



Fact Sheets Providing Guidance for Quality Assurance in Ecological Restoration Project Monitoring

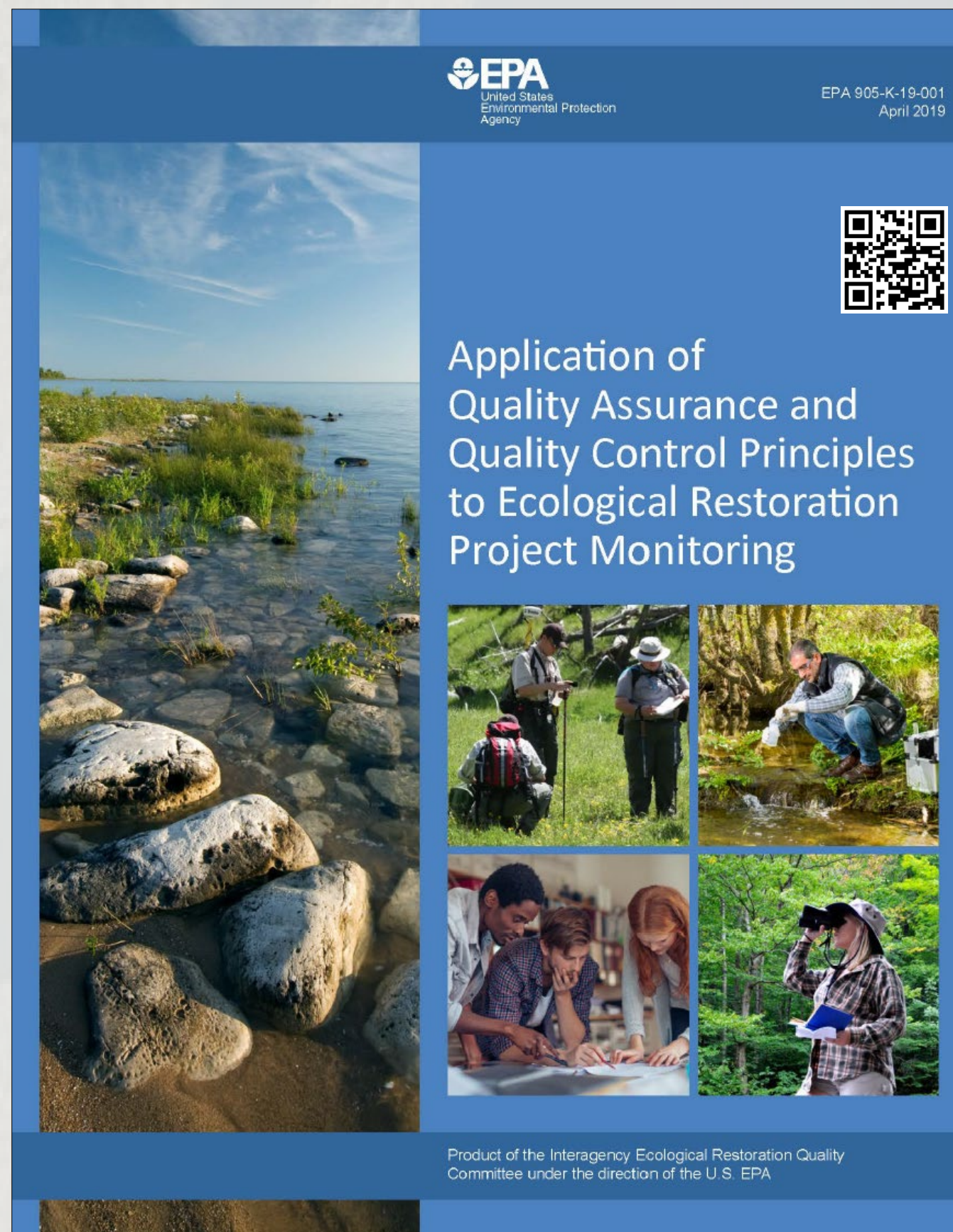
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THE NEED FOR FACT SHEETS

Background

Ecological restoration requires the collection of reliable data. Often these data are collected as observations or estimates based on best professional judgment. Unlike accredited laboratory settings where rigorous quality assurance and quality control (QA/QC) procedures have been in place for decades, practitioners for ecological restoration projects do not have comprehensive guidance on how to ensure the reliability of data. To address this need, U.S. EPA's Great Lakes National Program Office (GLNPO) with the assistance of representatives from several federal agencies prepared a guidance document entitled [Application of Quality Assurance and Quality Control Principles to Ecological Restoration Project Monitoring](#) (EPA-905-K19-001, April 2019).



<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100XC2E.txt>

A series of short fact sheets have been developed to cover each chapter of the document to acquaint restoration practitioners with the key concepts presented in greater detail in the guidance document.

When to use

These fact sheets are a convenient resource for practitioners who are:

- ✓ preparing quality assurance project plans (QAPPs),
- ✓ disseminating information regarding the quality of data from a project, and/or
- ✓ providing training to collaborators and contractors on a particular QA topic.

FACT SHEETS

Chapter 2: Fundamental Principles Concerning QA/QC and Ecological Restoration Project Monitoring

Fact Sheet: Fundamental Quality Principles for Ecological Restoration Project Monitoring

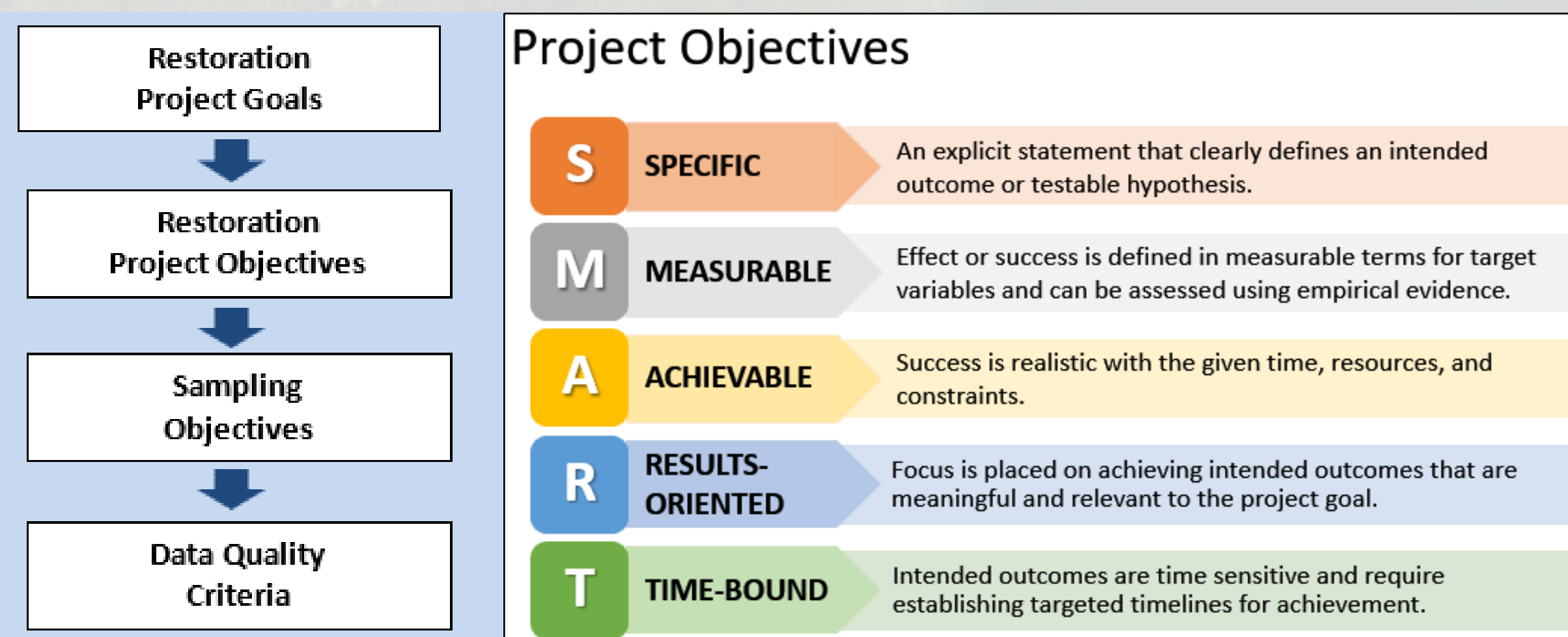
This fact sheet summarizes the fundamental quality assurance principles important to ecological restoration monitoring including how to plan for quality, the benefits of quality, the costs of quality investments to avoid failures, and quality practices to control measurement errors.



Chapter 3: Planning for Data Collection

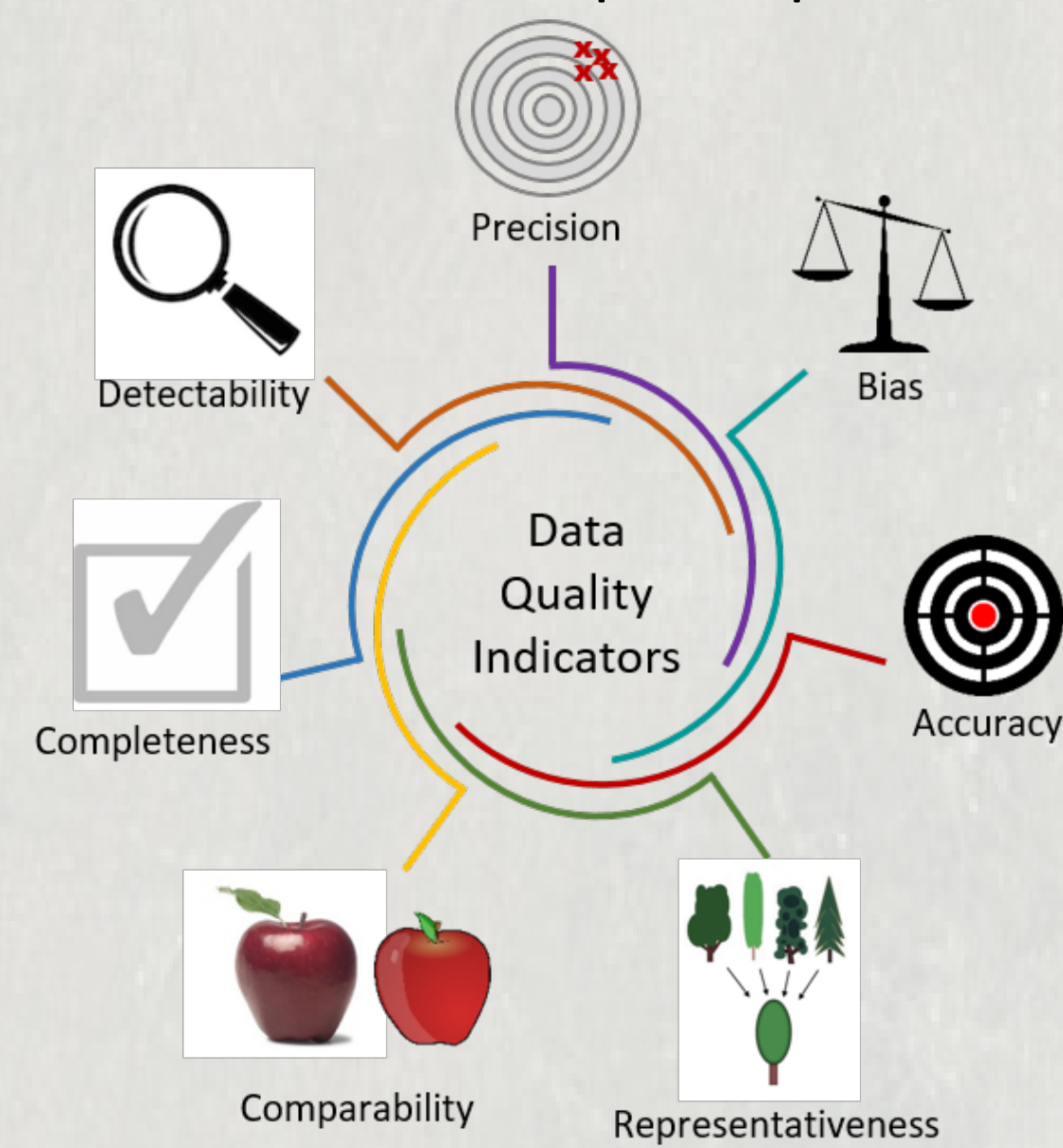
Fact Sheet: Goals and Objectives for Ecological Restoration Project Monitoring

This fact sheet provides an overview of determining goals and objectives for data collected during ecological restoration monitoring. Restoration project goals are used to determine specific, measurable, achievable, results-oriented, and time-bound (SMART) restoration project objectives.



Fact Sheet: Data Quality Indicators and Data Quality Acceptance Criteria for Ecological Restoration Project Monitoring

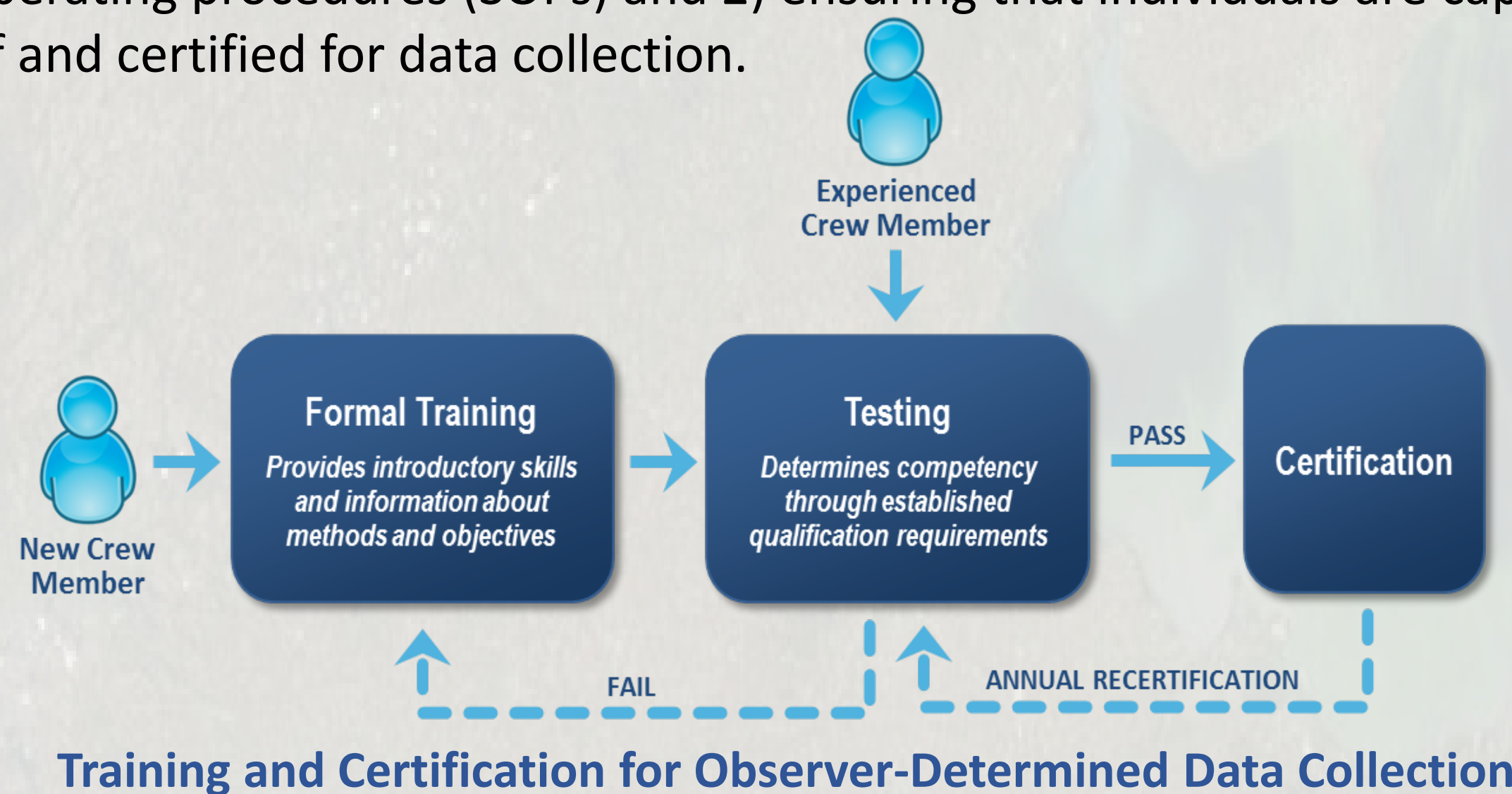
This fact sheet describes how data quality indicators (DQIs) and their associated acceptance (or performance) criteria provide a means to plan the quality of data required for a project and then to assess whether that quality of data was achieved. It includes a description of common DQIs and an explanation of how to develop acceptance criteria.



Chapter 4: Preparing for Data Collection

Fact Sheet: Preparing for Ecological Restoration Project Monitoring

This fact sheet describes some QA strategies that can be used to prepare for field data collection including: 1) the development of standard operating procedures (SOPs) and 2) ensuring that individuals are capable of and certified for data collection.

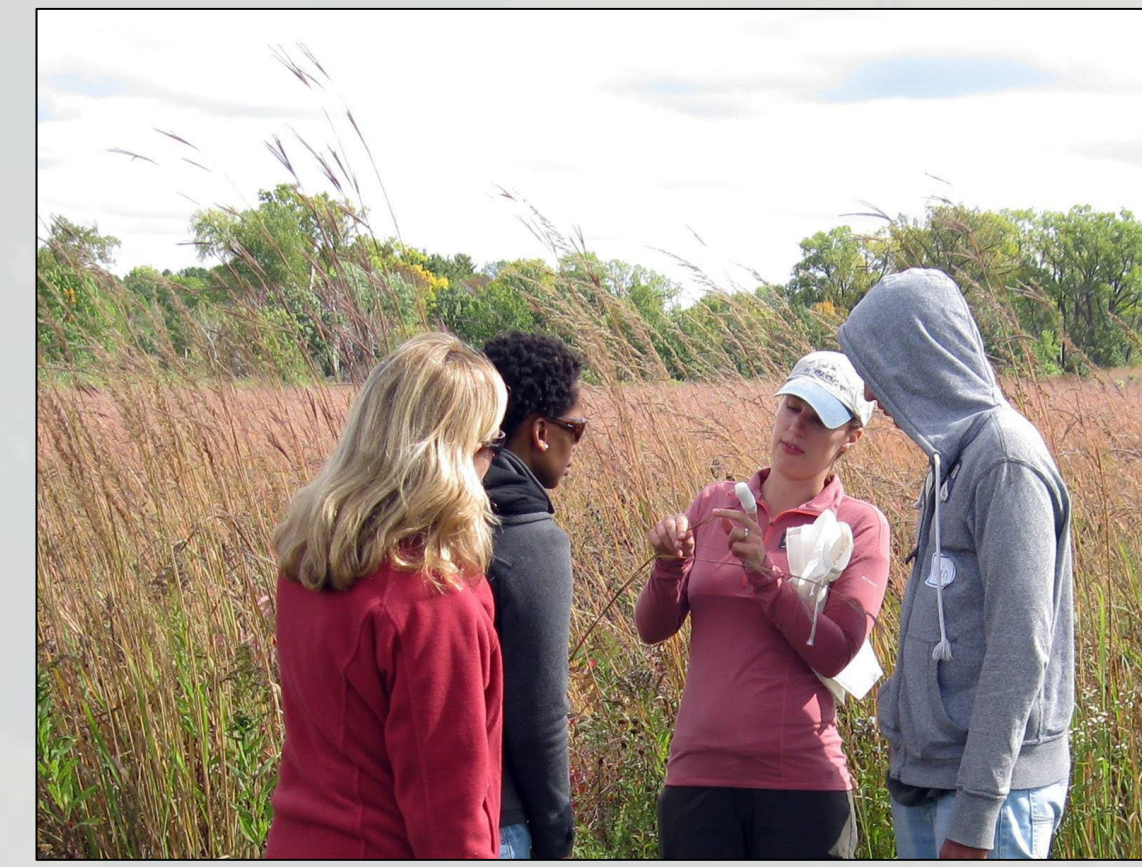


Training and Certification for Observer-Determined Data Collection

Chapter 5: Quality Control During Field Activities

Fact Sheet: Quality Control Field Checks for Ecological Restoration Project Monitoring

This fact sheet provides an overview of QC field checks for data collected during ecological restoration monitoring, including a description of the five checks, when and how each field check is used, and how to incorporate the results of the field checks to support the quality of a restoration project.



University of Wisconsin Arboretum staff demonstrate seed collecting technique at Curtis Prairie to students participating in Make a Difference Day at the Society of Ecological Restoration's World Conference in Madison, WI in 2013. Photo credit: Nancy Aten



Planting native vegetation along a riparian zone. Source: Britta Suppes, Univ. MN

Chapter 6: Data Review

Fact Sheet: Data Review for Ecological Restoration Project Monitoring

This fact sheet provides an overview of data review processes and considerations, including its importance and impact, planning, data review considerations in various contexts (field, lab, and final analysis), and activities related to data verification, validation, and certification.



Chapter 7: Data Assessment, Analysis and Reporting

Fact Sheet: Data Quality Assessment for Ecological Restoration Project Monitoring

This fact sheet describes the importance of conducting a data quality assessment (DQA), key decisions to consider when planning a DQA, types of data quality non-conformances and how to address them, and how to use a DQA to evaluate whether project sampling objectives have been achieved.

Benefits of Early or Seasonal Data Assessment, Data Analysis and Reporting

Data Assessment – Provides an opportunity to identify shortcomings and correct the problems before subsequent sampling

Data Analysis – Yields opportunities to identify data patterns or trends that might suggest alternative restoration approaches

Project Reporting – Provides a means of communicating progress to stakeholders; also may be useful in documenting milestones and providing rationale for interim decisions or changes in project direction or approach

Please contact Molly.Middlebrook@gdit.com to obtain a digital copy of this poster or any of the resources it describes.

*This presentation includes references to published and unpublished documents and other materials developed as result of collaborations by the U.S. Environmental Protection Agency (EPA) and the Interagency Ecological Quality Committee (IERQC) – a committee convened to steer the development of Quality Assurance guidance and outreach materials aimed to support contractors and grant awardees funded by the Great Lakes Restoration Initiative. For additional resources relating to EPA's Quality Systems Series documentation, see: www.epa.gov/quality. The views expressed in this presentation are those of the author(s) and do not necessarily represent the views or policies of the U.S. Environmental Protection Agency.