



GLERL

Great Lakes Environmental Research Laboratory

www.glerl.noaa.gov

Main Facility ~ Ann Arbor, MI

GLERL's 14-year old main facility located in Ann Arbor, MI occupies 25,500 sq. ft. of space. Approximately 6620 square feet are devoted to laboratory space that includes 30 wet and dry



laboratories, a Computer Facility, a Marine Instrumentation Laboratory, a Remote Sensing Laboratory, a Geographic Information System Laboratory, and a Fish Acoustics Laboratory. Offices occupy over 10,000 square feet, with the remaining space being occupied by GLERL's research library, a lecture hall, conference rooms, and storage.

Laboratories

The facility's biological and chemical laboratories are equipped with general as well as highly specialized equipment including a stable isotope mass spectrometer, a fully equipped



radiotracer, several gas chromatography systems, a multi-channel Coulter counter, a Carbon Hydrogen Analyzer and nutrient analyzers. Additional laboratories such as the Fish Acoustic Labora-

tory have several Scientific Split-Beam Echosounders used for mapping fish biomass; the Remote Sensing Laboratory has high-speed computers that are capable of receiving 28 satellite-derived images including surface temperatures, visible and near-infrared reflectance, and cloud masks among others, and the Geographic Information System Laboratory has a dedicated UNIX workstation and a high accuracy digitizer.

Marine Instrumentation Laboratory (MIL)

Through the efforts of the MIL, GLERL brings together the cultures of marine environmental scientists and instrumentation specialists to apply existing technology and develop new technologies to advance marine environmental research in the Great Lakes and coastal areas.

MIL Capabilities

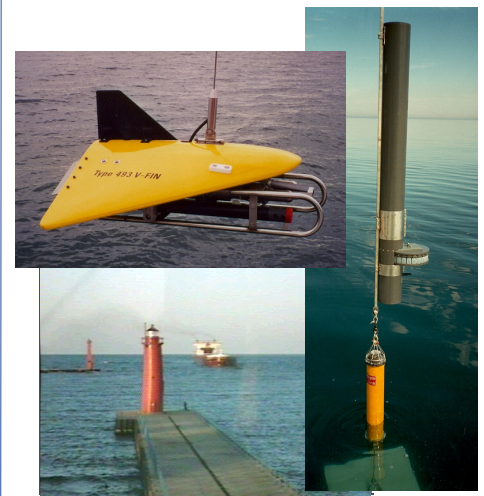
The highly skilled engineers and technicians of MIL are capable of designing electronics, developing schematics, manufacturing circuit boards and developing computer software to support major systems design.

With the use of both a full service electronics design shop and a machine shop, MIL not only supports and maintains existing GLERL instrumentation, but also provides the hardware and software necessary for data acquisition systems.

MIL's instrumentation infrastructure includes a myriad of electronics and structures necessary to test and calibrate equipment. Additionally, 8 Acoustic Doppler Current Profilers (ADCP) and 20 Sequential Sediment Samplers are operated and maintained by MIL.

MIL Research Products

- Real-time Environmental Observations Network—where coastal data observations were expanded from weather to marine.
- Benthic Survey Technology—an underwater camera system designed by MIL.
- Plankton Survey System—has the capability of three-dimensional



The Plankton Survey System (top), the Sequential Sediment Sampler (right), and image from GLERL's Muskegon web cam (bottom).

marine environmental data collections.

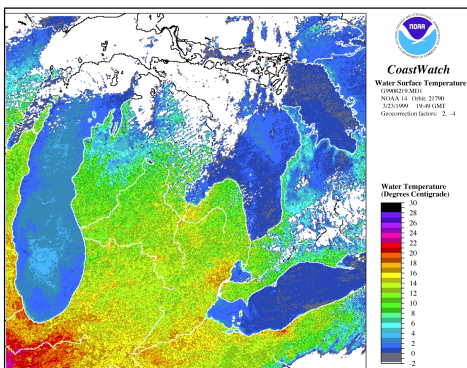
- Sequential Sediment Sampler—provides improved temporal measurements for sediment transport studies.

Computer Facility

GLERL's computer facility is a 100 MBS internal Local Area Network (LAN) of computing resources. This network consists of 25 UNIX/RISC workstations, 4 Macs and about 130 PCs connected via Ethernet. The LAN is connected to the Internet through MichNet. There are several servers: four backup servers, two WEB servers, two FTP servers, and a Library Catalog Server.

A variety of scientific applications, including real-time and near real-time data acquisition, data reduction, graphical digital display, image processing, statistical and mathematical analysis, etc, are accessed by GLERL personnel and collaborators.

GLERL is the Great Lakes Redistribution Node of the National Ocean Communication Network (NOCN) and makes satellite imagery available to government, private, and academic users throughout the Great Lakes region. GLERL is also a partner in the Great Lakes Commission's Great Lakes Information Network (GLIN).



As the Great Lakes regional node of the NOAA CoastWatch Program, GLERL distributes products to users via the internet.

Research Library

GLERL's library collection supports the laboratory's research activities. The collection reflects an emphasis on freshwater and coastal sciences particularly in the Great Lakes basin. Presently, GLERL's library has over 6,000 periodical volumes and approximately 5,000 book/technical volumes. Holdings include subject areas of climatology, contaminant organics, hydraulics, acoustics, hydrology, ice, limnology, mathematical models, meteorology, ecology, nutrients, fisheries oceanography, sediments and wave motion. In addition to the present holdings, the library also receives approximately 200 subscription titles. Electronic access includes CD-ROM databases that support bibliographic and references needs. The GLERL Library is a member of the Michigan Library Consortium, Michigan Listings, Federal Library and Information Network, NOAA Library and Information Network, and the Online Computer Library Center.



Information Services— Publications Unit

The Publications Unit provides editorial and publication support to the scientific staff, prepares and distributes GLERL publications, prepares figures and graphs, provides information to the public, produces reports, brochures, posters, and displays of GLERL's research and is increasingly involved in outreach activities such as the National Ocean Sciences Bowl. Information requests come from such groups as universities, schools, media, federal, state, and local government agencies, and private citizens in both the U.S. and foreign countries. The Publications unit also oversees the Data Visualization Lab, which is available for scientists and technicians to produce figures and other materials for scientific publications and presentations. This equipment includes a flatbed scanner, a slide and negative scanner, a color film recorder, and a 42" roll laminator.

In addition to distributing paper copies of GLERL's publications, the Publications Unit produces electronic copies and makes them available on GLERL's web page. This has proved to be an excellent avenue for dissemination of GLERL's products.



Students from Kalamazoo High School participate in the annual Midwest Regional Competition of the National Ocean Sciences Bowl.