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# The Leading Edge



## Teaching About the Great Lakes Through the Great Lakes Information Network (GLIN)

by

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### Introduction

The newest way to teach about the Great Lakes is over the Internet, a worldwide computer network. You can find timely information about the Great Lakes region on the Internet that can be incorporated into lesson plans. The window to this information is the "Great Lakes Information Network" or GLIN. Led by the Great Lakes Commission, a compact agency representing the eight Great Lakes states, GLIN is a collaborative project of agencies and organizations in the binational Great Lakes region to link data, information and people via the Internet.

This tip sheet will introduce four teaching ideas for this on-line Great Lakes information source:

- Teaching about ecosystem management
- Interacting with researchers and policy-makers
- Learning through game playing and
- Accessing timely information

These ideas are just a start. As more educators become familiar with these resources, GLIN partners will encourage educators to create their own uses of the network and to share these ideas with colleagues.

### Ecosystem Management

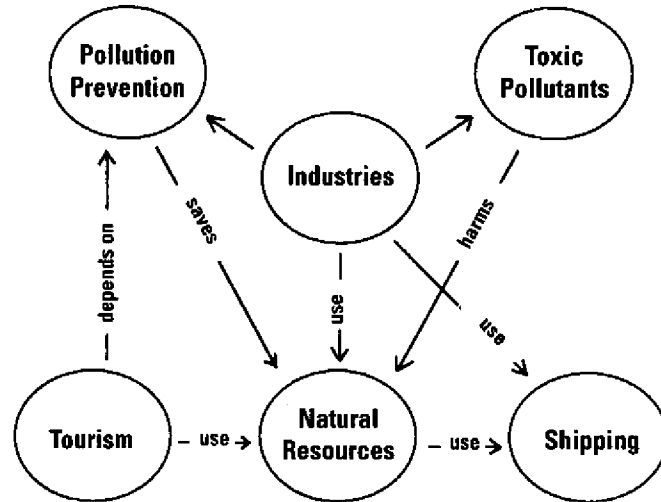
Many policy-makers and scientists are encouraging an ecosystem approach to managing Great Lakes region resources. This approach recognizes the interrelated nature of the ecosystem's components: land, air, water and all living things, including humans. For example, chemicals poured into storm drains may flow directly into streams and lakes where the chemicals can affect fish. These fish are eaten by people and wildlife, and can affect not only their health, but also the health of offspring.

GLIN encourages people to think in terms of these interrelationships by taking full advantage of "hypermedia." As you "surf" through GLIN, you will notice that certain words are highlighted. These words are "hot links" that connect to other files, including text, graphics, sound and video. "Clicking" on a hot link with the mouse displays this related piece of information. This hypermedia capability allows readers to go through information and choose what they are interested in pursuing.

**Before using this introductory guide, three preliminary GLIN access steps must be in place:**

1. Computer access to the Internet and Internet browsing software
2. An understanding of the use of Internet browsing software or "windows" user interface (assuming the browsing software uses "windows")
3. Awareness of GLIN World Wide Web (WWW) or gopher address
  - For WWW: <http://www.great-lakes.net:2200/0/glinhome.html>
  - For gopher: [gopher.great-lakes.net](http://gopher.great-lakes.net) at port 2200

The interrelated nature of these hot links mirrors the interrelated nature of an ecosystem. To encourage this type of thinking, students can be assigned a particular topic about the Great Lakes, locate the information on-line via GLIN, and develop their own reports with hot links to relevant information. Each student can discuss why the components are interrelated.



**Example** Great Lakes shipping carries natural resources and industrial products to and from the Great Lakes region. Industries use natural resources. Industries are partially responsible for both toxic substance production and, on the other hand, for pollution prevention measures. Toxic substances can harm natural resources while pollution prevention can save them. Regional tourism depends on preserving certain natural resources through pollution prevention measures.

The topics inside the ovals were gleaned from both the “environment” and “economy” hot links on the GLIN home page. This example shows that two distinct topics such as the human “economy” and the natural “environment” are linked in the Great Lakes ecosystem, just as they are linked in the same paragraph on the GLIN home page.

**Interaction with Researchers and Policy-Makers**

A second benefit to using GLIN in teaching about the Great Lakes is that, unlike past learning resources, GLIN is interactive. Students can interact with both scientific researchers and government policy-makers.

**Examples**

A student doing a term paper on “human health impacts of eating Great Lakes fish” can turn to GLIN as a reference source. The student can click on “Great Lakes People and Economy” on the home page, and after moving to that page, click on “Health.” From the selection of resources under “Health,” the student can then choose information provided from the report “State of the Lakes Ecosystem Conference (SOLEC).”

After reading some text from the pertinent section of this Conference working paper, the student may find that certain information contradicts some from another source and can contact the author(s) to discuss this contradiction. Because the SOLEC reports are working papers, the student’s findings might encourage the author’s rewrite of the report.

Following a class field trip to some inland water body (i.e., not Lake Michigan) where zebra mussels are unexpectedly found, a teacher and students may want to know if this is the first zebra mussel sighting in this water body. The teacher can chart through GLIN to the section “Zebra Mussel Information Resources.” After clicking on that, a “Spatial Query” can be designated. If the U.S. map sightings do not clearly show if zebra mussels have been sighted in the body of water just visited, then the teacher can scroll down the list to Illinois, issue a query at that point and subsequently scroll through the counties where zebra mussels have been sighted to see if that water body is listed. If not, then the teacher can turn to the “Observations” form section, fill in

the necessary information and send it to the designated address. The teacher and the class will have quickly documented an important scientific discovery.

Interaction with government policy-makers using GLIN might occur in the following way. A student or teacher learns that Waukegan Harbor is a Lake Michigan Area of Concern (AOC) because it contains toxic contaminated sediments. Because the school is located in Waukegan, the teacher or student may want to become involved in efforts at Waukegan Harbor. GLIN contains a report on Waukegan Harbor, and the path is **Great Lakes Environment/Pollution/Areas of Environmental Concern/Areas of Concern**. A list of Waukegan Citizen Advisory Group members with addresses and phone numbers follows the text, and these members can be called for more information.

A second policy-maker interaction might occur if a teacher or student discovers on GLIN the "Ecosystem Charter for the Great Lakes-St. Lawrence Basin," developed by the Great Lakes Commission. After locating the "Signatory Response Form," the teacher may realize that the class might be able to sign on as supporting the Charter, and can develop a project to study this Charter and what the class/school can do to incorporate some of its goals in day-to-day or long-term activities. The class or school could then add its name to this list of 100 plus signatures representing important national and international organizations.

### Learning Through Game Playing

Students love computers, not as much because they can learn from them, but because they can play games on them. Why not embrace that love and use that to teach about the Great Lakes or the larger environmental concepts discussed earlier? GLIN can help in this through games such as: 1) Scavenger Hunt and; 2) Untrivial Pursuit.

A "scavenger hunt" can be developed by the teacher first finding facts about the Great Lakes through a GLIN search path. A GLIN path to "maximum depth of Lake Michigan" is **Great Lakes Environment/Water/Hydrology/Surface Water/The Great Lakes/Lake Michigan/Lake Michigan Facts**. With that information path known, the teacher can ask the class to find that depth and report a path to reach it; the first student to give the correct answer and path wins (keep in mind there may be several correct paths). The next fact hunt could either be posed by the teacher or by the winning student. Students should develop fact hunt GLIN paths prior to play so as not to bog down the game pace with time-consuming path determinations.

"Untrivial Pursuit" is another game to make learning about the Great Lakes and ecosystems fun. First, select at least four information categories information that can be used to learn about the Great Lakes. Having the class "cruise" around GLIN for a while beforehand will help determine the most practical categories for the age level. Some examples are: 1) Pollution; 2) Nonindigenous (Exotic) Species; 3) Economics, and 4) Facts and figures.

The class can be divided into as many teams as categories chosen. Each team can be assigned to develop 6-12 questions. Each team's questions will focus on a category such as one of the above, and the questions can be derived from information gathered from GLIN. Once that exercise is done, play can begin. Figure out which team will ask the first question from that team's assigned category. The first team to answer that question correctly gets to ask a question from their category. Whichever team runs out of questions first, wins.

### Easy Access to Timely Information

GLIN often contains more current information than conventional sources of information, because GLIN and related path partners are constantly updating information. One place to find and research a "hot" issue is the "Great Lakes Reference Desk" from the GLIN home page; this link in turn has a link via the path News/News from around the Great Lakes Region to the "Great Lakes Environmental Wire" (GLEW). This project of Booth Newspapers in Michigan, covers many important regional issues such as the "Great Lakes Initiative," a public and private cooperative effort to control industrial and municipal discharges into the Great Lakes Basin. GLEW includes stories from Booth's eight Michigan dailies and its Washington bureau. Glew also has a searchable archive.

To learn new information that has been placed on GLIN, move to the very top of the GLIN home page; there within the graphic is the word "New." After clicking that on, descriptions of new pieces of information are laid out in chronological order of when the information is entered.

Additionally, if the GLIN user is interested in a certain topic, chances are that more up-to-date information is available on that topic in GLIN than in printed form elsewhere. And, GLIN may

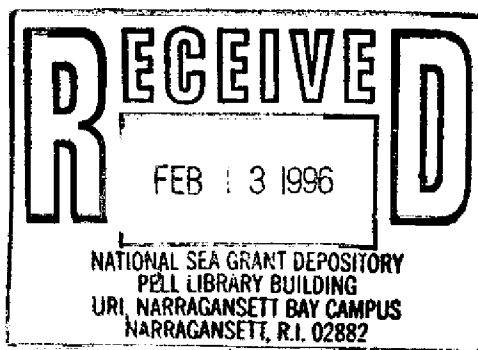
become a primary source of certain Great Lakes information. Moreover, GLIN access is instantaneous, rather than having the information sent or having to dig it up in a library. Because much information can be obtained immediately right at the computer terminal, it is often less costly and less time consuming than traveling to find it or calling numerous people for it.

From there, click on a highlighted word(s) to be directed to more in-depth information. Many other highlighted paths have similar "what's new" sections at the bottom of their respective introductory (home) pages.

### More Information on GLIN

For up-to-the-minute information on GLIN and its ever expanding resources, again check on the home page under the link "Great Lakes Reference Desk" where you will find also find "E-mail Lists" in addition to the other extensive resources. After clicking on that, you will find the way to obtain new information about GLIN or many other related topics through E-mail messages from various related GLIN mailing lists.

The above four ways to use GLIN show that it offers many advantages to accessing this information more easily, quickly and cheaply, and with more lasting impact because of its interactive nature. Since the amount of information that students need to understand about their world to live in it harmoniously is increasing, and the amount of financial resources that schools can place on accessing information is often decreasing, GLIN and similar Internet resources help to solve this conflicting demand. GLIN and other Internet resources offer a direction that schools should embrace as the 21st century approaches.



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