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# Why Do QA?

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A large yellow triangle is positioned in the bottom right corner of the slide, pointing towards the top right.

# QA Thought Experiment

“Science is not finished until it is communicated.”

Mark Walport





# USEPA Quality Program

- The primary goal of the Quality Program is to ensure that our **environmental data are of sufficient quantity and quality to support the data's intended use.** Under the EPA Quality Program, EPA organizations develop and implement supporting quality programs. Similar specifications may also apply to contractors, grantees, and other recipients of financial assistance from EPA.

From <https://www.epa.gov/quality/about-epas-quality-program>

# The Graded Approach

The “graded approach” is defined as the process of basing the level of details and comprehensiveness of quality documentation applied to environmental operations/programs according to the intended use of the results and the degree of confidence needed in the quality of results.

EPA's policy is to use the graded approach to ensure that the required quality documentation fits the project needs and intended use of the environmental information.

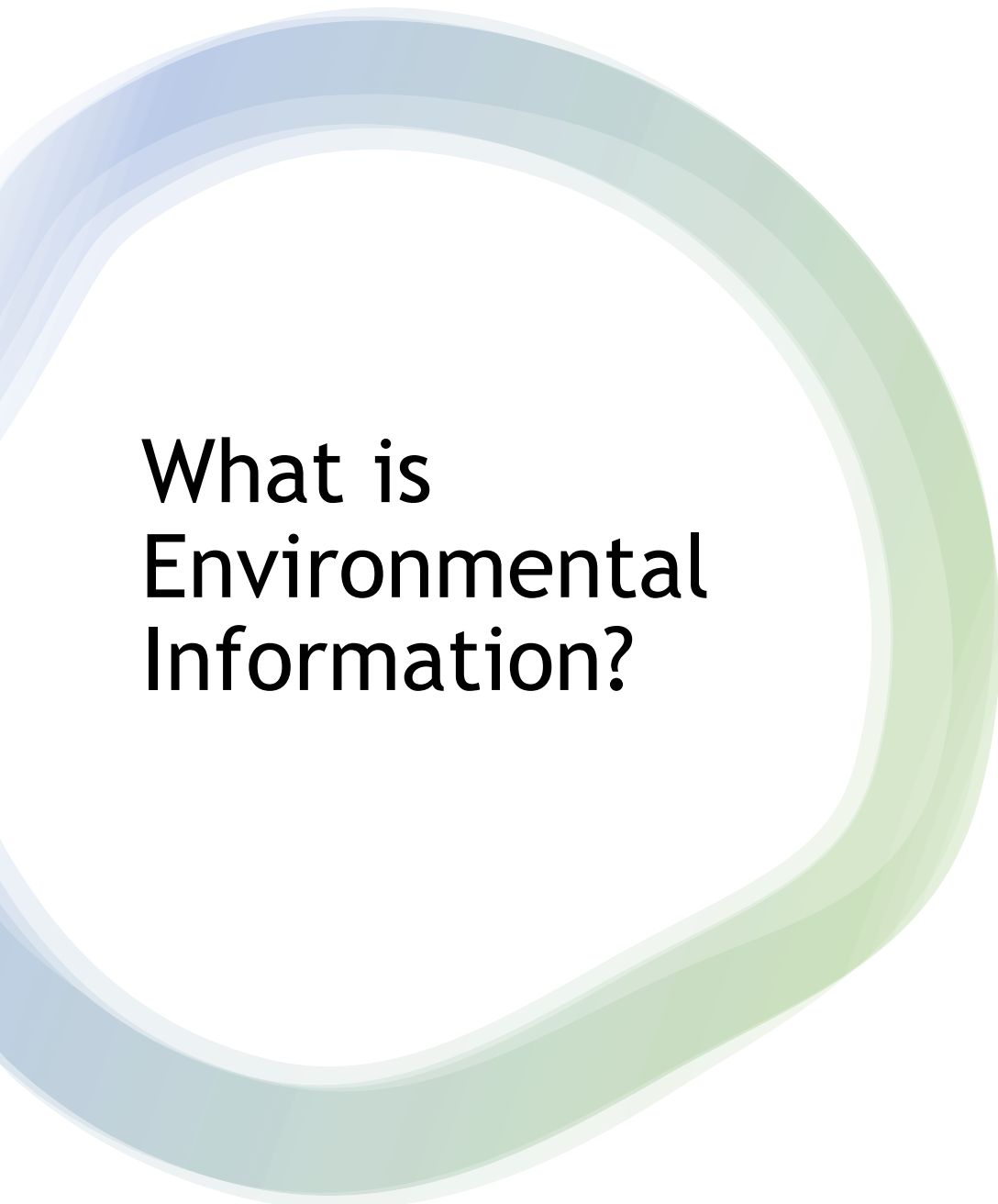




## Environmental Data vs. Environmental Information

The terms “environmental data” and “environmental information” can be used interchangeably in relation to Quality Assurance activities.

Environmental Data  
=  
Environmental Information

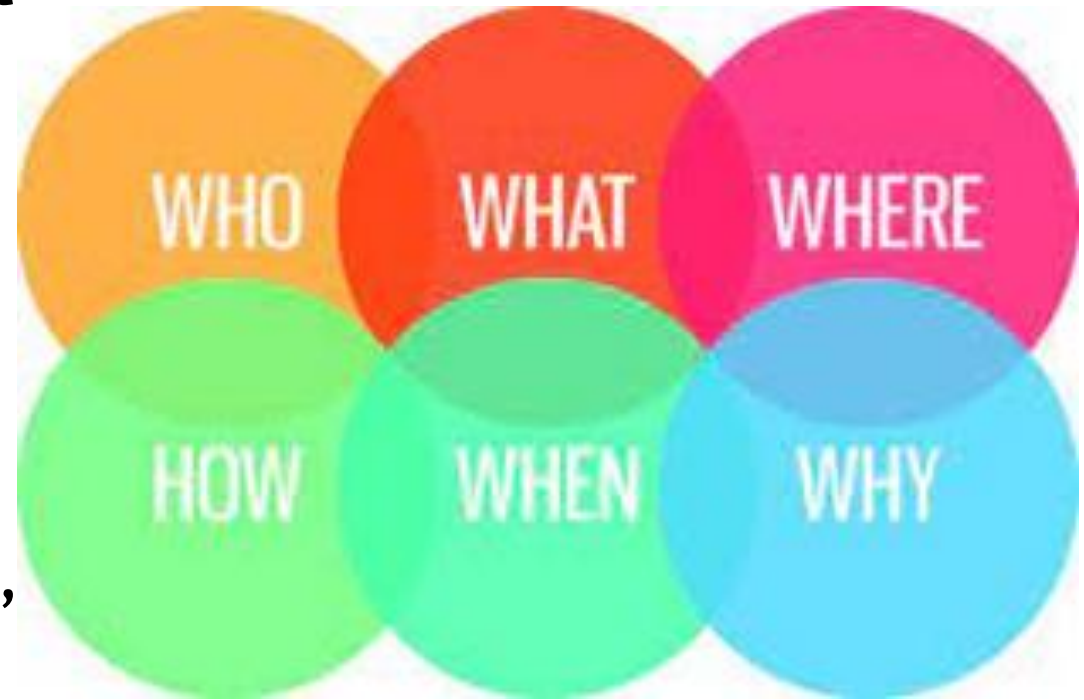


# What is Environmental Information?

- Direct measurements of environmental parameters or processes;
- Analytical testing results of environmental conditions (e.g., geophysical or hydrological conditions);
- Data/information on physical parameters or processes collected using environmental technologies;
- Calculations or analyses of environmental data/information;
- Data/information provided by models;
- Data/information compiled or obtained from databases, software applications, decision support tools, websites, existing literature, and other sources;
- Development of environmental software, tools, models, methods and applications; and
- Design, construction, and operation or application of environmental technology.

# Quality Assurance Project Plans

- A QAPP (kwapp, kwopp, q-a project plan, q-a-p-p) provides guidance defining:
  - WHAT do researchers want to know (what question is being asked)
  - HOW data will be collected
  - HOW data will be analyzed
  - HOW data will be determined “of sufficient quality” (i.e. “good enough” to answer the original question)
  - WHO is responsible for each task.



# Quality Assurance Project Plans - Systematic Planning

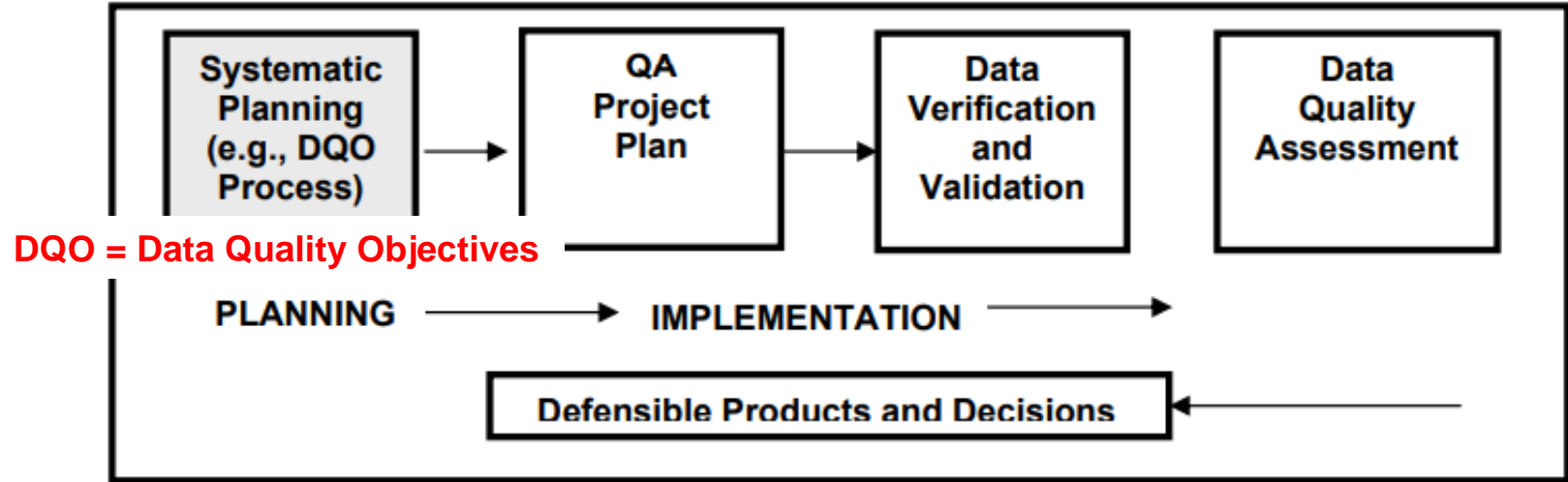


Figure 1. Project Life Cycle Components

- Systematic planning is a process based on the widely-accepted “scientific method” and includes concepts such as objectivity of approach and acceptability of results.



# Quality Assurance Project Plans are the Result of Discussions about Information/Data Quality Objectives (DQOs)

## The DQO Process:

1. State the Problem
2. Identify the Goal of the Study
3. Identify Information Inputs
4. Define the Boundaries of the Study
5. Develop the Analytic Approach
6. Specify Performance or Acceptance Criteria
7. Develop the Plan for Obtaining Data



# Quality Assurance Project Plans

The QAPP can be divided into four basic element groups covering:

- Group A - Project Management & Information/Data Quality Objectives
- Group B - Implementing Environmental Information Operations
- Group C - Assessment and Oversight
- Group D - Environmental Information Review and Usability Determination



# The QAPP is the recipe for your project.

Sampling plan  
Collection methods  
Analytes  
Analytical methods  
Laboratory  
Accreditation  
Assessment and Oversight  
Verification and Validation



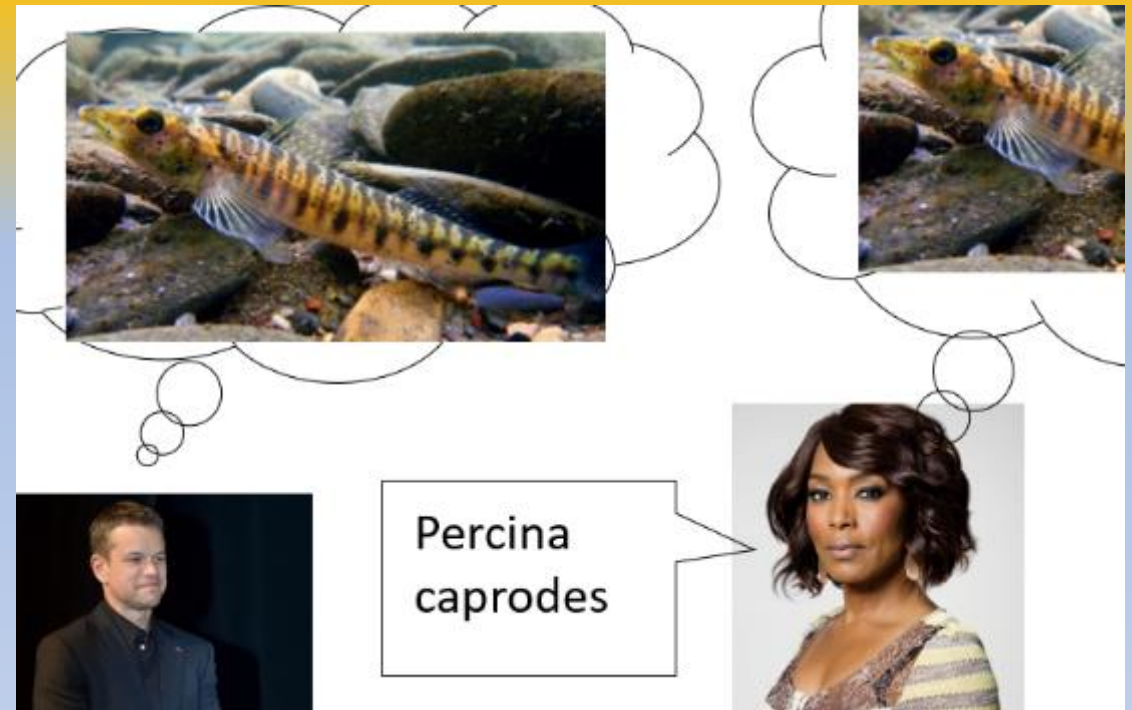
“Environmental data...  
of the type and quality  
needed and expected  
for the particular  
decision or use  
specified.”






# Benefits of the USEPA Quality System

- **Scientific Data Integrity** - EPA will produce data of known and documented quality and non-EPA organizations will submit data of known and documented quality to EPA.
- **Reliable and Defensible Decisions** - When the quality of data is known, it is possible to determine if the data can be used for a specific decision. This reduces the likelihood of losing challenges to regulations, enforcement actions, permit appeals, etc., resulting from the use of data of uncertain quality.





# Quality System/Quality Assurance Resources

## EPA QA Resources

- [EPA Quality Systems](#)
- [FAQ's about EPA's Quality Program](#)
- [EPA Agency-Wide Quality Assurance documents](#)



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# Thank You!

Questions? Ideas? Want to  
discuss quality assurance?  
Please reach out!

