Dorothy Kelly and one of the Raptor Center residents—a great horned owl.

CLMP volunteer sees lake link in her work at Raptor Center

For the last few years, an eagle has visited the shores of Little Hanging Horn Lake near Barnum, Minnesota, on its way south. Dorothy Kelly, intimately connected to the lake since her father purchased property there in 1936, watches the eagle’s progress with more interest than the average lake watcher. She knows that she is assisting in the raptor’s preservation—in more ways than one.

Kelly has participated in the MPCA’s Citizen Lake-Monitoring Program for more than four years, one of her efforts to monitor two Carlton County lakes—Big Hanging Horn and Little Hanging Horn—which were once connected. Concerns about effluent from a sewer plant in Barnum prompted Kelly and many other residents of the lake to form the Hanging Horn Lakeshore Management Association in 1983. Kelly was one of the Association’s board members until last year.

But Kelly’s environmental activism doesn’t end at the shoreline. It also encompasses the birds that soar overhead. Kelly is a key volunteer at the Minnesota Raptor Center in St. Paul, where she has worked for four years to educate the public about the eagles, hawks and owls so frequently threatened by the activities of man. She sees the two volunteer jobs as inextricably linked, both improving the quality of life at the Hanging Horn lakes.

“They’re beautiful lakes, very deep and clear, with good fishing,” says Kelly. “Many of us who have cabins on one of the two lakes have long histories with the area. We’re jealous about the lakes and how they’re used.”

The Association paid for tests to measure bacteria, phosphate, ammonia nitrogen and other substances of concern. The results were reassuring and affirmed the quality of the lakes’ waters, but the monitoring continues to be an important focus of the Association.

Kelly, who lives in the Twin Cities, visits the cabin every weekend during the summer months. The long-distance monitoring presents no problems for her, since her time at the family’s summer home is often spent on the water. “I’m always out fishing, rowing or just relaxing outdoors. It’s really not much trouble to take a Secchi disc reading as part of my day.”

Kelly monitors Little Hanging Horn, while Walt Sandberg monitors Big Hanging Horn. The results of their work help the MPCA and the Association—obtain a better picture of the lakes’ water quality. The Association also has a political action group, has worked on road improvement projects, and is closely following potential land transactions to assure that the lake is not overdeveloped.

The terrain around the lake is a pleasing combination of northern and southern vegetation, with white pine,
northern pine and oak. Over the last two years, a harrier hawk has made its home in the area, a welcome neighbor for a woman who knows and understands birds of prey through her Raptor Center work.

The Raptor Center serves as a hospital and shelter for more than 500 birds a year from around the country. The raptors, as well as trumpeter swans, arrive with a variety of injuries — gunshot wounds, lead poisoning from swallowing lead shot, broken wings and collarbones from collisions with powerlines, injuries from car accidents, foot injuries from traps.

Veterinary staff treat the birds in operating rooms similar to those used for human surgery. Some birds have incurred permanent damage and will end up in zoos or other protected environments. Others will be nurtured until they can return to the wild.

During the recuperation, the animals experience great stress because of their proximity to one another and to their human rescuers. “We try not to handle them too much,” says Kelly. “We want them to retain all the characteristics that allow them to survive in the wild, and one of those is avoiding people.”

In fact, several of the Center’s patients are in excellent physical health, but must live there or in other protected environments because they've been imprinted on human beings. Birds raised from birth to depend upon human beings for food come to believe that they are part of the human species — and they never learn the crucial hunting and survival skills needed to survive in the wild.

The newly built Raptor Center has 11 paid staff — and approximately 200 volunteers. Volunteers like Kelly are critical to the operation of the facility and care of the animals. They perform tours, conduct outreach activities, clean cages, help in surgical procedures, "fly" animals to test their recovery, and make the operation run. Volunteer contributions also provide operating funds for the Center.

The end results of all their efforts is a "release," a time of celebration for staff, volunteers and patients. On April 30, several patients considered sufficiently healed to return to their natural habitat were released at the University of Minnesota’s Landscape Arboretum in Chaska.

"Some of our patients put on quite a show to demonstrate their relief at being free," says Kelly. "One little kestrel did a whole performance of dives and swoops to express himself before he flew off. It makes the whole thing very worthwhile for us."

So when Kelly sees the eagle soar over Little Hanging Horn Lake, she’s never certain if she’s seen it before — or may see it some day in the future. She can be certain that she’s doing her part in making her lake a place where the mighty birds can safely find rest.

LoonWatch still needs volunteers for July survey

The 1989 lake monitoring season is just around the corner, and it should prove to be a very interesting one.

Readings taken this summer will begin to answer questions raised by data collected during the drought last year. Were some of the changes in transparency merely reflections of the drought? Or were they real indicators of longer-term loss or gain in water quality?

Many of you program participants have been active for a number of years and are beginning to build up a significant collection of data for your lake. The more extensive your recordings (both in number of years and number of readings made during each season), the easier it will be for MPCA lakes staff to begin to identify long-term trends in your area and spot temporary changes that may occur in predictable cycles. If you can, make weekly Secchi disc readings; this practice provides an excellent picture of water quality over a season.

This will be the third year that we have asked you to rate your lake’s water quality for amount of algae present and its suitability for recreation. This information is proving very useful as MPCA lake staff work to relate user perceptions to Secchi disc transparency readings in different areas of the state. The rankings you provided were used in the preparation of "Minnesota Lake Water Quality Assessment Report." (For information on this report, contact Steve Heiskary at 612/296-6300.)

This summer will mark the first time that a coordinated effort will be made to conduct a loon population survey in Minnesota. The Minnesota Department of Natural Resources is working with LoonWatch, a Minnesota and Wisconsin conservation group, to recruit volunteers to count loons on July 15. Many of you have signed up to participate in the survey, and we encourage any of you who have not yet volunteered to set aside that day to be part of this project.

The DNR tells us that several counties are still short of volunteers: they are Clearwater, Cook, Grant, Isanti, Kanabec, Kandiyohi, Lake, McLeod, Mahnomen, Meeker, Otter Tail, Polk, Pope, Stevens, Swift, and Wadena. To sign up as an official loon counter, contact LoonWatch, Sigurd Olson Environmental Institute, Northland College, Ashland, Wisconsin 54806 (715) 682-1220. And be sure to continue noting your sightings of loons and their chicks throughout the monitoring season.

We will be consolidating this information with the new data collected by the LoonWatch survey. A final tip for the 1989 monitoring season: We’ve discovered that on choppy water, you can get good readings in spite of the waves by lowering your Secchi disc over the stern of the boat. Have a good summer! And thanks for your help in protecting our lakes.
Advice on fish consumption evolves from cooperative triple-agency effort

As avid lake watchers head for their favorite fishing spots this spring, many are carrying more than bait and tackle. They're carrying a booklet with recommendations on fish consumption — and worrying about how many of their catches contain significant amounts of mercury, polychlorinated biphenyls (PCBs) or dioxin.

Staff in the Minnesota Pollution Control Agency's (MPCA's) Water Quality Division monitor the quality of Minnesota's waters, but also monitor the accumulation of contaminants in the state's fish. The process that ends in a fish consumption advisory is a complex one, involving cooperative efforts among state and federal agencies and responses to changing scientific information.

"Every two years the agency produces a report for the U.S. Environmental Protection Agency (EPA) on water quality, including contaminant monitoring," says Dan Helwig, MPCA Water Quality Program Development. "Our job is to ensure that a water body fully supports its defined uses, one of which is fishing."

Collecting fish samples from every lake, stream and river in Minnesota would be an impossible task. So the fish samples analyzed by the agency are taken from waters most likely to have problems — a history of contamination, proximity to a suspected source of pollution, characteristics similar to other contaminated waters, or heavy use by fishermen.

Since 1975, when fish contaminant studies first began at the MPCA, 264 lakes representing 40 percent of Minnesota’s nearly 3.5 million acres of surface water have been sampled. Minnesota Department of Natural Resources (DNR) fisheries crews collect fish by gill or trap nets, usually in conjunction with fishery population surveys.

Fish are weighed and measured, then are wrapped in aluminum foil, labeled and frozen whole. It's essential to collect contaminants than younger fish, so usually samples of different size fish of each species are tested.

When the frozen whole fish arrive at the MPCA, they are sorted by lake, species and size. A boneless skin-on fillet — the portion of the fish that consumers would eat — is ground into the consistency of hamburger, homogenized and sent to the the Minnesota Department of Health (MDH) for laboratory analysis. The MPCA computerizes the data, prepares environmental reports and provides data to the Environmental Health Division of the MDH. The MDH decides whether a fish consumption advisory on a given lake is needed.

Changes in federal standards and new scientific information affect how the MDH makes the call on advisories. "Guidelines on PCB contamination in fish recently became more strict," says Helwig, "while mercury guidelines have remained nearly the same."

Fish studies have helped the MPCA pinpoint problem areas and lakes throughout the state. Mercury contamination is a particular problem in northeast Minnesota lakes, and the Minnesota Future Resources Commission (MFRC) has commissioned a study to see how mercury accumulates in fish and what sources of mercury may be contributing to the problem.

Although PCBs haven't been manufactured since 1979, PCB contamination in fish remains a problem in reservoir lakes, backwaters of rivers, lakes where direct discharges of pollutants have occurred in the past, and some deep northern Minnesota lakes sensitive to air deposition of contaminants. Since PCBs have been found to affect reproductive aspects of human health, women who are pregnant, breast-feeding, or planning a pregnancy are advised not to eat any fish contaminated with PCBs. Few studies on dioxin contamination in fish have been

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The care and feeding of septic systems

Many lakeshore houses or cabins have septic tanks and drainfields. These systems use naturally occurring biological processes to treat household wastewater cheaply and efficiently and recharge groundwater supplies with the treated water.

They can also pollute lakes and drinking water.

What makes the difference? Good design, proper siting and construction, and regular maintenance. In the case of septic systems, if out-of-sight also means out-of-mind, trouble is guaranteed.

A little understanding of how a septic system works makes it easy to understand what kind of siting and upkeep it needs to operate well. In the most commonly used septic system, household wastewater goes to a septic tank, where gravity and bacterial action breaks it into sludge, scum, gas and liquid. The sludge settles at the bottom of the tank, scum rises to the top, gas is vented to the outside, and the liquid flows through closed pipes and a drop box to perforated pipes laid in a drainfield.

At this point, the liquid contains disease-bearing bacteria, nutrients and organic matter. As it slowly moves through the drainfield, microorganisms and oxygen remove the bacteria and decompose the organic material. Soil particles filter out some of the nutrients — primarily phosphorus. Nitrates are inorganic and move through the soil into the groundwater, where they are diluted.

Since nitrates can create a health hazard if they are present above 10 parts per million in drinking water, the siting of a septic system is critical. The drainfield must be a sufficient distance from wells to allow for adequate dilution of nitrates. A high water table, ponds or marshy areas will cause construction or drainage problems.

Phosphorus can be very damaging to lakes. One pound of phosphorus can stimulate the growth of about 500 pounds of weeds and algae. A properly designed and installed septic system will effectively remove phosphorus from wastewater. However, old-fashioned systems, such as cess pools or leaching pits, can put phosphorus directly into the groundwater. From there, it can easily move into nearby lakes.

The soil itself must also be suitable for a drainfield to work well. You can contact your local Soil and Water Conservation District for help in evaluating soils on your property.

Once a system is in place, the critical factor in good treatment is regular maintenance and care of the system. A short memory jog for good maintenance is: Watch what goes in, out and on your system.

WHAT GOES IN: Don’t clog your drainfield by overloading the system. Use water-saving devices; don’t connect roof drains or basement sump pumps to the system; avoid using garbage disposals; don’t throw coffee grounds, cooking fats, disposable diapers, sanitary napkins, facial tissues, cigarette butts, antifreeze, paint, solvents or other household hazardous waste down the drains. Don’t use additives that are advertised as either “starting” the system or eliminating the need for pumpouts. They are not needed and can harm the system. Some additives are suspected to be carcinogenic and will flow directly into your groundwater.

WHAT GOES OUT: Have your septic tank pumped out every two to three years. If it is not pumped, the tank fills and lets solids reach the drainfield, clogging it and causing a failure of the system.

WHAT GOES ON: Don’t damage the system by driving heavy vehicles over the drainfield. This is especially true in winter, when the vehicle’s weight can drive down the frost and prevent effective treatment in the drainfield.

Sewage should be considered infectious. Allowing untreated sewage to reach a lake, stream or groundwater can not only cause significant environmental damage, it can also create severe public health problems.

If you belong to a lake association, make sure that homeowners around the lake know how to maintain their systems. Failing septic systems can be detected by analyzing lake water near shore. Your association may want to contact your county zoning officials to work on a survey of septic systems around your lake.

If you would like more information on septic system installation requirements and maintenance, call Larry Zdon or David Nelson. If you would like to discuss projects that your lake association might develop with county officials to identify failing systems, contact Bruce Wilson. You can reach all three of these MFCA staff people by calling 612/296-6300.
Clean Water Partnership kicks off new program with two-day workshop

The Clean Water Partnership (CWP) got off to a great start on March 29 and 30 in a workshop put on by MPCA staff for the project sponsors.

The CWP is the first state grants program to directly address pollution caused by land-use (nonpoint source pollution.) It provides technical assistance and up to 50 percent funding of the costs for local water quality projects.

In the first round of grant awards, 14 projects were selected for CWP participation. The grants went out in early March this year along with an invitation to attend the workshop, which was held at the Holiday Inn in Roseville.

Several lake projects were included in the 14 awarded grants. They are East Side Lake, sponsored by Mower County; French Lake, sponsored by Rice County; Grove Lake, sponsored by the North Fork Crow River Watershed District; Lake Bemidji, sponsored by Beltrami County; Lake Florence, sponsored by the City of Stewartville; Lake Redwood, sponsored by the Redwood-Cottonwood Rivers Control Area; Lambert Creek/Vadnais Lake, sponsored by the Vadnais Lake Area Water Management Organization; Long Lake, sponsored by the Minnehaha Creek Watershed District; Okabena-Ocheda-Bella Lakes, sponsored by the City of Worthington and the lakes watershed district; and Trout Lake, sponsored by the City of Coleraine.

Sponsors from all 14 projects attended the March workshop, which gave them a chance to begin building a network of relationships among other sponsors and agency personnel. All the projects will now be in phase one of the Clean Water Partnership process. This is the diagnostic feasibility study work.

Sessions at the workshop were geared to provide information to project sponsors on this first phase of work. Some of the topics covered were program requirements, monitoring strategies, information and education efforts needed for project success, choosing best management practices, building community support, and data management.

MPCA Commissioner Gerald Willet was the keynote speaker at the workshop and hosted a reception for workshop participants and legislators where technical equipment that could be used in diagnostic work was demonstrated.

The application period for the next round of CWP grants is June 30 to August 30, 1989. Contact Gaylen Reetz at 612/296-6300 for information on how to apply for a CWP grant.

Curt Sparks, MPCA water quality section chief, greets Grove Lake project representatives at the Commissioner's Reception held during the Clean Water Partnership workshop. From left: Tim Chmielewski, Sparks, Lyle Miller.

Statewide lake management conference in the works for October 2 to 3, 1989

Are you a member of a newly formed lake association wondering what kind of activities will be most beneficial for your lake? Or are you part of a long-established association and would like to share ideas and pass along some tips to people just getting involved in lake protection?

Whichever group you're with, or if you haven't yet joined or formed an association for your lake, mark your calendars for October 2 to 3, 1989. Those are the dates for the first statewide lake management conference in Minnesota. The Hyatt Regency Hotel in Minneapolis will play host to the gathering, which is being sponsored by the MPCA, the Minnesota Department of Natural Resources, the Minnesota Lake Management Federation (MLMF), the Water Resources Research Center at the University of Minnesota, the Freshwater Foundation, the Board of Water and Soil Resources, the U.S. Army Corps of Engineers, the Consulting Engineering Council and the Minnesota Association of Watershed Districts.

Conference planners are working hard to create a stimulating agenda that will help participants gain an overview of lake management issues, understand the roles that various agencies play in lake protection, pick up some technical information on the state's lake resources and build a network for future interaction among citizens, agencies and local government units.

Some of the session topics that have been suggested so far include monitoring programs, shoreland regulations, aquatic plant management, conflicting surface water uses, fisheries management, water quality, current research pertaining to lakes and formation of lake districts.

Participation in the Minnesota Lake Management Conference is open to lake associations, lakeshore property owners, professional lake managers, government employees and any citizens concerned about Minnesota's lakes.

Watch for a mid-summer mailing on final details for this first statewide lake conference. See you there!
completed thus far. Dioxins have not been found in fish from lakes that have been tested.

Human anglers make fish a small part of an otherwise varied diet. What about wildlife, such as otters, who eat fish every day? Concerns about fish contamination and its impact on wildlife have prompted a cooperative DNR and MPCA study to begin later this year. Funded by the MFRC, the study will focus on contaminant accumulation in high-risk animals such as waterfowl, otters, eagles and deer.

Public response to fish advisories has been varied. Some unconcerned citizens fish all lakes without worry; others have become unduly anxious about any fish consumption. The MDH provides recommendations to help fishermen find a middle ground. Anglers are advised to fish waterways with low contaminant levels, choose a less contaminated fish species to eat, keep smaller fish for eating, and follow advice in the Minnesota Fish Consumption Advisory, an MDH publication. For copies of the fish

advisory, contact the MDH at 612/623-5555.

"The contaminant problems we're discussing are associated with eating fish. Using the lake for swimming or other recreational purposes should not pose any risk," says Helwig. "Our goal is to monitor lakes through fish testing and find ways to control environmental problems that restrict the full use of lakes and waterways throughout the state."

"This lake is very clear!"

Cartoonist James Plouf is a CLMP volunteer on Long Lake in Todd County.

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