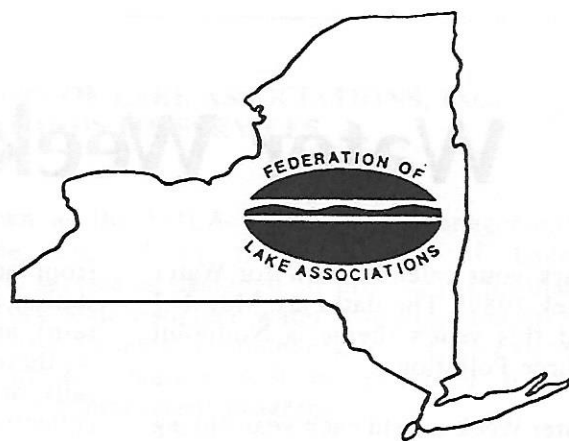

Waterworks



Winter 1989

Volume 5

Number 1

Protect Your Lake By Controlling Stormwater Runoff From New Development

New Yorker's are standing at a crossroads in terms of protecting the quality of numerous lakes throughout the State. Development pressures in watersheds surrounding lakes are intensifying. Tough choices involving a commitment of resources, particularly at the local level of government, will have to be made if lakes are to be protected in perpetuity from the off-site impacts of development. One of the options available for managing lakes and protecting the quality of water therein involves the control of stormwater runoff from development within the watershed. The following provides a brief discussion of several concepts that are essential to a general understanding and appreciation of the need for stormwater management.

Ways of handling stormwater from urban or developed areas traditionally have been aimed at getting it off-site as quickly as possible through the installation of drainage systems that steer the excess water to the nearest stream, river or lake. Decades of dealing with stormwater runoff in this manner have had a major impact on water resources throughout New York State and elsewhere. The costs to society in general and to communities in par-

ticular have been enormous. Water quality degradation and downstream flooding are the inevitable result of this so-called "efficient" removal of stormwater.

What's behind these problems, and why do they occur? As more and more land becomes covered with buildings, roads and parking lots, stormwater is prevented from percolating through the soil. Instead, it runs off the impermeable surfaces and drains directly and rapidly to the nearest water body. This increases the peak flow, both in size

and speed, and can result in downstream flooding. This large percentage of direct runoff also reduces the amount of water left for soil moisture replenishment and groundwater storage. The reduction in groundwater means, in turn, a reduction in the base flow of water available to streams during periods of dry weather.

A CARRIER OF POLLUTANTS

While the need to manage stormwater runoff for flood prevention
(continued on page 8)

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Water Week 1989

Mark your calendar now for Water Week 1989! The dates are May 1-7 and this year's theme is Nonpoint Source Pollution.

Water Week is held each year during the first week in May. Its purpose is to heighten public awareness of New York State's water resources. Traditionally, the celebration is proclaimed by the Governor and activities are carried out under the leadership of the Departments of Environmental Conservation and Health. This year, a number of public and private agencies and organizations, including the Federation of Lake Associations, are working together with DEC and DOH on Water Week.

Why the concern about nonpoint source pollution? Because the activities within a watershed have a direct influence on a lake's water quality. The flow of nutrients, sediments and pesticides into a lake from the watershed can cause unsightly growth of algae and aquatic weeds which can eventually reduce the recreational value of a lake and accelerate the rate of eutrophication.

Pollution within the watershed can originate from both "point" and "nonpoint" sources. Nonpoint source pollution can stem from natural as well as unnatural sources. Nutrients and sediments for example, can enter a waterbody from such natural origins as soil erosion, weathering of rocks, and the decomposition of land vegetation. Unnatural, or cultural sources of nonpoint source pollution refers to ground and surface flow from inadequate wastewater disposal, land fills, urban runoff, agricultural and lawn fertilization, sedimentation

from land development and deforestation, atmospheric deposition (acid rain), and road salting. Individually, these nonpoint sources are generally are not major polluters, but collectively, they can degrade our lakes, rivers and streams. In fact, nonpoint source pollution accounts for more than eighty percent of the remaining pollution of our state's waters.

Point source pollution, on the other hand, enters a lake from specific locations, such as municipal sewage treatment plants and industrial facilities. Discharges can usually be monitored and state and federal laws require the use of special technology to remove many of these pollutants before they enter a waterbody. Through the combined efforts of industry, government and business and with the assistance of state, federal and local funds, New York State has made excellent progress in cleaning up water pollution from point sources. While continuing to improve point source controls, we now need to focus our efforts on nonpoint sources of pollution.

There are a number of things that private citizens and conservation groups can do to clean up and prevent nonpoint source pollution. Many of these will be featured in Water Week materials and activities. A partial list of these materials and activities includes:

- * the development and distribution of a lesson plan to 9th and 10th grade science teachers throughout the state;
- * feature releases to the media;
- * a poster;

Welcome New Members

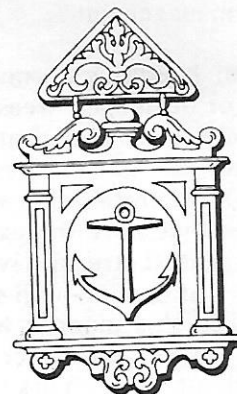
Owasco Watershed Lake Association

Beaver Dam Lake Protection and Rehabilitation District

Hedges Lake Campers Association

- * an article in The Conservationist magazine;
- * a nonpoint source symposium on Friday, May 5th in Albany;
- * and local events around the state, such as poster contests, stream cleanups, watershed projects and public awareness campaigns

For more information on Water Week activities and materials, contact Arnold Baer of DEC's Division of Water at (518) 457-7463.



Lake Moraine

Water Saving Toilets

After battling weeds and algae for many years, the Lake Moraine Association Board of Directors began raising the question - what is the cause of what seems to be this ever-increasing problem? Our financial resources were stretched to the limit and the Bureau of Pesticides of the New York State Department of Environmental Conservation limited any program that we might develop by forbidding the use of copper sulfate or Diquat to control weeds and algae. We have instituted a weed harvesting program but it has been a losing battle. The decision was made, therefore, to try to get to the bottom of our problem and determine the *cause* of our poor water quality.

The surface area of Lake Moraine is 249.5 acres and there are four islands (with a total of 25 cottages) on the Lake. The shore line has 139 developed properties. The Lake is primarily stream-fed by three streams which flow through the surrounding farm land. The lake is classified as a canal feeder and water levels are therefore controlled by the State Department of Transportation's Bureau of Canals.

Through reading reports and articles on testing and research, we soon discovered that our water quality was affected by high concentrations of nitrates and phosphates which encourage weed growth.

To reduce the effects of non-point pollution we decided to attack one source which would allow us to have the most influence - wastewater from the camps. Extremely heavy weed growth near the islands pinpointed inadequate handling of wastewater.

THE FEDERATION OF LAKE ASSOCIATIONS, INC. EXPANDS ITS SERVICES

A new program, known as the FOLA Information Management Service, will soon be initiated by the Federation of Lake Associations, Inc. This service is designed to provide additional information on New York State's surface water resources and lake management issues to the Federation membership. Convenient access to a variety of information will be provided by a computerized information management program.

The Federation is providing this program to our membership to enhance the level of communication and information exchange between federal, state, and local agencies, lake managers, and homeowners. To help make this service a success, we will need your help. Please send listings of publications, research projects currently being conducted on your lake, and notices of seminars and meetings to the **Waterworks** editor, 2175 Ten Eyck Avenue, Cazenovia, NY 13035.

Since we had no legal backing to enforce the inadequate County codes for septic systems, we decided to *encourage* wastewater reduction. Statistics indicated that a typical family of four discharges more than 100 gallons per day of wastewater. Multiplying this by the number of days per season and the number of cottages, it was evident that island and shore-line residents were supplying the lake with an uncontrolled amount of nutrients. Since a standard toilet requires five to seven gallons per flush, we therefore began to research alternatives which would reduce the amount of water needed.

After considerable study we settled on the "Ifo" unit which requires one gallon per flush (it can also be set for 1 1/2 gallons). The cost of changing over was found to be negligible (a new wax ring), and installation is simple. The "Ifo" toilet does not require holding tanks, air compressors or electricity. It consistently ranked very high in the ball test (feet traveled), granule test

(per cent flushed down), cylinder test and ink test (cleaning ability). We had been looking for an alternative that would encourage cottage owners to participate in the attempt to reduce the potential seepage of waste water into the lake, and we felt that the simplicity of installation and the ease of operation of the "Ifo" unit would offer such encouragement.

Negotiations with dealers followed and we finally arrived at a bulk purchase price which greatly reduced the cost per unit. In addition, after cottage owners had picked up the toilets which they had purchased, they were given a \$50 rebate from the Save the Lake Fund. (This Fund was developed to control water quality, i.e. weed and algae control. It is a voluntary contribution, collected annually from the lake property owners.)

(continued on page 11)

Help From SCS In Managing Watersheds

Whether you are developing a lake management plan or are in the process of implementing one, the U.S. Department of Agriculture's Soil Conservation Service (SCS) can help. SCS provides resource information and technical assistance to individuals, groups, and units of government to identify and solve water quality problems.

SCS works with landusers to voluntarily install conservation measures on the land which reduce erosion and surface water runoff. Surface water runoff from agricultural lands, construction sites, and urban

areas can carry sediment and nutrients into lakes and streams. Pollutants from these sources contribute to excessive growth of aquatic weeds -- reducing fishing, swimming, and boating opportunities. Each year communities across New York State spend millions of dollars to harvest excess weeds.

Steven Machovec, Resources Planning Staff Leader for SCS in New York, says that resource problems like water quality can be most effectively handled using a *comprehensive watershed planning approach*. By managing water runoff from



OTISCO LAKE WATERSHED PROJECT

About five years ago, residents around Otisco Lake began complaining that the water was unfit to drink. To prove the point, one woman brought a jar filled with tap water to a town meeting. The water was cloudy and filled with particles. It smelled bad and tasted worse. Other residents complained that weeds and sediment in the lake were interfering with fishing, swimming, and boating.

A study of the 24,000 acre watershed revealed that agricultural runoff, a damaged causeway, and effluent from homes around the lake were the main sources of sediment and nutrients being deposited in the lake.

Like many communities, Otisco Lake residents wondered where they could get help to solve these problems. They requested assistance from SCS. The result was the formation of the Otisco Lake

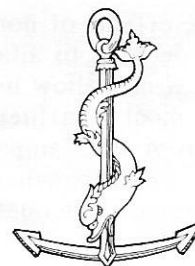
Watershed project, a cooperative effort by the landusers, the water users, and federal, state, and local governments. The goal -- to reduce pollution and revitalize the lake while maintaining agricultural production in the watershed.

SCS provided technical and financial assistance to help farmers within the watershed plan and install conservation practices to reduce erosion on crop fields and to install waste management systems. By signing 3 to 10 year contracts with the conservation district, farmers can receive cost-sharing from SCS to help cover the costs of installing planned practices.

The New York State Job Development Authority is also providing farmers with low interest loans of up to 40 percent of the farmer's cost to install conservation measures and the county legislature is providing grant

funds to help farmers purchase waste handling equipment such as spreaders, unloaders, and pumps. County funds can also be used to stabilize critically eroding streambanks that have been identified as sediment sources.

This cooperative effort has been critical to the success of the project. Since the project began only 3 years ago, it is too early to see dramatic reductions in phosphorus levels in the lake. However, residents believe the project is making a difference, and that continued efforts will help protect it as a supply of good drinking water for years to come.



surrounding hillsides and changing land use practices within a watershed, the amount of pollutants entering a lake can be significantly reduced. Dealing with the problem on a watershed basis also provides an opportunity for landowners, local groups, and local, state, and federal agencies to join together to solve a common problem.

INFORMATION AVAILABLE FROM SCS

The soils in a watershed can have an important effect on water quality. SCS publishes soil surveys which can show the type and location of various soils within a county. The soil survey describes the suitability and limitations of the soils for various land uses. For example, a survey can identify for installing septic tank filter fields and can locate soils with high water tables, high runoff rates or excessive percolation. Soils information can also

be used to identify suitable building sites or potential problem areas. Where problems exist, SCS can recommend alternatives to deal with soil limitations.

SCS provides other site specific information on land use, climatic factors and hydrologic conditions, which can be analyzed and interpreted to evaluate impacts of land use activities on water quality. Using computer models, SCS can predict stormwater runoff and potential for flooding. They can recommend water management measures to control stormwater and surface water runoff.

SCS also helps plan resource management systems to control erosion and sediment in developing areas, on crop fields and along streambanks and roadbanks. They can assist with building site reviews to see if appropriate erosion and sediment control have been planned. They can advise landusers and units of government on methods and materials for stabilizing eroding streambanks, roadbanks or shoreline areas.

The Watershed Protection Program (Public Law 566) authorizes SCS to help communities carry out projects to solve particular types of resource problems in watersheds up to 250,000 acres. Under this program, SCS helps local groups plan and carry out projects to reduce erosion and sediment damage and upstream flooding. These projects also help to conserve water, improve water quality, provide municipal and industrial water supplies, increase recreation opportunities, and improve fish and wildlife habitat.

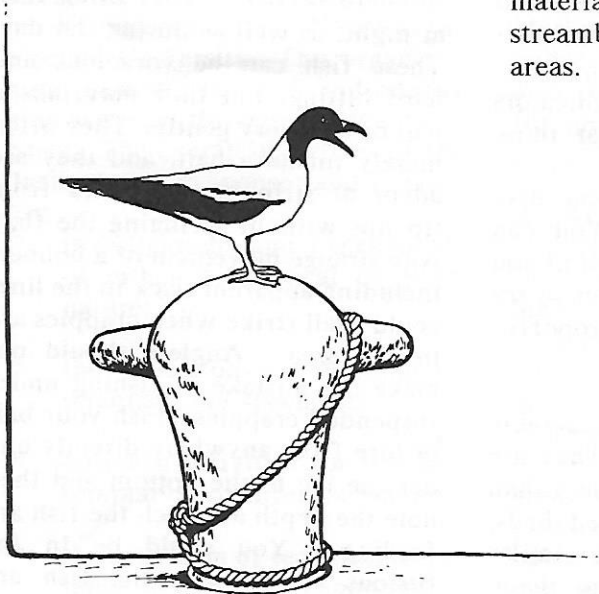
Most Small Watershed projects include both structural and nonstructural (land treatment) measures. For flood prevention, SCS provides technical assistance and pays all engineering and construction costs. For most other purposes, SCS provides technical assistance and shares the installation costs.

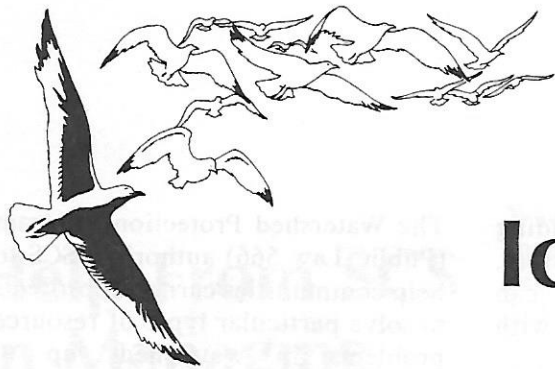
HOW TO GET HELP

SCS works through county Soil and Water Conservation Districts (SWCD's) to provide natural resource information and technical assistance to landusers and decision-makers. This help is available by contacting the conservation district in your county. There is a soil and water conservation district in every county of the state except the five boroughs of New York City.

By:

*Patricia A. Paul,
Public Information
Specialist
Soil Conservation
Service*





Ice Fishing Tactics

Perhaps one of the reasons that anglers have so much success at ice fishing is that it is simple. You merely suspend the right bait at the right depth and wait for a customer, or you work a lure vertically until a fish bites. To determine the right place and the right time, the angler must consider the fish's winter habitat.

Anglers spend most of their time pursuing a limited number of species through the ice. Members of the salmon, pike, perch, and sunfish families make up the majority of the catch. These fishes have different habits that can help the angler locate them.

Escoids, members of the pike family, can be found in their weed bed haunts. Channels or deep holes within or beside weeds are excellent places to fish for the predatory fish. Pike and pickerel are traditionally the mainstays of shallow lake and pond ice fishing. In winter they feed as well as or better than they do in summer. Spoons and dressed jigs are good lures, and minnows of appropriate size are excellent bait. Bait should be suspended just over the weeds, so cruising fish can see it readily. Many a panfish angler has had pike or pickerel grab their offerings. They can be taken on very light lines if their sharp teeth do not cut the monofilament. Because there is a good chance of having these fish hit, many panfish anglers carry a small gaff to assist in landing them on light lines. A fish gaffed through the lower jaw (i.e. lip gaffed) can be released unharmed, if you desire.

Perch and walleyes are highly prized by winter anglers. Either species makes outstanding table fare. One could say that these fish are ubiquitous, that is, they are found in almost all types of habitat with some locations more productive than others. Both these species are usually found on or near the bottom. Bottom structure, like gravel bars, rubble piles, holes, springs, or wrecks, are attractive to perch and walleyes. Smaller perch are often taken in shallow water, usually in weeds. Larger perch and walleyes are more frequently taken at greater depths. In very deep lakes, both species will tend to move toward shallower waters as the winter progresses.

Perch and walleyes take an assortment of bait, but small to medium-sized shiners are preferred. Spoons, jigs, and lead minnow imitations are good lures. Even large perch and walleyes can be very gentle in their striking on some days. Tiny bobbers or spring-tip strike indicators are useful to the angler at those times. These fish travel in schools. Once they are located, you may have very fast action. You can move about in likely areas until you locate them. Do not neglect to try to fish the deep edges of dropoffs or channels.

Sunfish also provide considerable sport during the winter. They are usually in fairly shallow (less than 4.5m [15 ft.]) water. Weed beds, sunken logs, pilings, and similar structures are attractive to them. Crappies, bluegills, pumpkinseeds, and bass are commonly caught through the ice. Because of their

small size, pumpkinseeds are not as actively sought as are the others. Bass are taken in designated waters, but closed seasons limit their importance to ice fishing. Bluegills and both black crappies (calico bass) and white crappies are heavily fished through the ice.

Bluegills are very light strikers during the winter. Even a tiny bobber or a delicate strike indicator may show only the slightest touch. Small bait like goldenrod grubs, mousies, or perch eyes on tiny jigs is favored for these tasty fish. As with perch, the angler should move until a school is located and then fish persistently. Bluegills are usually just above the bottom.

Crappies are minnow eaters. They travel in schools, often suspending and hovering in middle depths over submerged cover. They often feed at night, as well as during the day. These fish can be voracious and hard hitting, but they may take a bait or lure very gently. They often merely inhale a bait, and they are adept at stripping minnows from tip-ups without springing the flag. Any strange movement of a bobber, including apparent slack in the line, could spell strike when crappies are in the area. Anglers should not make the mistake of fishing under suspended crappies. Fish your bait or lure from anywhere directly under the ice to the bottom and then note the depth at which the fish are feeding. You could be in for furious action once the fish are located.



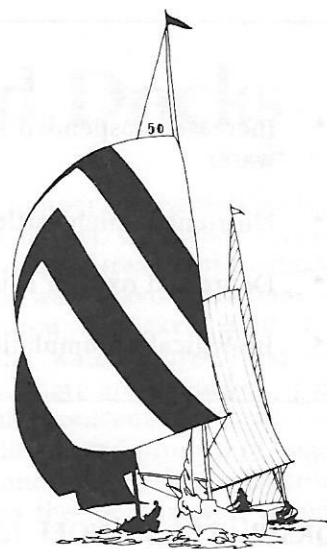
As we said at the beginning, ice fishing tactics are really quite simple. The angler must choose depth, structure (nature of underwater habitat), and bait or lure for the particular kind of fish. Some means of marking depth is very desirable. Care should be taken with pelagic or suspending species that all depths are fished. Close attention to detail in detecting strikes is important. Locally useful lures and appropriate-sized bait on lines that are light, but adequate, should produce results. Keep a log book that tells when (date and time of day), where (perhaps a couple of

compass bearings or a distance and direction from some landmark), and what you caught. Include information on the weather conditions, the baits or lures that worked, and how you could have increased your success. This information will help you become a successful ice angler.

By:

Ronald A. Howard, Jr.
and
H. David Greene

This article is from a Cornell Cooperative Extension publication called "Let's Go Ice Fishing".



There are many organizations throughout New York State that assist in water resources funding, research, and education. In each issue of Waterworks we hope to provide an overview of one of these groups.

Highlight on. . .

The New York State Water Resources Institute

The Cornell Water Resources Institute was created in 1964 by the Federal Water Resource Research Act which created a national network of Water Resource Research Institutes. In 1987, State Legislation designated the New York State Water Resources Institute (NYSWRI) at Cornell University. This organization promotes research and education activities throughout New York State. The overall objectives of the Institute are to sponsor and pursue:

- * investigations and experiments of either a practical or basic nature;
- * the education and training of scientists and specialists;
- * outreach activities for the dissemination of information; and
- * the provision of technical assistance to agencies, communities and others, relating to the state's water resources.

Last year, the New York State Legislature appropriated \$450,000 to this organization for the 1988-89 fiscal year. These funds were made available starting in December, 1988 under a contract with the New York State Department of Agriculture and Markets. In addition to State and Federal block funding, the NYSWRI also receives grants and contracts for specific research, training, and technical assistance.

A principal aim of the program is to assist communities in their watershed management in New York State. A particular urgent need is to deal constructively with development and the competition for land and water such competition represents. For this purpose, NYSWRI has established four focal areas to deal with high priority problems. These areas include agricultural chemicals and water use, non-agricultural contaminant sources, environmental fate and impact, and risk management and public health.

Each focal area has related faculty and staff which carried out a number of projects within their domain.

In addition to providing a wide variety of educational materials, the NYSWRI conducts conferences and workshops on water quality, quantity, and groundwater protection. The NYSWRI is also creating a package for communities consisting of technical tools and educational materials designed to strengthen the "self help" capacities of individuals, groups and communities.

Additional information about the NYSWRI can be obtained by writing to the Water Resources Institute, Center for Environmental Research, 468 Hollister Hall, Cornell University, Ithaca, NY 14853 or by calling (607) 255-7535.

EFFECTS OF URBAN RUNOFF ON LAKES

- * Increased suspended solids which discolor water, interfere with photosynthesis, and settle in receiving water.
- * Nutrients which settle in receiving waters with long retention times to accelerate lake eutrophication.
- * Depressed oxygen caused by the oxidation of organics in bottom sediments.
- * Biological accumulation of toxics as a result of up-take by organisms in the food chain.

STORMWATER RUNOFF (continued from page 1)

purposes has long been acknowledged, pollution problems associated with stormwater runoff have been less widely recognized. In developing and urbanized areas, paved surfaces collect pollutants which are then rapidly washed into drains and surface waters during storms. The Environmental Protection Agency has calculated that runoff from the first hour of a moderate-to-heavy storm in a typical U.S. city will contribute more pollutional load than would the city's untreated sanitary sewage during the same period of time. Studies in New York State, conducted as part of the Nationwide Urban Runoff Program (NURP), have confirmed that contaminants such as sediment, phosphorous and lead can be substantial in urban runoff.

THE EMERGING PHILOSOPHY

Briefly stated, the emerging philosophy emphasizes control of stormwater where it falls, on-site. The control of stormwater involves the use of structural and vegetative measures to detain and "treat" the water so as to ensure that both the quantity and quality of runoff from any specific development does not change appreciably from what it would be under pre-development conditions.

CONTROL MEASURES

Application of appropriate control measures at the development site can reduce both peak runoff and total short-term runoff, thereby reducing flash flooding and associated drainage costs. If fully applied throughout a drainage basin, stormwater control measures also will enhance the quality of runoff water thereby helping to protect water quality from nonpoint source pollution.

THE ROLE OF LAKE ASSOCIATIONS IN CONTROLLING STORMWATER RUNOFF

Individual lake associations have a distinct and important role in the control of stormwater runoff from developing areas within their watershed. As more information becomes available on the subject of stormwater management, lake associations must become knowledgeable about this subject area. Lake associations must work closely with local officials and advise them of the importance of adopting local ordinances to control runoff from new development for the protection of lakes and streams.

Stormwater management should be viewed as an essential component of comprehensive lake planning and management. When this occurs, everyone will win in terms of enhanced water quality, more recreational opportunities and protection of the public health, safety and welfare.

By:

William Morton, FOLA
Scientific Advisory
Board,
and
Frank Parker, P.E.

This article has been revised and adapted from an article entitled, "Managing Stormwater at Construction Sites" which appeared in the NYS DEC Division of Water Water Bulletin Number 36, May 1986.

Waterworks is published four times a year. Individuals who wish to submit articles, artwork, or photography to **Waterworks** are welcome to contact the editor, Anne Bregy Saltman, 2175 Ten Eyck Avenue, Cazenovia, New York 13035. For additional copies of **Waterworks** and address changes, contact Dr. John Colgan, President, 273 Hollywood Avenue, Rochester, NY 14618 (716) 271-0372. Please note that all mail should be sent to the Rochester office.

Pressure-Treated Lumber and Docks

As many lake residents know, a dock is not forever. The constant exposure to harsh lake and weather conditions often results in dock stability suitable only for tightrope walkers. With the rise of prices for cedar, redwood, and other naturally resilient woods, many concerned dock owners have turned to pressure treated lumber. Pressure treatment can increase the life expectancy of lumber more than five-fold.

The use of most pressure-treated wood involves home or farm building applications, for which insect, fungi, and bacteria infestation are of great concern. Wood preserving pesticides can help stem this infestation. The three pesticide chemicals most frequently used in the pressurizing process are inorganic arsenicals (compounds of arsenic), creosote (referring to several coal tar derivatives), and pentachlorophenol. Thus, pressure-treated wood used for docks will likely contain at least one of these three chemicals.

There is legitimate concern about the fate of these chemicals in lakes and ponds. The U.S. Environmental Protection Agency (EPA) has determined that leaching may occur when these pesticide-treated woods come into contact with water. Given suspected oncogenetic (tumor-causing), mutagenetic (mutation-causing) or teratogenetic (causing developmental malformations) nature of these chemicals, the EPA concluded in a 1984 position document that pesticide-treated wood should not be used where it may come into direct or indirect contact with public drinking water except for uses involving incidental contact such as docks and bridges.

In addition, The EPA stated that pentachlorophenol or creosote treated wood should not be used where it may come into direct or indirect contact with drinking water for domestic animals or livestock, except for uses involving incidental contact such as docks and bridges.

These statements are required to be included in the Consumer Information Sheet, distributed with every purchase of pesticide-treated wood as part of the Consumer Awareness Program.

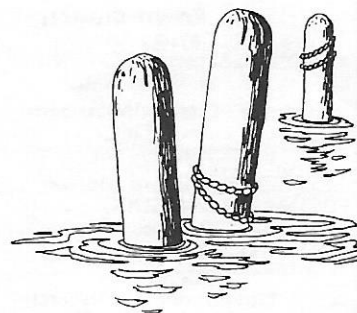
The statement regarding "incidental" contact refers to pressure-treated wood which is not in continual contact with the water, but may by chance or inference contact the water, such as rainwater running from the deck of a dock. Therefore, it was concluded that any part of the dock which is either submersed, immersed, or in contact with drinking water (such as the vertical support posts of the dock) should not be pressure-treated with pesticides. These statements do not address secondary contact such as irrigation water and swimming, although the EPA proposed to expand the statement regarding contact with domestic animal drinking water restrictions to include contact with irrigation water.

It is therefore clear that pesticide-treated lumber should not be used for docks contacting lakes used for a drinking water source, and also should not be recommended for use in lakes used as an irrigation water source. This may concern a large number of lakes throughout the state.

Using lumber not treated with pesticides (either through pressure or non-pressure treatment methods) is the best way to avoid pesticide contamination of lakes used for a drinking water source. As noted earlier, there are a number of more naturally resistant woods which can provide some protection against pests and weathering. Cypress is perhaps the ideal choice, though it may not be available at many lumberyards. Redwood, black locust, and Eastern red or Northern white cedar (assuming sufficient hardwood is incorporated into the lumber) are all excellent choices for their durability and weatherability; however, any of these can be rather expensive. Other materials such as steel, plastic, or concrete may have applications for support posts, although there may be a loss in diversity and cost in using these non-wood alternatives.

Everyone wants their dock to last forever. Unfortunately, a permanent dock brings its side effects. It may be somewhat of a burden to occasionally replace dock posts and to pay a little extra for the effort, but this extra effort will lead to improved water quality free from pressure-treatment pesticides.

*By Scott A. Kishbaugh,
Assistant Sanitary Engineer
DEC*



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PUBLICATIONS

New York Guidelines For Urban Erosion and Sediment Control. This book contains standards and specifications for erosion and sediment control measures commonly used on construction sites. Vegetative, and permanent and temporary structural measures are included. The manual is a valuable tool for planners, engineers, local officials, contractors, and others involved in development activities. Copies are available for \$20.00 by writing to the Empire State Chapter, Soil and Water Conservation Society, Anthony Ju. Esser, Treasurer, 323 Marion Avenue, Endwell, New York 13760.

Handbook of Nonpoint Pollution: Sources and Management, by Vladimir Novotny and Gordon Chesters. This publication is available for \$28.00 by writing to WJK Environmental Systems, Ltd., 10338 North Port Washington Road, Mequon, Wisconsin 53092.

Political, Institutional and Fiscal Alternatives for Nonpoint Pollution Abatement Programs, Editor Vladimir Novotny. This publication contains the proceedings of a conference held in Milwaukee, Wisconsin in December, 1987. Non-technical aspects of nonpoint pollution abatement programs are covered. It is available for \$14.95 by contacting the MU Press, Marquette University, Holthusen Hall, 1324 W. Wisconsin Avenue, Milwaukee, Wisconsin 53233.

Safety on Tap - A Citizen's Drinking Water Handbook. This comprehensive handbook will provide you with valuable background information on water issues and will help you take action to ensure safe drinking water quality for you and your family. To order, specify publication #840 and send \$7.95 per copy (plus 20% of the total to cover handling) to: League of Women Voters, 1730 M Street, NW, Washington, D.C. 20036.

Two useful handbooks, both published in 1988 by New York State lake communities are now available. The first one, titled, **How to Protect Your Lakeshore Property** was written by Anne Baker Platt. Copies are available for \$2.00 by writing to the Lake Champlain Committee, 14 South Williams Street, Burlington, Vermont 05401. The second publication, titled, **A Handbook for Watershed Living**, provides information on the do's and don'ts for daily living within the Lake George Watershed. The information was compiled and edited by Melissa Loving Vito and was published for Lake George Appreciation Day. Copies are available at no charge by contacting the editor at Box 614, Bolton Landing, New York 12814. Both of these publications offer helpful assistance to lakeshore homeowners throughout the State.

If you are looking for additional information on New York State water resources, try your local Cooperative Extension office. Many useful publications are available which cover topics such as water management, fisheries, and soil and water issues as they relate to lakes. For a complete listing of publications and prices, contact your local Cooperative Extension office or write to Distribution Center C, 7 Research Park, Cornell University, Ithaca, New York 14850.

WATER SAVING TOILETS

(continued from page 3)

The program has been in effect for the past two years, with the sale of 15 to 20 units each year, and we expect it to continue (and hopefully expand) in the future. After the first year, the American Management Association (which owns a great deal of land and waterfront) realized the benefits of these water saving toilets and are now in the process of installing 40 "Ifo" toilets at their Conference Center.

It is too early to determine the effectiveness of the program but another year should show some results. We also hope that the owners

of the farmlands bordering the inlet streams will recognize the initiative and concern of the camp owners and cooperate by reducing fertilization as much as possible and by using other means of controlling the run-off of the nutrients which flow into the feeder streams.

This program is a great deal cheaper than installing new septic tank systems and it will prolong the life and efficiency of the systems already installed. Although it may not be the complete answer, we do feel that this program, if continued, will have some long-term beneficial

effects on the quality of our lake and on the conservation of one of our most valuable resources - *water*.

By:

Mark S. Randall,
Board of Directors,
Lake Moraine Association
Chairman, Water Quality
Committee



The Federation of Lake Associations

We are a coalition of organizations dedicated to the preservation and restoration of all lakes, ponds and rivers throughout New York State. We welcome and encourage the memberships of lake associations, property owner groups, fish and game clubs, corporations and individuals. The Federation is incorporated under two mirror organizations with the same officers and board of directors.

The Federation of Lake Associations, Inc. purposes are:

- * to provide a clearinghouse of environmental information and expertise in all matters pertaining to lake management.
- * to promote by education the wise use and appreciation of the lakes in New York State.
- * to provide a pool of technical knowledge and expertise to advise and assist member associations and individuals.
- * to establish liaison with other environmental groups and agencies.
- * to provide a coordinating structure for lake-related research projects.

The Federation of Lakes, Inc. purposes are:

- * to monitor and report to members on legislation and administrative actions affecting the waters of New York State.
- * to support and lobby for legislation and administrative actions which promote the sound management of the waters of New York State.

MEMBERSHIP CATERGORIES

Associations with up to 99 members	.....	\$30.00/yr.
Associations with 100 to 199 members	.....	\$50.00/yr.
Associations with 200 or more members	.....	\$100.00/yr.
Individual	.....	\$15.00/yr. Corporate \$100.00/yr.
Additional Copies of <i>Waterworks</i>	.....	\$.50 each

Membership dues over \$5.00 are tax deductible contributions to the Federation of Lake Associations and will be used for educational, scientific and public information activities of the Federation.

APPLICATION FOR MEMBERSHIP

THE FEDERATION OF LAKE ASSOCIATIONS, INC., 273 HOLLYWOOD AVE., ROCHESTER, NY 14618

Type of Membership (please check)

☐ Association

☐ Individual

☐ Corporate

Association Name: _____

Assoc. Address: Street _____ City _____ State _____ Zip _____ County _____

President/Contact Person: _____

Summer Address _____ Winter Address _____

Summer Phone () _____ Winter Phone () _____

Total number of newsletters requested of each issue: _____ (\$.50 each)

CALENDAR OF EVENTS

March 12-14, 1989

The Midwest Aquatic Plant Management Society's ninth annual meeting at the Marriott Hotel in South Bend, Indiana. This meeting will highlight new lake management technologies, applicator panel discussions, and business concerns of the professional water resource manager. Everyone who shares a concern for the management of surface water resources should attend. For further information, contact Mr. Robert Johnson, Midwest Aquatic Plant Management Society, P.O. Box 100, Seymour, IN 47274.

March 17-22, 1989

54th North American Wildlife and Natural Resources Conference, Omni Shoreham Hotel, Washington, DC. For more information, call L.L. Williamson at (202) 371-1808.

April 23-26, 1989

Making Non-point Pollution Control Programs Work - the Clarion Hotel, St. Louis, Missouri. This national conference will feature presentations from key legislators, federal agencies, industry leaders, farmers, concerned citizens, and submitted papers from water quality researchers and practitioners. For further information write to NACD National NPS Conference, P.O. Box 855, League City, TX 77574-0855 or call their Washington office at (202) 547-NACD.

May 1-7, 1989

Water Week. A week-long statewide event to heighten public awareness of New York State's water resources. A nonpoint source symposium will also be held on Friday May 5th in Albany. For more information, refer to the Water Week article in this newsletter or contact Arnold Baer, DEC Division of Water (518) 457-7463.

May 11-12, 1989

Pesticides in Terrestrial and Aquatic Environments, presented by the National Research Conference, Richmond, VA. For more information, contact Dr. Tamim Younos, (703) 961-5624.

May 18-19, 1989

Enhancing State Lake and Wetland Management Programs. A national conference to be held at the Blackstone Hotel in Chicago, Illinois. For more information, contact Bob Kirschner, Northeastern Illinois Planning Commission, 400 W. Madison Street, Chicago, Illinois 60606 or call (312) 454-0400.

June 2-4, 1989

Federation of Lake Associations, Inc. annual conference to be held at Keuka Park, New York. Co-sponsorship by the Water Resources Board of the Finger Lakes Association, Inc. and the Keuka Lake Association, Inc. This meeting will highlight comprehensive lake management issues. Details will be distributed at a later date.

CALL FOR PAPERS

North American Lake Management Society 9th Annual International Symposium, November 7-11, 1989, Austin, Texas at the Stouffer Hotel. Multiple-Use Management of Reservoirs. Abstracts should be submitted by June 1, 1989. Student scholarships will be awarded. For further information write to NALMS, P.O. Box 217, Merrifield, VA 22116, or call (202) 466-8550.

NOTE:

If your organization knows of a conference or meeting which you would like to share with other environmental groups, contact the **Waterworks** editor (2175 Ten Eyck Avenue, Cazenovia, NY 13035) and we will include the information in the Calendar of Events section of our next newsletter (deadline, April 15th).

The Federation of Lake Associations, Inc.
273 Hollywood Avenue
Rochester, New York 14618

FIRST PLACE

