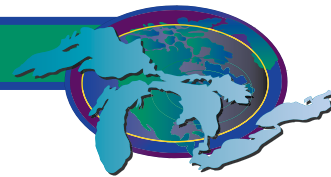


US EPA ARCHIVE DOCUMENT



2.0 Assessing Data Quality

Through both the biennial Conferences and the *State of the Great Lakes* reports (technical report, Highlights report, Summary Series), SOLEC organizers seek to disseminate the highest quality information available to a wide variety of environmental managers, policy officials, scientists and other interested public. The importance of the availability of reliable and useful data is implicit in the SOLEC process.

To ensure that data and information made available to the public by federal agencies adhere to a basic standard of objectivity, utility, and integrity, the U.S. Office of Management and Budget issued a set of Guidelines in 2002 (OMB 2002). Subsequently, other U.S. federal agencies have issued their own guidelines for implementing the OMB policies. According to the Guidelines issued by the U.S. Environmental Protection Agency (U.S. EPA 2002), information must be accurate, reliable, unbiased, useful and uncompromised though corruption or falsification.

Other assessment factors (U.S. EPA 2003) that are typically taken into account when evaluating the quality and relevance of scientific and technical information include:

- **Soundness** - the extent to which the scientific and technical procedures, measures, methods or models employed to generate the information are reasonable for, and consistent with, the intended application
- **Applicability and Utility** - the extent to which the information is relevant for the intended use
- **Clarity and Completeness** - the degree of clarity and completeness with which the data, assumptions, methods, quality assurance, sponsoring organizations and analyses employed to generate the information are documented
- **Uncertainty and Variability** - the extent to which the variability and uncertainty (quantitative and qualitative) in the information or in the procedures, measures, methods or models are evaluated and characterized
- **Evaluation and Review** - the extent of independent verification, validation and peer review of the information or of the procedures, measures, methods or models

Recognizing the need to more formally integrate concerns about data quality into the SOLEC process, SOLEC organizers developed a Quality Assurance Project Plan (QAPP) in 2004. The QAPP recognizes that SOLEC, as an entity, does not directly measure any environmental or socioeconomic parameters. Existing data are contributed by cooperating federal, state and provincial environmental and natural resource agencies, non-governmental environmental agencies or other organizations engaged in Great Lakes monitoring. Additional data sources may include local governments, planning agencies, and the published scientific literature. Therefore, SOLEC relies on the quality of datasets reported by others. Characteristics of datasets that would be acceptable for indicator reporting include:

- Data are documented, validated, or quality-assured by a recognized agency or organization.
- Data are traceable to original sources.
- The source of the data is a known, reliable and respected generator of data.
- Geographic coverage and scale of data are appropriate to the Great Lakes basin.
- Data obtained from sources within the United States are comparable with those from Canada.

Additional considerations include:

- Gaps in data availability should be identified if datasets are unavailable for certain geographic regions and/or contain a level of detail insufficient to be useful in the evaluation of a particular indicator.
- Data should be evaluated for feasibility of being incorporated into indicator reports. Attention should be given to budgetary constraints in acquiring data, type and format of data, time required to convert data to usable form, and the collection frequency for particular types of data.

SOLEC relies on a distributed system of information in which the data reside with the original providers. Although data reported through SOLEC are not centralized, clear links for accessibility of the data and/or the indicator authors are provided. The authors hold the primary responsibility for ensuring that the data used are adequate for indicator reporting. *Users of the indicator information, however, are obliged to evaluate the usefulness and appropriateness of the data for their own application, and they are encouraged to contact the authors with any concerns or questions.*

The SOLEC indicator reporting process is intended to be open and collaborative. Indicator authors are generally subject matter experts who are the primary generators of data, who have direct access to the data, or who are able to obtain relevant data from one or more other sources and who can assess the quality of data for objectivity, usefulness and integrity. In some cases, authors may serve as facilitators or leaders to coordinate a workgroup of experts who collectively contribute their data and information, to arrange for data retrievals from agency or organization databases, or to review published scientific literature or conduct online data searches from trusted sources, e.g., U.S. census data or the National Land Cover Dataset.

Several opportunities are provided for knowledgeable people to review and comment on the quality of the data and information provided. These include:

- Co-authors - Most of the indicator reports are prepared by more than one author, and data are often obtained from more than one source. As the draft versions are prepared, the authors freely evaluate the data.
- Comments from the Author(s) - The section in each indicator report called "Comments from the Author(s)" provides an opportunity for the authors to describe any known limitations on the use or interpretation of the data that are being presented.
- Pre-SOLEC availability - The indicator reports are prepared before each Conference, and they are made available online to SOLEC participants in advance. Participants are encouraged to provide comments and suggestions for improvements, including any data quality issues.
- During SOLEC discussions - The Conferences have been designed to encourage exchange of ideas and interpretations among the participants. The indicator reports provide the framework for many of the discussions.
- Post-SOLEC review period - Following the Conferences, interested agencies, organizations and other stakeholders are encouraged to review and comment on the information and interpretations provided in the indicator reports.
- Preparation of *State of the Great Lakes* products - Prior to finalizing the technical report, the Highlights report, and Summary Series, any substantive comments on the indicator reports, including data quality issues, are referred back to the authors for resolution with the report editors.

The primary record and documentation of the indicator reports and assessments are the *State of the Great Lakes* reports. The technical report presents the full indicator reports as prepared by the primary authors. It also contains detailed references to the data sources. A *Highlights* report is also produced which summarizes key information from the technical report. This approach of dual reports, one summary version and one with details and references to data sources, also satisfies the *Guidelines for Ensuring and Maximizing the Quality, Utility, and Integrity of Information Disseminated by Federal Agencies*, OMB, 2002, (67 FR 8452). The guidelines were developed in response to U.S. Public Law 106-554; H.R. 5658, Section 515 (a) of the Treasury and General Government Appropriations Act for Fiscal Year 2001.

Sources

Office of Management and Budget. 2002. *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies*, (67 FR 8452). The guidelines were developed in response to U.S. Public Law 106-554; H.R. 5658, Section 515(a) of the Treasury and General Government Appropriations Act for Fiscal Year 2001.

U.S. Environmental Protection Agency. 2002. *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency*. EPA/260R-02-008, 62pp.

U.S. Environmental Protection Agency. 2003. *Assessment Factors. A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information*. EPA 100/B-03/001, 18pp.