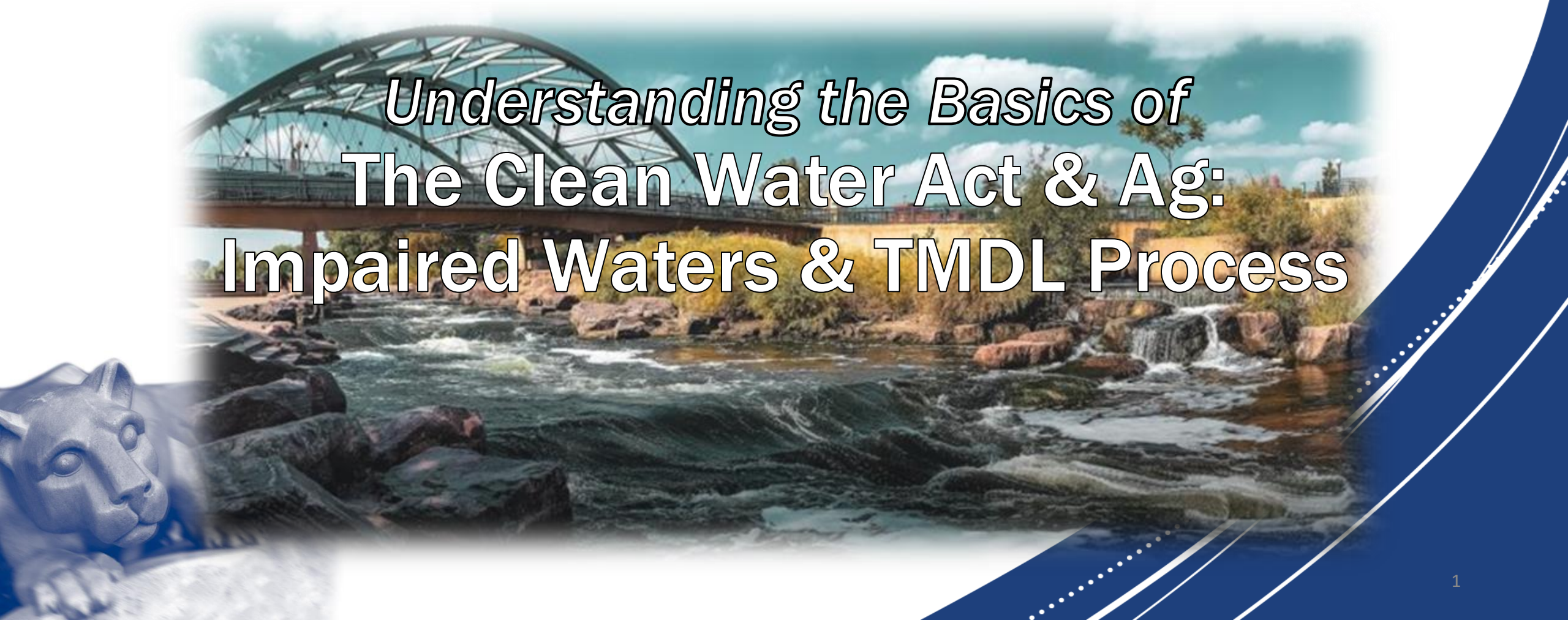
Understanding Agricultural Law Educational Program



Understanding the Basics of
The Clean Water Act & Ag:
Impaired Waters & TMDL Process

PennState Dickinson Law | Center for Agricultural and Shale Law | *Understanding Agricultural Law* Educational Program | Pennsylvania Department of Agriculture AG BUSINESS DEVELOPMENT CENTER

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A Legal Educational Series for General Practice Attorneys and Business Advisors Representing Agricultural and Rural Clients

This webinar series is specifically tailored to create subject matter literacy and competence on fundamental issues of agricultural law for attorneys, advisors, and service providers to agricultural producers and agri-businesses.

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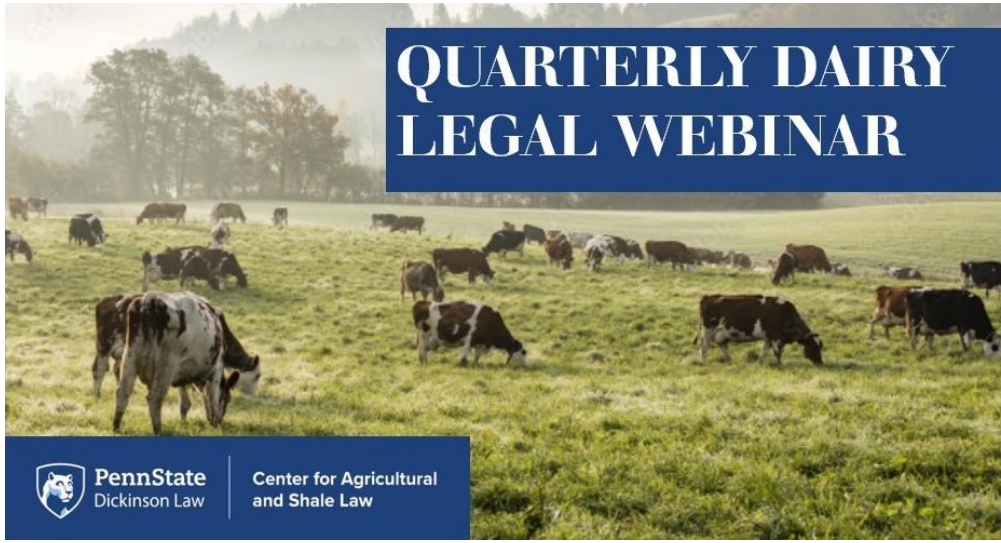

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Thursday, September 18, 2025

In-person at Penn State Dickinson Law, University Park

Lunch & refreshments provided

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- This webinar is being recorded.
- Please use the **Q&A feature** for questions.
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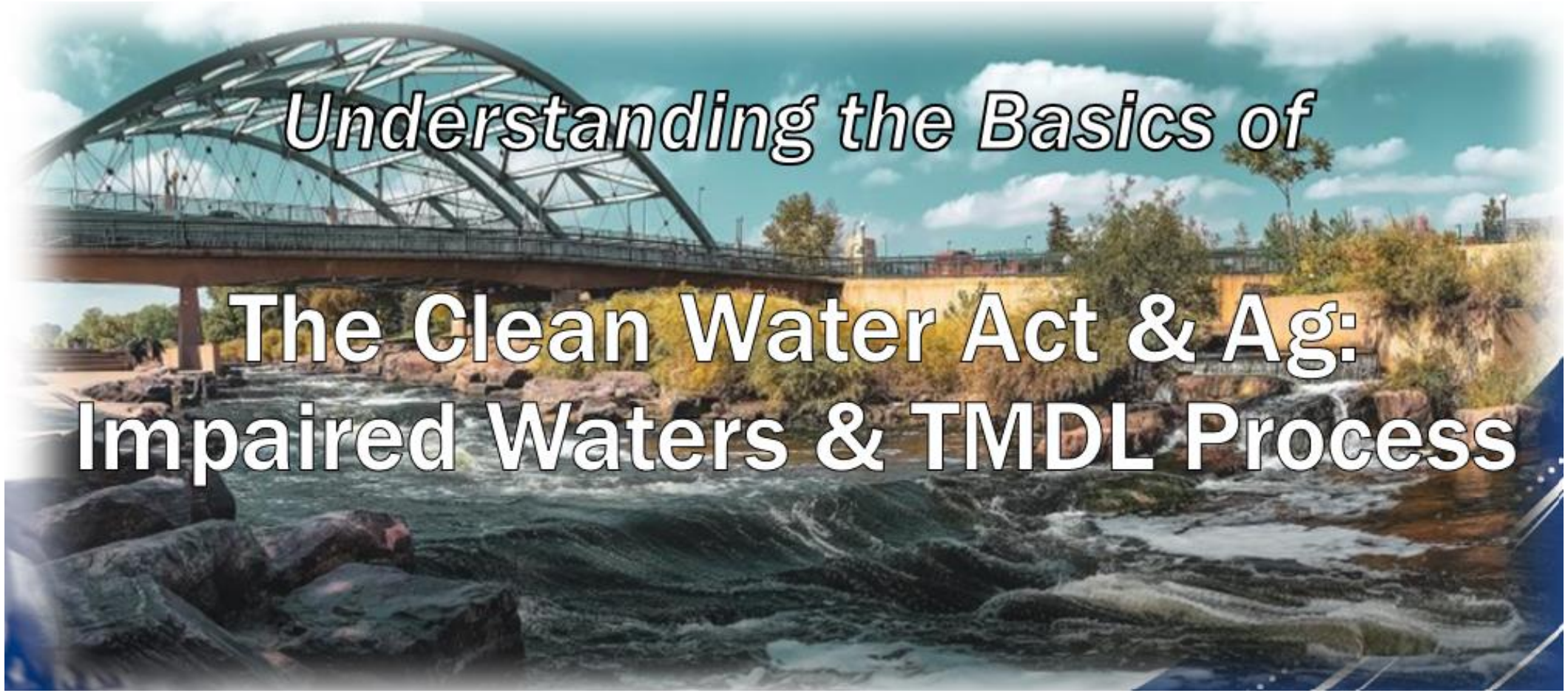
  - Link to **CLE form** will be posted in the **chat**
  - Please fill out form ASAP
  - Listen for **code word**, enter code word in the form


Understanding the Basics of
The Clean Water Act & Ag:
Impaired Waters & TMDL Process

The Clean Water Act & Ag: Impaired Waters & TMDL Process

- **Section 303(d)** of the Clean Water Act (CWA) (**33 U.S.C. § 1313(d)**) provides the legal authority for the U.S. Environmental Protection Agency (EPA) to require states to identify "impaired waters" within their jurisdictions and to approve a Total Maximum Daily Load (TMDL), or "pollution diet" for those waters.

- The Chesapeake Bay TMDL spans six state jurisdictions and the District of Columbia and is the single largest TMDL in U.S. history. But there have been and continue to be thousands of other TMDLs established and implemented since the 1990s. This webinar will help you understand the process by which this occurs under the CWA.

Resources

1. EPA: Clean Water Act Section 303(d): Impaired Waters and Total Maximum Daily Loads (TMDLs)
2. EPA: Impaired Waters Restoration Process
3. **EPA:** Overview of Identifying and Restoring Impaired Waters under Section 303(d) of the CWA
4. EPA: Overview of Listing Impaired Waters under CWA Section 303(d)
5. EPA: Overview of Total Maximum Daily Loads (TMDLs)
6. EPA: Statute and Regulations addressing Impaired Waters and TMDLs
7. CRS Rept. R42752 (1/17/14): Clean Water Act and Pollutant Total Maximum Daily Loads (TMDLs)
8. CRS Rept. RL30030 (10/18/16): Clean Water Act: A Summary of the Law
9. **CRS Rept. R45278 (8/3/18):** Chesapeake Bay Restoration: Background and Issues for Congress
10. CRS In Focus IF10690 (7/8/20): Freshwater Harmful Algal Blooms: An Overview
11. CRS In Focus IF11402 (6/30/23): Status of Efforts to Restore Chesapeake Bay Water Quality

Recap of Prior CWA & Ag Webinar – 6/28/24

1969: "Lake Erie is on fire!"

Clean Water Act - History

- Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, 86 Stat. 816 (1972) ("FWPCA").
- Colloquially and collectively called the Clean Water Act - complete rewrite of the Federal Water Pollution Control Act - **33 U.S.C. § 1251 et seq.**
- Officially given the alternative title of the **Clean Water Act** in 1977, see Pub. L. No. 95- 217, § 2, 91 Stat. 1566 (1977).
- Prior to its amendment in 1972, the FWPCA employed ambient water quality standards specifying the acceptable levels of pollution in a State's interstate navigable waters.
- **Prior focus** - the aggregate level of pollution in the body of water as a whole, as opposed to the preventable causes.

CWA's two objectives

1. Regulate ***discharge*** of ***pollutants*** into ***waters of the United States.***

   - CWA uses "navigable waters" (and alternately "interstate waters" in places) but provided no definition of waters of the United States.
   - 33 U.S.C. 1362: "The term 'navigable waters' means the waters of the United States, including the territorial seas."
   - Territorial seas is defined as 3 miles from "line of ordinary low water."

2. Regulate "***water quality standards*** of surface waters."

- **CWA – new approach in 2 ways:** **Focus on Point Source Discharges.**
  - CWA directly regulates discharges from point sources by setting ***"effluent limitations"*** governing quantities, rates & concentrations of pollutants contained.
  - Created the **National Pollutant Discharge Elimination System** (***NPDES***) to enforce.

CWA Regulation of Water Quality Standards of Surface Waters

Section 303(d): **Requires states to perform 3 basic functions:**

(1) Establish water quality standards (WQS);

(2) Identify "impaired waters" (i.e. despite current pollution control technologies and other controls incl. point source permitting, c/n meet the state's WQS for that waterbody);

(3) Establish TMDLs for impaired waters.

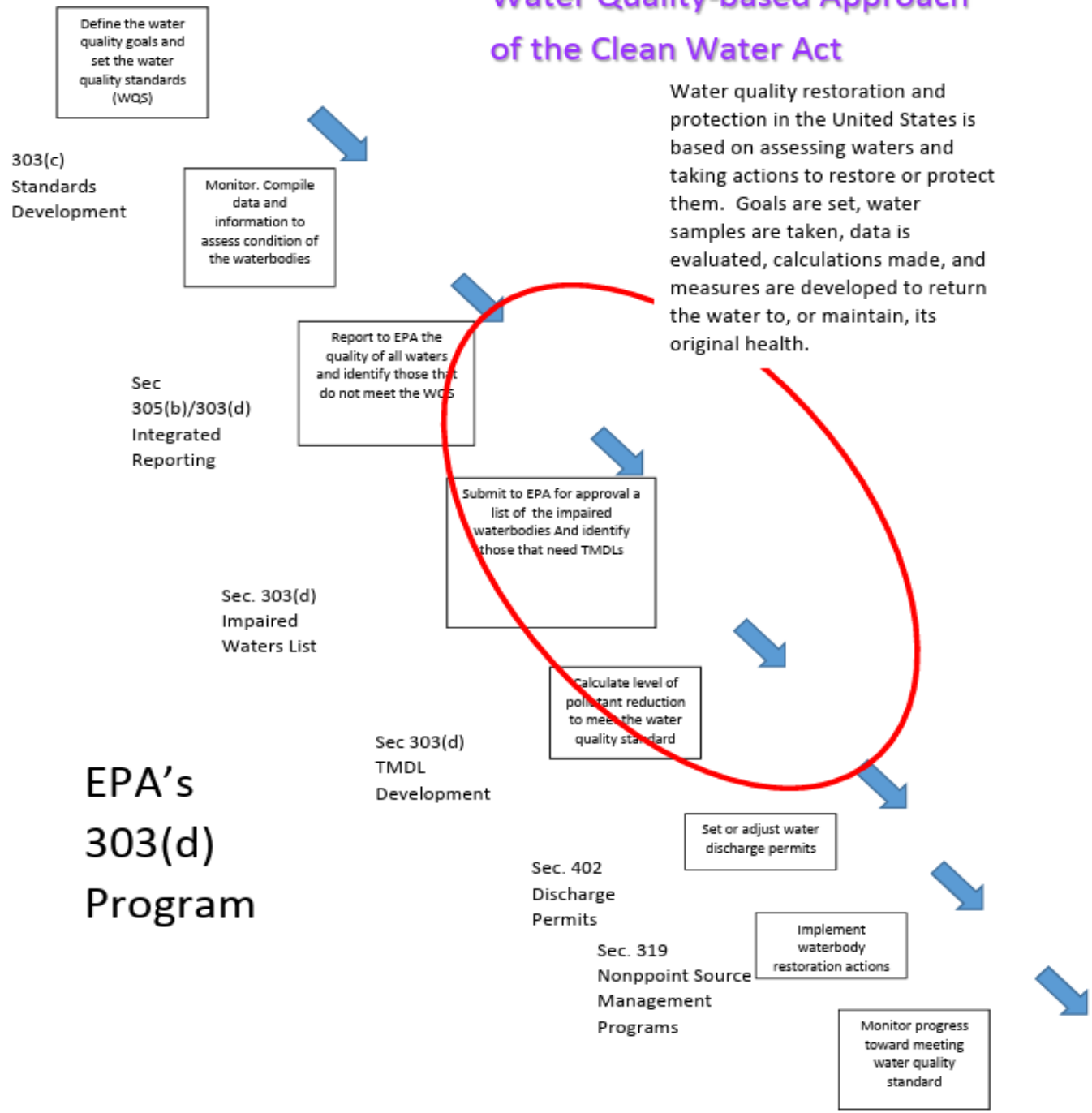
Section 303(d) on Water Quality Standards (WQS):

"Whenever the State revises or adopts a new standard, such revised or new standard shall be submitted to the *[EPA]* Administrator. Such revised or new water quality standard shall consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses. Such standards shall be such as to protect the public health or welfare, enhance the quality of water and serve the purposes of this chapter. Such standards shall be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes, and also taking into consideration their use and value for navigation."

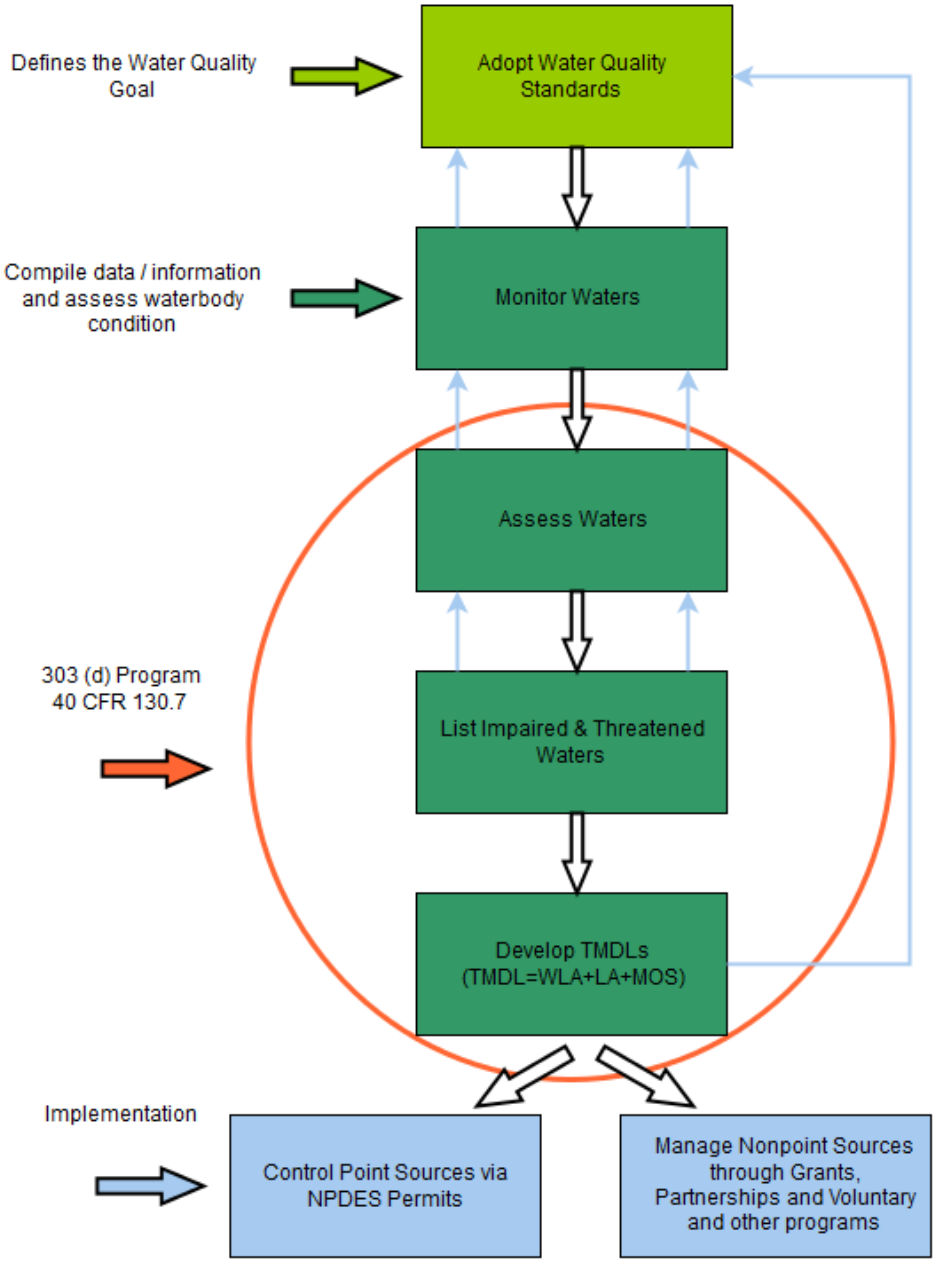
- Every 2 yrs, states must submit impaired waters list (incl. "may become impaired" w/in next 2 yrs") for EPA approval.
- Prioritized by severity of pollution and designated use of the waterbody.
- States shall establish total maximum daily load(s) (TMDLs) of pollutant(s) for impaired waters listed (BUT THERE IS NO TIMELINE FOR THAT STEP!).
- EPA has 30 days to approve/disapprove a state's impaired waters list. If disapproved – w/in 30 days, EPA shall establish impaired waters and TMDLs (which are published for public comment period and made final thereafter).
- 40 CFR §130.7 (< 3 pgs., more or less repeats the statutory text). Promulgated in 1992; once revised in 2000 but the changes were so controversial that those amendments were completely withdrawn in 2003.

Water Quality-based Approach of the Clean Water Act

Water quality restoration and protection in the United States is based on assessing waters and taking actions to restore or protect them. Goals are set, water samples are taken, data is evaluated, calculations made, and measures are developed to return the water to, or maintain, its original health.



Water Quality-Based Approach of the Clean Water Act



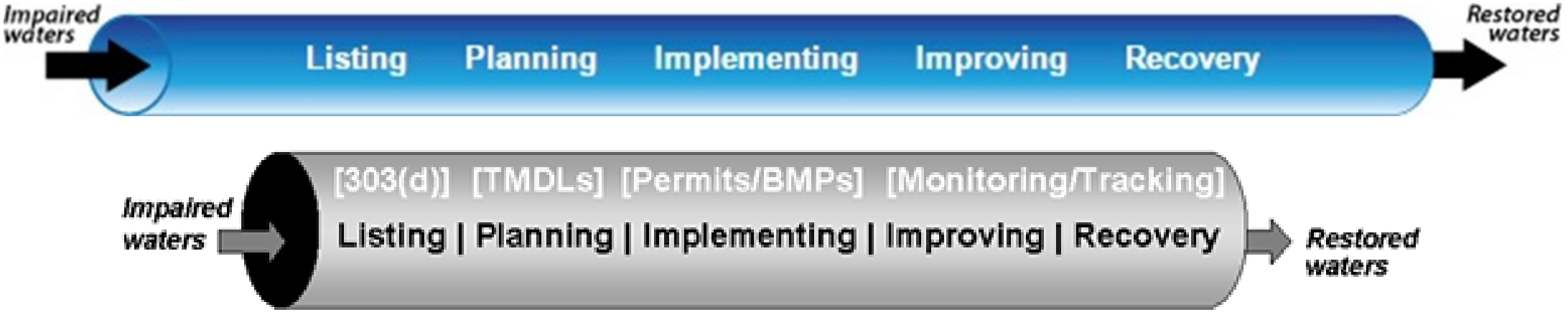
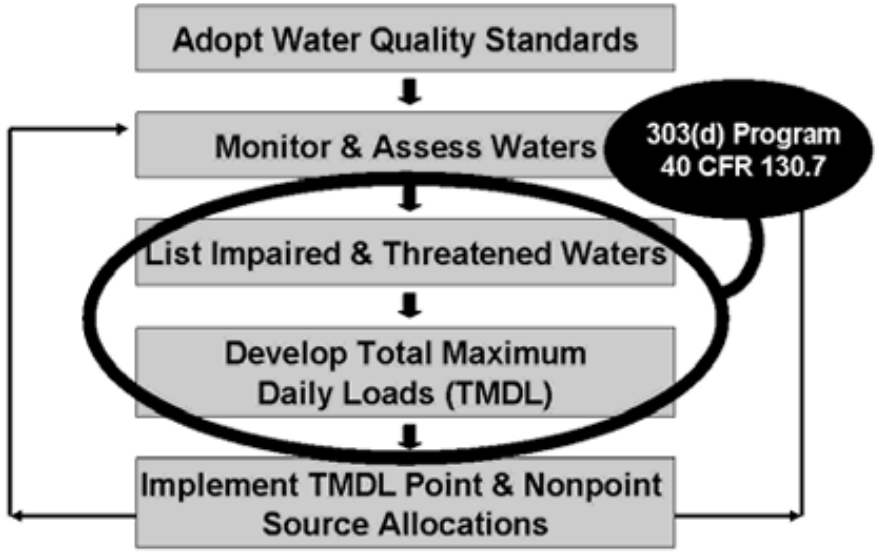
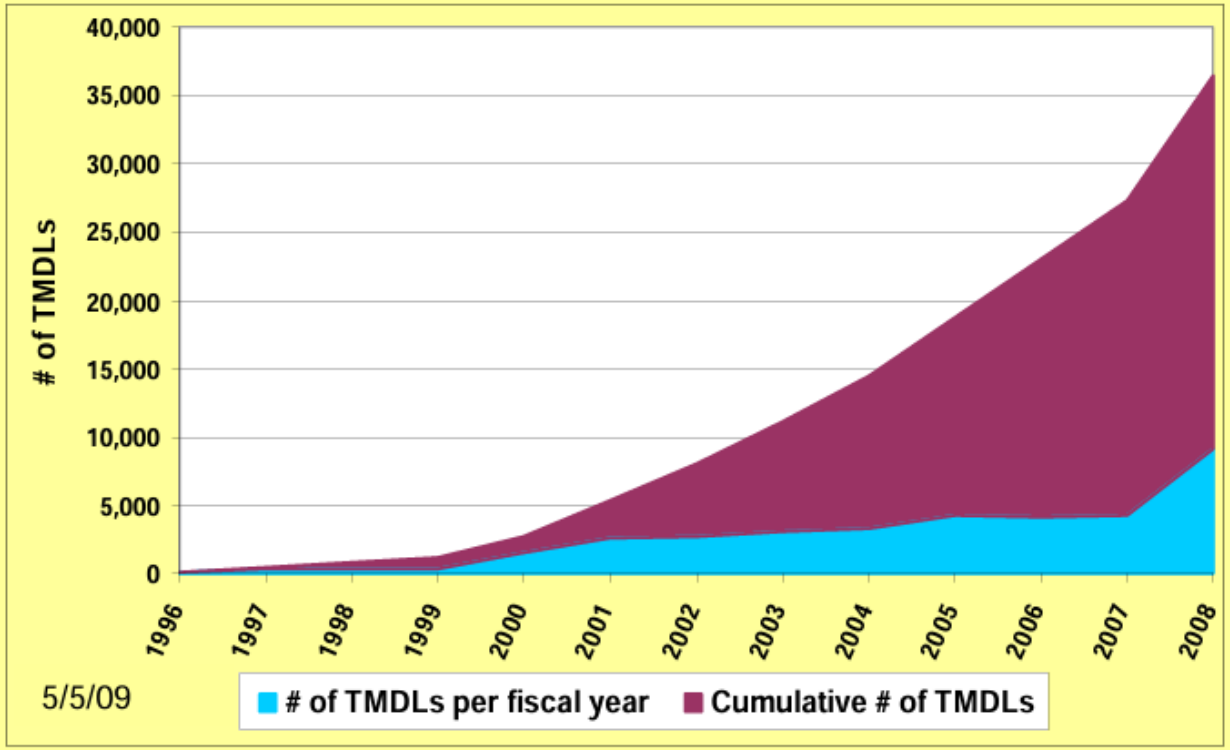
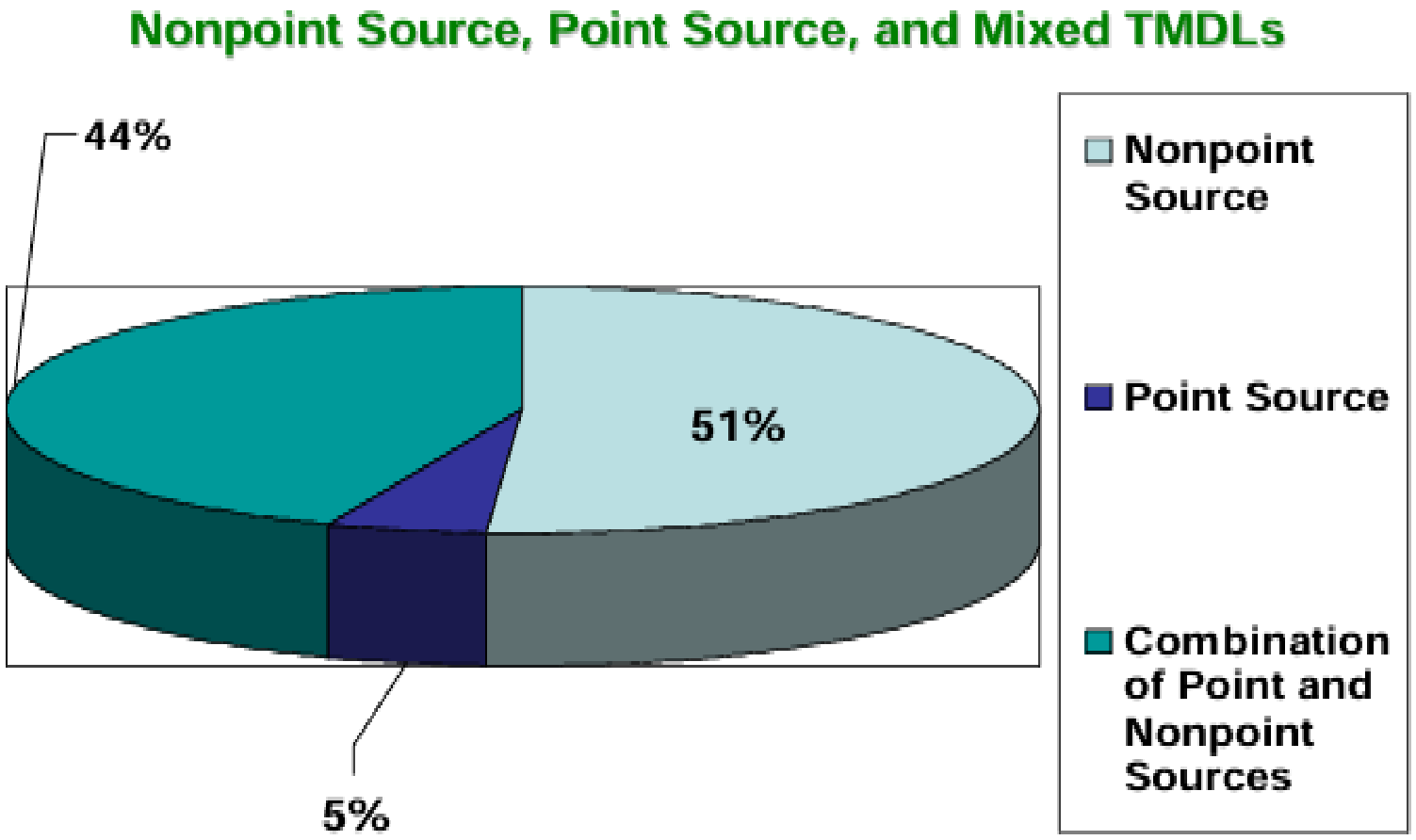


Figure 1: CWA Impaired Waters Restoration Framework



Over 37,000 TMDLs Completed





TMDLs established for nonpoint sources far outnumber those completed for point sources. This trend mirrors nonpoint source causes of impairment dominating states' impaired waters lists.

These nonpoint source TMDLs are especially challenging to implement, as the Clean Water Act is limited to voluntary controls (e.g., best management practices) on nonpoint sources.

National Cumulative TMDLs by Pollutant

This chart includes TMDLs since October 1, 1995.

Description of this table

NOTE: Click on the underlined "Pollutant Group" value to see a detailed list of pollutants. Click on the underlined "Number of TMDLs" value to see a listing of those TMDLs for the pollutant Group.

Pollutant Group	Number of TMDLs	Number of Causes of Impairment Addressed
Mercury	6,671	6,704
Pathogens	6,623	6,835
Metals (other than Mercury)	6,056	6,171
Nutrients	4,160	4,875
Sediment	2,886	3,357
Organic Enrichment/Oxygen Depletion	1,775	1,803
Temperature	1,515	1,521

USEPA Office of Water – TMDL Program Results Analysis Fact Sheet – July 17, 2009

National Summary of Top 303(d) Listing Impairments

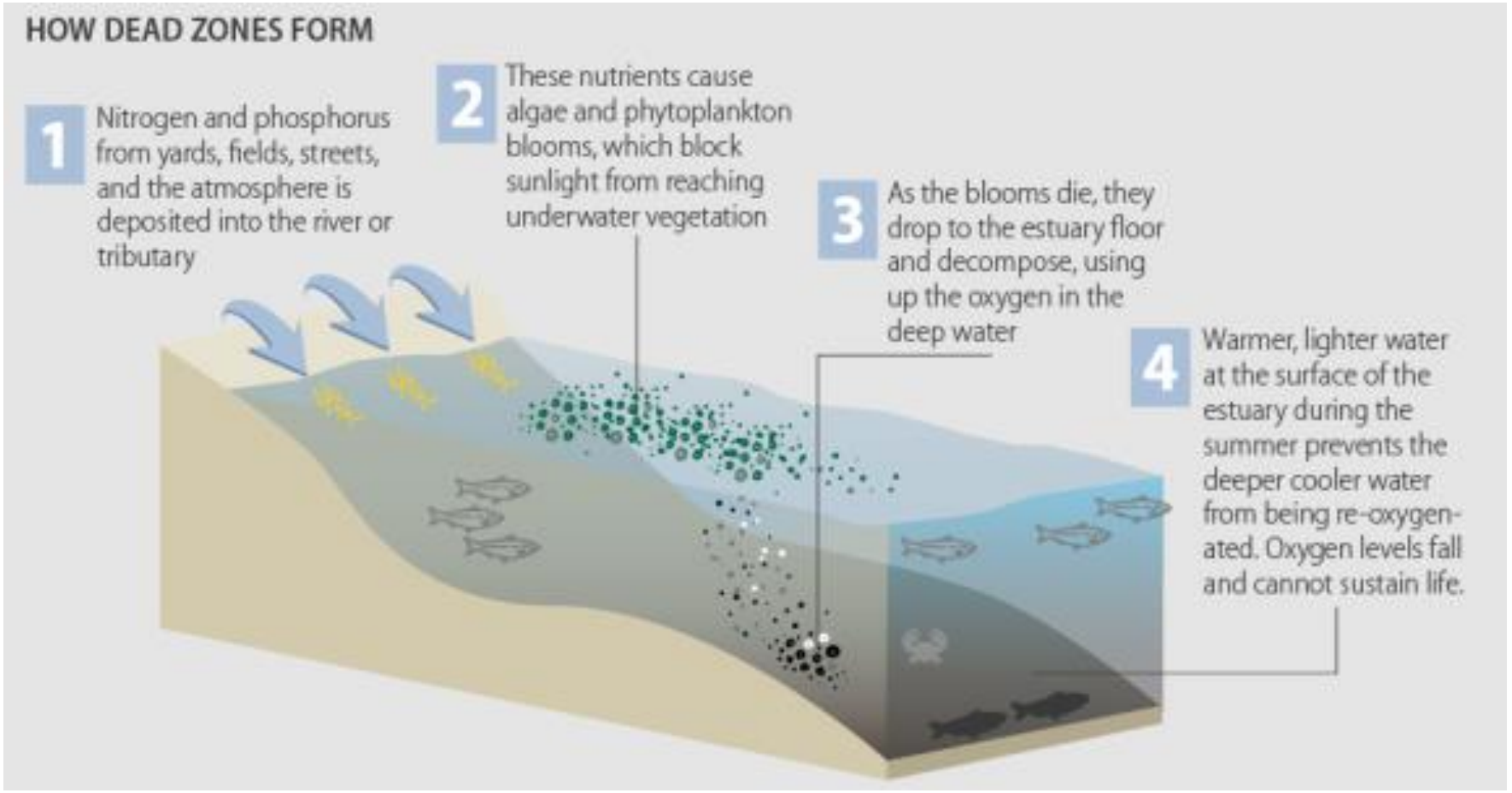
EPA's Assessment and TMDLs Tracking and Implementation System (ATTAINS) provides state-reported data on the condition of monitored surface waters. ATTAINS is the primary result of long-term state and EPA collaboration on tracking, characterizing, and mapping of 303(d)-listed waters. Below is an excerpt showing the top15 causes of impairment for 303(d) listed waters in ATTAINS. Note that one body of water may have single or multiple listed impairment causes.

Causes of Impairment for 303(d) Listed Waters

Description of this table

NOTE: Click on a cause of impairment (e.g. pathogens) to see the specific state-reported causes that are grouped to make up this category. Click on the "Number of Causes of Impairment Reported" to see a list of waters with that cause of impairment.

Cause of Impairment Group Name	Number of Causes of Impairment Reported
Pathogens	10,249
Mercury	7,966
Metals (other than Mercury)	7,164
Nutrients	6,900
Sediment	6,477
Organic Enrichment/Oxygen Depletion	5,989
pH/Acidity/Caustic Conditions	3,756
Polychlorinated Biphenyls (PCBs)	3,286
Cause Unknown - Impaired Biota	3,254
Turbidity	3,062
Temperature	3,025
Pesticides	1,558
Salinity/Total Dissolved Solids/Chlorides/Sulfates	1,470
Cause Unknown	1,237
Noxious Aquatic Plants	998


HOW DEAD ZONES FORM
1
Nitrogen and phosphorus from yards, fields, streets, and the atmosphere is deposited into the river or tributary
2
These nutrients cause algae and phytoplankton blooms, which block sunlight from reaching underwater vegetation
3
As the blooms die, they drop to the estuary floor and decompose, using up the oxygen in the deep water
4
Warmer, lighter water at the surface of the estuary during the summer prevents the deeper cooler water from being re-oxygen-ated. Oxygen levels fall and cannot sustain life.

CLE RESPONSE WORD:

Impaired

If you are submitting this program for CLE credit,

please enter the word above for **answer #5** of the CLE form.

What is a Clean Water Act Section 303(d) list of impaired water?

The term "303(d) list" or "list" is short for a state's list of impaired and threatened waters (e.g. stream/river segments, lakes). States are required to submit their list for EPA approval every two years. For each water on the list, the state identifies the pollutant causing the impairment, when known. In addition, the state assigns a priority for development of Total Maximum Daily Loads (TMDL) based on the severity of the pollution and the sensitivity of the uses to be made of the waters, among other factors (40 C.F.R. §130.7(b)(4)).

In general, once a water body has been added to a state's list of impaired waters it stays there until the state developes a TMDL and EPA approves it. EPA reporting guidance provides a way to keep track of a state's water bodies, from listing as impaired to meeting water quality standards. This tracking system contains a running account of all of the state's water bodies and categorizes each based on the attainment status. For example, once a TMDL is developed, a water body is no longer on the 303(d) list, but it is still tracked until the water is fully restored.

https://www.epa.gov/tmdl/overview-listing-impaired-waters-under-cwa-section-303d

How do states identify impaired waters?

States may use any number of ways to determine whether or not a water body meets the water quality standard. However, federal regulations say states must evaluate "all existing and readily available information" in developing their 303(d) lists (40 C.F.R. §130.7(b)(5)). This means that states cannot select what data/information they use and purposely disregard other. EPA's regulations contain a nonexclusive list of information that must be considered.

What do states need to submit to EPA?

In addition to section 303(d) lists of impaired waters states are required to submit section 305(b) water quality reports to EPA. Section 305(b) reports provide information on the water quality status of all waters in the state, whereas section 303(d) lists are a subset of these waters – those that are impaired by a pollutant and in need of a TMDL. Given that both the 305(b) report and the 303(d) lists are due at the same time (April 1 of every even numbered year), EPA recommends that states combine them into a single "Integrated Report." EPA approves or disapproves the state's 303(d) list of impaired waters needing TMDLs. If EPA disapproves a state's list, EPA is required to identify any additional impaired or threatened waters for the state. In most of these circumstances, EPA partially approves and partially disapproves a list because some waters have been omitted and adds these waters to the state's list.

https://www.epa.gov/tmdl/overview-listing-impaired-waters-under-cwa-section-303d

How are TMDLs developed?

The objective of a TMDL is to determine the loading capacity of the waterbody and to allocate that load among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. The TMDL process is important for improving water quality because it serves as a link in the chain between water quality standards and implementation of control actions designed to attain those standards.

TMDLs are developed using a range of techniques, from simple mass balance calculations to complex water quality modeling approaches. The degree of analysis varies based on a variety of factors including the waterbody type, complexity of flow conditions and pollutant causing the impairment.

All contributing sources of the pollutants (point and nonpoint sources) are identified, and they are allocated a portion of the allowable load that usually contemplates a reduction in their pollution discharge in order to help solve the problem. Natural background sources, seasonal variations and a margin of safety are all taken into account in the allocations.

The approach normally used to develop a TMDL for a particular waterbody or watershed consists of five activities:

- Selection of the pollutant(s) to consider.
- Estimation of the waterbody's assimilative capacity (i.e., loading capacity).
- Estimation of the pollutant loading from all sources to the waterbody.
- Analysis of current pollutant load and determination of needed reductions to meet assimilative capacity.
- Allocation (with a margin of safety) of the allowable pollutant load among the different pollutant sources in a manner such that water quality standards are achieved.

https://www.epa.gov/tmdl/overview-total-maximum-daily-loads-tmdls

What happens after the TMDL is approved by EPA?

TMDL wasteload allocations (those pollutant allocations assigned to point sources) are generally implemented through EPA's National Pollutant Discharge Elimination System (NPDES) permits under CWA section 402. This section of the Act requires that point source discharges be controlled by including water quality-based effluent limits in permits issued to point source entities. Under EPA's permitting regulations, water quality-based discharge limits in NPDES permits must be "consistent with the assumptions and requirements" of wasteload allocations in EPA-approved TMDLs.

Non-point source load reduction actions are implemented through a wide variety of programs at the state, local and federal level. These programs may be regulatory, non-regulatory or incentive-based e.g., a cost-share program. In addition, waterbody restoration can be assisted by voluntary actions on the part of citizen and/or environmental groups. The EPA section 319 program provides grant money to the states to fund specific projects aimed at reducing the nonpoint source pollution.

Although states are not explicitly required under section 303(d) to develop TMDL implementation plans, many states include some type of implementation plan with the TMDL. When developed, TMDL implementation plans may provide additional information on what point and nonpoint sources contribute to the impairment and how those sources are being controlled, or should be controlled in the future.

https://www.epa.gov/tmdl/overview-total-maximum-daily-loads-tmdls

Sounds relatively simple, right?

- This explanation refined over several decades of "hard road."
- Each step of the way is rife with complexity re: "science."
  - Addressing point sources is fairly concrete and measurable.
  - Addressing non-point sources is "much less certain."
    - What is truly the cause of the stubborn WQS failure?
    - Are the steps taken truly achieving reductions?
    - Are the methods for measuring reductions accurate?
- Administrative problems: Water and watersheds sheds don't follow state jurisdictional boundaries. Multi-jurisdictional TMDL coordination.
- Where's the money for states to cause implementation of a TMDL?
- Stormwater is 100% fungible and untraceable, as is air -- both of which are the major depositors of non-point source pollutants in water.

Litigation over Implementation - 2000s

Three general categories:

(1) Challenges intended to compel EPA to step in to fulfill TMDL requirements where a state has failed partially or completely to do so;

(2) Challenges to EPA's listing of impaired waters, TMDL approval decisions, EPA's promulgation of TMDLs;

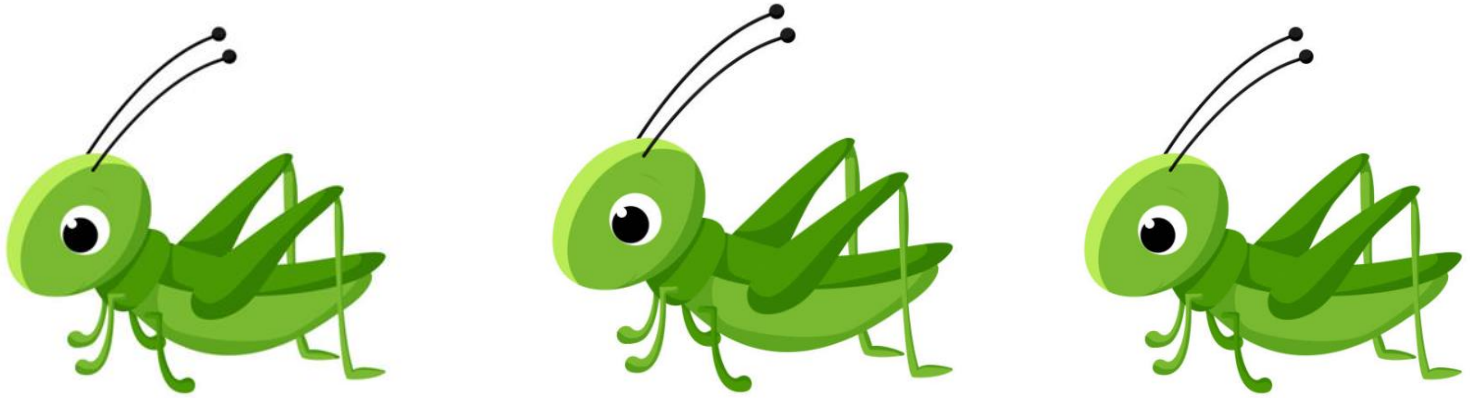
(3) Challenges to the substance or content of TMDLs.

- CWA and the regulations are extremely vague and lack any mention of implementation of a TMDL. EPA "Guidance" to states proliferates <u>but it isn't law</u>. What is actionable?
- Section 303(d) lacks any mention of enforcement. What remedies for various forms of perceived "failures?" (human or scientific) CWA enforcement text d/n apply to states.

Oversight abounds / no action to date

- U.S. General Accounting Office, **Key EPA and State Decisions Limited by Inconsistent and Incomplete Data**, RCED-00-54, March 14, 2000.
- U.S. General Accounting Office, **Inconsistent State Approaches Complicate Nation's Efforts to Identify Its Most Polluted Waters**, GAO-02-186, January 11, 2002.
- Office of Inspector General of the U.S. Environmental Protection Agency, **Total Maximum Daily Load Program Needs Better Data and Measures to Demonstrate Environmental Results**, Report No. 2007-P-00036, September 19, 2007.
- U.S. Government Accountability Office, **Clean Water Act, Changes Needed If Key EPA Program Is to Help Fulfill the Nation's Water Quality Goals**, GAO-14-80, December 2013

Will there be TMDL reform?



QUESTIONS?