watershed Planning Phase required a lot of input at the local level. A baseline survey and public meetings helped determine attitudes and awareness levels about water quality issues. Quarterly newsletters were distributed to all Watershed Area households as part of an educational effort to inform people about the importance of water quality protection and to explain how this Watershed Project will work to prevent NPS pollution.

A Steering Committee was formed to help increase local involvement with the Project. This Committee worked as an advisory council providing direction during the Planning Phase and input for development of the Watershed Manage-

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ment Plan. Agencies and organizations with water quality responsibilities and interest in the Watershed Area are represented. A complete list of the members and groups represented on this committee is as follows:

Professor Fred Bevis
Grand Valley State University

Gary Breuker
Fremont Lake Association

Lin Brown
District Health Department #5

Randy Carson
Newaygo County Parks Commission

Kathy Clary
Newaygo County Road Commission

Stan DeKuiper
Fremont Lake Association

Paul Edbrooke
Newaygo Soil & Water Conservation District (SWCD)

Laurie Gracik
Newaygo SWCD

Mark Hill
District Health Department #5

Larry Hollowell
Newaygo SWCD

Cindy Poll-Hunt
Newaygo County Deputy Drain Commissioner

David Jordan
Newaygo County Drain Commissioner

Glenn Lamberg
USDA Soil Conservation Service

Dale Sawyer
Brooks Creek Watershed Resident

Jeffrey Snow
USDA Ag. Stabilization & Conservation Service

Janice Tompkins
Michigan Department of Natural Resources

Jim Vedders
Fremont Department of Public Works

Wayne Whitman
Newaygo SWCD (Project Manager)

In February of this year the Michigan Department of Natural Resources submitted the grant application for implementation of the Watershed Management Plan to the U.S. Environmental Protection Agency (EPA) for funding through section 319 of the Federal Clean Water Act. If selected by EPA for funding, the Newaygo Soil and Water Conservation District will sign a contract with the Michigan Department of Natural Resources and plans to begin implementation activities in October 1992.

Brooks Creek Watershed
Newaygo County, MI
39,460 Acres

Brooks Creek Watershed
Newaygo County, MI
Cropland

Brooks Creek Watershed
Newaygo County, MI
Urban Landuse

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Protecting Wetlands Through Conservation Easements

By Charles R. Eckenstahler and Dean Ray, The Abonmarche Group

There are several methods for protecting wetlands in the State of Michigan. The Michigan Wetland Protection Act administered by the Department of Natural Resources (MDNR) is one method to designate and protect wetland areas above five acres in size. Another is to have the local Township, City or Village adopt a protection ordinance which can, if so desired, be more restrictive than the MDNR rules. (See *Riparian*, May, 1992, for sample ordinance.)

In use of either of these methods to protect wetland areas, government rules are used to first define the area to be protected, and secondly to enforce the rules on private and public land owners.

Private owners of land also have a method to voluntarily protect wetlands and their property and potentially obtain income tax and real estate tax benefits while still enjoying the undisturbed natural beauty of the wetland area. By establishing a conservation easement, a property owner can voluntarily agree to preserve wetland areas and prevent future owners of the land from developing the wetland area. Additionally, under certain circumstances the donation of a conservation easement for the protection of wetland areas can qualify as a charitable tax deduction for income tax purposes. It may possibly result in a lowering of real estate tax value for the land owner and subsequently lower annual real estate taxes.

Easements — A Description

A conservation easement in concept is no different than an easement granted to a utility company for the location of utility lines. An easement is nothing more than an owner granting interest in their land to some individual or group for a specific purpose.

For example, almost every homeowner in their property deed, subdivision plat, or through another legal document has given an easement to the electric company allowing them to enter the land to supply electric service to their home. This easement lists specific activities which can or cannot be done within a defined land area.

The utility easement wording allows the electric company to enter the land (at any time) to install, repair, or maintain their power lines. It typically will describe what can be done with the land under (or over) the power line and give the authorization to the electric company to trim trees and remove anything which will cause damage to the power line. It will also say the utility company must restore the land to its present condition, if they have to dig up the power lines, etc.

Often an easement is written as a legal document and filed with the Register of Deeds after the purchase of vacant land in order to supply service to a newly built home. A conservation easement would follow a similar pattern. It defines a specific area and states what can, and more importantly, what cannot be done with the land.

An Example Conservation Easement

To describe how a Conservation Easement can be used, an illustration is helpful. A ten-acre property with lake frontage and a wetland area is shown in the accompanying illustration. In this example, the owner wishes to donate a Conservation Easement to the local not-for-profit conservation group (e.g., Isaac Walton League or Sierra Club) to preserve the area in perpetuity as a conservation area. Once the Conservation Easement is accepted, the owner will seek to determine the value of the donation of the easement. This will allow the owner to apply for an income tax deduction and seek property tax relief, since the owner has reduced the value of the property.

The steps the property owner will take are described as follows:

1. **Determine the wetland boundary.**

In our example the owner will first engage a wetlands consultant to delineate the boundary of the wetland area in accordance with the MDNR or local wetland criteria. After the specialist has walked the site and marked the boundary, the owner hires a Registered Land Surveyor to survey and permanently "set corner irons" allowing the area to be surveyed, measured and defined. The Surveyor prepares a boundary survey and legal description for the wetland area (refer to illustration and legal description).

2. **Prepare and grant easement.**

After the wetland specialist and Surveyor have completed their work, it is given to the owner's attorney to prepare the necessary legal documents to grant the easement to a qualified conservation organization. The easement is then granted to and accepted by the organization and the transfer of the easement and legal description recorded with the Register of Deeds in the county where the property is located.

3. **Appraised Value of Easement.**

The owner also engages a real estate appraisal firm to complete a real estate appraisal of the property. The appraiser will establish the value of the property before granting of the easement and after the donation of the easement. The difference between these two numbers determines the value of the easement.

4. **Tax Deduction.**

Since the Conservation Easement is a donation of a "use restriction in perpetuity" and was accepted by a qualified charitable organization as defined by the Internal Revenue Service, the owner contacts his Accountant to process the tax deduction. Appropriate documentation necessary to substantiate the claim for the deduction includes:

A. The fair market value of the underlying property before and after the donation of a qualified conservation contribution.

B. The type of legal interest donated.

C. A description of the conservation purpose furthered by the donation.

Appropriate materials were prepared to attach to the owner's tax submittal by the owner and his Accountant to claim these deductions.

5. **Real Estate Tax Appeal.**

Since the donation of an easement should impact the taxable value of the owner's property, an examination of the real estate appraisal information comparing the fair market value determined by the appraisal to the real estate tax value established by the assessor is completed. If the donation reduces the real estate value below the value set by the tax assessor, the property owner has the basis to appeal the property tax evaluation. When the assessor reduces the tax value, a corresponding reduction in real estate taxes can be achieved.

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Summary

The Internal Revenue Service laws and policies provide a unique mechanism to preserve wetland (and adjacent surrounding areas) and other conservation areas, such as wildlife habitats, where there is a clearly delineated governmental policy to preserve such land areas. The policy of protecting natural habitats and preserving open space through qualified conservation contributions where use is restricted in perpetuity can protect natural areas while being financially rewarding to the owners. However, the owner relinquishes his right to manage the area to a governmental unit or charitable organization committed to protecting the conservation purposes of the owner's donation and who can enforce the restrictions.

Use of Conservation Easements is a win-win solution for both the property owner and the environment. While costs may be somewhat prohibited for some smaller parcels of land, a lake association or other conservation group may wish to consider a program, including multiple property owners, to create a larger conservation area and share the cost for delineation of wetlands, surveying, and legal work.

It may be possible to use tax deductible donations to the charitable organization for payment of the professional services necessary to implement the program.

About the Authors

Dean Ray is a Wetlands Specialist, employed by Abonmarche Environmental Sciences, Inc.

Charles R. Eckenstahler is Director of the Public Consulting Team of The Abonmarche Group and Vice President of Real Estate Advisory Services, Inc. The Abonmarche Group is an architectural, engineering, environmental, construction management and land development firm with offices in Benton Harbor, Michigan and Michigan City, Indiana.

ACT 288 OF MICHIGAN PUBLIC ACTS OF 1967 SHOULD BE CHECKED TO SEE THAT ANY PROPERTY CONVEYANCE DOES NOT VIOLATE THIS ACT.

CERTIFICATE OF SURVEY

I, DONALD R. FITTS, JR., A REGISTERED LAND SURVEYOR, NUMBER 25867, IN THE STATE OF MICHIGAN, DO HEREBY CERTIFY THAT THE DRAWING HEREON DELINEATED IS A FULL AND ACCURATE REPRESENTATION OF A LAND SURVEY OF

DESCRIPTION OF PARCEL

A PARCEL OF LAND LOCATED IN THE SOUTHWEST ONE-QUARTER OF SECTION 13, TOWNSHIP 3 SOUTH, RANGE 18 WEST, HAGAR TOWNSHIP, BERRIEN COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SECTION 13, TOWNSHIP 3 SOUTH, RANGE 18 WEST, HAGAR TOWNSHIP, BERRIEN COUNTY, MICHIGAN; THENCE EAST, ALONG THE SOUTH LINE OF SAID SECTION 13, 330.00 FEET, TO THE POINT OF BEGINNING OF THE HEREIN DESCRIBED PARCEL; THENCE NORTH, PERPENDICULAR TO SAID SOUTH LINE, 642.00 FEET, TO AN INTERMEDIATE TRAVERSE LINE OF SMYTHE LAKE; THENCE NORTH 85 DEGREES 18 MINUTES 34 SECONDS EAST, ALONG SAID INTERMEDIATE TRAVERSE LINE, 586.97 FEET; THENCE SOUTH, PERPENDICULAR TO SAID SOUTH LINE, 690.00 FEET, TO THE SOUTH LINE OF SAID SECTION 13; THENCE WEST, ALONG SAID SOUTH LINE, 585.00 FEET, TO THE POINT OF BEGINNING.

DESCRIPTION OF CONSERVATION EASEMENT

A PARCEL OF LAND LOCATED IN THE SOUTHWEST ONE-QUARTER OF SECTION 13, TOWNSHIP 3 SOUTH, RANGE 18 WEST, HAGAR TOWNSHIP, BERRIEN COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SECTION 13, TOWNSHIP 3 SOUTH, RANGE 18 WEST, HAGAR TOWNSHIP, BERRIEN COUNTY, MICHIGAN; THENCE EAST, ALONG THE SOUTH LINE OF SAID SECTION 13, 330.00 FEET; THENCE NORTH, PERPENDICULAR TO SAID SOUTH LINE, 421.00 FEET; THENCE EAST, PARALLEL WITH SAID SOUTH LINE, 80.00 FEET, TO THE POINT OF BEGINNING OF THE HEREIN DESCRIBED PARCEL; THENCE NORTH 30 DEGREES 00 MINUTES 00 SECONDS EAST, 175.00 FEET; THENCE EAST, PARALLEL WITH SAID SOUTH LINE, 195.00 FEET; THENCE SOUTH 15 DEGREES 00 MINUTES 00 SECONDS EAST, 55.00 FEET; THENCE SOUTH, PERPENDICULAR TO SAID SOUTH LINE, 65.00 FEET; THENCE SOUTH 30 DEGREES 00 MINUTES 00 SECONDS WEST, 200.00 FEET; THENCE SOUTH, PERPENDICULAR TO SAID SOUTH LINE, 120.00 FEET; THENCE NORTH 75 DEGREES 00 MINUTES 00 SECONDS WEST, 150.00 FEET; THENCE NORTH 13 DEGREES 12 MINUTES 19 SECONDS WEST, 226.95 FEET, TO THE POINT OF BEGINNING.

SAMPLE

STATE OF MICHIGAN — DONALD R. FITTS, JR. — Land Surveyor — No. 25867 — Registered Land Surveyor

11 SEPTEMBER 1991
DATE OF CERTIFICATE

DONALD R. FITTS JR.
REGISTERED LAND SURVEYOR #25867
ABONMARCHE CONSULTANTS, INC.

FURTHER, THAT ALL THE REQUIREMENTS OF ACT 132 OF THE PUBLIC ACTS OF 1970 HAVE BEEN FULFILLED

PLAT OF SURVEY FOR:

MR.

PROPERTY OWNER

THE ABONMARCHE GROUP
ARCHITECTS / ENGINEERS / LAND SURVEYORS
ENVIRONMENTAL / INTERIOR DESIGN / REAL ESTATE SERVICES

DATE: 10 SEPT 1991
SCALE:
SHEET 2 OF 2
DRAWN BY: JRO
JOB NO. 91-999

ACT 288 OF MICHIGAN PUBLIC ACTS OF 1967 SHOULD BE CHECKED TO SEE THAT ANY PROPERTY CONVEYANCE DOES NOT VIOLATE THIS ACT.

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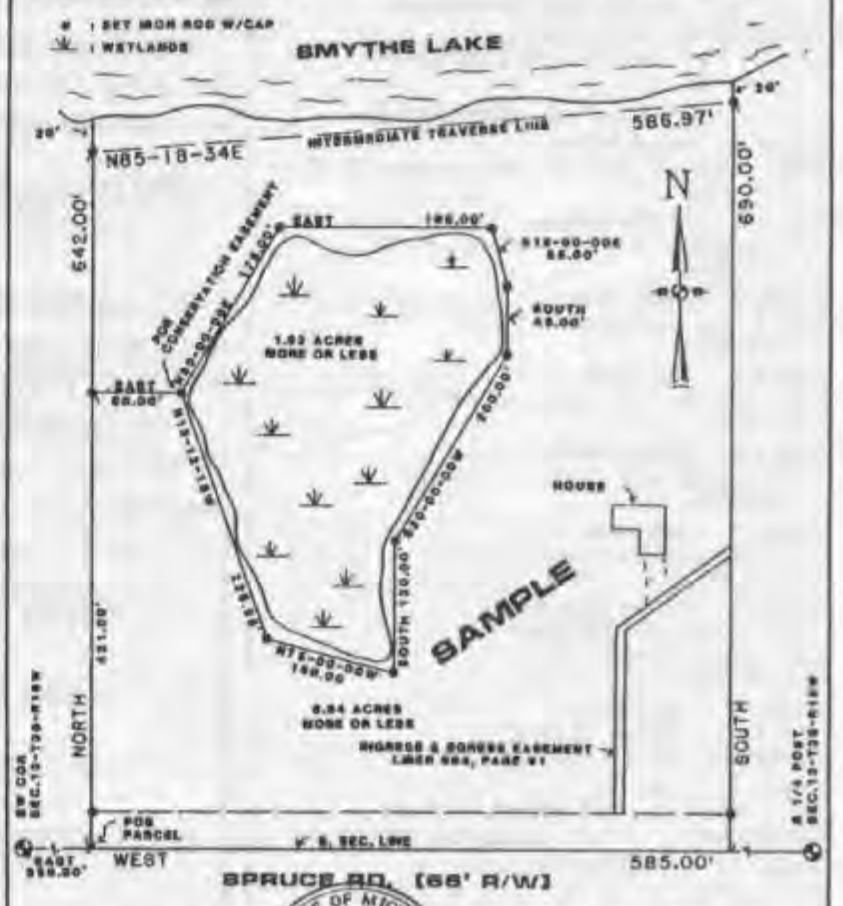
FOR DESCRIPTIONS SEE SHEET 2 OF 2



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DATE: 10 SEPT 1991
SCALE: 1"=60'
SHEET 1 OF 2
DRAWN BY: JRO
JOB NO. 91-999

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ML&SA NEWS

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Office Address: 124½ N. Main St. Phone: (616) 273-8200
Donald E. Winne, Executive Director Fax: (616) 273-2919

NEW ML&SA MEMBERS

Cowan Lake Park Association, Kent County

Miner Lake Owners Association, Allegan County
Roger Blaukamp, President - 140 Members

Granrich Lake Group, Genesee County
Jo Ellen Sullenger, President - 11 Members

Oneida Lake Association, Livingston County
Carolyn Boyd, Secretary/Treasurer - 40 Members

Big Star Lake Association, Lake County
John Drake, President - 275 Members

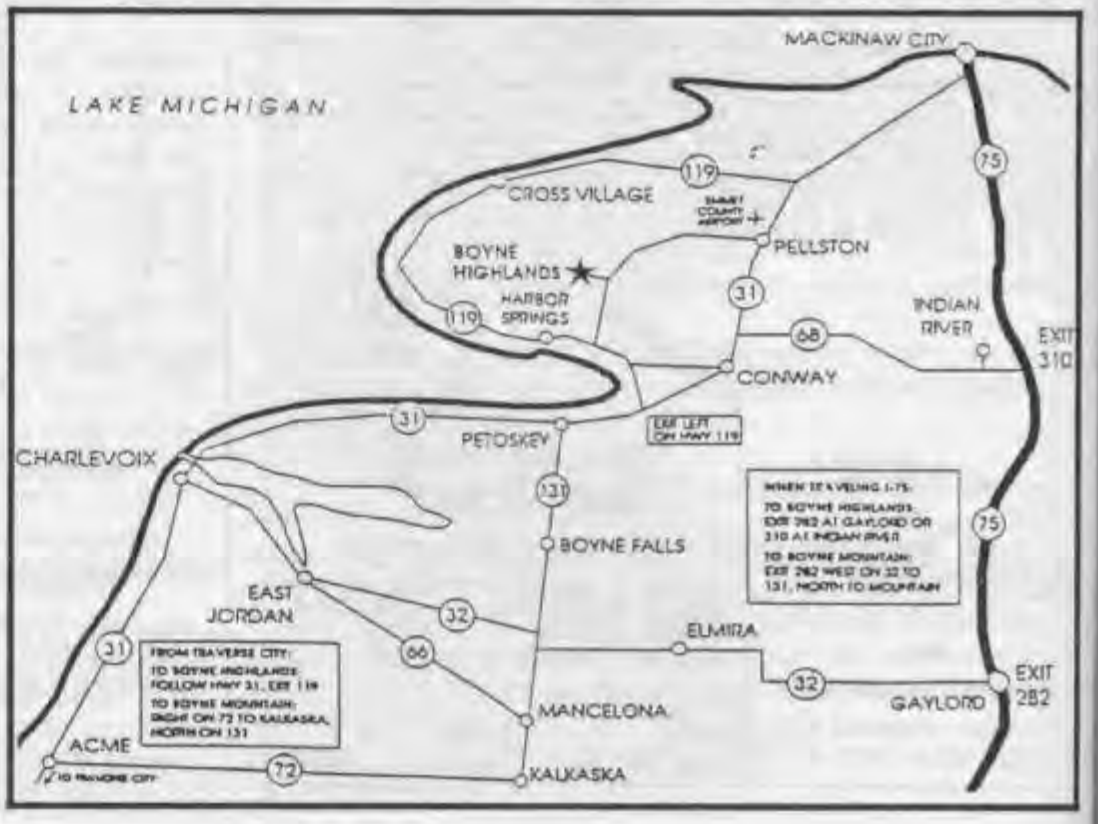
Stone Ledge Lake Association, Wexford County
Richard MacDonald, President - 45 Members

Long Lake Association, Montmorency County
Richard Zaranek, President - 70 Members

Michigan Lake & Stream Association 31st Annual Meeting

Michigan Lake & Stream Association's 31st Annual Meeting will be held at Boyne Highlands, Harbor Springs, Michigan, on October 2, 3 and 4, 1992.

The Program and Reservation Forms are printed on the pages that follow.



OFFICERS AND BOARD MEMBERS OF MICHIGAN LAKE & STREAM ASSOCIATIONS

PRESIDENT — Paul Clark
1695 Three Lakes, Troy, MI 48098
313-879-6977

VICE PRESIDENT — Joe Landis
1642 Walnut Hts. Dr., East Lansing, MI 48823
517-332-6004 (H) 616-266-5667 (Cottage)
517-372-3722 (W)

SECRETARY — Eileen Maddex
P.O. Box 153, Haslett, MI 48840
517-339-8112 (H) 616-264-8724 (Cottage)

TREASURER — Pearl Bonnell
P.O. Box 281, Long Lake, MI 48743-0281
517-257-3583

REGIONAL VICE PRESIDENTS

Region 1 — Floyd Phillips
9535 Crestline Dr., P.O. Box 385, Lakeland, MI 48143
313-231-2368

Region 2 — Marion Schnell
7443 Hollyhock Dr., Manitou Beach, MI 49253
517-547-6606

Region 3 — Kathy Shirk
2202 E. 3rd, Mishawaka, IN 46544
219-259-3978

Region 4 — Earl Kraal
8337 Je-Ne-Be Dr., Rockford, MI 49341
616-874-8313

Region 5 — Richard Brown
13355 Lakeshore Dr., Fenton, MI 48430
313-629-5964

Region 6 — Don Hoes
4315 Blain Island, Waterford, MI 48329
313-623-0750 (H) 313-362-5902 (W)

Region 7 — Dennis Zimmerman
716 E. Forest, P.O. Box 325
Lake George, MI 48633-0325
517-588-9343

Region 8 — John Stone
1778 Fir Rd., Holton, MI 49425
616-894-2141 (H) 616-894-8574 (W)

Region 9 — Terry Ely
Rte. #1 Box 426, Lake Leelanau, MI 49653
616-256-7392

Region 10 — Geraldine Rorabacher
34503 Lytle, Farmington Hills, MI 48335
313-477-8492 (H) 517-379-4391 (Cottage)

Region 11 — Vacant

Executive Director — Donald E. Winne
(H) 11262 Oak Avenue, Three Rivers, MI 49093
616-244-5336 (H) 616-273-8200 (Office)

Aquatic Biologist — Dr. Alan Tessier
Kellogg Biological Station
3700 E. Gull Lake Drive, Hickory Corners, MI 49060

Water Quality Specialist — Dr. Wallace Fusilier
9200 Dexter-Chelsea Road, Dexter, MI 48130
313-426-8972

Hydrogeologist — Richmond Brown
Rte. #1 Box 304, Central Lake, MI 49622
616-544-6680

Biologist — Richard Wolinski
2450 Baker Road, Dexter, MI 48130
313-426-3323

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Michigan Lake & Stream Associations
31st Annual Conference

October 2, 3 & 4, 1992
Boyne Highlands Inn, Harbor Springs, Michigan

Registration Fees
Pre-Registration $30.00 per person — Registration at Boyne $35.00

— Program —

"Sustainable Water Resources"

FRIDAY, October 2, 1992

2:00-7:30	Registration — Boyne Highland Inn Lobby
3:00-5:30	Tour
6:00-7:30	Buffet Dinner — Convention Center
7:45-8:15	**Dr. Wallace Fusilier,** Water Quality Investigators, Dexter, MI "IMPORTANCE OF WATER IN OUR LIVES"
8:15-10:15	**Informal Forum** — Panel Members: **Joseph Hollander, Clifford Humphrys, Wallace Fusilier, Richard Wolinski** and **Donald Winne**
10:15-11:00	Exhibit Center and Hospitality Rooms Open

SATURDAY, October 3, 1992

7:00-8:45	Registration — Boyne Highland Inn Lobby
7:00-8:30	Buffet Breakfast — Main Dining Room, Boyne Highland Inn
7:30-8:30	Exhibit Center and Hospitality Room Open
8:45-10:15	**John Hesse,** Michigan Department of Public Health "CAN WE SAFELY EAT FISH FROM MICHIGAN LAKES?"
10:15-10:30	Break Time
10:30-11:45	**Tony Groves,** Progressive Architects, Engineers, Planners, Grand Rapids, MI "HAMLIN LAKE MANAGEMENT PLAN"
11:45-1:00	Buffet Luncheon — Main Dining Room, Boyne Highland
1:00-2:10	**CONCURRENT SESSIONS:** A. **Dick Brown,** Region 5, ML&SA Vice President "BUILDING & STRENGTHENING LAKE ASSOCIATIONS B. **Dennis Zimmerman,** Region 7, ML&SA Vice President "MANAGING & PROTECTING INLAND LAKES" C. **Dr. Charles Cubbage,** Michigan Department of Agriculture, Lansing, MI "WHEN IS IT APPROPRIATE TO USE PESTICIDES IN LAKES AND STREAMS?"
2:10-2:20	Break Time
2:20-3:25	**REPEAT OF A, B, & C, CONCURRENT SESSIONS**
3:30-4:30	**REGIONAL MEETINGS**
4:30-7:00	Free Time — Exhibit Center and Hospitality Room Open
7:00-9:30	**BANQUET** — Convention Center Keynote Speaker, **Frank Ruswick,** Department of Natural Resources, Lansing, MI
9:30-11:00	Exhibit Center and Hospitality Rooms Open

SUNDAY, October 4, 1992

7:00-8:30	Buffet Breakfast — Main Dining Room, Boyne Highland Inn
7:15-8:15	Vice Presidents and Regional Directors Breakfast
8:30-9:45	**GENERAL SESSION** **Thomas Emery,** Attorney for the State of Michigan, the Attorney General's Office, Lansing, MI "ARE COURT DECISIONS IN TUNE WITH PROTECTING OUR WATER RESOURCES?"
9:45-10:45	**Dr. Leighton Leighty,** Professor Water Law, Michigan State University, Lansing, MI "CAN MICHIGAN'S WATER RESOURCES BE PROTECTED UNDER MICHIGAN WATER LAW?"
11:00-12:00	**CLOSING GENERAL SESSION**
12:00-1:00	Buffet Luncheon — Boyne Highland Inn Main Dining Room
1:30-3:00	Board of Directors Meeting

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Michigan Lake & Stream Associations 31st Annual Conference

October 2, 3 & 4 1992
Boyne Highlands Inn, Harbor Springs, Michigan

PRE-REGISTRATION WITH MICHIGAN LAKE & STREAM ASSOCIATIONS

PRE-REGISTRATION for the conference can be completed by filling out and mailing the form below to: Pearl Bonnell, Treasurer, Michigan Lake and Stream Association, P.O. Box 303, Long Lake, MI 48743. The Pre-Registration Fee is $30.00 per person if post-marked by September 18, 1992. Payment of the registration fee at Boyne at the time of arrival will be $35.00.

Please Print

Name _____ Phone ( ) _____

Address _____ City _____ State _____ Zip _____

Name _____ Phone ( ) _____

Address _____ City _____ State _____ Zip _____

Name _____ Phone ( ) _____

Address _____ City _____ State _____ Zip _____

Name _____ Phone ( ) _____

Address _____ City _____ State _____ Zip _____

***If more than four, please list on separate sheet and attach.*

Total Number registered _____ Amount enclosed $ _____
Make checks payable to Michigan Lake and Stream Associations.

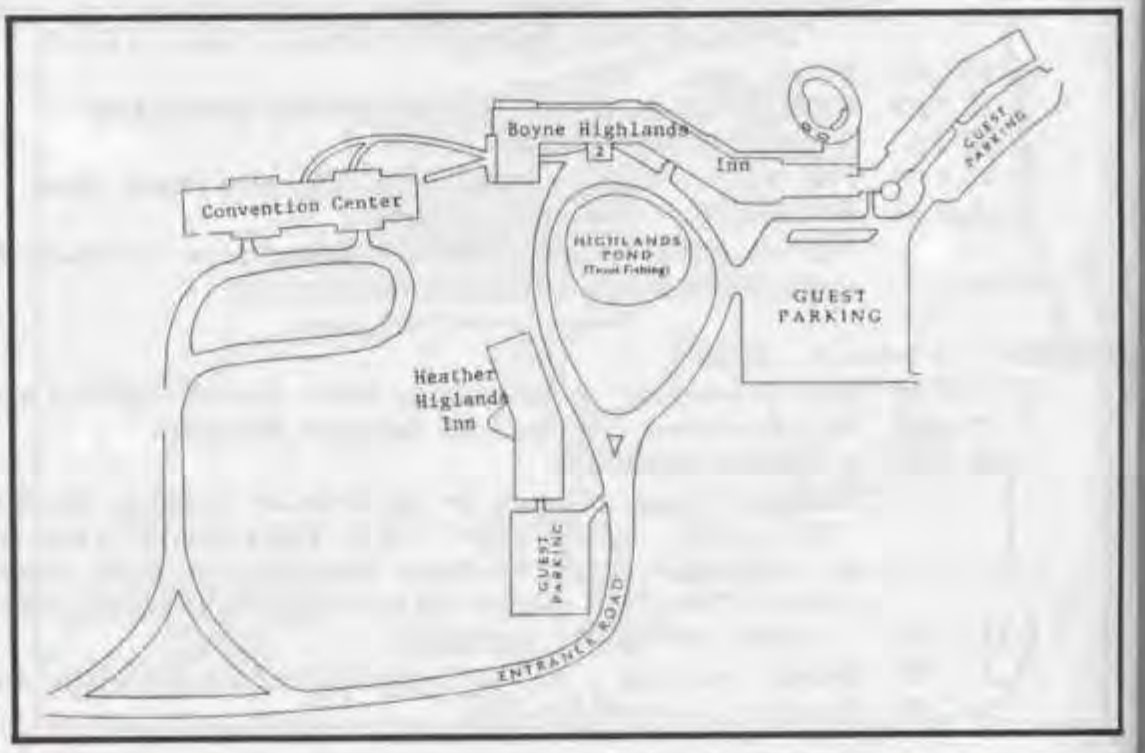
Arrival Date at Boyne: October _____

Lake Association Name _____ **Co. Location** _____

Name of Associations Official Delegate _____

"Sustainable Water Resources"

The theme for this year's 31st Annual Michigan Lake & Stream Association of "Sustainable Water Resources" was selected because the almost daily reporting of contamination of surface and groundwater resources. Since human life cannot survive without a plentiful supply of good clean water, we thought we ought to look at our stewardship of our water resources.



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Room Reservation With Boyne Highlands Inn

MICHIGAN LAKE AND STREAM ASSOCIATIONS

Conference Dates: October 2-4, 1992

Reservation Deadline: September 4, 1992

DEPOSIT

A $30 deposit will be required to confirm reservations. After September 4, 1992, reservations will be assigned on a space available basis.

ACCOMMODATIONS

BOYNE HIGHLANDS INN

The Boyne Highlands Inn offers luxurious accommodations in a traditional hotel setting within a short distance of our three championship 18-hole golf courses, outdoor heated swimming pool, saunas, tennis courts and an executive Par-3 golf course.

CANCELLATION POLICY

Individual deposits will not be refunded if cancellation is made less than 14 days prior to arrival date. The deposit, less a $10 per room administration fee, is only refundable if cancellation is received 14 days or more prior to arrival date.

RESERVATIONS

Please use the form below to reserve accommodations. Reservation forms received after the above deadline will be accepted and every effort made to provide your choice of accommodations.

BOYNE HIGHLANDS INN - MAIN LODGE

(If necessary, overflow to Bartley House within walking distance of Main Lodge)

One price for all accommodations. If first choice is filled, Boyne USA Resorts reserves the option to assign individuals to alternate accommodations.

Single Occupancy	$117.00 per person, per day
Double Occupancy	$ 85.00 per person, per day
Multiple Occupancy *(3 or 4 persons per bedroom)*	$ 74.00 per person, per day

Childrens Rates
Under 12 years: $23 per child when sharing room with two adults. Includes lodging and 3 meals, all taxes and gratuities. Ages 12 - 17: $43 as above.

Rate is per person per day and is based on the Full American Plan which includes lodging and three meals per day beginning with dinner on the day of arrival and ending with lunch on the day of departure. Rates are inclusive of all taxes and gratuities.

Golf Rates: Moor Course - $40, Heather and Ross Courses - $52. Rate is for 18 holes of golf per person including cart. For reservation call 1-800-GO-BOYNE, extension 107 or 261.

Please detach Reservation Form below and return to:
BOYNE HIGHLANDS INN, RESERVATIONS DEPARTMENT, HARBOR SPRINGS, MI 49740

Confirmation will be sent upon receipt of form and deposit. Please make checks payable to: BOYNE HIGHLANDS INN.

MICHIGAN LAKE AND STREAM ASSOCIATIONS
October 2 - 4, 1992

BOYNE HIGHLANDS ROOM RESERVATION

NAME _____

STREET _____ TELEPHONE _____

CITY _____ STATE _____ ZIP _____

NUMBER IN PARTY _____ CHILDRENS AGES _____

ROOM REQUESTED:
❒ BOYNE HIGHLANDS INN: ❒ Single ❒ Double ❒ Multiple

NAMES OF OTHER OCCUPANTS _____

ARRIVAL DATE/TIME _____ DEPARTURE DATE/TIME _____

- $30 will be required as a deposit for each reservation request.
- Please send this form to: *BOYNE HIGHLANDS INN, Reservations Department, Harbor Springs, MI 49740.*
- For additional information, call (616) 526-2171 or 1-800-GO-BOYNE.

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Michigan Lake & Stream Associations

and

The Michigan Riparian

To Hold

OPEN HOUSE

August 29 and 30, 1992

Michigan Lake and Stream Associations and The Michigan Riparian Magazine are proud of their new office at

124½ North Main Street, Three Rivers, Michigan

You are invited to our open house on
Saturday, August 29th from 9:00 a.m. until 8:00 p.m.
or
Sunday, August 30th from 2:00 p.m. to 8:00 p.m.

— PUBLIC INVITED —

ML&SA Member News

BLACK LAKE ASSOCIATION —
Cheboygan & Presque Isle Counties
Peggy Lukitch, President

Black Lake Seeks Information About Swimmer's Itch

Please answer the following questions as thoroughly as possible and give to any Beach Rep., Officer or mail to 13 S. Black River Rd., Onaway, MI 49765.

Please circle all correct answers:

1. How soon after swimming did the itching begin?
   Immediately Several hours later Several days later
2. Where was the swimmer's itch located on your body?
   arms feet legs back head all over
3. How long did the itch last?
   few hours several days week or more
4. How many individual swellings did you have?
   0-10 10-100 more than 100
5. Give the day, month and year when you contacted the itch?
   _____
6. What beach were you swimming on? _____
7. How far from shore were you swimming?
   1-10 ft. 10-100 ft. over 100 ft.
8. What was approximate depth of water where you swam?
   ankle deep knee deep chest deep over your head
9. What type of bottom? rocky sandy muddy weedy
10. What was the condition of the surface?
    calm small waves large waves
11. When were you swimming?
    morning afternoon evening
12. How long did you swim?
    0-60 min. 1-2 hrs. more than 2 hrs.
13. What was the air temperature?
    40-60°F 60-80°F 80-100°F
14. What was the weather condition while swimming?
    clear cloudy partly cloudy raining
15. Was there a wind blowing while you were swimming?
    Yes No
16. If yes, was it:
    coming toward shore blowing out from shore
17. Was the wind a:
    gentle breeze mild wind strong wind
18. Did you towel down or shower immediately after swimming? Yes No
19. Was anyone swimming with you? Yes No
    If yes, How many?_____
20. Did they contact the itch? Yes No

Name _____

Address _____

City, State, Zip _____

Thank you for your cooperation!

DERBY LAKE COTTAGE OWNERS ASSOCIATION —
Montcalm County
Larry Morris, President

Labor Day Weekend Breakfast

Sunday, September 6th, 9:00-11:00 a.m. Brush-Wenzel Barn, Derby Gardens, east end of lake. Pancake/Sausage Breakfast. Includes orange juice and coffee, plus all the table service. No muss - no fuss! Get the gang out of bed and come as you are. All furnished by your association. Chaired by Woody Ely and friends. This is the weekend when summer starts drawing to a close. Boats, docks, rafts, etc., start coming out for winter storage. Sun birds prepare to head south. Others linger on to take in the fall colors. Whatever your plans — come out for a great breakfast!

Drinking Water — supply should be tested every two years. Contact local Health Department, County Complex, just north of Stanton on M-66.

Health Department — Anita Williamson replaced Paul Mahan, who retired in 1990, as Environmental Health Sanitarian. She is in charge of Montcalm County Surface Water — including all lakes and streams. She is located in the County Health Office, phone 831-5238.

DEWEY LAKE ASSOCIATION — Cass County
Laverne Carnegie, President

The Lake Management Committee has put a hold on spraying the lake and submitted a statement to the Board their reasons:

Weed Control — Major concerns are Milfoil in Dewey Lake. Per-

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mit was received for use of chemical treatment (2-4-D) as recommended by DNR but the cost of treatment was estimated to be $15,000 to $20,000 per year and would have to be done every 2-3 years.

Harvester — Possibility of rental; however, none found to be available. Recommend purchase of harvester at some future date. Minimum cost $10,000-$15,000.

The Lake Management Committee has contacted Dr. Joe Ervin of Michigan State University and will meet with him this week to have him undertake a professional analysis of the lake before proceeding further.

DOUGLAS LAKE ASSOCIATION — Otsego County
Bill Brooks, President

Douglas Lake appears to be a typical northern Michigan kettle hole lake, with water quality adequate for recreational uses. The water appears to stratify twice yearly (summer and winter), making it a dimictic lake. It contains sufficient nutrients to support a limited population of macrophytes. Nutrient loads in the lake appear not to have changed significantly between 1979 and 1991, although the lack of long term continuous monitoring increases the difficulty of discerning possible trends. The greenbelt surrounding the lake acts as a natural vegetative filter, intercepting nutrients before they reach the lake. Also, the watershed is comprised of regenerating forest which retain many nutrients, thereby preventing their entry into the lake through subsurface channels. Overall, Douglas Lake appears to be mesotrophic in status and relatively stable. The following recommendations should help protect water quality in the future.

1. Monitor logging activities in the area and, when appropriate, encourage clear cutting in strips instead of blocks. Advocate a minimum 50 foot vegetative buffer against logging along all waterways (primarily intermittent streams) in the watershed.
2. Maintain septic tanks in proper working order. Have them pumped periodically to insure that nutrients are not being leached into the lake.
3. Maintain a greenbelt at least 50 feet wide along the shoreline. This should consist of native vegetation which can be trimmed to improve the view, but root stock should be left undisturbed. If a lawn currently exists consider letting it revert to native vegetation. At a minimum, use low phosphorous fertilizers for maintenance.

ELK-SKEGEMOG LAKES ASSOCIATION —
Antrim, Grand Traverse and Kalkaska Counties
Jean Lawrence, President

How Does Your Greenbelt Grow?

By Elaine Burns, Publicity Chairperson and Handbook Editor

Note: In preparation for this article, Elaine distributed a questionnaire to area landscaping companies. The questionnaire is reproduced here, along with a definition of a greenbelt from the ESLA handbook "Living in Our Lakeside Environment."

Questionnaire

1. Do you do 'greenbelt' landscaping?
2. Do you regularly carry plants suitable for greenbelts in our area?
3. Do you carry supplies to be used to retard erosion at the water's edge? If so, what?
4. Do you have a catalogue of the plants you carry?
5. Do you have people who will come out to consult with the homeowner?
6. Is there a charge for this consultation?
7. Do you have greenbelt landscape plans available?
8. Will you make an individual landscape plan for a homeowner?
9. Is there a charge for such plans? If so, how much?

Now, the toughest part of all. Please try to fill in the following blanks:

For a totally bare area of lake frontage 100 feet wide and 15 feet deep, it would cost approximately $ _____ for _____ trees, _____ shrubs and _____ ground cover. For this price, who plants the plants — your company or the homeowner?

I promise not to quote you. I just want to let people have some idea what this project might cost.

Will you list several suitable plants for a greenbelt that you carry?

Next to each specimen, please include the price expected for next season:

Trees _____ Shrubs _____ Ground Cover _____

Again, thank you. I hope you have a prosperous season.

Definition of a Greenbelt: A greenbelt is a strip of vegetation at least 10 feet (better 20 feet) in width located between the shoreline and lawn. It is a buffer zone for the lake, acting as a living filter that removes nutrients from the soil before they reach open water. It traps silt and sediments and prevents erosion. It also acts as a wind break and a sound break and attracts birds and wildlife.

It is that time of year when you may be considering re-establishing a greenbelt in front of your home. A greenbelt does so much good for the lake (please reread your handbook) in keeping the water clear and clean, that it is a worthwhile project for all riparians.

A questionnaire sent to the local nurseries resulted in the following information:

Most of the nurseries in our area will come out and help you form a landscape plan — in some cases for free (if you buy your plants from them) or for a $35 to $50 charge. You may do your own planting or they will plant for you with a one year guarantee.

The estimated cost of a greenbelt along the lake 100x15 feet deep, from scratch (bare lake front), ranged from $1,000 to $1,500 (depending on who does the planting) for approximately 4 to 5 trees, 15 to 20 shrubs and various ground covers. Materials are also available from most nurseries to retard shoreline erosion.

Also requested in the questionnaire was suggestions for suitable plants. Some of the most often mentioned plants follow:

Trees: Pines, Fir, Maples, Linden, Oaks, Spruce, Ash, Cedars, Poplar. Ash was suggested most.

Shrubs: Viburnams, Michigan Holly, Service Berry, Willow, Snowberry, Witch Hazel, Buckhorn, Hemlock, Forsythia, Dogwood, Sumac, Bittersweet, Potentilla, Honeysuckle, (generally berry bushes).

Ground Cover: Myrtle, Pachisandra, Wintergreen, Crown, Vetch, Ivy, Cotoneaster, Monarda, Hosta, Sedums, Native Ferns, Creeping Juniper, Iris.

Remember, the overriding consideration is for plants that *do not require fertilization.* Fertilizers defeat the purpose of the greenbelt.

The following nurseries have responded to the questionnaire, are stocked and will be happy to help you.

Bellwether Herbs & Flowers - Suttons Bay 271-3004
Barker Creek Nursery - Williamsburg 267-5972
Pine Hill Nursery - Kewadin 599-2824
Plant Masters - Suttons Bay 271-4769
Village Garden - Traverse City 941-1808
Zimmerman Landscaping - Traverse City 947-1770

Happy Gardening — See you on the lake!

LAKE FENTON PROPERTY OWNERS ASSOCIATION —
Genesee County
Dick Brown, President

Lake Activity Regulation Ordinance

The Fenton Township Board voted to approve the Lake Activity Regulation Ordinance on June 1, 1992. Your Board of Directors along with many of the area lake associations have supported the purpose of this ordinance. In the past, state bureaucracies have not listened to our concerns. This ordinance provides for some local controls that have been afforded to us by some recent court decisions. During the proposal stage of this ordinance, some of the newspaper articles and comments attributed to individuals were very misleading. With the ongoing thought of providing in-

(Continued on Page 22)

ML&SA Member News

(Continued from Page 21)

formation to our residents, the ordinance is reprinted below:

An Ordinance to promote the health, safety and welfare of the residents of the Charter Township of Fenton by regulating and limiting watercraft activity and access on lakes in Fenton Township, to provide certain definitions of terms, to require C-3 Zoning for new public watercraft access or launch sites and marinas, to require Planning Commission approval for expansion of existing facilities, to require Planning Commission approval for new facilities, to provide a right of appeal to the Fenton Township Board of Trustees and to provide for the enforcement of and penalties for the violation thereof.

The Charter Township of Fenton ordains:

Short Title

Section 1. This Ordinance shall be known as the Lake Activity Regulation Ordinance.

Purpose

Section 2. To promote the health, safety and welfare of Fenton Township residents by regulating and limiting watercraft activity and access in an effort to avoid overcrowding on lakes in Fenton Township.

Definitions

Section 3. As used in this ordinance:

A. "Watercraft" means every vessel, other than a seaplane on the water, used or capable of being used as a means of transportation on water.

"Marina" means a privately owned facility which extends into or over an inland lake and offers service to the general public or members of the marina for launching, docking, loading and other servicing of recreational watercraft.

"Public access launch site" means a publicly owned facility which extends into or over an inland lake and offers to the general public a site for launching, docking, loading or other servicing of recreational watercraft and parking of watercraft trailers.

Zoning Classification Required

Section 4. No person, firm, entity or corporation shall develop, construct, operate or maintain a public watercraft access launch site or marina on any lake in Fenton Township without first having obtained a rezoning of the proposed area to the zoning classification commonly known as C-3, Highway Service District.

Expansion of Existing Facilities

Section 5. Approval of the Fenton Township Planning Commission shall be required for any expansion in the size, capacity or utilization of an existing marina or public access launch site, including the number of watercraft allowed to be docked or moored at or launched from the site and the number of watercraft trailers allowed to be parked at the facility.

Approval Required For New Facilities

Section 6. Approval of the Fenton Township Planning Commission shall be required for the development and construction of all new marinas and public access launch sites on lakes in Fenton Township. The Planning Commission in giving such approval shall specify the maximum number of watercraft that can be docked or moored at and launched from such facility and the maximum number of watercraft trailers that can be parked or stored on the site.

Right of Appeal

Section 7. Appeal may be taken to the Fenton Township Board of Trustees by any person, firm, entity or corporation or any officer, department, board or bureau affected by a decision of the Fenton Township Planning Commission with respect to the subject matter of this ordinance. Such appeals shall be filed within thirty (30) days from the date of the adverse decision being appealed from by filing with the Fenton Township Clerk a Notice of Appeal specifying the grounds thereof.

Enforcement

Section 8. (a) All persons who violate any of the regulations or provisions of this ordinance whether as owner, lessee, licensee, agent servant, or employee shall be liable as principals.

(b) The violation of any of the regulations or provision of this ordinance is hereby deemed a nuisance, and such violation in addition to the other means of enforcement of this ordinance as set forth herein, shall constitute a basis for injunctive relief, and, at the option of the Township Board, said Board may proceed to obtain an injunction requiring any person to cease and desist from the activity claimed to be in violation of the regulations and provision hereof.

(c) Any persons who shall violate any provision or provisions of this ordinance shall be guilty of a misdemeanor and upon conviction thereof, shall be punished by a fine of not to exceed Five Hundred Dollars ($500.00) or by imprisonment in the County Jail for a period not to exceed ninety (90) days, or by both such fine and imprisonment in the discretion of the Court, and provided further that each day's violation of this ordinance shall constitute a separate offense.

Validity

Section 9. Should any section, clause or provision of this ordinance be declared by the courts to be invalid, the same shall not affect the validity of the ordinance as a whole or any part thereof, other than the part so declared to be invalid.

Repeal

Section 10. All ordinances or parts of ordinance in conflict herewith are hereby repealed.

Publication and Effective Date

Section 11. This ordinance shall be published as required by law and shall be effective thirty days after the date of publication.

GLEN LAKE ASSOCIATION — Leelanau County
Barney Glettler, President

Waterfowl/Swimmer's Itch

Committee chairpersons:
Barbara Siepker 334-4395 *Bill Peppler 334-3435*

Because of the higher incidence of reported swimmers' itch cases last year, the program is being expanded to include more extensive Spring and Fall phases. We believe the early and prolonged warmth last year, coupled with more swimmer hours, were significant factors in the increase. The impact of a high number of migratory Mergansers in the Fall has yet to be determined.

Large portions of the work done by Dr. Blankespoor and Ron Reimink in past years will be shifted to local trained volunteers. Several key components of the work will be done under Dr. Blankespoor's direction, but with our own direct involvement. This is the year to step forward and be a crucial part of the waterfowl control team. If you have dreamed of being the first to put your boat onto the lake and to be a Merganser chaser in the Spring and Fall, please step forward! Or, you may be the person to turn the boomers on/off this Spring. (We are trying "boomers" at two experimental locations to keep the Mergansers completely off these shores.) Or, for the more subdued, we need people to circle the lake weekly to keep an accurate bird census. It would help to be able to identify birds, but we are willing to train in this area. Please join Tom Dean and Jerry Giffin, who have already volunteered to be a part of our team. Call Barbara soon so you may be a part of Spring Training.

LAKE LEELANAU ASSOCIATION — Leelanau County
James C. Bendig, President

Water Quality Monitoring

Lake front residents share a common resource and have common concerns. Their most frequently asked question is "what is the condition of Lake Leelanau and is it remaining stable, improving or getting worse?" Two years ago, at the start of regular monitoring by the Watershed Council, no one could answer that question with any accuracy. Now, we are well on our way to establishing

an adequate baseline of information which will not only detect trends in water quality, but also point out potential problems in time to find solutions.

In early 1990, Dr. Tim Keilty, working for the Watershed Council set up five regular monitoring stations on Lake Leelanau. At each station, important water quality parameters, such as temperature dissolved oxygen profiles, secchi disk transparency, and basic nutrient chemistry, would be measured on a regular basis. Now after two full years of field work, involving thousands of individual "tests" — we are beginning to see the fruits of this labor and the answers to our question about water quality.

The Second Annual Report of the Water Quality Monitoring Program was released this spring. It contains seventeen pages of text and a 48 page data appendix on Leelanau County lakes. In the report, Dr. Keilty terms the condition of Lake Leelanau as generally "good". The data shows a lake that has high water quality at present, but that is vulnerable to increased nutrients from households and sources within the watershed.

Total phosphorous concentrations are an extremely important indicator of the health of lakes. Low phosphorous levels of both North and South Lake Leelanau (159 total observations in 1991) are well within the range considered normal for high quality lakes. On the other hand, both lake basins experienced oxygen depletion in their bottom waters during late summer and under late winter ice. South Lake Leelanau had periods in both years of the program where severe oxygen depletion could disrupt sensitive fisheries and other parts of the food web. Transparency readings indicate water quality in the mid range (mesotrophic).

Dr. Keilty in his report notes that the real value of the monitoring program will be realized as years of accumulated data point up trends in water quality. This will not only allow us to answer our original question about the state of the lake with assurance, but will also help decision makers and riparians safeguard their lake through cost effective and appropriate measures.

Copies of the complete 1991 Water Monitoring Report are available at the Leelanau Conservancy, 105 N. First St., Leland.

MORTON TOWNSHIP TRI-LAKES ASSOCIATION —
Mecosta County
Russ Klumpp, President

Banner Year for District 9 Walleye Plants

1991 proved to be an exceptional year for Walleye plants in West Michigan's 9th district. According to John Trimberger, the eight-county 9th district benefited from a "bumper crop" of walleye fingerlings, reared in the many walleye ponds throughout the district. John says much of the credit for the increased production of the ponds is in part due to a change in fertilization methods and constant supervision by new fisheries supervisor Cary Gustafson.

Trimberger estimates that 80% of the 1½ to 2 inch spring fingerlings will survive the three to four years it will take them to reach the 15 inch minimum length requirements for harvesting by West Michigan sportsmen.

Most of these walleyes being planted are the product of the egg harvesting program on the Muskegon River. However, according to Trimberger, many of our inland lakes are now being stocked with lake Erie walleyes in an effort to establish a lake spawning variety of walleye that are more inclined to reproduce naturally in our inland lakes.

Hats off to the district 9 fisheries crew for a job well done. Keep up the good work!

LAKES PRESERVATION LEAGUE — Lenawee County
Ann McKie, President

In November, 1988, the Lakes Preservation League was successful in the Woodstock Township Board rejecting the request for 32 condominiums on Devils Lake in Lenawee County. At this time it was established that there was a wetland area contiguous to the lake where the dwellings were to be built. This was done by a study by Dr. Humphry and a statement from the previous owner that in the 1960's he had been stopped from dredging and filling by the State Conservation Department. This was prior to the establishment of the Department of Natural Resources.

In 1991 the Township did allow the building of 13 single-family units under the Condominium Act. The League continued to monitor the wetland area and hired an attorney who helped keep on top of actions taken. The Department of Natural Resources did send a letter to the developer stating that the area could not be dredged or filled. However, they did allow the cutting of vegetation.

The developer asked the DNR for a permit to erect a sea wall at the water's edge. Several calls were made to the DNR, and the letters written. On May 20 the DNR sent the developer a certified letter stating the request to construct approximately 260 feet of steel pile seawall, excavate approximately 20 cubic feet of dirt for backfill and truck in approximately 25 cubic yards of additional backfill materials, was denied.

"The stated purpose of the proposed activity is to facilitate stabilization of the shoreline from ice push and erosion and help water quality. After consideration of the permit application, on-site investigation and other pertinent materials, the Department finds that the proposed activity would have an unacceptable adverse impact upon the natural resources, public interest and public trust held in the lake and wetland area."

The Lakes Preservation League will continue to be vigilant and hope this decision will not be overturned.

THREE LAKES ASSOCIATION — Antrim & Kalkaska Counties (Bellaire, Clam & Torch Lakes)
William Weiss, Jr., Executive Director

Think Before You Roar

The Board has struggled with complaints of excessive noise from large powerboats and jet skiis in recent years. Not knowing what to do, Mr. Bruce Petrie approached the Board with a novel idea for a public education campaign. The results are included as an insert in this newsletter. Our thanks go to Mr. Petrie for spearheading this idea and for underwriting half the costs.

To get the word out, these will be delivered to some 3800 box-holders on the APS "black box" system. They will be available in TLA display boxes at local merchants. Extras can be obtained through the Association. If you get a second one around July 4th, please "share" it with that kid on the jet ski down the lakeshore.

Helena Passes Well and Septic System Ordinance

Helena Township has passed a new zoning ordinance which affects anyone seeking to sell their property in the Township. It reads:

"Any real property containing a well and septic system shall not be sold or transfered in any manner until the owner has received an evaluation of the well and septic system by a County (District #3) Health Department Officer.

"The evaluation shall be in writing and furnished to any prospective purchaser or transferee.

"Said evaluation shall be valid for a period of up to two years prior to the date of sale or transfer."

WALLOON LAKE ASSOCIATION —
Charlevoix & Emmet Counties
Bill Fairhurst, President

59,000 Trout Planted in Walloon by DNR

Early this month Steve Swan, DNR District Fish Biologist, reported that 30,000 Rainbow and 29,000 Brown Trout were planted in Walloon. They were fingerling size, about 7 inches long. Trout plants of approximately this number have been made annually since 1989 when Brown Trout were introduced. The Browns have done as well or better than the Rainbows. Some Browns over 20 inches were caught this winter through the ice.

Speaking of ice, the Petoskey News-Review winter fishing contest reported that two first place fish came from Walloon; a 9.65 pound Rainbow and a 15 pound, 4 ounce Lake Trout. Early spring fishing pressure on the lake was very light, but some Lake Trout as well as Browns and Rainbows, were caught trolling in shallow water after the ice went out (April 21 on the West Arm).

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Oil and Gas Wells: What They Can Do To Your Air and Water

By William J. Sauber

The Problem

Oil and gas production in Michigan is of vital economic importance to the state as well as providing a needed source of energy to its citizens. Approximately 15,000 state residents are dependent on the oil and gas industry for their livelihood. Michigan petroleum production in 1991 provided 20% of the state's energy needs.

In 1990 wellhead values for gas and oil approached one billion dollars. That same year eleven million private acres and about one and a half million acres of state land were under oil and/or gas lease.

However there is a serious downside to these impressive economic figures. Oil and gas exploration has been and continues to be a major source of pollution of the state's groundwater and underground aquifers.

The petroleum companies in the well drilling and production well business carry out their activities in almost all cases in such a way as to avoid groundwater and aquifer pollution, said Floyd Layton, geologist with the Department of Natural Resources. Mr. Layton had given an update on petroleum well drilling at the Region 10 Meeting of the Michigan Lake and Stream Associations at Alpena, Michigan, on June 6, 1992. Mr. Layton went on to point out that the pollution problems were caused by a small minority of wells drilled or in operation.

However, it seems that even the small number of careless drilling and production operations can seriously pollute the pristine waters of Michigan's northland. Ann Hunt, Chair of The Michigan Environmental Council's Oil and Gas Wastes Taskforce, wrote of the problems in her article, "Oil and Gas in Michigan: The Price of Exploration and Production" published in the November-December 1991 issue of Michigan Environmental Report. Ann Hunt begins her article with this ominous statement: "As evidence emerges of widespread pollution associated with oil and gas activities, the pressure is growing stronger from the industry to relax standards for the prevention and cleanup of pollution".

Two ML&SA Members Act On The Problem

Many residents do not have the background or technical ability to understand what goes on during the drilling and production of petroleum. Also what goes on is largely underground or otherwise out of sight, so attention is not drawn to the problems until often dangerous contamination of the affected waters becomes obvious.

There are at least two exceptional cases where Michigan Lake and Stream Association members were able to assist in protecting their northern Michigan retirement home environments from further deterioration by petroleum activities. In these cases the members had both the concern and the technical and professional background to recognize the problems.

The first of these two ML&SA members I talked to was Mr. Eugene E. Ochsner (Box 158, Johannesburg, MI 49751). Gene Ochsner retired in 1965 after 41 years service with the chemical giant, Dupont. Gene began as a chemist, rising to production supervision and major production management positions. Dupont assigned Ochsner at one time in his career to the Houston area where after many years there he became intimately familiar with the heavy petroleum industry activities in the Houston area.

Gene's retirement home is in Otsego County and he and his wife, Pricilla, are active in the Michigan Lake and Stream Associations. As early as 1968, Ochsner was troubled by the petroleum drilling practices in his area.

One of Ochsner's earliest concerns was the petroleum industry's casual handling and release of hydrogen sulfide to the environment. Hydrogen sulfide causes that rotten egg smell that used to be so prevalent around oil and gas fields. One of Ochsner's areas of expertise is sulfur chemistry and he is quick to point out that hydrogen sulfide is an extremely poisonous gas. He states that the maximum allowable amount of hydrogen sulfide in the workplace air for continuous breathing by federal standards is 10 parts per million. This is the same standard set for hydrogen cyanide, the lethal gas of choice for putting people to death in a prison gas chamber.

Ochsner cited a hydrogen sulfide incident that happened in nearby Vienna Township of Montmorency County. A producing well which contained a high percentage of hydrogen sulfide gas was temporarily shut down for maintenance work. During the course of the work, the main well valve was left open, with the work crew relying on the other process valves to contain the high pressure gas. The entire crew then left for the day leaving the well unattended. While the crew was gone, the packing on a process valve failed thus spewing raw gas to the atmosphere.

A sensor to warn the well's supervision of the release of hydrogen sulfide had been removed because it interfered with the well's operation. A woman resident living nearby tried calling an emergency number when she smelled the gas but found the emergency number disconnected. A man stopped his car briefly near the well and developed such severe breathing difficulties he had to be taken to the hospital.

Ochsner went on to point out that the seriously toxic nature of hydrogen sulfide has been known since the 1920's. However, a law regulating its release in petroleum activities was not proposed until 1976. The draft of this regulatory law then went nowhere until 1987 when a death due to hydrogen sulfide occurred. A tank-truck driver inhaled a lethal dose of hydrogen sulfide which had remained in his truck's tank after transporting a load of brine saturated with the poisonous gas.

Gene Ochsner has written position papers on many other petroleum activity pollution hazards he has noted.

The second ML&SA member I spoke to who has been active to protect his retirement environment and the quality of living for the many who live near him is William R. Brooks (Box 160, Johannesburg, MI 49751). Bill Brooks was trained as an Industrial Engineer and in the 15 years before his retirement was a plant manager for Ford Motor Company. As plant manager he had the experience of supervising the cleanup of the accidental spill of diesel oil into a settling pond so he understands the responsible way to protect the environment.

Bill Brooks is President of the Douglas Lake Association as well as an active ML&SA participant. One day while out driving around he noted an abandoned separation plant in a gas drilling field in Chester Township of Otsego County. It turned out that this abandoned plant had badly contaminated the ground water and the underground aquifers with

benzene, toluene, xylene, and ethyl benzene. These undesirable chemicals had been spilled on the ground by leaks in casings, liners, tanks, pumps and compressors and by just plain broken pipes.

This contamination site is one mile from the AuSable River and has polluted a major aquifer serving the area with its water. With attention focused on the problem with Brook's help, the petroleum company involved is pumping many millions of gallons of contaminated water out of this aquifer to a 3000 foot deep disposal well. The pumping out is expected to continue until the year 2003 before the water will again be considered cleaned up, said Brooks.

Brooks called to our attention a major research paper printed March 3, 1987, by John F. Salvino, at the time with Michigan State University, entitled "Well Site Contamination Problems in Michigan". Salvino concentrated his study on brine contamination which ruins the quality of drinking water in nearby residence wells. Fifty seven contamination incidents are noted.

Ochsner and Brooks provided further literature references to many other causes of petroleum activity pollution; a few are highlighted as follows:

— Shallow placement, structural failure, or aging of well casings can cause great quantities of brine, petroleum, gas and contaminated ground water to flow into aquifers, lakes, streams, and soil in the area.

— In some cases water wells are drilled to supply water to a nearby petroleum well. In Presque Isle County it was noted these wells were abandoned without proper capping which caused water to flow between underground aquifers. This has the potential of contaminating a pure aquifer with less pure water. Water can also flow from a shallow aquifer to a deep aquifer causing wells using the shallow aquifer to dry up. Perched water table lakes and ponds, of which Michigan has many, could dry up by this process. I am aware of at least two lakes drained by drilling in the wrong place but in these cases the drilling was not done for petroleum extraction.

— Oil and gas wastes in some areas contain naturally occurring radioactive materials. Waste areas around such wells can create radioactive exposure levels that are 160 to 5000 times greater than the maximum waste discharge level allowed from nuclear power plants.

What Can We Do

In our competitive free enterprise society, a company or corporation must operate in the most economical way or it will not survive. This is what has given the United States its economic success and its citizens a high standard of living. However if the operations of a company may include activities that affect the health of the public then there must be clear regulations strictly and fairly enforced to protect the public and give all competing firms the same advantage.

Oil and gas exploration and production can be hazardous to the health and safety of the public. Michigan has recognized the need to regulate to avoid these hazards by the Passage of Act 61 in 1939 and the many amendments adopted since 1939.

However, with the rapid growth of the oil and gas industry in the past decade in Michigan it has been virtually impossible for the Department of Natural Resources to maintain thorough enforcement of the law. In addition, where criminal violations of the law are found, the DNR has difficulty obtaining prosecution. The State Attorney General's office refers prosecution to the County Prosecutor's office because the state is short on manpower. The Catch 22 to all this is the County Prosecutor usually lacks the funds or expertise to prosecute so often nothing happens except perhaps a verbal caution or letter of reprimand from the policing agency.

The DNR has been able to use, in some cases, their administrative powers to enforce the law. Where flagrant violation is noted the petroleum company can be refused future drilling permits. This takes a lot of paperwork and manpower but it is effective.

Donald J. McLennan, Prosecuting Attorney of Presque Isle County determined it was time that the county understand what risks were involved in the increasing oil and gas activity in his area. He secured the help of Mark Viegelahn, a person with considerable oil field work experience, to work with him as Environmental Oil Field Consultant.

Extensive work by McLennan and Viegelahn is reported in a synopsis paper by them entitled: "A Study of Oil and Gas Drilling Practices in Presque Isle County: Problems, Analysis, and Suggestions". The introduction reads: "Oil and gas exploration has been shown to regularly discharge contaminants into previously pure underground waters. This is a synopsis of an eighteen-month effort to understand the magnitude of the problem and to propose solutions.

This is an excellent report with many sound suggestions. In addition a 1 hour-40 minute video has been produced which shows typical well site contamination problems and suggested solutions. The synopsis, complete report, and/or video can be purchased by contacting: Mr. Donald J. McLennan, Prosecuting Attorney, Presque Isle County Courthouse, Rogers City, MI 49779.

One of the suggestions by McLennan and Viegelahn reflects todays common wisdom. The criminal penalties of Public Act 61 must be strengthened to make the fines truly punishing and involve imprisonment of agents and principals who are in oil field operations. What if the President of a petroleum company would face the possibility of jail-time for willful violation of environmental standards? The company itself would then assuredly be helping the DNR to enforce the law in its field operations. Under present criminal penalties it is less expensive to be caught and pay the fine than to comply with the law.

McLennan and Viegelahn strongly feel that state licensing of petroleum drillers would solve many of the pollution problems we are now facing. McLennan points out that water well drillers in Michigan must be licensed to protect the public. Yet an unlicensed petroleum driller has the potential to contaminate or render useless not just one water well, but the water supply for a whole area.

Perhaps the petroleum companies and the policing agencies should take a "zero defect" approach to oil field operations as the Michigan auto industry is doing to remain competitive. Then we can enjoy the many benefits of oil and gas operations without severe sacrifices in the quality of our lives in the woods and waters of Michigan.

About The Author

Bill Sauber is a graduate of Purdue University holding a Bachelor's Degree With Distinction in Chemical Engineering. He served with Dow Chemical Company in Midland, Michigan, for 28 years in a variety of technical, business and executive staff management positions. For a number

(Continued on Page 26)

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Oil and Gas Wells: What They Can Do To Your Air and Water

(Continued from Page 25)

of years he was responsible for health safety activities for Dow Plastics. Also in Dow's Executive Department, he did liaison work with the United Nations Environment Program to establish a philosophy for aligning the world's chemical industry with global environmental needs, under the direction of Dow's Chairman of the Board. Currently he is President of his own consulting firm, AQUARI Corp. and serves as Secretary of the Oscoda County Planning Commission, as a U.S. Forest Service Volunteer, and Vice-President for Community Affairs as well as Representative to Michigan Lake and Stream Associations, Inc. for the Loon Lake Shores Assocation.

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11. I certify that the statements made by me above are correct and complete. Donald E. Wiese, Chief Executive Officer

PS Form 3526, January 1991

MICHIGAN LAKE & STREAM ASSOCIATIONS
31st Annual Conference
Boyne Highlands Inn, Harbor Springs, Michigan
October 2, 3, and 4, 1992

New Concerns Emerge As Zebra Mussel Spreads

A fact sheet from the Michigan Sea Grant College Program, a cooperative program of M.S.U. and U of M.

Just as the initial zebra mussel invasion in North America prompted Great Lakes managers to look to the European experience for assistance, inland waterway managers are now looking to the Great Lakes. Managers of inland waterways, anticipating trouble of their own, are requesting assistance from Great Lakes Sea Grant programs in monitoring for the presence of the mussel.

In the eastern Great Lakes region the zebra mussel has moved inland to New York's Erie Canal, Finger Lakes, Hudson River, Mohawk River, and Susquehanna River — heading toward the Chesapeake Bay. Other inland sightings include the Chicago Canal, and Illinois, Ohio, and Tennessee Rivers. The mussel has also been reported in the Mississippi River as far north as LaCrosse, Wisconsin, and as far south as Alton, Illinois — just north of St. Louis.

Corps Structures May Be Affected

The U.S. Army Corps of Engineers regulates the flow of water through many inland waterways for navigation and flood control. Zebra mussels have been discovered on Corps structures, such as navigational buoys and locks.

Structures of particular concern are the locks used to move vessels from one water level to another. If the mussel colonizes culverts that regulate water flow into the lock chamber, water flow could become unbalanced. The resulting turbulence in the lock could cause damage to the lock or to vessels using them. Also, if the flow of water is decreased, the time to fill locks will increase, causing a bottleneck for vessels.

Another concern is for Corps flood control devices, which may be impaired by heavy growths of zebra mussels. Levee flap gates, designed to protect riverside property, might not seal if they become encrusted with mussels, allowing river floodwaters onto adjacent property.

Additional Corps instrumentation and structures which may be affected by the zebra mussel include wave gauges, water level sensors, hydroelectric plants, and recreational facilities. If underwater structures become covered by thick mats of mussels, they will be more difficult to inspect, and will face accelerated corrosion and wear.

Native Clams Threatened

A biological and economic concern shared by many is the impact the zebra mussel will have on native mussels. The zebra mussel poses a particular threat to endangered native mussels whose numbers have already been greatly diminished due to other factors. Large numbers of zebra mussels attach to native mussels, threatening life by blocking the function of shell opening and closing.

Native freshwater mollusk harvesters are assisting in zebra mussel monitoring. Harvesters export native mussel shells to Japan for use in the cultured pearl market, and are worried about what impact the zebra mussel will have on their industry, which presently generates millions of dollars per year.

Chemical and Mechanical Controls Used

Thus far, zebra mussel control methods have only been used at specific sites, such as water intake pipes. Chlorine

is one of many chemicals used to control the mussel in water intake pipes and live wells. Molluscicides, applied to boat hulls, are also used to control the mussel.

Nonchemical controls and techniques are also effective in excluding zebra mussels from water intake pipes, or removing existing mussels. These include burying water intakes, using filters, scraping surfaces, electrically charging surfaces, emitting acoustic vibrations, releasing ultraviolet radiation, and flushing water systems with heated water.

Nature May Offer Remedy

In addition to investigating chemical and mechanical zebra mussel controls, researchers are exploring the use of biological agents. One approach utilizes toxic microorganisms. This is currently the most environmentally acceptable method used to control another aquatic pest — the black fly. When introduced into the water, certain microbes become toxic to black fly larvae only after they have been broken down in the fly's digestive system. Researchers are testing numerous microorganisms for toxicity to the zebra mussel.

Another biological control being considered is the use of parasites that naturally debilitate and kill the zebra mussel. A number of U.S. researchers are interested in examining zebra mussel populations, particularly those in Europe, for potentially useful parasites.

Genetic Variation Explored

The zebra mussel's scientific name *Dreissena polymorpha* (polymorphic — occurring in various forms) describes the variability evident from one mussel to the next. This variability is expressed in both physiological processes (vital functions) and physical appearance. For example, the mussel's appearance varies from a domed to relatively flat shell. Also, shell color variations range from solid white to solid black — though the various striping patterns are most common.

One explanation for some of these variations is that the mussel adapts to changes in its environment, thus changing its physical and physiological makeup. Another possibility being explored is that perhaps populations of mussels came from different genetic stock released by ships originating in different European ports. Whatever the cause, this variability may result in one population of mussels being tolerant to certain environmental conditions while another may not be.

This striped freshwater mollusk, native to the drainage basins of the Black, Caspian and Aral Seas was accidentally introduced into the Great Lakes in the mid-1980s.

Pernicious Pest Presents Opportunities

Long before the mussel arrived in North America it had established its pernicious reputation. Although zebra mussels are not blamed for the meltdown, the Chernobyl nuclear power plant's water systems were colonized by the mussel — causing a temporary water shortage in the plant. But some Europeans view the mussel in a different way and see it as an opportunity. For example, water quality managers in the Netherlands have stocked the zebra mussel in ponds to reduce phytoplankton.

Some researchers in North America have followed the Europeans' lead and are exploring potential uses for the zebra mussel — such as a calcium-rich composting material for gardens.

Research Efforts Continue

Another year has passed and yet a silver bullet aimed at stopping the mussel on a large scale has not materialized. Although still searching for a widespread control, many have conceded that there may never be a method to completely eliminate the zebra mussel from North America.

Researchers are striving to better understand the zebra mussel's behavior and physiology. This knowledge will help others in determining what impact the mussel will have on ecosystems, recreation, transportation, and industry, and will assist in the development of zebra mussel control methods.

For More Information

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Michigan Sea Grant Zebra Mussel Information Office
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Merrill L. Petoskey Addresses Natural Resources Commission

By "Pete" Petoskey, Ralph A. MacMullan Conference Center, July 8, 1992

Members of the Natural Resources Commission.

My name is Merrill L. Petoskey. My wife and I live on West Twin Lake near Lewiston. I am Chairman of the Montmorency Soil and Water Conservation District, and past-President of the Twin Lakes Property Owners Association. I represent those organizations here tonight. I am also a Trustee on the Albert Township Board.

I retired from the Department of Natural Resources in 1979, after 32 years, during which I worked in the fields of wildlife, education, regional and front office administration. Following my retirement, I spent six years in Washington as the Deputy Administrator for Natural Resources and Rural Development, an arm of the Cooperative Extension Service.

I wish I were here to commend you on the handling of Antrim gas exploration in Montmorency and adjacent counties. But I'm not here to commend, but to express my concern about the handling, or possibly a better term, mishandling of Antrim gas and the associated resources, soil, water, forests and wildlife to name but a few. I want to make it crystal clear that I am not against the exploitation of this resource, but to the manner in which it is being exploited.

I don't pretend to be an expert on geology, but I am very familiar with surface values and their worth to society and, in too many cases, these values are being ignored in someone's haste to exploit the Antrim resource, the hastening being stimulated by a subsidy at taxpayers expense. What's the hurry, other than a tax break? And, a short term gain for the state, a few individuals and companies. My definition of conservation is the wise use of natural resources, for the greatest number of people, over the longest period of time. Such is not the case here. Get it quick, regardless of the consequences, seems to be the creed in this instance.

I have been accused publicly of over-reacting to this exploitation, but I wonder if those making this claim, or the decisions on the future of our resources, are oblivious, insensitive or uncaring about the other resources and people affected?

For the past couple of years, while hunting for birds and mushrooms, my concern has magnified. During the past few months, I have spent many hours and days in the field, alone and also in the company of DNR employees at all levels from local forester and geologist, through the regional hierarchy to the Assistant Supervisor of Wells. To a person, they expressed dismay and concern at what was shown them as to surface values that are being drastically changed or lost altogether.

Public Act 61 of 1939, as amended, and the numerous rewrites of the Administrative rules to implement this Act, are permitting a desecration and fragmentation of our natural resource base in much of four counties in northeast Michigan. Also, speaking of the draft regulations, I see no reference to the problem of noise or an overall environmental assessment statement in the entire 112 pages of draft 13, dated February 24, 1992.

As you may remember, in October of last year, I first publicly expressed my concern to Director Harmes, here at the RAM Center, about Antrim wells changing the character of the land. Oddly enough, a week or so earlier, the Michigan Oil and Gas News reported a field trip for you Commissioners, and top DNR officials, to (I quote) "familiarize the new NRC commissioners and DNR officials with Michigan oil field operational practices and industry problems." Obviously, some of us perceive things differently, or possibly you weren't shown a total cross-section of the entire operation. I know some of you well enough to know that our perceptions are similar. But, are some eyes so distorted by dollar signs to obscure the real meaning of what is happening to our blessed northland? I realize that contributions to the Land Trust and the Michigan Strategic Funds and elsewhere are important, but should desecration be allowed in four counties so land can be purchased elsewhere in retribution. It's almost as though a father would permit the raping of one daughter to keep the others intact!!

Administration of this whole program seems to be one of the tail wagging the dog. Public lands are nominated by industry for lease. These nominations are sent to the field for review. As I understand, the field people have been instructed to approve leases for development of all forty acre parcels if the forty contained at least three acres of flat high ground, and was not subject to any other special use restrictions. Another instruction, called a "hard line" is also imposed on the field people. This limits drilling to at least 330' from the forty boundary to prevent drawing gas from an adjacent property. This limits drilling to the center ten acres of the forty. These instructions may have made sense when deep wells were involved, one per section or at the maximum one per quarter section.

Frankly, they make no sense to me when every forty in a section (that's sixteen) can contain a well. And this doesn't include pipelines, pumping facilities, brine disposal wells, etc. In Otsego County, there are almost 2000 wells although I don't believe anyone knows the exact number. Currently, there are 350 wells in place in Montmorency County, 725 have been permitted, with 44 brine wells permitted so far. Industry estimates 2000 permits by the end of 1992.

You've seen the map. I wish my shotguns patterned that well. At least ten percent of a forty is lost to well pads and pipeline corridors. And, who can foretell the future? The whole system is geared to development without apparent regard for any of the associated resources and the fragmentation of our land base.

Your field people are overwhelmed by drilling requests. Leases are to many different companies. In one case, there are four companies drilling in two sections and they all want different pipelines. No wonder most of the field reconnaissance and type-mapping is done from aerial photographs with little or no actual, physical contact with land. This is especially dangerous when analyzing for wetlands. Where are the overall plans for the total operation? Nothing of this magnitude should have the piece-meal approach, that is in evidence.

Another point is that most of the drilling and related activities are done by assignees. That means to a different formation from the original leases. The original leases, in most cases, were to the larger oil companies, Shell, Amoco, et al. How can they be absolved of any responsibility for the actions of the assignee? It doesn't happen when you sublet a house. Why should it happen on public land? These new assignments should be re-reviewed by the field, particularly when every forty is involved. But, many of your field people didn't know the wells were going in until they re-

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ceived the request for drilling. In fact, they often do not even know that development leases had even been approved.

Now, a case or two in point. In 1939, the Hunt Creek area was dedicated as a fisheries research station, making it the oldest such research station in the Nation. In the late 1960's, your predecessors on the Commission recognized the need for long range continuing research for both fish and wildlife, and approved the dedication of Hunt Creek as a Fisheries Research Area, along with Beaver Island, Cusino, and Houghton Lake for wildlife research. I might add that the research done here on brook trout, its habitat and environs and stream rehabilitation, have received international recognition.

For 23 years, the local field people worked cooperatively with the Research Station Director, in land management of this area. The industry nominated for leasing the Hunt Creek area. The field people unanimously recommended non-development leasing for the entire area. In November, 1985, someone at Regional Headquarters or above, changed the recommendation to development. The potential for wells in the Hunt Creek Research area is 68 wells. Was the earlier Commission dedication considered in this decision to develop?

The area is extremely fragile. According to the station Director, and I quote, "Past experience has shown me that even running seismic transects alters our artesian systems on the area. Twenty years ago a seismic line was run across the area. That event caused our area spring systems to belch out clay and marl which they had never done between 1939 and 1970, we have had periodic episodes (2 or 3 times a year) of the artesian systems becoming very turbid. I believe these episodes are related to all the seismic activity that has been going on around the area these past twenty years.

"I believe there is great risk from oil and gas development to our long term fisheries data base that we are accumulating at Hunt Creek. This information is unique and cannot be replaced. We need to reverse the action that has taken the area from nondevelopment to development, or better still, no leases at all on the research area."

One more case of a special area. This is the Greasey Creek Special Management Area for ruffed grouse, 2,220 acres in size. It was started in 1975, and managed cooperatively by the Forest Management and Wildlife Divisions. Cutting was done in small blocks, census areas set up, drumming counts and populations surveys were an annual process. This area was also recommended as non-development, but to no avail. The recommendation was not heeded.

Drilling has already started, with several wells in place, and at least twenty planned. To their credit, the company doing the drilling has agreed to five wells per section. But, with our current regulations, the decision to go to a forty acre spacing in the future is theirs, not yours.

Why should areas such as Greasey Creek and Hunt Creek even be considered for development? You have a statement in your lease agreement that states "the lessor (DNR) shall not reclassify a lease as development if there will be any impairment of any of the following: wetlands, endangered species habitat, historic, archaeologic or cultural sites, areas of special wildlife or recreational significance." Why shouldn't this same rational apply before a lease is even considered?

What are we going to do about this issue? One reason given for the situation we are in is that there are not enough people to do the field work, monitor the operations, police the sites, etc. I say, in response to that excuse, *if you can't police, don't lease!!!* The gas resource isn't going anywhere. As a start I would suggest you postpone the leasing scheduled for July 14.

Why are the overall plans for exploitation issued piecemeal, with no thought to bringing the well sites, pipelines, pumping stations, brine wells, etc. in a cohesive, overall plan. It appears that more time, and planning thought, goes into the elk harvest than to Antrim gas development, which is spreading like a malignant cancer across our county. And elk are a renewable resource!

Where is the cohesiveness of decision-making that used to be evident in our Department? When I was a Chief, I didn't always agree with the field, but, by God, they knew it and why!! There seems to be serious problems with both horizontal and vertical communications. This seems to be a strong argument for not splitting the Department, as some propose. You seem to be having a hard time communicating as is, let alone in two or more different agencies.

Which reminds me, I have not heard a single top administrator of our Department or our politicians, speak out publicly either way on this issue. To not take a position is an abrogation of your responsibility as stewards of our land, both public and private, and its associated resources.

No one has looked at the real cost-benefit relationship. What is the long term cost of fragmenting wild forest land, and forest aesthetic degradation. Long term resource management, aesthetics, and the like are extremely important to tourism and related recreation, which are vital to our economy.

I will close with a quote from Aldo Leopold's Sand County Almanac — "Economic provocation is no longer a satisfactory excuse for unsocial land use." The sad part is, he said it almost fifty years ago. Don't we ever learn?

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House Bills 5604-5605

(Continued from Page 11)

tions agreement with the owner of the surface rights, and a copy of the agreement, or other proof, had been filed with the supervisor. The agreement would have to contain all of the following:

a) Location of all proposed wells.
b) Location of all surface areas that would be affected by drilling operations.
c) Location of access roads to the drilling site.
d) Type of drilling equipment to be used.
e) A plan of action in the event of an emergency.
f) For a well that was to be drilled within 1,500 feet of a residential structure, provisions for housing, fencing, or screening the pumping equipment; for reducing noise; and for hours of operations.
g) Provisions for surface restoration to be done after completion of drilling operations and after completion of all extraction activities.
h) Provisions for the cleanup of contamination or damages to natural resources, including groundwater and subsurface soils, caused by drilling operations.
i) The compensation to be paid to the surface owner for damages to the surface property.

Under the bill, the surface owner (defined under the bill to mean one or more persons who held record title to the surface of the land, or the purchaser under a recorded land contract or memorandum of land contract) would be compensated for all damages or losses, including the loss of the use of all or part of the surface property caused by oil or gas operations.

Mineral Rights; Arbitration. If the mineral rights owner and the surface owner were unable to agree to the provisions of a drilling agreement, either party could submit the matter to arbitration by notifying the supervisor of wells, who, within seven days after receiving notice, would be required to randomly select an individual from a prepared list of persons qualified to arbitrate disputes between mineral rights owners and surface owners. Should the supervisor determine that the individual had a conflict of interest in the dispute, then he or she could select an alternate at random, rejecting as many individuals as were necessary to appoint one that had no conflict of interest. Alternatively, should the mineral rights owner and the surface owner jointly agree to any arbitrator on the list, then the person jointly selected would arbitrate the dispute. At the arbitration hearing, each party would be required to submit a proposed drilling operations agreement. The arbitrator could rule in favor of one of the agreements, or could establish the terms of an agreement that was not advocated by either party. The arbitrator's decision would be forwarded to the parties and to the supervisor, and could be appealed to the circuit court. The supervisor could issue a permit upon receipt of the arbitrator's decision.

Currently, Public Act 61 of 1939 specifies that its provisions control in case of conflict with other laws on the subject matter, except for the authority given the Public Service Commission. House Bill 5604 specifies that the provisions of House Bills 5605 and 5606 would control in case of conflict between Public Act 61 and the appropriate sections of the County Rural Zoning Enabling Act and the Township Rural Zoning Act.

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