



# Introduction to Watersheds and the IDEM Watershed Planning and Restoration Section

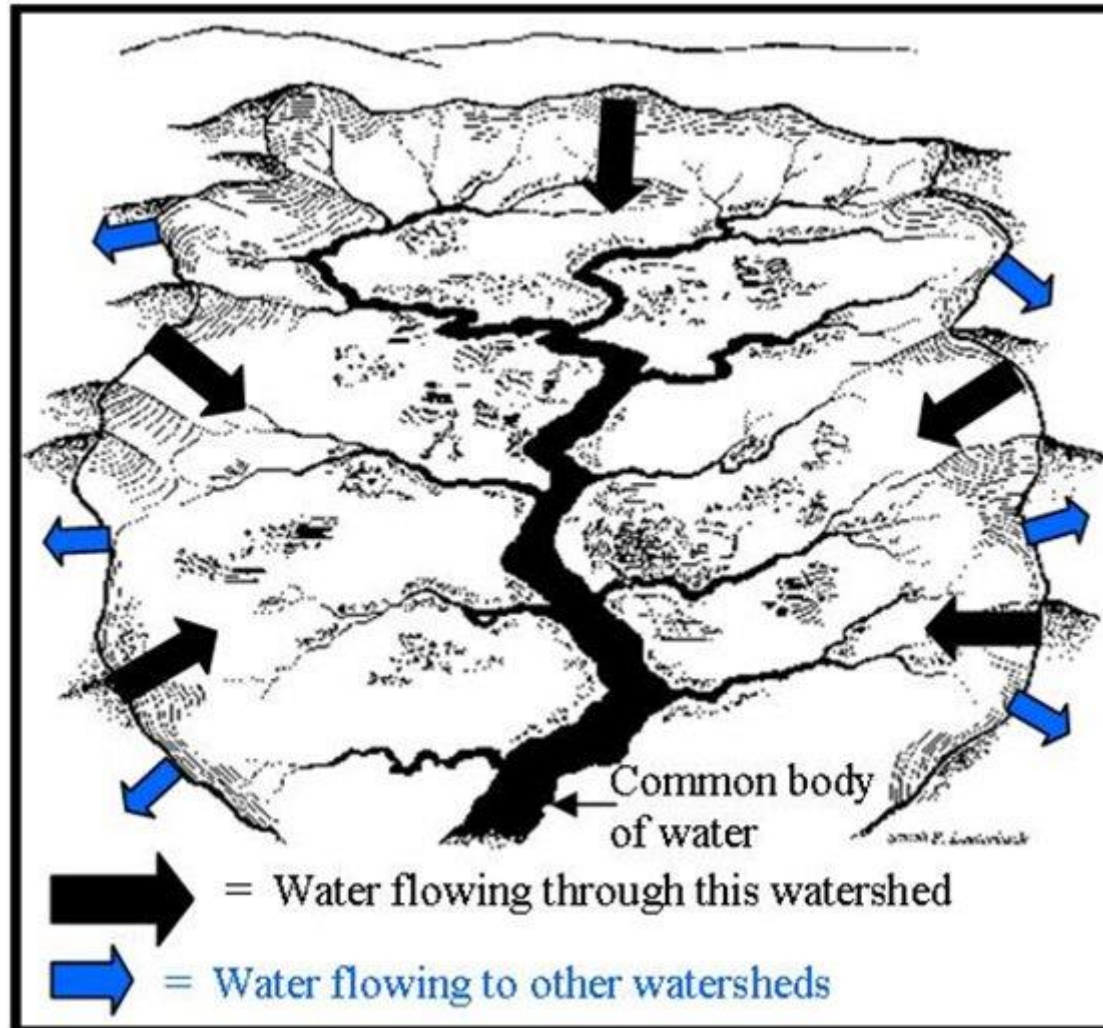
Watershed Planning and Restoration Section

Watershed Assessment and Planning Branch

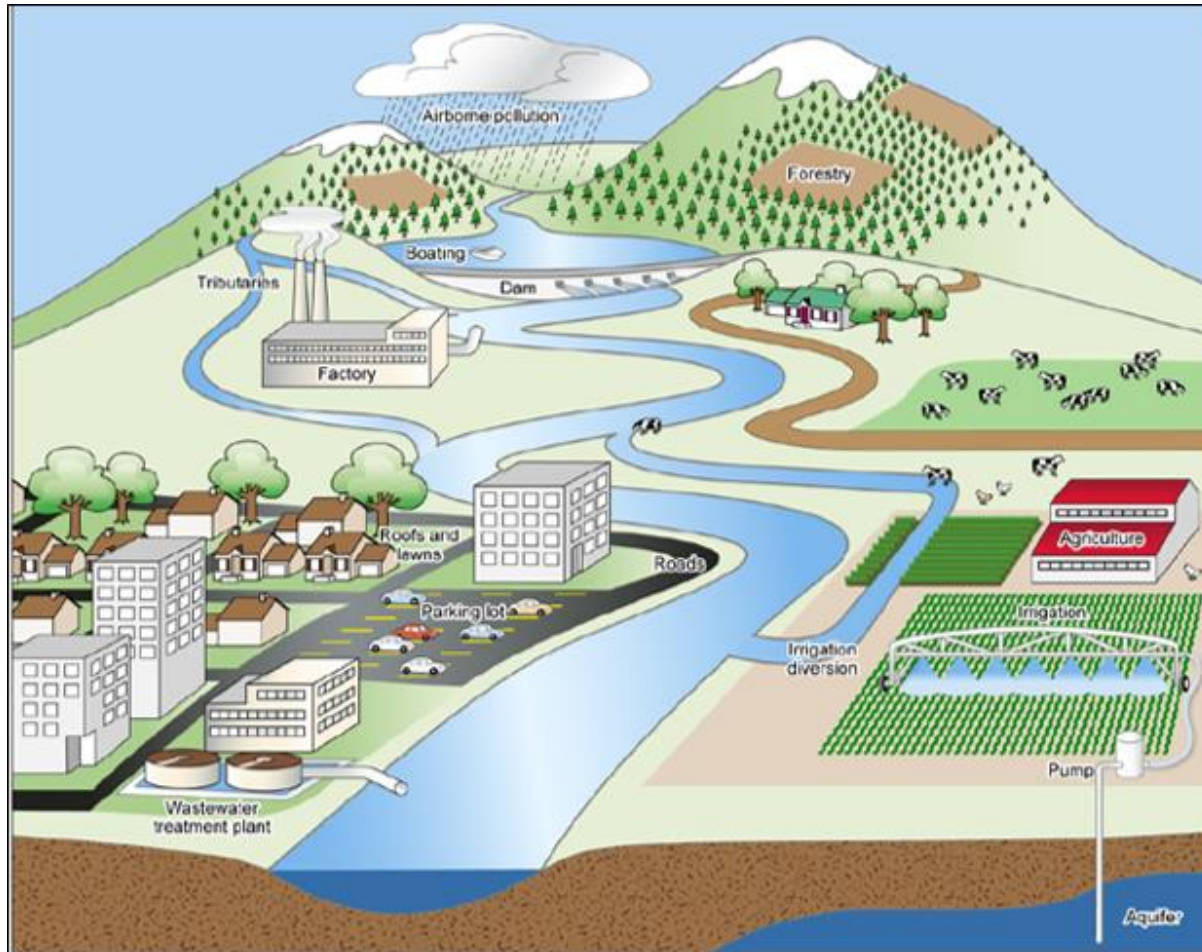
Office of Water Quality

Indiana Department of Environmental Management

# What is a Watershed?



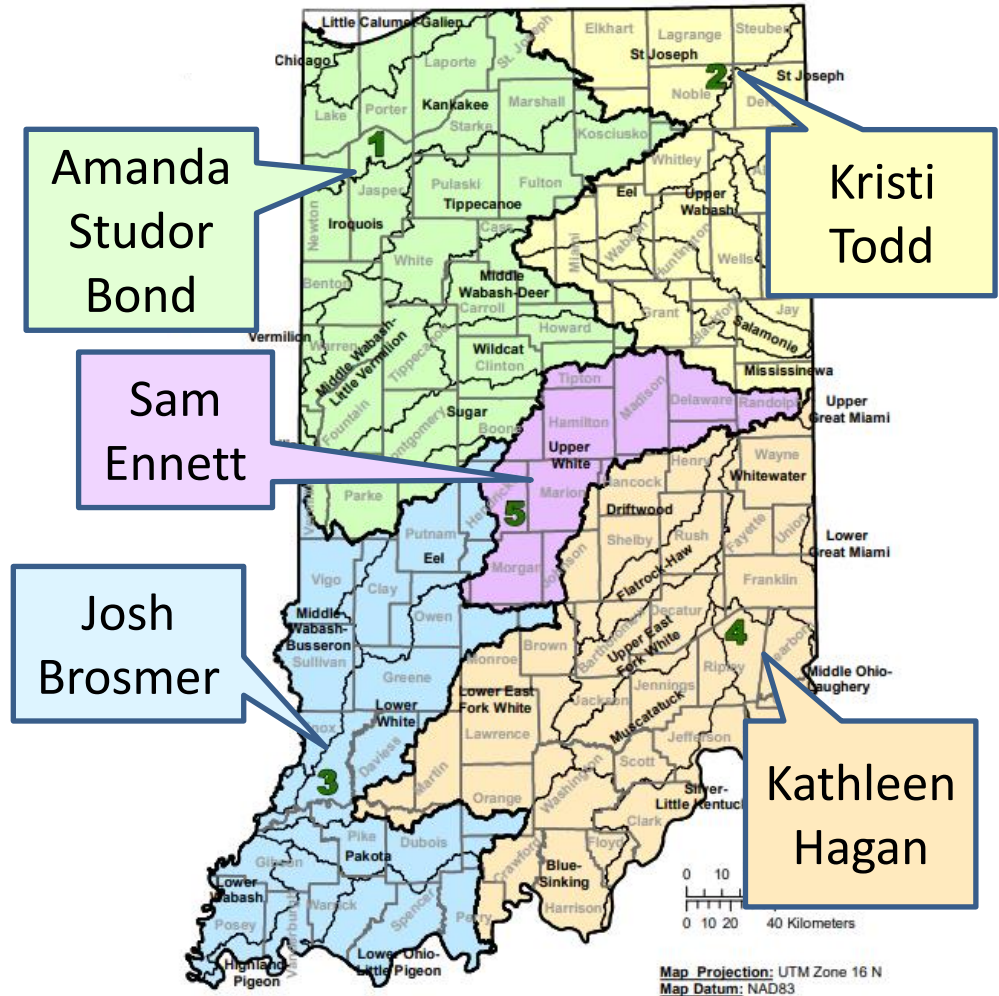
# Point vs. Nonpoint Source Pollution



From the Government Accountability Office, <https://blog.gao.gov/2015/04/22/safe-clean-water/>

# IDEM Supports Local Watershed Management

**Watershed Specialists** are one way the Nonpoint Source program supports local watersheds.





# Indiana's State Nonpoint Source (NPS) Management Plan

- Guides the NPS work of the state
- Recently revised in 2019 ([www.idem.IN.gov/nps/3036.htm](http://www.idem.IN.gov/nps/3036.htm))
- Prioritizes Section 319 funding
- Development and implementation of Watershed Management Plans (WMPs)
- Working with partners to make progress on statewide issues
  - Nutrients
  - Septic maintenance
  - Hydromodification
  - Drinking and groundwater protection

# Clean Water Act Goal: All Waters meet Water Quality Standards

Water quality standards include:

- Designated Uses (what we intend for the water to be used for)
- Criteria that determine whether uses are met

Almost all of Indiana's water is designated for:

**(1) full body contact recreation**

**(2) warm water aquatic life**





# Indiana's Water Quality Standards

Set in legislation through the Indiana Administrative Code:  
327 IAC 2-1.5 (Great Lakes) and 327 IAC 2-1 (downstate)  
([www.in.gov/legislative/iac/T03270/A00020.PDF](http://www.in.gov/legislative/iac/T03270/A00020.PDF))

## Narrative Criteria

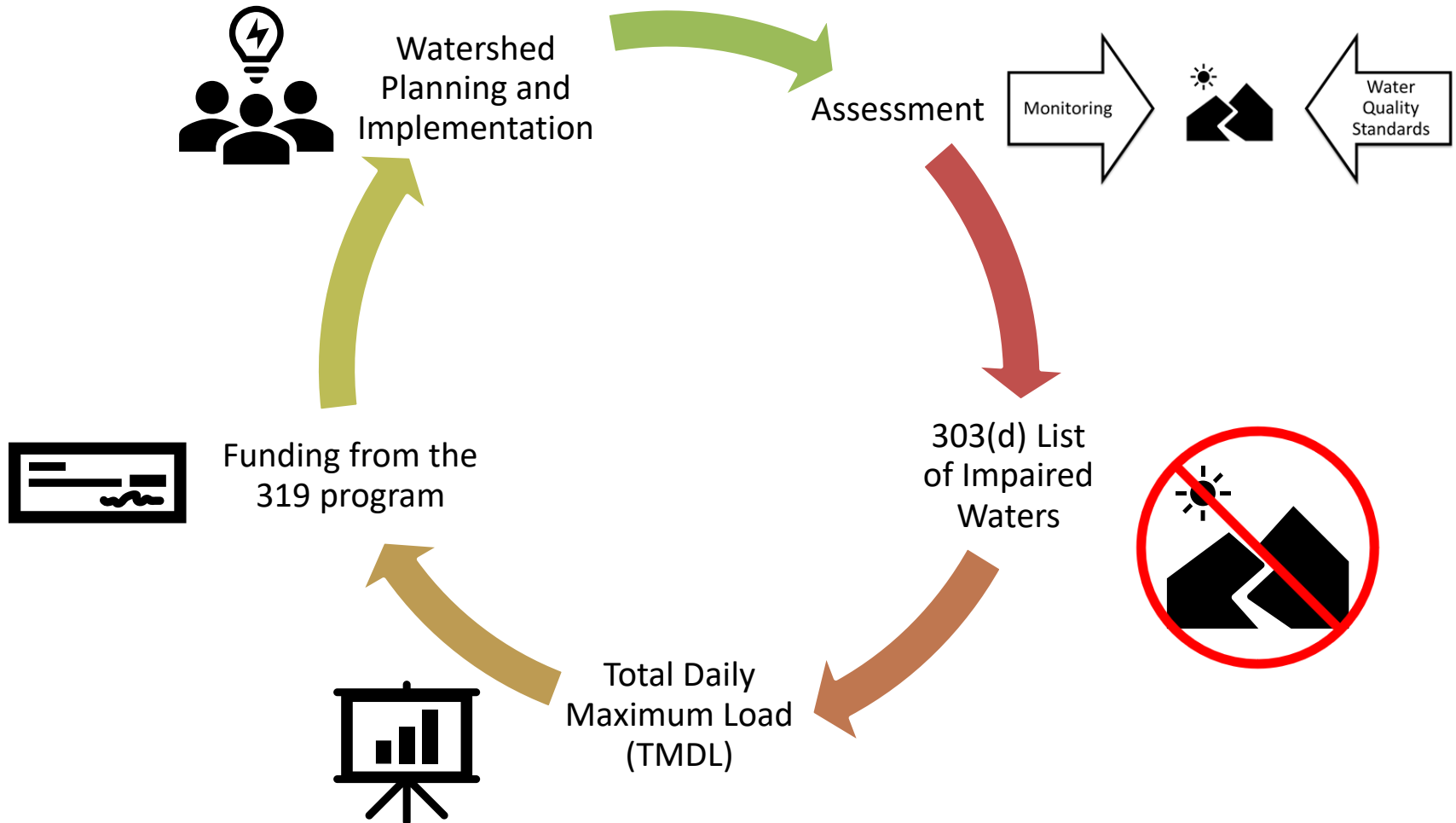
All surface waters shall meet the minimum conditions of being free from substances, materials, floating debris, oil or scum attributable to municipal, industrial, agricultural, and other land use practices ...

## Numeric Criteria

Parameters with Numeric Water Quality Criteria in Indiana	
Dissolved oxygen	Temperature
pH	Ammonia
<i>E. coli</i>	Chloride and sulfate (as a function of hardness)
Toxics and metals	

**Notice Nonpoint Source Parameters Conspicuously Missing ...**

# How Indiana Meets the Goals of the Clean Water Act





# 1. Assessment



Does the water  
meet water  
quality  
standards?



# What IDEM Monitors

- General chemistry
- Metals
- Nutrients (includes nitrogen and phosphorus)
- *E. coli*
- Ambient conditions
- Organics/pesticides
- Habitat and aquatic communities

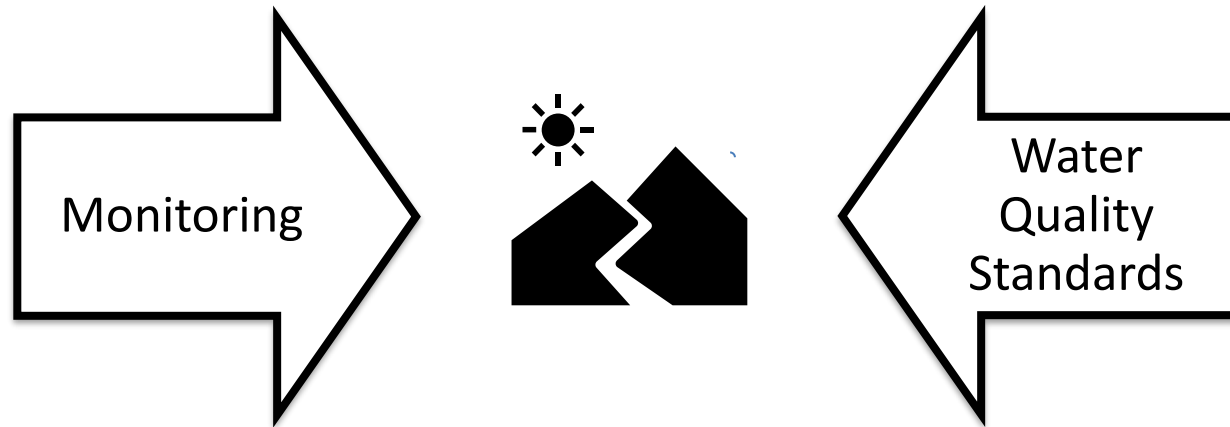




# IDEM's Monitoring Programs

- Probabilistic
  - Follows a statistical design
  - Allows IDEM to make statements such as “x percent of Indiana’s waters are meeting our aquatic life designated use.”
- Targeted
  - Follows sampling designs that vary to meet specific program objectives
  - Examples include: Fixed Station, Watershed Characterization (TMDL), Reference Sites, Contaminants (Fish Tissue), Cyanobacteria Beach Monitoring, and more
- Supports Hoosier Riverwatch, but does not officially take part in

Monitoring and the Water Quality Standards, together, allow IDEM to determine water quality outcomes.

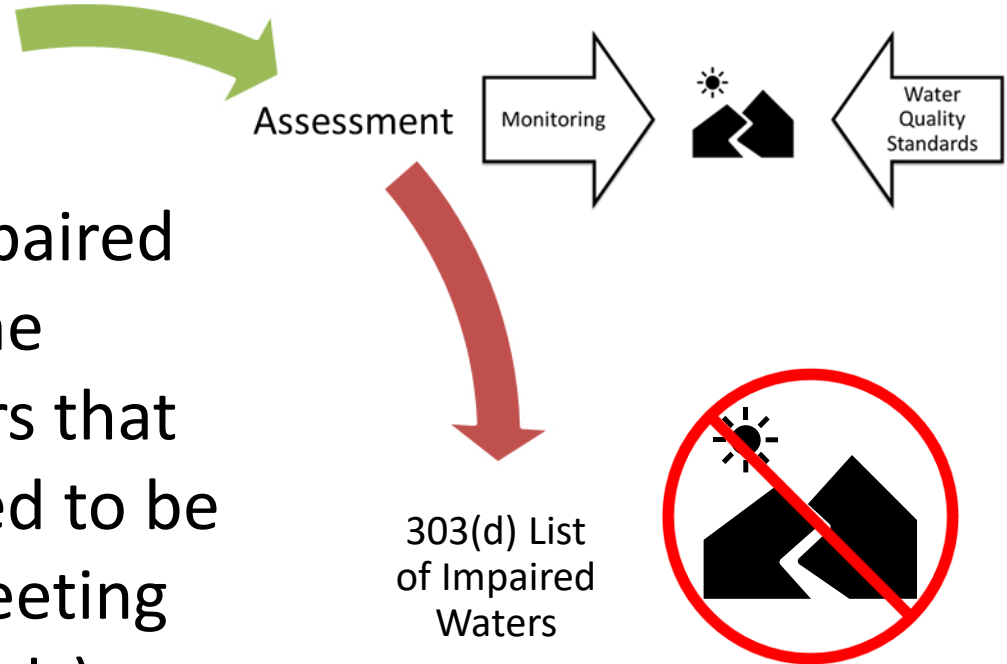


**There are two possible outcomes of assessment:**

1. Meets water quality standards, OR
2. Does not meet water quality standards

IDEM must list Indiana watersheds that do not meet water quality standards as “impaired” and include them on the 303(d) List of Impaired Waters.

## 2. 303(d) List of Impaired Waters



- The 303(d) List of Impaired Waters, also called the 303(d) list, lists waters that have been determined to be impaired (i.e., not meeting water quality standards).
- It is available online as a list or in a mapping tool.

# Online e303d Tool

Finding the status of other waters of the state: [www.idem.IN.gov/nps/online-e303d-tool](http://www.idem.IN.gov/nps/online-e303d-tool)

## Online e303d Tool

The screenshot displays the 'e303d' web application interface. On the left, a sidebar titled 'Layers' contains a list of map layers with checkboxes: Aquatic Life 2016 (checked), Recreation 2016, Fishing 2016, Fishing 2014, Recreation 2014, Aquatic Life 2014, County (checked), HUC (checked), NHD (checked), and Indiana Mask (checked). The main area features a map of Indiana with a search bar at the top containing the text 'Address, Watershed, or Wa'. The map shows several watershed boundaries in blue, including the Upper Illinois (071200), Wabash (051201), Patoka-White (051202), and Great Miami (050800). Major cities like Indianapolis, Kokomo, and Muncie are labeled. The map also shows major highways and county boundaries.

# Online e303d Tool

## Online e303d Tool

e303d

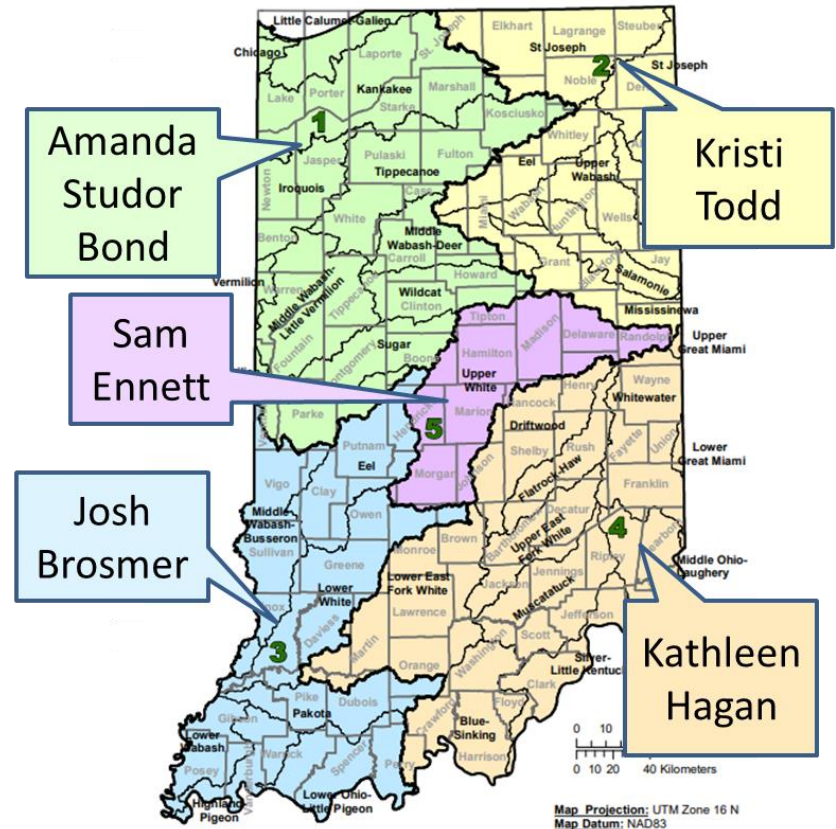
**Layers**

- Aquatic Life 2016
  - █ 1
  - █ 2
  - █ 3
  - █ 4A
  - █ 4B
  - █ 4C
  - █ 5A
- Recreation 2016
- Fishing 2016
- Fishing 2014
- Recreation 2014
- Aquatic Life 2014
- County
- HUC
- NHD

# Watershed Specialists Support Local Watershed Management

## *How Watershed Specialists Can Help Local Groups with Assessment and Understanding the Impaired Waters List:*

- Interpreting water quality standards or other targets
- Determining whether waters are impaired or have even been assessed
- Obtaining current and previous 303(d) lists
- Obtaining the reach index for Indiana streams/lakes
- Mapping





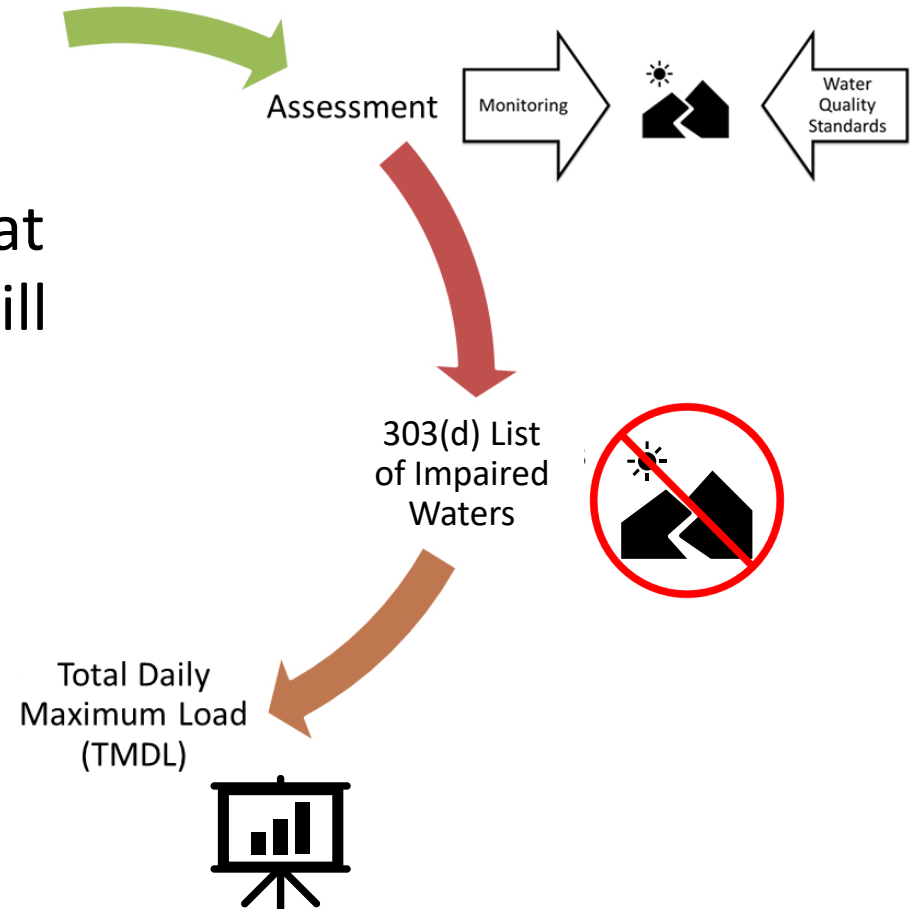
# 3. Total Maximum Daily Loads (TMDL)

## What is a TMDL?

A calculation that determines the amount of the pollutant that a waterbody can receive and still meet water quality standards.

We do this by:

- Identifying the pollutant(s)
- Determining the current level of the pollutant(s)
- Creating a report = pollutant sources, needed reductions, and actions necessary to improve water quality



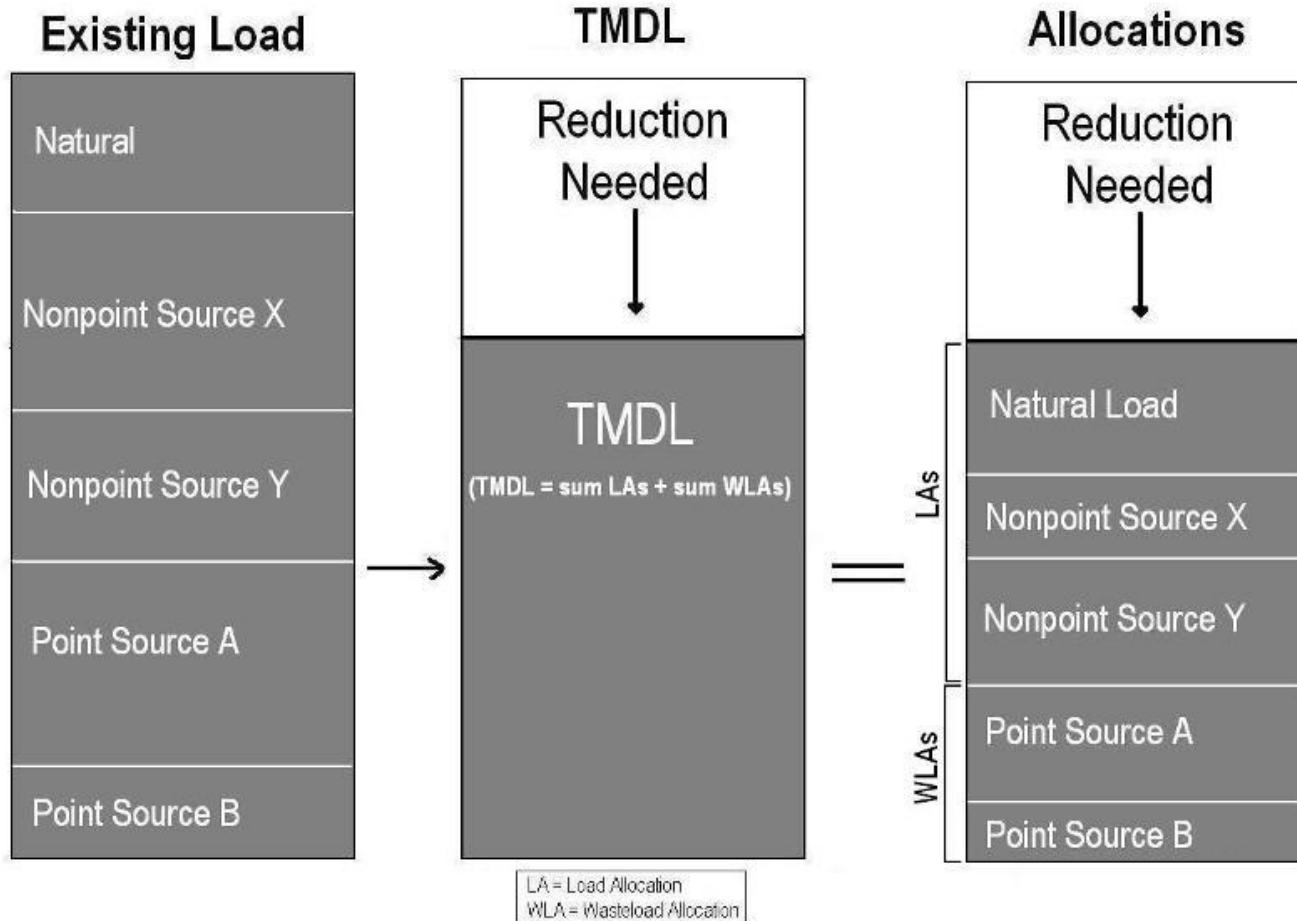
***A TOOL to guide permitting and watershed planning***

# Total Maximum Daily Load: What Does it Provide?

- Information
  - Watershed description and water quality data
- Potential sources
- Loads
  - The amount of the pollutant that a waterbody can receive and still meet water quality standards or targets
- Reductions
  - Load reductions needed to meet standards
- Implementation ideas



# Calculating a TMDL



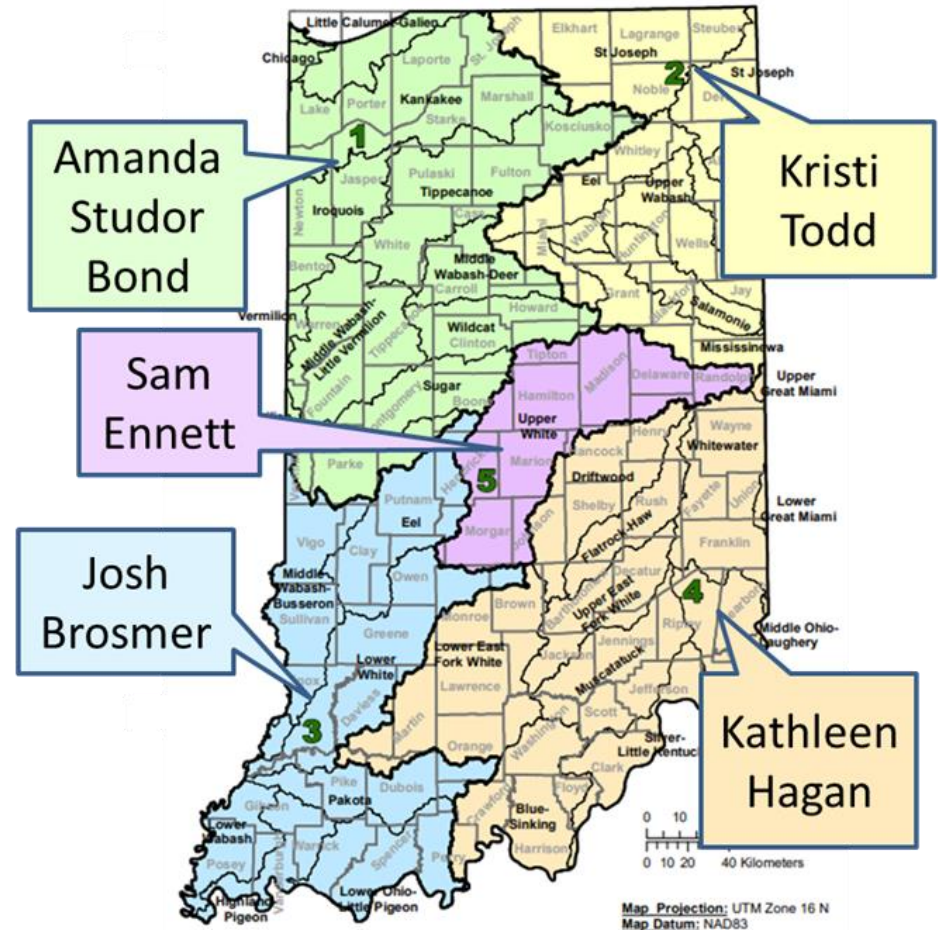


# IDEM's TMDL Program

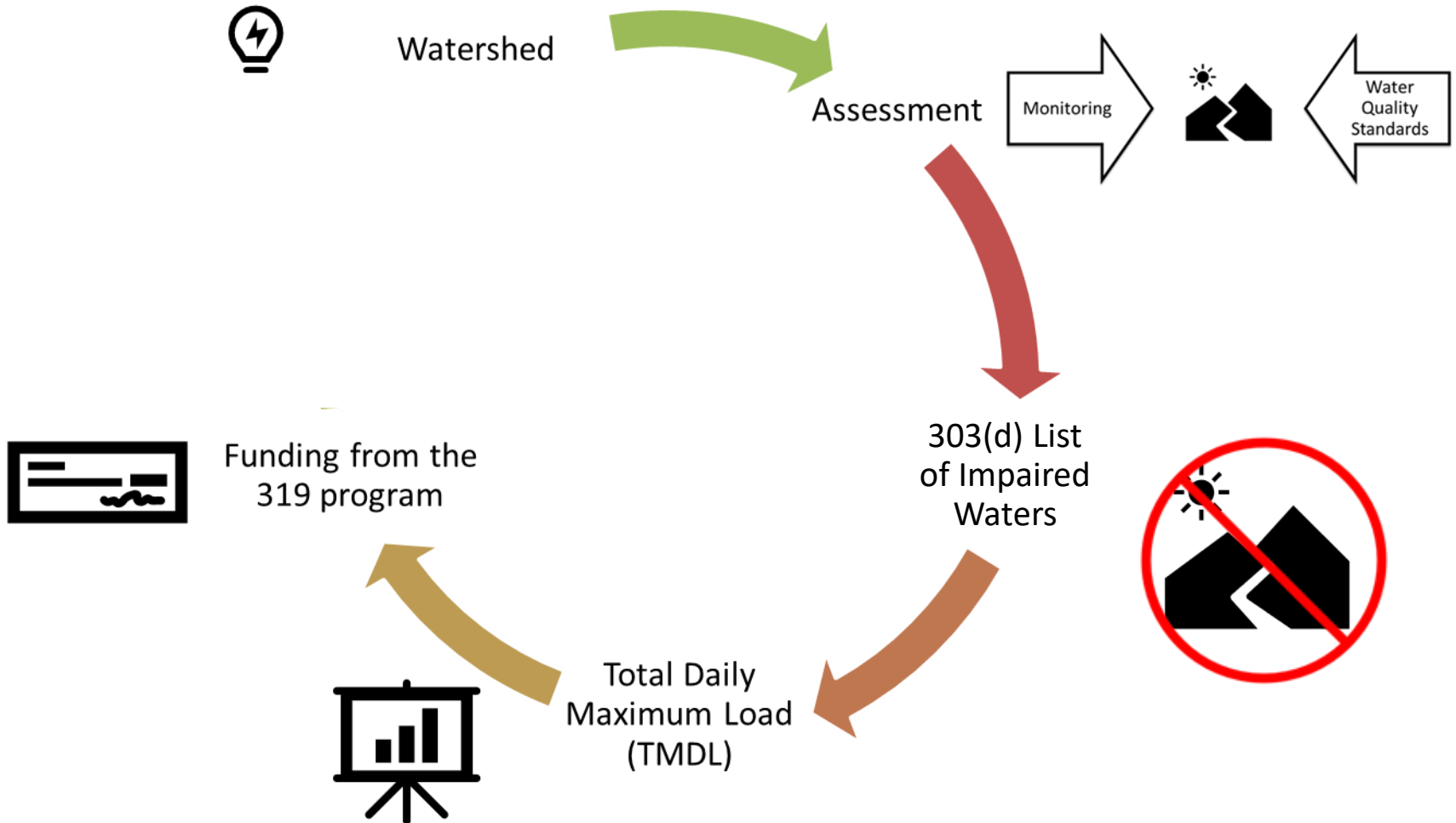
- IDEM developed a prioritization process to pick watersheds for TMDLs
- IDEM works with a local sponsor
- IDEM is updating the TMDL template to improve the ease of watershed plan development
- IDEM is working to improve reasonable assurance of TMDLs

# How Watershed Specialists Can Help a Local Group with TMDLs

- Find out if there is a TMDL for waters of interest
- Help a group request a TMDL project for their watershed
- Interpret the TMDL/translate TMDL targets to annual loads
- Caleb Rennaker, TMDL Senior Project Manager ([Crennaker@idem.IN.gov](mailto:Crennaker@idem.IN.gov))



# 4. Funding from 319 Program





# Nonpoint Source Program Funding

- Known as “Section 319” funds, based on a section in the Clean Water Act
- Funds may be used to:
  - Conduct assessments
  - Develop and implement TMDLs and watershed management plans
  - Provide technical assistance
  - Provide education and outreach
- A 40% (non-federal) match of the total project cost must be provided

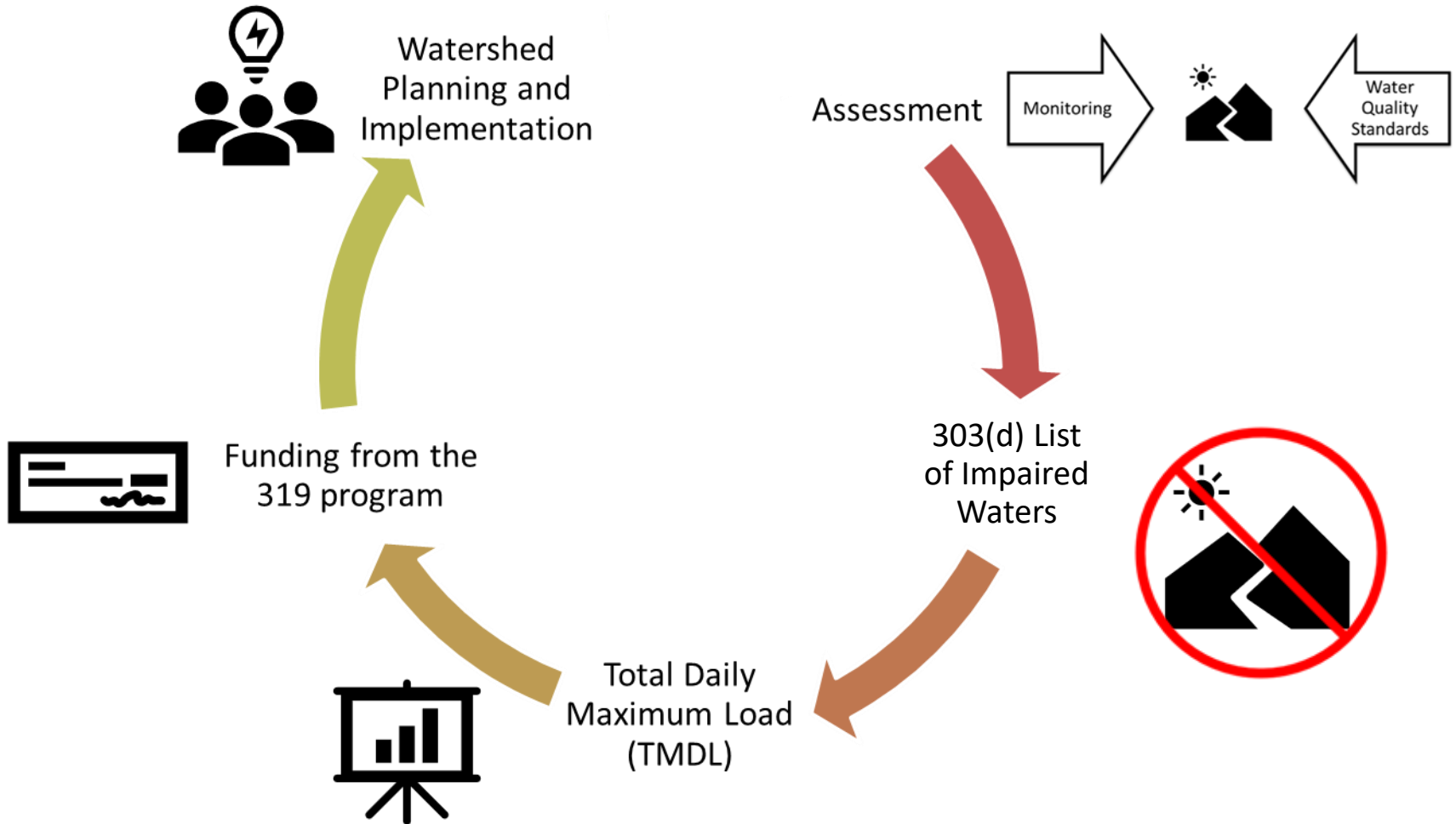


# How Watershed Specialists Can Help Local Groups Potentially Apply for Funding

- Discuss ideas and whether they are appropriate for 319 funding
- Work with them EARLY to put in a Notice of Intent (NOI) (June 1)
- Work with them EARLY to put together a competitive 319 application (Sept 1)

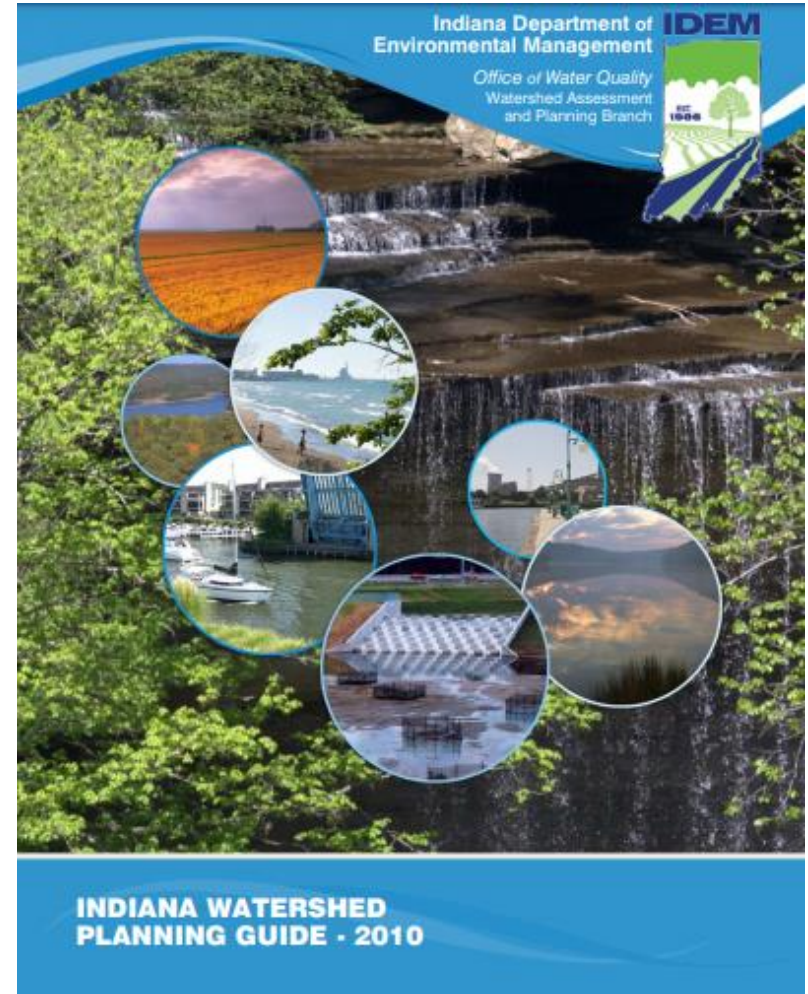


# 5. Watershed Plan & Implementation



# Watershed Management Plans

- IDEM supports watershed planning, including through the online guide →
- Plans must meet U.S. EPA requirements: “9 key elements of a watershed-based plan”





# How to Form a Watershed Group

- Look for local actors from diverse communities (e.g., agriculture, business, conservation, government) to form a steering committee
- Find common concerns and interests around water quality
- Use common consensus to move forward on goals



# Watershed Management Plans

- Plans should meet IDEM's 2009 Watershed Management Plan Checklist
  - Outlines causes and sources of pollutants
  - Lays out a plan to reduce pollutants through best management practices (BMPs)
  - Describes the financial and technical assistance that will be required
  - Includes outreach and education
  - Evaluation component



# Watershed Management Plan Checklist Updates

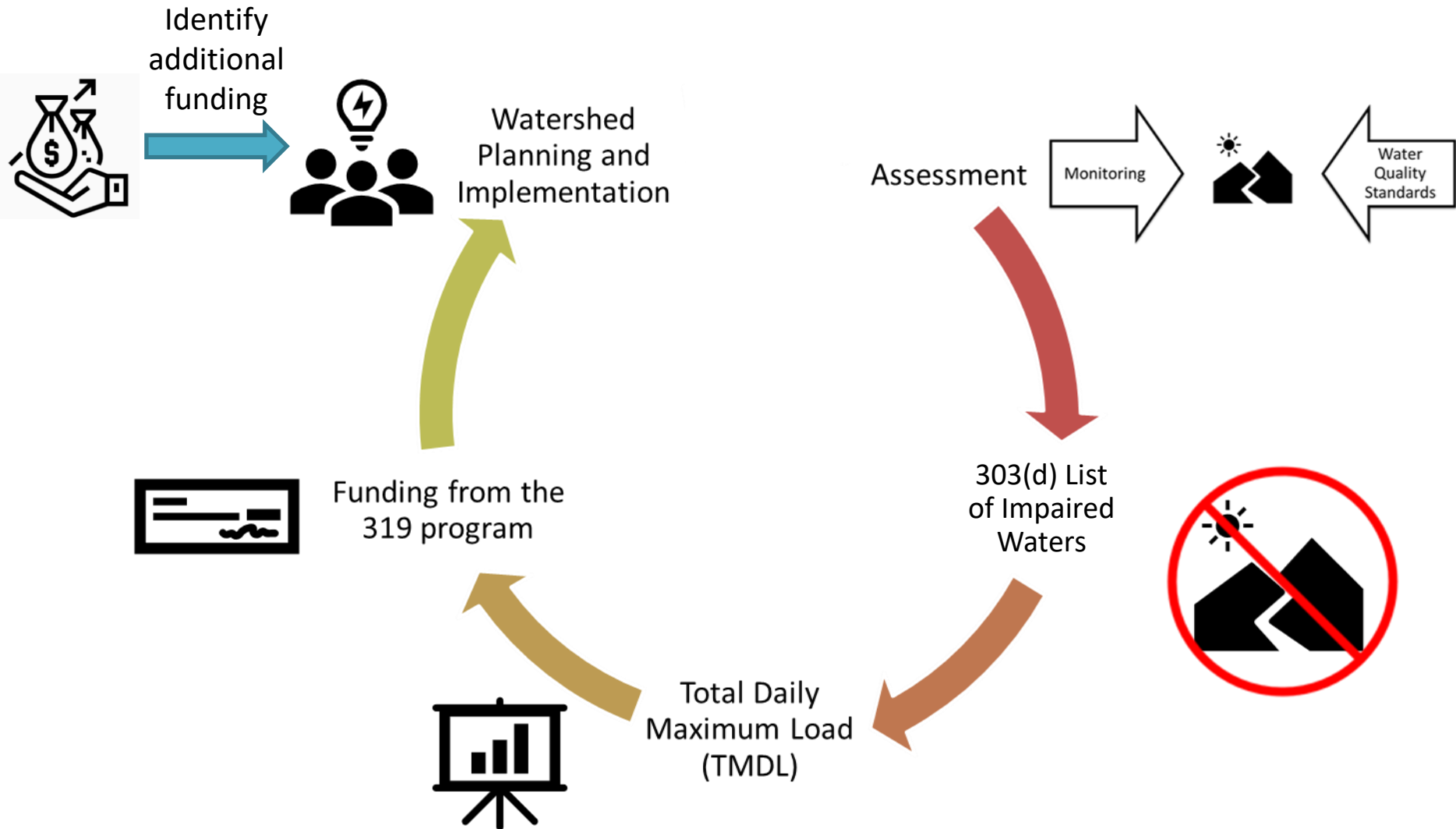
- The current checklist was last updated in 2009
- New checklist will cut down on clutter while still achieving U.S. EPA's 9 elements
- WMPs approved under previous checklists are still valid



# How Watershed Specialists Can Help Local Groups with Watershed Management Plans

- Pull together a steering committee
- Assist with mapping
- Assist with load calculations and reductions needed
- Training to run a stakeholder meeting/facilitate meetings
- Read watershed management plan (WMP) drafts and suggest improvements

# 6. Identifying Additional Funding





# Identifying Additional Funding

- State-level funding programs for watershed improvement
  - Clean Water Indiana
  - IDNR Lake and River Enhancement (LARE)
- Federal Farm Bill Programs
  - Natural Resources Conservation Service and Farm Service Agency
- Nongovernmental organizations (NGOs)
  - The Nature Conservancy and land trusts
- Other federal programs
  - State Revolving Fund (SRF)
- Local Community Funding

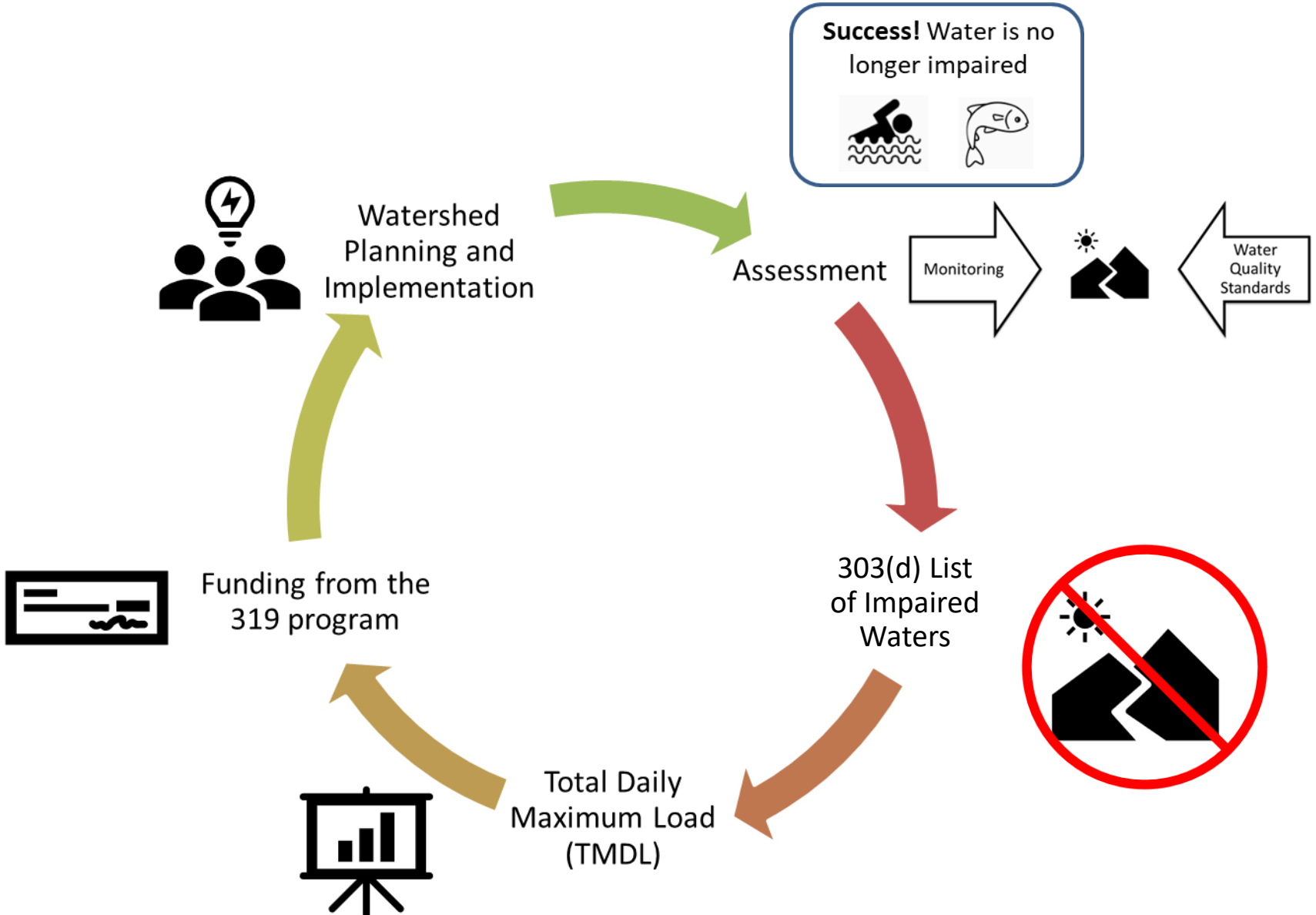




# How Watershed Specialists Can Help Local Groups with Funding

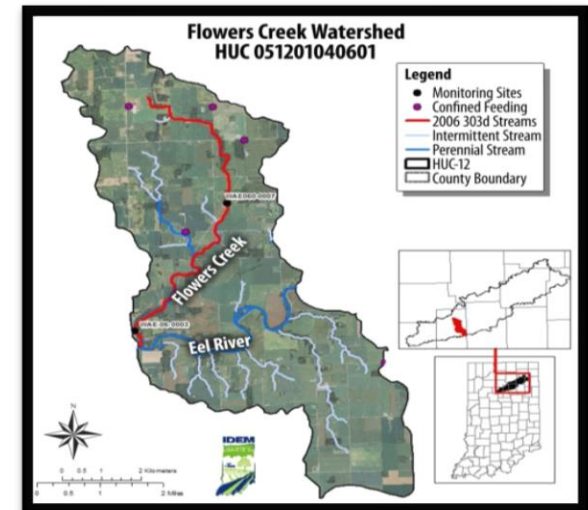
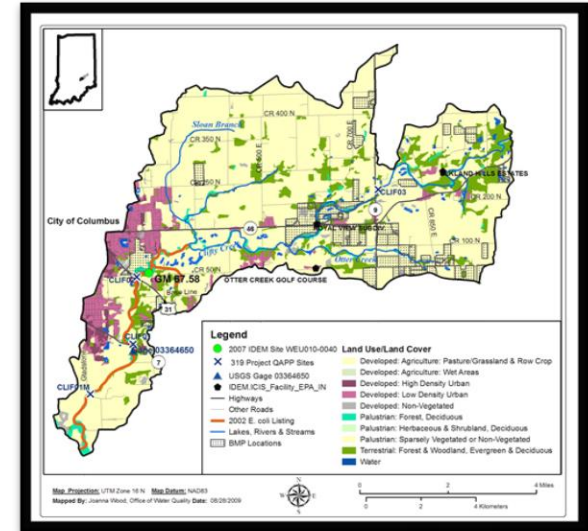
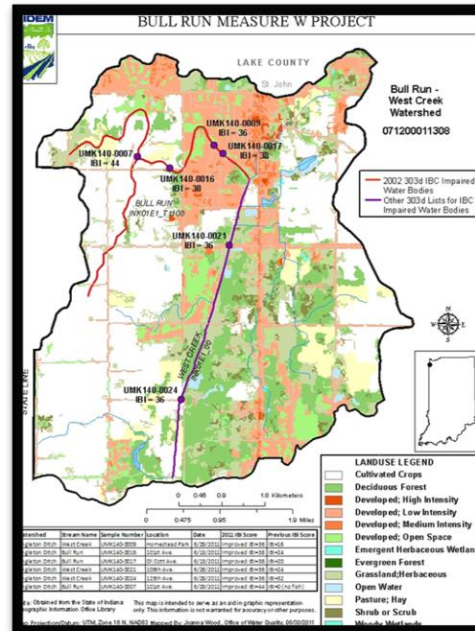
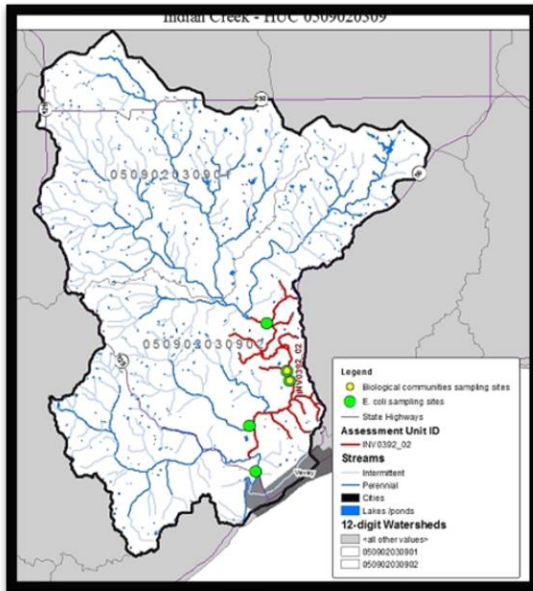
- Find and pass along funding opportunities
- Review grant applications (non-319)
- Discuss sustainable funding
- Provide examples of successful cost-share programs
- Assist in outreach strategy
- Suggest speakers for events
- IDEM Funding Matrix  
([www.idem.IN.gov/nps/3439.htm](http://www.idem.IN.gov/nps/3439.htm))

# 7. Assessment at the end of the Project



# Indiana Success Stories

- All of Indiana's reported success stories are available on U.S. EPA's Nonpoint Source Pollution website
- We hope that your watershed will become a success story as well!





# Watershed Specialists

- Kathleen Hagan (SE), [Khagan@idem.IN.gov](mailto:Khagan@idem.IN.gov)
- Josh Brosmer (SW), [Jbrosmer@idem.IN.gov](mailto:Jbrosmer@idem.IN.gov)
- Amanda Studor Bond (NW), [Astudor@idem.IN.gov](mailto:Astudor@idem.IN.gov)
- Kristi Todd (NE), [Kmtodd@idem.IN.gov](mailto:Kmtodd@idem.IN.gov)
- Sam Ennett (Central), [SEnett@idem.IN.gov](mailto:SEnett@idem.IN.gov)