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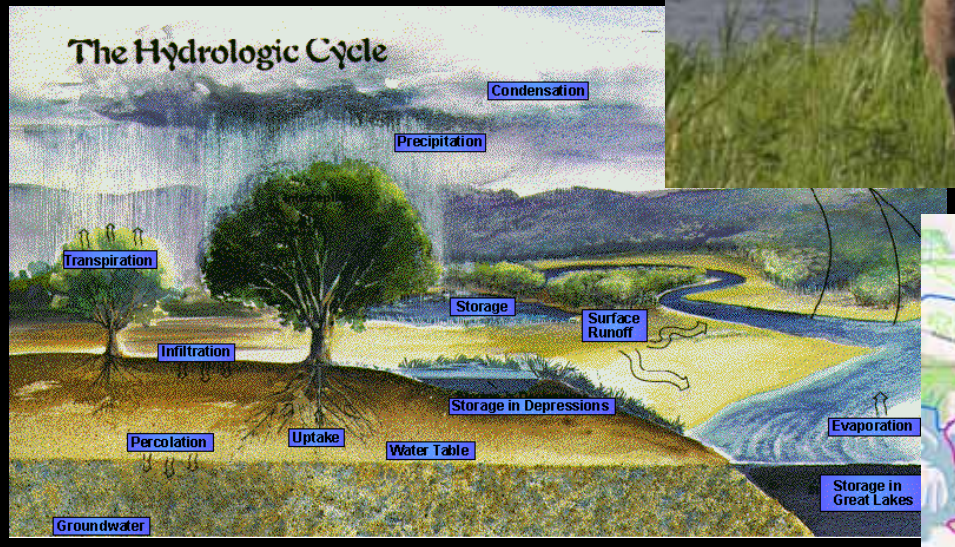
Total Maximum Daily Load (TMDL) Basics:

What does it really mean?



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TMDL 101

- Why a TMDL? (It's required)
- Steps in it's creation (crash course)
- Implementation (stakeholder incorporation)

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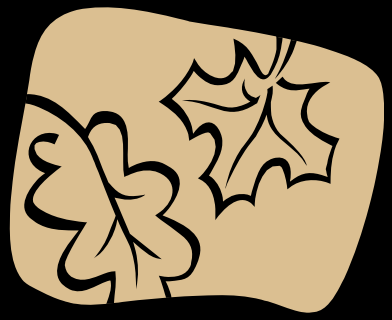
TMDL – Why?

Total Maximum Daily Load is a phrase used to define the greatest amount of a given pollutant that a water body can receive without violating water quality standards and designated uses, but:

- How and why is it defined this way?
- How is this used in the common planning process, and
- What does it mean to a common stakeholder?

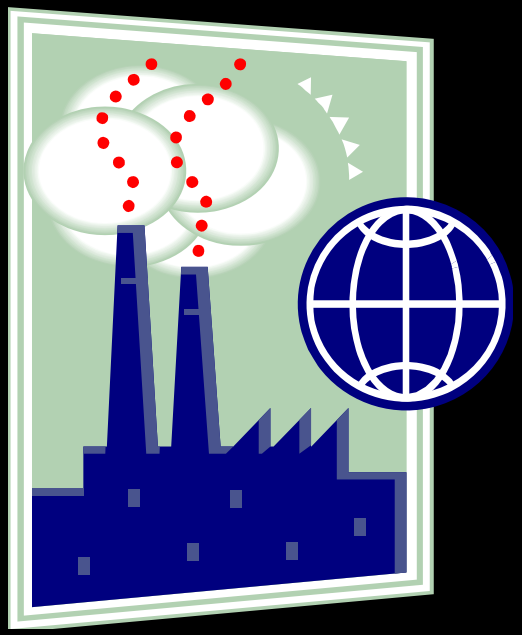


TMDL – Why?

To best understand the linkage between the TMDL process and improving water quality, it is important to understand some of the problems decision makers have in developing a process in which solves a scientific issue while often being implemented by non-scientists.

TMDL – Why?

- The Clean Water Act (1972) outcome
- Provides a metric to measure pollutant level.
  - Polluted
  - Very Polluted
  - Sort of polluted
- Can consist of various sources such as:
  - Fecal coliform
  - Phosphorus
  - Nitrogen
  - Sediment



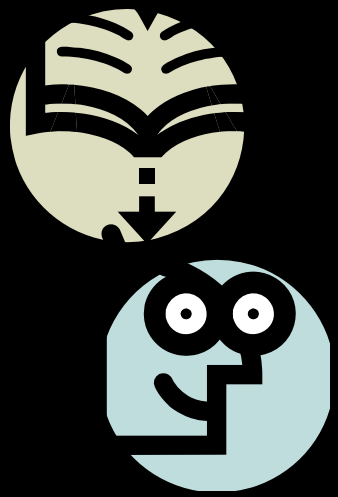
TMDL – Why?

- To understand the TMDL process it is important to understand the phraseology of “designated uses”
- Certain activities constitute these uses.

Water Resources

TMDL – Why?

- The Clean Water Act requires individual states to develop lists stating if water bodies support those “designated uses”
- This list is known as the 303(d) list
- Each inventoried waterbody is characterized as:
  - Fully supporting (good)
  - Impaired (not so good)
  - Threatened (below threshold)



TMDL – Why?

- The TMDL process helps to provide an avenue of better evaluating the impairments.
- Typically a watershed –based, watershed –scale type assessment process
- In a nutshell, the pollutant level in the waterbody is the sum of the pollutants reaching the waterbody with the inclusion of uncertainty variable(s).
- The problems within our lakes and streams, which are often the effect of the land uses draining to those areas, are mostly left to be deal with by those living adjacent to them.

TMDL – Why?

<u>The actual TMDL Equation</u>

TMDL = WLA + LA + MOS + SV

- WLA – Waste Load Allocation (Point Sources)
  - Pipes
  - Ditches
- LA – Load Allocation (Non-Point Sources)
  - Farm Field
  - Land Uses
- MOS – Margin of Safety
  - Population Growth
  - Density
- Seasonal Variation

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TMDL – Basics

- WLA – Waste Load Allocation (Point Sources)
  - Pipes
  - Ditches
  - WWTP
- LA – Load Allocation (Non-Point Sources)
  - Farm Field
  - Land Uses
- MOS – Margin of Safety
  - Population Growth
  - Density
- Seasonal Variation

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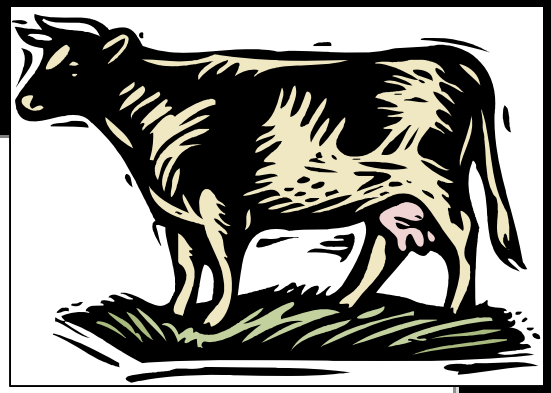
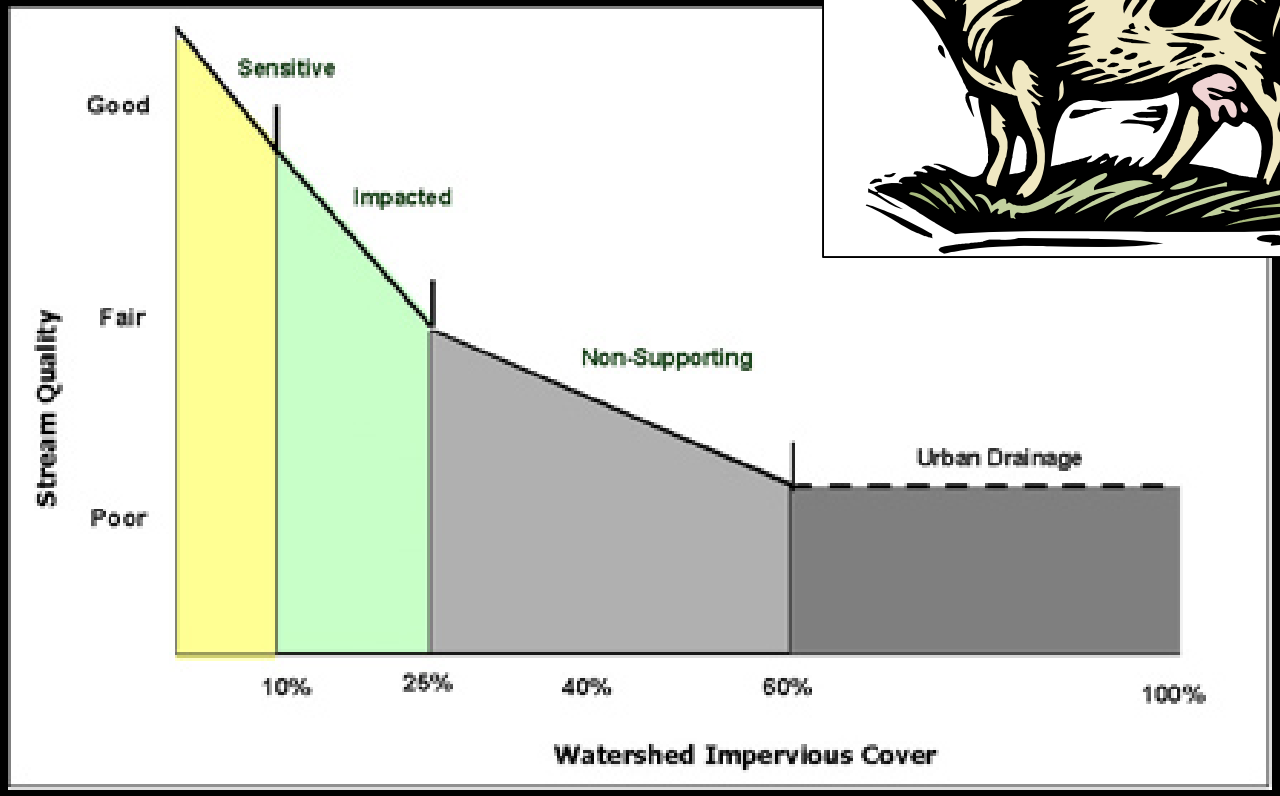
TMDL – Basics

- TMDL helps to determine the “carrying capacity” of a lake or stream.
- When the daily load is exceeded, the scale balances in the unhealthy direction.
- When the daily load remains under the threshold the scale remains balanced and,
- In some cases readjusts
  - Impaired waters can improve in time
  - Intervention is often necessary

TMDL – Basics

How did we get to this point?





Center for Watershed Protection, 2000

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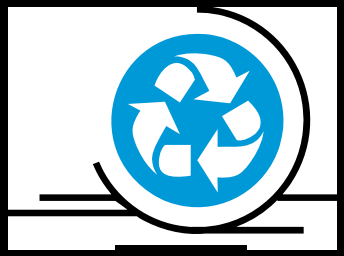
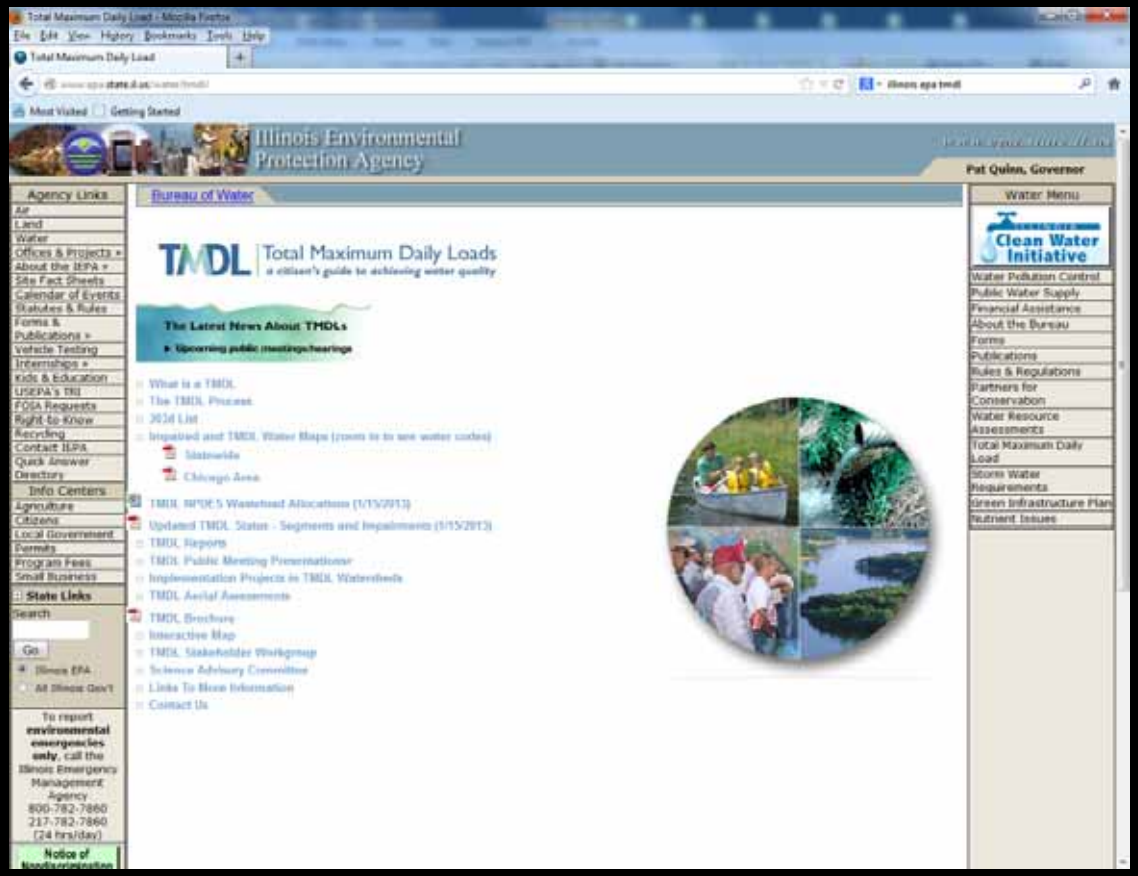
TMDL – Basics

- The linkage between “progress” and declining water resources cannot be denied
- Portions of the TMDL process are used to define and parameterize a means to more effectively promote watershed wellness. Roadmap to watershed health.



Illinois and TMDL Process

http://www.epa.state.il.us/water/tmdl/



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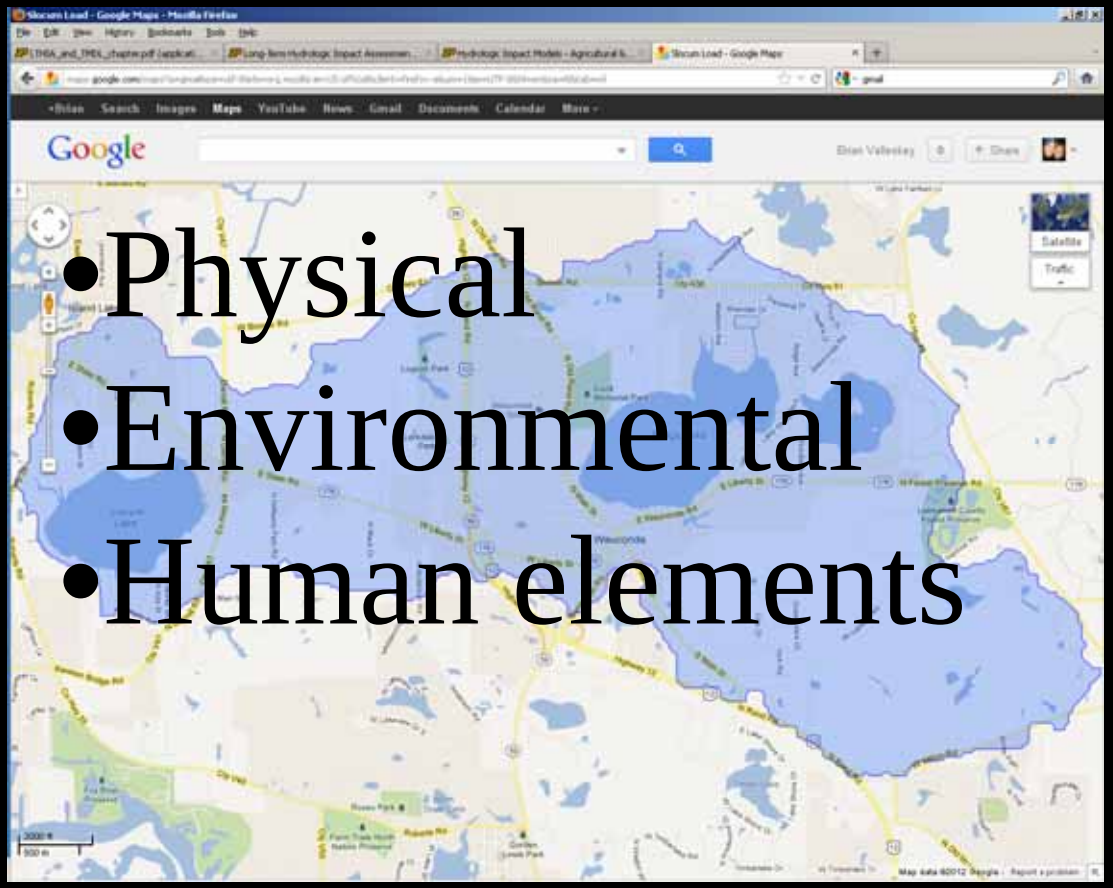
U.S. EPA and TMDL Process

http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/index.cfm

TMDL Multi-Step Planning Process

Watershed Characterization



- Physical
- Environmental
- Human elements

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TMDL Planning Process

Impairment Status:

Review the existing data to determine of the water waters fully support the uses they are intended to meet

- Fishing
- Boating
- Swimming
- Aesthetics
- Chemical

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TMDL Planning Process

Data Gaps and Monitoring Report

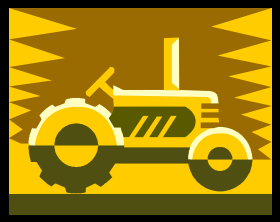
- Identifying any additional data needs and monitoring recommendation
- Often the single most limiting step in the TMDL process
  - Lack of data
  - Lack of quality data
  - Inconsistently collected data

TMDL Planning Process

Source Assessment

Identify:

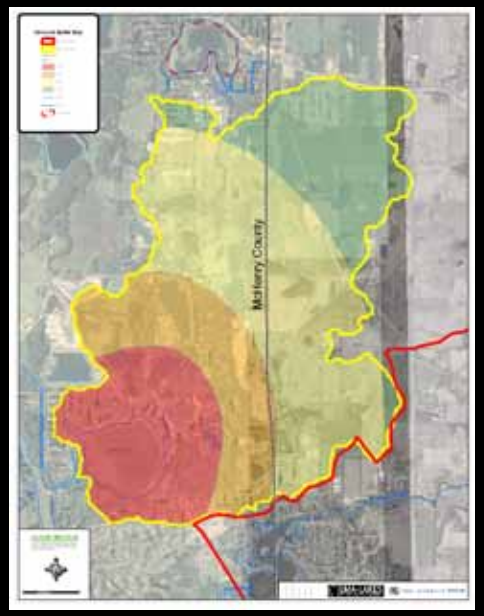
- Pollutant Sources
- Magnitude of those sources



TMDL Planning Process

Load Allocation

- How much of the source is natural?
- How much of the source is human induced?
  - ❑ Point sources
  - ❑ Non-Point sources



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TMDL Planning Process

Set Targets

- What targets will maintain current water quality?
- What targets will restore water quality?

TMDL Planning Process

Implementation Plan

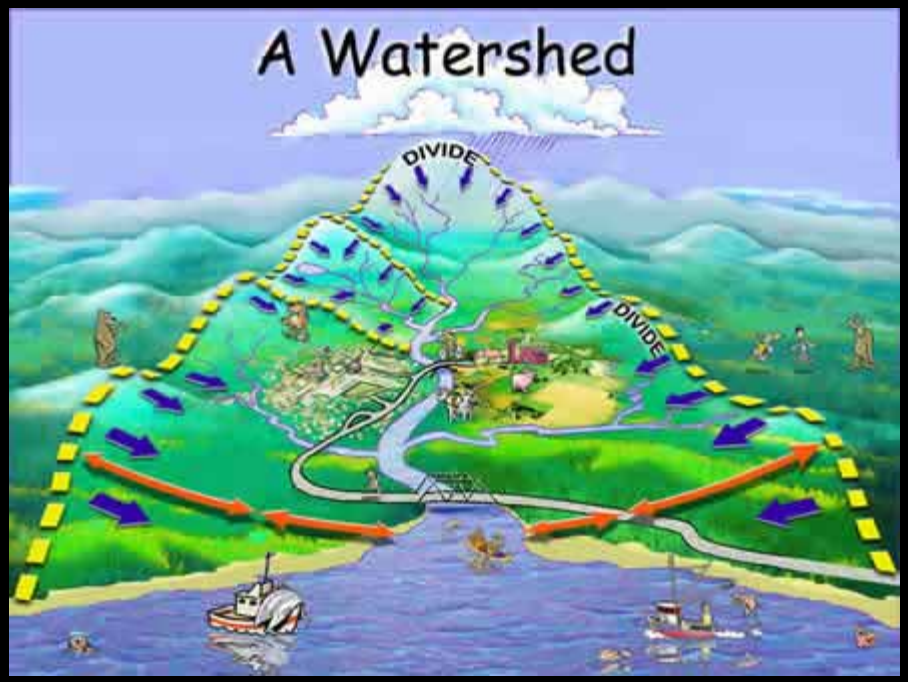
- Wrap all the previous material in a planned strategy
- Strategy aimed to implemented by stakeholders
- Point at which technical material is placed into the hands of stakeholders and key decision makers
- Roadmap to water quality improvement/correction

TMDL Implementation

- Impervious Area Impacts
  - More Volume breeds more materials
  - Typically a greater spectrum of constituents
- Sediment detachment and transport

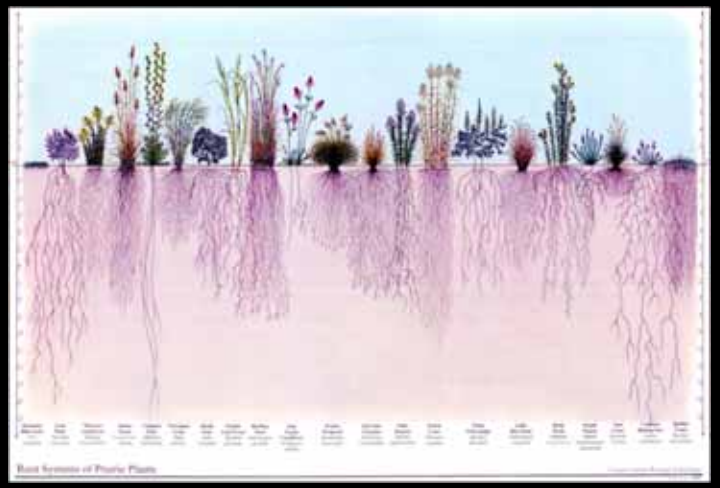
TMDL Implementation

- Utilize the roadmap to improvement
- Identify projects that can minimize or counteract the detriment of human induced impacts



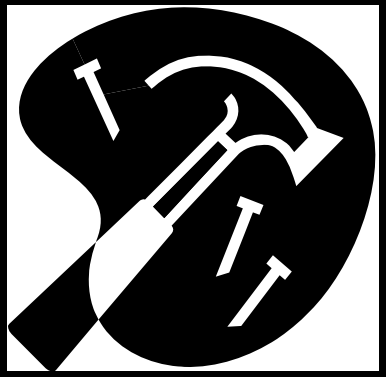
TMDL Implementation

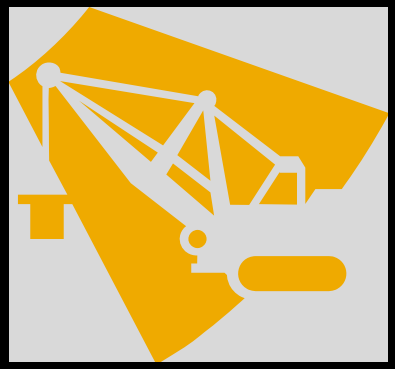
- Green infrastructure vision is typically the means to improving the watershed.
- Guidance documentation. As citizens $$$ must be properly allocated
  - Prioritized – not all projects may receive equal value
  - Stakeholder driven process
  - Those who do not participate in the process cannot get Appropriate input



TMDL Implementation

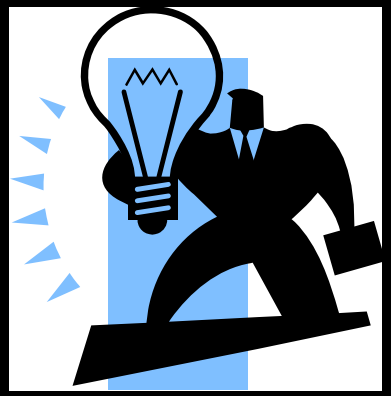
- The Implementation Plan is often the key to unlocking improvement monies ($$$) grant dollars.





TMDL Implementation

- There are good implementation plans and there are not so good implementation plans
- The core of the plan is based on scientific study completed throughout the plan and Input gathered from the Stakeholders



- Limited stakeholder input = limited local expertise

TMDL Implementation

Why is it important to me as a stakeholder?

- Sets forth the direction agency stakeholders and local stakeholder should collaborate.
- Brings stakeholders together. The importance of this step should not be overlooked
- Provides a document in which to track progress
  - How are we doing?
  - Are we achieving our goals?

TMDL Implementation

Why is it important to me as a stakeholder?

- Proper TMDL Implementation is not ANTI- development.
- Proper TMDL Implementation is pro- responsible development
- What is the difference?
- That's up to you...

Questions? –THANK YOU!

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