

TMDLs

Too Much Dadgum Litigation

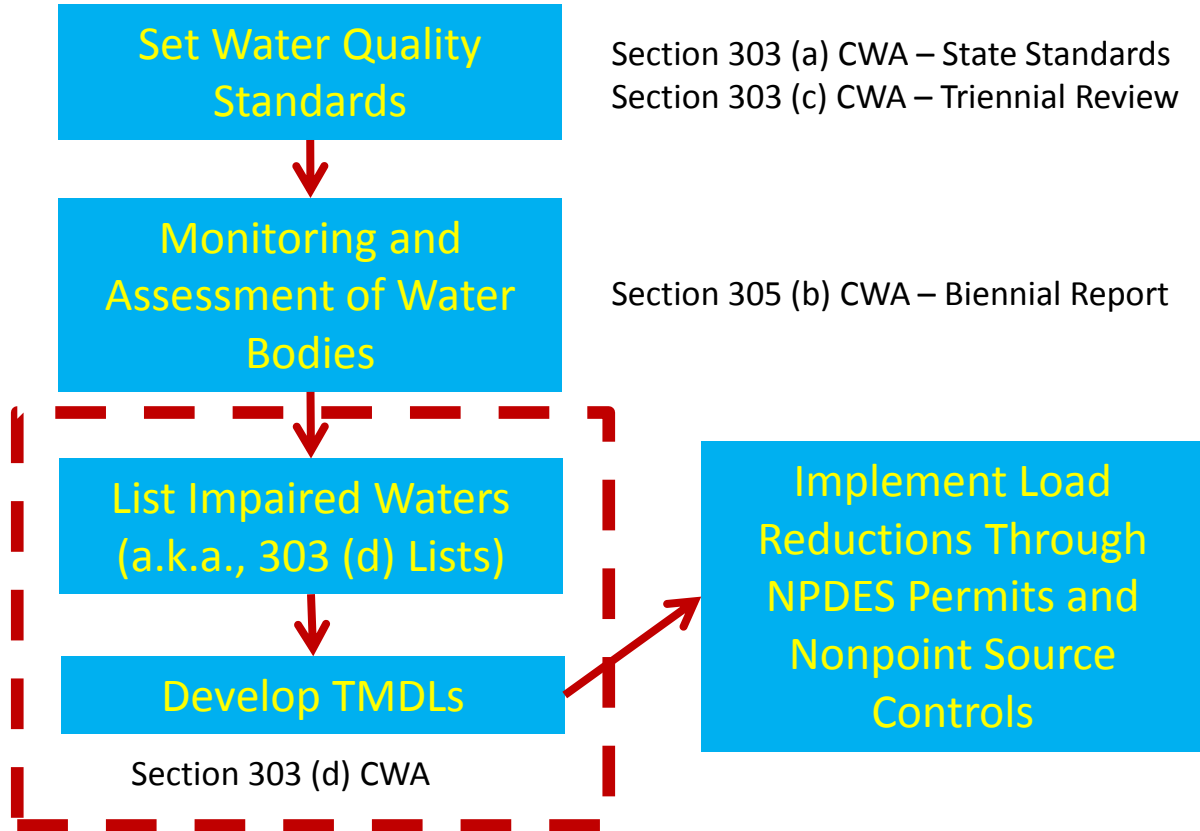
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**CDM
Smith**

Clean Water Act and TMDLs



Clean Water Act

- 303(d)(1)(A) – Identification of Waters that are Water Quality Limited and Prioritize
- 303(d)(1)(C) – For Waters Identified and Prioritized in (1)(A), Develop Total Maximum Daily Loads with Consideration of Seasonal Variation and Margin of Safety (which is to take into account any lack of knowledge regarding relationship between effluents and water quality impacts)

Federal Regulations (40 CFR)

- §122.26(e)(1) – NPDES Permit Holders Must Comply with More Stringent Effluent Limitations in Permits Including TMDLs
- §130.7 – Total Maximum Daily Loads
 - (a) Process of Listing and Development of TMDLs in Continuing Planning Process (CPP)
 - (b) Identify and Setting of Priorities for Water Segments
 - (c) Development of TMDLs to Attain and Maintain WQS
 - (d) Submit to EPA Biennially Impaired List, Causal Pollutant, Ranking for TMDLs (Beginning in 1992)

What is a TMDL?

A TMDL is a calculation of the maximum quantity of a pollutant that may be discharged to a water body so as not to cause an exceedance of the applicable water quality standards.

$$\text{TMDL} = \text{WLA} + \text{LA} + \text{Margin of Safety}$$



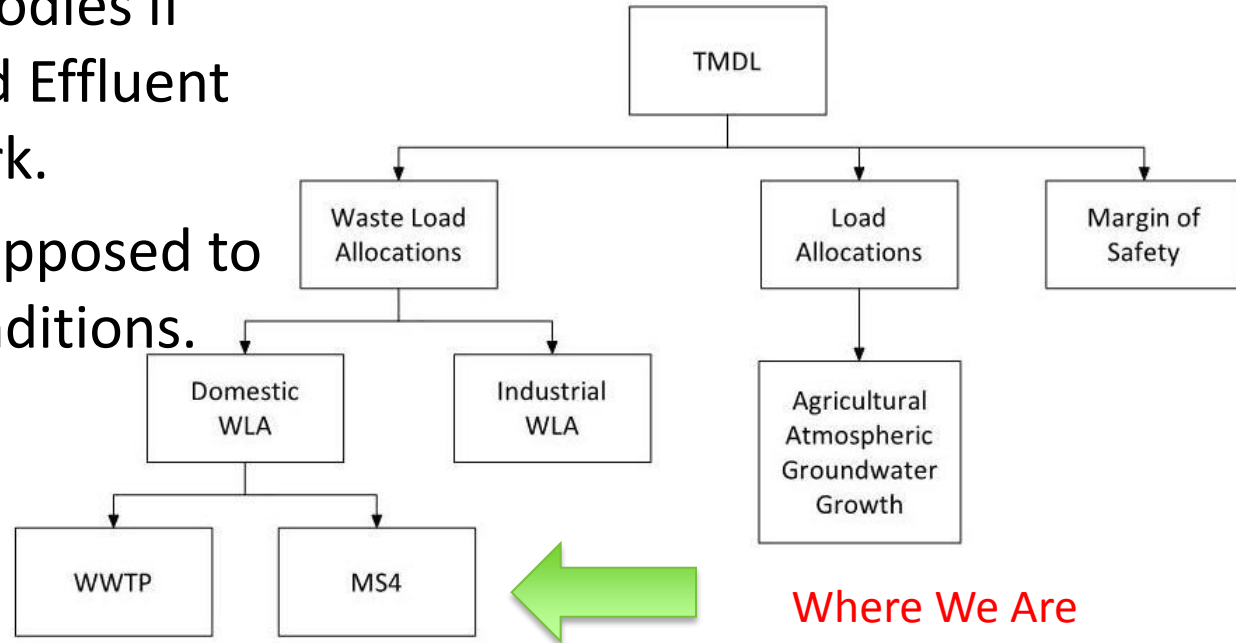
Point Sources



Nonpoint
Sources

TMDLs - General

- A TMDL is required for impaired water bodies if Technology Based Effluent Limits do not work.
- TMDLs are not supposed to abate natural conditions.



General TMDL Process

- Objective is to determine the loading capacity of the waterbody and allocate this load to sources.
- Process:
 - Look at existing data to determine Pollutant of Concern (POC) and parameters that affect the POC.
 - Estimate assimilative capacity of POC (i.e., what the load or concentration has to be to achieve water quality standard).
 - Estimate existing load from all sources and reductions needed.
 - Allocate to sources with Margin of Safety (MOS).

Impairments and TMDLs by State

■ National Scene

- Most Impaired Water – Pennsylvania (6,937)
- Most Frequently Named Cause of Impairment – Pathogens; Second - Nutrients
- Most Frequent POC for TMDLs – Mercury; Second – Pathogens
- Most Number of Approved TMDLs – North Carolina (13,443); Second – Pennsylvania (7,152)
- Year with Largest Number of TMDLs – 2013 (15,534); Second – 2008 (9,264)

■ EPA Region IV Focus

- Alabama
- Florida
- Georgia
- Kentucky
- Mississippi
- North Carolina
- South Carolina
- Tennessee

POC = Pollutant of Concern

Impaired Waters Based on 303(d) Lists

State	Rivers		Lakes		Bays & Estuaries	
	% of Rivers		% of Lakes		% of Bays	
	Impaired	Assessed	Impaired	Assessed	Impaired	Assessed
Alabama	25.3%	16.4%	47.0%	88.8%	74.6%	94.4%
Florida	80.4%	20.2%	90.2%	53.9%	97.3%	100.0%
Georgia	59.3%	19.7%	35.6%	84.9%	5.7%	8.2%
Kentucky	66.8%	24.0%	41.0%	97.4%		
Mississippi	64.5%	6.0%	100.0%	7.4%	8.3%	10.8%
North Carolina	100.0%	100.0%	100.0%	80.3%	100.0%	100.0%
South Carolina	65.2%	19.5%	24.6%	32.9%	30.8%	100.0%
Tennessee	47.9%	46.5%	32.1%	98.9%		

- North Carolina – Everything is impaired!
- Florida – Of waters assessed, majority are impaired
- No wonder EPA is concerned about impaired waters.

Listed Impairment Priorities

- Rivers – Pathogens, Mercury and Sediment
- Lakes – Mercury and PCBs
- Bays/Estuaries – Pathogens and Mercury

State	River Impairments (mi)					Lakes Impairments (ac)					Bay/Estuary Impairments (sq mi)				
	1st	2nd	3rd	4th	5th	1st	2nd	3rd	4th	5th	1st	2nd	3rd	4th	5th
Alabama	Sediment	Pathogens	Mercury	Oxygen Demand	Metals	Nutrients	PCBs	Mercury	Toxic Org	Oxygen Demand	Pathogens	Metals	Mercury		
	100	82	80	72	51	100	35	25	13	4	100	22	0		
Florida	Oxygen Demand	Mercury	Pathogens	Algal Growth	Metals	Nutrients	Mercury	Metals	Oxygen Demand	pH	Mercury	Pathogens	Oxygen Demand	Algal Growth	Metals
	100	61	48	26	8	100	96	45	40	39	100	37	24	21	9
Georgia	Pathogens	Unknown Cause	Oxygen Demand	Mercury	PCBs	PCBs	pH	Algal Growth	Mercury	Nutrients	Oxygen Demand				
	100	58	28	22	8	100	21	14	4	3	100				
Kentucky	Pathogens	Sediment	Nutrients	Unknown Cause	Oxygen Demand	Mercury	Oxygen Demand	PCBs	Nutrients	Turbidity					
	100	84	48	37	24	100	10	10	9	2					
Mississippi	Unknown Cause	Sediment	Pathogens	Oxygen Demand	Nutrients	Mercury	Pesticides				Pathogens	Nutrients			
	100	47	23	21	19	100	5				100	36			
North Carolina	Mercury	Unknown Cause	Pathogens	Oxygen Demand	Turbidity	Mercury	PCBs	Algal Growth	pH	Turbidity	Mercury	Metals	Pathogens	Algal Growth	pH
	100	5	1	1	1	100	25	11	5	4	100	21	7	1	1
South Carolina	Pathogens	Unknown Cause	Oxygen Demand	pH	Mercury	Nutrients	pH	Metals	Ammonia	Algal Growth	Pathogens	Turbidity	Oxygen Demand	Metals	Pesticides
	100	36	21	5	5	100	61	20	7	7	100	5	4	1	0
Tennessee	Pathogens	Sediment	Nutrients	Oxygen Demand	Metals	PCBs	Mercury	Oxygen Demand	Temp.	Sediment					
	100	84	46	25	7	100	71	40	21	19					

Number represents strength of priority

Source of Impairments

State	River Sources (mi)					Lake Sources (ac)					Bay/Estuary Sources (sq mi)				
	1st	2nd	3rd	4th	5th	1st	2nd	3rd	4th	5th	1st	2nd	3rd	4th	5th
Alabama	Agric	Atmos	Urban SW	Muni WW	Const.	Agric	Hydro Mod	Other	Atmos	Industrial	Industrial	Urban SW			
	100	64	54	40	25	100	63	53	44	35					
Florida															
Georgia	Unspecified NPS	Urban SW	Muni WW	Industrial	Hydro Mod	Urban SW	Unspecified NPS	Industrial			Muni WW				
	100	40	5	1	0	100	75	1							
Kentucky	Agric	Unknown	Muni WW	Habitat Alter	Resource Extract	Atmos	Unknown	Industrial	Muni WW	Other					
	100	93	66	52	49	100	67	16	15	14					
Mississippi	Unknown					Unknown									
	100					100									
North Carolina															
South Carolina															
Tennessee	Agric	Hydro Modif	Urban SW	Muni WW	Const.	Legacy	Atmos	Industrial	Agric	Const.					
	100	50	32	18	11	100	69	31	16	16					

- Reason most listed as highest priority for Rivers – Agriculture
- Reason most listed as priority for Lakes – Atmospheric Deposition

Number represents strength of priority

TMDLs by Pollutant of Concern

State	1st	2nd	3rd	4th	5th
Alabama	BOD	Fecal	TP	NBOD	Sediment
Florida	Mercury	TN	TP	Fecal	BOD
Georgia	Fecal	Sediment	TP	TN	TOC
Kentucky	Copper	DO	Zinc	Lead	pH
Mississippi	Fecal	Siltation	BOD	TP	TN
North Carolina	Mercury	Fecal	TSS	TP	TN
South Carolina	Fecal	BOD	E. Coli	Ammonia	CBOD
Tennessee	E. Coli	Siltation	Fecal	TN	TP

- Fecal and E. Coli TMDLs are most common
- Nutrient TMDLs are common but not highest priorities

What's New on the TMDL Front?

- TMDLs are being implemented through MS4 permits.
- Two MS4 requirements:
 - If you have a TMDL, implement it according to the TMDL document.
 - If you discharge to an impaired water without a TMDL, figure out how you are going to reduce the pollutant of concern (POC).
- New Permits
 - If impaired, no net increase in discharge of POC.

Bottom Line

- Be involved in impairment consideration by State.
- Make sure to review and comment on every document produced by State for your area.
- Watch out for EPA produced TMDLs.

Don't ever give up!

