

**U.S. Environmental Protection Agency  
Research Participation Program  
Great Lakes National Program Office  
Chicago, Illinois**

**Project # EPA-Chicago 2004-03  
*Great Lakes Indicators Database and Web Page***

A research project is available at the U.S. Environmental Protection Agency (EPA) Great Lakes National Program Office, Monitoring, Indicators and Reporting Branch in Chicago, Illinois.

**Project Background:**

The United States and Canada signed the Great Lakes Water Quality Agreement (GLWQA) in 1972 (and revisions in 1978 and 1987) to facilitate the restoration and maintenance of the chemical, physical, and biological integrity of the waters of the Great Lakes Basin ecosystem. In response to reporting requirements of the GLWQA, the biennial State of the Lakes Ecosystem Conferences (SOLEC) were established to provide independent, science-based reporting on the state of health of the Great Lakes basin ecosystem.

In the first SOLEC (1994), the governments reported on basin-wide conditions relating to aquatic ecosystem health, human health, aquatic habitat and wetlands, nutrients, contaminants, and the economy. For SOLEC 96, the focus was on the nearshore aquatic and terrestrial environments. For SOLEC 98, the organizers presented a suite of easily understood indicators which should objectively represent the condition of the Great Lakes basin ecosystem, the stresses on the ecosystem, and the human responses to those stresses. At SOLEC 2000 and 2002, assessments of the condition of Great Lakes ecosystem components were based on subsets of the indicators on the SOLEC list.

Findings from the SOLEC 2002 assessments are contained in several documents and formats, including:

- *Implementing Indicators 2002 - Draft for Discussion*: a compilation of 43 indicator reports about the Great Lakes discussed at SOLEC 2002
- SOLEC 2002 Plenary Presentations: video of the presentations delivered to the participants
- Plenary Presentation graphics and speaker's notes: PowerPoint slides to illustrate the plenary presentations
- State of the Great Lakes: Fact Sheets
- State of the Great Lakes 2003: A summary of information provided in the indicator reports and the presentations
- *Implementing Indicators 2003 - A Technical Report*: a fully referenced update of *Implementing Indicators 2002 - Draft for Discussion*

**Objectives:**

The overall objective of this project is to enhance the collection, evaluation and exchange of information about the Great Lakes to facilitate better environmental management. Particular aspects of the project include: 1) The creation of an Oracle database of Great Lakes indicators that contains information on indicator descriptions, groupings, data sources and other properties; and 2) the creation of an interactive, searchable Web site that is easily used by environmental managers, decision makers, and the interested public to capture the findings and products from SOLEC2002 and SOLEC 2004. Multiple levels of complexity will allow the user to obtain the degree of detail desired for each of dozens of indicators. The creation of the Web site will provide "one stop shopping" for access to Great Lakes information by a variety of users. To complete project elements in a timely manner, the research associate will apply and extend analytical, organizational and communication skills and technical knowledge.

**Specific Tasks:**

The research associate will primarily assist GLNPO staff scientists in the planning and creation of the Web site and database. Specific tasks and learning opportunities may include, but not be limited to:

- Design of the structure of the Web site and database
- Identification and incorporation of linkages between and within documents
- Translation of documents into appropriate formats
- Identification of external Web linkages
- Incorporation of graphics, sound and video as appropriate
- Testing of final products
- Assisting SOLEC organizers (including other U.S. and Canadian agencies) to plan and implement various activities in support of SOLEC, for example: attending videoconferences and meetings, tracking scheduled tasks, and participating as part of the binational SOLEC organizing team

**Expected Results:**

Fully successful access to Great Lakes indicator information and assessments is expected through the creation of the SOLEC Web site and database. The assistance of the research associate will help ensure that SOLEC participants and other interested people will engage in an interactive, informative process to obtain information useful to their responsibilities for the management of components of the Great Lakes ecosystem.

**Benefits to the Research Associate:**

During this project the research associate will:

- learn about the many complex elements of the Great Lakes ecosystem
- increase skills in desktop publishing and database management
- learn the many facets required to plan and implement a complex project
- learn roles and responsibilities for working as part of an international team
- obtain professional contacts around the Great Lakes basin
- increase sense of professional responsibility

**Impact on protecting and enhancing the environment:**

The biennial SOLEC conferences are major venues for the exchange of information and ideas between environmental managers, decision makers, and other interested stakeholders throughout the Great Lakes basin. Conference attendees strongly influence the programs and activities in and around the Great Lakes that impact the maintenance, protection and/or restoration of components of the Great Lakes ecosystem. The SOLEC process facilitates information exchange that leads to better or more efficient management activities.

**Qualifications:**

Required:

- Baccalaureate degree received or studies substantially completed with significant course work in science disciplines
- Excellent verbal and written communication skills in English
- Familiarity with word processing and document preparation
- Ability to quickly learn computer software programs as needed, e.g., desktop publishing, scientific graphing, and presentations.

Strongly Desired:

- Basic knowledge of components of the Great Lakes basin ecosystems, including aspects of biology, water chemistry, toxic chemicals, habitats, watersheds, and human society.
- Familiarity with database design and maintenance
- Familiarity with Web pages design
- Pleasant and cooperative inter-personal skills.
- Ability to travel overnight to attend occasional meetings around the Great Lakes, including in Canada.

**Background Information:**

As the U.S. office responsible for implementing the monitoring provisions of the Great Lakes Water Quality Agreement, GLNPO has a fundamental role to collect and disseminate data on the physical, chemical and biological integrity of the Great Lakes waters. The primary domain of the GLNPO monitoring program is the open, offshore waters of the Great Lakes, exploiting the capabilities of the research vessel R/V Lake Guardian. GLNPO also supports the Great Lakes Fish Contaminants Monitoring Program and the International Atmospheric Deposition Network. Other federal and state environmental agencies conduct monitoring activities in nearshore areas, embayments, tributaries, etc. The specific activities in which GLNPO engages are determined in large measure by the data and information needed to support the Great Lakes Water Quality Agreement, Lakewide Management Plans, and other specific needs of our federal and state partners. GLNPO is also a sponsor and organizer of the biennial State of the Lakes Ecosystem Conference (SOLEC), for which the “health” of the Great Lakes ecosystem components is assessed and reported through a series of indicators.

**Additional Information:**

The Research Participation Program for EPA Region 5 is administered by the Oak Ridge Institute for Science and Education. *Please reference Project # EPA Chicago 2004-03 when calling or writing for information.* For additional information and application materials contact: Research Participation Program/EPA, Attn: Betty Bowling, Science and Engineering Education - MS 36, Oak Ridge Institute for Science and Education, P.O. Box 117, Oak Ridge, Tennessee 37831-0117, Phone: (865) 576-8503 FAX: (865) 241-5219 e-mail: [bowlingb@ornl.gov](mailto:bowlingb@ornl.gov).

An application can be found at <http://www.ornl.gov/orise/edu/EPA/app-gugrgpd.pdf>