

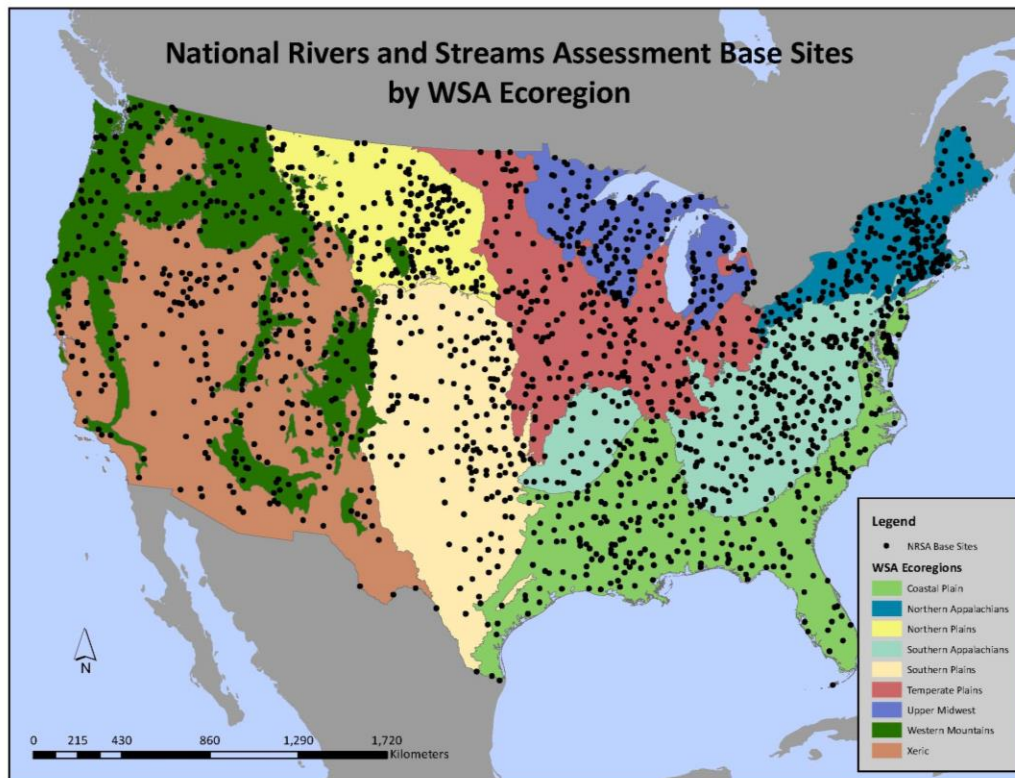
Sediment Background Study

Contaminated Sediments External Advisory Group Meeting
September 19, 2016

Sediment Background Study –

in progress - preliminary results

- National Rivers and Streams Assessment Project
- U.S. EPA Region 5 and WDNR collaborated on a statewide assessment of benthic sediment quality in Wisconsin Rivers



Goal of Study

excerpt directly from QAPP

The WDNR has extensive data from the targeted sampling of sediment pollutants in harbors, rivers and streams where historic industrial activities or recent sampling efforts indicate suspected or known sediment pollution problems. While these targeted sampling efforts are useful for characterizing site-specific problems, information is lacking on the inherent variability of pollutants within individual river reaches and the overall statewide quality of sediment in rivers that can be derived from probabilistic sampling of the statewide population of Wisconsin river miles.

Background Study Design

- A probabilistic sampling design.

Background Study Design

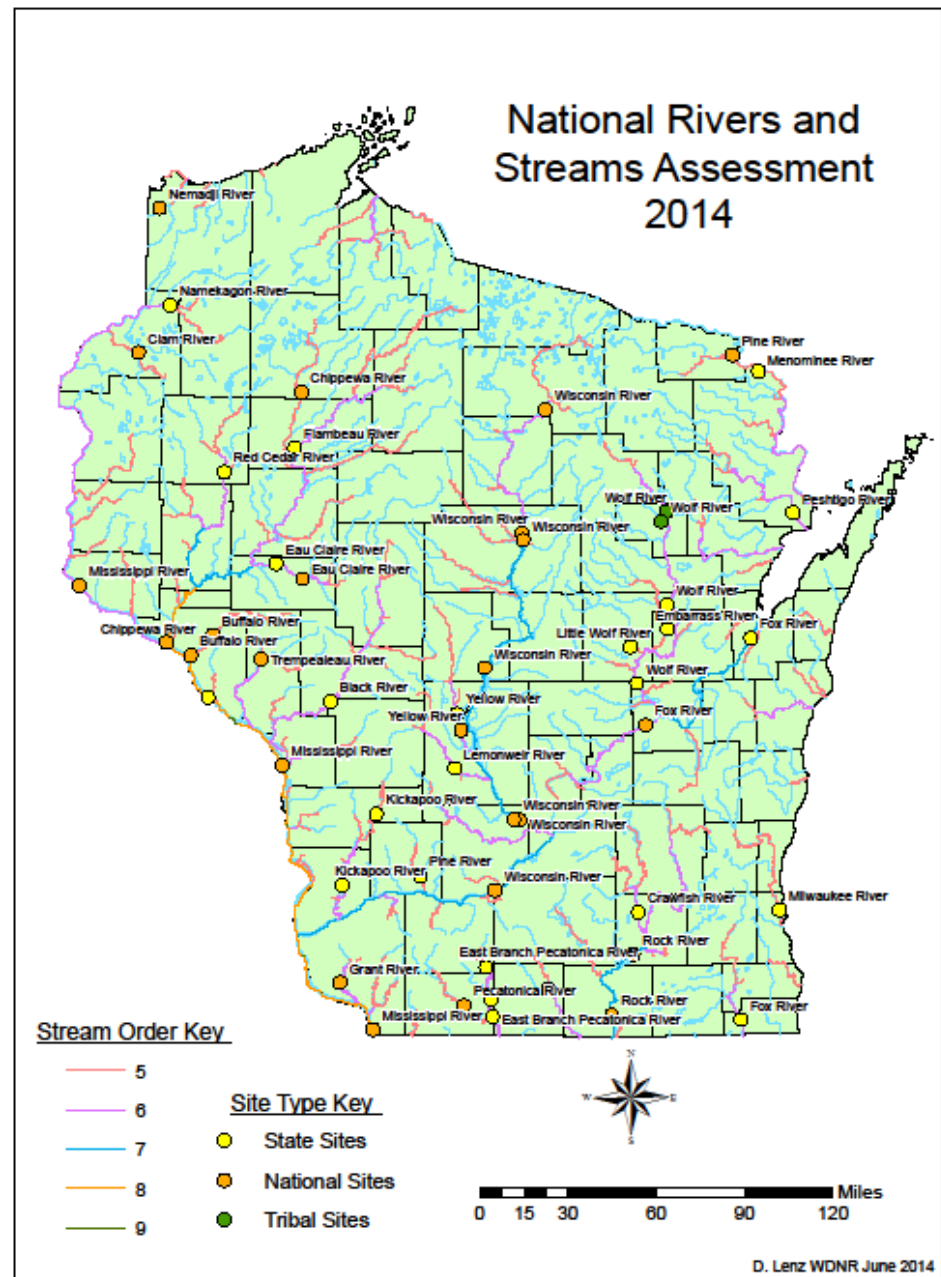
- A probabilistic sampling design.
- A nationwide sample of approximately 1,800 randomly-selected stream and river sites will be used to characterize the overall quality of the entire U.S. population of streams and rivers, evaluate which pollutants are most responsible for the biological degradation of the nation's flowing waters, and estimate the percent of stream and river miles that are being degraded by individual pollutants or other stressor.

Background Study Design

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- Stratify the sampling effort by Omernik Level II ecoregions and by river size (Strahler stream order) to account for the influences of geography and river size on the physical, chemical and biological conditions of lotic ecosystems.

Data Collected

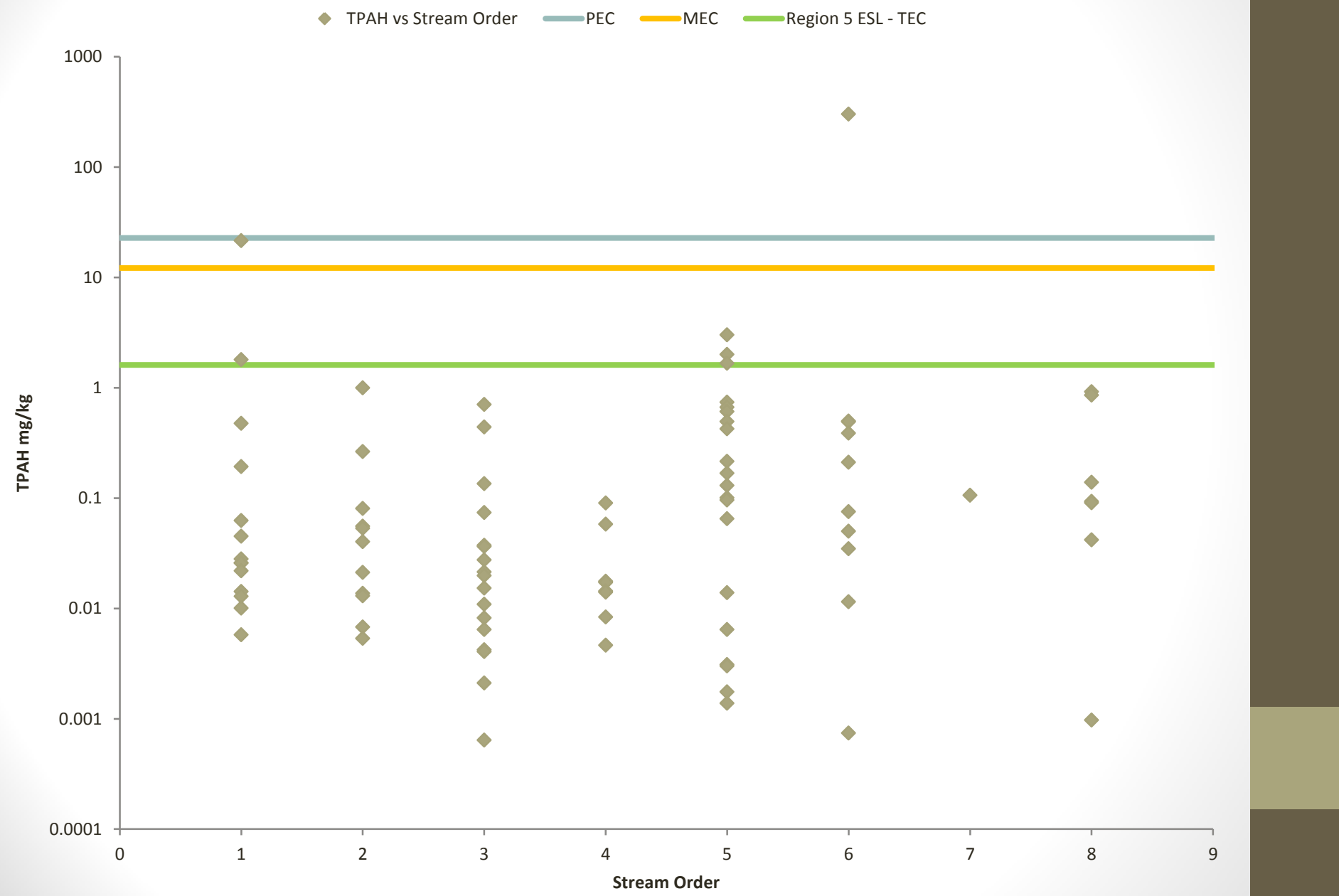
- Physical Habitat
- Macroinvertebrates
- Fish
- Water Chemistry
- Sediment Chemistry
 - Metals
 - Pesticides
 - Nutrients
 - PAHs



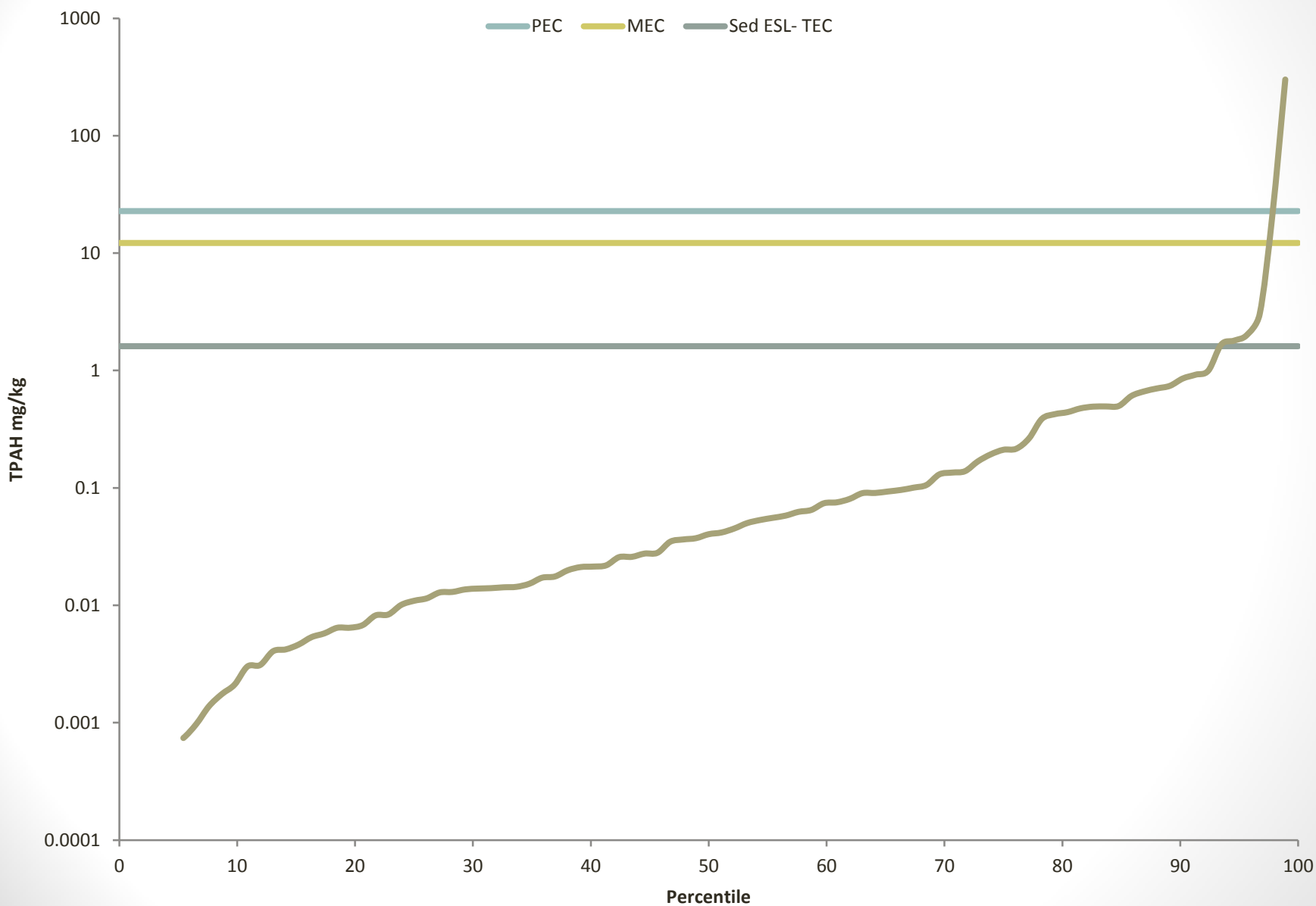
TPAH Results

TPAH Summary (mg/kg) parts per million	
n	91
% detected	98
min	0
max	301.1
range	301.1
mean	3.8
median	0.04
stdv	31.4
mean + 1 stdv	35.2
mean + 2 stdv	66.6

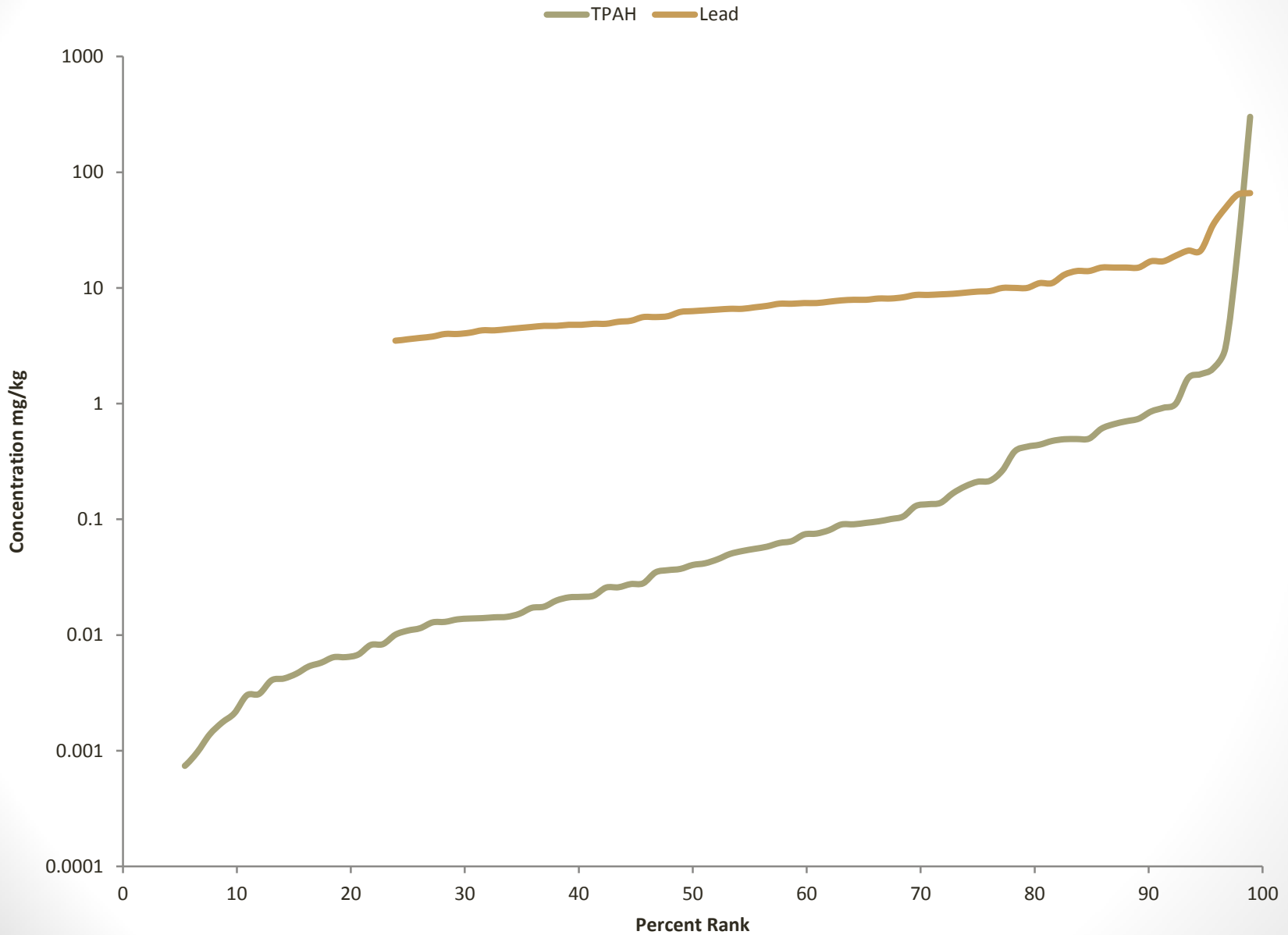
TPAH concentration vs Stream Order



TPAH Distribution Graph



Data Distribution



NRSA Data Compared to Certain Levels

Metric	TPAH mg/kg	Percent <	Percent >
PEC	22.8	98	2
MEC	12.2	97	3
Sed ESL - TEC	1.61	93	7

Metric	Lead mg/kg	Percent <	Percent >
PEC	130	100	0
MEC	83	100	0
Sed ESL - TEC	36	96	4