



Tribal Involvement and the 303(d) Impaired Waters Program

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Objective

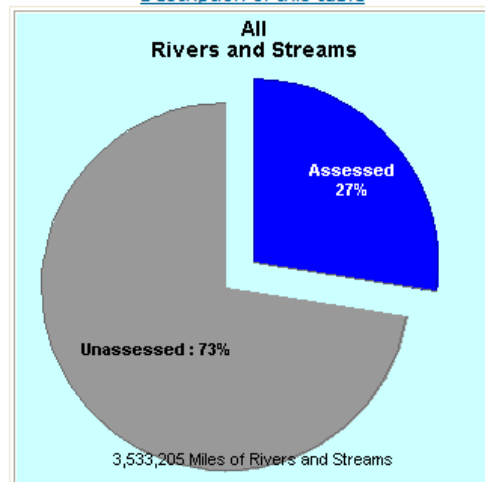
- Overview of the 303(d) Program:
 - Identification of Impaired Waters
 - Development of Pollution Budget Plans (TMDLs)
- Tribal involvement with the 303(d) Program
- Overview of GIS tools to facilitate analysis of impaired waters

Overarching goal of the CWA

- “to restore and maintain the chemical, physical and biological integrity of the Nation’s waters”

National Summary Water Quality Attainment in Assessed Rivers and Streams

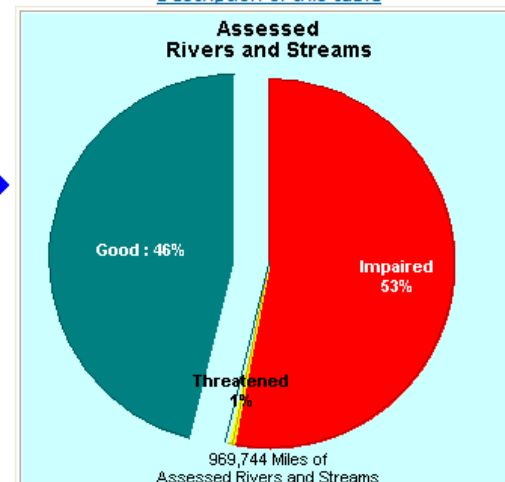
[Description of this table](#)



<u>Assessed Status</u>	<u>Miles</u>
Assessed	969,744
Unassessed	2,563,461
Total Miles	3,533,205

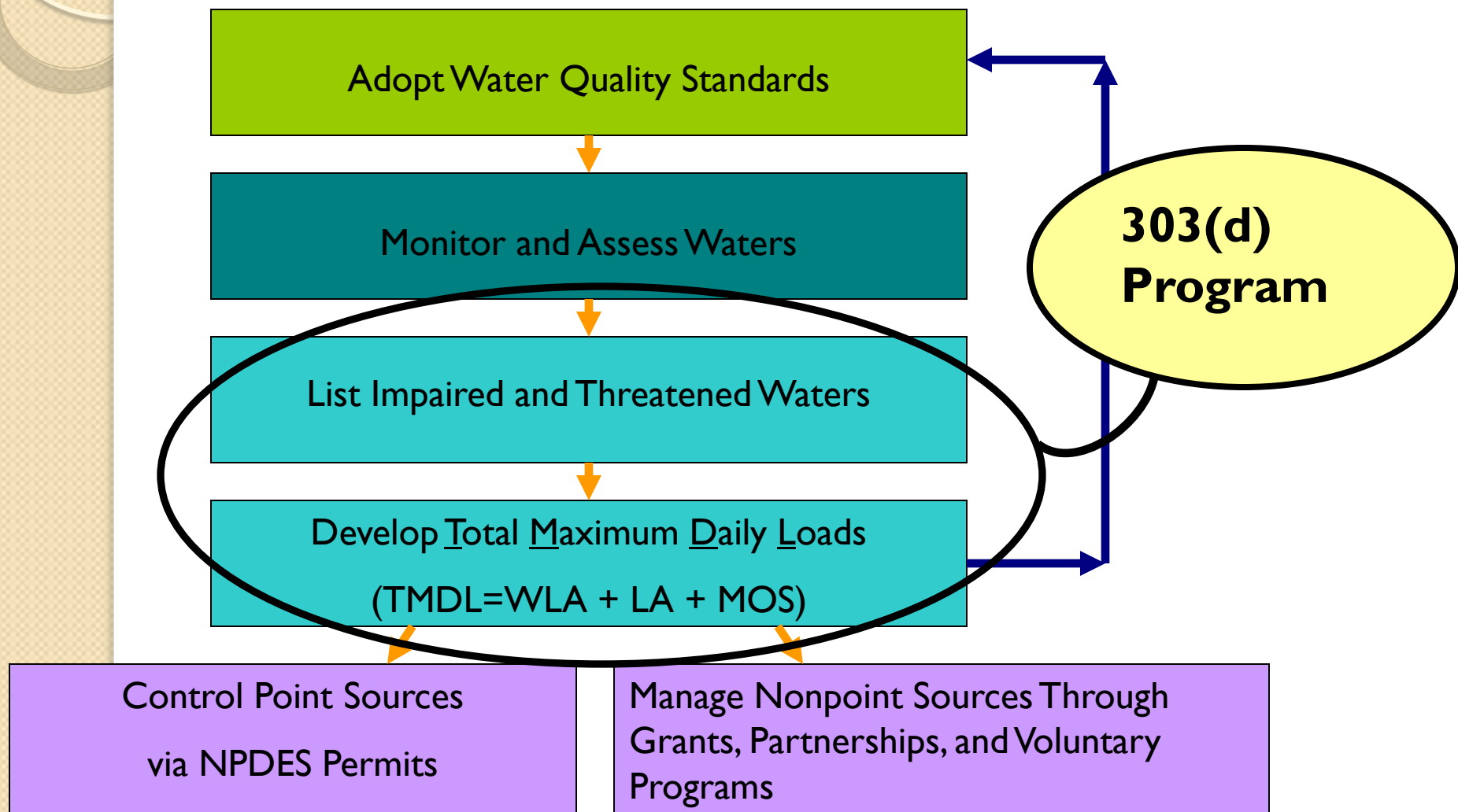


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<u>Attainment Status</u>	<u>Miles</u>
Good	448,232
Threatened	6,369
Impaired	515,143
Total Miles Assessed	969,744

The CWA Restoration Framework



How does the 303(d) Program fit into the CWA?

- CWA includes 2 basic approaches for protecting and restoring the nation's waters:
 - 1.) Technology-based, end-of-pipe approach: EPA promulgates effluent guidelines that rely on technologies available to remove pollutants from waste streams. "Tech-based NPDES permit limits"
 - 2.) Water-quality based approach: designed to achieve the desired designated uses of a water and may result in more stringent NPDES permit limits.

The 303(d) program is at the core of the water-quality based approach and serves to link the water goals to the NPDES permit limits

What are the components of a 303(d) program?

- **Lists of Impaired Waters (a.k.a., “303(d) List”)**
 - Identify waters not meeting WQS and their causes of impairment
 - Submit a list of impaired and threatened waters to EPA every two years on even-numbered years
- **Develop Total Maximum Daily Loads (TMDLs)**
 - Detailed, scientific plan that analyze pollutant loadings and sources to allocate reductions among those sources and restore the water to attain its designated uses
 - **TMDL = Sum of WLAs + Sum of LAs + MOS**
 - Submit TMDL Plans to EPA on an ongoing basis

Listing of Impaired Waters

1. States/tribes/territories identify waters not meeting WQS based on “*all existing and readily available information*”
2. States/tribes/territories establish priorities for TMDL development
3. States/tribes/territories develop schedule of TMDLs to be developed within 2 years
4. States/tribes/territories provide long-term plan
 - Complete TMDLs 8 to 13 years from first listing
5. EPA has 30 days to approve or disapprove list submitted April 1st of each even year
 - If EPA disapproves State list, EPA has 30 days to develop list for the State

What's the universe of Impaired Waters?

- 42,388 impaired waters
- 74,915 Causes of Impairment
(waterbody/impairment combination)

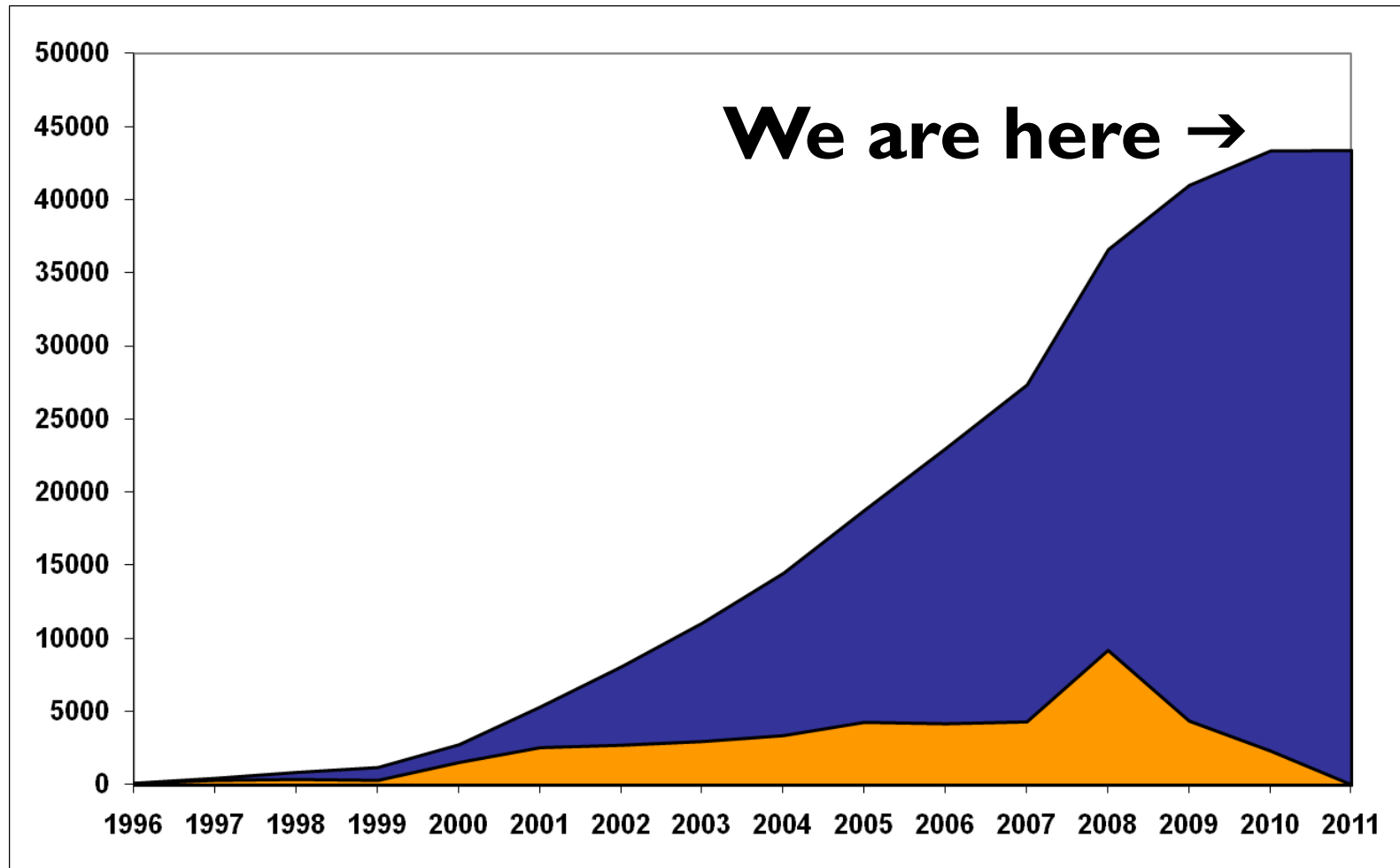
Causes of Impairment for 303(d) Listed Waters

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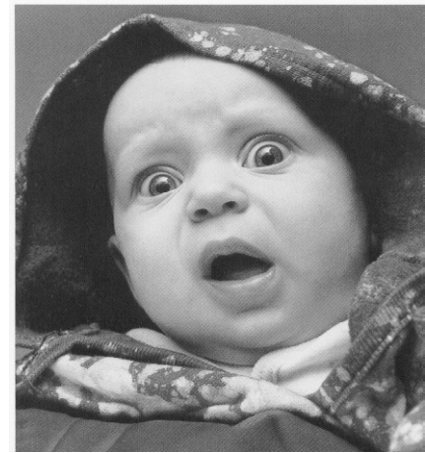
NOTE: Click on a cause of impairment (e.g. pathogens) to see the specific state-reported causes that are grouped to make up this category. Click on the "Number of Causes of Impairment Reported" to see a list of waters with that cause of impairment.

Cause of Impairment Group Name	Number of Causes of Impairment Reported
Pathogens	10,965
Metals (other than Mercury)	7,614
Organic Enrichment/Oxygen Depletion	7,074
Nutrients	6,831
Polychlorinated Biphenyls (PCBs)	6,385
Sediment	6,156
Mercury	4,979
pH/Acidity/Caustic Conditions	4,111
Cause Unknown - Impaired Biota	3,590
Turbidity	3,131
Temperature	3,045

Over 46,000 TMDLs Completed



What is a TMDL?



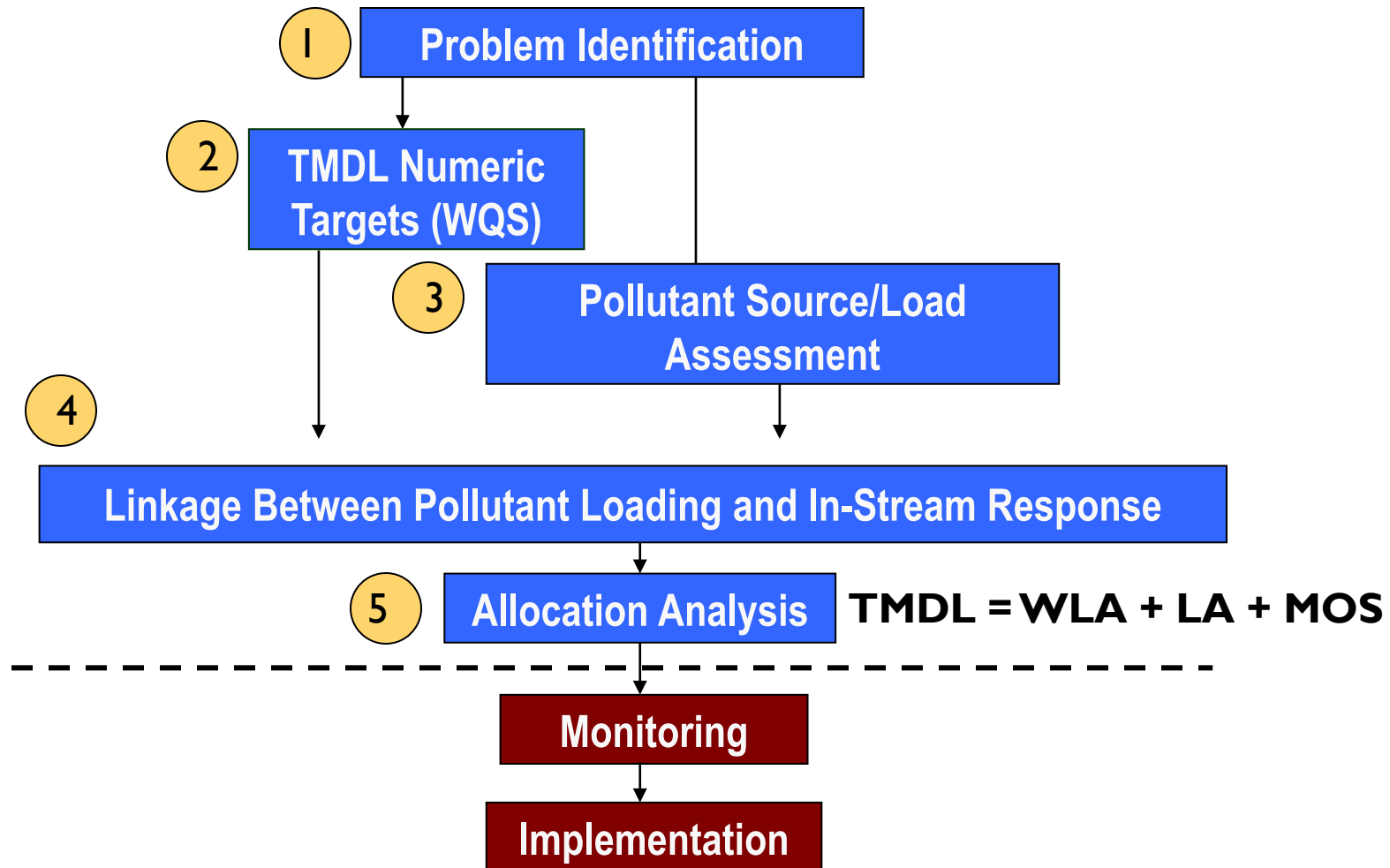
A calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources.

**The TMDL comes in the form of a technical document or plan.*

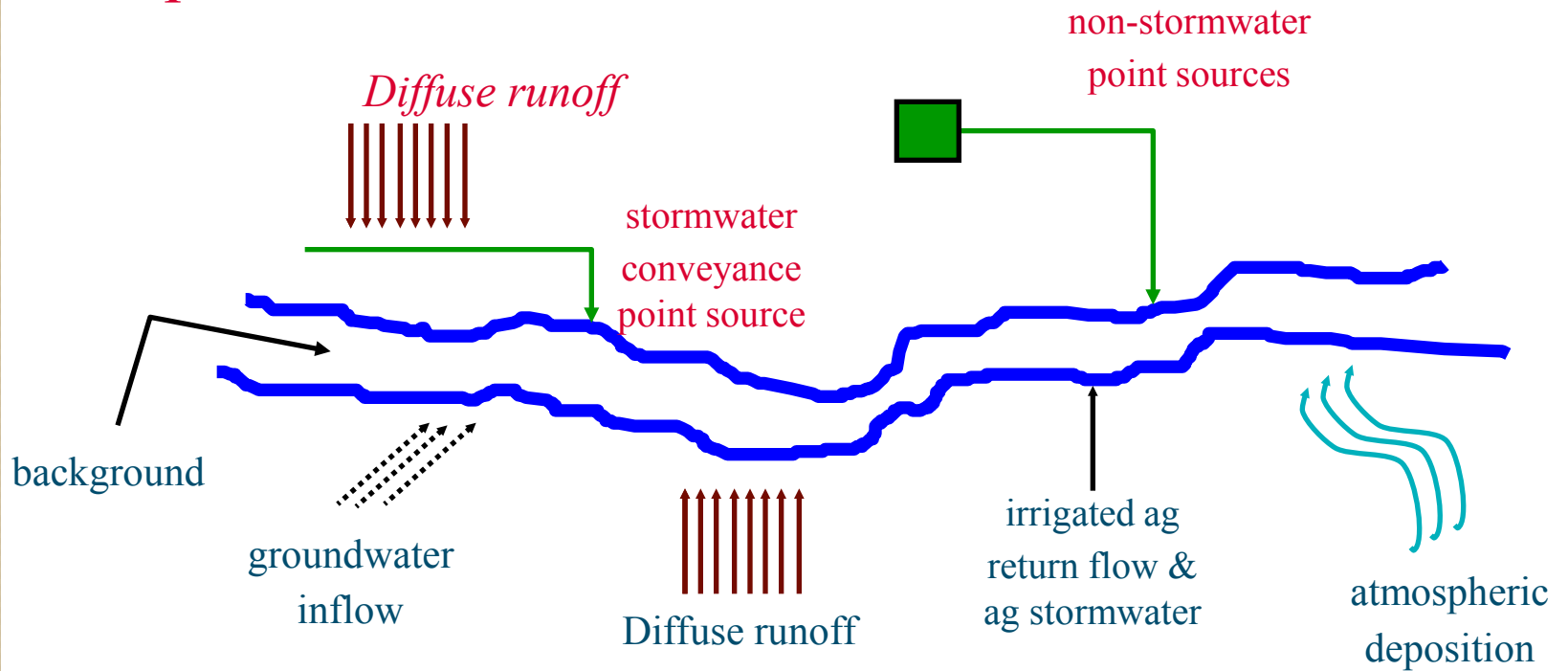
TMDL Calculation

- $TMDL = \sum WLA_i + \sum LA_i + MOS$
- $\sum WLA_i$: Sum of waste load allocations (point sources)
- $\sum LA_i$: Sum of load allocations (nonpoint sources)
- MOS: Margin of Safety
- Completed for each waterbody/pollutant combination

TMDL Development Process



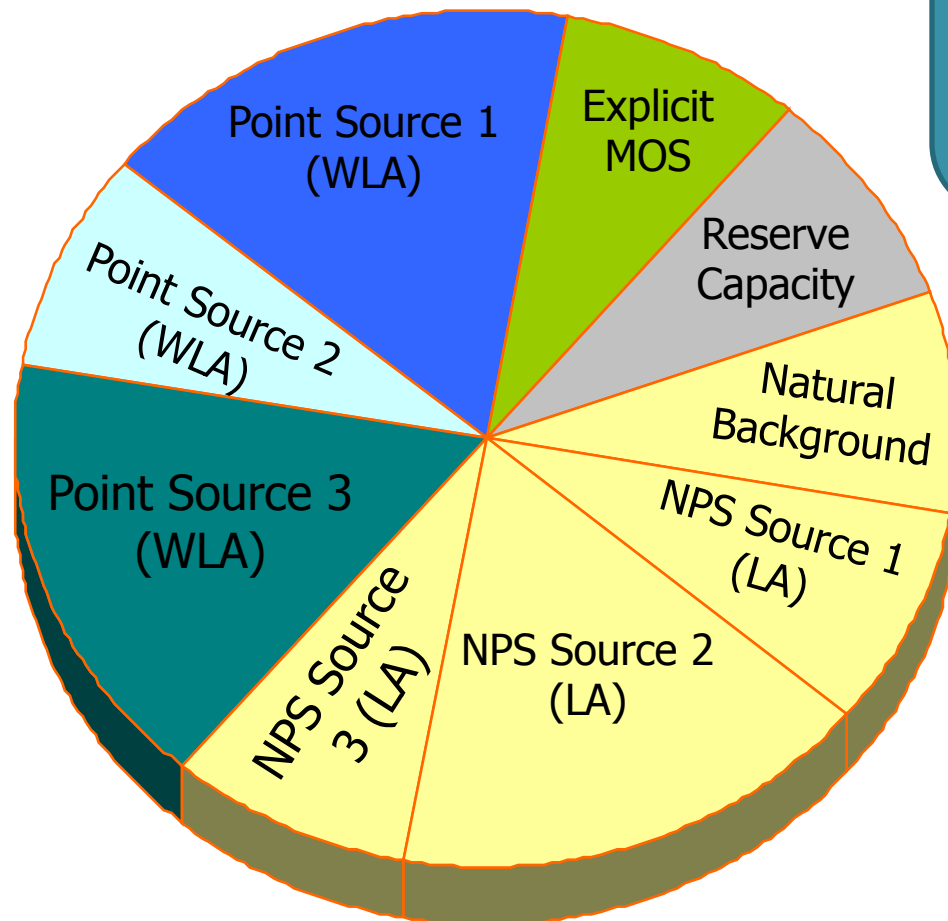
Wasteload Allocation Components



Load Allocation Components

TMDL Allocation

Pie represents the total TMDL loading and each slice of the pie represents an allocation within that TMDL.



TMDLs are Expressed as:

- Mass (e.g., pounds per day)
- Toxicity (e.g., toxic units)
- Energy (e.g., heat in temperature TMDLs)

***Emphasis TMDLs expressed as daily loads**

TMDL Implementation

- TMDLs not self implementing under 303(d)
- Point Sources:
 - Permit limits consistent with WLA are enforceable under CWA through National Pollutant Discharge Elimination System (NPDES)
 - Issued by EPA or States w/ delegated authority
- Nonpoint Sources:
 - No federal regulatory enforcement program
 - Primarily implemented through State/Tribal/local NPS management programs (few w/ regulatory enforcement)

Tribal Lands and Impaired Waters: A GIS mapping application

- Geographic Information System (GIS) application developed to facilitate analysis of waters not meeting water quality standards on and near Tribal lands
- Data layers include:
 - May 2008 compilation of 303(d) impaired waters
 - Reflects only waters that have been assessed – approx. 28% nationally
 - Tribal lands & federal land ownership, e.g. Forest Service
 - Watershed boundaries & “hydrologic” Tribal buffers
 - Locational aids, e.g. cities, towns, major rivers & lakes
- Summary statistics

Identify Impaired Waters Entering Tribal Lands

San Ildefonso Pueblo, NM

- 303d Tribal-River/Stream
- 303d Tribal-Lake/Pond
- All
- 303d River/Stream
- 303d Lake/Pond
- NHD
- Land Ownership
- Tribal
 - Tribal Hydro
 - Tribal-Actual
 - Tribal Names
- Federal Land
- States

Identify

Identify from: All

- All
 - 303d River/Stream
 - NM-MRG1-10100
 - Impairments
 - 38875
 - 2670

Field	Value
OID	2670
LIST_ID	NM-MRG1-10100
CAUSE_ID	293
CAUSE_DESC	GROSS ALPHA
CYCLE	2004
STATE	NM
REGION	6
PARENT_ID	42
PARENT_DESC	RADIATION
WATERBODY	GUAJE CANYON
MILES_303D	12.2570
ACRES_303D	0.0000

Identified 1 feature

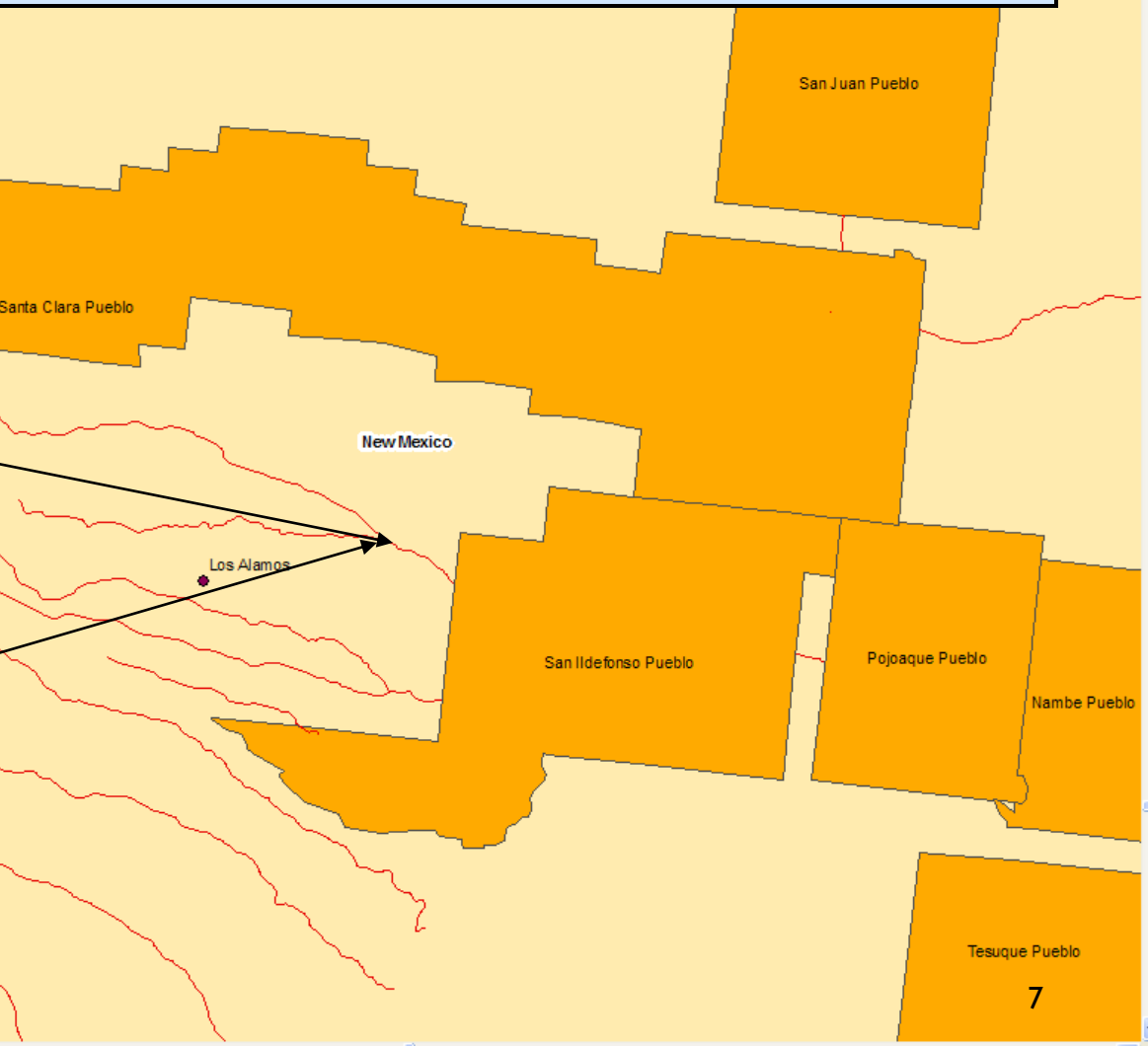
Identify

Identify from: All

- All
 - 303d River/Stream
 - NM-MRG1-10100
 - Impairments
 - 38875
 - 2670

Field	Value
OID	38875
LIST_ID	NM-MRG1-10100
CAUSE_ID	20
CAUSE_DESC	SELENIUM
CYCLE	2004
STATE	NM
REGION	6
PARENT_ID	13
PARENT_DESC	METALS (OTHER
WATERBODY	GUAJE CANYON
MILES_303D	12.2570
ACRES_303D	0.0000

Identified 1 feature

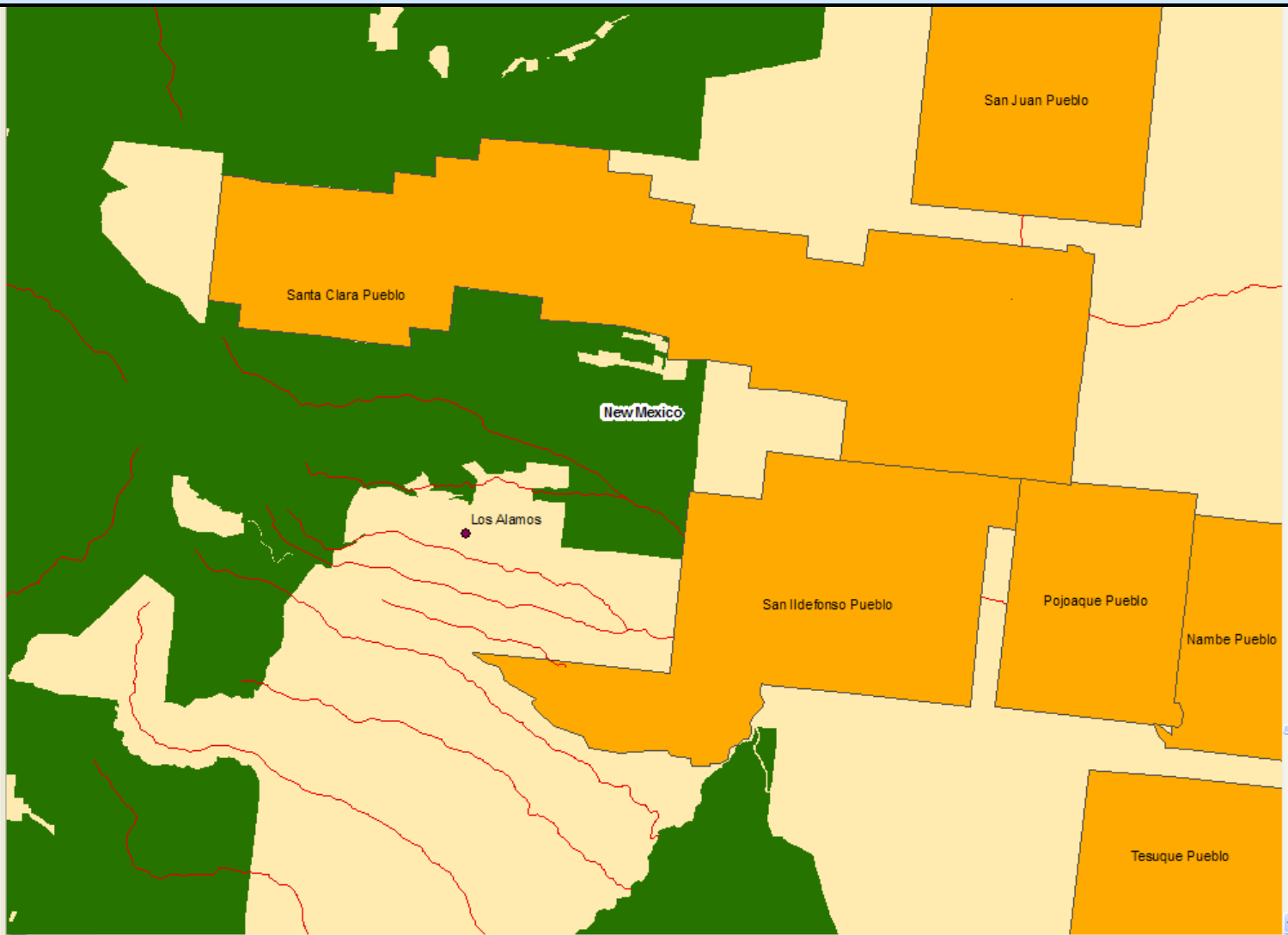


Federal Land Ownership Layers Help Identify Upstream Neighbors

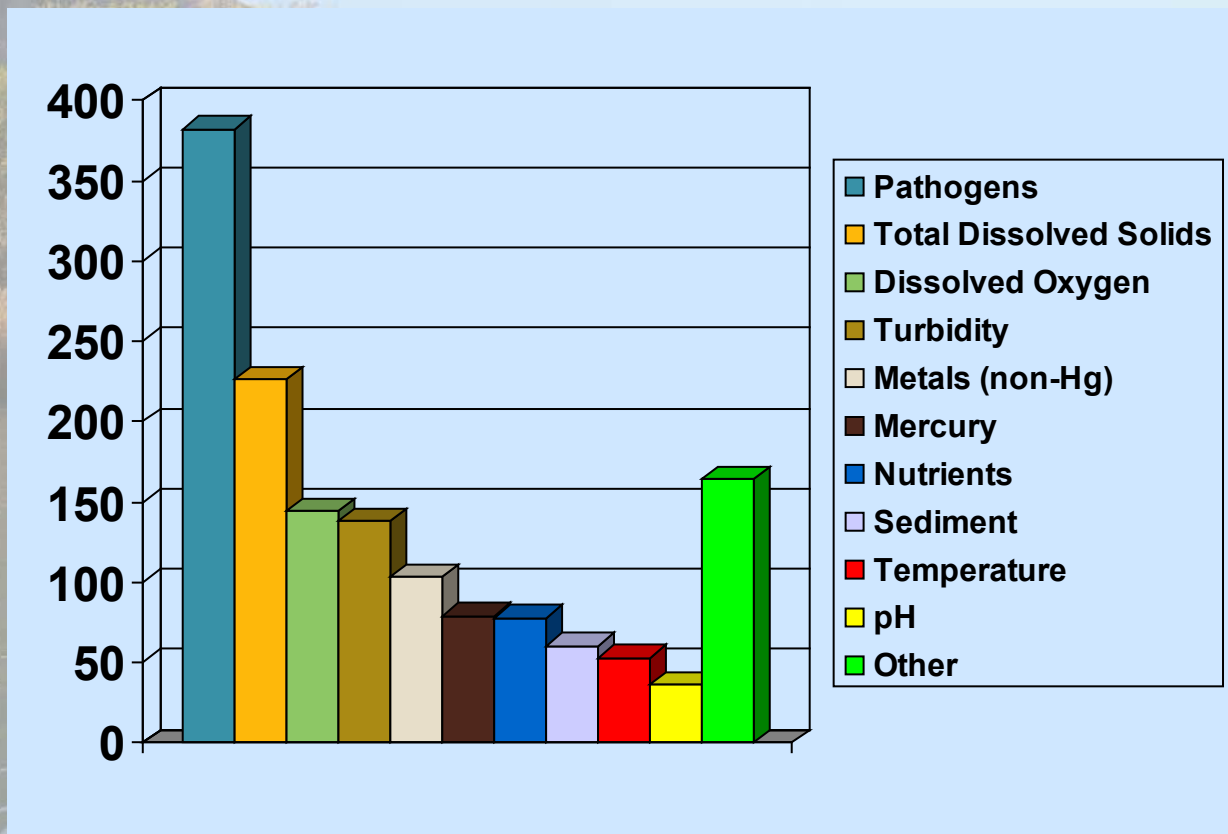
File Edit View Tools

Layers

- Locational Aids
- HUC-8 Watershed
- States
- Impairments
 - Tribal
 - 303d Tribal-River/Stream
 - 303d Tribal-Lake/Pond
 - All
 - 303d River/Stream
 - 303d Lake/Pond
- NHD
- Land Ownership
 - Tribal
 - Tribal Hydro-Buffer Catchments
 - Tribal-Actual Boundaries
 - Tribal Names
 - Federal Land
 - Forest Service
 - Bureau of Land Management
 - National Park Service
 - Army Corps of Engineers
 - DOD Military Bases
 - Fish & Wildlife Service
 - Bureau of Reclamation
- States

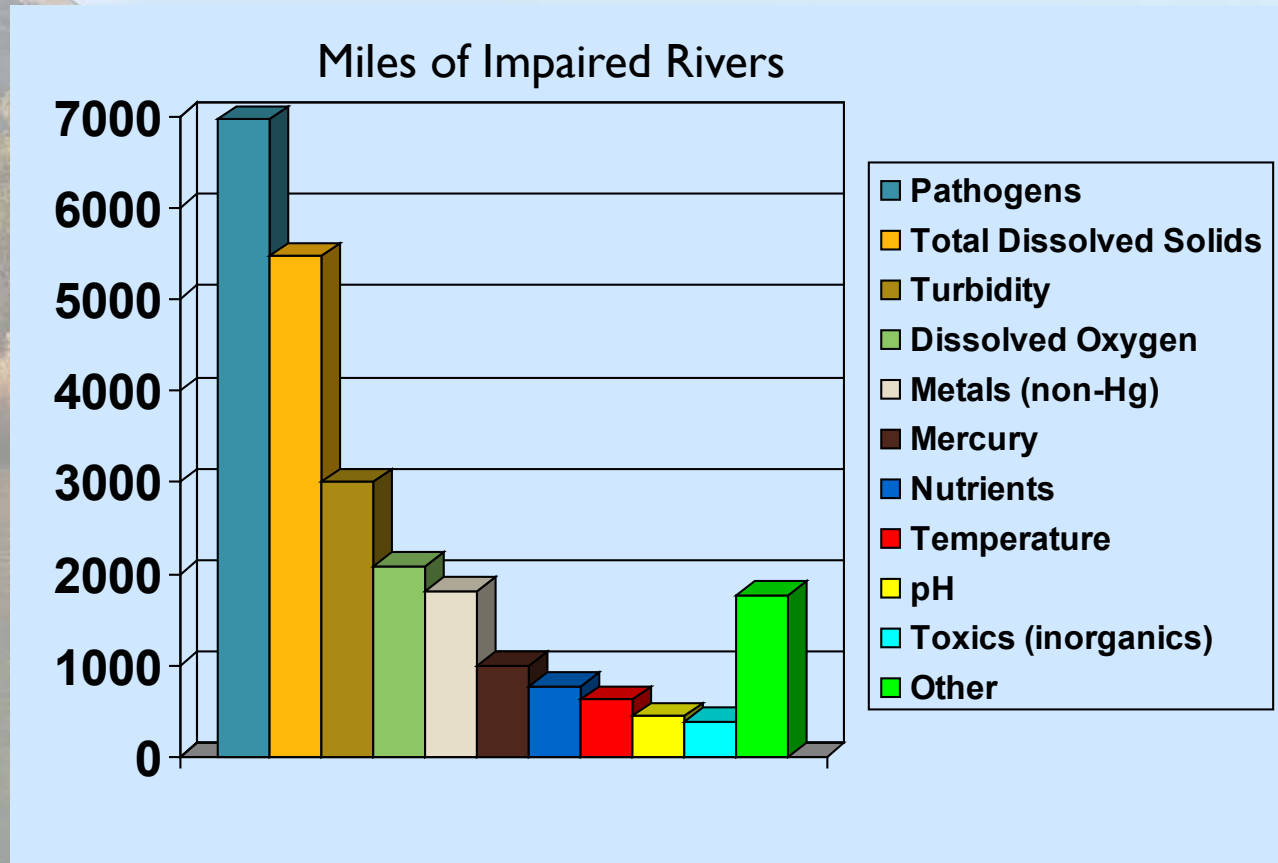


Top 10 Pollutant Causes of Impaired Waters on Tribal Lands



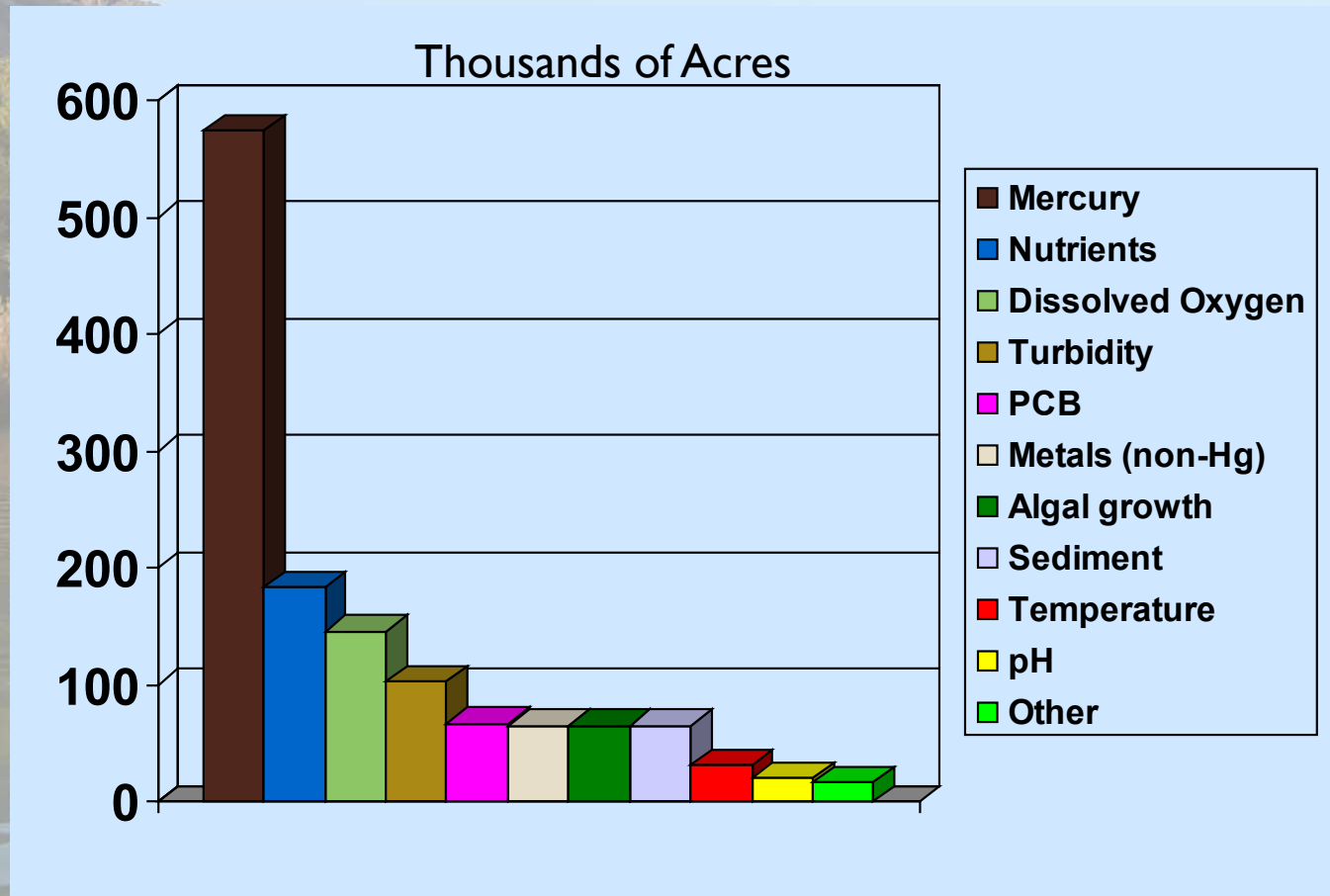
1,463 Impairments on Tribal lands
(approximately 65,000 nationwide)

Top 10 Pollutant Causes of Impaired Waters – Length of Impaired Rivers on Tribal Lands



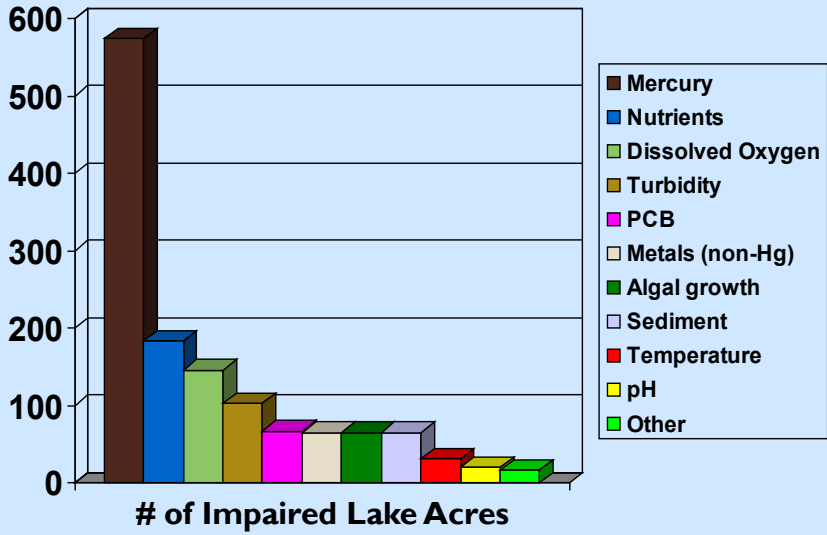
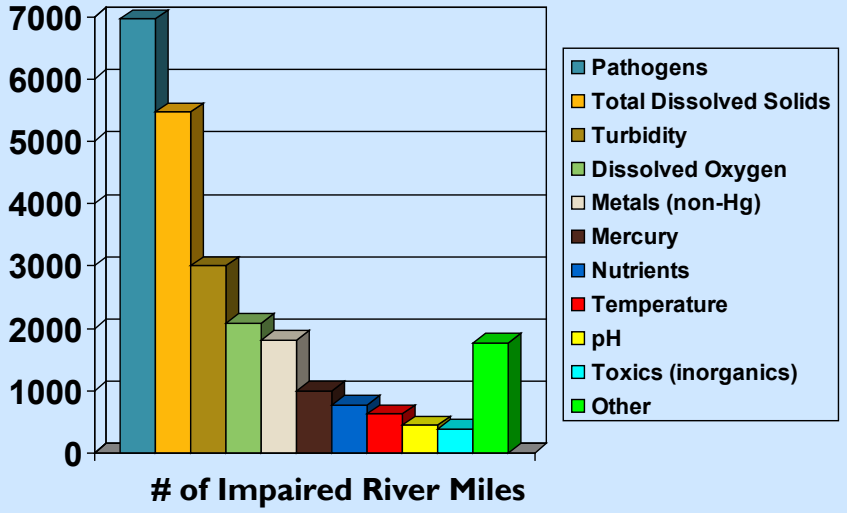
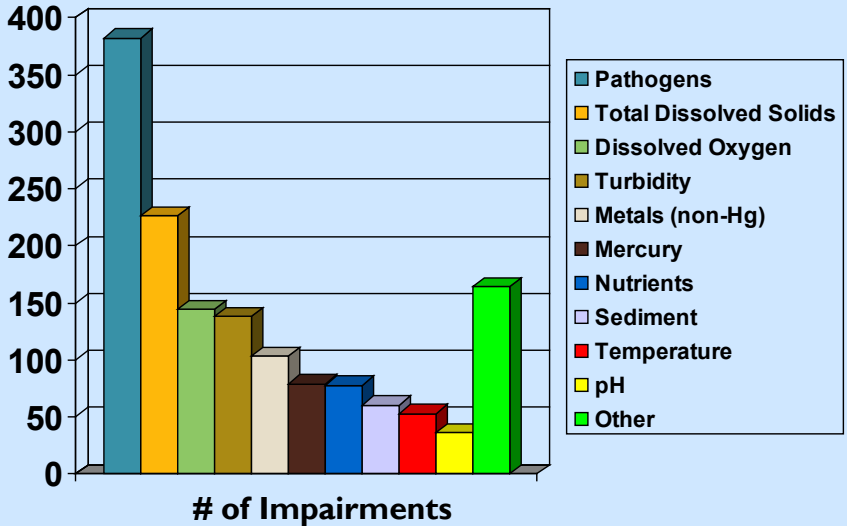
- >24,300 miles of impaired waters on Tribal lands
- Note similar ranking to # of impaired waters; dissolved oxygen & turbidity reversed in rank; Toxic inorganics replaces sediment in top 10

Top 10 Pollutant Causes of Impaired Waters – Area of Impaired Lakes on Tribal Lands

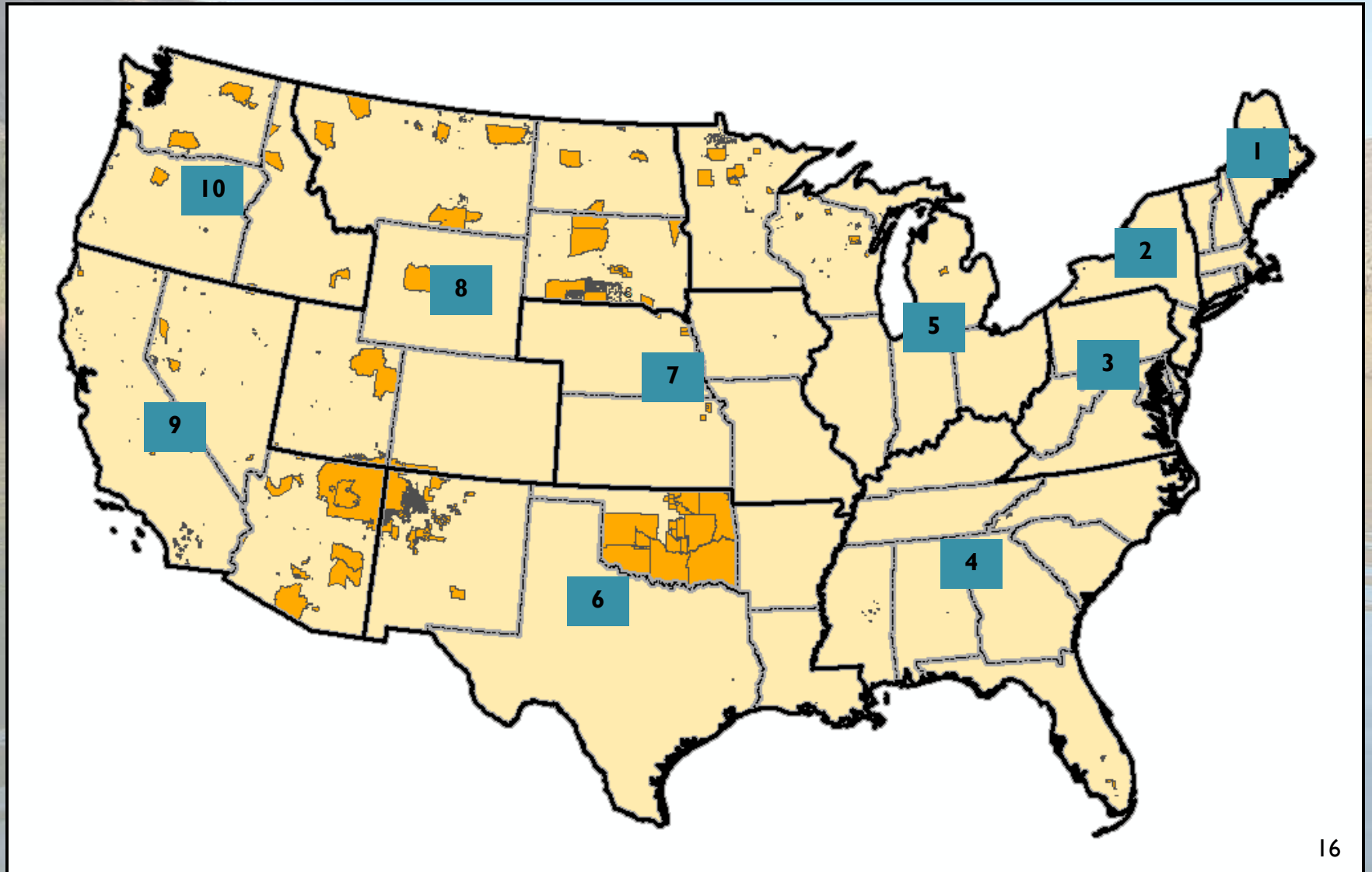


- >1,300,000 acres of impaired lakes on Tribal lands
- Mercury dominates impaired lake acreage on Tribal lands

Pollutants on Tribal Waters – Comparison by # of Impairments, # of Impaired River Miles, & # of Impaired Lake Acres



Tribes & EPA Regions



Top 3 Pollutant Causes of Impairments on Tribal Lands - by EPA Region

(Top cause in each region shown in blue)

	R1	R2	R4	R5	R6	R7	R8	R9	R10
Dissolved Oxygen	2		5	7					
Pathogens	2				331				36
Biota (cause unknown)	1		3						
Dioxin		1							
PCB		1		10		3			
Pesticides		1				3			
Nutrients	1		4				18		30
Mercury				64					
TDS					203		21		
Turbidity					111			10	
Metals (non-Hg)						3	19	20	
Temperature								8	30
Sediment									43
Other			6	18	251	1	80	16	100
TOTAL	6	3	12	99	896	10	138	54	239

Summary and Information

Free GIS tool shows locations & pollutant causes of water quality problems on & near tribal lands

Common pollutant concerns across several EPA regions suggests collaborative opportunities

Potential for Priority-Setting:

- Pathogens dominate the total # of impairments & impaired river miles
- Mercury #1 cause of impaired lakes

Contact Dwight Atkinson for a copy of the program:

atkinson.dwight@epa.gov (202)566-1226

How Can Tribes Get Involved?

Clean Water Act Process

Adopt Water Quality Standards



Monitor & Assess Waters



List Impaired Waters



Develop TMDLs



**Implement TMDLs
(Point Source/Nonpoint Source)**

Tribes:

Comment on proposed water quality standards

Submit monitoring data to state

Comment on list of impaired waters

Participate in state TMDL development;
Develop 3rd party TMDLs

Review point source permits;
Implement nonpoint source controls;
Monitor water quality response;
Review TMDL

For more information...

TMDL Home Page

<http://www.epa.gov/owow/tmdl/>

303(d)/305(b) Integrated Reporting Guidance

<http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/guidance.cfm>

Draft Handbook for Developing Watershed TMDLs

http://www.epa.gov/owow/tmdl/pdf/draft_handbook.pdf

Draft TMDL to Stormwater Permits Handbook

http://www.epa.gov/owow/tmdl/pdf/tmdl-sw_permits11172008.pdf

TMDL Program Results Analysis

<http://www.epa.gov/owow/tmdl/results>

- Contact Information: fowler.jamie@epa.gov