



Indiana Department of Environmental Management  
*Protecting Hoosiers and Our Environment Since 1986*

*Office of Water Quality*



# IDEM's External Data Framework

Creating New Opportunities for  
Collaboration

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# Outline

- The External Data Framework (EDF) defined
- Mutual benefits of participation
- IDEM's Office of Water Quality (OWQ) policies regarding external data
- The kinds of data we can accept through the EDF
- EDF structure and key concepts upon which it is built
- OWQ's external data review and data quality assessment processes
- Next steps

# What is the EDF?

- The EDF is a process built to facilitate collaboration with IDEM's OWQ
- Establishes criteria for accepting data from sources outside the agency for potential use by OWQ and others



# Why the EDF?

- IDEM is required by Clean Water Act (CWA) Section 303(d) to actively solicit existing and readily available water quality data and information for potential use in developing its *List of Impaired Waters*

# Other Reasons

- Indiana, like many states, is facing increasingly limited monitoring resources coupled with ever increasing need for monitoring data
- Effective water resource management across the board requires data of known quality, and LOTS of it



# So Much Data, So Little Time...

- There's a lot of monitoring going on in Indiana
  - Colleges & universities
  - Municipalities
  - Permitted entities
  - Watershed groups
  - Environmental advocacy groups
  - Volunteer monitors & citizen scientists
- The challenge lies in working with different types of data from multiple sources



Indiana  
Clean Lakes Program





# Problem Solved

- The EDF provides a *systematic, transparent,* and *voluntary* process for external parties to send their water quality data to OWQ

# Participation Is Voluntary

- Does not impose additional requirements on permitted facilities or entities
  - The EDF provides acceptance criteria specifically for ambient water quality data and biological monitoring data
  - Does not include criteria for compliance data



# Benefits of Participation

- Recognition of your data by IDEM may help increase support for your monitoring efforts
- Your data will be available to anyone with an Internet connection
- External data coordinator to help you navigate the process
- Access to technical assistance online and through our Quality Assurance officers



# Benefits of Participation

- The EDF provides tiers of use and their associated data quality characteristics, which can:
  - Help you design a better monitoring project or program from the start
  - Identify changes in your current monitoring that might improve the quality of your data
  - Help you determine if data collected by others are reliable for your needs

# OWQ's EDF Policies

- External data will not be used to initiate or support enforcement actions against permitted facilities
- OWQ's decisions regarding the usability of a given data set are final where OWQ uses are concerned
- OWQ's decisions about how to use conflicting data are final where OWQ programs are concerned



# Types of Waters for Which Data May Be Submitted

- Streams and rivers
- Lakes and reservoirs
- Not set up to accept wetlands or ground water quality data, but the basic structure exists to develop this ability down the road



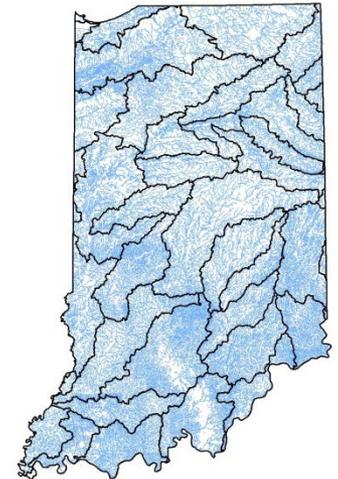
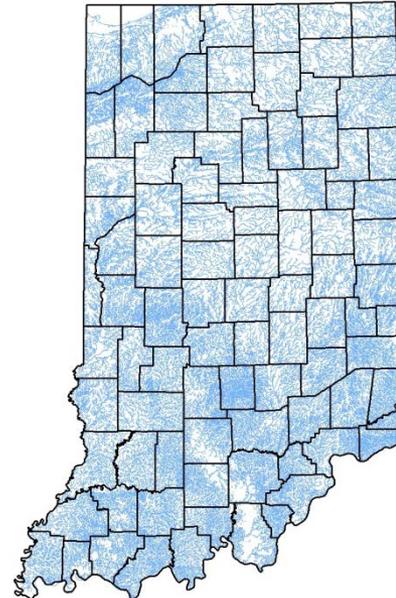
# Types of Data We Can Accept

- Field measurements and flow data
- Chemistry and bacteria results from ambient water samples
- Fish tissue contaminants data
- Biological community data +/- habitat evaluations
- Algal biomass data



# How Might Your Data Fit Into the EDF?

- Can accept data collected at any geographic scale
- Inclusive by design
  - Based on the premise that all data have value
- The original purpose for which the data were collected doesn't matter





# EDF Structure – A Tiered System

- Data sets are placed into one of three tiers based on their data quality characteristics
- The EDF also describes a number of potential uses for each tier for which data in that tier may be reliable
  - Some are OWQ uses, others are not
- OWQ's review and data quality assessment process are also built around these three tiers



# Key Concepts

- The tiered structure of the EDF allows for varying levels of data quality
  - Creates greater opportunities for collaboration
- The more scientifically rigorous the data set, the more reliable it is for decision-making

# Key Concepts

- In the EDF context, scientific rigor means that
  - Data collection follows documented field, laboratory and data handling procedures
  - Data collection activities include sufficient controls to ensure the quality of the resulting data set is commensurate with its intended use



## EDF Tier 1

- Data quality is unknown or characterized by a low level of scientific rigor
- Not reliable for decision-making but may be useful as anecdotal and/or supplementary information

## EDF Tier 2

- Data possess at least a moderate level of scientific rigor
- Reliable for non-regulatory decision-making by OWQ and a number of other local-level uses

## EDF Tier 3

- Data possess a high level of scientific rigor
- Reliable for OWQ regulatory decision-making processes

**Increasing Level of Scientific Rigor**



## Tier 1 Uses

- Education and building awareness of water resources and the issues affecting them
- Supplementary information for total maximum daily load (TMDL) development
- Supplementary information of OWQ's Integrated Report

## Tier 2 Uses

- Supplementary information for use in planning or prioritizing OWQ's monitoring and TMDL development
- Demonstrating success of water quality restoration or protection measures
- Watershed management planning
- Determining water quality trends
- Screening data

## Tier 3 Uses

- CWA 305(b) water quality assessment and 303(d) listing decisions
- Total maximum daily load modeling
- Determining representative background conditions for National Pollutant Discharge Elimination System permits
- Determining/changing the antidegradation classification of a waterbody

# Data Quality Objectives (DQOs)

- DQOs are quantitative and qualitative statements about how “good” your data needs to be to support your intended use
- Commonly measured with key data quality indicators such as precision, accuracy, etc.
  - Requires additional samples to quantify and/or other activities that illustrate data quality characteristics of the data set



# Data Quality Objectives (DQOs)

- The DQOs for OWQ uses represent the requirements an external data set must meet in order for OWQ to use the data
- The DQOs for other uses are provided as recommendations that organizations can use to determine if the data they collect or obtain from others are reliable for their needs

# Data Quality Review

- OWQ will first review your data set to see if it contains all the information needed to conduct a data quality assessment
  - Data sets are assigned a data quality assessment (DQA) level based on their *data quality documentation*, not the results
  - Data quality documentation can be a limiting factor for an otherwise high quality data set





## DQA Level 1

- No data quality documentation provided with data set
- Documentation provided does not include sufficient information to conduct a data quality assessment

## DQA Level 2

- Data quality documentation provides sufficient information to conduct a data quality assessment some key data quality indicators
- Includes all metadata needed for OWQ's Assessment Information Management System (AIMS) database

## DQA Level 3

- Data quality documentation provides sufficient information to conduct a data quality assessment for all key data quality indicators
- Includes all metadata needed for entry into OWQ's AIMS database

**Increasing reliability for one or more uses**

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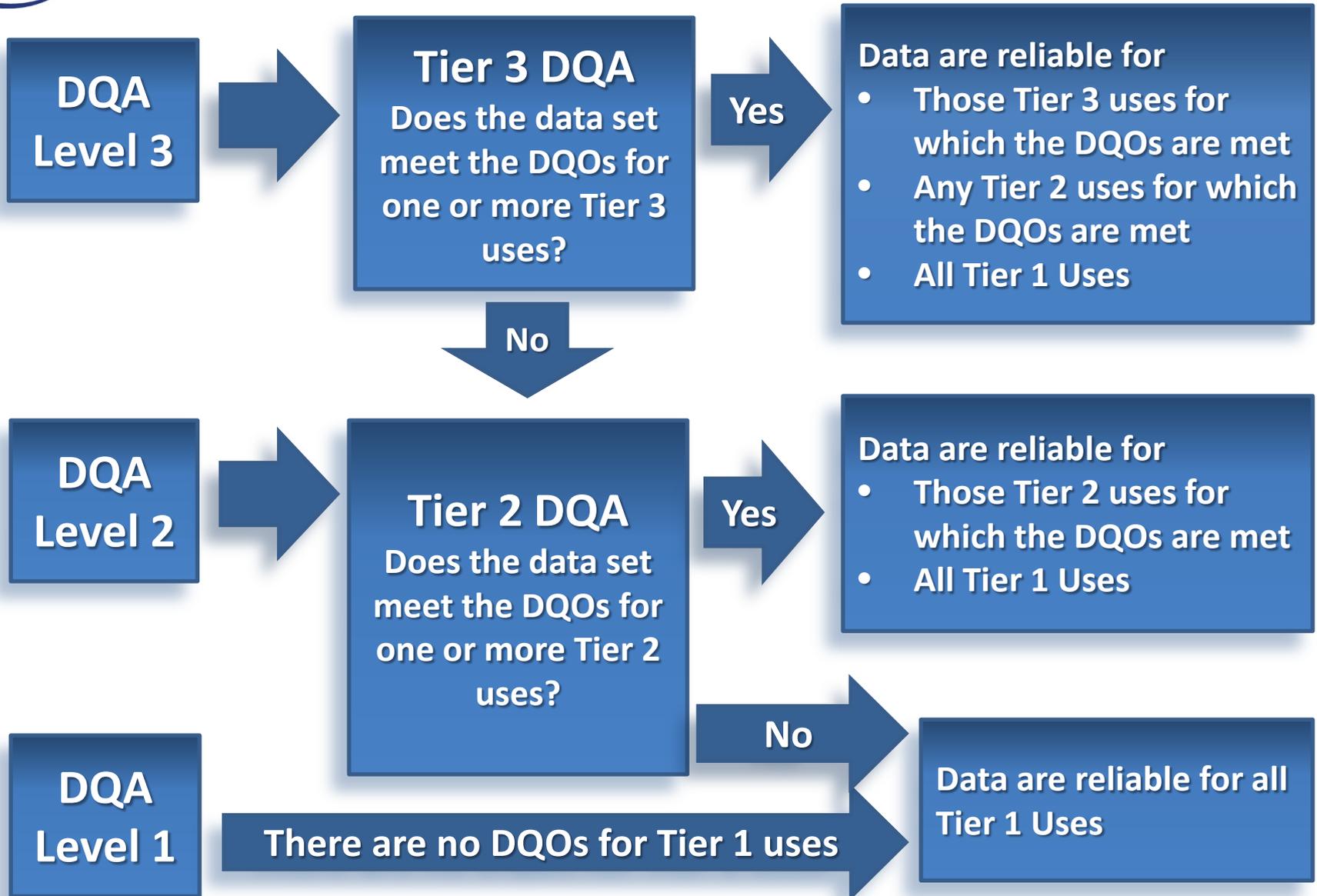


# Data Quality Assessment

- Depending on the DQA Level assigned, OWQ will then compare your results for key data quality indicators against the DQOs for one or more use(s) within the corresponding tier in the EDF
- OWQ will do this step only for its own uses
- For non-OWQ uses, you can use the same process to evaluate the quality of the data you collect or obtain from others



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# Next Steps

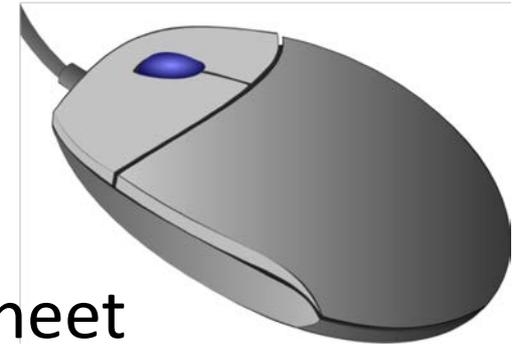
- Still working on some of the infrastructure needed to fully implement the EDF
  - Guidance is almost ready
  - Technical assistance content is developed – Now need to figure out how to deliver it online
  - EDF website and outreach materials to support data solicitations are currently under development





# Next Steps

- We can begin accepting external data through the EDF in January 2015
  - Our AIMS database is now configured to accept your data
  - We have Microsoft Excel spreadsheet templates for data submittals and can provide assistance if needed
  - Now developing a means to facilitate data entry via the Internet (more user friendly)





# Where to Get More Information

Contact the EDF Coordinator if you have any questions about participation and/or how to submit your data:

**Carol Newhouse**

**(317) 308-3392**

**[WaterQualityEDF@idem.IN.gov](mailto:WaterQualityEDF@idem.IN.gov)**



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# Questions?