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FRONT COVER: "Water clean enough to drink" flows into Blue Lake, Gladwin Co. stream. (Picture by Don Winne, July, 1979).

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LETTER TO THE EDITOR

"A lot of questions are continually arising on the subject of riparian rights. Both old and new members need more information on the subject. In the last decade I am sure I have heard the subject discussed by several dozen individuals -- all wishing they could find a good source of such information. A half dozen of us have written others for such information with poor conflicting results. Maybe the "Riparian" will be truer to its title and give us better information now."

Lloyd P. Morris

(See article on page 9 about riparian rights)

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EDITORIAL



Donald Winne

MICHIGAN LAKES AND STREAMS TAKE A BEATING

The assault upon Michigan lakes and streams continues at a rapid rate. It is occurring at the hands of the ignorant, the misdirected, the pleasure seeker and the conspicuous consumer.

The ignorant are those who don't know that every lake needs a buffer zone or shelter belt of 20 feet or more around the lake to absorb the nutrients that flow into it. They are not aware that dry wells and field systems should be installed fifty feet or more from the waters edge depending upon the nature of the soil and the direction of groundwater flow. They are not aware of the damage and harm that can come from speeding boats in shallow water -- harm to the fish population and to shoreline properties.

The mis-directed are those who think that stirring up the water is good for the lake or stream; that removing shrubs and trees from around the perimeter of a body of water is beneficial to that body of water.

The pleasure-seeker is the one who says, "I am a property owner on this lake, and I am here to enjoy it in the way that satisfies me. I am not concerned about how other people want to use the lake or what the lake will be like after I am gone."

The conspicuous consumer is the person who wants to parade his \$6,000.00 boat in front of his neighbor and show him how fast it will go. He wants a plush green lawn to the water's edge, a seawall, boatwell and dock better than his neighbors.

What is the result of this attack upon our lakes and streams? We are dredging, filling and changing our lakes into something other than nature has taken seven to eleven thousand years to develop. We are destroying the balance of nature's ecosystem on many bodies of water in the state. Some lakes left by the glacier were destined to die, but the process involved thousands of years. Man's overuse and changes in the land surface around a lake can cause its death in less than 100 years. WHEN WILL WE AWAKEN TO WHAT WE ARE DOING?

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Dual-System Wastewater Management

Freshwater's New Friend:

by Clinton McCarty

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Every day, according to estimates made by the U.S. Environmental Protection Agency (EPA) the nation has to contend with some 29 billion gallons of sewage. Only 2.7 billion gallons (about 9 percent) of it receives advanced treatment that makes it totally satisfactory for discharge into streams and lakes.

Primary treatment, which is so primitive that it stretches the very concept of the word treatment, is given another four billion gallons (14 percent). Its effluent fouls water into which municipalities dump it very little less than does raw sewage.

More than 60 percent of the daily wastewater — about 18 billion gallons — is given what is called secondary treatment, half-way between primary and advanced, but still not good enough for most officials concerned with protecting health and the environment.

As an example, Tampa and St. Petersburg are having to find better ways to treat secondary effluent they've been discharging into Tampa Bay and the Gulf of Mexico, because a new

"Everyday, the nation has to contend with some 29 billion gallons of sewage. Only 2.7 billion gallons of it receives advanced treatment that makes it totally satisfactory for discharge into streams and lakes."

Florida law forbids that kind of disposal. EPA is urging the cities to spray the effluent on golf courses and other parcels of land that presumably could filter it before it seeps down to groundwater.

About a half billion gallons of wastewater is sprayed onto the ground everyday by other towns and cities. The remaining 3.7 billion gallons in the 29-billion-gallon total is handled by individual home or business disposal systems, principally rural septic units.

There are as many different kinds of

sewage disposal problems as there are water supply problems — operational and maintenance deficiencies at municipal plants (as many as two-thirds of them, EPA says), moratoria on new municipal connections as the result of actual or potential overloads (or as an instrument of "no-growth" policies), restrictions on septic systems because the soil won't accommodate the waste (it's too tight, like clay, or has too high a water table).

Surprisingly, freshwater and sewage wastewater problems are not closely connected. There are few places in which freshwater for domestic use is hard to come by because of sewage contamination. Yet, new evidence suggests that advances in technology could significantly alter future approaches to sewage treatment and, as a consequence, allow more efficient use of freshwater where it is or threatens to be scarce.

"Natural" Treatment

When the nation was younger and less populous, municipal sewage could be discharged into streams. The flowing freshwater treated it naturally. Oxygen and living organisms in the water decomposed and purified the wastes.

But the natural process can take place only until the freshwater's oxygen is exhausted. Afterward, the stream's plants and animals die and the sewage putrefies. Where that happens, municipalities have built plants to give their sewage at least minimal — primary — treatment.

In this process, the sewage goes first through a screen to remove large objects, then through a tank where sand and silt are removed, and finally into a larger tank, where finer solids rise to the top or sink to the bottom. Water in between is chlorinated to kill bacteria and is discharged into streams.

But primary treatment reduces the wastewater's "pollution load" by only one-third. Frequently, that is not

enough to allow the stream to complete the job, which is why more than half the nation's daily sewage production now goes on from primary into secondary treatment.

In secondary treatment, sewage is oxidized. Or, to put it another way, it is aerated to help its bacteria consume organic matter. In one method, for example, sewage is sprayed on stones running to a depth of several feet and is oxidized by biological growths that develop on the stones.

Secondary treatment reduces the general pollution load of raw sewage by 85 to 90 percent, but the resulting wastewater retains dissolved and suspended solids and organic contaminants. If these are to be removed, advanced treatment — often called tertiary treatment — is necessary.

Methods of advanced treatment are numerous. The most common is filtration, using such materials as sand and anthracite coal in layers. Other methods — with names such as chemical precipitation, microscreening and activated carbon adsorption — are more complicated. The methods chosen by a given community may depend on the specific contaminants to be disposed of. The high cost of advanced treatment accounts for the fact that less than one-tenth of the nation's sewage is treated to this degree.

Whatever treatment is selected by central municipal plants, thick, smelly sludge is left behind — about 4.4 million tons of dry solids a year, according to EPA. Disposing of it is a considerable problem mostly involving surface land applications, incineration, burial in landfills or dumping at sea, the last of which Congress has forbidden after 1981.

Sludge is also a headache with another category of sewage treatment systems, smaller units called package plants. They have capacities of 2,000 to 100,000 gallons of sewage a day and generally are used by shopping centers, factories, subdivisions or townships where there is no possibility of connecting to central municipal collection lines.

According to a study done for the U.S. Department of Housing and Urban Development (HUD), most package

plants use what is called activated sludge treatment. That is basically another way of describing the secondary treatment method in which sewage is aerated to promote the activity of bacteria that consume organic matter, and again, there is chlorination of discharged water.

Package plants can be outfitted for advanced treatment, but it is expensive, and in any case their performance generally removes no more than 95 per cent of pollutants — much less if they are not properly maintained.

If package plant wastewater is not evaporated in lagoons, it is sprayed on the land, evaporated through grass shrubs and trees (evapotranspiration) or run through specially constructed dirt mounds. Disposal is a problem to the

"What all this suggests, in theory, is the possibility of an entire community free of any need for central sewage collection and treatment systems."

extent that the quality or quantity of wastewater is a problem, and one or the other often is.

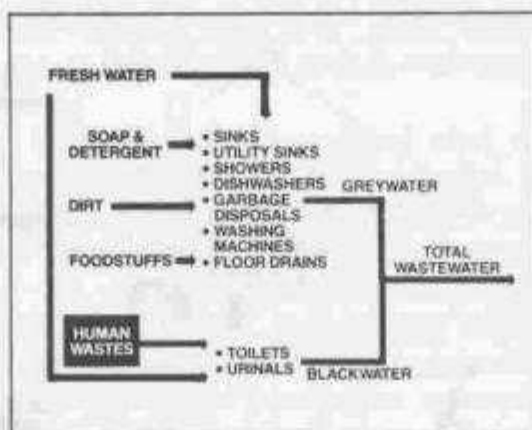
The smallest sewage treatment units are in a third category called on-site systems ("alternative systems", in the jargon of some government agencies). Like package plants, they are made necessary by the absence of central municipal treatment facilities.

Most on-site units are septic systems. Some 20 million of the nation's 80 million year-round homes have them, and from 300,000 to a half a million more, depending on whose figures are used, go into the ground each year. Usually, untreated solids settle in the septic tank and liquid is fed out into the underground drainfield through perforated pipes. The ground itself filters out the water's impurities.

Slightly more advanced on-site units are called aerobic systems, which once again basically inject oxygen to sustain biological consumption of wastes. But they share the problems of sludge and poor-quality discharged wastewater.

Beyond the aerobic units is a collection of rather primitive or makeshift on-site systems that nonetheless

"Dual systems handle toilet and non-toilet wastewater separately ... The idea is to treat each form of wastewater to the greatest degree."



receive detailed attention in research papers, usually for federal agencies, on so-called innovative treatment techniques.

Incinerating toilets, viewed with disfavor by many experts because of some reported safety problems, burn waste and leave ash. Composting toilets simply let wastes accumulate and compost beneath them.

Oil toilets recirculate the oil for flushing once solids have settled in tanks. This and similar types, such as chemical and sliding-valve toilets, involve emptying of buckets when full, much like campsite units.

Taking all these on-site choices together, it is hard to think of their category as the wave of the future. And yet, one new on-site system represents something of a quantum leap in technological achievement, a "next generation" sophistication that could aim sewage treatment in the direction not of larger and larger complexes, such as the regional facilities EPA was pushing in the early 1970s, but of smaller and smaller ones.

Dual Systems

A home soon to be constructed in an exclusive Ann Arbor, Michigan suburb will have two water systems. One will provide freshwater at sinks, lavatories and showers, and the other will be an advanced treatment system to dispose of toilet wastes.

The toilet system will treat its wastes to near the purity of rainwater and recycle the water for flushing. There will be no sewage wastewater discharge whatever, because any excess produced by waste additions will be evaporated.

There will be no accumulation of sludge as it is commonly known. Some sediment will settle to the bottom of a treatment module, but it will not be the heavy mass that municipal and package systems produce. The quantity will be

so small that removals will be necessary only once every two or three years.

The system will not require chlorine or other chemical additives, and wastewater that must be run off from the home's non-toilet sources will be of such high quality that the ground on which the house is situated can absorb them, even if the soil is tight.

The near-revolutionary toilet waste treatment unit will be made and installed by Thetford Corporation, the Ann Arbor company that spent several years developing it. Thetford markets such units under the trade name Cycle-Let and has proven them technically at a variety of public and commercial locations in four states.

Dual systems, as they are called, handle toilet and non-toilet wastewater separately in what has become known in sanitation circles as on-site wastewater management. The idea is to treat each form of wastewater to the greatest efficiency.

(Composting, incinerating and oil-recirculating toilets also are parts of dual systems; but again, their lack of technical sophistication — and public appeal — restricts their possibilities.)

Many water pollution control experts are convinced the nation ultimately must "look more at dual systems," as George Burke, manager of technical services for the Water Pollution Control Federation, put it recently. The problem, however, has been finding technology fully capable of carrying through on the concept.

Indications that the technology now has been achieved and almost certainly will be expanded upon by Thetford and its competition fits in with the new swing of the pendulum at EPA.

From the emphasis on regional plants, the federal agency has come back to smaller units where they are appropriate. "We're taking a closer look," says Robert Southworth, one of EPA's sanitary engineer in Washington, "at having a municipality run a sewer line ten miles up the road to service five families."

Local planners seeking EPA sewage treatment plant grants (75 percent of total cost, or 85 percent if the system is innovative) are now required to give more consideration to on-site systems, Southworth says.

(continued on next page)

"Secondary treatment reduces the general pollution load of raw sewage by 85 to 90 percent, but the resulting wastewater retains dissolved and suspended solids and organic contaminants."

So far, Thetford, which tempered its marketing efforts while confirming the reliability of its system, has made only off-the-shelf units, the largest of which is designed to accommodate 140 people during a 10-hour day, as in the case of a commercial installation, or 50 people around the clock.

But soon a larger unit will be constructed on-site at a sprawling shopping center that will be built in northern Virginia, just outside Washington. The next step probably will be something on the order of a custom-designed installation for an office building or housing subdivision.

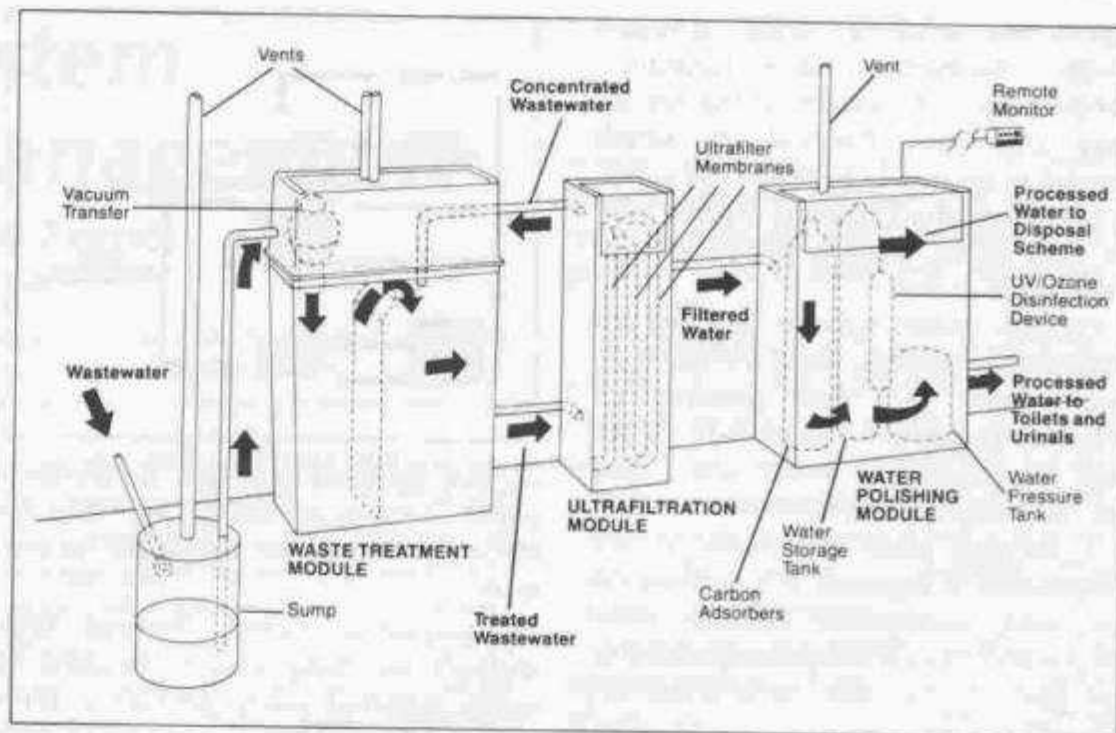
During its several years of research, the Michigan company concerned itself primarily with the virtual elimination of three contaminants. One is biological oxygen demand (BOD) — the tendency of waste to **deplete the oxygen** in bodies of freshwater it pollutes.

Solids (scientists refer to them as **suspended solids**) that either float on the surface of sewage or are suspended within it also had to be removed. The third pollutant: **coliform bacteria**, originating in human intestines.

Measures of these pollutants usually are taken by sanitation officials checking the purity of treated wastewater. These levels are brought down essentially to zero in three neatly designed Thetford treatment modules. In the case of off-the-shelf units, the modules occupy between 50 and 90 square feet of floor space, depending on the model, within the building being served.

Wastes from toilets are gravity fed to a sump, from which they are vacuum-transferred to the first, waste treatment module. In the process, solids are broken up.

The module has two chambers. The first is called the anoxic reactor. Here, bacteria always found in human waste consume simple organic compounds. Nitrate in the recycled water acts as an oxygen source, making possible a BOD reduction in this first step of from 70 to 90 percent. The nitrate is converted into a gas as it does its oxidizing job and is vented, along with carbon dioxide.



With additional flushes, wastewater in the first chamber overflows into the second, aerobic digestion chamber. Waste at this stage contains a fair amount of ammonia, plus low levels of nitrate and remaining BOD. In addition, it retains enough biologically-active solids to keep working on and further reduce the BOD, to around 95 percent.

The ammonia now is converted into additional nitrate, which will remain in purified water recirculated for flushing. In other words, the new nitrate will go back through the closed treatment loop.

As indicated above, it will come back with new waste to be available as an oxygen source in the first chamber.

This successful reversal of what usually happens in sewage treatment, which is nitrification first and denitrification second, **is a genuine breakthrough and is essential to the efficiency of Thetford's specific process.**

From the waste treatment module, the wastewater goes to the second, or ultrafiltration module, which boasts another significant technological advance in the form of highly efficient tubular membrane ultrafiltration.

The pressurized flow of water as it moves swiftly through membrane-coated cylinders is perfectly regulated, which makes it possible to prevent costly membrane clogging.

Not all wastewater is forced through the membranes on each pass. Water that proceeds into the final, water polishing module. Water and solids that are not routed back into the first module, from which they come around

again.

Virtually all the BOD, suspended solids and coliform bacteria have been removed by the end of ultrafiltration, and what remains to be done is the removal of color, odor and any surviving biodegradable organic matter.

That work is accomplished in the water polishing module by activated carbon absorbers, which are not usually found in conventional treatment because of costly carbon depletion and maintenance expense. Thetford can use the activated carbon due to the lack of BOD and solids in the water at this juncture.

Finally, ozone in the water polishing module disinfects the water, which thereafter is essentially as clean and pure as rain. The ozone also would be too expensive to use if it were not manufactured in the system. An ultra-

"Surprisingly, freshwater and sewage wastewater problems are not closely related. Yet, new evidence suggests that advances in technology could significantly alter future approaches to sewage treatment."

violet lamp produces it from oxygen in the air that passes over the lamp. The ozone and remaining oxygen are then combined with the treated water.

As a measure of the treatment's success, begin with the fact that BOD and suspended solids in wastewater are measured in milligrams per liter (mg/l). Coliform bacteria are measured in counts per 100 milliliters (ml).

According to research done for

HUD, typical package systems (which do a better job than municipal systems) reduce BOD to from 10 to 21 mg/l and suspended solids from 5 to 30 mg/l. The Thetford system's water has less than 5 mg/l for either BOD or solids.

A coliform count of 200 mg/l or higher is permissible in many areas of the nation, but the Thetford system count is typically less than one per 100 ml.

EPA's Bob Southworth is among those who have praised the system. He calls it "very well engineered." A number of patents are involved — some bought, some licensed and some applied for by Thetford.

The company's development of Cycle-Let was an extensive undertaking requiring the commitment of substantial resources, according to its **technical services manager, David Calhoun**.

Contributions, he says, were made by the firm's own 24 degreed engineers and by outside firms whose expertise was enlisted.

Still Costly

It is interesting to contemplate what might happen in time with highly efficient dual-system wastewater management.

At a minimum of about \$17,000, Thetford's is still too expensive a system for ordinary homes (the futuristic Ann Arbor house is in the upper brackets). The company's current installations are at service stations, wholesale distributorships, a power station, public recreation facilities and small factory and office buildings.

But Dave Calhoun says the company expects the system to be entirely practical — from the standpoints of both installation and operating costs — for subdivisions, apartment buildings, condominiums, motels and office buildings. Several treatment units might be involved for an installation, depending on the number of users.

What all this suggests in theory is the possibility of an entire community free of any need for central sewage collection and treatment systems. Every residential unit, business, high-rise building and public facility could be self-sustaining in wastewater management. Excess treated water, being unusually pure, would simply go into storm drains and from there into streams and lakes.

And since a city is a collection of

communities, why not large cities equally free of central sewage treatment plants?

Obviously, at present that kind of thinking is too close to science-fiction. It would be impossible for any city to go through a massive plumbing conversion at an expenditure of hundreds of millions of dollars, and nothing larger than a new town completely equipped with dual-system wastewater management could spring up from open fields.

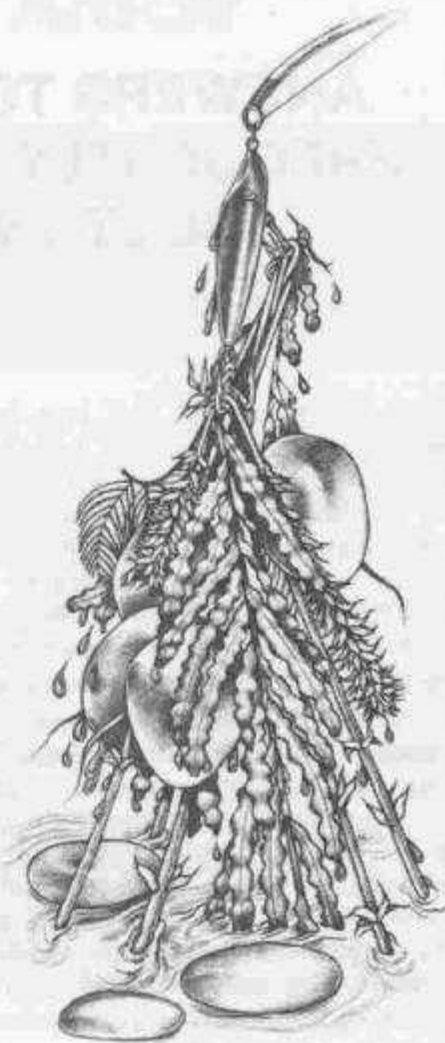
But more limited application within existing towns and cities and new suburbs, relatively soon, is neither impractical nor unlikely. A number of influences should foster such application — **sewer moratoria; high water tables (or poor waste absorption ability) in building land beyond central sewer lines; the high cost of sewer connections in many areas where they are available; the rising expense of freshwater in some localities; and not least, present or prospective shortages of freshwater.**

The Michigan home will not only take advantage of a dual water system but also will incorporate such familiar water-saving devices as **faucet aerators, reduced-flow shower heads and a front-loading washing machine.** The result will be a total freshwater saving of more than 50 percent, and no one expects residents of the house to feel any sense of water deprivation.

That kind of water conservation potential, widely understood, could have a tremendous impact on the thinking of public officials in water-short areas.

When Coloradans try to keep ahead of population growth; when Arizonans wonder what happens when remaining groundwater is too deep to pump economically; when residents of New Mexico or Utah or other states worriedly contemplate the next drought, significant reductions in water consumption by new users — and possibly some old users with new systems — should be especially attractive.

The fact of advanced dual system wastewater treatment technology is half the story. The other half is that this technology is as evolutionary as any other kind and its next leap forward, particularly where further size reductions and economies of scale are concerned, could be spectacular.



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ANSWERS TO 25 OF THE MOST FREQUENTLY ASKED QUESTIONS ABOUT SWIMMERS' ITCH



Although swimmers' itch has been known to exist for more than a century, it was not until 1928 that a biologist found that the dermatitis was caused by the larval stage of a certain group of parasitic animals. As illustrated in Figure 1, these parasites must cycle through snails and birds or mammals. Since the original discovery, it appears that reports of swimmers' itch in Michigan have been on the increase. The following are possible reasons for this: (a) there appear to be more birds that serve as final or definitive hosts; (b) recreational demands have resulted in the construction of more lakes and ponds; and (c) more people are aware of the condition of swimmers' itch and do not confuse it with other skin ailments like chiggers, poison ivy, chicken pox or mosquito bites.

The following questions were selected to provide you with information most often requested by individuals concerned with swimmers' itch.

1. What causes swimmers' itch? Swimmers' itch is a condition that results when larval parasites (flatworms) accidentally penetrate into the skin of sensitive individuals. The parasites die, but cause an allergic reaction. In order to develop a sensitivity, a person must have been exposed to the parasites at a previous time.

2. What are the symptoms of swimmers' itch? Soon after penetration of the parasite into the skin, a reddened spot

appears at the point of entry. The diameter of this area increases, especially with itching. If the area becomes raised, it is known as a papule and will reach maximum size after approximately 24 hours. The papule will itch intensely for several days before subsiding. After a week or so, the symptoms disappear.

3. What are the medical terms used to describe swimmers' itch? This skin condition is also known as schistosome cercarial dermatitis. Schistosome represents the groups of animals parasites that cause the itch. Cercaria refers to the specific name of the larval stage that emerges from the snail and penetrates the skin. Dermatitis is the term that describes the rash that develops on the skin.

4. Does everyone that comes in contact with the cercariae experience the symptoms? No, approximately 30-40 percent of those persons contacting the parasites show sensitivity. Some members of a family may be allergic while others remain insensitive.

5. Why do children often develop worse cases of swimmers' itch than adults? They usually swim more regularly and young children have a tendency to stay near the water's edge. It appears that cercariae concentrate near the shoreline.

6. What is the relationship of snails to swimmers' itch? Certain stages of the parasites that cause swimmers' itch must cycle through the snails. Larval stages develop and reproduce in the internal organs of the snail. Each day, hundreds of these free-swimming cercariae emerge from the snail but do not feed and therefore can not live for more than 24 hours in the water.

7. Do all kinds of snails carry the organisms that cause swimmers' itch? No, there are only eight different kinds in Michigan that can serve as hosts for the parasites.

8. Can cercariae be seen in the water? No, it is impossible to observe these organisms in the water without the use of a microscope. They are approximately $\frac{1}{16}$ of an inch long and ap-

pear transparent.

9. Are birds important to the organisms that cause swimmers' itch? Yes, many aquatic birds and some rodents can harbor the adult parasites within their blood vessels.

10. What is the role of these birds and mammals in the life cycle of the parasite? When cercariae contact the proper vertebrate (bird or mammal) host, they penetrate through the skin and continue to migrate into the blood vessel of the host, particularly those veins that surround the intestine. The parasites develop to adulthood there. The female worm then lays many eggs that work their way into the intestine. When the bird defecates into the water, the eggs of the parasites hatch into a free-swimming stage called the miracidium. This larval stage penetrates a suitable snail and completes the life history.

11. What birds and mammals are the most important carriers of these parasites? A recent study showed that common grackles, red-winged blackbirds, ducks, geese and swans seems to be very important carriers. Also, in a few areas, voles and muskrats harbored schistosomes.

12. How common is swimmers' itch in Michigan? It is widely scattered throughout Michigan but uncommon in the thumb region. Every lake in Michigan has the potential to support the animals that carry the parasitic flatworms. At the present time, it is not known why swimmers' itch is a problem on some lakes and not on others.

13. Is swimmers' itch found only in Michigan? No, it occurs most commonly around the Great Lakes. Most of the problems of swimmers' itch occur in the northern half of the United States all the way to Alaska. Many other countries have swimmers' itch problems as well.

14. Is it possible to predict swimmers' itch will be a problem in 1980? No, not with any certainty. People from some lakes get the itch every year. In other lakes, cercarial dermatitis occurs only sporadically, or is absent.

(continued on page 23)

PE

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Confusion Created By Media Article

by Don Winne

An article appeared in the Kalamazoo Gazette on December 17, 1979 entitled "Shoreline Erosion Causes Confusion Among Property Owners and State." The author of the article is not given—only dateline.

LANSING (UPI) — One of the most obvious errors in the article is that contained in the next to the last paragraph which states, "Although individuals may own property along the shore of lakes and rivers, the bottomlands of all bodies of water in Michigan, except a few private lakes, are state property." Only a person who is unfamiliar with Michigan riparian rights doctrine and decisions would make such a statement.

TITLE TO SUBMERGED LAND ESTABLISHED EARLY IN STATE'S HISTORY

Confirmation of the ownership of submerged land to the thread of a navigable river was handed down on January 9, 1860 in the Lorman v. Benson case. The opinion of the court stated that "The common law principle, that the soil under such tideless public rivers to the thread of the stream is in the OWNER OF THE ADJACENT BANK, prevails in this state and is applicable to the Detroit River." The decision also pointed out that if the common law did not provide for the ownership of the submerged land by the owner of the bank, that the "necessities of wharves, and other convenience ... would be an inducement to modify the common law, were it otherwise, rather than change it as it is now. We can perceive no advantage to the state in setting up a barren and useless title. We think that in this respect the common law is already adapted to our circumstances, and needs no changing."

RECENT SUPREME COURT DECISIONS UPHOLD RIPARIAN DOCTRINE

More recent decisions of the state Supreme Court have upheld and confirmed that the riparian owner holds ti-

tle to the submerged land to the center of a stream or lake. A decision handed down in the Burt v. Munger case (1946) concluded that "it is well established that each riparian owner holds title to the center of the lake; ..." Hall v. Wantz is one of the most recent Michigan cases involving riparian rights to lake bottom lands. The plaintiff, William Hall and others, filed a bill of complaint requesting a permanent injunction against the defendant, Wantz from docking a 25 by 40 foot raft on the submerged land in front of his property on White Lake in Muskegon county. The raft, called "The Ark", was outfitted for fishing by the public for commercial gain. The Supreme Court held (1953) that, "It is true that the right to anchor is an incident to the right of navigation, nevertheless the right of navigation does not include the right to anchor indefinitely off the riparian owner's shore."

STATUTE CONFIRMS RIPARIAN OWNERSHIP OF SUBMERGED LAND

Section 12 of Act 346, Public Acts of 1972 states, "This act shall not deprive a riparian owner of rights associated with his ownership of water frontage. A riparian owner among other rights controls any temporarily or periodically exposed bottomland to the water's edge, wherever it may be at any time and

holds the land secure against trespass in the same manner as his upland subject to the public trust to the ordinary high water mark."

RIPARIAN RIGHTS ON THE GREAT LAKES

When Alvin J. DeGrow, State Senator of Michigan (1978), asked the Attorney General "What are the riparian rights or property control over beaches which adjoin and front the shore of Lake Huron", his response was given in Opinion No. 5327. Part of that opinion follows: "In Hilt v. Weber ... The Michigan Supreme Court enunciated the rule that, when a purchaser acquires land from the government on the Great Lakes, he takes title to the water's edge ... The submerged lands of the Great Lakes in this state come within the purview of 1955 PA274, MCLA 322.701 et seq, MSA 13.700(1) et seq. Section 2 of the act indicates that the dividing line between the upland and the submerged land is the ordinary high water mark. Thus, the riparian ownership extends to this line." ...With respect to the area between the high and low water line, the court said at page 226: "The Riparian owner has the exclusive use of the bank and shore ... although the title is in the State."

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RESTORING ALGONQUIN LAKE ...

a case study in
perseverance

by Donald Montgomery

Algonquin Lake is located in Barry County, two miles northwest of Hastings, Michigan. It has 240 acres and 5.4 miles of shoreline. It was dammed to its present size from four smaller lakes in 1927. Feeding Algonquin Lake are four lakes: Carter, Leach, Bump, and Middle. The overflow from the Algonquin Lake Dam flows down Kirty Creek through the farms of Gene and Larry Haywood to the Thornapple River. Between 400 and 500 people live around the Lake.

Over the years since the installation of the dam, Algonquin Lake has become an eutrophic lake. Since the inception of the Algonquin Lake Community Association (ALCA) in 1956, the Lake residents have been valiantly combating the aquatic weeds. We have fought them with a multitude of methods: rakes, bedsprings, props, chemicals, and an aquatic weed harvester. With each of these, we have had some limited success, but none of them proved to be a final solution.

LAKE HAS CHRONIC PROBLEMS

During our country's bicentennial year, ALCA began to think in terms of action which would permanently rid our Lake of some of our chronic problems: potential spring washout of our earthen dam because of lack of adequate control features in the dam, poor fishing, hundreds of underwater stumps, aquatic weeds, and ice and muskrat damage to docks and seawalls.

BOARD REJECTS DREDGING — TOO COSTLY

In the spring of 1976, the ALCA Board studied a master dredging plan presented by the Snell Environmental Group of Lansing, Michigan. The cost of such a project would be a minimum of \$500,000 to be financed by a special assessment district. At a May 11, 1976 special ALCA Board Meeting, the plan was rejected. A clean, weed-free lake with sandy beaches would be ideal, but the price tag was far too high!

BOARD CONSIDERS DAM RENOVATION

Also early in 1976, the ALCA Board had been considering a plan of major modifications to the dam to enable us to better control the water depth of the Lake. The constant danger of spring flooding would be eliminated. The Lake could be lowered vertically 6 to 10 feet, thus enabling each property owner if he so desired to clean up his own beach.

Numerous advantages were pointed out to the people which would accrue as a result of the Dam Renovation Project. **One**, riparian owners would be able to clean their beach areas below normal water level. That would mean removing muck, weeds, leaves, brush, stumps, bottles, cans, etc. It would also enable them if they so desired to create a beautiful sandy beach evenly applied. Also, if the lowered lake level were maintained during the winter months, there is some evidence to indicate that there would be a considerable aquatic weed winter kill.

Two, with a new lake-level-control device, we could maintain an annual winter level lower than is now currently possible. This would prevent much of the damage many of the property owners have been experiencing with ice to seawalls, docks, and boat houses. It would also lessen the damage to shores caused by muskrats.

Three, with the conclusion of the Dam Renovation Project, we could much better control our lake level during all four seasons. With the present steel gate of 6½ inches, Mother Nature makes most of the lake level decisions for us. With a slidegate, we could more accurately maintain a desired lake level. We would no longer have to worry about a flash flood as a result of a horrendous rain. With proper maintenance, we would never again have to worry about the dam washing out.

Four, the east end of our lake could be restored to use for everybody. The ALCA Stump Removal Committee, while the lake is down, could finish its removal of all the stumps from the major stump fields.

Five, with the ability to drastically lower the lake, periodically this could be done for riparian beach cleaning and shoreline maintenance.

The Dam Renovation Project Feasibility Study by Williams and Works

not to exceed \$900 was passed unanimously by a large turnout at the ALCA Fall General Meeting.

Leo Vander Horst of Williams & Works presented four possible reconstruction alternatives. One, total reconstruction of the existing outlet structure could possibly cost between \$20,000 and \$25,000. Two, reconstruction of the siphon (originally the dam was a siphon dam). This would be the cheapest but it wouldn't allow us the vehicle with which to lower the lake for emergency and for cleaning purposes. Three, install a square slide gate in the center wall approximately 6 to 8 feet below the normal lake level. This alternative was estimated to cost between \$10,000 to \$13,000. Four, stop logs to replace a portion of the center wall down to 6 to 8 feet. This was estimated to cost between \$6,000 and \$8,000.

LAKE BOARD APPROVES SLIDE GATE ALTERNATIVE

Mr. Vander Horst recommended, "The slide gate modification is the most desirable for the following reasons: One, Maintains normal water level and outflow capacity exactly as have existed for many years. This should reduce administrative and governmental coordination problems substantially. Two, Provides positive control of the lake level to any desired level. Three, Hand-wheel control of the slide gate is the simplest method of control. Four, Maintenance effort and cost would be the lowest. Five, Outlet flow can be throttled to any desired minimum capacity. Six, Structural integrity of the structure is not impaired in the middle wall for stop logs. The total cost for engineering (Phase I and II) should not exceed \$1,400 and the construction cost should not exceed \$13,000. ALCA would then be striving for a total package of \$15,000. Eighty-five percent of those who attended the May 23 meeting voted in favor of the proposal with 15% opposed.

CONTRIBUTIONS SOUGHT

Dam collections chairman Cliff Morse then presented his committee's plans for securing the needed \$15,000. "We have approximately 150 lake-front property owners and a large number of off-lake owners who enjoy access. If we each contributed \$100, we would reach our goal of \$15,000. However, there are

some who cannot afford \$100 and we ask that they give what they can. There are others who will not contribute anything. Those of us who care about our lake and are concerned about the safety of our dam will have to give more than our fair share to make this project a reality. We are asking for neighborhood volunteers to help in a house-to-house collection drive, and I urge you to give time and money to this effort so that we may complete the collection by the end of June and have all the money in hand to start construction this fall." By July, 1977, eighty families had pledged \$7,790. By October 1977, \$11,383 had been pledged by 124 families. Bids were first advertised in December of 1977 and were to be opened on January 16, 1978. Only one contractor bid so the ALCA Dam and Park Committee decided to advertise for a second time. These bids were to be opened on April 14, 1978. Three contractors submitted bids, and the engineer, Leo Vander Horst of Williams & Works recommended that the project be awarded to Boerema Excavating of Sand Lake in the amount of \$14,800.

DAM AND PARK COMMITTEE ACCEPTS BOEREMA BID AT \$14,800

The Dam and Park Committee, having been authorized by the ALCA Board on April 10, 1978, to approve and award the bid, did so at a special meeting, April 16, 1978. The Committee, accepting Vander Horst's advice, accepted the Boerema bid. Project Engineer Vander Horst was given the go ahead to complete the Dam Renovation Project with Boerema Excavating on April 17, 1978. The construction was to be completed by August 30, 1978.

At last, ALCA finally had a contractor to do the job. ALCA could now set the money figures for which to aim. Construction would cost \$14,800. Total engineering would cost approximately \$4,000. That gave a combined cost of \$18,800. \$1,000 for unexpected contingencies would raise the total figure to nearly \$20,000. At that point ALCA had in or pledge over \$12,000. That left us with nearly \$8,000 to raise. Cliff Morse indicated that his collections committee could collect a minimum of an additional \$3,000 the second time around. That left us potentially \$5,000 short. To make the slack, ALCA formed a Dam

Renovation Raffle Committee headed by Don Roth. Chairman Roth hoped to sell in excess of 5,000 raffle tickets netting ALCA \$4,300.

Don Roth gave the raffle details as follows: "Tickets will be ready for sale to start at the Spring General Meeting, April 24. We will sell all summer and hold the drawing for the winners at the Fall General Meeting, October 23, 1978. First prize will be a G.E. Portable color T.V., second prize will be a half of beef, third prize a \$50 Gift Certificate at Barb's Country Store. All ALCA members will be asked to sell tickets. They will be \$1 each or six for \$5. Let's all get involved in this project, as it will give a big boost to our Dam Repair Project Fund."

LAKE DRAW-DOWN BEGUN

Finally, the big day arrived --September 15, 1978. PLUG PULLING DAY! Ray Boerema, Paul Spangenberg, and crew arrived at the dam approximately at 1:00 p.m. After some preparatory work for their huge backhoe, Ray's skilled operator completed **VERY CAREFULLY** by 2:30 p.m. the removal of Algonquin Lake's plug. To accomplish this, ALCA worked very closely with Williams and Works Resident Engineer Jim Romaine and Gene and Larry Haywood. The water crested at Haywoods' dam at about midnight. It was a very close thing but thank goodness their dam held. About 8" of rain in the previous week did not help them or ALCA. Forty-eight hours after pulling the plug, Algonquin Lake was 10½" below the normal water line. The lake was drawing down at the rate of about ¼" per hour. ALCA continued to keep in close contact with the Haywoods during drawdown. Boerema Excavating, Inc. had constructed an emergency slide gate to use if ALCA needed to slow down the flow of water. On October 12, ALCA completed the drawdown to the 9' level.

CONSTRUCTION BEGUN

Finally came the time for construction. On November 28, Contractor Boerema, Foreman Paul Spangenberg and crew arrived at the dam, constructed a sandbag coffer dam, and inserted a corrugated pipe through the casting for our slidegate in the middle bottom hole of the dam. On November 29, Ron Sikkema, Boerema's cement

subcontractor from Caledonia, arrived to drill holes in the cement facing of the dam for the steel re-rod for the slidegate cement tunnel. Inclement weather then hindered the work until December 4, when Ron Sikkema and crew built the wooden forms for the cement casting for the slidegate tunnel. On December 5, Ron poured the cement for the slidegate tunnel. On December 6, Boerema's crew tore the top steel spillway cover and slidegate holder off the top of the dam's middle wall. On December 7, Boerema removed enough of the center wall of the dam for our three stop logs. On December 11, the coffer dam overflowed. On December 12, the coffer dam washed out. On December 13, Sikkema poured the concrete in the top of the center wall for stop logs and the water overflow for normal lake level. On December 15, Ron removed the cement forms from the top and bottom new cement. On December 19, Ray removed the corrugated pipe from the slidegate and what was left of the coffer dam and tried to install the slidegate. There was too much water built up in the lake because of the coffer dam. Boerema informed ALCA on December 20 that he would be back after Christmas to complete the job after the lake level had fallen. As good as his word, Boerema returned December 26 to attach the slidegate and install the mesh walkway on the top of the dam. On December 27, the fence and gate were put back in place in front of the Dam House.

BEACH CLEAN UP DURING DRAWDOWN

During the winter in eight workbees (mostly Saturdays from January 6-February 17, 1979) ALCA's Stump Removal Committee shoveled out and cut off with chain saws about 600 underwater stumps. These were then hauled to shore with/by snowmobile sleds and then to various fireplace wood piles by 4-wheel trucks. Many people helped in these workbees, many in sub-zero temperatures. Our champion stumper was Bill Smith who worked in seven bees! On February 17, after the Stump committee finished its work, the slidegate was closed, as had been

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authorized by the February 12 ALCA Board Meeting.

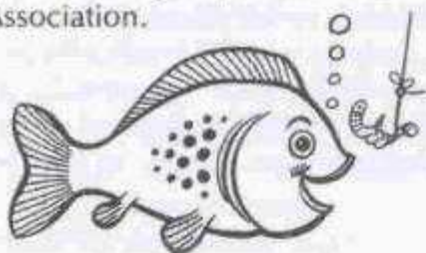
Earlier than most people expected, Algonquin Lake was completely refilled to normal summer level on March 26, 1979.

On April 23, 1979, it was announced that the 3-year Dam Renovation Project was completed and paid for.

In summary, here is what the project did for ALCA: (1) gave us a renovated dam which provides us with positive lake level control (No more worries about flooding or washouts), (2) enabled us to have the vehicle for future drawdowns, (3) removed 600 stumps from our lake, (4) increased the size of our fish, (5) improved better than half of the lake front beaches, (6) removed many thousands of cubic yards of muck from the lake, (7) kept our lake weed free at prop level until about the middle of June, and (8) provided ALCA with an inexpensive means of aquatic weed control. ALCA is so enthusiastic over the results that we are already making plans for another drawdown this fall with the fillup much later in the spring to keep the weeds down much longer for the summer of 1980.

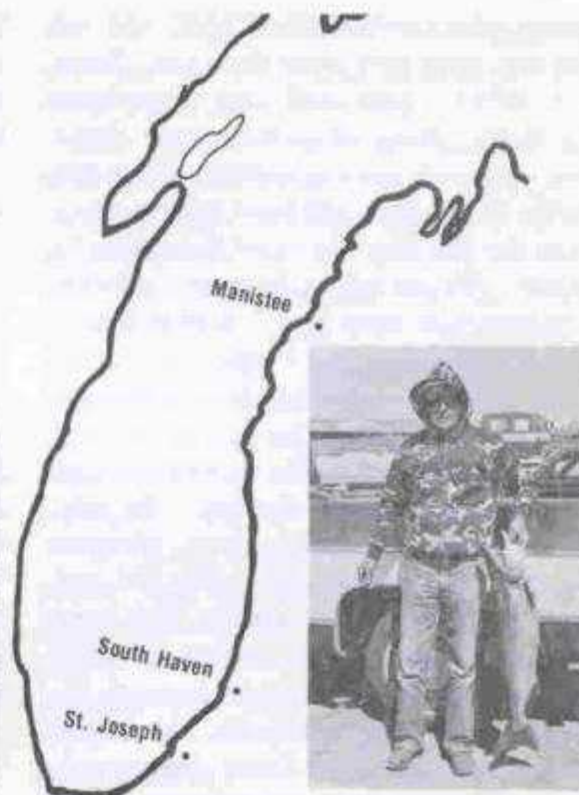
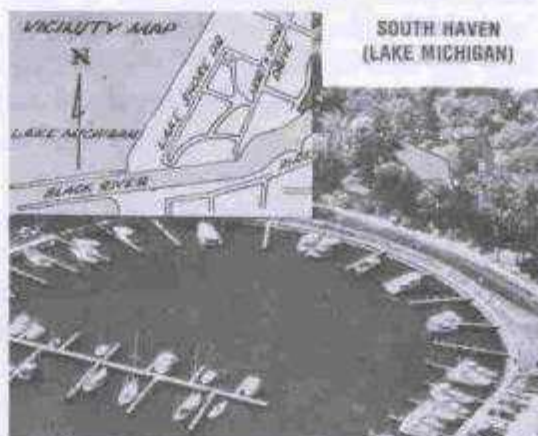
In fairness it should be mentioned that the drawdown gave us one unfortunate side effect. About twelve wells went out. In a way this was a blessing in disguise to many of these twelve, as their wells were so shallow that they were drinking lake water. Now they have deeper wells which should be much better for their health.

ALCA's project proved that people can still work together to accomplish things with their own efforts and money without government handouts. The good old American way of private enterprise still lives! All its takes is undiminished perseverance to a common goal. Needless to say, this project would never have been begun yet alone have been completed without the guiding hand of The Algonquin Lake Community Association.



FISHING FUN!

(By Ray Susemihl, Three Rivers, MI)



My wife, Lois, and I got started fishing from piers in Lake Michigan just by chance. We had planned to fish Manistee Lake but had no success besides finding it very difficult to fish because of the sunken lumber piles and under-water docks that extend hundreds of feet into the lake.

We assembled our gear and headed for the Lake Michigan pier. It was mid-August 1978 and our first attempt to hook and land Chinook salmon. The number of strikes was disappointing -- only three strikes in 30 hours of fishing during seven days. We caught two 19 pounders, and when they struck, it was a battle of energy and wit for 15 minutes to see who would come out the winner. Lois hooked two steelhead (Rainbows) but they shook loose when they exploded on the surface.

Our appetite for pier fishing had been awakened, and we traveled to South Haven and made three trips to St. Joseph later in year (September and October) trying for Coho, Chinook and steelhead. Our efforts resulted in a 4# Coho and a 4# steelhead. With the coming of winter our gear was laid

away, but during the winter months we made plans to return to Manistee the next summer.

We tried Manistee Lake first and were successful in catching four northern pike with the largest one weighing 8 1/4 pounds. We then tried the pier but had no luck. While fishing from the pier we met the Dargitzs from Mooresville, Indiana who invited us to go fishing with them in their boat out in Lake Michigan. We caught 4 chinook that averaged 18 pounds apiece. After fishing we went to the Salty Dog Saloon and enjoyed a dinner of froglegs at their best. It was then back home to Three Rivers.

Even though we had been unsuccessful at South Haven, we decided to give it another try in early September. It was so windy on the day we arrived (September 7) that Lois and her friend Lorraine Jacobs decided to stay in the car. I was on the pier by 11:30 and in 15 minutes hooked the 21# Chinook that is shown in the picture.

If you like to fish, and enjoy the fresh balmy breezes from offshore of Lake Michigan, try pier fishing.

ML&SA NEWS

By Cecile Harbour

ML&SA

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NEW ML&SA MEMBERS

Region III

BURT TOWNSHIP ASSOCIATION,
Cheboygan County
Bruce Garlinghouse, President

OXFORD LAKES ASSOCIATION, Oakland
County
(No name to date)

Region IV

ALGONQUIN LAKE COMMUNITY
ASSOCIATION, Barry County (reinstated)
Don Montgomery, President

LAMPTON LAKE ASSOCIATION,
Kalamazoo County
Dr. Russell Mohney, President

Region V

LOCH ERIN PROPERTY OWNERS
ASSOCIATION, Lenawee County
Jerald Bachman, President

CAVANAUGH LAKE ASSOCIATION,
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Don McKenzie, President

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LAKE INFORMATION:

Year Organization was formed _____ Lake Location (County) _____ Lake Size _____

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

President's Name & Address: _____

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

Dues for membership in ML&SA for 1980 includes a base amount of \$25.00 for associations with less than 150 members or \$35.00 for associations with 150 or more members plus 18 cents per member. Associations who join after the first of the year will pay a pro-rated amount for the remaining months of the year. (i.e., An association with 60 members joining in February would pay 10/12 of \$25.00 plus \$8.40 or \$27.87).

A check to cover dues should be made payable to Michigan Lake and Stream Associations, Inc., and sent along with the completed application to:

Michigan Lake and Stream Associations, Inc.
9620 East Shore Drive
Portage, MI 49002

ML&SA 1980 DUES

Region 1, with 6 ML&SA members, has 100% response to the 1980 ML&SA dues. Even though the dues are payable any time during the calendar year, we encourage remittance as soon as your budget and by-laws allow. It saves ML&SA postage for the second and third notices. As of April 1, 85 members had paid their dues for 1980, or about 75%. If, for any reason, a current member is planning not to continue the membership, please notify the ML&SA Secretary as soon as possible.

CIRCULATION MANAGER GRIPE

Almost all of the renewals for the "blanket subscriptions" occur after the Fall and Winter issues of the Riparian are mailed. Each "blanket" subscribing association receives the renewal notice, with a complete list of the members, about 2 months before the dead-line for renewal. Unfortunately, about half the subscribers do not meet this dead-line.

This means that reminders have to be mailed to 30-50 associations and the dead-line extended. This is a hardship for the circulation manager and adds to the costs of producing the magazine. If subscription rates have to be increased, those that remit promptly are penalized for the lack of response of others.

The Riparian staff is not salaried. Everyone donates a tremendous amount of time to this publication. The mailing list must be kept up-to-date which is done by feeding the corrections, additions and deletions into the computer each quarter -- a lengthy process. The dead-line for renewals is necessary to allow time for this work. The mailing labels, from the computer, must be ready at the moment the magazine comes off the presses.

All "blanket" subscribers are asked to cooperate in this matter when the next renewal notice is received. Please meet the deadline to help cut down on costs and work time.

If you would like to have the activities of your association mentioned on these pages, make sure that your newsletters reach us before the first of January, April, July and October. Your newsletters are the only sources for these items.

ALGONQUIN LAKE COMMUNITY ASSOCIATION, Region 4. The winter draw-down of the lake has permitted the Stump Removal Committee to supervise the removal of several hundred stumps from the exposed bottom. A DNR fish population

study in June 1979 shows that all the samples were significantly below the State average size. Another study this year should show better results due to the winter draw-down.

CASS LAKE RESIDENTIAL PO ASSOCIATION, Region 5. All applications for projects under the Inland Lakes & Streams Act (PO #346 of 1972) for shoreline alteration are printed in the association newsletter and members are advised to report any activity that is not described in the applications. Increased urbanization has prompted the increase in applications.

ELK-SKEGEMOG LAKES ASSOCIATION, Region 2. Suggestions for recycling and the disposal of newspapers, scrap metal and glass were printed in the January newsletter. The President summarized 10 projects that have helped improve property values and have protected the environment of the area. January membership was 583.

GILBERT LAKE PROTECTIVE ASSOCIATION, Region 5. The association is weighing the advantages of harvesting against the use of chemicals for weed management. The 1979 harvesting was not as satisfactory as expected.

HEART LAKE ASSOCIATION, Region 3. The association lost its challenge to the DNR and a local riparian to dredge and fill a small wetlands near the lake. The editor of the newsletter wrote an excellent explanation of the value of wetlands. The newsletter is providing the association members with valuable needed information, written in a professional, readable style.

HESS LAKE IMPROVEMENT ASSOCIATION, Region 2. The Lake Board (PA #345, 1966) has been reactivated to assist the association with some of its problems, including a sewer project, weed control, a local drain, septic system operation, contamination of the lake and private wells and safety on local roads. The by-laws have been amended to meet current needs.

INDIANWOOD IMPROVEMENT ASSOCIATION, Region 5. Good suggestions from this newsletter include 1) Eliminate fertilizer run-off from yards by not fertilizing; 2) Use low phosphate detergents; 3) Avoid feeding water fowl; 4) Keep shorelines raked and cleaned but do not burn on or near the shore. It has been necessary to form a vandalism committee. Other associations are faced with the need for more vigilance in protecting property.

KEARSLEY LAKE ASSOCIATION, Region 5. The Association welcomes each new member by a letter from the Board. There is continuing cooperation between the associa-

tion and the City of Flint regarding the maintenance of the dam and adjacent parks and access sites. The by-laws are being updated to meet current needs.

LAKE LAPEER ASSOCIATION, Region 5. The Lake Lapeer Water Ski Club is preparing for another summer of activity. Competition in Michigan and other states was rewarded with fun and trophies last summer.

LAKE OGEMAW SUMMER RESORT ASSOCIATION, Region 3. The association is exploring the feasibility of purchasing its own weed harvesting machine or to contract for the use of one. A raffle is planned to finance a fish stocking and rearing pond program.

LAKES PRESERVATION LEAGUE, Region 5. Bernard Ryan, attorney, was the speaker for the January membership meeting. He presented an overview of the State laws regarding ground water. The association is concerned about the amount of water used for agricultural irrigation in the area. During the Tip-Up Festival, 12 planes landed on the lake, creating a concern of the legality of the landings and the safety of those on the ice.

LAKEVILLE LAKE PO ASSOCIATION, Region 5. Further testing of "hot spots", discovered 2 years ago, is planned. Dr. Humphrys MSU class will follow-up on the earlier study. Septic system testing will continue this summer. Another reminder not to burn on the shore - the fall-out from smoke and the ashes washed into the water are nutrients for weed growth.

LOCH ERIN PO ASSOCIATION, Region 5. Development started on this man-made lake in the late sixties but has since slowed down. Promises of sewer hook-ups have been broken and the soils are not suitable for septic systems. The present association was reactivated in 1977. One of its accomplishments has been the determination of the legal lake level at 926 feet above sea level. The association is now proceeding with plans to study the sewage disposal problem.

PINE LAKE COMMUNITY ASSOCIATION, Region 5. Through the efforts of the association and constant pressure at the township level, a sewer system has been approved for the lake area. (Note to the association: continue to monitor the township meetings to watch-dog possible back-lot development and funneling.)

PINE LAKE PO ASSOCIATION, Region 5. The annual meeting, March 9, had Sgt. Tom Lendzion, from the Marine Division of the Oakland County Sheriff's Department speaking on water safety.

SILVER-MARL LAKES ASSOCIATION, Region 5. Sewers will be installed along 4 streets in the area. Surveying was done last Fall. Guest speaker on plant management at the January Board meeting was Dorothyann Phillips, a former ML&SA Director. The association is determining the degree of the weed problem and how best to control the weeds.

WOODBEEK CHAIN OF LAKES ASSOCIATION, Region 4. A little know-how, cool heads and the immediate response by the Kent County Sheriff's Department and the Harvard Fire Department saved a fisherman's life when he fell through the ice in December. An excerpt from the "Waterline" editorial - "Frequently heard comments - How long is it going to take and how much will it cost? and, The association doesn't do anything, or I'm disappointed in the association. If there is a feeling of disappointment or disillusion, ask yourself, how much time, energy or ideas did I contribute to the association last year? If the answer is very little or none, where does the blame lie for an association that doesn't do anything or an association that is a disappointment?"

WALLOON LAKE ASSOCIATION, Region 2. A Trust has been established to accept donations of land in the watershed that would protect the environment and ecology of the area. Land and donations to this Trust are tax deductible.

REGION V HOSTS 20 ASSOCIATIONS AT LAKE FENTON ON MARCH 23, 1980

Our speakers were Mr. Pat Burnett from SEMCOG and Dr. Tom Borton from Applied Environmental Research, assisted by Mr. Bill Marsh, Mr. Doug Dennison and Dr. Don Tilton.

Topics included - Federal 208 Area Wide Water Quality Update and Self Help Program for Inland Lakes. Mrs. Betty Wolfe gave a brief report on how the East Michigan Environmental Action Council could assist our member Associations.

Lake Fenton Property Owners Association proved to be a most gracious host by providing an excellent facility for the event and also a complete fried chicken dinner. This most successful event left everyone with a good exchange of information, new awareness and expressed enthusiasm.

The key to our success could probably be attributed to many factors. However, one in particular was the special effort put forth by the Directors of Region V to update our mailing list, mail out flyers, and make a personal contact with assigned Associations.

CONTRIBUTIONS TO ML&SA NOW TAX DEDUCTIBLE

It has been determined by the Internal

Revenue Service of the Department of the Treasury that Michigan Lake and Stream Associations, Inc. is exempt from Federal Income tax under Section 501 (c) (3) of the Internal Revenue Code. "Donors may deduct contributions to ML&SA as provided in section 170 of the Code. Bequests, legacies, devises, transfers, or gifts given to ML&SA are deductible for Federal estate and gift tax purposes if they meet the applicable provisions of sections 2055, 2106 and 2522 of the Code." (The date of determination was February 6, 1980)

Individual contributions to ML&SA during the calendar year 1980 will be deductible on your 1980 federal income tax return.

REGION II SPRING MEETING

Julius Martinek, Region II Vice President, has announced that plans are complete for the Spring Meeting to be held at Caberfae in Cadillac, May 17. All lake and stream associations and the general public are invited to attend. Announcements and programs will be mailed to all ML&SA members and to those other associations for which there is a mailing address.

Speakers will be Dr. Clifford Humphrys of MSU; Tom Weaver and Chuck Grant of the Northwest Michigan Regional Planning & Development Commission; Donald Winne, Executive Director of ML&SA; and Mary Vanderlaan, DNR Self-Help Program. There will be ample time in the afternoon for discussion and questions.

There will be registration and a social hour from 9:00 to 10:00 a.m. A small registration fee of \$1.50 per person will be charged. The sandwich and soup bar for lunch will be \$2.95 plus tax. Contact Mr. Martinek, 1184 Sunset Dr. Frankfort, MI 49635, 616/352-9947, for more information.

ANNOUNCING!!

A RIPARIAN'S GUIDE FOR SELF-HELP INLAND LAKE WATER QUALITY MANAGEMENT

by George R. Gibson, Jr.
Formerly Department of Resource
Development
Michigan State University 1976
Currently Environmental Resources
Unit
University of Wisconsin, Madison

Coordinated by
Clifford R. Humphrys
Department of Resource Development
Michigan State University

This comprehensive guide may be purchased from Michigan State University by writing to the Cooperative Extension Service and requesting Extension Bulletin E 1117, November 1979. The price is \$2.00.

1980 ML&SA ANNUAL MEETING TO BE HELD AT HILTON SHANTY CREEK October 24, 25 & 26, 1980 Bellaire, Michigan

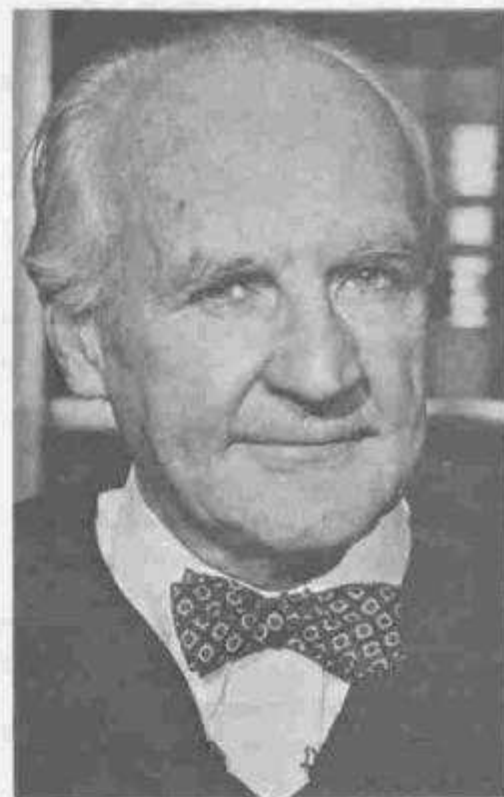
KEYNOTE SPEAKER:

Honorable Judge John Feikens
Chief Judge, United States District Court
for the Eastern District of Michigan

Mr. Feikens is a graduate of Calvin College, receiving a B.A. Degree in 1938 and a J.D. Degree from the University of Michigan in 1941. He received an honorary degree from the University of Detroit in 1979.

Judge Feikens received an interim appointment as United States District Judge for the Eastern District of Michigan on October 13, 1960. His appointment expired on September 27, 1961. He received a permanent appointment on December 1, 1970 and entered on duty December 14, 1970.

Judge Feikens is a member of a number of legal associations in the state and has served as Director and President of the Detroit Bar Association.



JUDGE JOHN FEIKENS

Aeration

Is it an answer for your lake?

by Don Winne



Many lakes in Michigan have reached a stage in aging which makes them unsuitable for such activities as swimming, fishing and boating. Weed growth may be so rampant that it is difficult if not impossible to move a boat through them. The oxygen supply may be so depleted that sport fishing has declined and rough or trash fish are taking over. Algae may have multiplied so rapidly and in such quantities that they cover the surface with an unsightly mass and bring offensive odors as well.

The best answer to limiting plant growth and algae growth in lakes is to limit or cut off the sources of nutrient input. This approach takes more study and planning and involves more people since everyone living in the watershed of the lake must be an interested and involved party. In the meantime, something must be done for the short term if the lake is to be made suitable for use.

Many short term alternatives have been tried to overcome the consequences of too much nutrient. Some of them are aeration, lake deepening, dredging, drawdown, harvesting, chemical treatment, introduction of new species, etc. What is best for any one lake will depend upon the uniqueness of each lake and the uniqueness of its watershed. If the long term problem of a lake cannot be corrected, the short term solution may become the long term solution.

Aeration or re-circulation of the water in a lake is one of the methods of improving a body of water. Some of the methods of aeration have been agitating the water with gas operated motors with the propeller inserted into the lake; pumping water from one part of the lake to another; pumping compressed air into the lake and releasing it at or somewhere near the bottom; and pumping water from just below the sur-

face and forcing it into the air and letting it fall back on the water surface.

A review of Technical Bulletin No. 75 prepared by the University of Wisconsin and the Department of Natural Resources of Wisconsin indicates that 15 foreign countries and 29 of the United States have tried one or more methods of aerating lakes. The report shows California aerating 15 lakes, with Wisconsin and Michigan coming in second with seven lakes each. Ohio is third with five, and New York and North Dakota with four each.

The problems of lakes which have caused the consideration and use of aeration methods as reported in the bulletin are:

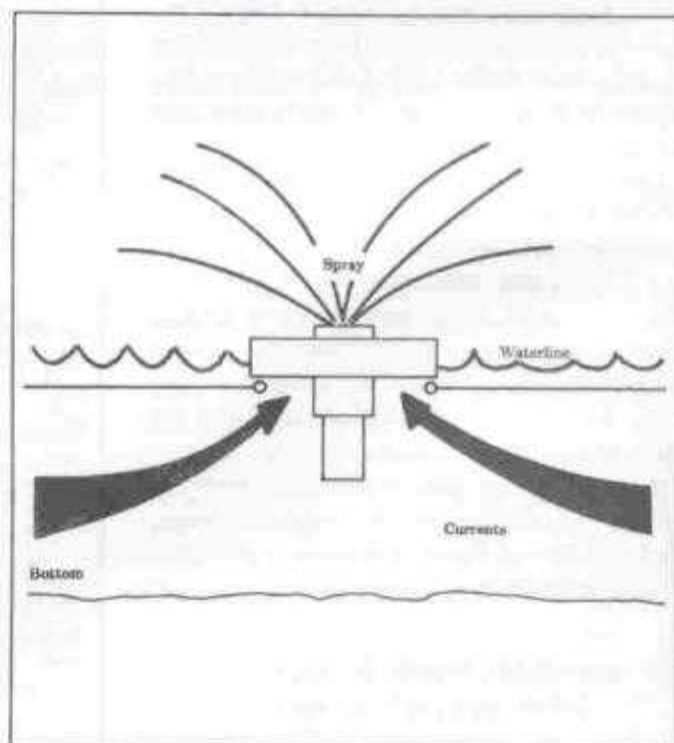
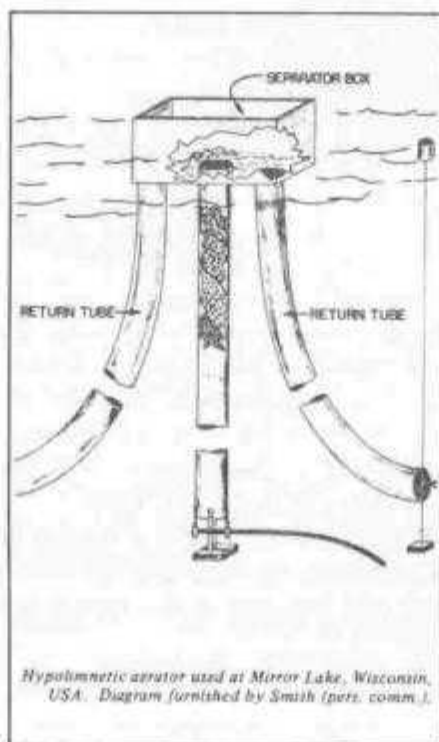
1. Oxygen depletion
2. Fish Kills
3. Blue-green algae blooms and surface nuisance.
4. Odor from the water and poor water quality.

For example, the problems of Mirror lake in Waupaca county Wisconsin were dense algal blooms in summer and

winter, deteriorating fishery and poor water quality. To improve the dissolved oxygen regime, two aerators were anchored to the bottom of the eleven-acre lake to oxygenate the bottom waters. An illustration of the aerator is shown below (left). Another type of aerator floats on the surface and draws the water by means of a impeller from the surface waters and sprays into the air. This principle is shown in the illustration on the right.

WHAT ARE THE EFFECTS OF ARTIFICIAL AERATION?

Quoting from Bulletin No. 75, "Some of the effects of artificial aeration on physical and chemical parameters are quite predictable, but the response of the biota is frequently inexplicable and has received inadequate attention. Oxygenation of bottom waters leads to a general increase in the oxidation state and a reduction in the concentrations of the reduced forms of iron, manganese, nitrogen and sulphur ... In summary,



aeration has been shown to have a positive effect on the dissolved oxygen regime of eutrophic lakes and reservoirs. Aerators can be tailored to alleviate certain water quality problems and enlarge the habitat available to cold or warm water fish species."

The section of the Bulletin which deals with "Managing The Consequences Of Lake Aging" is summarized as follows: "In general, lake restoration

technology is in a "youthful" stage of development. Many techniques can be used with reasonable assurance of some success, but expectations have often exceeded the benefits and the side effects of some treatment approaches are poorly understood. Future studies must therefore be comprehensive, with more effort directed at the identification of important variables and the qualification of cause-and-effect relationships.

Each lake appears to be a unique ecosystem; no technique can be applied indiscriminately to every situation ... Significant advances in lake rehabilitation are being made ... and future prospects for success in this realm of environmental management are very encouraging."

Some examples of aeration of lakes in Michigan during the years of 1940-1970 are given in the chart below:

YEAR	LAKE	COUNTY	ANNUAL DYE TONNAGE	PROBABLE AREA	MAXIMUM DEPTH OF LAKE	LAKE TROUBLE	OBJECTIVE	METHOD	REMARKS
1940	Buttrick	Livingston	1/2 days	3-7	5'	Winterkill, highly organic sediments	Maintain high oxygen concentration	Well water discharged into lake	Shadtail & Bullhead winter kill
1952	West Sec	Osage	10' days	3-7	43'	Restricted habitat for salmon, nonproductive lake	Enlarge salmon habitat, increase productivity	Shore-mounted pump moved water from 40' depth to surface	Therocline lowered 12', Phytoplankton growth stimulated
1951	Spring	Osage	20' days	72.8	18'	Overabundance of vegetation, Winterkill	Lessen value of vegetation to prevent winter kills	Shore-based compressor supplied air thru tube, rising on the bottom at 5' depth	No definite conclusion
1950 1959 1960	Seige	Osage	4 months	17.0	16'	Overabundance of macrophytes, Winterkill	Improve winter dissolved oxygen levels	Shore-based compressor delivered air to bottom, fixed pump 5' and pump surface 38 feet	Winterkill eliminated, Oxygen in surface waters declined
1963	Hol	Washtenaw	Not reported	89.0	7'	Winterkill, Oxygen depletion	Increase oxygen levels	Four submersible pumps mounted above rocks in lake	Submersible oxygen in immediate area increased
1970	Swadlow	Chassey	2 months	1.4	59'	Oxygen depletion	Effect of sediment on nutrient release from sed.	Air introduced 10' below surface	Intense algal bloom, Oxygenation increased
1970	Devlin Bay	Chassey	3 months	6.0	91'	Response of oligotrophic lake to aeration/dyeing	Study effects of desilicification on bay sedges & bitts	Compressed air released 60' feet from surface in deepest part of lake	Lake isothermal in 4 days at 60', No observable improvement in fish growth



ATTENDING A LAKE ASSOCIATION POTLUCK?

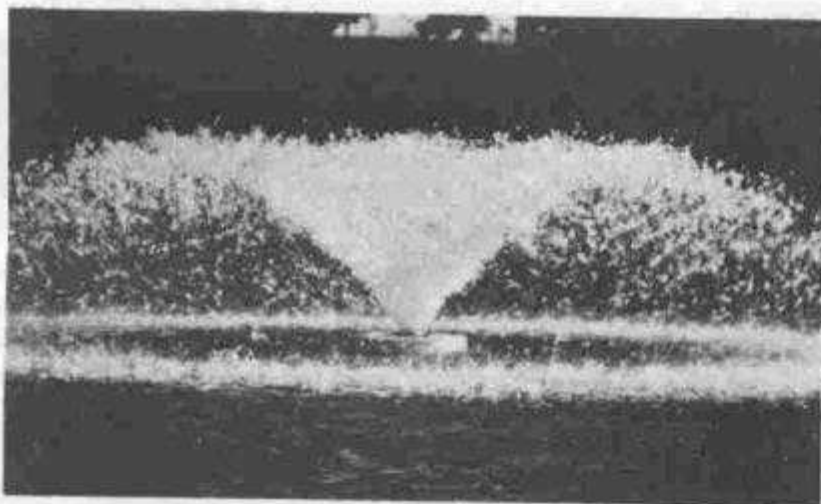
Hetty Hoebner of Upper Chain of Lakes (Elisworth) sends in the following dish which can be prepared days ahead and you avoid the last minute rush of preparing something.

FROZEN COLESLAW

- 1 tsp. salt
- 1 Med. head cabbage - shredded
- 1 large carrot - grated
- 1 green pepper - chopped fine
- 1 small onion - chopped
- 1 C. vinegar
- 2 C. sugar
- 1 tsp. celery seed
- 1 tsp. mustard seed

Sprinkle salt over cabbage - Let stand for 1 hour. Squeeze out liquid. Add carrot, green pepper, pimento and onion. Mix well. Combine vinegar, 1/4 cup water, sugar, celery seed and mustard seed in saucepan; bring to a boil. Boil for 1 minute. Let stand until lukewarm. Pour over cabbage mixture - mix well. Place in containers; FREEZE. Can be refrozen several times. Yield - 6 to 8 servings - depending on size of container.

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ARE WISCONSIN LAKES IN TROUBLE FROM ACID RAIN AND SNOW?

(Re-printed by permission from Wisconsin Federation of Lakes, Inc.)



At this time there is a study being made of lakes in Vilas and Oneida Counties to determine the effect of acid rain and snow on these lakes. Long term data on trends of acid precipitation over large areas are scarce and increased observations are necessary to determine the extent of chemical change that has already occurred.

In terms that most of us can understand, chemists rate acidity in terms of hydrogen ion concentration. This is expressed as a factor known as pH, which ranges in value from 0 to 14. A pH of 7 is neutral. Our tears are chemically pH7 or neutral. Beer has a pH of 4 to 5; vinegar ranges from 2.4 to 3.4, and lemon juice runs from 2.2 to 2.4.

Comparing the pH of an acid alone is not a sound basis for comparing acid precipitation with more familiar acids such as the citric acid in lemon juice. Citric acid is a weak acid, while the acid rain is usually a dilute solution of strong acids such as sulfuric and nitric acid.

Why the concern over acid rain? What effect may it have on our lakes? These are questions which the lake property owner should be interested in. Any chemical change in the waters has an effect on the life in these waters. The first fish to disappear as acidity increases are the small mouth bass and the walleye. Northern pike and lake trout are next, followed by hardier species like lake herring, perch and rock bass.

Scandinavian countries have suffered the greatest loss of fish life in their lakes. There are figures that show that there are 15,000 sterile lakes in which there is no fish reproduction. These lakes seldom are acid enough to kill mature fish directly, but the acidity can interfere with the reproduction cycle by reducing the calcium level in female fish

so low that they cannot produce eggs.

Are any lakes more vulnerable than others? Yes, lakes that have a bed of rock and soil that contains alkaline substances such as calcium carbonate or limestone will tend to neutralize these acids. Lakes that are located on the Canadian Shield, for instance, have a huge rock bed of granite and do not have the ability to neutralize the acids.

That is the reason for the lake studies in Vilas and Oneida Counties. These lakes are thought to be more fragile in nature because of the lack of limestone in the area.

The nickel mining center of Sudbury, Ontario, provides an extreme example of the effect of acid on fish. Emissions from the Sudbury smelters have acidified several hundred lakes within a 50-mile radius to a point where virtually no fish survive in them. The melting of snow in the springtime provides the greatest concentration of acidity into the waters of the lakes. No summer rains inject this amount of water into the lakes over such a short span of time.

The acid rains also have an effect upon plant life on land. In high concentrations, the evaporated water from the rain leaves a concentrated acid on the leaves of plants. These plants and leaves may show the effects of the acid in spotted leaves and weakened plant systems, more susceptible to drought and parasites.

The importance of the acid rain on the life and recreational quality of our land and lakes should have our attention right now. We must know more about the threat and we must find an answer to it.



Legislative Update



FEDERAL ACTION ON HAZARDOUS WASTES

by Martin Crutsinger
Associated Press Writer

WASHINGTON (AP) - The government, vowing to prevent the occurrence of another Love Canal disaster, today issued regulations aimed at insuring the safe disposal of 57 million tons of hazardous wastes generated by American companies each year.

Douglas Costle, head of the Environmental Protection Agency, said in announcing the new rules that 90 percent of chemical wastes are now disposed of improperly.

"The size of the problem is staggering," Costle said. "The eventual solution ... will require a transformation in the way that American industry handles its wastes."

The new rules require all firms that produce hazardous wastes, transport them or operate dump sites to notify the EPA of their existence by July. Officials estimate there are 750,000 firms generating wastes, and 10,000 trucking companies hauling it to 30,000 active dump sites.

Costle said the inventory would give the agency a "national roadmap of where waste is and where it is going."

Beginning in October the firms producing the wastes will have to keep inventories of all hazardous chemicals leaving their plants. A manifest of each shipment will have to be signed by the dump operator and returned to the chemical plant, which will be required to notify the EPA if the completed form is not received within 35 days.

EPA officials said the manifests were designed to eliminate the problem of "mid-night dumpers" who haul chemicals from plants and then dump the wastes in streams or sewers. "The system prevents illicit disposal because responsibility is fixed and evasion requires extensive collusion," Costle said.

The regulations announced today by Costle were the first issued to implement a law passed by Congress in 1976 to police hazardous wastes. The EPA has come under heavy congressional criticism for a three-year delay in implementing the law.

Hazardous wastes became a national issue in 1978, when more than 200 families

were forced to abandon their homes in the Love Canal area of New York because of chemicals leaking from a dump site. Since then, other problems have surfaced in a variety of states and officials have warned that chemicals seeping into underground water supplies posed a serious threat to drinking water in many areas of the country.

"For decades, we dumped out the back door and into any vacant lot or inadequate landfill assuming that the wastes could be forgotten," Costle said. "Unfortunately these wastes did not just go away."

Costle said the EPA will issue in April a list of chemicals it considers hazardous and set up the operating standards that chemical dump sites will have to follow. The agency also will issue the guidelines states must meet to implement the federal program.

If a state does not choose to meet the federal standards, then the EPA will run the hazardous waste program there.

Costle said dump sites, which must apply for their operating permits by October, will be able to obtain interim licensing until the final permits can be processed.

QUESTIONS & ANSWERS -- SOLID WASTE MANAGEMENT ACT (Act 641, Public Acts of 1978.) STATE OF MICHIGAN

1. When did Act 641 become effective?
ANS. January 11, 1979 when signed by the Governor.

2. Who may be certified to perform a solid waste management program? **ANS. A city, county or district health department.**

3. Who certifies a solid waste management program? **ANS. The Director of DNR.**

4. Who may operate a solid waste management disposal facility? **ANS. Any of the following: Individual, Sole proprietorship, partnership, Corporation, Association, Municipality (City, Township, Village), State of Michigan, County.**

5. What is included in the term "solid waste"? **ANS. Garbage (food wastes, animal, fruit or vegetable matter). Rubbish (nonputrescible solid waste, excluding ashes ... including paper, cardboard, metal containers, yard clippings, wood, glass, bedding, crockery, demolished building materials, or litter of any kind...)(putrefaction is defined as decomposition of organic matter by bacteria, fungi and oxidation, resulting in the formation of foul-smelling products). Ashes, Incinerator ash, Incinerator residue, Street cleanings, Municipal and Industrial sludges, Solid commercial & Solid industrial waste, Animal waste.**

6. What is NOT included in "solid waste"? **ANS. It does not include: human body waste, liquid or other waste regulated**

(continued on next page)

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LEGISLATIVE UPDATE ...

(continued from page 19)

by statute, ferrous or non-ferrous scrap directed to a scrap metal processor.

7. To whom is an application for a disposal facility submitted? **ANS. To the Director the Department of Natural Resources through the health officer.**

8. Who issues the construction permit for a solid waste facility? **ANS. Director of DNR.**

9. Must a public hearing be held prior to the development of a new solid waste disposal facility? **ANS. Yes, if: a) Requested by the applicant; b) Requested by a city, township or village. c) Requested through a petition by 10% of the registered voters in the municipalities where the project is to be located who voted in the last gubernatorial election.**

10. What conditions must be met before a construction permit is issued by the director of DNR? **ANS. Written approval by persons qualified in hydrogeology and in sanitary landfill engineering.**

11. May a landfill be enlarged without a permit? **ANS. No. "Expansion, enlargement or alteration ... shall constitute a new proposal for which a new construction permit is required."**

12. Who licenses the operation of a landfill? **ANS. The Director of DNR (through a certified Health Department.)**

13. What certification must an applicant submit with his application to operate a landfill? **ANS. A certification under the seal of a registered professional engineer verifying that the construction of the facility has proceeded according to the approved plans.**

14. What changes take effect on April 1, 1980? **ANS. Subsection (2) of Section 14 states, "The department shall not license a landfill facility without an approved hydrogeologic monitoring program."**

15. How many years does a license to operate a landfill cover? **ANS. 2 years.**

16. When may a health officer or a DNR representative inspect a landfill? **ANS. At any reasonable time.**

17. How soon after a landfill has been closed may filling, grading, excavation, drilling or mining be done without a permit from the DNR? **ANS. 15 years.**

18. Under what conditions may a landfill be closed down? **ANS. a) When it is operated without a permit or license. b) When it is not operated in accordance with the recorded plans. c) When a provision of Act 641 is being violated.**

19. Is the operator required to post a surety bond? **ANS. Yes, at \$4,000 per acre, but not less than \$20,000 nor more than \$500,000.**

20. Must a solid waste hauler be licensed? **ANS. Yes, by the DNR. Each unit shall carry a seal issued by the director each year.**

21. What does Act 641 require of counties? **ANS. Each county must file with the director of DNR and with each municipality within the county a county solid waste management plan covering a 20-year period.**

22. Does Act 641 require a planning committee to assist the agency responsible for preparing a solid waste management plan? **ANS. Yes. How is it made up? ANS.**

Number	Representing
4	Solid Waste Management Industry
2	Environmental Interest Groups
3	General public
1	County Government
1	City Government
1	Township
1	Regional Solid Waste Planning Agency

23. Must a public hearing be held on a proposed county solid waste management plan? **ANS. Yes.**

24. Who may review a solid waste management plan? **ANS. a) Director of DNR. b) Each municipality of the county. c) Adjacent counties or municipalities that may be affected by the plan. d) The regional solid waste management planning agency.**

25. Who must approve the plan? **ANS. a) The planning committee (by majority vote). b) Governmental bodies of not less than 67% of the municipalities in the county. c)**

County Board of Commissioners.

26. Who may request that action be brought in court to restrain or prevent violation of the Act? **ANS. a) The Director of DNR. b) A health officer c) A municipality d) "an agency of a person, county or municipality..."**

Prepared by Don Winne

Date: March 26, 1980

TOWNSHIPS REGULATE BACK-LOT DEVELOPMENT

Lakes in Michigan are becoming eutrophic more rapidly than many realize. A Department of Natural Resources report of water quality in lakes (April 1979)* states that of 973 lakes with a surface area of 50 acres or more, 36.6% are eutrophic. The southeast part of the State, the area identified as the Lake Erie basin, has the greatest amount of eutrophic lakes with 52% so characterized. The southwest part of the State ranks second with 39.7% of its lakes eutrophic. The upper peninsula is a close third with 39.2% eutrophic.

Various attempts are being made to restore the quality of water in lakes and streams. Sewer systems are being built around lakes to prevent seepage of nutrients into them. Controls are being installed on slopes and gullies to prevent stormwater from carrying nutrients and sediment and soil into lakes and streams. Greenbelts are being planted around the periphery of lakes and along the banks of rivers and streams to absorb nutrients before they enter the water body. The distance of septic systems from the shoreline is being increased to prevent rapid and direct seepage of septic effluent into the lake or stream. Filtering basins are being constructed to prevent the direct stormwater run-off into lakes and streams. Watercraft speed controls are being established for lakes and part of lakes which are so shallow that speeding boats stirs up the bottom sediment and increases lake turbidity.

Another approach to prevent the eutrophication of lakes is to adopt ordinances which prevent overcrowding of the immediate environment of the lake or stream. The following are examples of ordinances adopted in townships in Genesee and Oakland counties to prevent overcrowding of lakes:

1. Fenton Township, Genesee County

"The following uses will not be permitted in R1-A, R1-B, R1-C or C Districts:

A. Use of any waterfront property for the purpose of providing access to such body of water for non-riparian property owners." (Article VIII, Section 8.08. Effective date, July 24, 1971)

2. Argentine Township, Genesee County

ARTICLE IV, Section 4.27 Waterfront Use. "Where a parcel of land contiguous to a body of water is used for residential purposes involving more than one dwelling unit; a recreational area boarding on the said body



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of water may be dedicated for the purpose of recreation uses to be enjoyed by owners or tenants occupying the residential uses to be located upon the contiguous parcel; Provided however, that in said recreation area there is dedicated at least twenty (20) lineal feet of water frontage for each dwelling unit; Provided further that no recreation area so dedicated shall have less than one hundred fifty (150) feet of water frontage and not less than seventy-five (75) feet depth from shore. Provided further that no parcel of lake front property less than twenty (20) feet by seventy-five (75) feet shall be deeded for any recreational purpose to more than one grantee." (Approved, November 20, 1979).

3. West Bloomfield Township, Oakland County.

ARTICLE XVI - General Provisions; Water-front Use

(Amended by Amendment 56-11 - effective October 4, 1977). "Where a parcel of land contiguous to a body of water is presented for subdividing, a recreational park bordering on said 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 said parcel and only such owners and occupants provided that said recreational park is dedicated at the time for use of owners and occupants of lots contained in such 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 ordinance; provided, however, that no recreational park so created shall have less than three-hundred (300) feet of water frontage. The launching of boats from said recreational park shall not be permitted nor shall boats be allowed to be docked at such recreational park."

4. Rose Township, Oakland County

ARTICLE 15 - Supplementary Regulations Section 15.10 - Regulation of Water Access Lots.

"The use of any waters, streams, ponds, drainage ways of all types shall be restricted to that right of use enjoyed by virtue of riparian rights, and shall be confined to reasonable use by the owner or occupant of a riparian parcel which is contiguous to the water and has riparian rights as of the effective date of this ordinance; provided, however, that if a riparian parcel is proposed to be used by persons other than the owner residing thereon or occupant residing thereon, for a park, beach, boat launch, picnic area or similar use for outdoor recreation, then in such event said use may be made of said riparian parcel only when permitted by the Zoning Board of Appeals as a special Exception, as provided for in Section 20.3B in the Zoning Ordinance. The Board of appeals shall take into consideration, among other considerations as explicitly spelled out in the

foregoing section 20.3B and following, that such use does not impair the natural appearance of the said land or over-crowd the parcel or water surface or tend to produce unreasonable noise or annoyance to surrounding properties, that the proposed construction or use because of its intensive nature or proposed location, does not pose substantial environmental hazards, and that all other factors considered in light of the proposed use and the specific characteristics of the property and the surroundings are favorable towards the proposed use; and that no use shall be made of any land or water for boat liveries or public or commercial beaches or recreational use operated for profit."

The powers of township boards in Michigan have been increased by amendments added to Act No. 184, Public Acts of 1943 which became effective on March 1, 1979. The amendments provide that the:

"Township board may provide by zoning ordinance for the regulation of land development ... to limit the inappropriate overcrowding of land and congestion of population ... and to conserve natural resources and energy ... and to conserve the expenditure of funds for public improvements and services ... and the conservation of property values."

(continued on next page)



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LEGISLATIVE UPDATE ...

(continued from page 21)

A number of cases head by the Appeals and Supreme Courts of the State of Michigan dealing with access to lakes by back-lot property owners have been decided in favor of the plaintiffs who have opposed unreasonable back-lot developments. Three of those cases are hereby referred to:

1. Thompson v. Enz (1967) The Gun Lake Case

In The Gun lake case, the defendant wanted to give owners of 144 to 153 lots access to Gun lake through 1,415 feet of frontage. Only 16 lots would be shoreline properties with the remaining lots fronting on channels to be dug. The channels would increase the lake frontage by 800% or from a total of 1,415 feet to 12,415 feet. THE COURT CONCLUDES THAT THE USE IS UNREASONABLE.

2. Opal Lake Association v. Michaywe (1973).

In the Opal lake case, the defendant wanted to develop 2,250 residential lots, 1,300 condominium units, and approximately 300 mobile home sites. He owned 800 feet of shoreline on the 120 acre lake. THE COURT DECIDED THAT THE PROPOSED USE OF THE WATERFRONT LOT WAS UNREASONABLE.

3. Pierce v. Riley (1969).

In the Stony lake case, the defendant owned 373 feet of frontage on this 278 acre lake and he wanted to dig a canal through this frontage and provide access for owners of 90 lots he planned to develop. THE COURT FOUND THAT THE BURDEN PLACED ON THE LAKE BY THE PROPOSED DEVELOPMENT WOULD NOT BE REASONABLE.

In addition to the above mentioned township ordinances and court case decisions, the Michigan legislature passed the Michigan Environmental Protection Act, Act 127, Public Acts of 1970. This Act provides, among other things, that "any political subdivision of the State may maintain an action in the Circuit Court having jurisdiction where the alleged violation occurred or is likely to occur ... against any person, partnership, corporation, association, organization or other legal entity for the protection of the air, water and other natural resources and the public trust therein from pollution, impairment or destruction".

MATTERS GOVERNMENTAL: Township Boards Mandated To Take Action To Protect Public Safety

Act 303, Public Acts of 1967, provide that local political subdivisions shall request help from the Department of Natural Resources when they believe that special rules are needed to assure compatible use of and best protect the public safety on lakes under their jurisdiction. The local subdivision may request the Department to do the following:

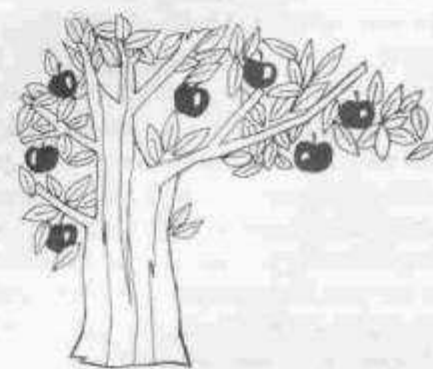
1. Regulate the operation of vessels, water skis, water sleds, aquaplanes, surfboards or other similar contrivances.
2. May establish vessel speed limits.
3. May restrict the use of vessels, water skis, water sleds, aquaplanes, surfboards or other similar contrivances by day and hour.
4. Establish and designate areas restricted solely to boating, skin or scuba diving, fishing, swimming or water skiing.
5. Prescribe any other regulations relating to the use or operation of vessels, water

skis, water sleds, aquaplanes, surfboards or other similar contrivances.

Section 16 of Act 303 provides:

"Local political subdivisions which believe that special local rules of the type authorized by this Act (items 1-5 above) are needed on waters subject to their jurisdiction shall inform the department and request assistance. All such requests shall be in the form of an official resolution approved by a majority of the governing body of the concerned political subdivision...."

Failure of a local political subdivision (county, city, village or township) to request assistance from the department when special local rules are needed constitutes nonfeasance of office (omitting to do an act required of the office.)



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3. Information about state laws and decisions of courts and governmental agencies which deal with water matters and riparian rights.
4. Opportunity to attend regional and state meetings designed to inform and promote the interests of riparian property owners.
5. Assistance in identifying lake and stream problems and suggesting possible courses of action.
6. Suggestions for working with local and state officials in the solution of community problems.
7. Opportunity to promote legislation which will benefit riparian property owners.
8. Ideas of how to best promote the protection of water and other natural resources.

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SWIMMERS ITCH ... (continued from page 8)

15. When does the first outbreak occur? Often during the first warm weather in late May or early June. These outbreaks are delayed in the more northern regions of Michigan.

16. If an outbreak of swimmers' itch occurs in a particular lake, how long might it remain? There is no way at the present time to determine how long the outbreak will last. In some lakes, swimmers get the itch one time; in other lakes it persists for the summer.

17. Are there drugs available to reduce the effects of swimmers' itch? Yes, there are antihistamines for relieving the itch and topical steroid creams for reducing the swelling. However, these are prescription drugs and you should consult your doctor or a dermatologist for the ones most suitable for you, for the dosages and for the prescription. Upon request, I will give you a list of the drugs recommended by two dermatologists.

18. What are some things that can be done to reduce the chances of getting swimmers' itch? There are several preventive measures that will reduce the risk. These include: (a) towel down immediately after leaving the water; (b) avoid swimming after an on-shore (wind blowing toward shore) wind if swimmers' itch has been a problem in your area; (c) do not encourage birds to stay in your area by feeding them; (d) avoid placing rip-rap on your shore. This provides an excellent surface for certain species of snails to attach their eggs. The more snails, the greater the chance for swimmers' itch; (e) if possible, avoid swimming on the eastern and southern shores of a lake. Cercariae of some schistosomes are carried by westerly winds to these areas; and (f) treat portions of the lake with copper sulfate.

19. Is it helpful to remove aquatic plants from swimming areas? Aquatic plants may attract certain species of snails that serve as hosts for schistosomes; however, other species of snails are only associated with rocks and sand.

20. Can anyone treat the lake with copper sulfate? No, you must obtain a permit from the Department of Natural Resources.

21. If we decide to treat our beach with copper sulfate, who do we contact

for more information?
Inland Management
Department of Natural Resources
Stevens T. Mason
Lansing, Michigan
Telephone: 517-37

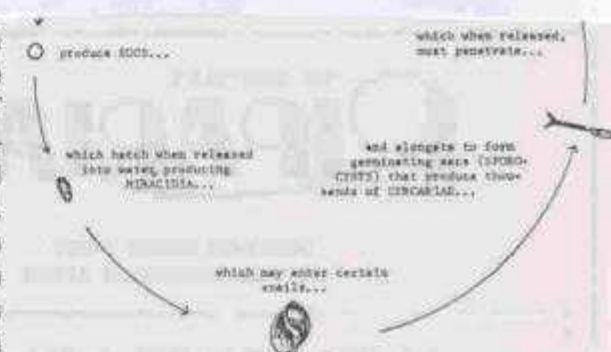
22. How does copper sulfate
is used to destroy snails and animals in the lake
serve as hosts for schistosomes
among these organisms
infected by the copper sulfate.

23. How effective is
reducing the problem of
itch? That depends on
including the concentration of
sulfate, application method,
wind direction and speed,
infected snails. General
mixed results from time
to time.

24. Is there current
being done on swimmers' itch
very difficult to obtain
type of research from
government or from private

25. Does swimmers' itch
tourism in Michigan
that it does, but it is
its effects in terms of

This summer, the students from several colleges and universities of Michigan Biological Survey are conducting research on swimmers' itch. This data will be used to determine if an effective control can be found. YOU CAN ASSIST US IN A VERY IMPORTANT WAY BY INFORMING US IF SOMEONE FROM YOUR LAKES GETS SWIMMERS' ITCH. With these contacts, we will know when and where swimmers' itch occurs in Michigan during the summer of 1980. As a follow up, we will ask you to fill out a



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