

Nutrient Concentrations by Sub-basin and Ecoregion

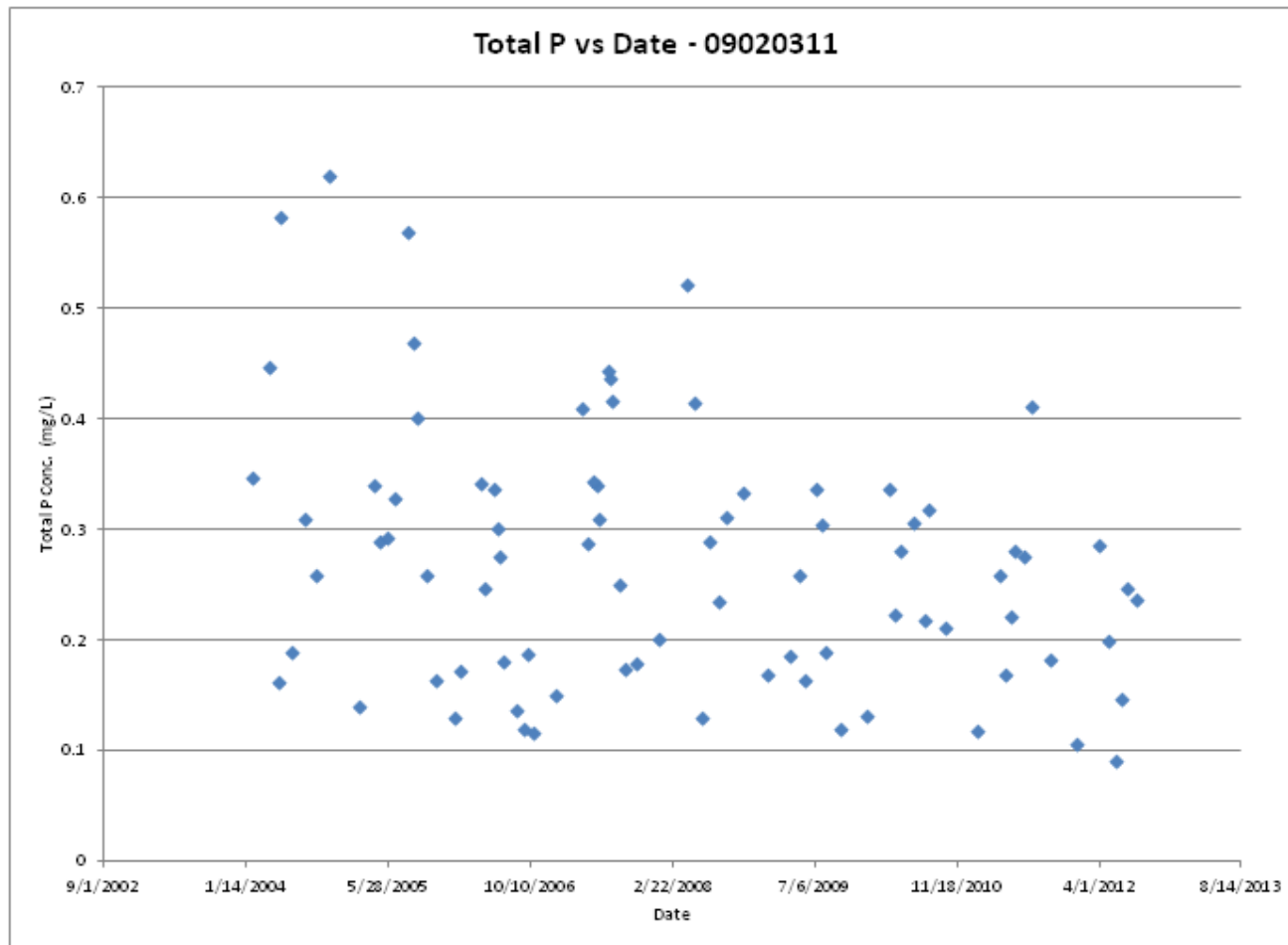
Prepared for the Prioritization and
Nutrient Criteria Workgroup Meetings

April 15 & 16, 2014

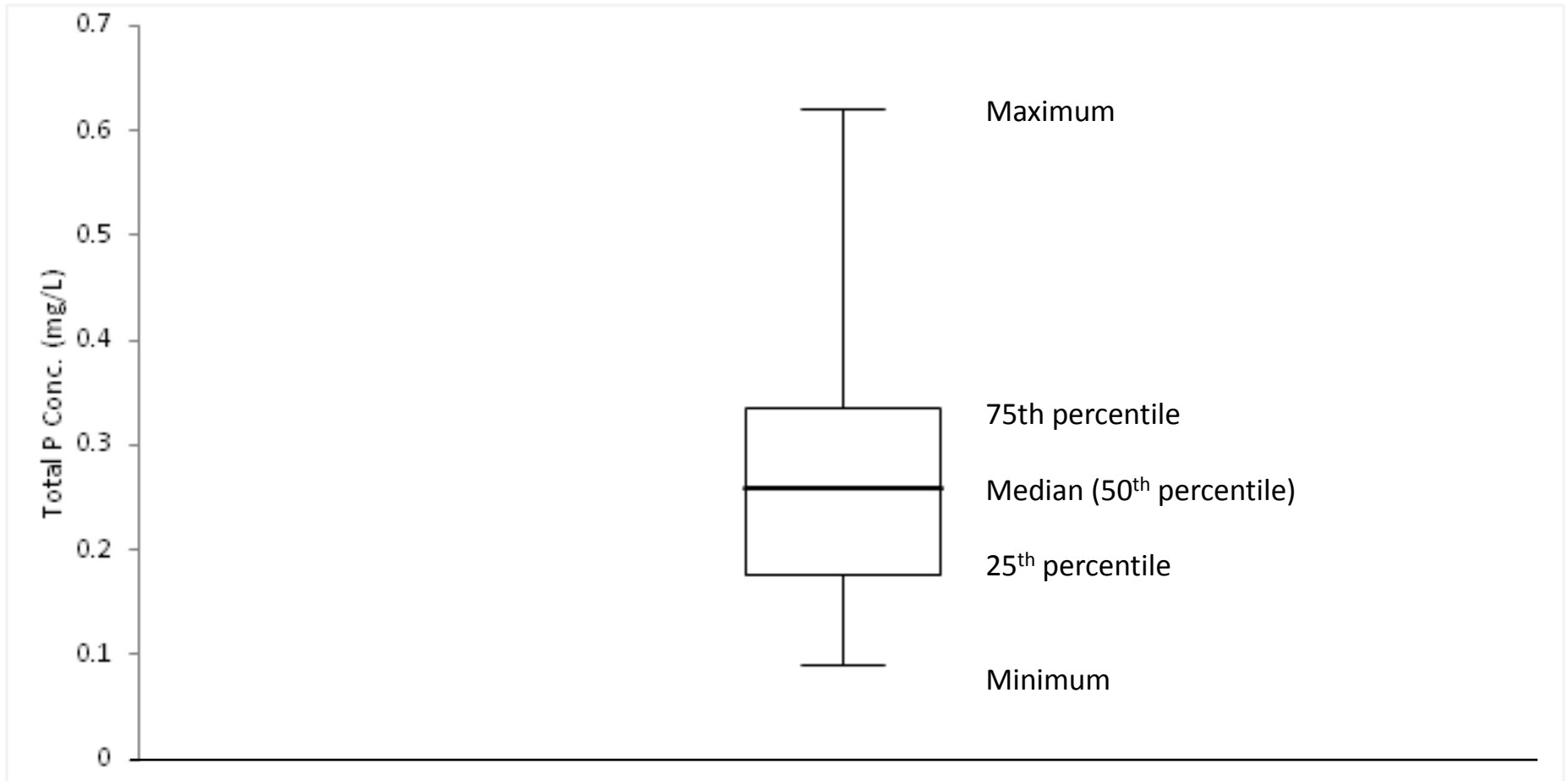
Nutrient Results

- Total nitrogen and total phosphorus
- NDDoH and USGS river and stream data collected during the last 10 years (January 1, 2004 through December 31, 2013)
- Includes ambient river and stream monitoring data, USGS high-low flow network, Section 319 watershed assessment and implementation project, and TMDL development project data
- Results presented as box and whisker plots

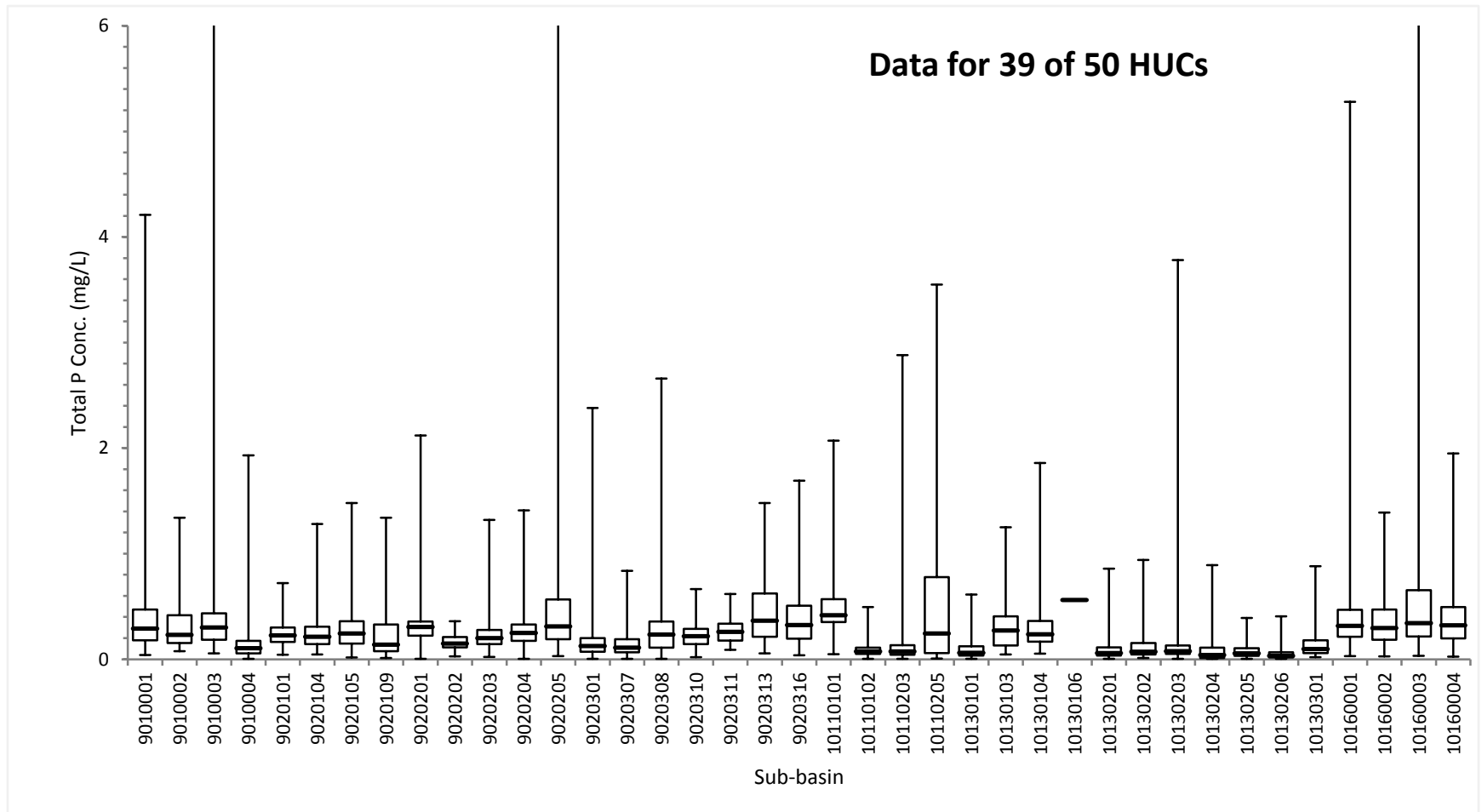
Box and whisker plots



Box and whisker plots



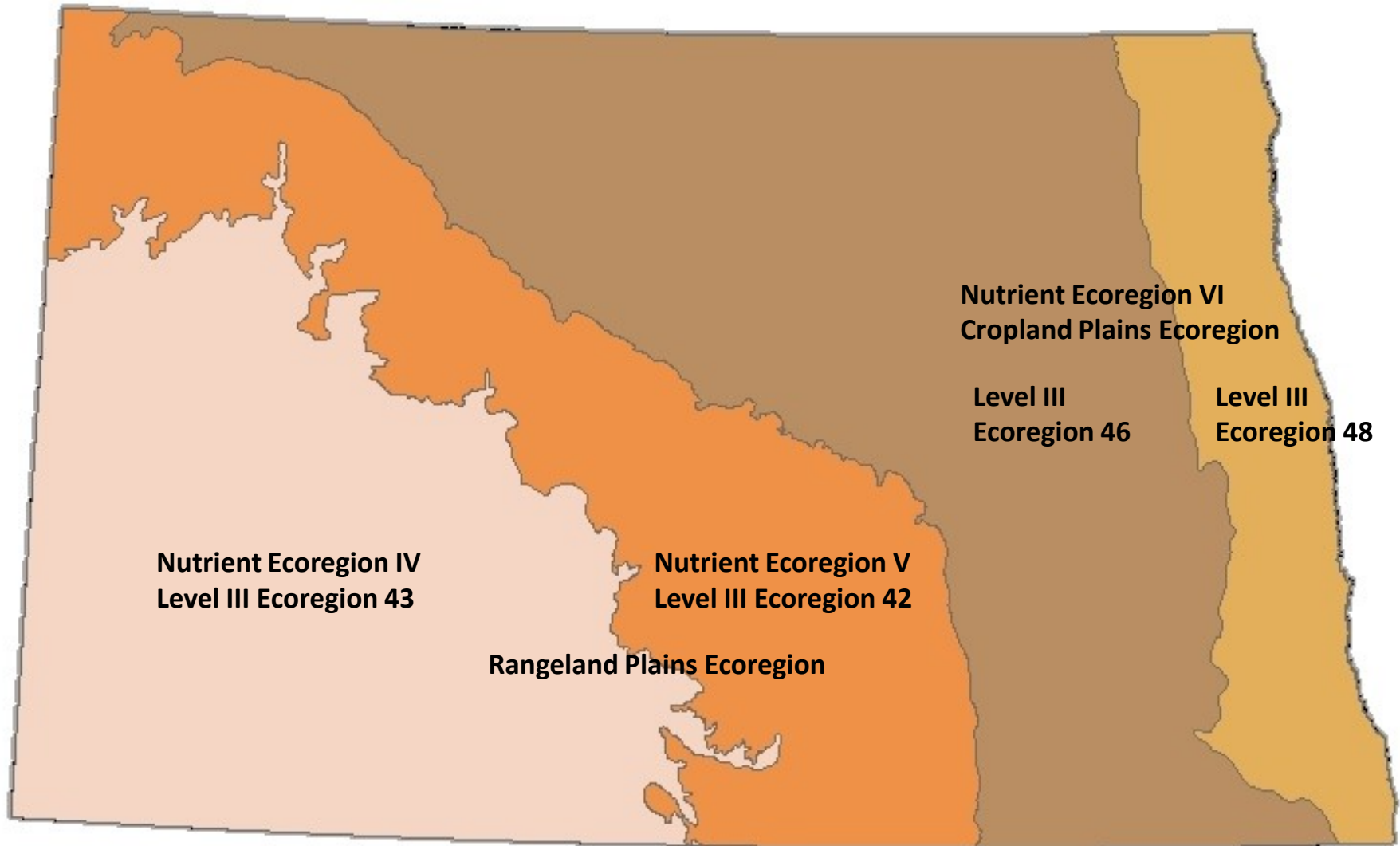
Total Phosphorus by Sub-basin



Thresholds Used to Evaluate the Data

- EPA Nutrient Ecoregion Thresholds
 - Published 2000 and 2001
 - Based on ecoregions
 - 1990 to 2000 data
 - “Reference condition” based on 25th percentiles of aggregate data
- Western EMAP Pilot “Thresholds”
 - Based on aggregate level III ecoregions
 - Rangeland Plains and Cropland Plains
 - Reference condition based on 25th percentile of aggregate “reference site” data

Nutrient Ecoregions

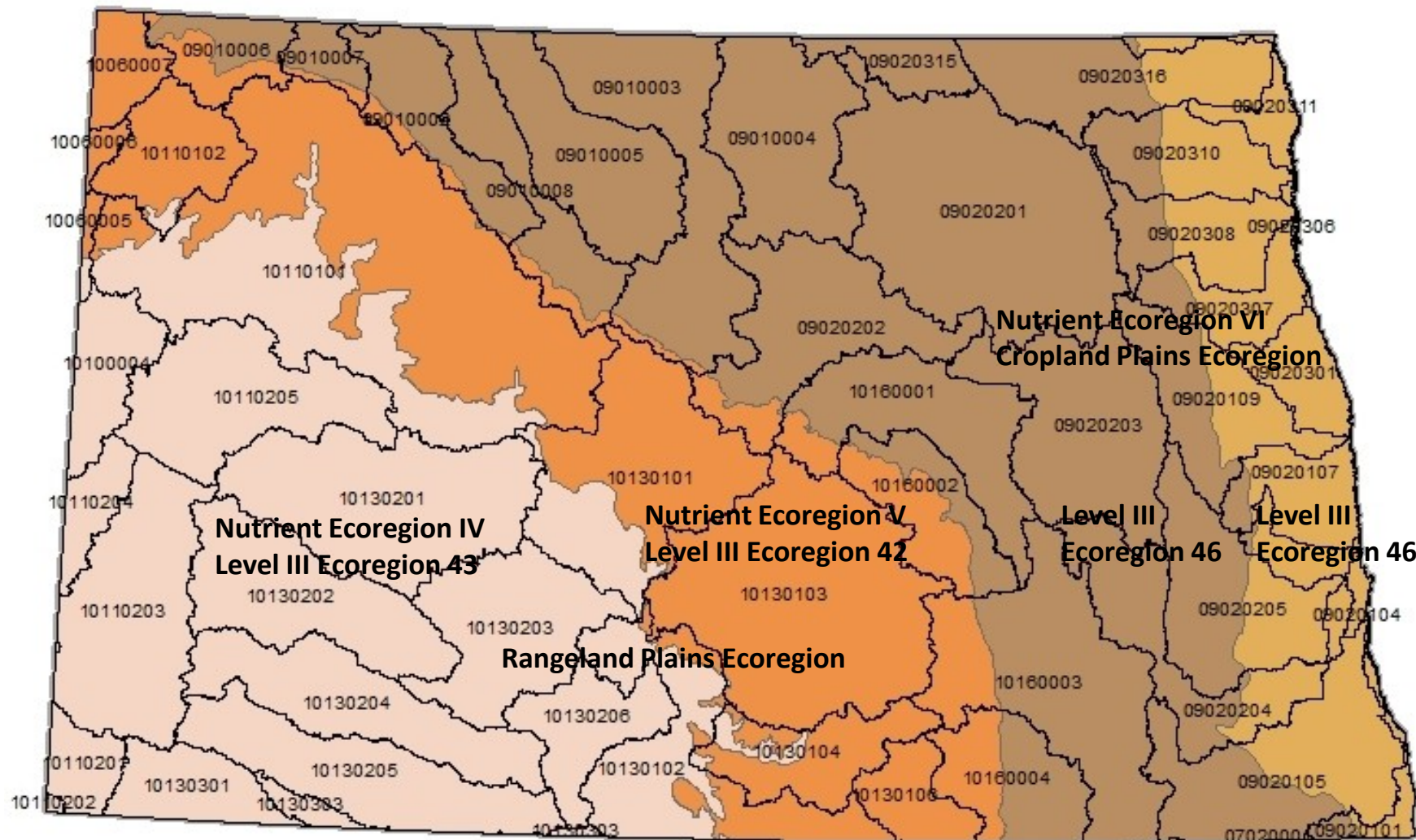


EPA Nutrient Ecoregion Thresholds for Rivers and Streams

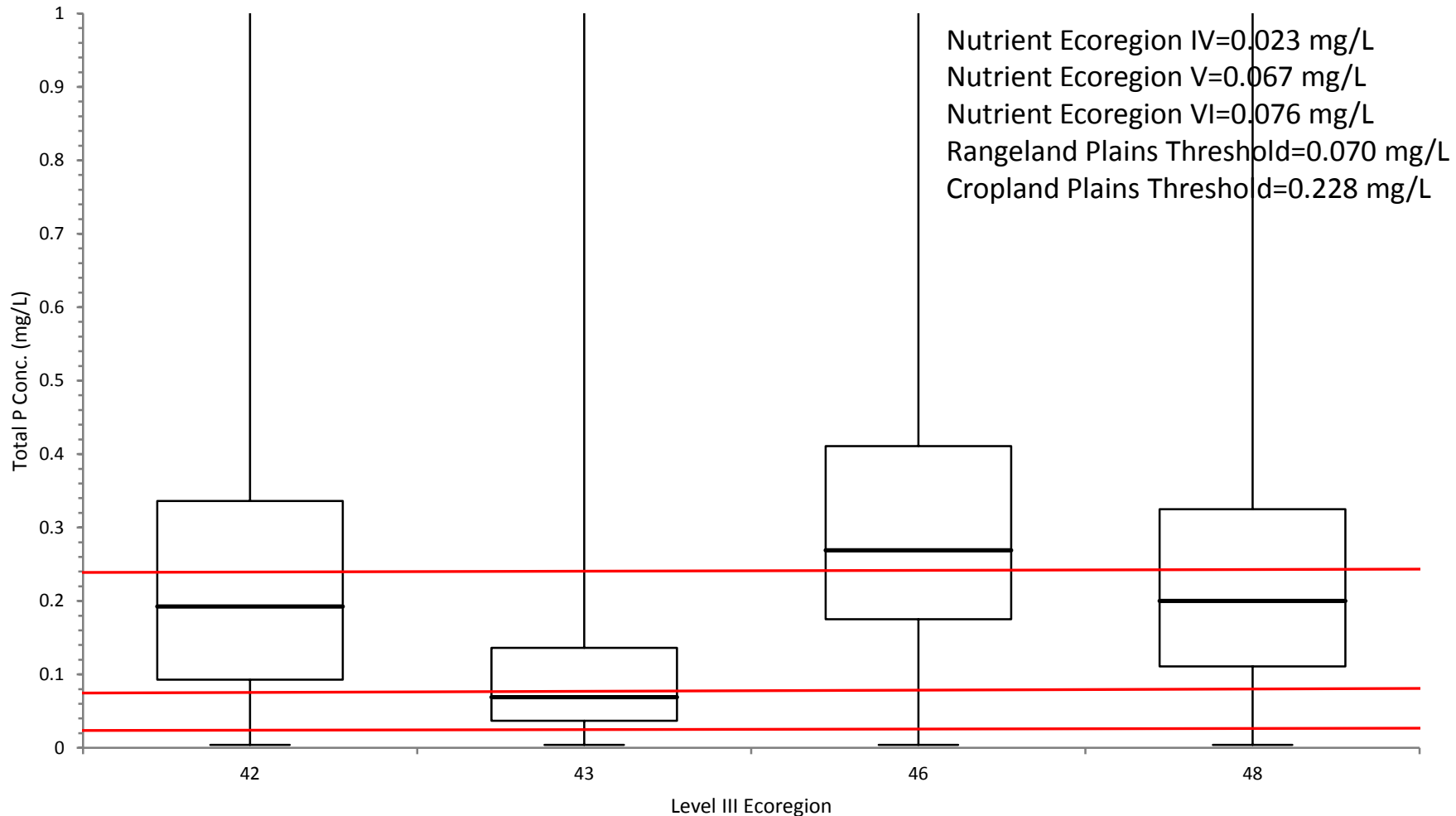
Nutrient Ecoregions	Total N (mg/L)	Total P (mg/L)
IV	0.56	0.023
V	0.88	0.067
VI	2.18	0.076

EMAP Nutrient Thresholds for Rivers and Streams

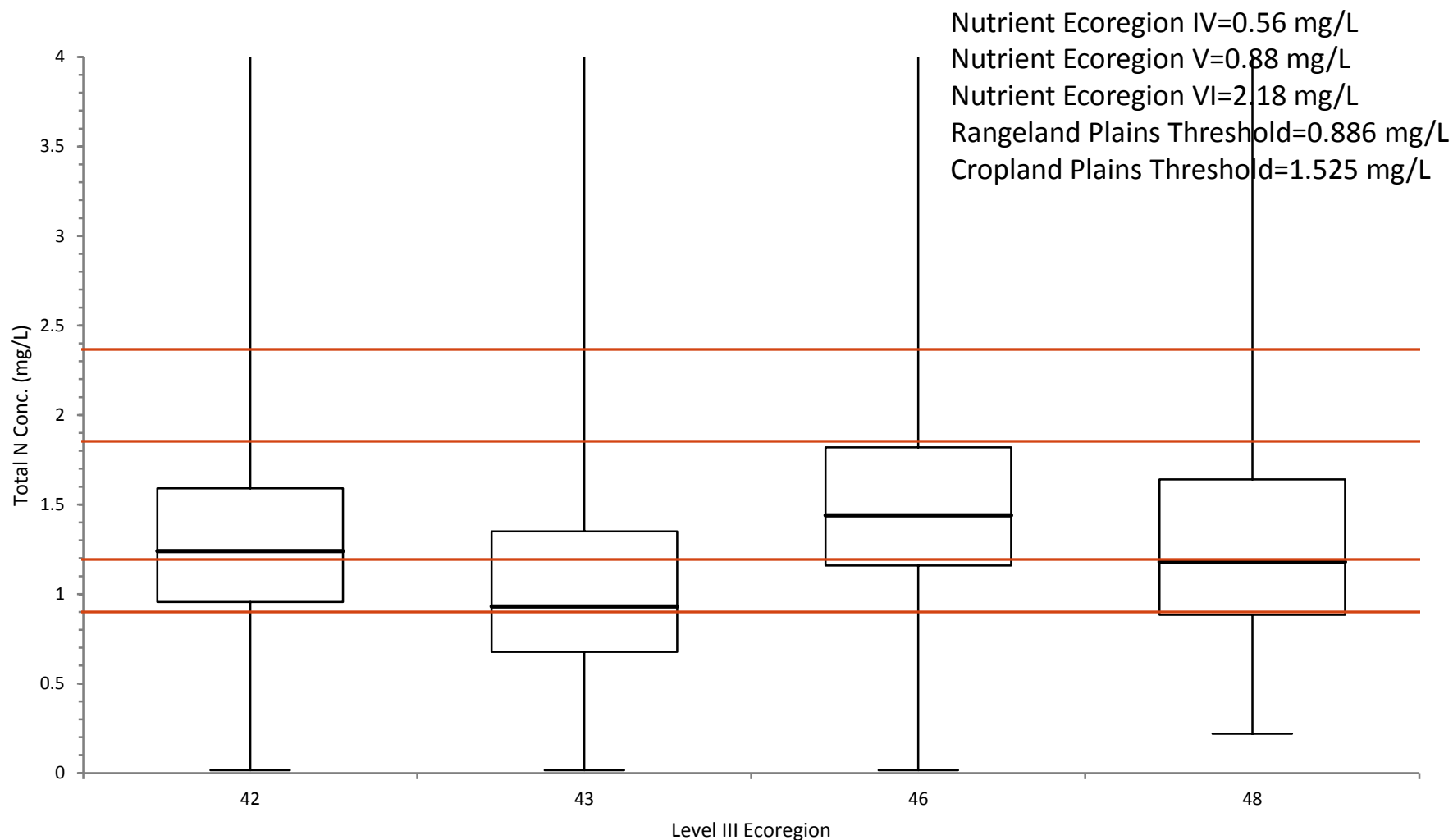
Aggregate Ecoregions	Total N (mg/L)	Total P (mg/L)
Rangeland Plains	0.886	0.07
Cropland Plains	1.525	0.228



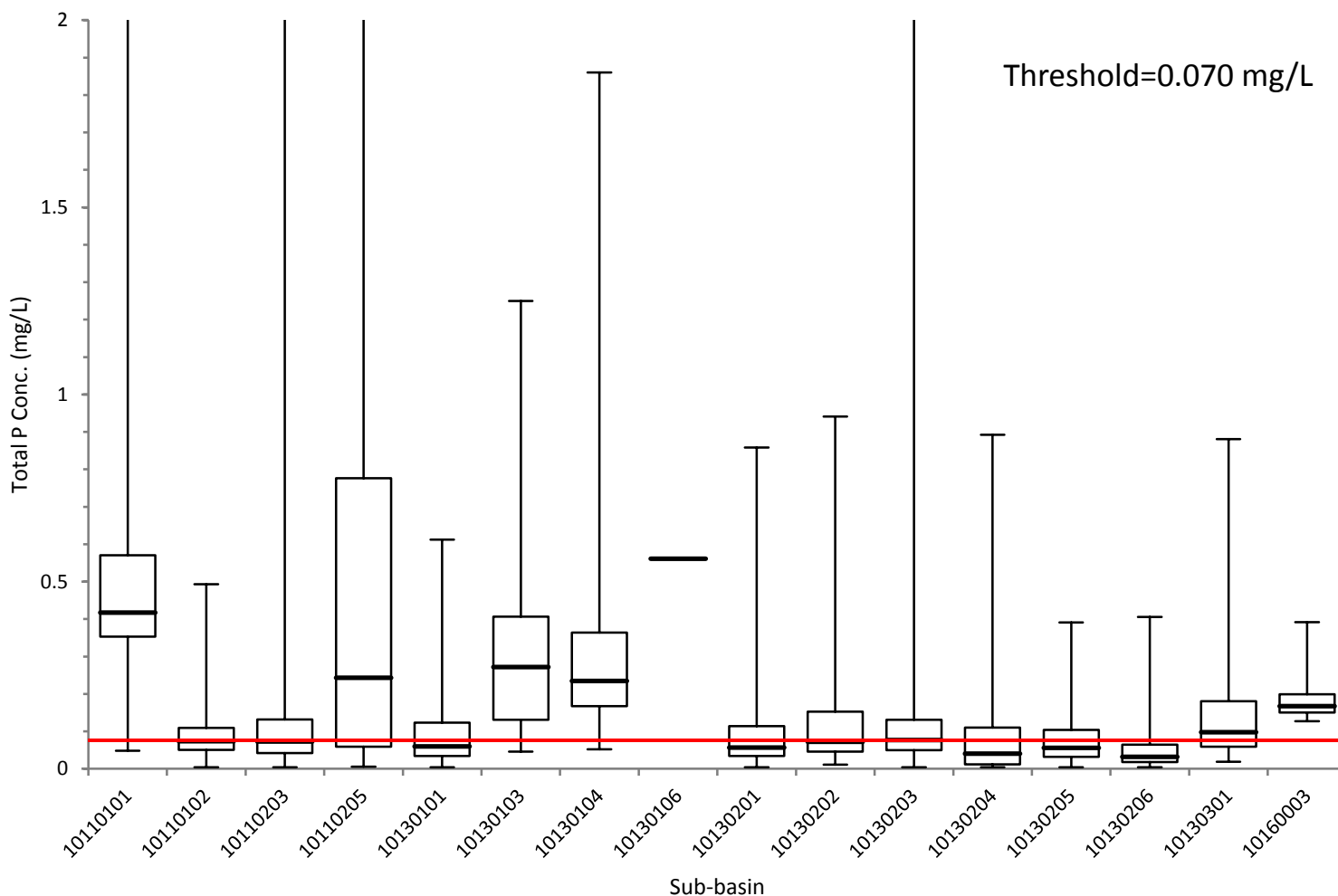
Total P – Level III Ecoregions in ND



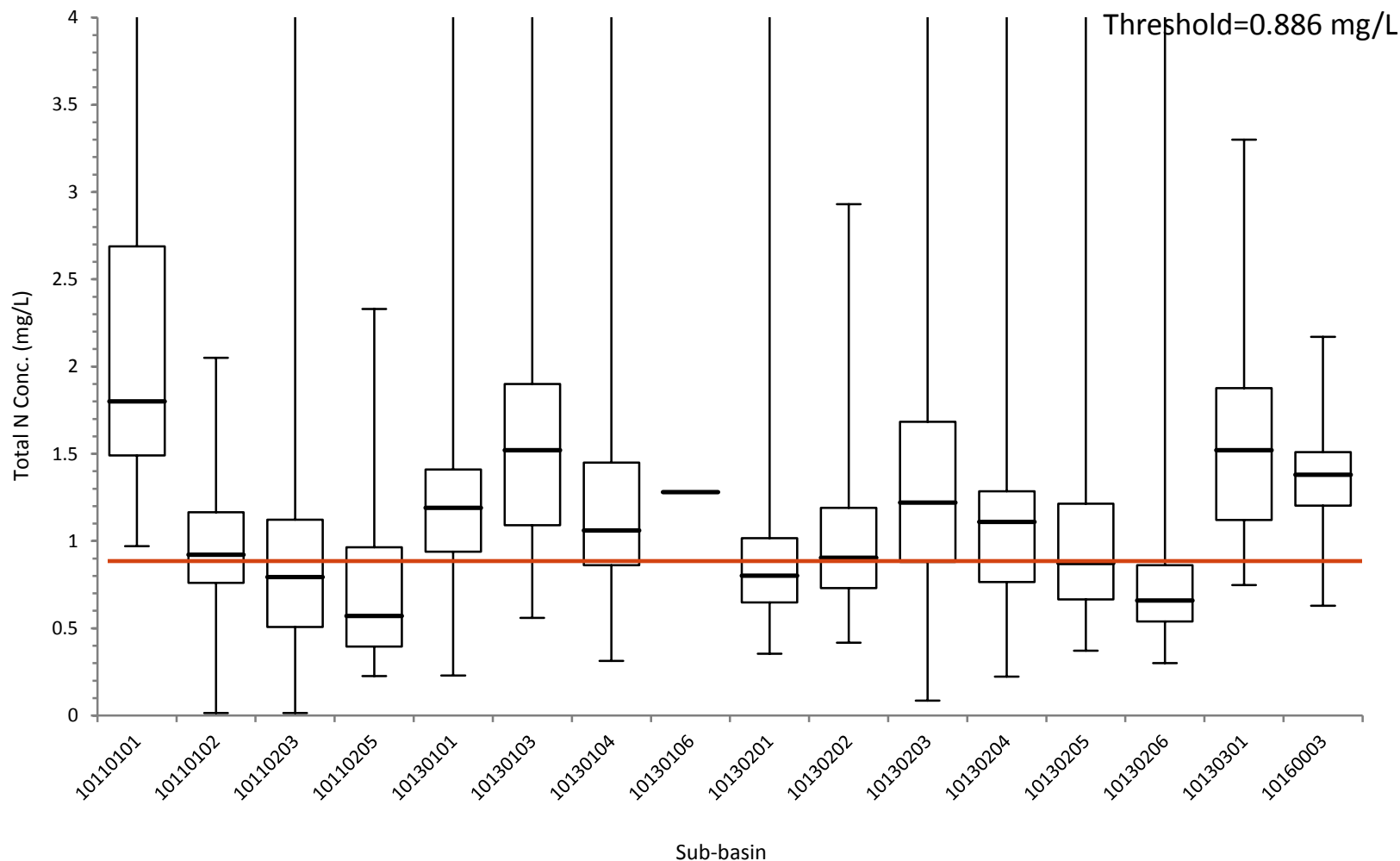
Total N – Level III Ecoregions in ND



Total P - Rangeland Plains Sub-basins

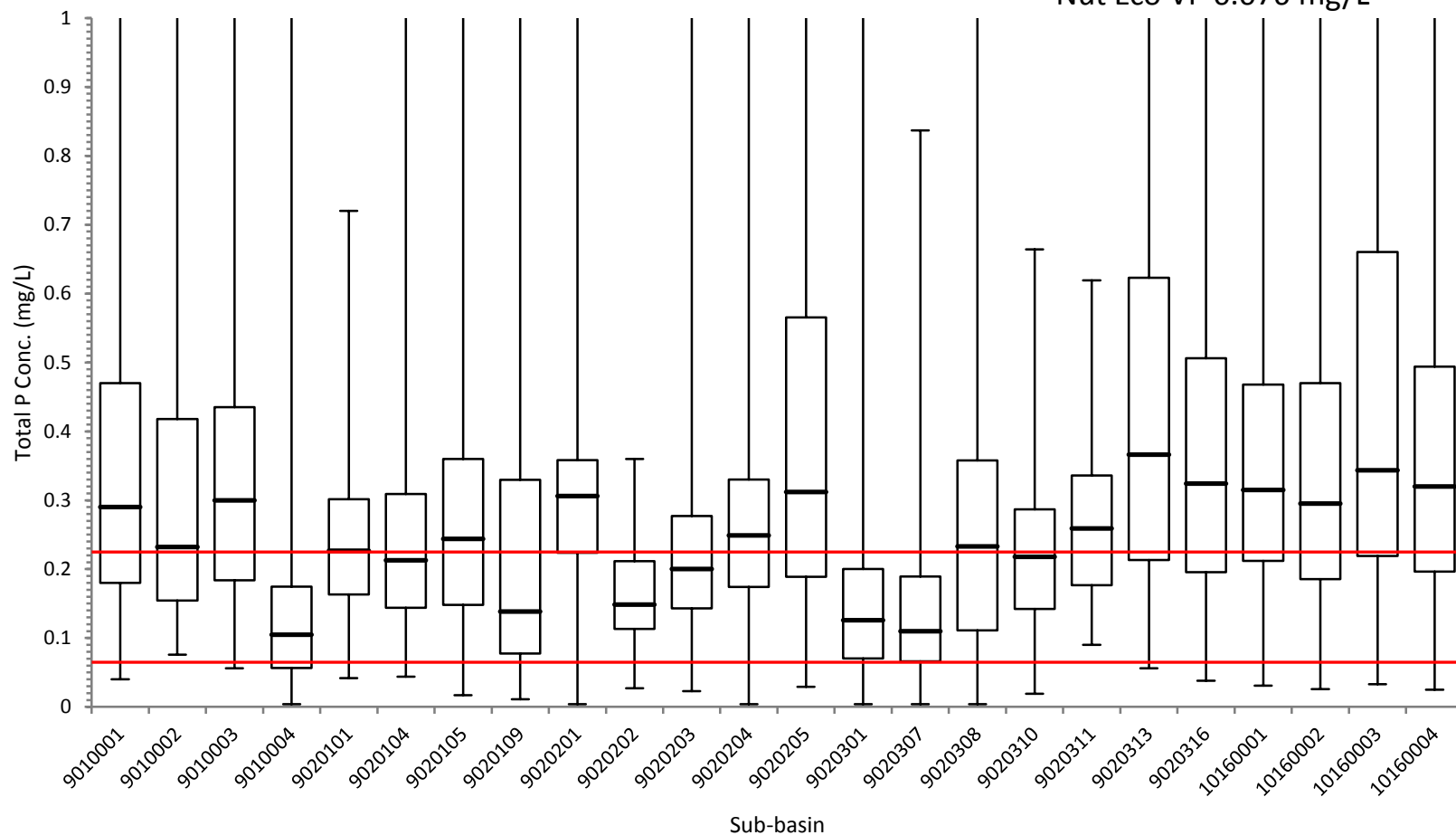


Total N - Rangeland Plains Sub-basins

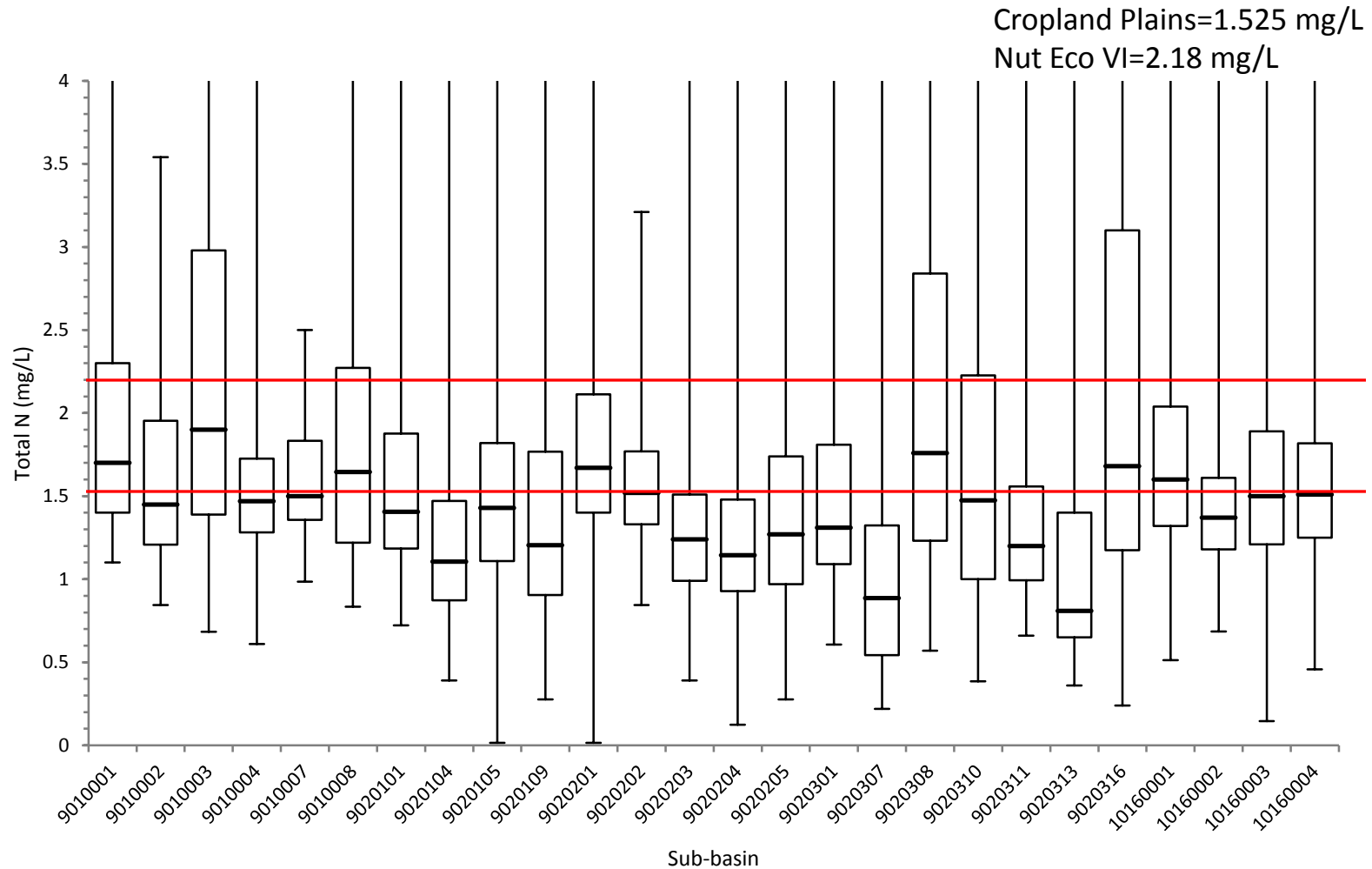


Total P – Cropland Plains/ Level VI Ecoregion Sub-basins

Cropland Plains=0.228 mg/L
Nut Eco VI=0.076 mg/L



Total N – Cropland Plains/ Nutrient Ecoregion VI Sub-basins

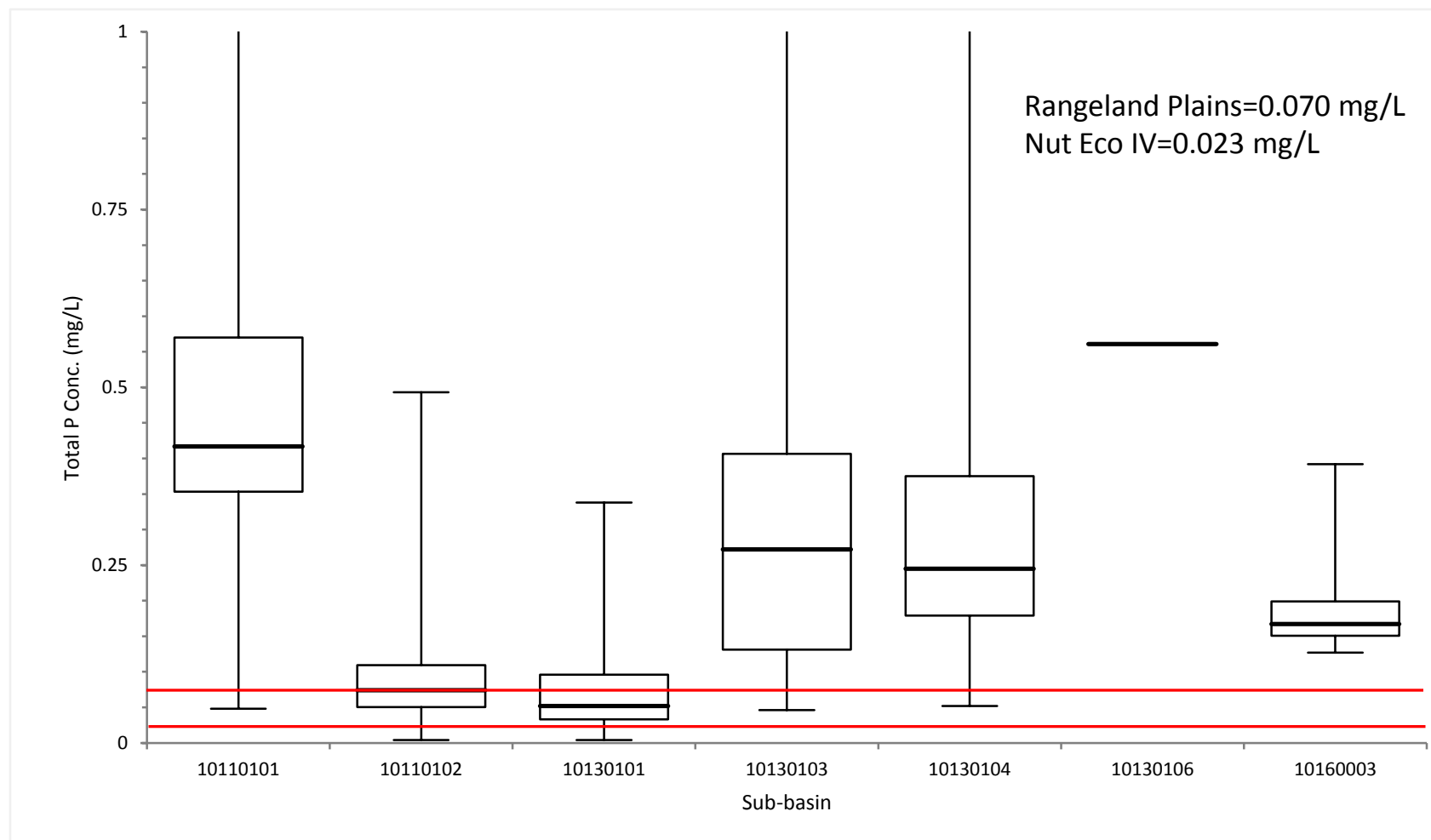


Questions?

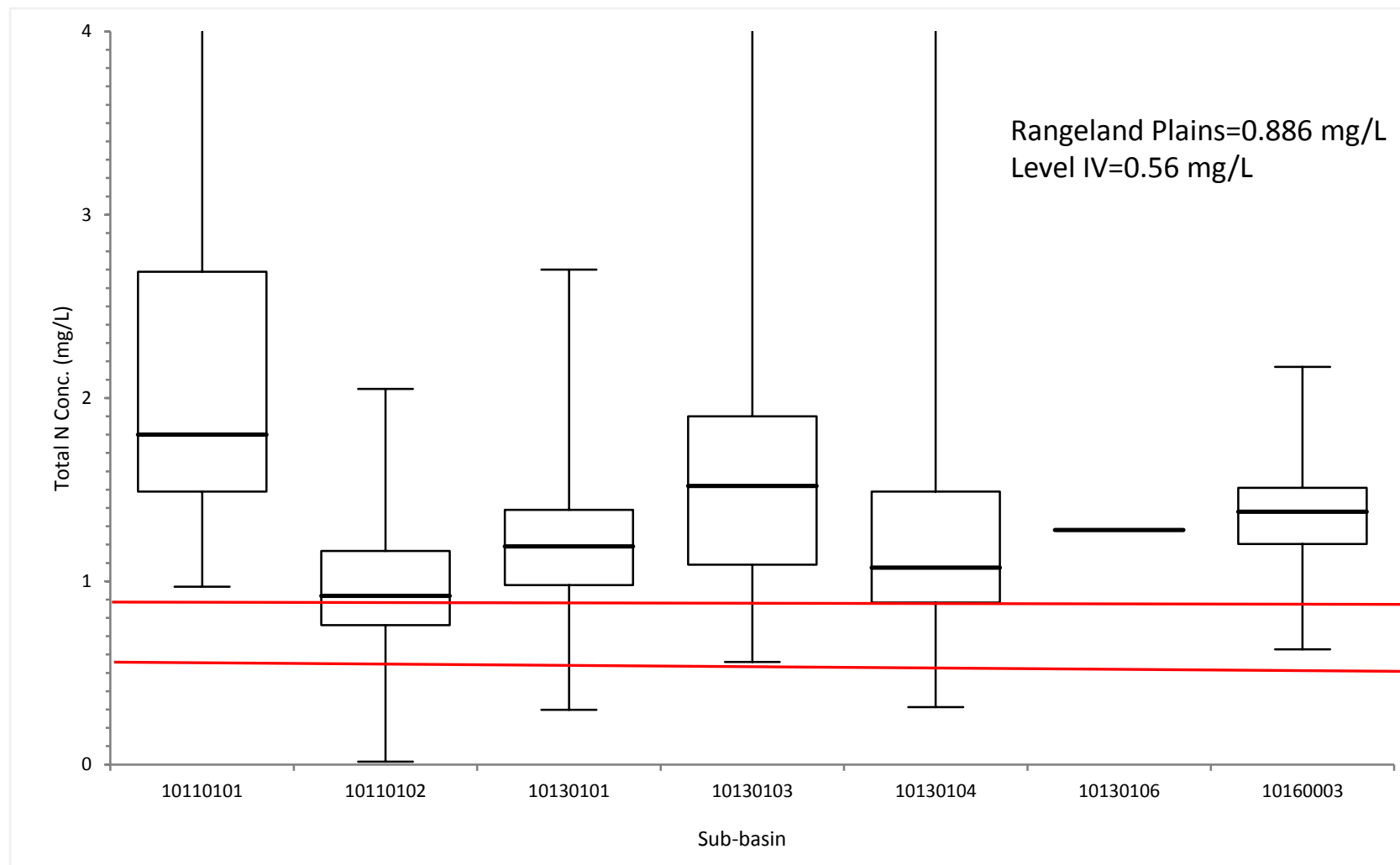


Questions?

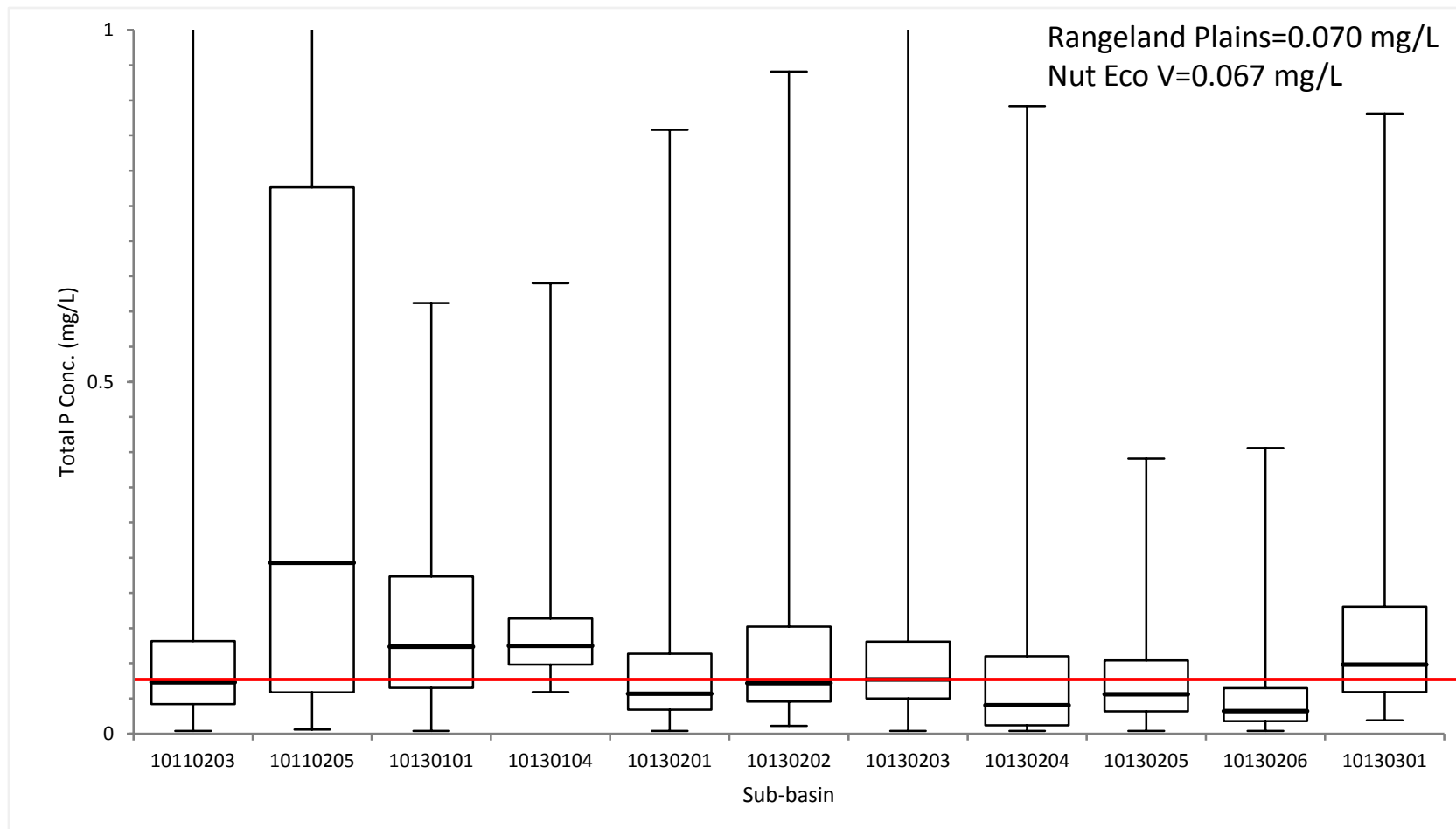
Total P – Nutrient Ecoregion IV Sub-basins



Total N – Nutrient Ecoregion IV Sub-basins



Total P – Nutrient Ecoregion V Sub-basins



Total N – Nutrient Ecoregion V Sub-basins

