

Compilation of Practices Observed in Nutrient Listing and Total Maximum Daily Loads (TMDLs)

Presenter: Rosaura Conde (USEPA)

Contributors: Bill Painter, Menchu Martinez, Jim Ruppel, Chris Lewicki, Janice Alers-Garcia, Nicole Plescia; USEPA and Jennifer Olson (Tetra Tech)

Nutrient TMDL Workshop

New Orleans, LA

February 15, 2011

Compendium of Practices on Nutrient-related Listings and TMDLs

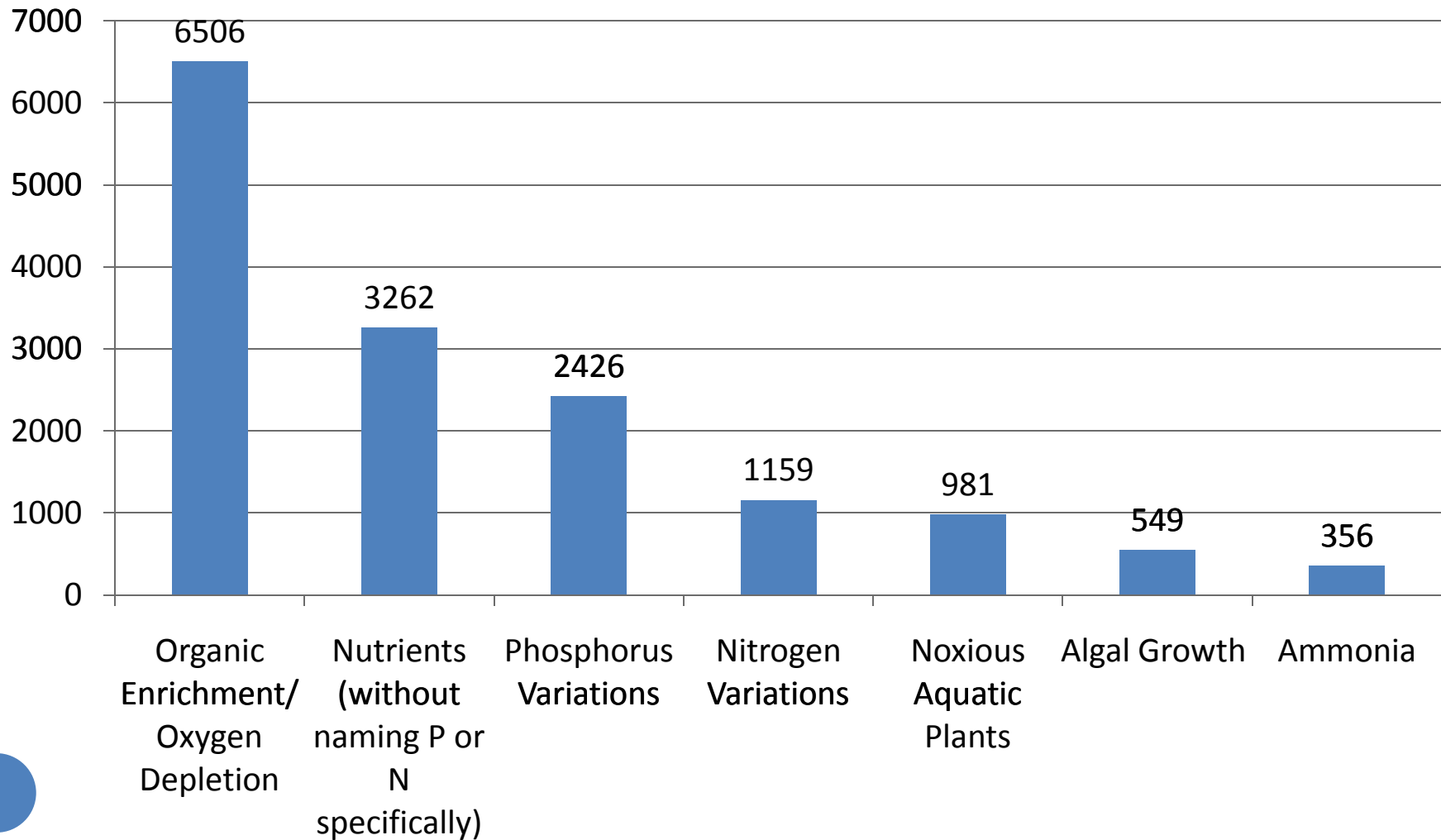
- Objectives:
 - Provide TMDL developers and reviewers a better understanding of the range of policies and practices employed in 303(d) listings and TMDL development and implementation.
 - Illustrate the spectrum of practices with regard to:
 - frequency of use
 - degree of complexity
 - advantages and challenges of commonly used practices, as well as infrequently employed but innovative approaches
- Methodology:
 - Surveys of Regional staff in the 303(d) program – October 2009, May 2010
 - Interviews with Regional staff in the 303(d) program – Summer 2010
 - Compiled data from EPA's Assessment TMDL Tracking and Implementation System (ATTAINS; <http://www.epa.gov/waters/ir/>) – July 2010
 - Survey of 50 Approved TMDL Documents and incorporate information from Nutrients TMDL Workshop – Ongoing

Compiled data from EPA's Assessment TMDL Tracking and Implementation System (ATTAINS)

Based on data pull from July 2010

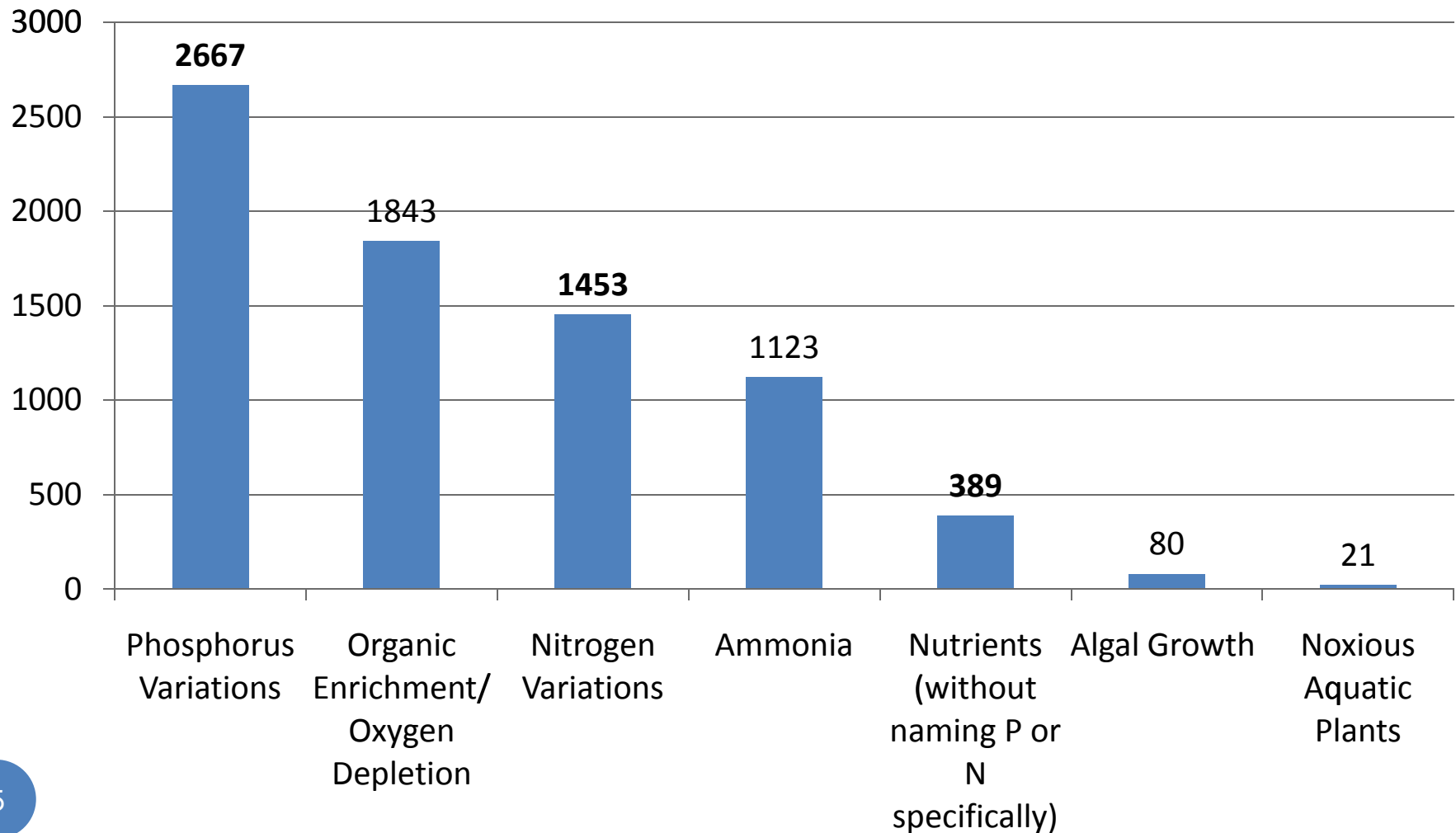
Nutrient-Related 303(d) Listings by Parent Category

Of the 71,000 waterbody-pollutant combinations listed nationally, over 15,000 can be categorized as nutrient-related.



Nutrient-Related TMDLs by Parent Category

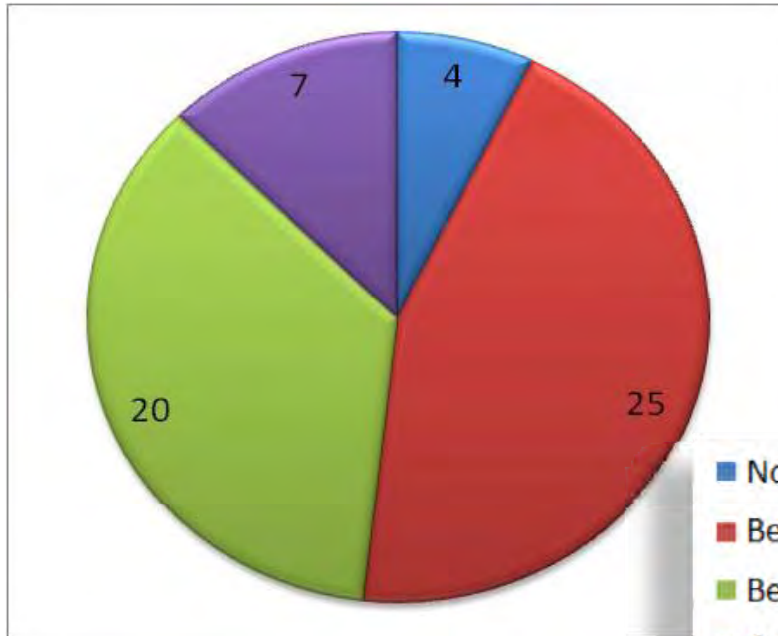
Of the 43,000 TMDLs that have been developed nationally, over 7,500 address nutrient-related causes of impairment.



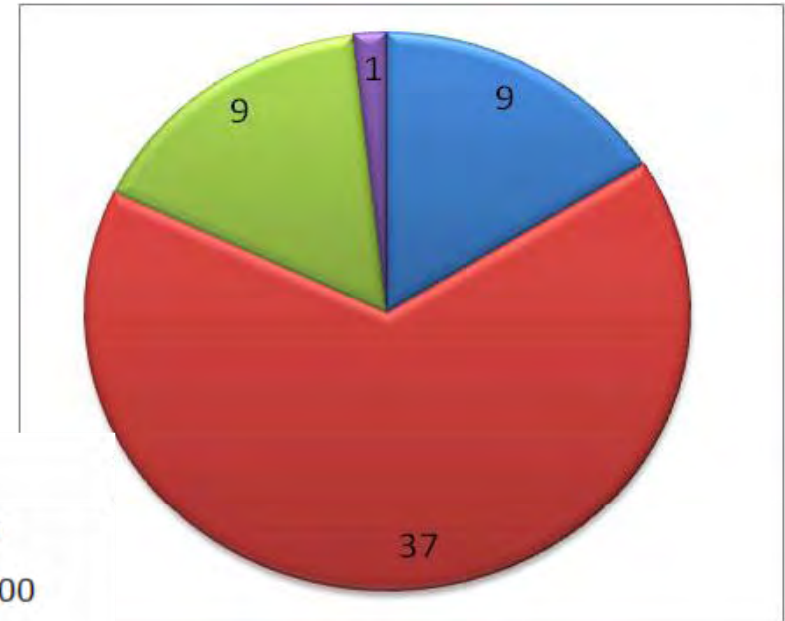
Organic Enrichment/Oxygen Depletion

Number of states by range

303(d) Listings



TMDLs



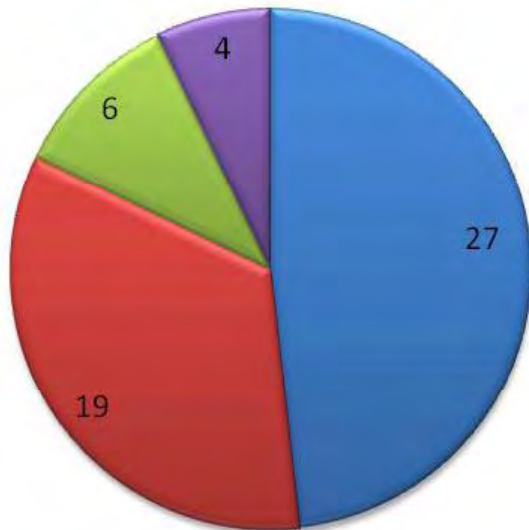
■ None
■ Between 1 and 50
■ Between 51 and 200
■ Greater than 200

- Nationally, there are 6,506 listings and 1,843 TMDLs for organic enrichment/oxygen depletion. For this parent category:
 - Most listings are in VA, PA, WA, FL, NH, IL and OK
 - The state with the highest number TMDLs is KS (356)

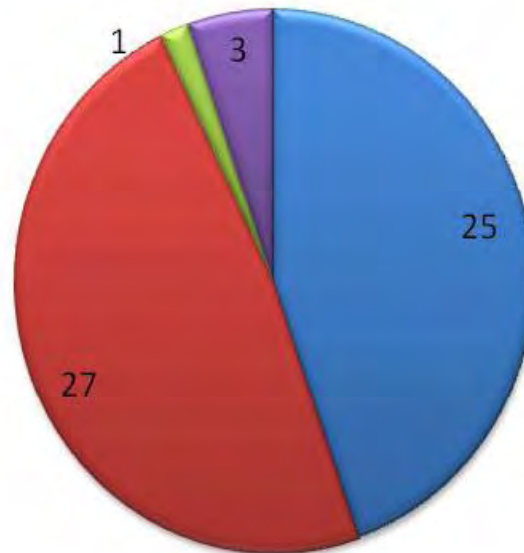
Nutrients, Nitrogen and Phosphorus Listings

Number of states by range (# of listings)

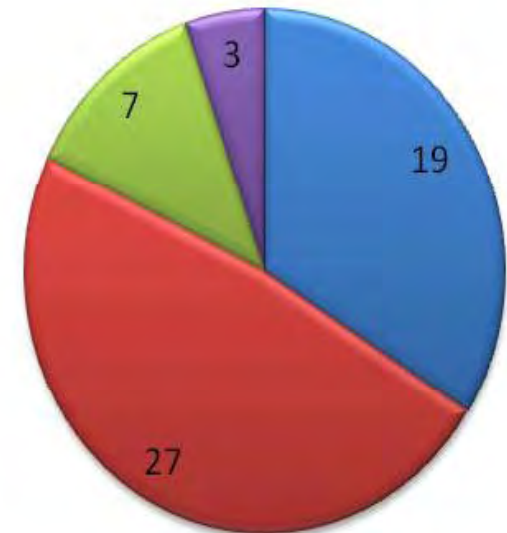
Nutrients*



Nitrogen

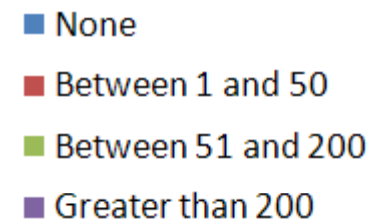


Phosphorus



* Without identifying N or P specifically

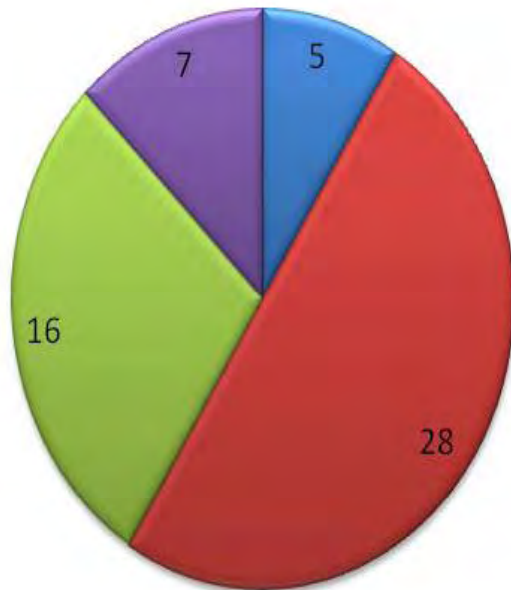
- Nationally, listings for:
 - Nutrients – 3,262 (mostly in PA, FL, MN and KY)
 - Nitrogen – 1,159 (mostly in MT, HI and IL)
 - Phosphorus – 2,426 (mostly in KS, IL and MT)



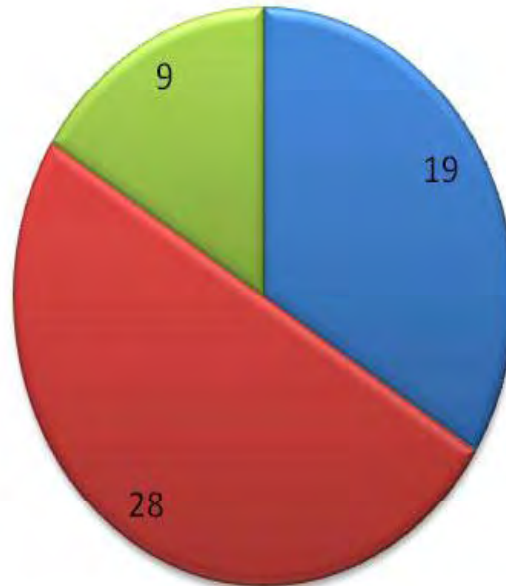
Nutrients, Nitrogen and Phosphorus TMDLs

Number of states by range (TMDLs)

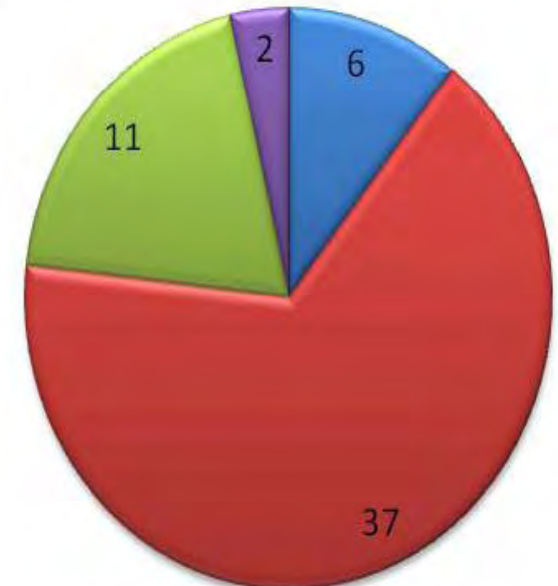
Nutrients*



Nitrogen



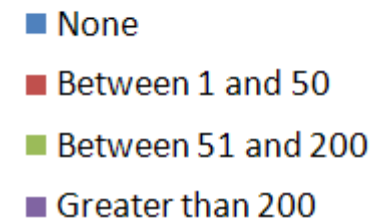
Phosphorus



* Without identifying N or P specifically

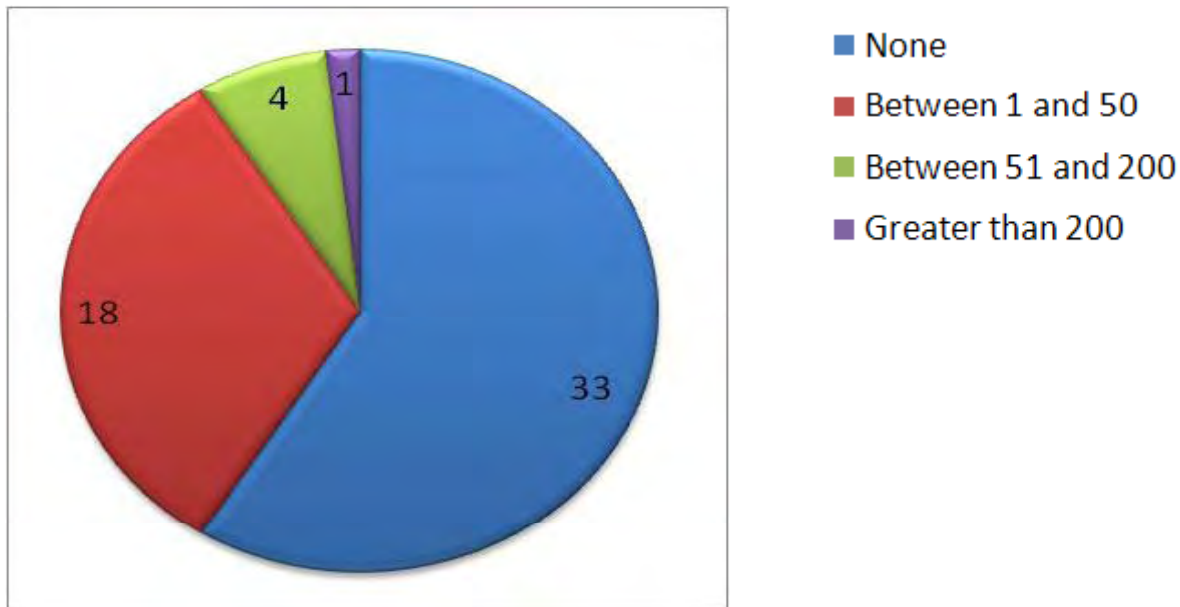
- Nationally TMDL count for:

- Nutrients – 389 (mostly in PA, OH, FL, ID, MS, DE & NY)
- Nitrogen – 1,453 (mostly in NY, DE and OH)
- Phosphorus – 2,667 (mostly in PA and OH)



Algae & Excess Aquatic Plants Listings

Number of states with 303(d) listings (by range)

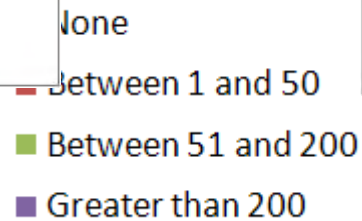
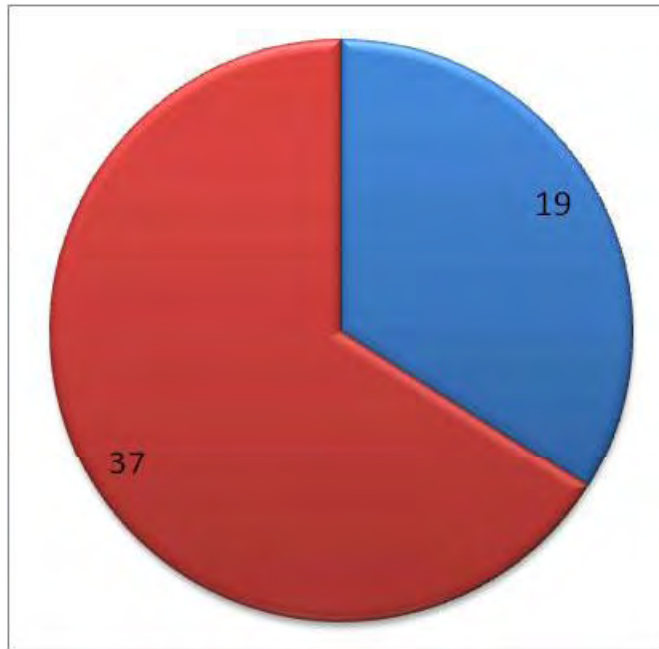


- Nationally, there are 1,530 combined algal growth & nuisance aquatic plants listings
 - 549 algal growth parent category (mostly in MT, HI and NH)
 - 981 Excess plant growth parent category (majority in VA [775])
- Only 101 TMDLs developed in 16 states for algal growth and nuisance aquatic plants. All states are in the 1-50 range.

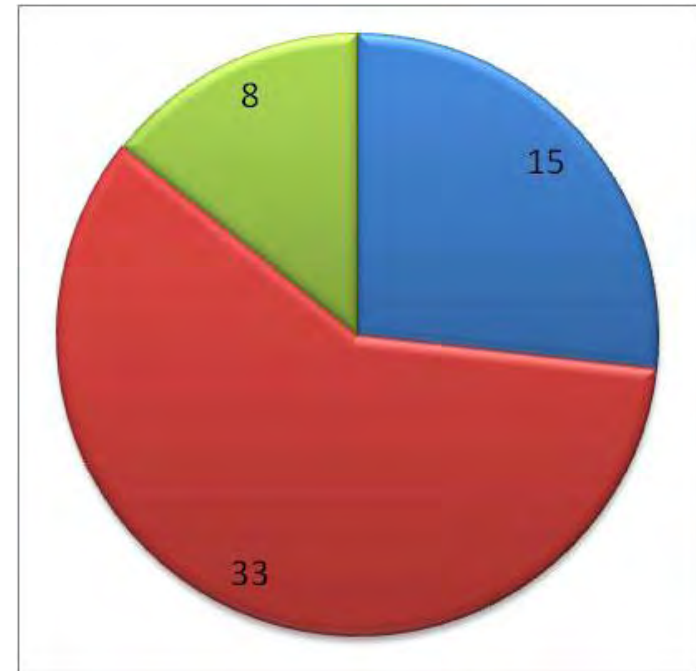
Ammonia

Number of states by range

303(d) Listings



TMDLs



Nationally , there are 356 ammonia listings and 1,123 TMDLs.

Surveys and Interviews with Regional staff in the 303(d) Program

Conducted during the Summer of 2010

Summary Findings:

Basis for 303(d) Listing for Nutrients

States' Basis for Listing	Flowing Freshwater	Open Freshwater	Estuary	Wetland
Low Dissolved Oxygen	Typically	Typically	Sometimes	n/a
Use of Biological Thresholds	Sometimes	Rarely	Rarely	n/a
Phosphorus criteria guidance value	Sometimes	Rarely	Rarely	n/a
Nitrogen criteria or guidance value	Rarely	Rarely	Rarely	n/a
Guidance Value for Turbidity/Clarity	Rarely	Rarely	Rarely	n/a
Chlorophyll a threshold	Rarely	Sometimes	Rarely	Rarely
Trophic State Index	Rarely	Sometimes	n/a	n/a

Legend

Typically	Greater than 15 States
Sometimes	8 through 15 States
Rarely	1 through 7 States

- Based on a sample of 35 states.
- Not mutually exclusive.

Summary Findings: Critical Conditions in Nutrient TMDL

Method Identified by Region	Flowing Freshwater	Open Freshwater	Estuary
Growing season	n/a	Typically	n/a
Summer seasonal conditions	Sometimes	Rarely	Typically
7Q10 flow	Sometimes	n/a	n/a
Flow duration based	Rarely	n/a	n/a

Legend	
Typically	Over 5 Regions identified method
Sometimes	3 through 5 Regions identified method
Rarely	1 or 2 Regions identified method

Summary Findings:

Loading Capacity in Nutrients TMDLs

Method Identified by Region	Typically	Sometimes	Rarely
Critical Flow x Target Concentration	X		
Mass Balance	X		
Load Duration		X	
Modeling	X		
Reference Conditions			X

Legend	
Typically	Over 5 Regions identified method
Sometimes	3 through 5 Regions identified method
Rarely	1 or 2 Regions identified method



Questions?

Rosaura Conde (conde.rosaura@epa.gov; 202-566-1514)