

Use of Monitoring Data in the Development of Nutrient Criteria and TMDL Target

Tim Wool
US EPA
Region 4
Atlanta, GA

Nutrient Criteria

- States are being pushed to adopt criteria
- Most States have narrative criteria
- EPA issued Eco-Region Based Numbers
- EPA Issued Guidance for Developing Nutrient Numbers

Nutrient Criteria

- Nutrient Criteria need to address:
 - Local Use Support
 - Achieve all applicable standards
 - Protect downstream

Use of Data

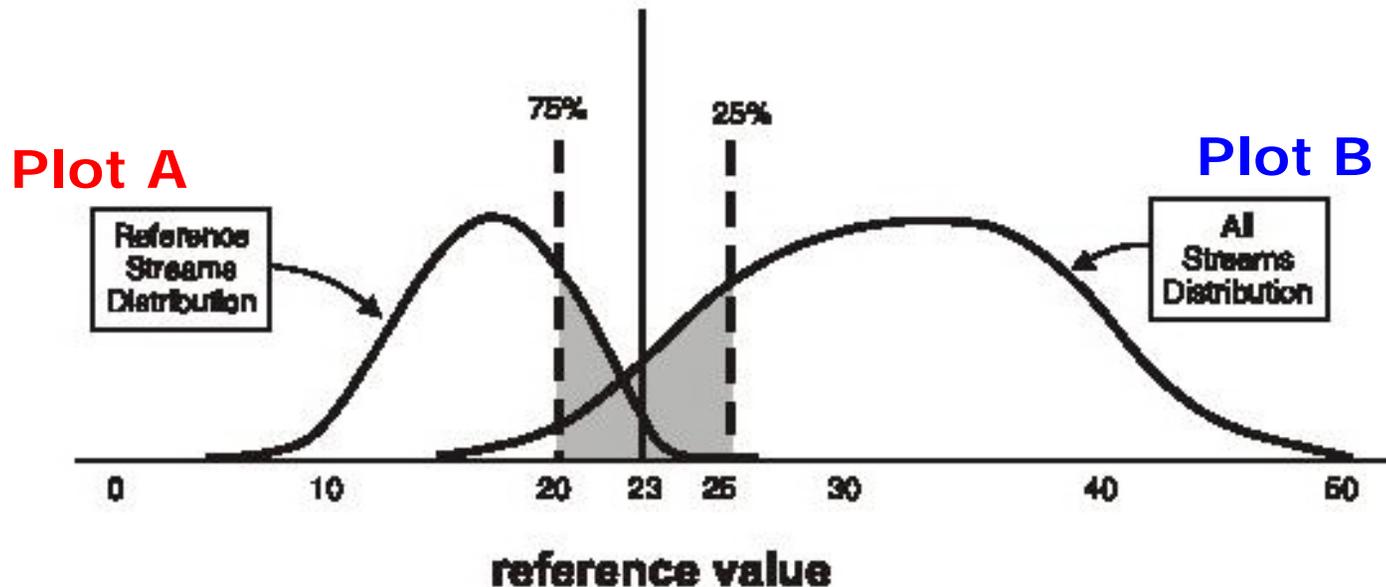
- Reference Waterbody
- Watershed/Basin
- Regression
- Modeling

Some Examples

From Guidance Document

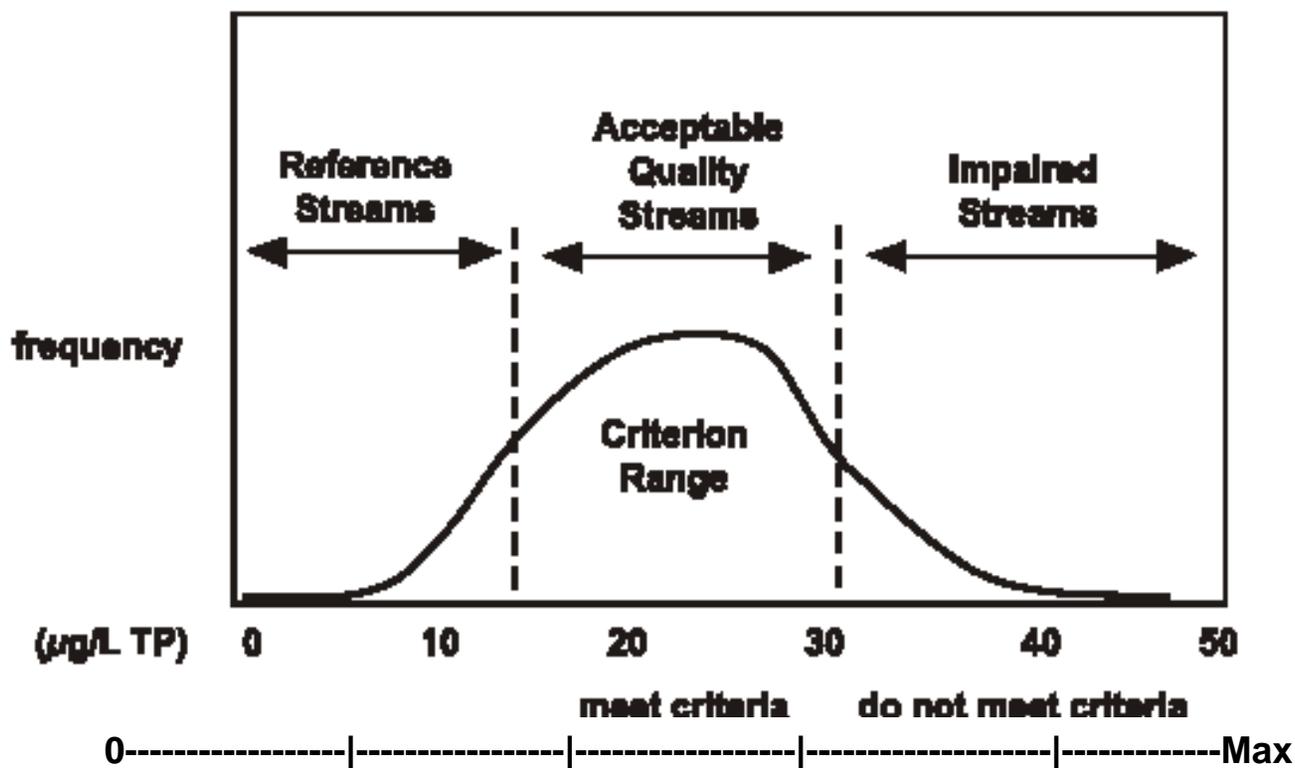
Plot A - nutrient data from known reference sites, reference criteria = least impacted/minimally disturbed

Plot B - nutrient data from all sites, including reference and impaired, i.e. from pristine to degraded



Plot of general frequency distribution of all ambient data divided into three segments that represent (from left to right) high-quality reference streams, acceptable quality streams, & impaired streams.

(note: reference criteria = least impacted or minimally disturbed)



Data Example

Number of Obs

Chla 14,000+

TN 34,000+

TP 54,000+

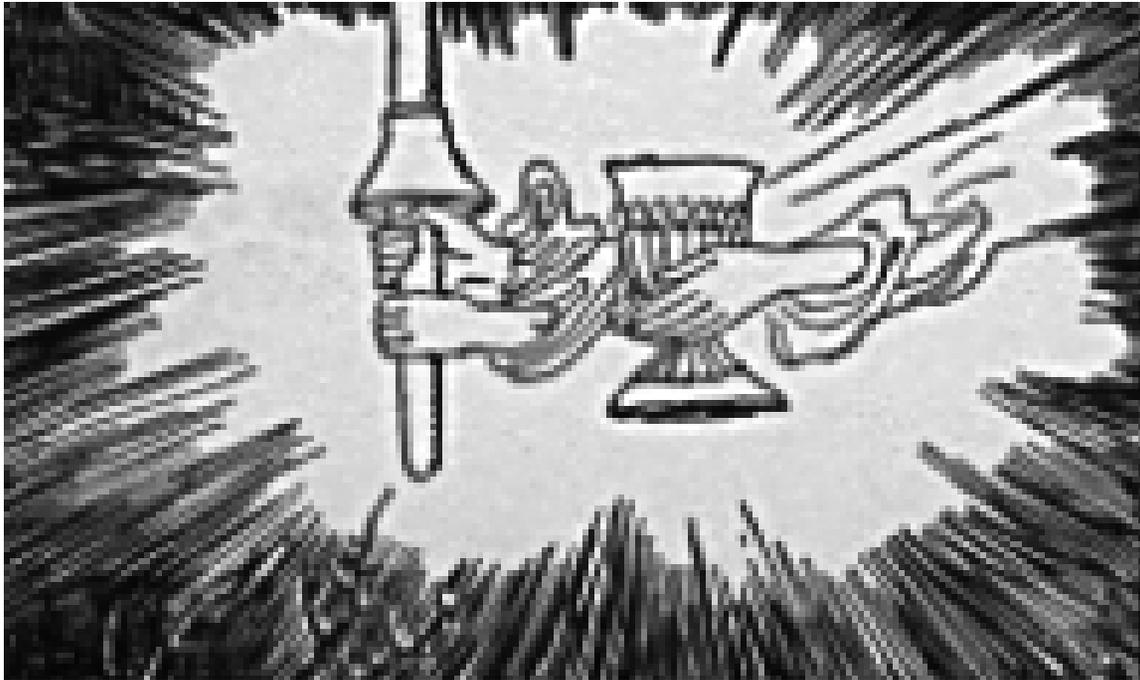
WBID Median

Percentile	Chla	TP	TN
5	1.06	0.032	0.86
10	4.20	0.046	0.98
15	4.85	0.057	1.02
20	5.51	0.071	1.12
25	6.60	0.077	1.21
30	8.03	0.084	1.29
35	9.03	0.094	1.40
40	10.11	0.106	1.49
45	11.22	0.115	1.58
50	11.97	0.123	1.65
55	12.67	0.133	1.69
60	16.78	0.144	1.84
65	19.00	0.175	1.88
70	20.24	0.188	1.95
75	22.60	0.257	2.04
80	28.24	0.322	2.13
85	34.06	0.440	2.27
90	38.05	0.483	2.36
95	49.75	0.813	3.34

TMDL Nutrient Targeting

- Lower St. Johns River
 - Total Nitrogen/Total Phosphorus/Algae/Dissolved Oxygen
- Neuse River Estuary
 - Total Nitrogen/Algae
- Cahaba River
 - Total Phosphorus/Periphyton/Dissolved Oxygen
- Coosa River Chain of Lakes
 - Total Phosphorus/Algae

Nutrient Criteria



In Search of the Holy Grail