

# **U.S. NATIONAL WATER QUALITY MONITORING COUNCIL:**

## **MONITORING COLLABORATION FOR BETTER INFORMATION**

**Monitoring Tailor Made III – An International Workshop  
on information for sustainable water management**

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# Objectives of Presentation

- Describe efforts in the US to promote collaboration and data comparability in water quality monitoring in the context of the Clean Water Action Plan
- Describe the National Water Quality Monitoring Council in promoting integrated and comparable water quality monitoring programs
- Report on certain projects conducted by the Methods and Data Comparability Board -- a component of the National Council

# Clean Water Action Plan Restoring and Protecting America's Waters

**"Every child deserves to grow up with water that is pure to drink, lakes that are safe for swimming, and rivers that are teeming with fish. We have to act now to combat these pollution challenges with new protections to give all our children the gift of clean, safe water in the 21st century."**

**- President Clinton**



# Clean Water Action Plan (CWAP)

- Released by Vice President Gore in February 1998
- A Commitment to Further Progress in Watershed Restoration and Pollution Control
  - enhanced protection from public health threats posed by water pollution
  - more effective control of pollution runoff
  - promotion of water quality protection on a watershed basis
- As many as 20 CWAP Key Actions Relate to Monitoring Water Pollution and Water Quality

## CWAP Charge to Federal Agencies:

**Establish compatible data standards, resource classifications, inventory methods & protocols to allow the sharing of ecological, resource condition, land use & monitoring information among federal and other stakeholder groups.**

# Clean Water Action Plan

## Four tools for clean water

- a watershed approach
- strong federal and state standards
- natural resource stewardship
- informed citizens and officials

# Clean Water Action Plan

<http://www.epa.gov/cleanwater/>



# National Water Quality Monitoring Council

- Chartered under the Federal Advisory Committee Act
- Co-chaired by the US Environmental Protection Agency and the US Geological Survey
- Comprised of 35 representatives from the following sectors -- federal, interstate, state, tribal, local and municipal governments, watershed groups, universities, and the private sector
- International participation welcome



# The National Water Quality Monitoring Council's CWAP Major Key Actions

- 87:** Consistent Indicators/Sampling/Lab Protocols
- 88:** Report on Polluted Runoff Monitoring and Assessment
- 91:** Point Source Monitoring/Reporting

# National Water Quality Monitoring Council

## *Mission*

Provide a national forum to coordinate consistent and scientifically defensible federal and state water quality monitoring methods and strategies.



# Why focus on collaboration and comparability?

Each year, government agencies, industry, academic researchers, and private organizations devote enormous amounts of time and money to monitor, protect, manage, and restore water resource and watersheds.



# Why focus on collaboration and comparability?

Critical differences in project design, methods, data analysis, and data management have often made it difficult for monitoring information to be shared by more potential data users.



# Collaboration & Comparability

Create a framework for *collaboration and comparability*, among programs, as a goal necessary to the development of a national monitoring strategy



# Much of this work includes:

- monitoring the status and trends in water quality
- identifying and ranking existing and emerging problems
- designing and implementing resource management programs
- determining compliance with regulatory problems



# THE WATER INFORMATION CYCLE

MONITORING GOALS & INFORMATION GOALS

WATER QUALITY IN THE ENVIRONMENT

NATURAL FACTORS AND VARIABILITY

CULTURAL (HUMAN-CONTROLLED) FACTORS

DATA MANAGEMENT

INSTITUTIONAL COLLABORATION

METHODS AND DATA COMPARABILITY

MONITORING INTERACTIONS AMONG WATERSHED COMPONENTS

WATER INFORMATION STRATEGIES

**WATER INFORMATION STRATEGIES**

ACCURATE UNDERSTANDING OF WATER QUALITY CONDITIONS

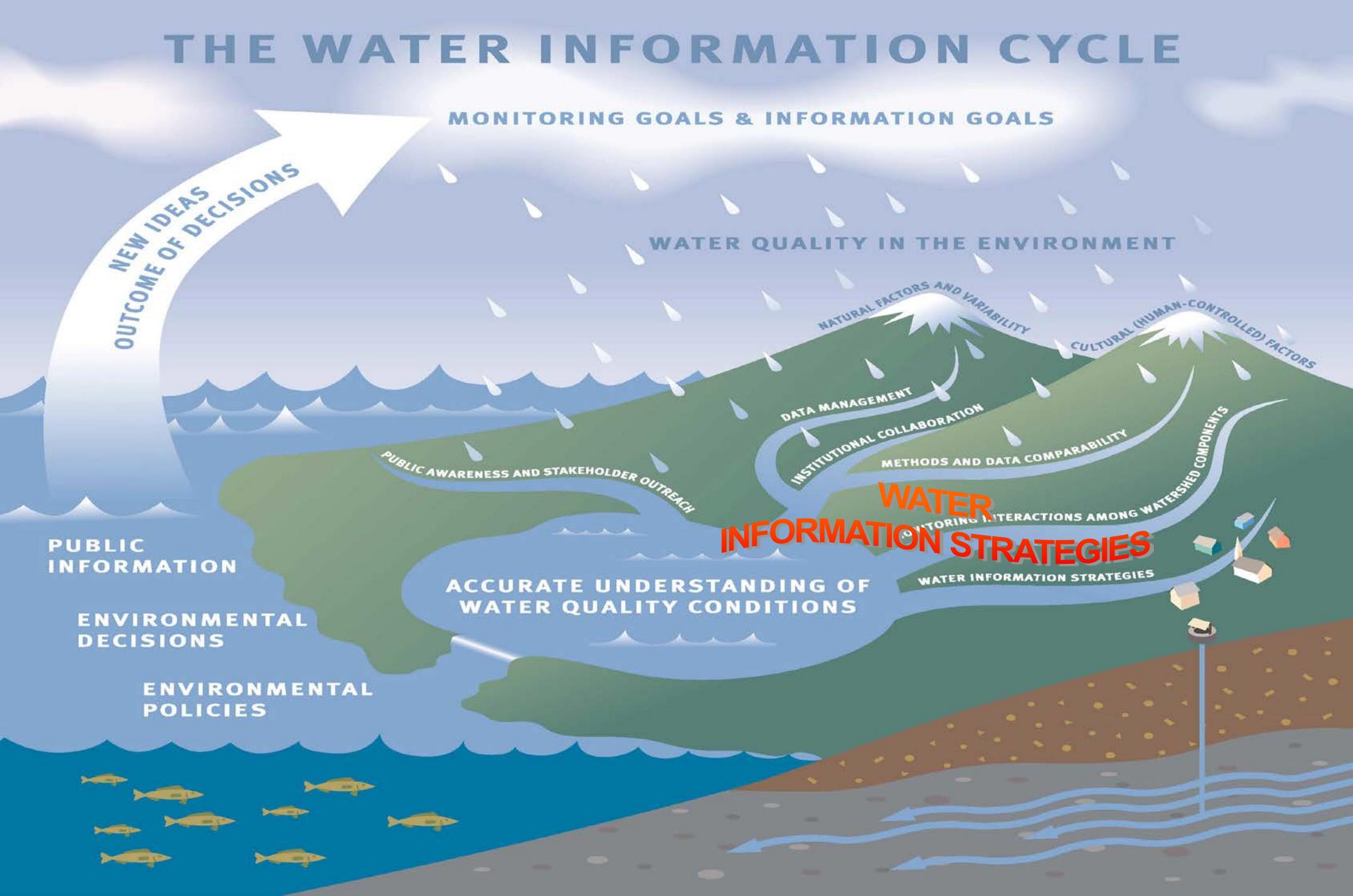
PUBLIC AWARENESS AND STAKEHOLDER OUTREACH

NEW IDEAS  
OUTCOME OF DECISIONS

PUBLIC INFORMATION

ENVIRONMENTAL DECISIONS

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# Water Information Strategies

## GOAL STATEMENT:

Examine how the Council can enhance the accountability of water quality management needs:

# Water Information Strategies

- **Monitoring programs are evolving toward a stronger information focus**
  - Internet sharing of data
  - Data warehousing
  - Documented data analysis protocols
  - Web based reporting

# Water Information Strategies

- **The Council endorses the formation of state/watershed/local councils to provide forums to discuss:**
  - **Pooling of Resources**
  - **Dealing with scalar differences**
  - **Share in the development and implementation of monitoring strategies**
  - **Selecting data analysis methods**

# Water Information Strategies

- Organize a forum to produce more consistent guidance
  - 👉 Preparing data for analysis
  - 👉 Selecting methods for data analysis
  - 👉 Interpreting results of data analysis
  - 👉 Communicating results to various audiences
- Incorporate the internet into management data analysis and reporting

# Water Information Strategies

- Enhance collaboration in development of monitoring strategies
- Clarify connections between management information needs and monitoring results
- Monitoring professionals should inform community leaders about
  - Intricacies of tasks involved in monitoring
  - Costs
  - Time

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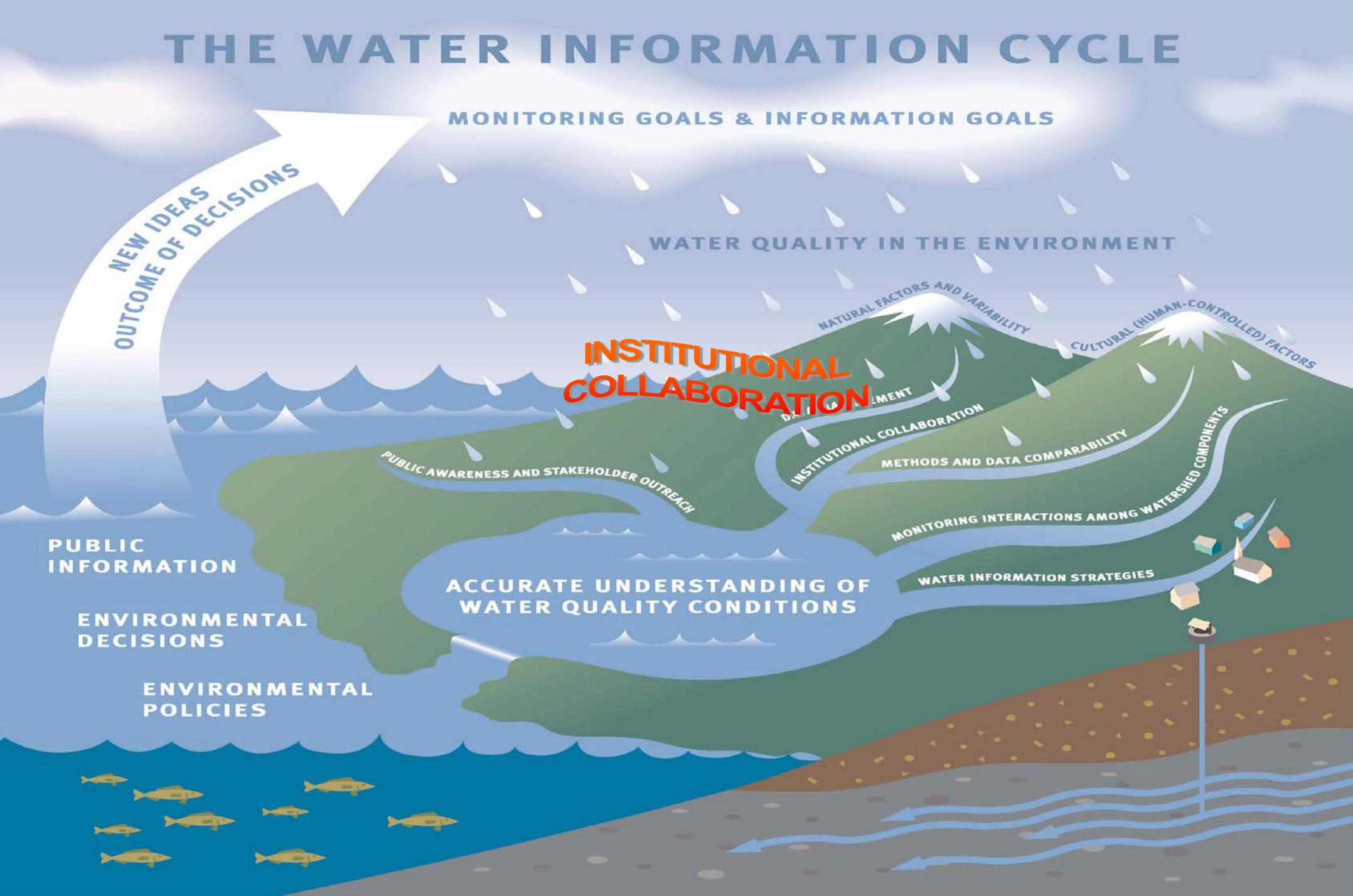
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# Institutional Collaboration

Institutional collaboration is a process, that occurs within, throughout, and during all of the council's activities.

# Institutional Collaboration

- The **PROCESS** promotes partnerships that foster collaboration among the water monitoring community.
- A lack of collaboration has led to inadequate monitoring design and a waste of valuable resources.

# Institutional Collaboration

- Collaboration is alive and occurring in many parts of the world (This conference is an excellent example)
- There are many ways to collaborate and many groups that want to be engaged.
- For example in the United States:
  - State and local governments
  - Universities
  - Tribes
  - Volunteer groups
  - Property owners
  - Private sector

# Institutional Collaboration

- **Scale**
  - Local, state, regional, national, global issues
- **Encouraging folks to work outside their bubble**
  - Biologists collaborating with hydrologist
  - Professionals collaborating with volunteers
  - Agencies with regulated community
  - Researchers working with regulators

# Institutional Collaboration

As part of the global monitoring community, how do we move this goal forward?

- Meetings like this
- Be Proactive/seek out new partners
- Develop effective methods for communicating complex data to non-technical partners

For example, in the United States the council is an example of a collaborative partnership between EPA, a regulator, and the USGS, a science agency.



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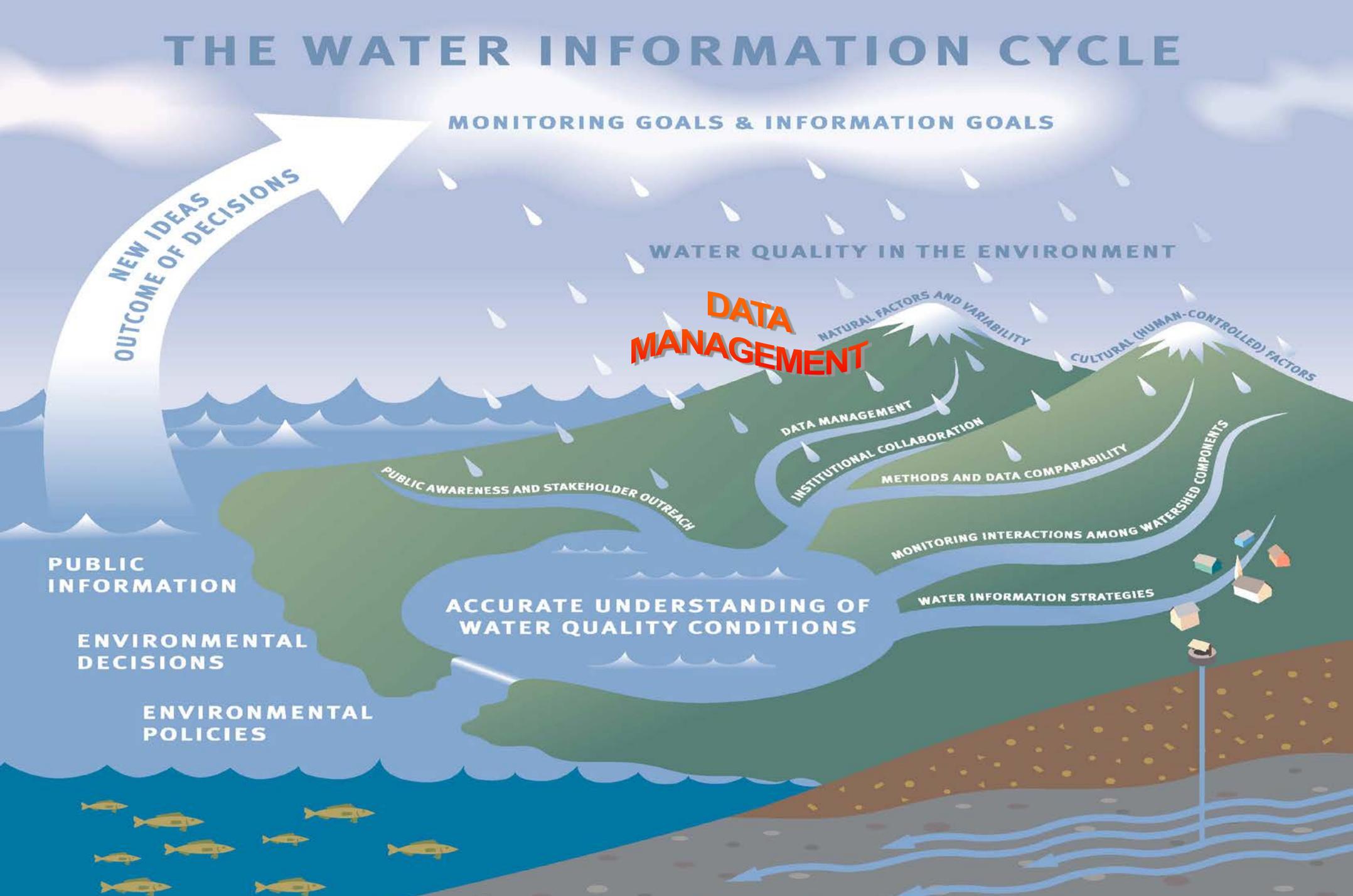
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# Data Management

To improve the management and accessibility of water resources monitoring data through state of the art technologies and efforts to increase data sharing, public access and utility.

# Data Management

How is this goal connected to the other Council goals?

**“An integrated data management plan, incorporating QA/QC methods and supplemented by a core set of data elements (meta data) provides a sound foundation on which to build successful monitoring programs.”**

# Data Management

## Goals within the following goal groups (building bridges among our goals)

- Promote the identification and inclusion of common meta data and data elements to allow for *Data Comparability*
- Identify database elements to support *water information strategies*
- Include geographical references to facilitate the *monitoring of interactions among watershed components*
- Encourage *institutional collaboration* to create management partners
- Promote development of web-based tools to increase “*Public Awareness*” of monitoring results

# Data Management

As a monitoring community, how do we move this goal forward?

- Assume a leadership role in establishing data comparability standards.
- Assemble and interact with other major players to develop standards.
- Support the identification of a set of core data elements

# Data Management

- Promote standardized use of software to facilitate data sharing
- Foster institutional collaboration to allow for sharing of costs for database development
- Promote distribution of both raw and interpreted data to monitoring community and public

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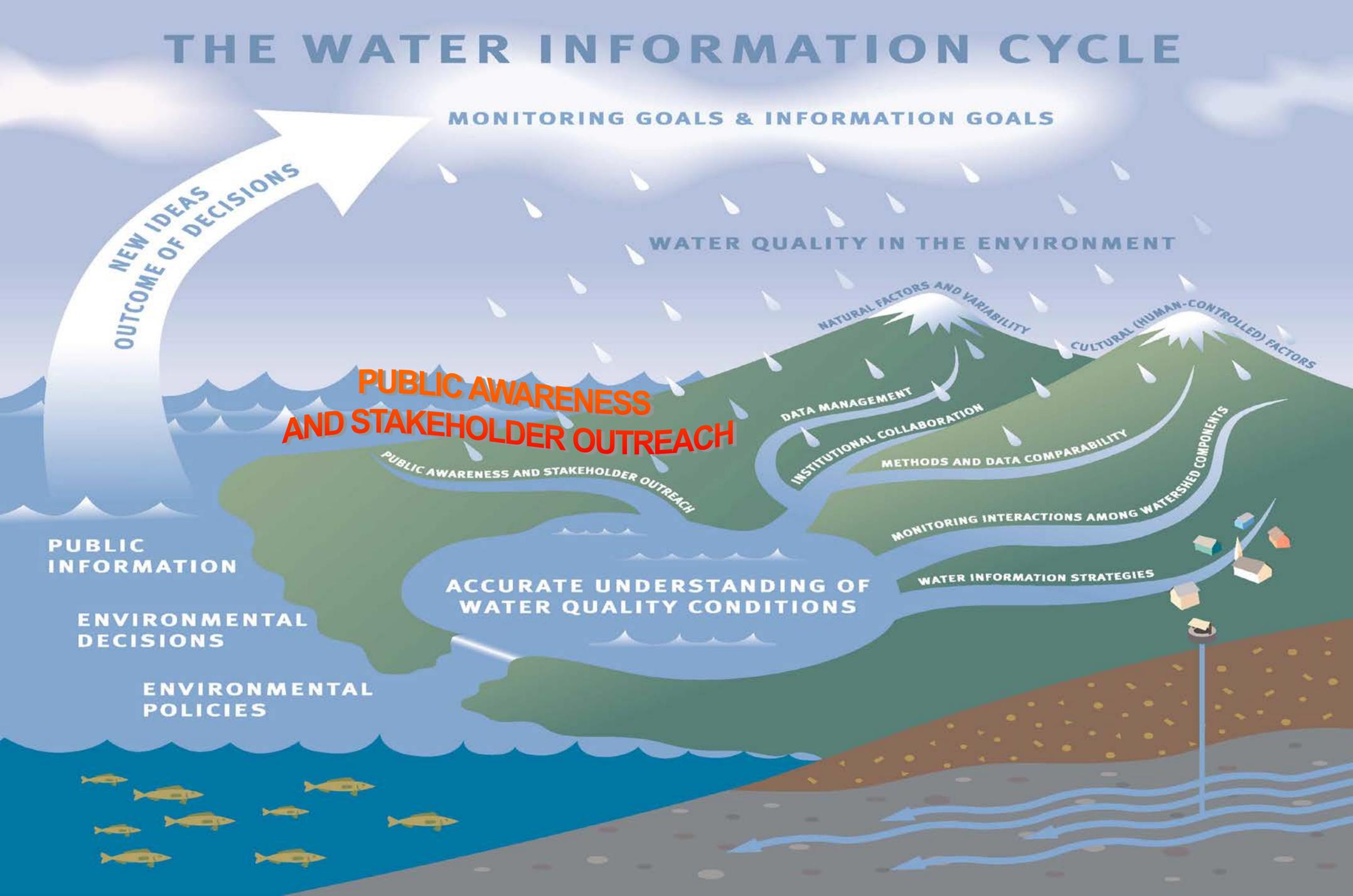
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# Public Awareness and Stakeholder Outreach

To explore efforts throughout the country to heighten public awareness of, and to increase involvement in, water resources monitoring

# Public Awareness and Stakeholder Outreach

In the United States there has been an explosion of the number of volunteer monitoring organizations, up from 50 in 1988 to almost 1000 in 2000.

There is a need to communicate results beyond the scientific community.

There is also a need to overcome the myths regarding volunteer credibility.

# Public Awareness and Stakeholder Outreach

## Challenges:

Disseminating understood information to the general public

Dealing with the misinterpretation of data

Recognition that volunteer monitoring is vital to any sampling plan.



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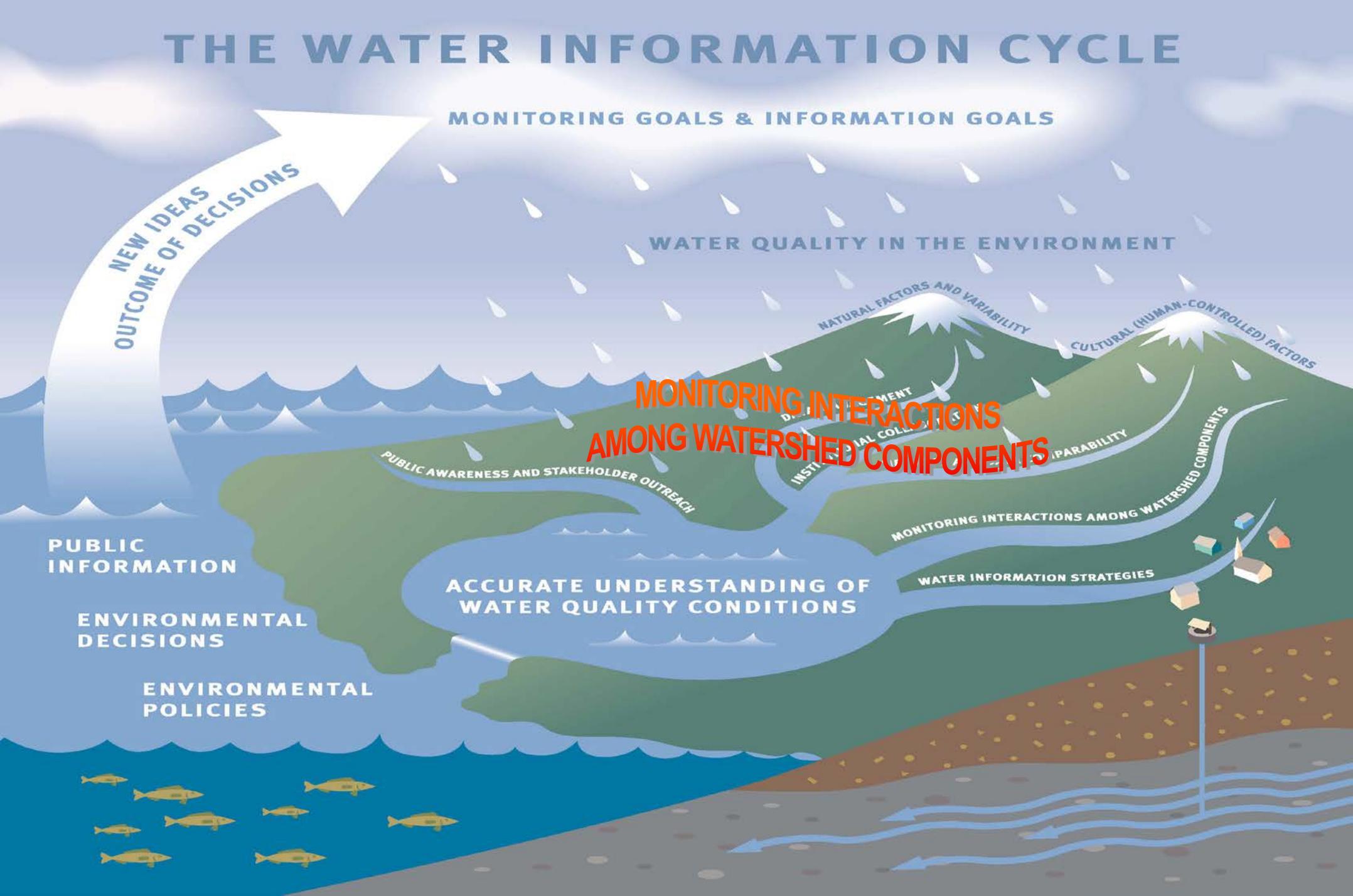
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# Monitoring Interactions Among Watershed Components

- To promote consistent and scientifically defensible basis and criteria for monitoring the interaction of watershed components and determining impacts on the ecological integrity of an entire system

# Monitoring Interactions Among Watershed Components

- At present, there is still a poor understanding of the relationship between watershed variables. Therefore it is difficult to impact major management decisions.
- Models and methodologies for predicting and quantifying the interaction between watershed components are not well developed.
- Water quantity and quality are linked.
- Three dimensional definition often complex.

# Monitoring Interactions Among Watershed Components

## Challenges:

- Identify areas of needed research
- Continue to promote public outreach to foster understanding
- Identify political hurdles
- Fund new models/predictive tools
- Maintain geologic perspective
- Surface water quantity
- Volunteer efforts