AUGUST, 1981

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PROFESSIONAL DIRECTORY

ABOUT THE COVER: Pictured is Lake Superior lakeshore at Pictured Rocks National Park. Picture taken by Donnald Winne in September, 1979.

A pair of; companion bills have been introduced into the Michigan Senante (SB-327 and 328) by Senator William Fause, which would prohibit the DNR from issuing permits for off-shore drilling in the Great Lakes. We should support this bill which will protect Lakes Michigan and Huron from encroachment and possible oil accidents and degradation.

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Lansing, Michigan 48909

Representative (Name)
House of Representatives
Lansing, Michigan 48909

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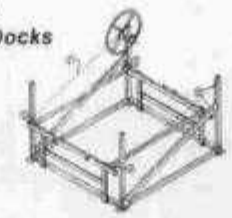

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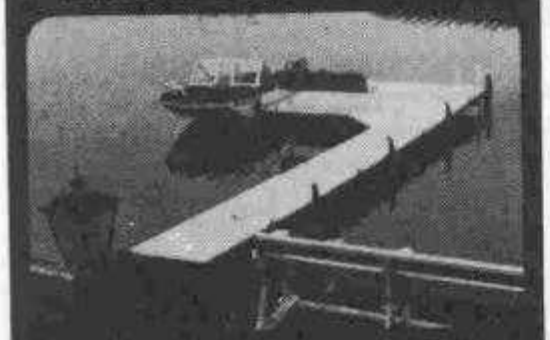

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Otsego Lake Studied by U. of M. Biological Station Staff.

Otsego Lake Water Quality Study is Representative of many lakes - therefore the newsletter of the association is printed in full.

Water Quality Survey

Your directors are delighted with the scope, content and lake management direction provided by the Water Quality Survey of Otsego Lake, conducted last summer by a study team from the U. of M. Biological Station headquartered at Douglas Lake near Pellston. Highlights of a 72 page report are contained in the enclosed summary which we intend shortly to distribute to all residents and property owners of record in the Otsego Lake area. Copies of the full report have been deposited with the Public Library in Gaylord and are available for check-out.

Initiated as a study of expected smaller scope by $2,500 of "seed money" provided by the Otsego Lake Association, the scope and content were broadened as additional monies became available. These included $5,000 in gifts to the U. of M. Biological Station, an E.P.A. grant of $3,200 arranged by the Northeast Michigan Council of Governments (NEMCOG) and $168 from registration fees in a Workshop sponsored by the Biological Station for the benefit of Lake Associations in the area.

With this tremendous outpouring of support, your Board was only too pleased to contribute by unanimous vote an additional $301 to cover the closing deficit on a study that appears to be more comprehensive and meaningful than any yet conducted on a similar lake in northern Michigan.

Time to congratulate ourselves on what can be done when a Lake Association is active and truly concerned. Time to acknowledge our gratitude and thanks to the U. of M. Biological Station - David M. Gates, Director, Pellston 49769 - and to the Northeast Michigan Council of Governments -Randy Fryberg, Director, Gaylord 49735. (Among other things the $10,169 cash cost of the study includes nothing to reimburse these organizations for the indispensable administrative and technical services they provided.)

Time also to reveal a little secret. It wasn't just a highly professional, dedicated and effective three-person team (Stan Pollack, Art Gold and Marion Secrest). It simply couldn't have happened without the ex-officio services of Bob Koch, lake resident, association member, and concerned member of the staff of NEMCOG.

But time especially to begin the lake preservation practices so convincingly recommended by the team!

Implementing Survey Recommendations

After you have read the enclosed summary, you will understand the critical need for eliminating surface run-off where possible; reducing it to the minimum where elimination could not be accomplished. You will report problem areas not within your control and nip at the heels of somebody until something is done about it.

You will either become more active in support of a sewer system or will applaud and support your Directors in their alternate determination to get a "Septic Snooper" campaign going and in nipping at someone else's heels until septic systems are upgraded to a point that they contribute no more than the 8% of lake phosphorus input that would be associated with "typical" systems, hopefully to something better.

Directors Tasks

Availing ourselves of the good offices of the Northeast Regional Council of Governments and providing whatever help seems possible and necessary, we expect to have the lake tested this winter for phosphorus content and the possibility of oxygen depletion and to arrange continued monitoring as appropriate.

We hope to inspire a "Septic Snooper" capability as part of the sewer study grant program and are determined otherwise to find the means of financing the roughly $10,000 that would be required for the "Septic Snooper." The "Snooper" is a very recent technological development that permits off-shore identification of each specific source of gross septic contamination, whether direct and presumably known to the property owner or indirect and unknown, as in the case of drainage between layers of impervious soil.

With expected cooperation from elected and other public officials, we hope to have in place by spring the avenues through which your knowledge and our support can be used to accomplish the lake management practices that are outside the scope of individual initiative. We also hope to have in place the advisory sources you can use to deal with exceptional situations, such as help in finding erosion control alternatives to the use of fertilizers, recommended types and limitations of fertilizer that might be required for starting initial vegetation, etc.

We intend to find out more as to the possible nature and cost of studies to evaluate the effect of motorboating on water quality; to arrange for appropriate studies and recommendations as to the remedial action if warranted. Well water testing will be encouraged, not only at Arbutus Beach as recommended, but in all areas of the lake where congestion suggests the possibility of contamination.

THE MICHIGAN
RIPARIAN

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EDITORIAL

Donald Winne

LANSING GOBBLEDEGOOK

A bill to regulate the "development, control, use and maintenance of public access sites on inland lakes.." was introduced by Senators Bishop, Welborn and Ross on January 27, 1981. It was passed by a 33 to 3 vote in the Senate early in June and is now in the hands of a House committee.

The bill sets a minimum lake size of 160 acres for a public access site but makes an exception allowing the Natural Resources Commission, by a ⅔ vote, to permit a public access site on a lake (of less than 160 acres) "having unique fishing or boating characteristics". In effect, the Commission may put an access site on a five acre lake if it has "unique fishing or boating characteristics". By not defining the above quoted phrase, the bill opens the door.

The bill's attempt to regulate the number of car-trailer sites per access site borders on the ridiculous. The smaller the lake the greater number of car-trailer sites per number of surface acres of a lake. For example, a 160 acre lake may have a site with as many as 100 parking spaces which is equal to one space for every 1.6 acres. On a 1600 acre lake, there would be 16 acres for every one parking space. On a 20,000 acre lake, there would be 200 surface acres for every one parking space. WHY WOULDN'T IT BE MORE SIMPLE AND EQUITABLE FOR THE BILL TO PERMIT ONE PARKING SPACE FOR EACH 10 OR 20 SURFACE ACRES OF A LAKE?

Another question the bill does not address is HOW MANY PUBLIC ACCESS SITES MAY BE ESTABLISHED ON ANY ONE LAKE? How is it possible that this bill passed the Senate by a 33 to 3 vote in early June?

Ask your Senator for the answer!

PUBLICATION DATES: Winter Issue, February; Spring, May; Summer, August; and Fall, November.

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Don't Do It In The Lake

Second of two articles
By Paul Todd

In the search for ways to protect our lakes, we've discussed key soil conditions, and steps you can take as lake homeowners.

Of course, a couple of magazine articles aren't enough to tell you all you need to know before deciding whether to invest thousands of dollars in property improvements to reduce or prevent pollution.

This article, therefore, keeps the discussion short and provides you with a lot of addresses to write for more information. First, here are some things you should know:

Publications

Although we provide an address for each publication, try your local library first. If yours is small, your librarian may be able to arrange for an interlibrary loan, if you find a larger library which has the publication.

If you are reasonably near a large library, call there, especially if it's an official depository for U.S. Government documents. College and university libraries are usually designated, especially if they're the only large libraries in rural areas. U.S. Environmental Protection Agency publications are likely to be found in depository libraries.

Does your lake association have a lending library? If not, consider acquiring a number of the more important publications. Write short articles for your lake association newsletter, reminding your residents that these publications may be checked out. Bring the library (it may just fill one cardboard box) to your association meetings; mention the collection at the start of the meetings. Many hobby clubs do this so members don't have to buy specialized publications themselves.

Products and Manufacturers

Michigan Lake & Stream Associations Inc. does not recommend or endorse any brand or company. These listings and comments are intended to provide information which will help you make a decision about improving your home sewage disposal system. Since many of these addresses will not be available locally, they are provided here.

Where more extensive information is available, we also have indicated whether the product has been in production or use for some time. "NSF" refers to the National Sanitation Foundation, the national research arm of the sanitation industry; the NSF seal is awarded only to products meeting minimum design standards.

ML&SA Publication

Much of the material for this two-article series came from the text of **Don't Do It In the Lake,** a book length paper prepared for possible ML&SA publication. The book would contain a great deal more material on sewage, soils, and disposal on lakefront lots in Michigan; nearly half the book is a catalogue of more than 50 alternative disposal methods.

ML&SA is now considering possible arrangements for illustrating and printing, as well as financing publication. It may be necessary to charge $5 or more for a copy of the book. **The Riparian** invites your comments on your interest in the publication. Please send your comments to the **Riparian** office.

Paul Todd was employed for 3 years by the water quality planning program of South Central Michigan Planning Council, near Kalamazoo. Previously he was a reporter for the **Kalamazoo Gazette** for ten years. Recently he completed **Don't Do It In the Lake** as part of the Master of Public Administration degree program at Western Michigan University.

GOOD READING FOR CLEAN LAKES

We all need to know more about the science of sewage and water pollution. Books listed may be in your library, especially if it's an official depository for Federal government documents. Phone and ask. Try the nearest college library, too.

Toward a Cleaner Aquatic Environment, by Kenneth Mackenthun, 1973. Excellent first book for adults on water pollution, from Environmental Protection Agency. Order from: Superintendent of Documents, U.S. Govt. Printing Office, Wasington DC 20402. Stock #055-001-00573-3. Last known price, $2.70. 273 pages.

Alternatives for Small Wastewater Treatment Systems, Vol I: On-Site Disposal/Septage Treatment and Disposal, 1977. Also from EPA, a semi-technical introduction to the science of on-site sewage disposal. The best of its kind. Order from: Center for Environmental Research Information (CERI), U.S. Environmental Protection Agency, Cincinnati, OH 45268. Free the last time we obtained one. 91 pages.

Small Wastewater Systems: Alternative Systems for Small Communities and Rural Areas, 1980. Foldout brochure, 22 x 17 inches. Illustrates two dozen most common methods of improved on-site sewage disposal. Excellent group handout. Order from CERI. Free.

Goodbye to the Flush Toilet, edited by Carol H. Stoner, 1977. Non-technical but detailed volumn on the history of sewage disposal, and alternatives to conventional toilets and sewers. Material on composting toilets is top notch. Order from your local bookstore (publisher: Rodale Press). 385 pages.

Don't Do It In the Lake, by Paul Todd, 1980. Master's degree paper on lakefront home sewage disposal in Michigan, prepared for Michigan Lake & Stream Associations and South Central Michigan Planning Council and aimed at Michigan lake residents. Arrangements are now being made for publication. 138 pages plus illustrations.

Design Manual: Onsite Wastewater Treatment and Disposal Systems, 1980. The latest from EPA on onsite sewage disposal. Somewhat technical. Intended primarily for engineers and consultants but is useful if you have background. Order from CERI, listed above. Free. 392 pages.

PRODUCTS & MANUFACTURER LISTINGS

1) Plumbing Fixtures Including Toilets

Kohler Co.
Kohler, WI 53044
(Or: see your local distributor)
One of the "big four" with a full line of products. An overhead-tank toilet is offered as a nostalgia item at about $300, less hardwood seat.

Crane Co.
17900 Skypark Circle
Irvine, CA 92664
(Or: see your local distributor)
Another of the "big four."

Zin-Plas Corp.
Grand Rapids, MI 49503
616/364-6171
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American-Standard
P.O. Box 2003
New Brunswick, NJ 08903
(Or: see your local distributor)
Another of the "big four" with a full line of products.

(Continued On Next Page)

Don't Do It In the Lake

(Continued From Page 7)

Elger Plumbingware
Wallace Murray Corp.
Three Gateway Center
Pittsburgh PA 15222
Another of the "big four."

2) Pressurized Toilet Tank

Water Control Products N.A. Inc.
110 Owendale, Suite E
Troy MI 48084
"Flushmate" device replaces toilet tank, delivers a 2 to 2½ gallon flush under air pressure.

3) Water-Recirculating Toilet Systems

Monogram Sanitation Products Inc.
1945 E. 223rd Street
Long Beach CA 90810
"Jet-O-Matic" system.

Pure Cycle Corp.
P.O. Box 671
1668 Valtech Lane
Boulder CO 80301
303/449-6530
Manufacturer says system can process 400 gallons/day of wastewater.

4) Oil Flush Toilet Systems

Chrysler Corp.
Space Division
P.O. Box 29200
New Orleans LA 70189
504/255-3311
"Aqua-Sans" mineral oil recirculating system.

Monogram Industries
100 Wilshire Blvd.
Santa Monica CA 90401
"Magic Flush" mineral oil system.

Sarmax Corp.
27762 Camino Capistrano
Laguna Niguel CA 92677
714/831-9800
Oil flush system.

5) Vacuum Toilet Systems

AirVac
P.O. Box 508
Rochester IN
219/223-3980

Colt Industries
Water and Waste Management Operation
701 Lawton Avenue
Beloit WI 53511
608/364-4411
"Envirovac" system. Uses 3 pints of water per flush.

6) Incinerating Toilets

LaMere Industries Inc.
227 N. Main Street
Walworth WI 53184
414/275-2171
"Destroilet" incinerating toilet. NSF seal.

Incinimode Sales Co.
P.O. Box 879
Sherman TX 75090
214/892-6137
"Incinimode" electrical toilet.

Lake Geneva A & C Corp.
200 Elkhorn Road, Box 799
Williams Bay WI 53191
414/245-6954
"Starburn" propane/natural gas fired incinerating toilet. May be used 50 to 60 times before incineration is necessary.

Research Products Blankenship
2693 Andjon
Dallas TX 75220
214/358-4238
"Incinolet" elecrical toilet.

7) Aerobic/Combination Home Sewage Treatment Plants

Ames Croste Mills Ltd.
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Downsview, Ontario
CANADA M3J 2K7
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Cleveland OH 44140
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Cromaglass Corp.
Box 2315
Williamsport PA 17701
717/326-3396
Automatic plant utilizing three treatment chambers.

Multi-Flow Inc.
500 Webster Street
Dayton OH 45401
Recycling aeration/filtration unit.

Eastern Environmental Controls Inc.
Box 475
Chestertown MD 21620
301/778-0467
"Mini-Plant" home plant uses batch treatment process, 20-hour cycle.

Bi-A-Robi Systems
Box 133
Hamlin PA 18427
717/689-2307
Aerobic plant. NSF seal. Sold with 2-year service contract.

Jet Aeration Co.
750 Alpha Drive
Cleveland OH 44143
216/461-3100
Aerobic plant. NSF seal.

Thetford Corp.
P.O. Box 1285
Ann Arbor MI 48106
313/769-6000
Integrated developmental system with proprietary one-gallon flush toilet, three-stage process and final disposal by pressure dosing.

Aquarobic USA Ltd.
John Hanson Building, Suite 307
7610 Pennsylvania Ave. N.W.
Washington DC 20028
301/420-6689
Aerobic system including sand polishing filter. Service contract required.

8) Composting Toilets

Enviroscope Corp.
P.O. Box 2933
Newport Beach CA 92663
714/645-4400
"Carousel" system, bi-level, rotating 4-compartment bin. Two sizes offered. NSF seal. Installation manual informative.

Recreation Conservation Ecology of the U.S. Inc.
9800 West Blue Mound Road
Milwaukee WI 53226
414/257-1830
"Mullbank" composting toilet. Manual stirring arm, thermostatically controlled heater and fan. Above floor.

Bio-Systems Toilet Corp. Ltd.
255 Gladstone Street
Hawkesbury, Ontario
CANADA K6A 2G8
"Bio-Toilet" models A & M are above floor. Model 75 is bi-level. Feature active rotors to aerate the humus frequently; electrically powered.

Clivus Multrum USA
14-A Eliot Street
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Future Group Sanitation
680 Denison Street
Markham, Ontario
CANADA L3R 1C1
416/495-6450
"Humus" above-the-floor composting toilet with manual compost-stirring arm. Spring loaded slats under seat conceal waste pile until user sits down. 35,000 reported in use in Canada.

ASI Environmental Division
2 Industrial Parkway
Woburn MA 01801
617/933-8770
"Soddy-Potty" composting toilet, above floor. Includes leveler, fan, heater.

Bio Recycler Co.
5308 Emerald Drive
Sykesville MD 21784
301/795-2607
Vacuum toilet system delivers waste to composting bin, which may be some distance from toilet.

Santerra Industries Ltd.
1081 Alness Street
Downsview, Ontario
CANADA M3J 2J1
Unit includes fan, heater and rake bar.

Ecos Inc.
21 Imrie Road
Boston MA 02134
617/732-0002
"Soltran" integrated system combining "Toa-Throne" composting toilet with solar heating unit. Designed for minimum energy use, maximum composting efficiency.

9) Air-Assisted 2-Quart Flush Toilet

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Willits CA 95490
707/459-5563

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Microphor Inc.
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Kansas City KS 66102
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10) Air-Assisted Shower Head System

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Mokelumne Hill CA 95249
209/286-1538
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11) Soil Absorption System Equipment

Jet Inc.
750 Alpha Drive
Cleveland OH 44143
216/461-2000
Pressure dosing equipment for maximum effluent purification. Booklets are very informative.

Also

See your local pump dealer for information on dosing pumps and systems.

12) Offset Hole-Cloth Wrapped Soil Absorption System

Advanced Drainage Systems Inc.
P.O. Box 21307
Columbus OH 43221
614/457-3051
Proprietary gravel-free, sludge-capturing soil absorption system.

Treatment Of Wastewater Through Land Application Gaining In Status

By Lois G. Wolfson

In response to public concern over wastewater treatment in the United States, a wide variety of treatment technologies have been implemented in recent years. Various types of tertiary facilities, an advanced form of treatment that substantially reduces phosphorus in wastewater discharge, have been constructed by Michigan municipalities in order to meet the standards required under Michigan law.

While the majority of facilities presently use chemical treatment to meet these standards, an alternative form of treatment, that of land application of wastewater, is gaining in status. This method, which dates back to ancient times, involves the use of plants and the soil surface to remove many wastewater constituents. It is particularly appealing because of its potential to recycle and reuse wastewater nutrients for beneficial purposes instead of creating residual sludge with additional disposal costs.

Such a system is currently operating at Michigan State University under the direction of the Institute of Water Research. The Water Quality Management Facility (WQMF) was constructed as a research and demonstration facility to evaluate the design and operating criteria for combined land and lake treatment. The addition of an artificial lake system facilitates year-round land treatment application.

The primary goal of the WQMF is to provide the most effective level of tertiary wastewater treatment at the least cost from both an economic and energy standpoint. The system is designed to keep high levels of wastewater nutrients from entering into streams and lakes, use solar energy to recycle nonrenewable nutrients and reuse them for increased production of food and fiber, and to recharge ground and surface waters with high quality water.

The WQMF, located at the south end of the Michigan State University campus, receives and treats one-half million gallons of wastewater a day, that has previously undergone primary and secondary treatment, from the East Lansing Sewage Treatment Plant. The wastewater still must receive tertiary treatment to meet Michigan drinking water and discharge standards.

The wastewater is pumped to the lake site through an underground 4.5 mile pipeline and enters the first of a four lake system. The water flows by gravity to each of the successive lakes to a pump-house where the water is chlorinated. It can then be sprayed onto the land site. The system also contains outlet structures which allow water to be taken from any of the lakes or from the intake valve of lake 1 and sprayed onto the land.

When the lakes were first filled and operated in 1974, lakes 2 through 4 were stocked with aquatic plants. Lake 4 was later

The four-lake system at the WQMF.

stocked with largemouth bass and fathead minnows. Algae colonized in all lakes. Aquatic plants from the lakes are presently harvested periodically. They have been used as a food supplement for experimental farm livestock, as a food source for earthworms, and as a fertilizer and mulch for crop production.

(Continued On Next Page)

Treatment Of Wastewater Through Land Application....

(Continued From Page 9)

Harvest, though, is needed mainly to maintain fish populations and to offer aesthetic improvements. If plants are not harvested, they create an oxygen demand on the system through their death and decomposition, making fish survival difficult in low oxygenated waters.

Wastewater entering the lakes is nutrient-rich containing more nitrogen and phosphorus than that which is allowed to be discharged according to Michigan law. The nitrogen levels are substantially reduced after circulation in the lakes by plant mediated and chemical reactions, with most of the nitrogen being released into the atmosphere as ammonia gas. The nitrogen level may be reduced as much as 200 times its initial level by the time the water reaches the fourth lake.

Phosphorus levels remain fairly high in all four lakes. The phosphorus concentration is usually above the Michigan discharge standard, and thus prohibits discharge directly into surface waters from the lakes. However, phosphorus removal on the land site is very effective, mainly through its attachment onto soil particles.

Nitrogen removal on land varies, depending on the type of vegetation present. Perennial grasses are most effective in taking up nitrogen into their tissues. Mature forest species have not proven to be efficient in removing nitrogen from wastewater.

Experience with the WQMF suggests that the combined use of both the lake and land sites offers a viable alternative for treatment of wastewater. During the growing season, wastewater is applied directly to the land from the intake valve of lake 1, since high nitrogen levels are needed for increased plant production on land. Use of the proper vegetation removes the nitrogen, while soils remove the phosphorus. During winter, since no vegetation is present, the nitrogen levels must be low before reaching the land site. This is accomplished by spraying wastewater that has previously circulated through the four lakes with nitrogen removal having occured earlier in the season.

With the proper management of the lake and land site, wastewater renovation and nutrient recycling has been found economically and ecologically beneficial. Data indicates that operation of the WQMF may be less costly than conventional chemical treatment.

The WQMF offers tours of its facility throughout the year. Appointments may be made by contacting the Institute of Water Research, Michigan State University, East Lansing, MI 48824, (517) 353-3742.

MICHIGAN'S CLEAN LAKES PROGRAM

(From Land Resource Program Division, DNR)

Michigan's inland lakes represent a basic resource of significant importance to continued vitality of the state. Unfortunately, lakes are one of nature's fragile environments. The increasing rate of deterioration of the nation's public waters resulted in the passage of the Federal Water Pollution Control Act Amendments of 1972, PL 92-500 (amended by PL 95-217). Section 314(b) of PL 92-500 specified that the U.S. Environmental Protection Agency shall provide financial assistance to states in order to carry out methods and procedures for protecting or restoring the quality of the nation's inland lakes. **How is the clean lakes portion of the Clean Water Act being implemented in Michigan?**

Implementation is being accomplished in three phases. Phase I consists of selection and identification of lakes to be initially included in the program. Phase II involves classifying lakes to trophic condition. Phase III will rank lakes as to their relative "Clean Lakes" status, using selected criteria.

Phase I, which has already been completed, involved screening 11,000 lakes to narrow the initial project to 1,970 lakes over 50 acres in size. Lakes in the 50 surface acre size group were then further screened on the basis of public benefit as expressed in terms of accessibility, pursuant to 40 CFR Part 35.1610, 35.1605.3, 35.1640-1(2) (v) and Federal Register Vol. 43, No. 132, dated Monday, July 10, 1978. It is the basic premise of these regulations that for a lake to be eligible for federal monitoring lake management assistance, each member of the public must have the same opportunity to enjoy the benefits of the lake as any of the surrounding riparian property owners.

Approximately six hundred and eighty (680) of the lakes met the criteria for initial Phase I consideration. This number does not include those lakes with minor access facilities, which do not provide for complete utilization of the lake by the public. It also does not include lakes with undeveloped contiguous public lands. Lakes without well developed access facilities or lakes under 50 acres in size with well-developed access facilities will be evaluated either as the federal program expands or on a case-by-case basis, as the need arises.

Phase II involves classification of lakes as to the trophic state. The endeavor will be completed for the 680 lakes by October 1981.

Phase III involves the status ranking of lakes within the program. The Clean Water Act requires the state to assign a priority ranking to each project submitted for federal funding consideration. Priorities will be annually assigned to those projects whose communities have the desire and financial means to implement the program. Priority will be based on the relative status ranking. Relative status rankings are established using criteria such as social, economic, and environmental characteristics. Proposed criteria (Table 1) have been developed to conform to federal regulation guidelines (40 CFR Part 35.1620-5 and 35.1640-1). The criteria may be modified as necessary or as conditions change pursuant to 40 CFR Part 35.1620-5(a). Total points assigned to any one lake will range between 5 and 24 in our proposed system. An illustration of how the system functions is provided in Table 2.

Changes will be made in priority ranking whenever the state believes there is sufficient justification, e.g., if a community with lower priority project has sufficient resources available to provide the required matching funding while a higher priority project does not, or if new data indicates that a lower priority lake will have greater public benefit than a higher priority lake.

Relative status rankings do not change unless criteria change; priorities will change annually. Individual priority for any given project will be dependent on the number or type of other projects submitted for that particular year.

LAKE CLASSIFICATION PRIORITY CRITERIA

Table 1

Criteria	Rationale	Priority System	Points
1. Lake Size	The larger a lake is the greater the recreational potential it offers to the public, therefore, large lakes will be assigned a higher priority.	a. 500 surface acres and greater	4
		b. 100 to 499 surface acres	3
		c. 50 to 99 surface acres	2
		d. Less than 50 surface acres	1
2. Watershed to Lake Ratio	The larger a lake's watershed the more difficult it is to develop and implement management strategies for the control of nutrients and sediments. Consequently, a higher priority will be given to lakes with smaller, more technically manageable watersheds.	a. Watershed to lake ratio less than 5	3
		b. Watershed to lake ratio 5 to 20	2
		c. Watershed to lake ratio greater than 20	1
3. Point Sources	If a lake or tributary is receiving a significant point source discharge, this discharge constitutes a problem source that should be managed under other Clean Water Act programs (Section 201 Construction Grants Program and/or Section 402 National Pollutant Discharge Elimination System Program). Therefore, lakes **without** the complicated management problems of point sources will be given a slight priority.	a. No significant point sources discharging to the lake or its tributaries.	1
4. The Public Nature of the Lake	The extent of anticipated benefits to the public will be assessed partly by the nature of the public lands and recreational facilities available. Generally, the greater the proportion of public land and/or recreational facility development and use, the higher the priority.	a. Shoreline entirely owned by public (or) multiple public facilities with very significant public use (e.g., 500,000 user days).	5
		b. Multiple developed public facilities but with less than very significant public use (or) a single developed facility with very significant public use.	4
		c. Single developed public facility with less than very significant public use.	3
		d. Single developed public facility without boat launching ramp.	2
		e. Undeveloped riparian public lands.	1
5. County Population	A second factor by which anticipated public benefits will be assessed is the population of the county in which the lake is located. To avoid the biases of significant differences in regional demography, priority ranking will be based upon regional location and county population.	a. Upper peninsula	
		County population greater than 20,000	3
		County population 9,000 to 20,000	2
		County population of less than 9,000	1
		b. Northern Lower Peninsula (equivalent to DNR Region II)	
		County population greater than 35,000	3
		County population 20,000 to 35,000	2
		County population less than 20,000	1
		c. Southern lower peninsula (equivalent to DNR Region III)	
		County population greater than 300,000	3
		County population 75,000 to 300,000	2
		County population less than 75,000	1
6) Proximity of other public recreation lakes	The importance of a lake as a recreational resource to the surrounding communities will be assessed by the availability of other public owned lakes in the county with developed access facilities.	Five or less public lakes in the county over 50 acres in size.	3
		Six to ten public lakes over 50 acres in size in the county.	2
		Over ten public lakes over 50 acres in size in the county.	1

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MICHIGAN LAKE & STREAM ASSOCIATIONS

20TH ANNUAL MEETING

SEPTEMBER 25, 26 & 27, 1981

Hilton Shanty Creek Sports Resort & Conference Center
Bellaire, Michigan 49615

Theme, "CLEAN WATER FOR THE 80'S"

PROGRAM

Friday, September 25

4:00 Registration

6:00 Dinner

8:00 Informal Discussion

Saturday, September 26

7:30 Directors' Breakfast

8:00 Registration
Exhibits

10:00 First General Session
Keynote Address
Dr. Thomas Straw, Geology Department
Western Michigan University
Kalamazoo, Michigan

11:45 Lunch

1:15 Seminars, First Session

A. **ACID IN OUR RAIN**—Dr. J. Robert Stottlemyer, Department of Biological Sciences, Michigan Technological University, Houghton, Michigan.

B. **IS YOUR LAKE OR STREAM CLEAN?**—Dr. Darrel King, Director of the Institute of Water Research, Michigan State University, East Lansing, Michigan.

C. **WHAT MUST BE DONE TO PROTECT GROUNDWATER?**—Dr. Don Williams, Environmental Chemist, Hope College, Holland, Michigan.

D. **ALTERNATIVE DISPOSAL SYSTEMS**—Paul Todd, Kalamazoo, Michigan.

E. **YOU AND THE DNR**—Craig B. Smith, Department of Natural Resources, Roscommon, Michigan.

F. **THE DNR SELF-HELP PROGRAM**—Mary Vanderlaan, Department of Natural Resources, Lansing, Michigan.

G. **WORKSHOP FOR NEW & PROSPECTIVE ML&SA MEMBERS**—Cecile Harbour, President ML&SA, Portage, Michigan.

(Seminars F & G will not be repeated.)

2:15 Break

2:45 Seminars Repeated

3:45 Break

4:00 Regional Meetings

5:00 Exhibits, Conversation, Rest & Relaxation

5:30 Dinner

8:00 Second General Session ML&SA Annual Business Meeting

Sunday, September 27

7:30 Breakfast

9:00 Seminars, First Session

U. **IS YOUR DRINKING WATER DRINKABLE**—Bill Marks, Assistant Chief, Bureau of Environmental Protection, Department of Natural Resources, Lansing, Michigan.

V. **WETLANDS AND YOU**—Dr. Nevin Grossnickle, University of Michigan Biological Station, Pellston, Michigan.

W. **MEASURING WATER QUALITY**—Dr. Laverne Curry, Three Lakes Association, Kewadin, Michigan.

X. **ARE WATER CONTROLS PRACTICAL?**—James Martindale, Law Enforcement Division, Department of Natural Resources. Lansing, Michigan.

Y. **THE LEGISLATURE AND WATER PROTECTION**—Representative Carl F. Gnodtke, 42rd District of Michigan, Lansing, Michigan.

Z. **WORKSHOP FOR NEW ML&SA DIRECTORS**—Cecile Harbour, President ML&SA. (Will not be repeated.)

10:00 Break and Exhibits

10:30 Seminars Repeated

11:30 Adjournment Session

12:30 Brunch

1:30 Board of Directors Meeting

Conference Information

The 1981 Michigan Lake & Stream Associations Annual Meeting is being hosted by Region III Directors and Association Members. It is being held at the Hilton Shanty Creek Sports Resort and Conference Center, Bellaire, Michigan, September 25, 26 & 27. Telephone (616) 533-8621, or in Michigan (800) 632-7118, toll free.

A number of exhibitors will be displaying products and services of interest to riparian property owners. Time is scheduled for meeting with the exhibitors.

Conference Costs

Registration fee, per person
- Entire Conference . . . . . $ 9.00
- One day only . . . . . $ 5.00

Meals
- Breakfast . . . . . $ 4.60
- Lunch . . . . . $ 5.75
- Dinner $14.95
- Sunday Brunch . . . . . $ 7.50

Tickets will be sold for meals desired.

Lodging—per day rate & tax
- Single, 1 person $30.00
- Double, 2 people $42.00

Sorry No Pets!

ROOM RESERVATION REQUEST

Send Form To: Hilton Shanty Creek; P.O. Box 355; Bellaire, MI 49615 ATTN: Reservations

Reservations for lodging must be made before August 26, in order to guarantee quoted rates. Complete the Reservation Request and return to the Hilton.

Check In Time: 6:00 P.M.
Check Out Time: 12:00 P.M.

DATE_____

NAME_____ TELEPHONE NUMBER_____

STREET_____ CITY_____ STATE_____ ZIP_____

ARRIVAL: DAY_____ DATE_____ DEPARTURE: DAY_____ DATE_____

NUMBER OF ADULTS____ NUMBER OF CHILDREN____ NUMBER OF ROOMS____ TYPE OF ROOM_____

IF SINGLE OCCUPANCY DO YOU WISH TO SHARE A ROOM? YES___ WITH_____ NO___

DEPOSIT: $30.00 per room required (Deposit will be refunded ONLY if cancellation is received fourteen (14) days prior to scheduled arrival.)

CONVENTION NAME _____

THIRTY (30) DAYS PRIOR TO SCHEDULED ARRIVAL OF YOUR GROUP, ALL NON-DEPOSITED ROOMS WILL BE RELEASED BACK TO HILTON SHANTY CREEK. MAKE YOUR RESERVATIONS EARLY!

We request total payment of all charges on check-out unless previous arrangements have been made.

Pre-Registration: ML&SA Annual Meeting, September 25, 26, 27, 1981

Please complete and return to: Michigan Lake & Stream Associations; 9620 E. Shore Dr., Portage, MI 49002.

Name(s)_____

Address_____

_____ Telephone _____

Association (if any) _____

Meals desired—Please check

Friday dinner ($14.95)	_____	# of persons	_____
Saturday breakfast ($4.60)	_____	# of persons	_____
Saturday lunch ($5.75)	_____	# of persons	_____
Saturday dinner ($14.95)	_____	# of persons	_____
Sunday breakfast ($4.60)	_____	# of persons	_____
Sunday brunch ($7.50)	_____	# of persons	_____

Registrations Fees

Amount enclosed
$9.00 per person _____
$5.00 per person _____
one day only _____

To facilitate the registration process, we urge you to pre-register.

Michigan's Clean Lake Program

(Continued From Page 11)

LAKE CLASSIFICATION PRIORITY CRITERIA

Table 1

Criteria	Rationale	Priority System	Points
7. Available Public Transportation	Public benefits will also be assessed by the availability of public transportation for transporting the public to and from the recreational facilities.	Public transportation to the recreational facility available.	1
8. Lake Trophic State	Oligotrophic lakes will be given a slight priority over the other trophic state lakes for the following reasons: 1. Oligotrophic lakes are more sensitive to the impacts of cultural activities than other trophic state lakes. 2. Oligotrophic lakes are a limited resource in the State of Michigan. Probably less than 10% of the lakes will be classified as oligotrophic. 3. Restoration of oligotrophic conditions once lost is environmentally and economically improbable if not almost impossible.	Lake classified oligotrophic by the State.	1
9. Significant Environmental and/or Resource	In rare situations there may be very significant environmental and/or resource considerations that are not accounted for in the other priority criteria. These considerations may include such factors as endangered species habitat and preservation, large scale state or federal resource projects, rare or unique lake ecosystems, etc. If such a consideration has importance in the development of a lake management plan the project will be given additional priority.	The lake management project involves a significant environmental and/or resource consideration.	3

Table 2. Prioritization of Two Michigan Lakes

Lake County	1 Lake Size (Acres)	Points	2 Lake to Watershed Ratio	Points	3 Source of Problems	Points	4 Public Nature of Lakes	Points	5 County Population	Points	6 Other Lakes	Points	7 Public Transportation	Points	8 Oligotrophic	Points	9 Environmental and/or Resource Consideration	Points	TOTAL POINTS
Baker Lake (Barry Co.)	59	2	12.6	2	Non-point	1	2c	3	43,642	1	22	1	No	0	No	0	None	0	10
Clark Lake (Jackson Co.)	580	4	1.9	3	Non-point	1	2c	3	150,280	2	16	1	Yes	1	No	0	None	0	15

ML&SA NEWS

By Cecile Harbour

New Members

Chippewa-Waukazoo, Chippewa-Waukazoo Shore Line Association
Allegan County,
President, Clarence Bouws

Indian Lake Association, Vicksburg
Kalamazoo, County
President, Dr. James S. McClelland

ML&SA PURPOSES

1. To promote research and study of the water resources of the State of Michigan.

2. To collect and disseminate information about the water resources of the State.

3. To encourage and assist lake and stream associations to plan and carry out programs designed to restore and/or preserve the quality of water in lakes and streams and the adjacent land.

4. To focus attention on uses of the water resources of the State which are or may become injurious to the public health, safety and welfare.

5. To publicize and promote the uses of the water resources of the State which have minimal negative impact on the water quality.

6. To encourage the formation of associations by riparians for the purpose of improving and conserving the water resources of the State.

7. To understand and support the current Michigan interpretation of Riparian Rights.

8. To do any and all other things lawfull in connection therewith, for a non-profit corporation.

Contributions to ML&SA are tax deductible.

(Continued On Page 20)

APPLICATION FOR MEMBERSHIP IN MICHIGAN LAKE AND STREAM ASSOCIATIONS, INC.

(Name Of Organization) (Lake or Stream)

(Address) (Township) (County)

(City) (Zip)

LAKE INFORMATION:

Year Organization was formed_____ Lake Location (County)_____ Lake Size_____

Are you incorporated?_____ Under What Act? (Summer Resort #137)_____ (Non-Profit #327)_____

Membership_____

President's Name & Address:

(If communication should be sent to a person other than the president, please list below.)

Michigan's Inland Lakes Are Getting Older Faster

By Mary Vanderlaan
Aquatic Biologist, DNR

About 2,400 of Michigan's inland lakes are dying due to heavy human settlement and recreational use, which accelerate the aging rate of the lakes, aquatic biologists say.

The average lifespan of a lake is 10,000 years. But as people have increasingly moved near lakes and use them for recreation, nutrients such as phosphate and nitrogens are being introduced into the water, said Mary Vanderlaan, an aquatic biologist for the Department of Natural Resources.

Phosphates and nitrogens fertilize water plants, she said, resulting in the increase in the natural transformation of the lake into a marsh and then dry land.

Ms. Vanderlaan is studying 2,000 of Michigan's lakes that are more than 50 acres in size to determine which most need restoration and protection against the aging process.

To slow down the aging process, scientists must identify the lakes' watershed - the land area drained by a river or river system - and try to stop the excessive flow of nutrients into the lake, she said.

Riparian Rights In Michigan Inland Lakes & Streams

By Donald Winne

Riparian rights are enjoyed only on land which abuts a natural water course. Those rights are of two kinds, natural and correlative. Natural rights include those uses "necessary for the existence of the riparian proprietor and his family, such as to quench thirst and for household uses".*

Correlative rights "are those which merely increase one's comfort and prosperity and do not rank as essential to his existence, such as commercial profit and recreation".* Correlative rights must be reasonable at all times and cannot encroach or infringe unreasonably upon the use of the surface of the lake or stream by other riparians and members of the public.

A person who owns land abutting an inland lake or stream in Michigan may:

1. Install a pier anchored to his bottomland.
2. Moor a boat anchored to his bottomland.
3. Harvest ice from above his bottomland.
4. "Controls any temporarily or periodically exposed bottomland to the water's edge, wherever it may be at the time and holds the lands secure against trespass in the same manner as his upland subject to the public trust to the ordinary high-water mark." (Act 346, P.A. Of 1972, Section 12.)

A person who owns land abutting an inland lake or stream in Michigan may NOT:

1. Permanently anchor a raft or moor a boat on the bottomland that belongs to another riparian property owner.
2. Install a pier an unreasonable length out into a lake or stream.
3. Dedicate the surface or any portion thereof of a lake or stream without a permit from the Department of Natural Resources.
4. Cannot transfer his riparian rights to another person.
5. Cannot unreasonably restrict the use of the surface of a lake or stream by members of the public.
6. Cannot build a seawall or jetty closer to the water's edge than at the high-water mark.
7. May not dredge or place fill in a lake or stream without a permit from the Department of Natural Resources.

*Quotes are from Thompson vs. Enz, 379 Mich 667, after remand 385 Mich. 103 (1971).

What Is The Trophic Status Of Your Lake

By Donald Winne

The first stage of aquatic plant response to nutrient enrichment is abundant growth of algae and macrophytes. Macrophytes are broad-leafed pond weeds which are rooted to the bottom of the lake. In nutrient-poor lakes, aquatic plants are sparse and often stunted. An example is **Chara** which is native to Michigan lakes. In nutrient-poor environments only widely scattered tufts of Chara not more than ten inches tall would appear. One of the macrophytes familiar to every bass fisherman is the broad-leafed pondweed (Potamogeton) which sends flowering spikes two or three inches above the surface of the water and are usually found at the beginning of deep water. They will grow more profusely at the onset of nutrient enrichment.

The second stage response of aquatic plants to continuing nutrient enrichment is the increase of abundance of filamentous algae. They grow luxuriantly on rocks, piers and other solid objects along the shore. On occasion they break loose and float about as patches of greenish or greenish-brown scum. They do not send up an odor, but are not pleasant to see and make swimming a disagreeable experience.

In the third stage of lake eutrophication, free-floating algae become predominant. During the summer, these algae turn the water green and can form a layer on the surface of the lake preventing the sunlight from penetrating the water column to provide sunlight to the broad-leafed pondweeds rooted on the bottom. This puts them at a competitive disadvantage often causing their disappearance. Without the macrophytes to recharge the oxygen supply of the lake, the lake will experience fish kills and the appearance of "blue-green" algae which thrive in an aquatic environment of limited oxygen.

The final stage of the eutrophication process is the proliferation of "blue-green" algae. These algae thrive in sewage polluted water and decompose at the surface and create a disagreeable odor making residence at the lakeshore undesirable. Tourism will decrease and riparian property values will plummet.

Increased Citizen Participation Necessary If Michigan Water Resources Are To Be Protected!

By John G. Sobetzer
Executive Director EMEAC

This is a statement of the East Michigan Environmental Action Council in one of their recent guides entitled, **A Guide to Michigan's Watercourse and Wetland Protection Laws.** Other publications are **A Guide to Michigan's Stormwater Management Laws,** and **A Guide to Michigan's Floodplain Management Laws.**

These publications are available to industry / law firms at $40.00 per set, at $20.00 per set for non-profit / government bodies, and $10.00 for EMEAC members. Special prices are available for bulk requests.

To give you a better idea of the scope and value of these publications, part of the **Guide For Michigan's Watercourse and Wetlands Protection Laws** follows:

Introduction

Water, the imponderable essence that gives Michigan a unique character. With 2,136 miles of Great Lakes shoreline, 11,037 inland lakes, thousands of miles of streams and several million acres of wetlands, Michigan has been blessed with unparalleled water resources.

For many years, however, these resources have been polluted, impaired and destroyed. An estimated 70% of the state's original wetlands have been filled or drained and 20-30% of the remaining coastal wetlands are threatened with development in the next decade. Streams have been channelized, enclosed in pipes or dammed. Lakes and streams have been polluted with wastes, dredging and sediments.

The plunder has not gone unnoticed. In the 1970's Michigan adopted a variety of state and local regulatory programs designed to protect its water resources. Few states can match the scope and comprehensive nature of Michigan's laws.

Yet, the destruction continues. Funding for administration and enforcement of the laws is already inadequate and future budget cuts are probable, citizen understanding and involvement is still rare, and coordination among programs is deficient. Many landowners still lack a sense of pride and stewardship in managing their lands and waters.

In the 1980's Michigan must significantly improve the administration and enforcement of its water resources protection laws despite the aforementioned problems. This will undoubtedly require a substantial increase in citizen participation and local government action. This article is designed to give interested citizens and local officials the basic understandings of the relevant acts so that they can meaningfully participate in water resources management in their community. It may also prove useful, however, to other public officials, planners, developers and even agency personnel.

The Theme

The laws and policies discussed in this article are designed to protect and conserve the state's watercourses and wetlands, not to prohibit every use of them. In essence they ask (1) that activities not dependent on being located in or near a watercourse or wetland be done elsewhere. (2) that those few necessary activities that cannot be located anywhere else and those that require the water resources location have benefits that outweigh the detriments in light of the state's paramount concern for the protection of its water and other natural resources from pollution, impairment or destruction, and (3) that they be done in the least harmful manner. The most harmful uses such as industrial, commercial or residential development in a water resource, may be generally prohibited, but in other cases reasonable uses compatible with the resource may be made. Good husbandry is the goal. If the requirements of the laws discussed herein are at any time confusing the reader can fall back on this theme for guidance.

These laws and policies reflect a view that the pollution, impairment and destruction of the state's water resources is bad for business, for recreation, for health, and for the quality of life.

They also reflect a view that an alteration of a watercourse or wetland can have harmful effects on private property or on public rights, on clean water, fish and wildlife, flood protection and groundwater and other resources. As stated by the Supreme Courts of Wisconsin in **Just v. Marinette County,** 56 Wis 2d (1972) and of New Hampshire in **Sibson v. State,** 336 A2d 239 (1975) in cases upholding regulations restricting development in wetlands against the allegation that they amounted to a taking of private property without just compensation:

> "An owner of land has no absolute and unrestricted right to change the essential natural character of his land so as to use it for a purpose for which it was unsuited in its natural state and which injures the rights of others."

The passage of these acts may reflect an emerging ecological ethic, one that has a distinct moral quality — that the destruction of a lake, stream or valuable wetland is a disreputable and shameful act while their conservation is an act of personal pride and community stewardship. Perhaps the land ethic that Aldo Leopold considered "an evolutionary possibility and an ecological necessity" can be reached.

Michigan has with these laws recognized that its water resources are imbued with a trust held by this generation for all succeeding generations. In managing this trust it need not lock the resources away but provide for their kindly use so as not to consume or destroy these potentially renewable resources.

"We do not inherit the land from our fathers, we borrow it from our children."

Anonymous

The Overlap Guide

Any proposed activity in or near a lake, stream or wetland may be subjected to the requirements of many different laws and policies. In addition to the regulations and policies discussed herein, a proposed activity could be subject to those pertaining to septic tanks, zoning, subdivisions, soil erosion, floodplains, urban sprawl and others. All must be examined, particularly the floodplain and stormwater regulations since most wetlands will be subject to those regulations as well. See EMEAC's guides on floodplain and stormwater law.

Within the category of express wetlands and watercourse permit regulations, however, the overlap can be very confusing. The following provides a general guide for state and federal permit laws. Remember, however, that MEPA applies to **all** of the following activities, that local ordinances may cover more or fewer activities and that other programs discussed herein may apply.

Great Lakes. If the activity is:

1. below the ordinary high water mark of a Great Lake or Lake St. Clair then check Act 247, Section 10 and Section 404.
2. in a wetland adjacent and contiguous to a Great Lake or Lake St. Clair then check Act 203, Section 404 and the Shorelands Act.

Navigable Inland Waters. If the activity is:

1. below the ordinary high water mark of a navigable inland lake or stream or the Detroit, St. Clair and St. Mary's rivers then check Act 346, Section 10 and Section 404.

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Increased Citizen Participation Necessary...

(Continued From Page 17)

2. in a wetland adjacent and continguous to the aforementioned navigable waters then check Act 203 or Section 404.

Non-navigable Inland Waters. If the activity is:

1. below the ordinary high water mark of a non-navigable inland lake or stream then check Act 346 and Section 404.
2. in a wetland adjacent and contiguous to non-navigable inland lake or stream then check Act 203 or Section 404.

Non-contiguous Wetlands. If the activity is:

1. in a wetland not contiguous to an inland lake or stream or Great Lake but greater than five acres in size or designated by the DNR as essential then check Act 203. Also check Section 404.

Keep in mind however, the following points.

a. Wetlands below the ordinary high water mark of a lake or stream are considered part of the lake or stream and regulated by the same acts that regulate activities in lakes and streams.
b. The Section 10 program is expected to be expanded sometime in 1981. Presently, the Army Corps of Engineers only includes the Great Lakes, their connecting waterbodies and the mouths of their tributaries in the word "navigable". Watercourses that once were used to float logs, transport furs or move other products in interstate commerce are expected to be labeled "navigable" which will include many inland lakes and streams particularly in the upper half of the state.
c. The Section 404 program is continually susceptable to amendment due to political factors and court decisions. In addition, the state may seek (using Acts 203 and 346) to obtain EPA approval for the state to assume administration of a large part of the 404 program. Upon approval, the Army Corps of Engineers 404 permit program for waters not presently being used or not capable of being used in interstate commerce will be suspended in favor of state permits. This probably means suspension of all waters except the Great Lakes, their connecting waterbodies and parts of their major tributaries. In addition, no Section 10 permit would be needed for any fill covered by a state permit under proposed Corps regulations.
d. The ordinary high water mark is established at a specified elevation above sea level for the Great Lakes in Act 247. For Act 346 the mark is the lake level established by law, or where no level is established, the line below which the presence of water has created a markedly distinct difference in the land as reflected in the soil itself, in the soil's surface configuration, and in the vegetation. The federal regulations also adopt a line based on physical characteristics.
e. Where there is overlap between federal and state permit programs, the DNR and Corps of Engineers have developed a joint permit application process. The Corps will not issue its permits if the DNR denies a state permit and will generally issue its permits if the DNR grants a permit except where overriding national concerns require denial.

Michigan Environmental Protection Act (MEPA) Act 127, P.A. of 1970; MCLA 691.1201 et.seq.

MEPA is Michigan's most important environmental law. It places a duty on all individuals and organizations, whether private or public, to prevent or minimize environmental degradation which is caused or likely to be caused by their activities. Its requirements are in addition to those provided by any other law, including all the laws discussed in this article. In fact, a violation of one of the other state laws discussed herein may be strong evidence that MEPA has been violated.* MEPA also authorizes anyone to go to court to enforce it. **Keep MEPA in mind at all times.** For more detail on MEPA see EMEAC's "A Guide to the Michigan Environmental Protection Act".

Coverage

MEPA applies to any conduct which is likely to pollute, impair or destroy the air, water or other natural resources of the state. Accordingly, any private or public development in or affecting a lake, stream or wetland, and/or any government body's decision to issue a permit or other form of required approval for that development must satisfy MEPA.

Standards

MEPA prohibits any conduct which is likely to pollute, impair or destroy a lake, stream, wetland or other natural resource of the state **unless the entity proposing or authorizing the activity can show** (1) there are no less harmful feasible and prudent alternatives and (2) the "conduct is consistent with the promotion of the public health, safety and welfare in light of the state's paramount concern for the protection of its natural resources from pollution, impairment or destruction".

In determining whether an alternative is "feasible and prudent" consideration should be given to the magnitude (amount, quality and length of time of damage, the importance and value of the resources) of the environmental harm, the degree of alternative mitigates that harm and accomplishes the intended purpose of the proposal considering time and expense. It may result in additional costs or lower "production" although it generally should not be prohibitively expensive. Sites which could reasonably be obtained, utilized, expanded or managed for purposes of the proposal although not owned by the applicant could also be feasible and prudent.

In determining whether the conduct promotes the public health, safety and welfare, a balancing is made with strong consideration given to the protection of the natural resources. It is a kind of public interest test in which all relevant factors should be considered. This test may result in prohibition of the proposed conduct even if there are no "feasible and prudent" alternatives (or viewed in another way, it makes the "no action" approach a "feasible and prudent" alternative.)

Enforcement

Any person, organization or governmental body can go to court to enforce MEPA against any person, organization or governmental body. The court may prohibit any conduct which violates MEPA or place conditions on it so as to protect the natural resources. MEPA also authorizes any agency or court of the state to permit intervention by anyone alleging pollution, impairment or destruction in their administrative, licensing or other proceedings and judicial review of them. Thus citizens or local governments could become involved in the formal contested case hearings of the DNR (which are court like proceedings before agency judges) when an applicant seeks appeal of a permit denial.

In addition, any public body can (and should to avoid conduct that violates MEPA) refuse to grant any permits or other forms of approval that must be obtained under other laws if the proposed conduct would violate MEPA even though those other laws apply different standards and even though they contain no provisions in themselves for environmental factors. This is because MEPA's standards are in addition to the standards of other laws.

For copies of this and other publications by EMEAC, write:
EASTERN MICHIGAN ENVIRONMENTAL ACTION COUNCIL
One Northfield Plaza, Troy, MI 48098
Phone (313) 879-6040
or
CLINTON RIVER WATERSHED COUNCIL
8215 Hall Road, Utica, MI 48087
Phone (313) 739-1122

*See Dwyer v. Ann Arbor

DNR GROUNDWATER CONTAMINATION TASK FORCE COMPLETES SIX MONTH STUDY

(May to November 1980) The following information is from the "Summery Prepared By Claudia Weaver, Environmental Enforcement Division, DNR.

In May 1980, it was decided by the Director and staff of the Department of Natural Resources that a task force drawn from various agencies of the Department should be established to investigate 201 priority sites where hazardous wastes were known or suspected of contaminating the groundwater. Some 30 technical staff persons were selected to work with Environmental Conservation Officers forming teams to conduct investigations at each site. The investigations were begun in May and completed in November 1980.

The Objectives:

1. Initiation of enforcement on the 201 priority sites.
2. Identification of responsible parties.
3. Identification of sites where the State will have to assume investigative and cleanup responsibilities.
4. Initiation of hydrogeologic studies by responsible parties.
5. Abatement of source of contamination, where possible.
6. Initiation of remedial action.
7. Prioritization of the 201 sites based on threat to human health and resources.
8. Identification of anticipated state expenses at each site.

The Results:

1. 44 sites are known to have contaminated the groundwater.
2. The groundwater contamination problem has been eliminated at 9 sites.
3. Clean up is underway at 17 sites.
4. Water samples have been collected at 69 of the sites.
5. Hydrogeological studies are underway by the site owner at 36 sites.
6. The causes of groundwater contamination include the following:
   a. Direct discharge to the groundwater at many industrial facilities.
   b. Spills, poor-housekeeping and improper disposal of wastes.
   c. Problems associated with landfills such as poor operational procedures, leachate problems and inadequate final cover.

What About the Future?

1. Hydrogeological studies are still needed at 117 sites.
2. Follow-up on enforcement action already taken is needed.
3. Additional Administrative Action is needed and will be needed as the extent of groundwater contamination is more clearly understood at each site under investigation.
4. Further funding is needed if further hydrogeological studies are to be carried out.

CONFIDENTIAL SURVEY: Four years ago we asked our readers to complete and mail a questionnaire to us so that we would have an accurate information on their interests and needs. This information was used to help determine the content of the articles and to inform advertisers of potential markets for goods and services. Have those interests changed since January 1977? You can help us find out by completing the questions below and mailing your answers to:

The Michigan Riparian
11262 Oak Avenue
Three Rivers, Michigan 49093

How many persons in your family_____

How many children between the ages of 1-18?_____

Do you own or are you buying lakefront property?
☐ Yes ☐ No

What is the current true cash value? $ _____

Do you plan to build a new home on waterfront property during the next 5 years? ☐ Yes ☐ No.

Do you plan to build a new home near a lake or stream during the next 5 years? ☐ Yes ☐ No.

If yes, what do you plan to spend? $ _____

Do you plan to remodel your existing lake front property? ☐ Yes ☐ No. If yes, how much do you plan to spend? $ _____

Do you own another residence? ☐ Yes ☐ No.
In Michigan ☐ Another State ☐

What State? _____

How many months out of the year do you live at your waterfront property? (Check number nearest actual number.)
☐ 3 ☐ 6 ☐ 9 ☐ 12

	Own:	Plan to Buy	Horsepower if propelled by motor
Canoe	☐	☐	_____
Pontoon Boat	☐	☐	_____
Row Boat	☐	☐	_____
Sail Boat	☐	☐	_____
Speed Boat	☐	☐	_____
Ice Boat	☐	☐	_____

What are your main sports and recreational activities? (Use No. 1 for activity of greatest interest; No. 2 for activity of second greatest interest, etc.)

Priority Rank	Activity	Plan to buy equipment for this activity in the next three years.
☐	Fishing	_____
☐	Sailing	_____
☐	Swimming	_____
☐	Boating	_____
☐	Canoeing	_____
☐	Water Skiing	_____
☐	Hunting	_____
☐	Tennis	_____
☐	Snow Skiing	_____
☐	Hiking	_____
☐	Horseback Riding	_____
☐	Golf	_____
☐	Snowmobile	_____

THE NO TILL REVOLUTION

By Lee Botts
Chairman, Great Lakes Basin Commission
From the Great Lakes Communicator

Preventing soil erosion is one way to protect Michigan's waters, and one practice which is growing among farmers and which results in keeping the soil in place is no-till farming.

Farmers in Ohio are showing how crops can be grown effectively at the same time that water pollution due to farming is reduced.

Near New Washington, 60 miles southeast of Toledo, hand-lettered signs at the edge of cornfields name farmers and the crops they grow under a government project to demonstrate farming without tillage.

That the corn grows tall behind those signs has surprised most local farmers. In 1979, the first year of the project, few farmers would try no-till farming, even though they were offered $125 an acre as an incentive.

The farmers feared loss of face if crops did not grow. "They don't want to have a sign with their name on it next to a field with four corn stalks," said Dave Wurm, project conservationist for the Honey Creek Project.

This year, subsidies were trimmed to $80 an acre, but the number of applicants for subsidies from the Honey Creek Project and a related Agricultural Stabilization and Conservation Service project increased from three to more than 50.

"I venture that five to ten years from now, (people) are going to say conservation tillage is a production practice and there's no reason to subsidize it," said John Crumrine, manager of the Honey Creek Project. Conservation tillage is a generic term for a number of soil and water saving techniques that minimize or eliminate soil disturbance.

No-till farming eliminates several steps in soil preparation. The moldboard plow and disk harrow, for decades considered essential for soil cultivation, are not needed. With no-till farming, the farmer uses a single machine to make a bed for seeds, to deposit the seeds, to fertilize the soil, and to apply insecticides if needed. All in one trip. Honey Creek farmers say savings in tractor fuel alone are reason to continue no-till farming.

And it is savings in money—and time—that officials emphasize when they describe no-till farming to skeptical farmers. But it is the savings in soil that prompted the U.S. Army Corps of Engineers to establish the Honey Creek Project as part of its Lake Erie Wastewater Management Study.

Because the soil is largely undisturbed, it erodes less. Reduced erosion means reduced water pollution. It means less sediment and possibly fewer nutrients, herbicides, and pesticides in the waterways. As tiny Honey Creek gets cleaner, so does the Sandusky River, and ultimately Lake Erie.

No-till farming cannot work under all soil and climate conditions. But in warmer parts of the Great Lakes basin where the soils are well drained, no-till's highly competitive crop production make it likely to revolutionize tilling practices in the years ahead. Farmers can save energy and labor at the same time they help to improve water quality in the Great Lakes and their tributaries. And that is good news.

Early season corn growing on the Mark Fritz farm.

ML&SA News...

(Continued From Page 15)

MICHIGAN LAKE & STREAM ASSOCIATIONS
1981 Dues Schedule

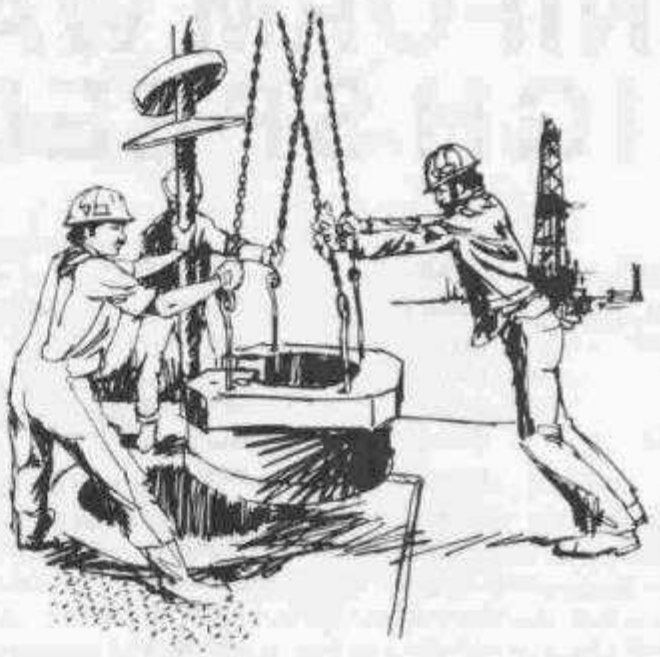
# Members Per Assn.	Dues
1-39	$ 25.00
40-49	30.00
50-59	35.00
60-69	40.00
70-79	45.00
80-89	50.00
90-109	55.00
110-129	60.00
130-159	65.00
160-189	70.00
190-219	75.00
220-249	80.00
250-289	85.00
290-329	90.00
330-369	95.00
370-409	100.00
410-449	105.00
450-499	110.00
500-549	115.00
550-599	120.00
600-649	125.00
650-699	130.00
700-799	135.00
800-899	140.00
900-999	145.00
1000-1099	150.00
1100-1199	155.00
1200-1299	160.00
1300-1399	165.00
1400-1499	170.00
1500-1599	175.00
1600 & More	180.00

Dues will be pro-rated for the remaining months in the calendar year.

Make checks payable to:
Michigan Lake & Stream Associations
9620 E. Shore Drive
Portage, MI 49002

"We strongly oppose any drilling in the Pigeon."

so says the Pigeon River Country Association. Dale Franz Communications Chairperson.



The Pigeon River Country Association has dropped out of the coalition which is working out a compromise plan for controlled drilling in the Pigeon River Country.

After carefully weighing the proposed compromise at a meeting Nov. 9, the association voted against the compromise and in favor of its decade-long policy of trying to protect the small state forest from fossil fuel development.

The association's executive board decided unanimously Wednesday night (Nov. 12) to withdraw from the compromise efforts by directing its attorney, Gary Rentrop, to execute what is known as voluntary withdrawal with prejudice from the lawsuit.

The board recognizes that this action will have several immediate effects. For one, it allows the association to continue operating on the basic principle that oil and gas drilling under existing circumstances would be seriously detrimental to the forest.

For another, the action allows others to proceed with efforts to try to protect the forest through a compromise with the oil and gas industries. The board also recognizes that the withdrawal rescinds the association's right to go to court over drilling but, on the other hand, leaves the association free to comment publicly on behalf of its principles.

The association acknowledges that the compromise is being forged in the face of apparently overwelming sentiment in the Michigan Legislature to allow drilling.

But the association points out that even under controlled conditions, the oil and gas industries are expected to place more than 100 wells in a unique forest which measures only 10 miles by 20 miles in area. It is unpardonable for this small, fragile area to be jeopardized in the interest of profit, over a period of 15 years or more, when there is not even a publicly established set of priorities for the use of this precious, non-renewable liquid.

Petroleum is our source of waxes, asphalt, lubricants, dyes, synthetic fibers and vitamins, medicines, plastics of all descriptions, fertilizers, film, synthetic rubber, detergents and paint as well as fuels for transportation, power and heat. When the scramble to get the last of this organic material out of the ground threatens a place like the Pigeon, surely it is time to exercise restraint while we address the difficult question of how we intend to use what is left of hydrocarbons.

Let it be clearly understood that those working on a compromise and those who have been unable to embrace that compromise, all oppose drilling in the Pigeon River Country. No matter how we differ on procedures, each of us shares a deep and abiding feeling about the Pigeon.

There is no question but that oil and gas drilling would severely alter the only state forest in Michigan to offer what we find in the Pigeon. In the very age when large numbers of people are finding new meaning and new hope in our natural environment, we are forced with greedy exploitation aimed at the most sensitive environmental areas. It is not unreasonable to want to stop it.

We are convinced that it is unrealistic and contrary to known conditions to believe that drilling can be controlled in such a way that it won't be harmful. The Michigan Department of Natural Resources has been unable to regulate chemical pollution. We are only now beginning to discover the awesome dimensions of our chemical wastes.

We can't even be sure that the public health is protected in the day-to-day operations of industry. It certainly makes no sense to use an area as sensitive as the Pigeon for our first demonstration of a compromise worked out only on paper and under the most pressing circumstances.

We do not oppose controlled drilling. We strongly oppose any drilling in the Pigeon. We ask that such solutions be tested elsewhere, in less sensitive places.

The association recalls what Governor Milliken told the Natural Resources Commission in 1975: "I believe very strongly that Michigan should not jeopardize the unique resources that we have today in the Pigeon River Country as a result of decades of wise management. We must not undo what we have done so well."

We ask that priorities of petroleum use be addressed, that we reach some sort of public agreement on those priorities, that the Department of Natural Resources be given adequate time and enforcement to get control of brine and chemical pollution, and that controlled, sequential drilling be demonstrated in less sensitive areas.

We are not vindictive, negative people who are fighting something inevitable. There is a singlemindedness of purpose being expressed by conscientious, thoughtful, caring people who in their innermost selves know this special area — the Pigeon River Country — must be preserved.

134 LAKES IN MICHIGAN WITH UNIFORM WATERSKIING AND HIGH SPEED BOATING RULES

COUNTY	LAKE	TOWNSHIP	ACRES
Alcona	Vaughn	Curtis	115
Allegan	Big	Watson	137
	Hutchins	Clyde	340
	Selkirk	Wayland	94
Berrien	Clear	Buchanan	76
Barry	Long	Hope	98
Benzie	Ann	Almira	527
Branch	Gilead	Gilead	128
	George	Kinderhook	179
	Lavine	Kinderhook	81
Calhoun	Clear	Pennfield	52
	Nottawa	Tekonsha	116
Cass	Bair	Newberg	199
	Dewey	Silver Cr.	174
	Finch	Marcellus	114
	Harwood	Marcellus	122
	Little Fish	Penn	139
	Painter	Calvin	92
	Twin (N)	Wayne	62
Cheboygan	Silver	Wilmot	74
Clare	Arnold	Hayes	141
	Budd	Hayes	175
	Cranberry	Hayes	106
	George	Lincoln	134
	Little Long	Hayes	43
	Silver	Lincoln	54
Crawford	Bradford	Maple Forest	244
Delta	Camp	Garden	60
Genesee	Otter	Argentine	69
Grand Tr.	Arbutus	East Bay	44
	Ceder Hedge	Green Lake	195
	High	East Bay	47
	Island	Union	105
	Rennie	East Bay	242
	Spider	East Bay	459
Hillsdale	Bird	Jefferson	113
	Carpenter	Reading	33
	Goose	Somerset	69
	Hemlock	Allen	140
	Long	Reading	213
Isabella	Coldwater	Nottawa	294
Jackson	Swains	Pulaski	70
	White	Henrietta	65
Kalamazoo	Blue	Charleston	
	Long	Charleston	575
	Portage	Charleston	180
	Sherman	Ross	120
Kalkaska	Bear	Bear Lake	317
	Big Blue	Blue Lake	114
	Pickerel	Cold Springs	100
	Starvation	Blue Lake	134
Kent	Blue	Spencer	49
	Maston	Spencer	104
	Muskellunge	Spencer	41
Lake	Big Bass	Elk	290
	Big Star	Sauble	92
	Harper	Elk	78
	Idlewild	Yates	105
	Loon	Sauble	92
Lapeer	Big Fish	Hadley	105
	Hemmingway	Marathon	65
Lenawee	Allens	Cambridge	63
	Deep	Cambridge	65
	Dewey	Cambridge	104
	Kellys	Cambridge	45
	Meadow	Cambridge	26
	Wolf	Cambridge	69
Livingston	Big Silver	Putnam	179
	School	Brighton	79
Marquette	Big SHag	Forsyth	180
	Farmers	Forsyth	32
	Johnson	Forsyth	78
	Little Shag	Forsyth	106
Mason	Ford	Sheridan	208
	Gun	Freesoil	242
	Long	Branch	136
Mecosta	B.J. Brown	Martiny	83
	Blue	Morton	235
	Horsehead	Martiny	300
	Mecosta	Morton	297
	Round	Morton	155
	Pretty	Martiny	120
	School Sect.	Morton	126
Menominee	Long	Lake	80
Montcalm	Bass	Richland	40
	Horseshoe	Belvidere	97
	Lt. Whitefish	Pierson	181
	Montcalm	Belvidere	68
	Muskellunge	Maple Valley	134
	Rock	Richland	50
Montmorency	Lt. Wolf	Albert	80
	Rush	Montmorency	355
Muskegon	Hart	Holton	40
Newaygo	Baptist	Ensley	86
	Bills	Croton	204
	Diamond	Lincoln	181
	Kimball	Garfield	153
	Nichols	Lilley	143
	Pickerel	Brooks	318
	Robinson	Sherman	137
	Ryerson	Sherman	262
	Sand	Ashland	58
Oakland	Cass	Waterford	1280
	Deer	Independence	137
	Loon	Wixom (City)	74
	Voorheis	Orion	182
	Walnut	W. Bloomfield	232
Oceana	School Sect.	Colfax	160

Water Skiing and High Speed Boating is prohibited from 6:30 p.m. to 10:30 a.m. (daylight savings time) the following day.

COUNTY	LAKE	TOWNSHIP	ACRES
Ogemaw	Bush	Mills	28
	Feeding Gr.	Mills	39
	Hardwood	Richland	172
	Skidway	Mills	18
	Ogemaw	Mills	13
Oscoda	Lt. Wolf	Greenwood	20
	Loon	Big Creek	90
	McCollum	Clinton	224
	Perry	Comins	32
	Tea	Greenwood	216
Otsego	Big Lake	Chester	126
	Heart	Otsego Lake	65
	Little Bear	Charlton	127
	Opel	Otsego	122
Presque Isle	May	Bismark	161
	Nettie	Bismark	278
St. Joseph	Clear	Fabius	240
	Long	Fabius	211
	Pleasant	Fabius	262
Schoolcraft	Colwell	Inwood	158
VanBuren	Brandywine	Pine Grove	69
	Rush	Bangor	118
	Three Mile	Paw Paw	176
	Van Auken	Bangor	244
Washtenaw	Big Silver	Dexter	179
Wexford	Meauwataka	Colfax	80

TOTAL NUMBER OF LAKES WITH UNIFORM CONTROLS = 134
TOTAL ACREAGE OF THE 134 LAKES = 21319
AVERAGE SIZE OF THE 134 LAKES = 159.0 ACRES

LETTER TO THE EDITOR...

Robert L. Southard
Star Route Box 3032
Manistique, MI 49854

May 21, 1981

Mrs. Cecile Harbour, President
ML&SA News;

Dear Mrs. Harbour:

I belong to the Dodge and Island Lakes PO; am a past president and like most members of our association am very interested in our lakes and streams. I am most interested in the lakes, streams and forest of the Upper Peninsula and what is being done to preserve as well as enjoy our beautiful land.

The Dodge and Island lakes are each approximately 85 acres and are connected by a small channel. Like all small lakes we needed regulations governing the use of these lakes to enable safe boating, fishing, swimming and protection for the fish spawning beds. After three years of constant effort ORDINANCE NO. 15, HIAWATHA TOWNSHIP, SCHOOLCRAFT COUNTY was enacted into law to regulate high speed boating.

The RIPARIAN still fails to recognize the UPPER PENINSULA as part of the great state of Michigan. It consistantly fails to recognize any efforts made by U.P. lake and river property owners which could be of assistance to other property owners who are striving for the same goals. I read the RIPARIAN from cover to cover but, for the most part, it is dull and uninteresting from the stand point of a U.P. property owner.

I request you take the May issue of the RIPARIAN, for example, and ask yourself this question. "If I lived in the U.P. and owned lake or river property, what is there in this publication that would interest me"? Was this or any other copy of the RIPARIAN published in the last 19 years worth anything to any subscriber from the U.P.? My guess is you will be hard pressed to come up with an honest YES.

Could it be that we up here in the U.P. are so well off that our problems are negligible as compared to those below the bridge?

Sincerely,
Bob Southard

Editor's Note:
Mr. Southard;

We like your upper peninsula country and have used three pictures from the U.P. on the front of the magazine. Dr. Raymond Smith, President of M.T.U. Houghton was our key-note speaker three years ago. Dr. Stattlemyer, of Michigan Technological University will be one of our presenters at Hilton Shanty Creek in September. We want to include happenings of the U.P. in the magazine. Please send us stories and articles. We appreciate your interest in the magazine and taking the time to write.

THE MICHIGAN RIPARIAN

11262 OAK AVENUE
THREE RIVERS, MICHIGAN 49093

2nd Class postage paid at Kalamazoo, Michigan and additional mailing offices.

(Note to Subscribers; So that you will not miss a single issue, please notify us promptly of any change in address.)