Nutrient and Acidity Status of Wadeable Streams in the United States- Results from the EPA's Wadeable Streams Assessment

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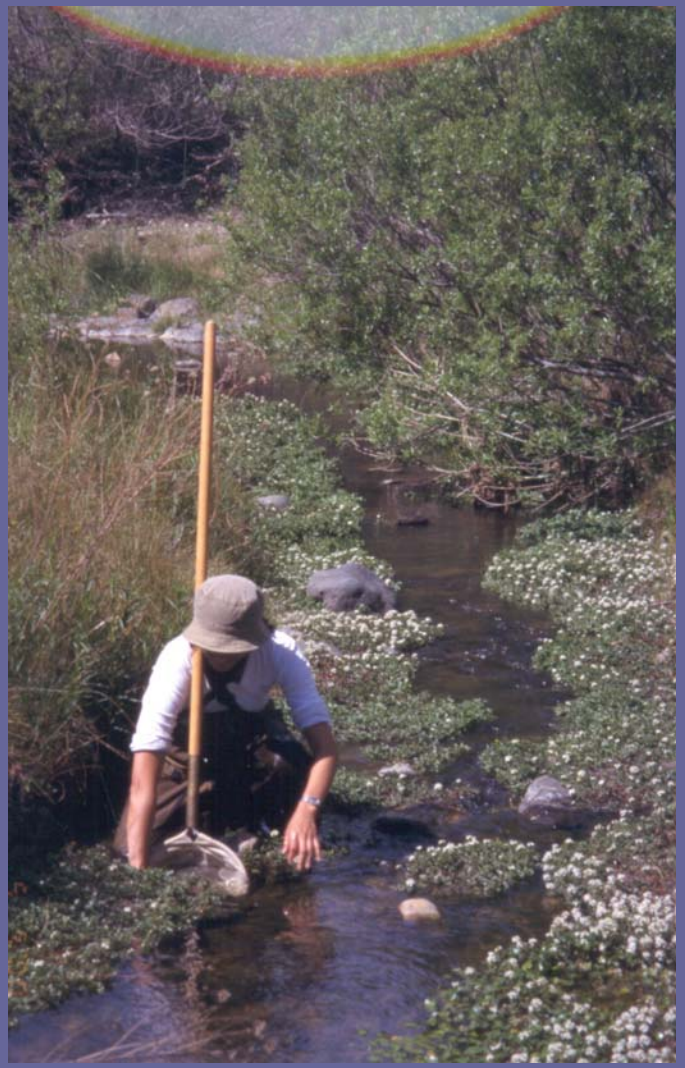
Wadeable Streams Assessment

- First statistically-valid report on the condition of the Nation's streams
- Baseline from which to track changes over time
- Collaboration among EPA, states, tribes and other partners



Wadeable Streams are streams, creeks, and small rivers that are shallow enough to be sampled using methods that involve wading in the water.

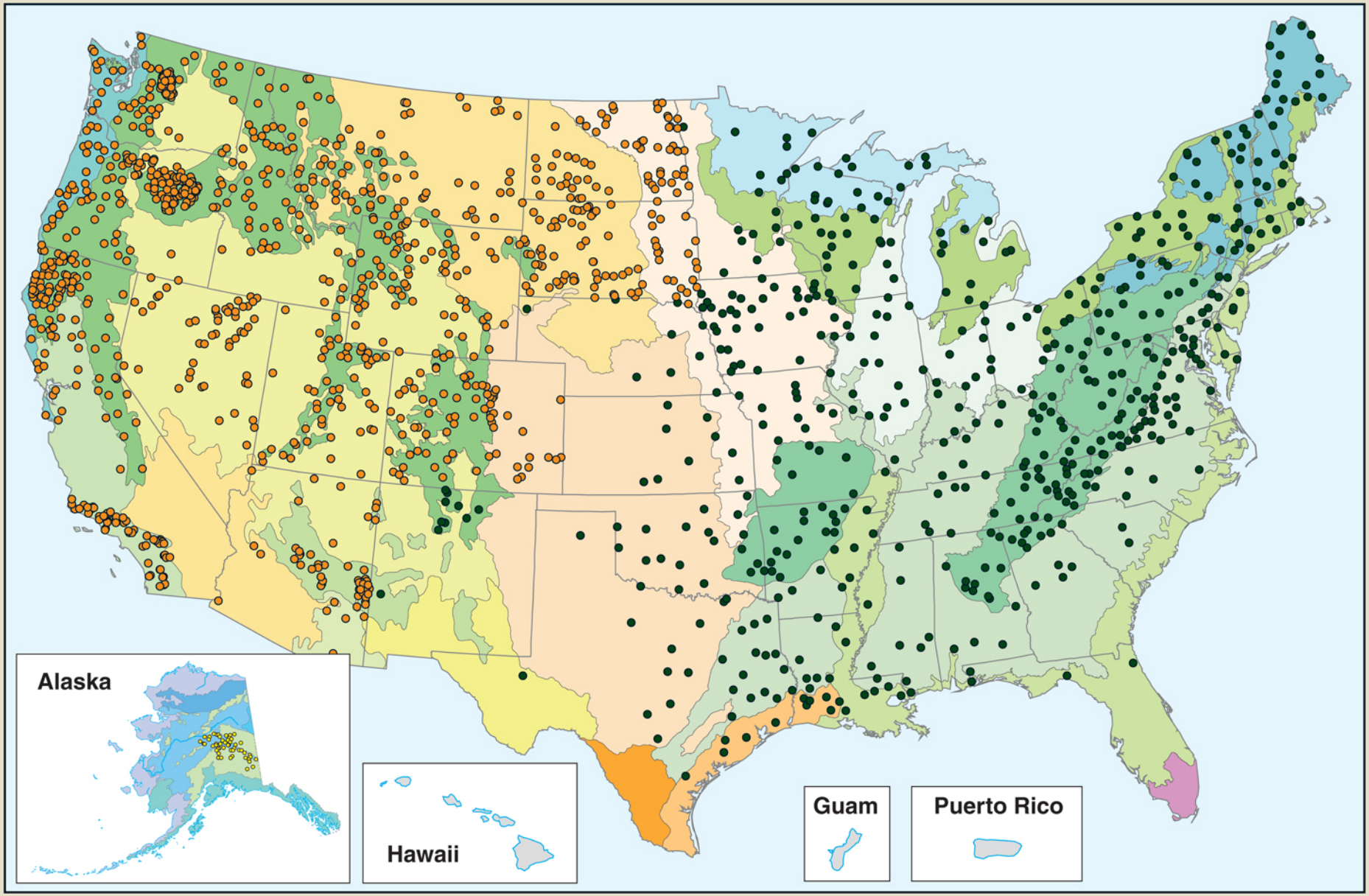
Key Components

- Randomized site selection
- Ecological assessment based on benthic macroinvertebrates
- Quantitative physical habitat characterization
- Water chemistry
- Comprehensive quality assurance
- Standardize/centralized data management
- Analysis plan for ecological assessment

Wadeable Streams Assessment Basic Framework

- Multiple reporting scales– ecoregion level II, EPA region, nation
- Focus on basic set of core indicators
- Complement efforts in Western States and Regions
- Encourage cooperators to enhance projects
- Complete sampling in 2004

Sites for Wadeable Streams Assessment

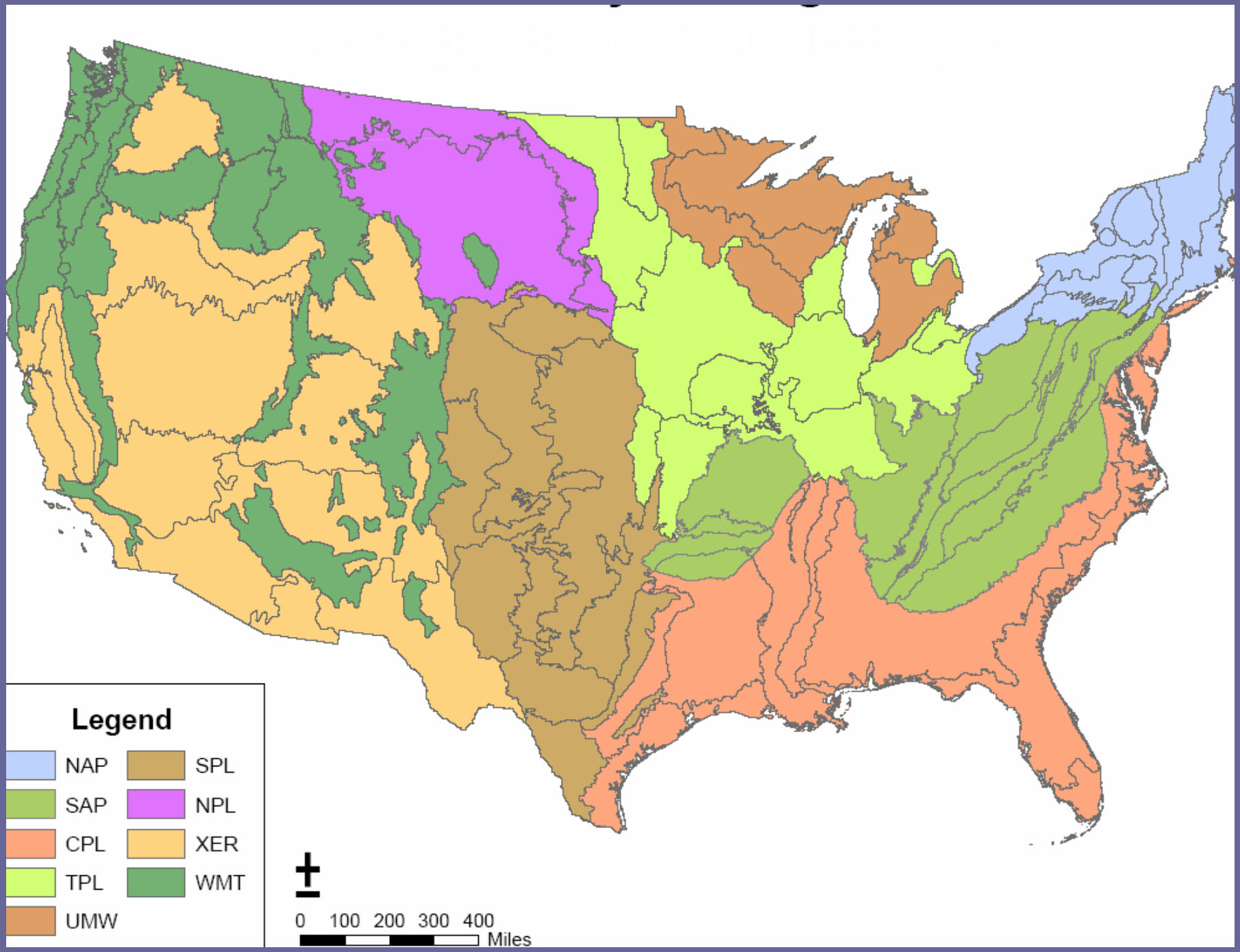


WSA Core Chemical Variables

- Anions
  - Sulfate, Nitrate, Chloride, Bicarbonate (calc.)
- Base Cations
  - Calcium, Magnesium, Sodium, Potassium
- Other Analytes
  - DOC, Color, Conductivity, Silica
- Trophic State
  - Total N, Total P, TSS, Turbidity, Ammonium
- Acid-Base
  - Alkalinity (ANC), pH, Dissolved inorganic carbon

Protocols

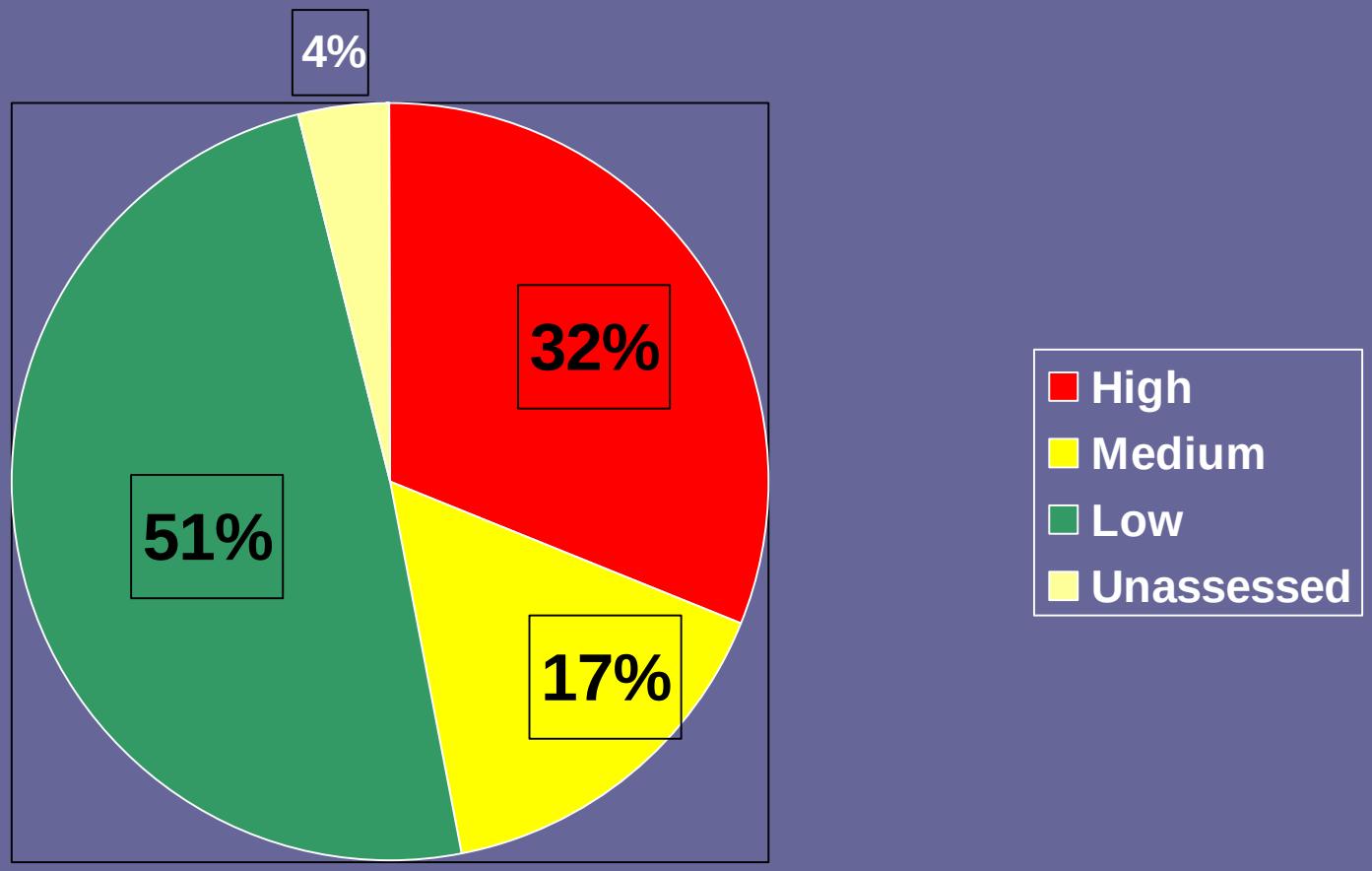
- Field grab, shipped overnight to lab
  - One 4 L cubitainer: 2 sealed syringes
- Lab process within 72 hr of collection
  - Aliquot and preserve
- QA process
  - Audit samples (precision, accuracy)
  - Charge balance (∑anions vs. ∑cations)
  - Calculated conductivity vs. measured
  - ANC vs. calculated alkalinity

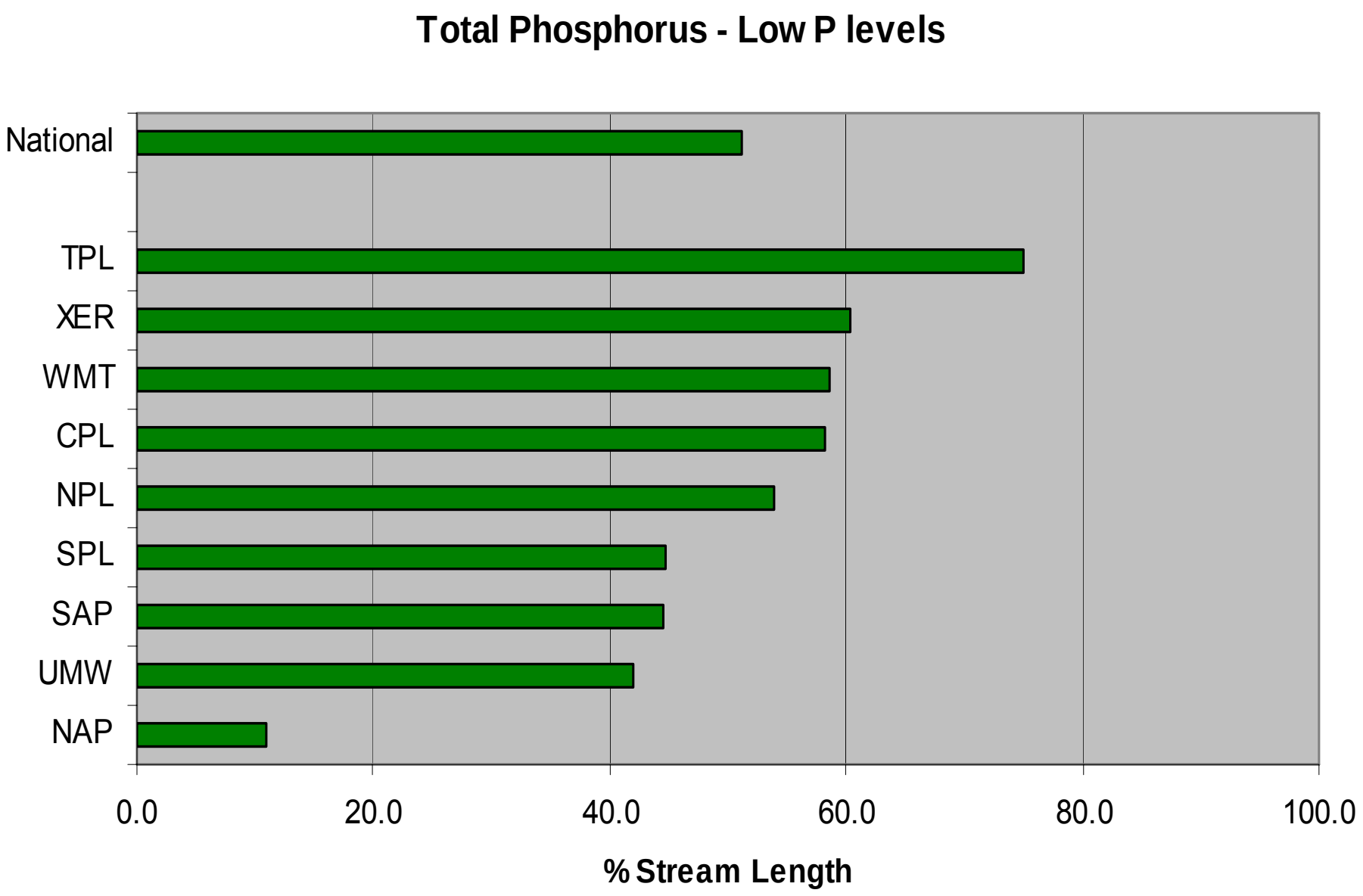

Legend
NAP
SAP
CPL
TPL
UMW
SPL
NPL
XER
WMT
0 100 200 300 400
Miles

Reference

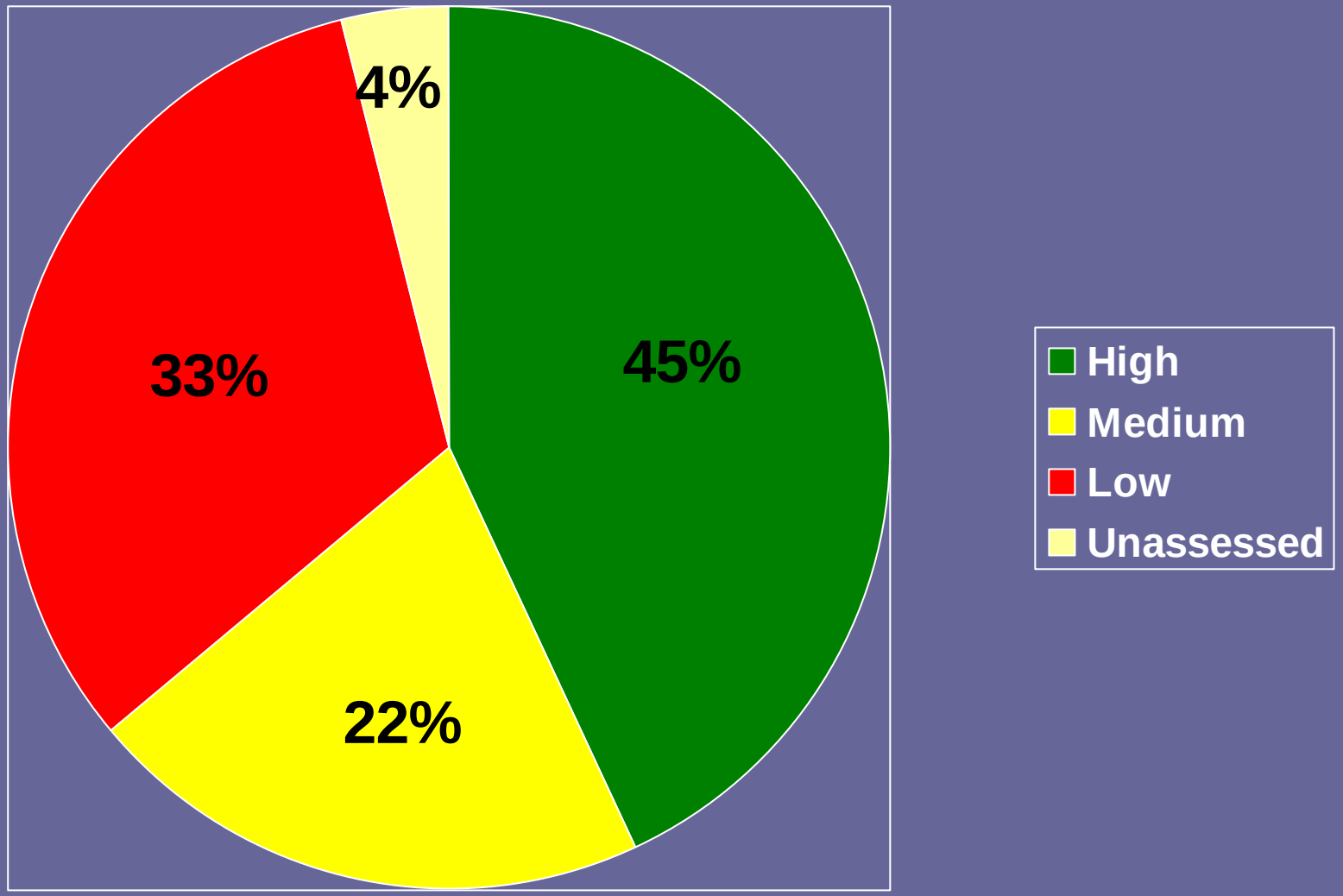
- Condition class categories were set using regionally based reference conditions
- Reference sites were selected using regionally based screening factors to identify best available reference sites.
- Reference presentation Tuesday 10:45 Alan Herlihy

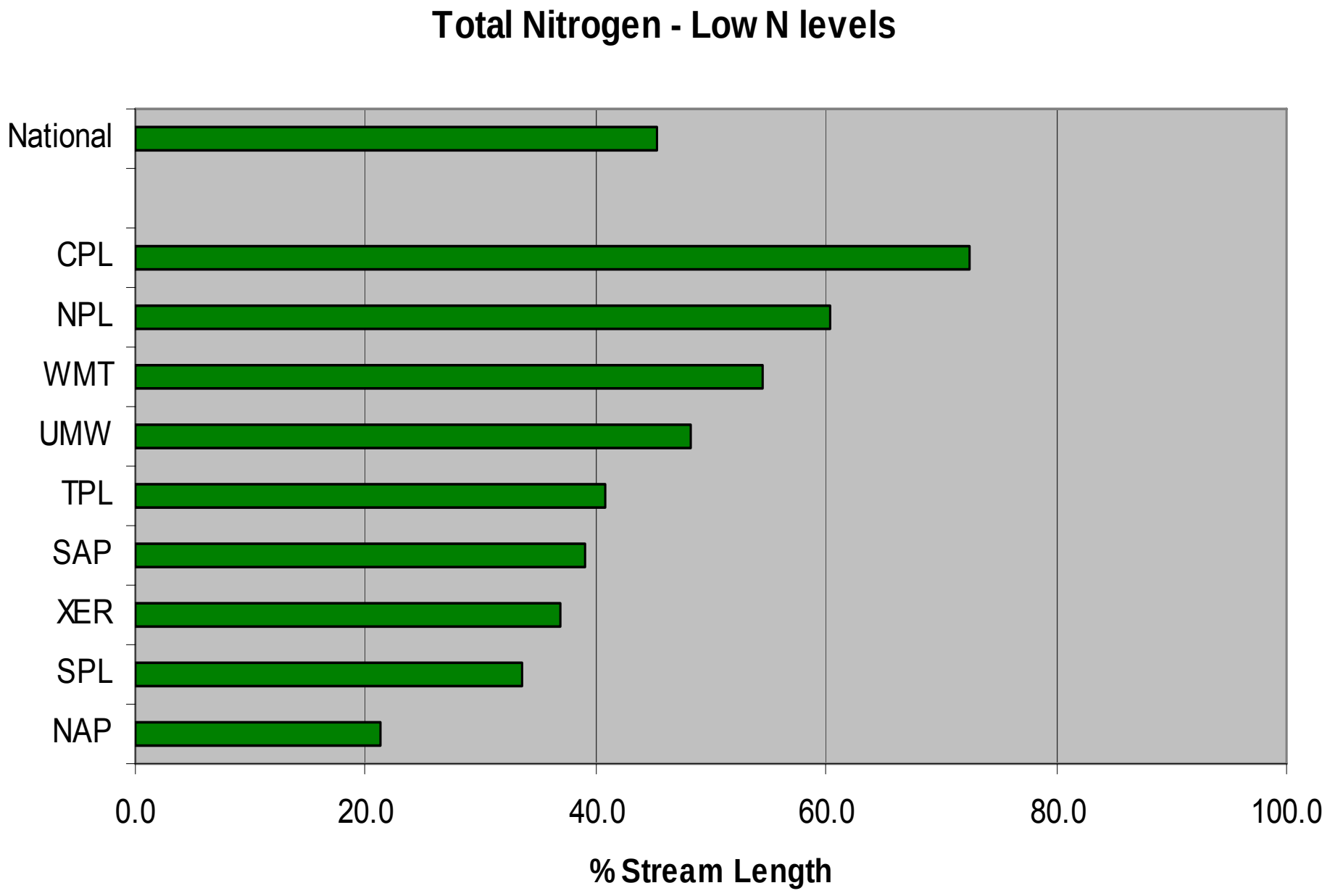
National Total Phosphorus Levels



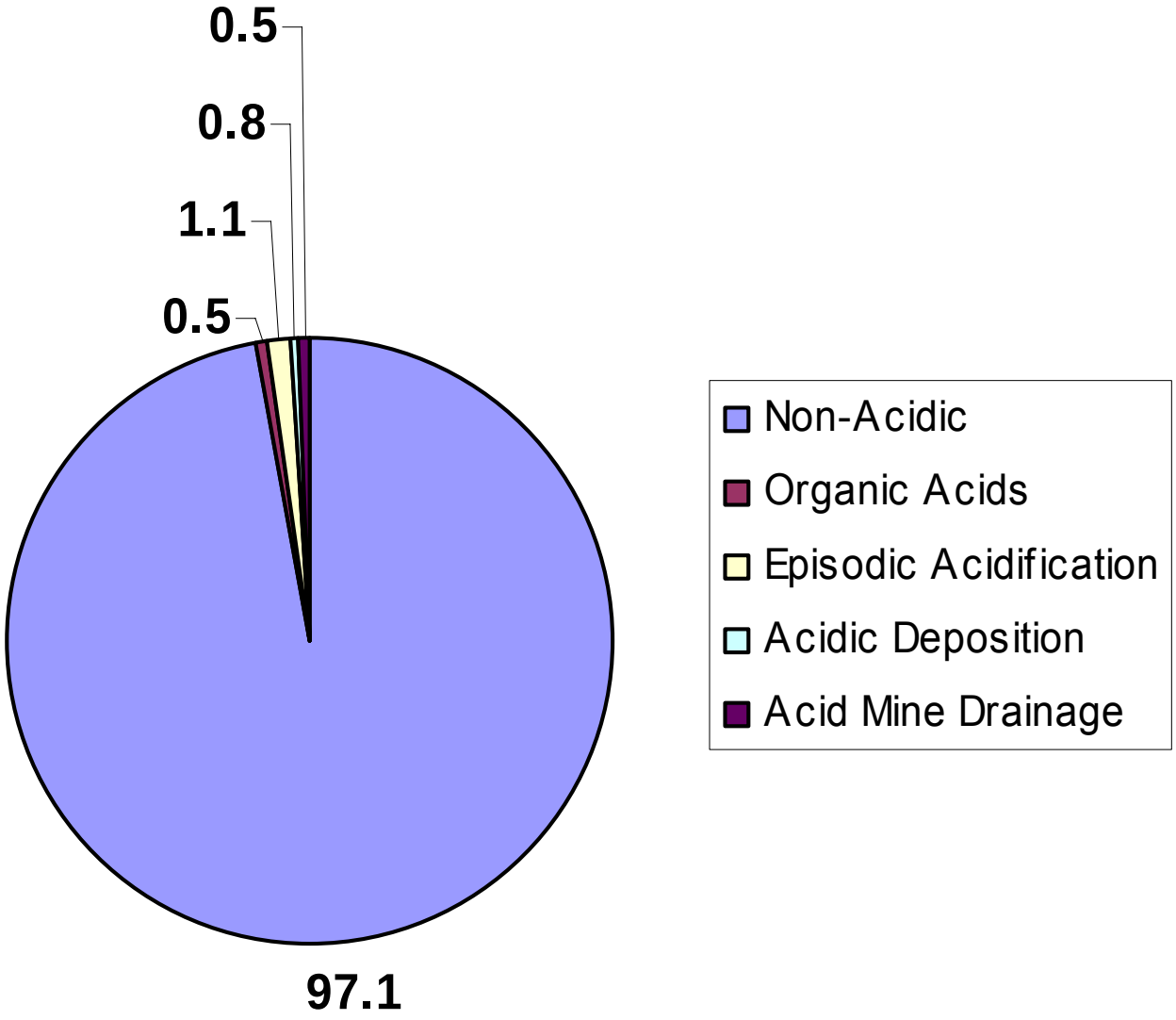

Total Phosphorus - Low P levels
National
TPL
XER
WMT
CPL
NPL
SPL
SAP
UMW
NAP
0.0
20.0
40.0
60.0
80.0
100.0
% Stream Length

National Total Nitrogen Results

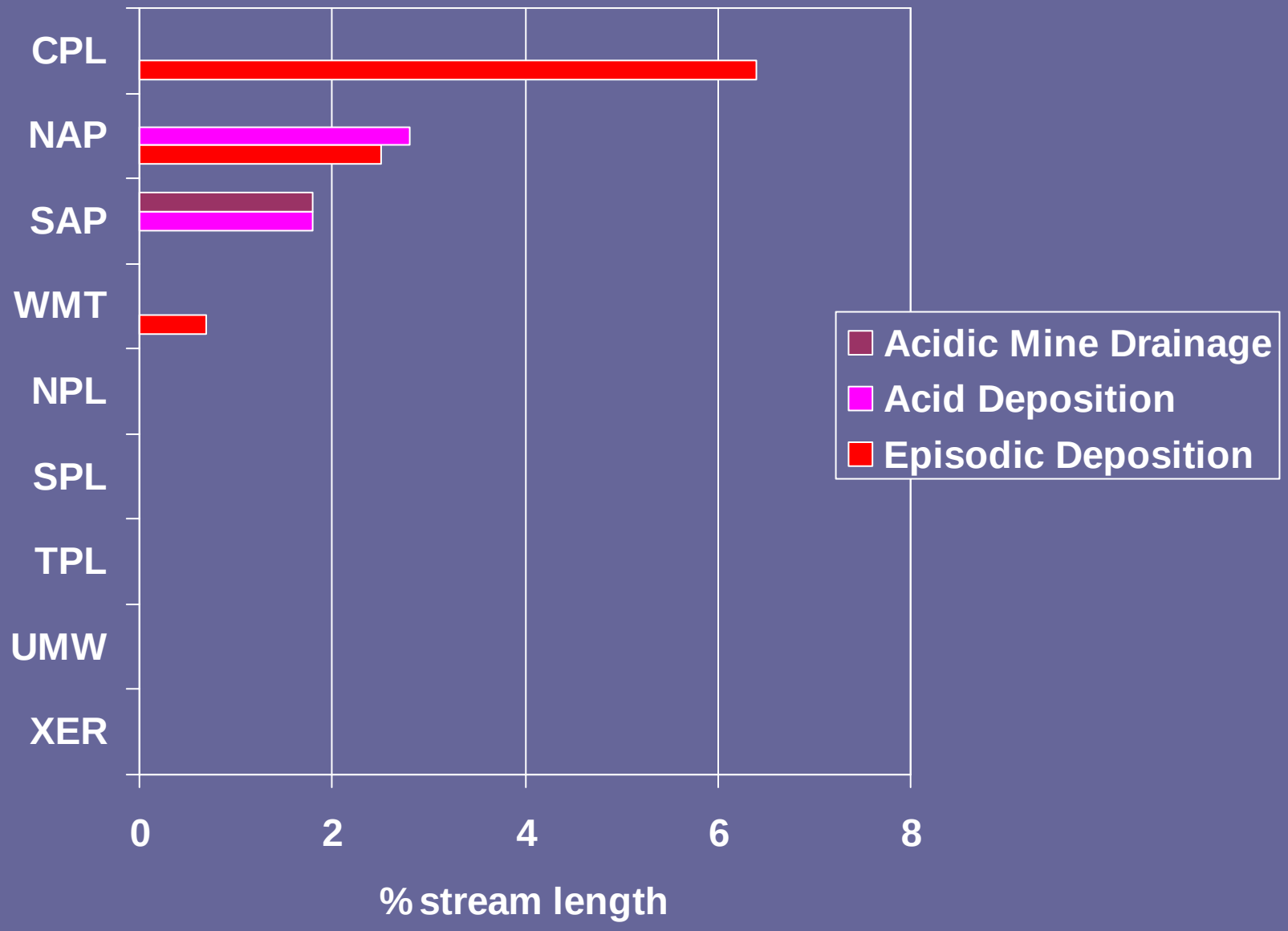



Total Nitrogen - Low N levels
National
CPL
NPL
WMT
UMW
TPL
SAP
XER
SPL
NAP
0.0
20.0
40.0
60.0
80.0
100.0
% Stream Length

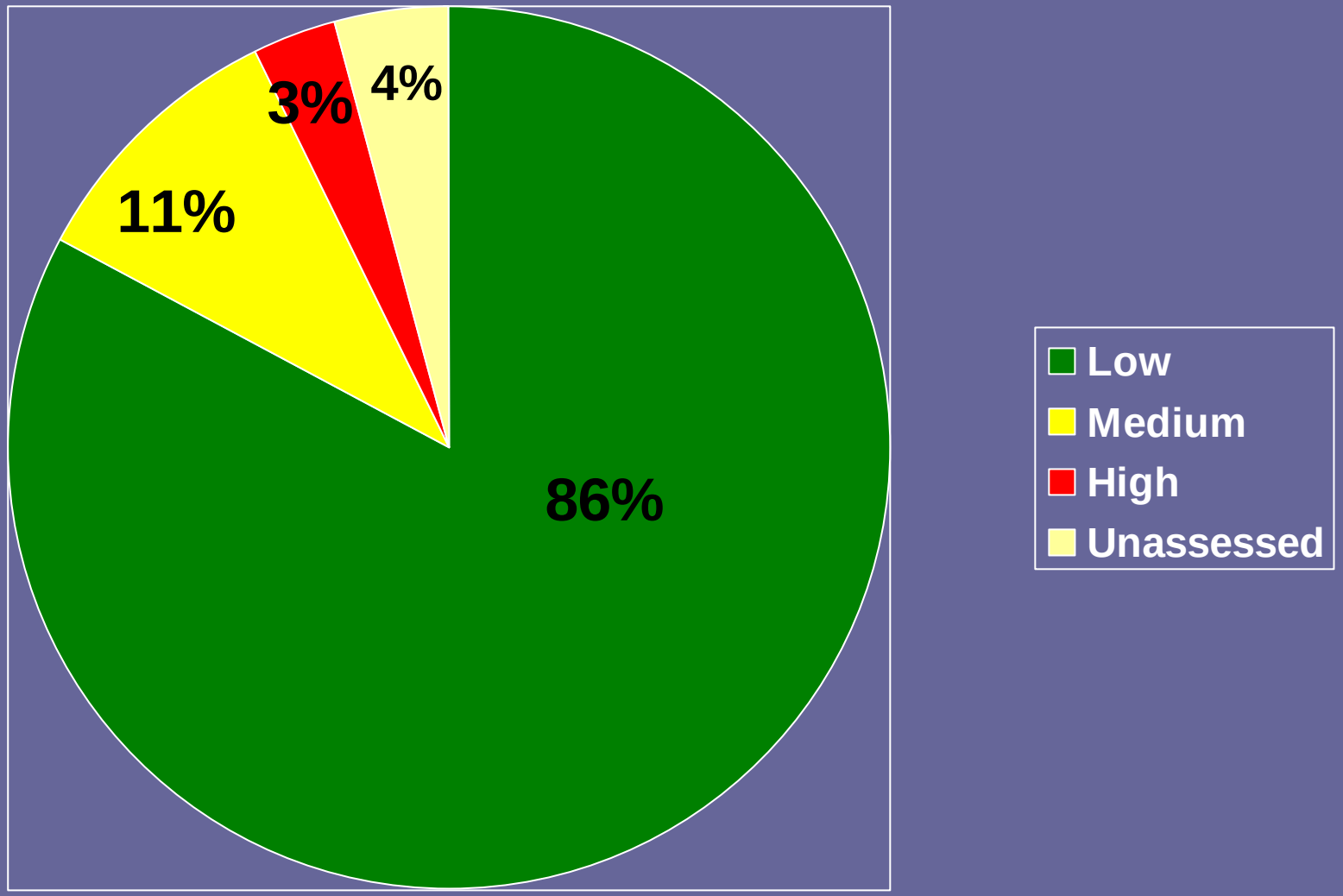
Acidification - National

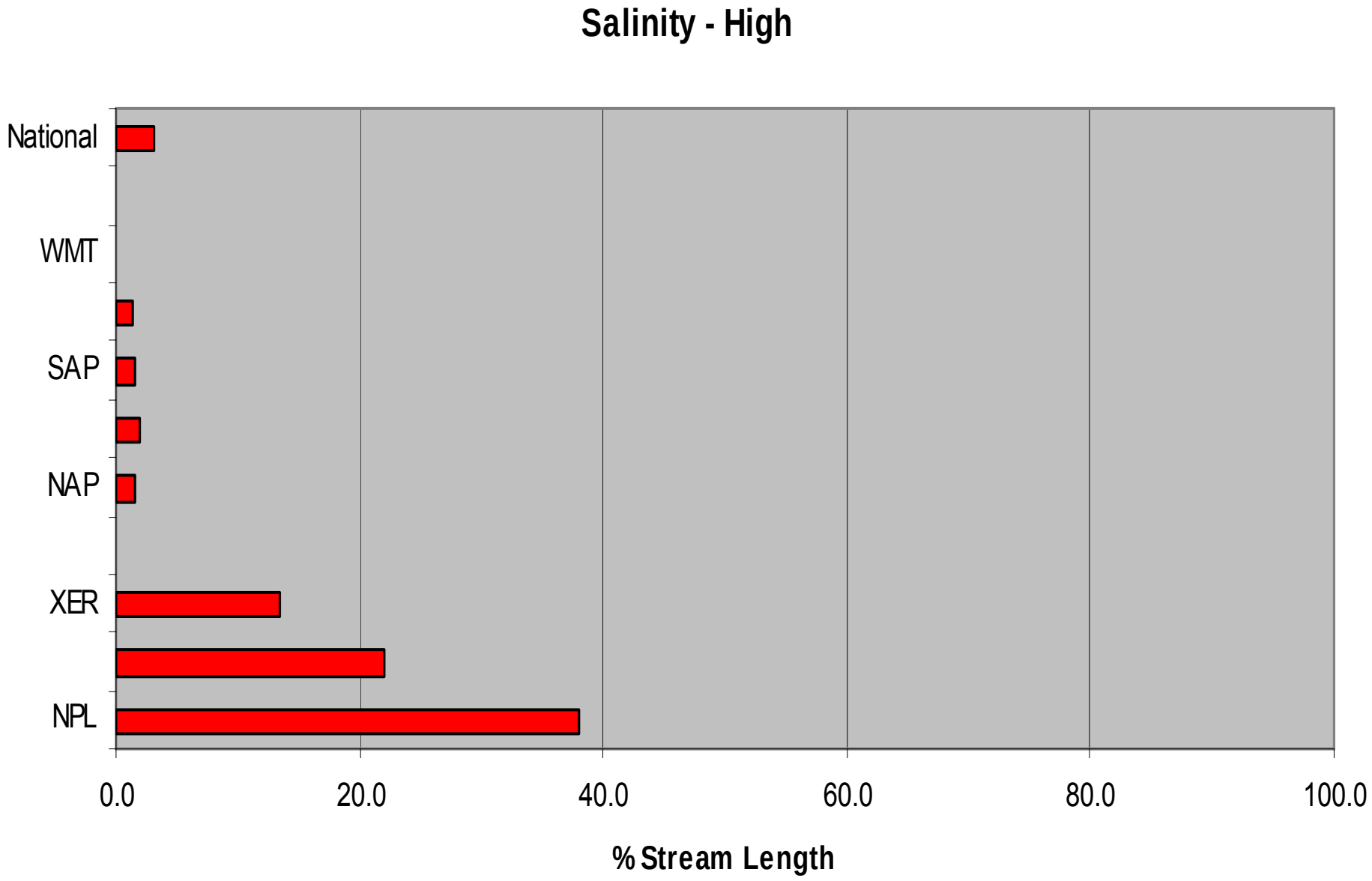


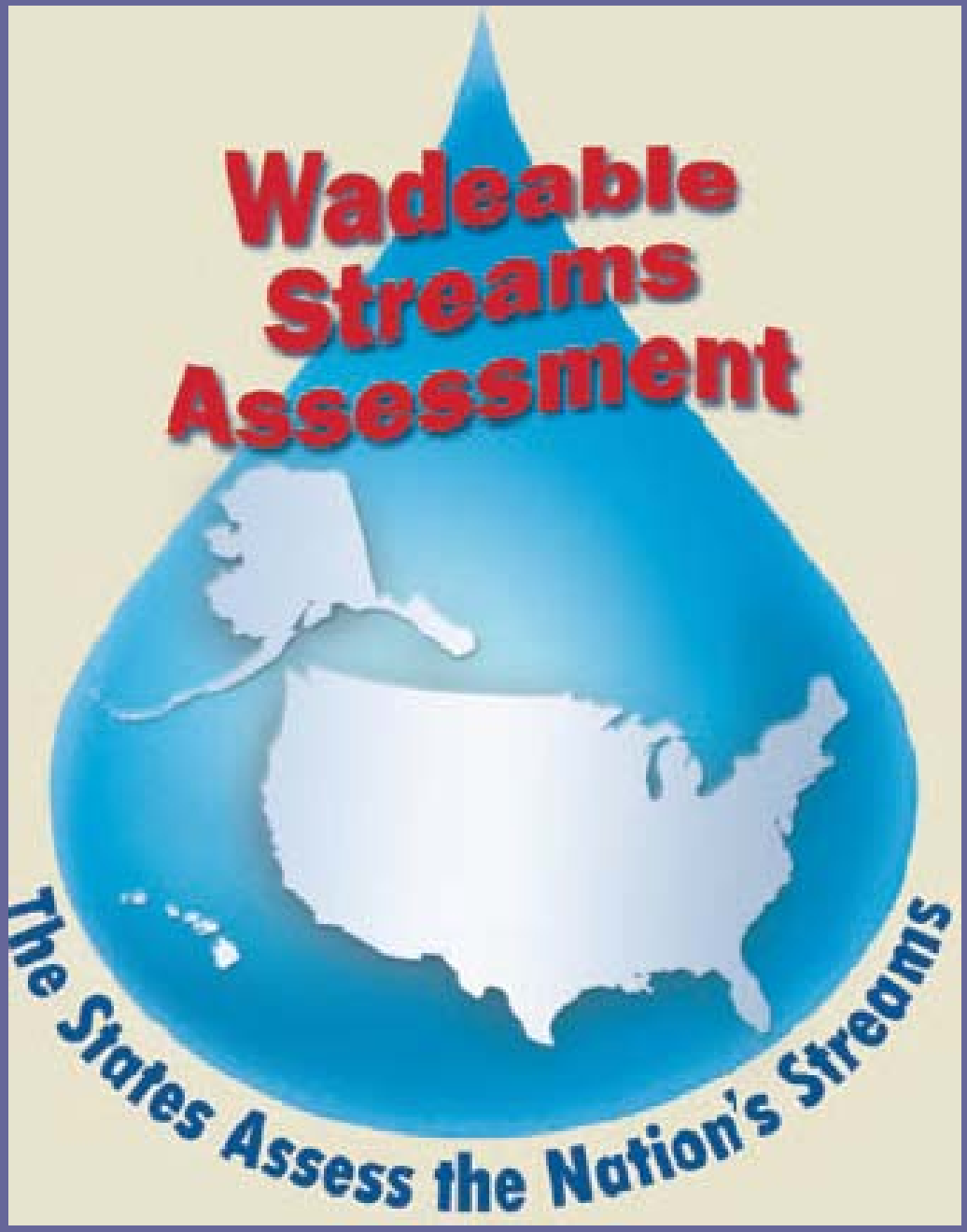
Regional Acidification



Salinity (Conductivity) National




Salinity - High
National
WMT
SAP
NAP
XER
NPL
0.0
20.0
40.0
60.0
80.0
100.0
% Stream Length


Wadeable
Streams
Assessment
The States Assess the Nation's Streams