Nutrient Concentrations by Sub-basin and Ecoregion

Prepared for the Prioritization and Nutrient Criteria Workgroup Meetings

April 15 & 16, 2014

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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

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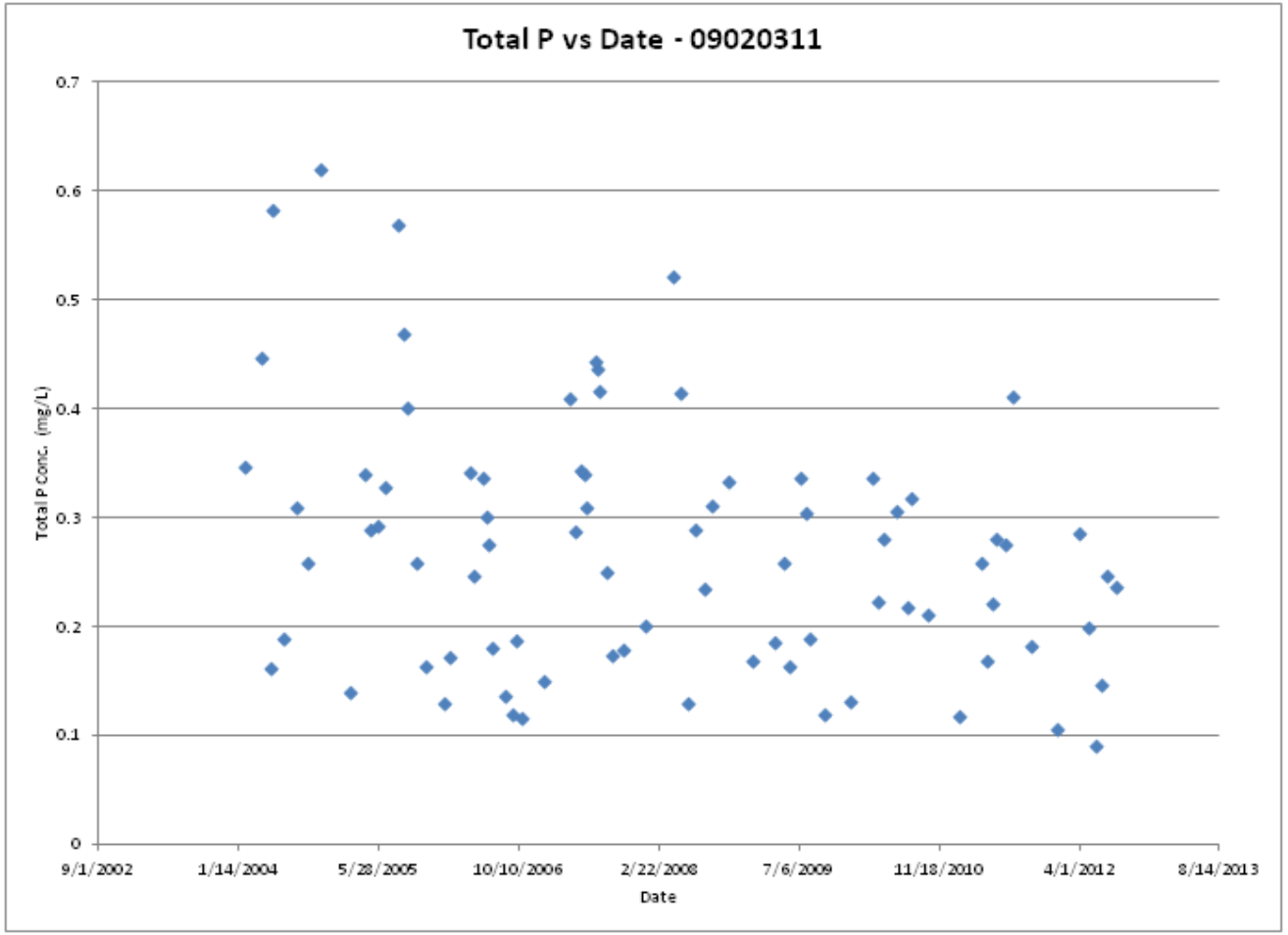
Box and whisker plots



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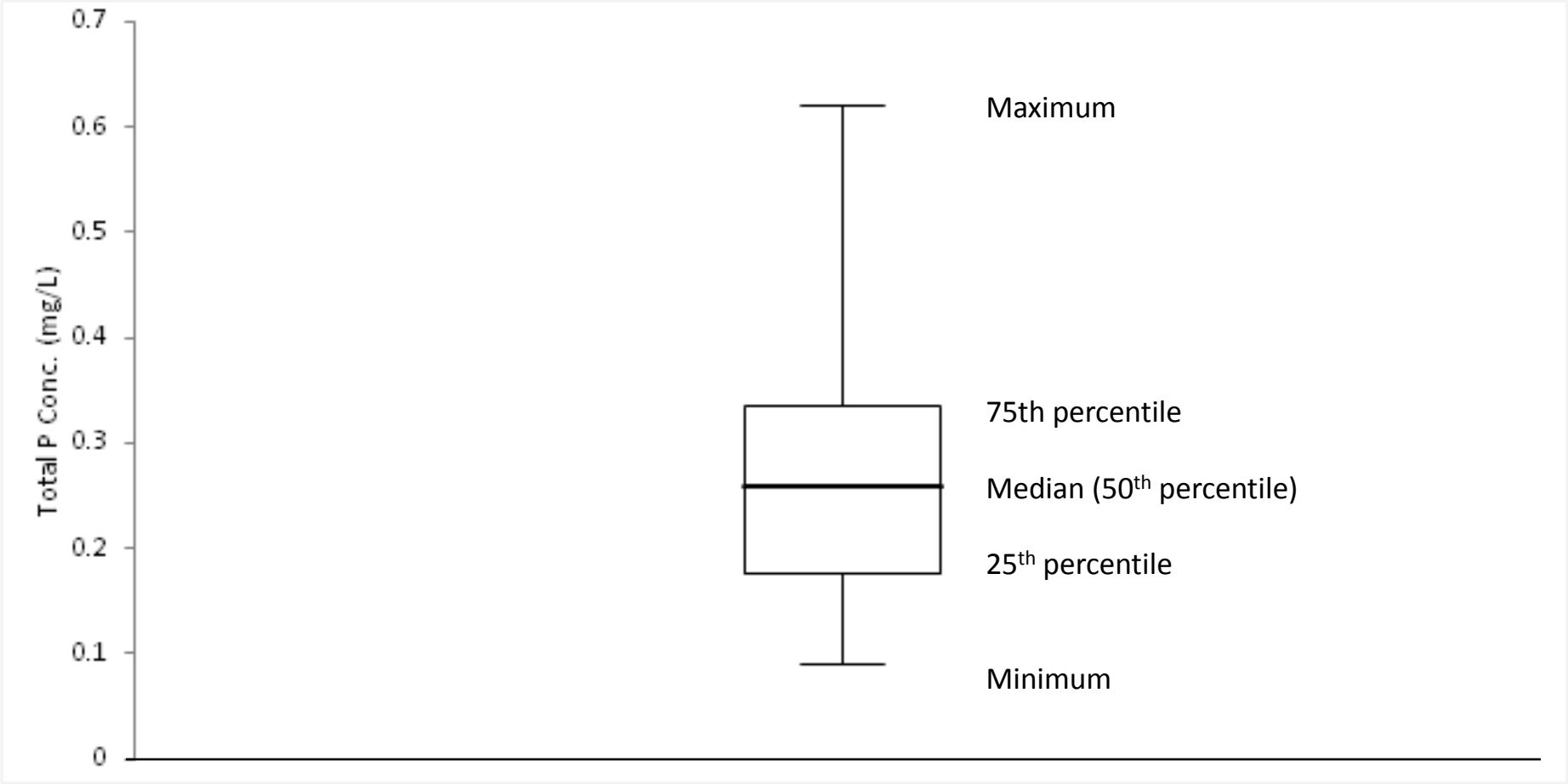
Box and whisker plots



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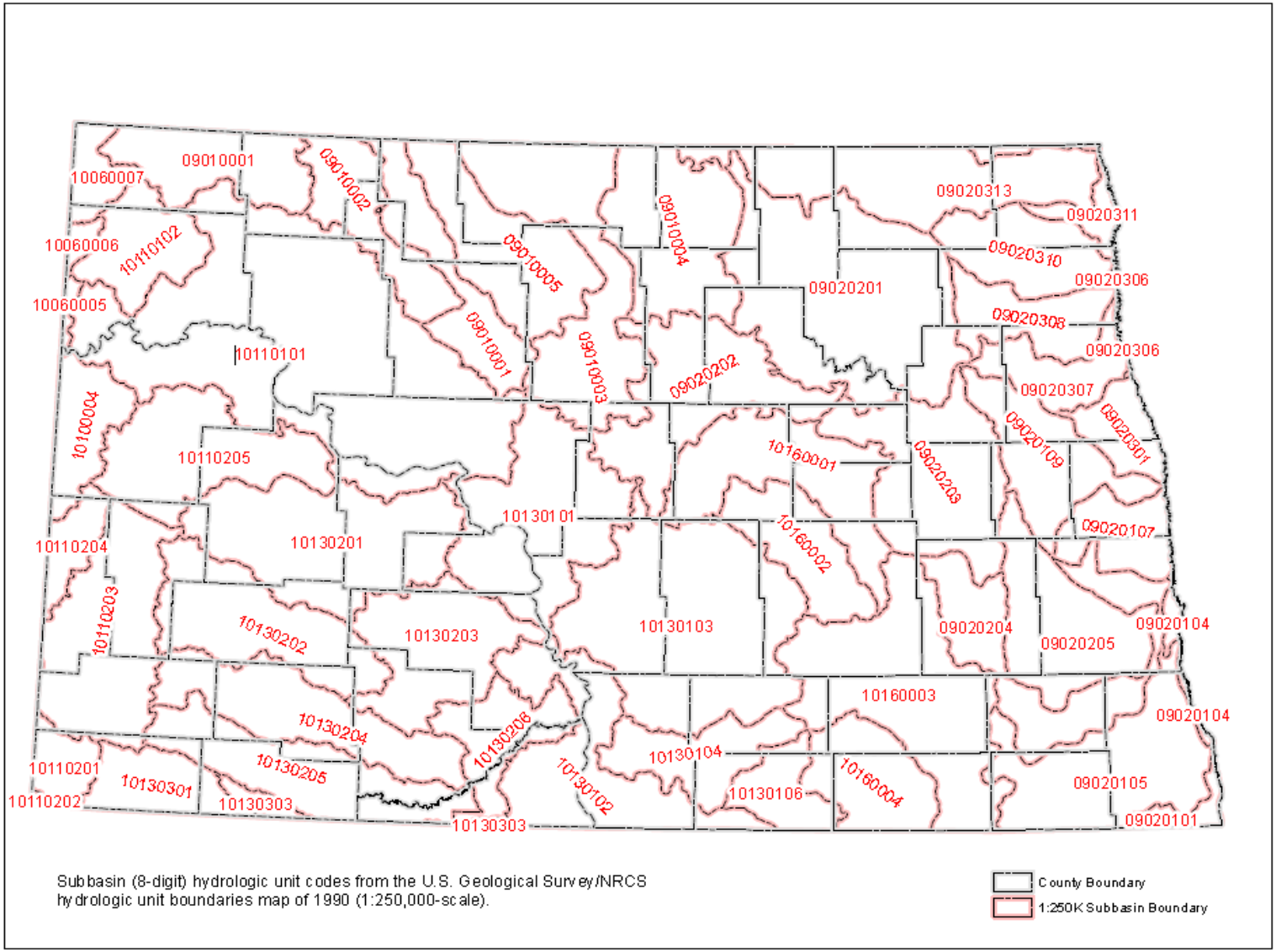

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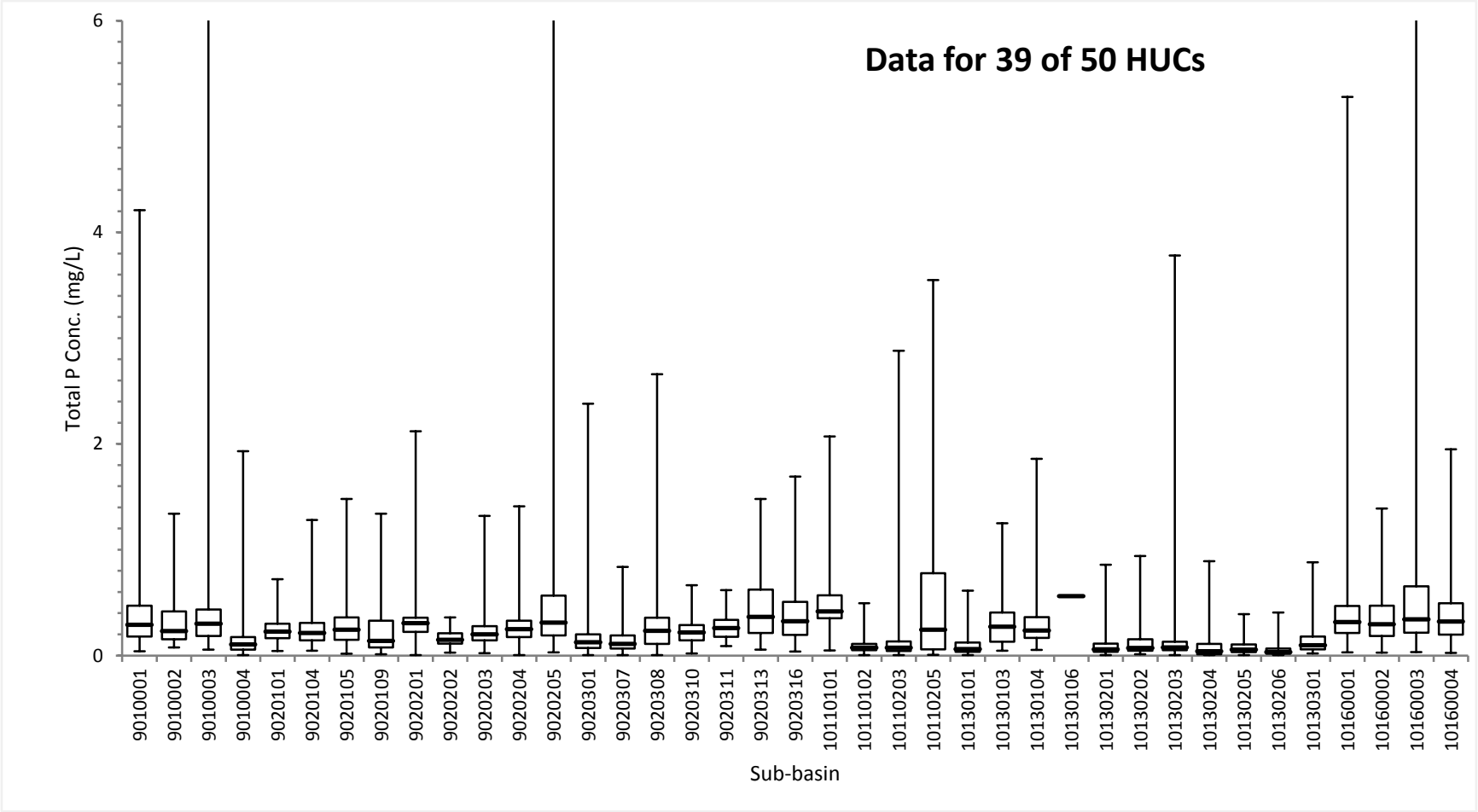
Total Phosphorus by Sub-basin



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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

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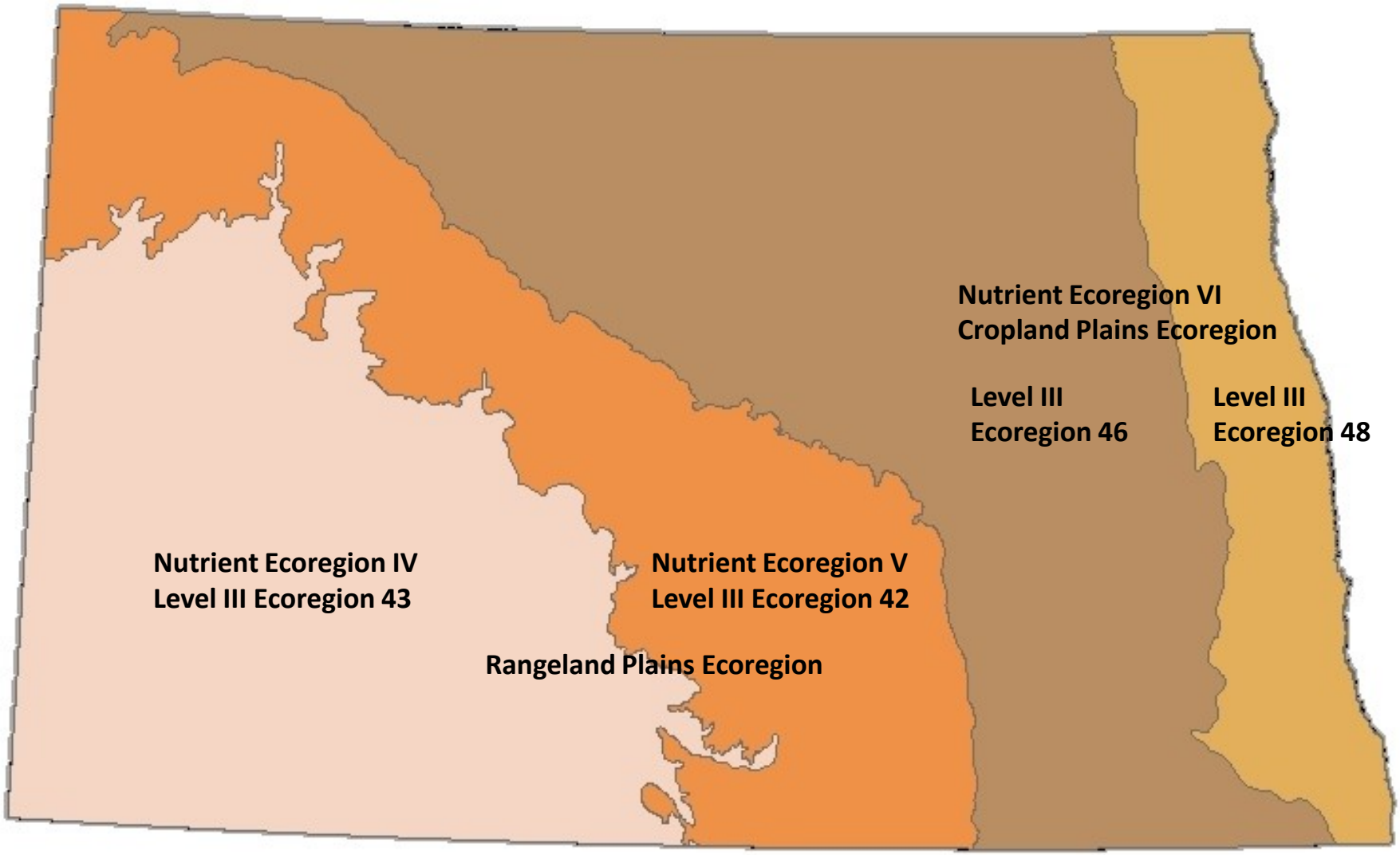
Nutrient Ecoregions



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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

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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

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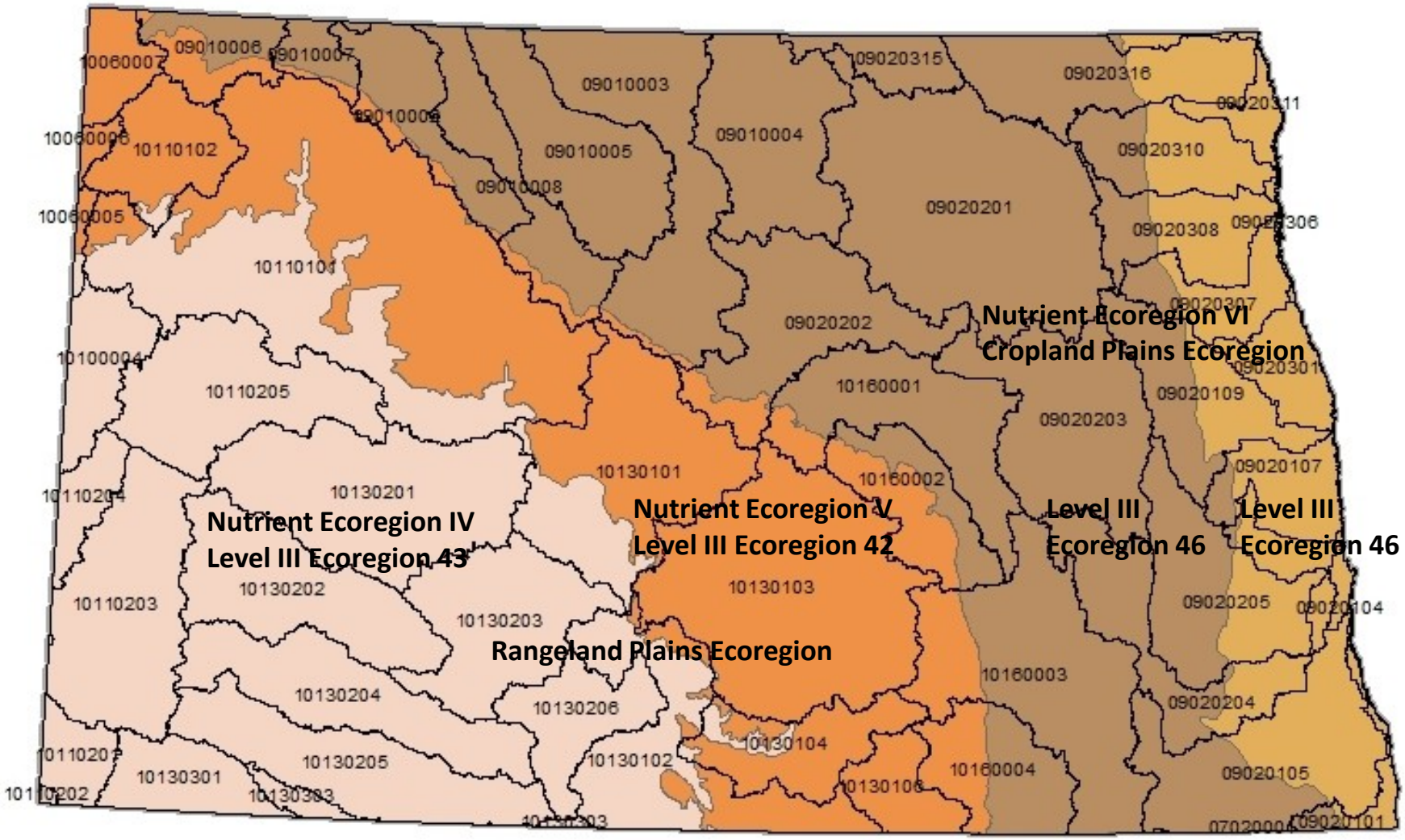

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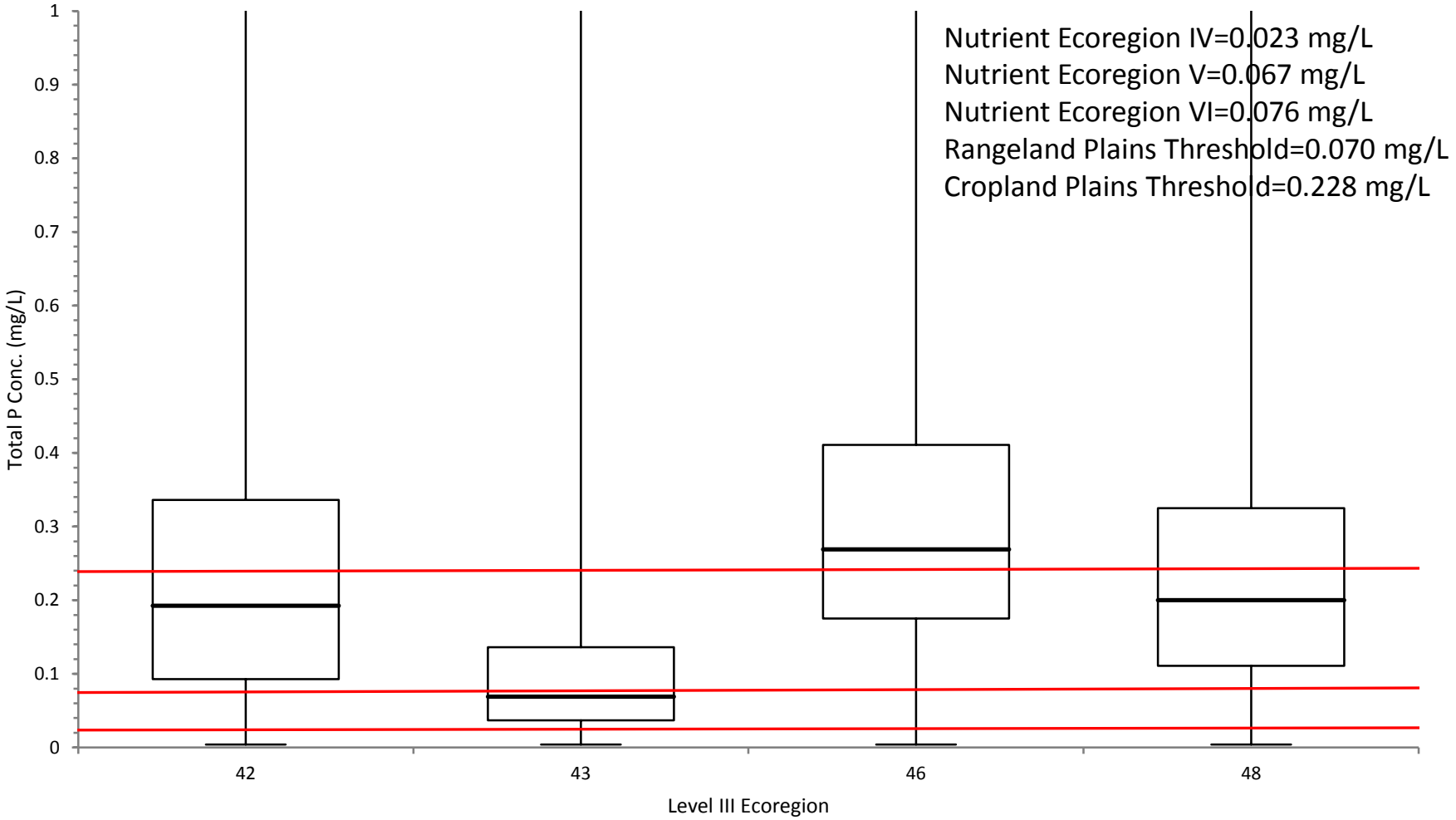
Total P – Level III Ecoregions in ND



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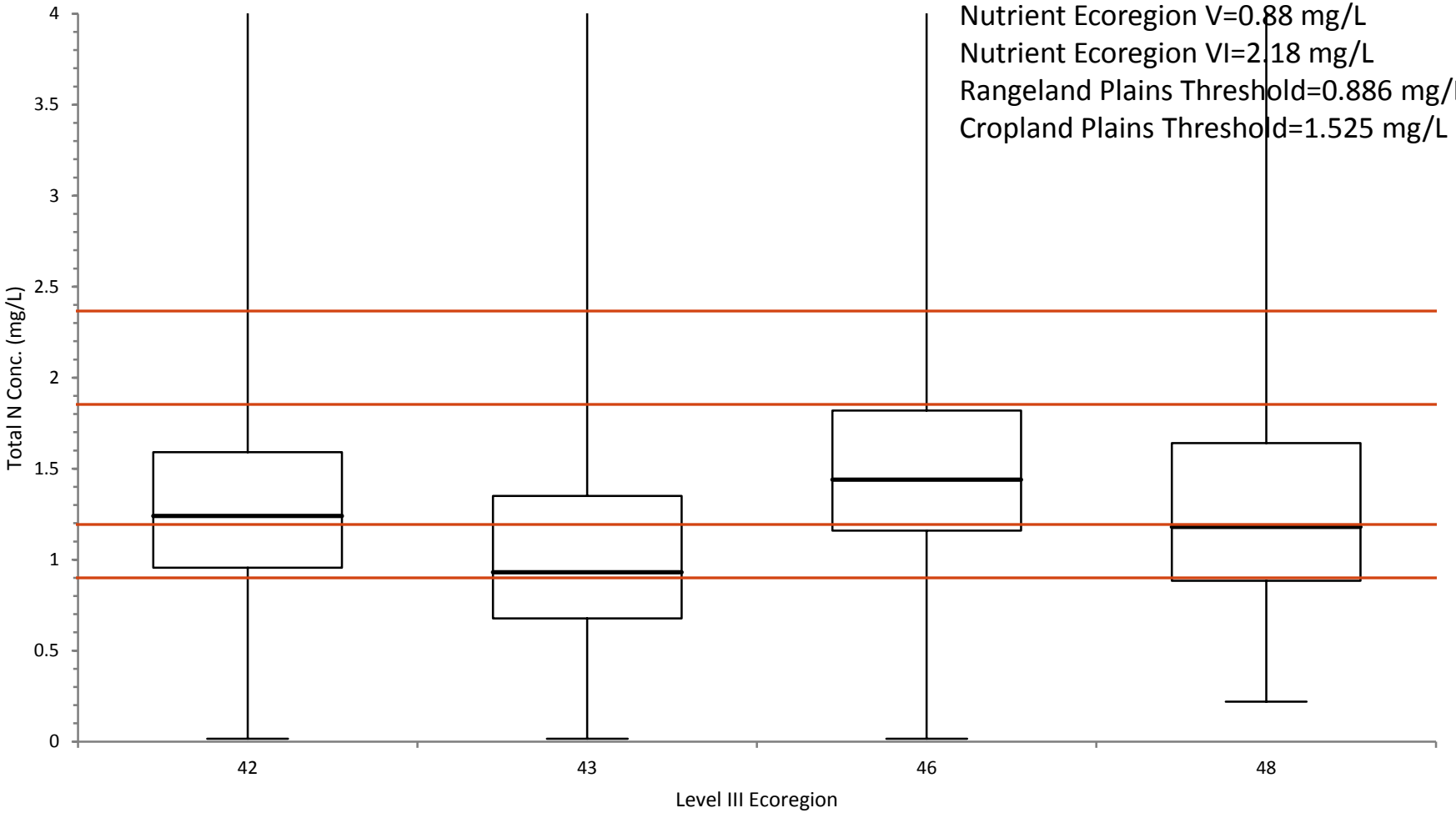
Total N – Level III Ecoregions in ND

Nutrient Ecoregion IV=0.56 mg/L
Nutrient Ecoregion V=0.88 mg/L
Nutrient Ecoregion VI=2.18 mg/L
Rangeland Plains Threshold=0.886 mg/L
Cropland Plains Threshold=1.525 mg/L



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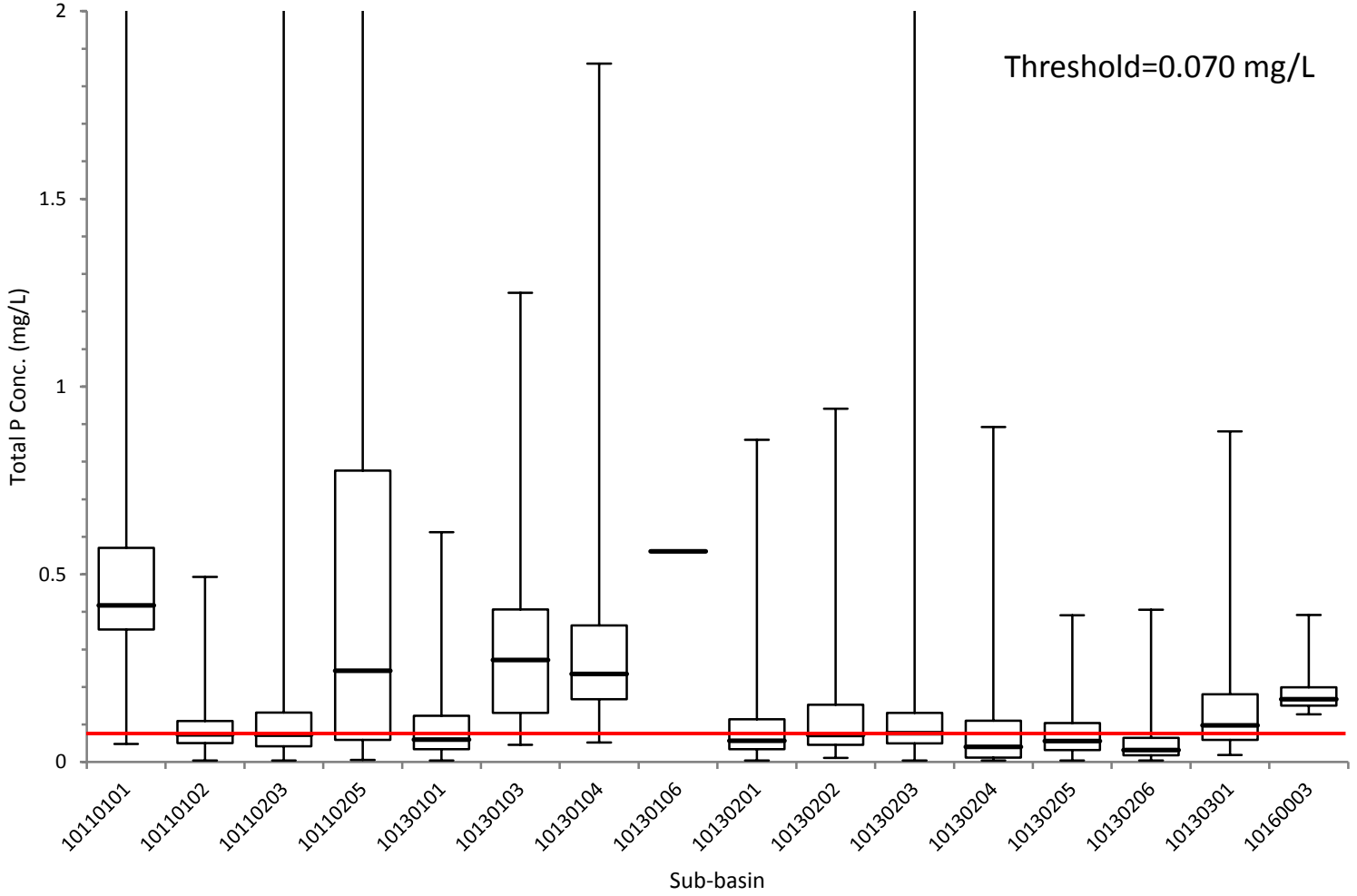
Total P - Rangeland Plains Sub-basins



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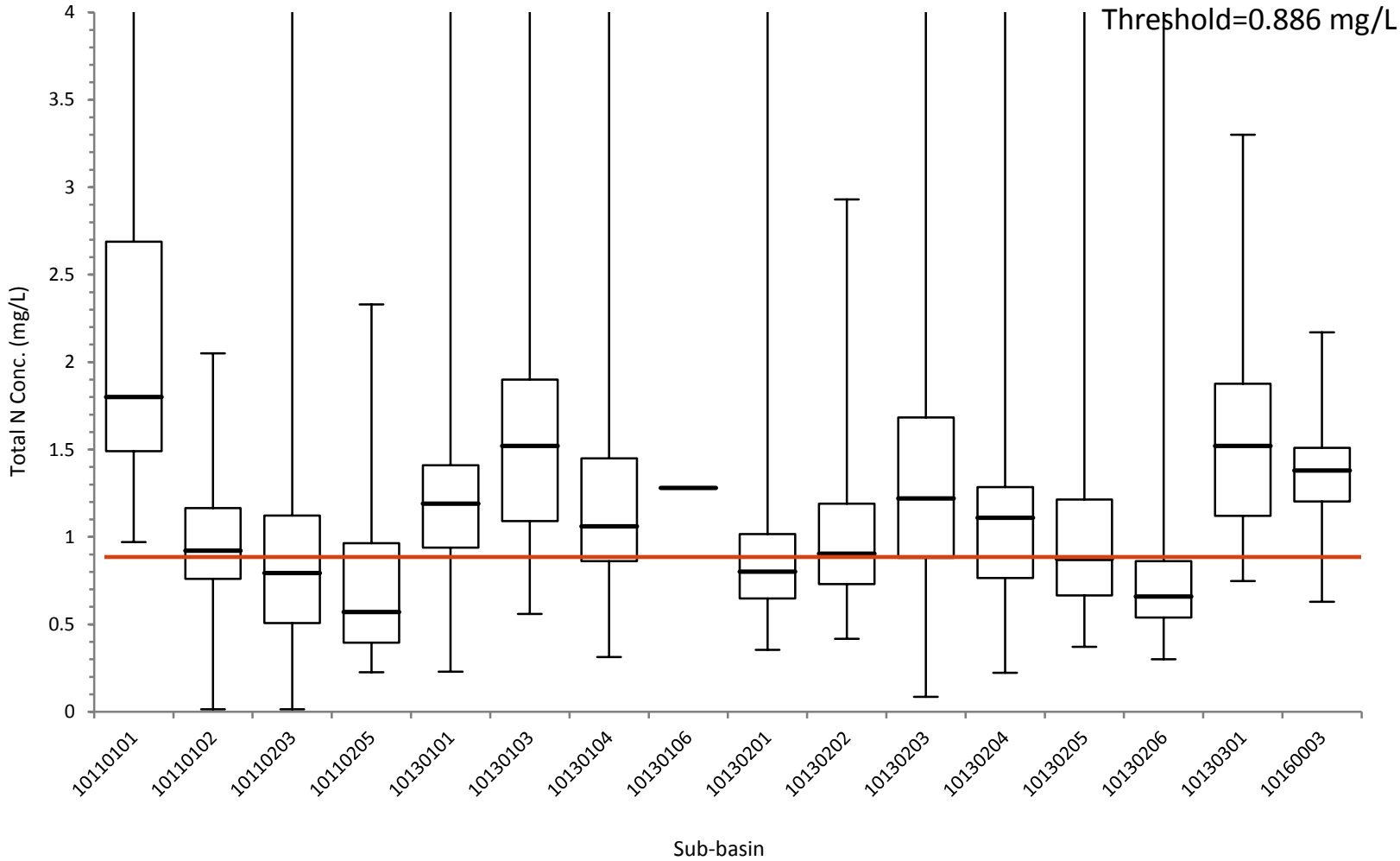
Total N - Rangeland Plains Sub-basins



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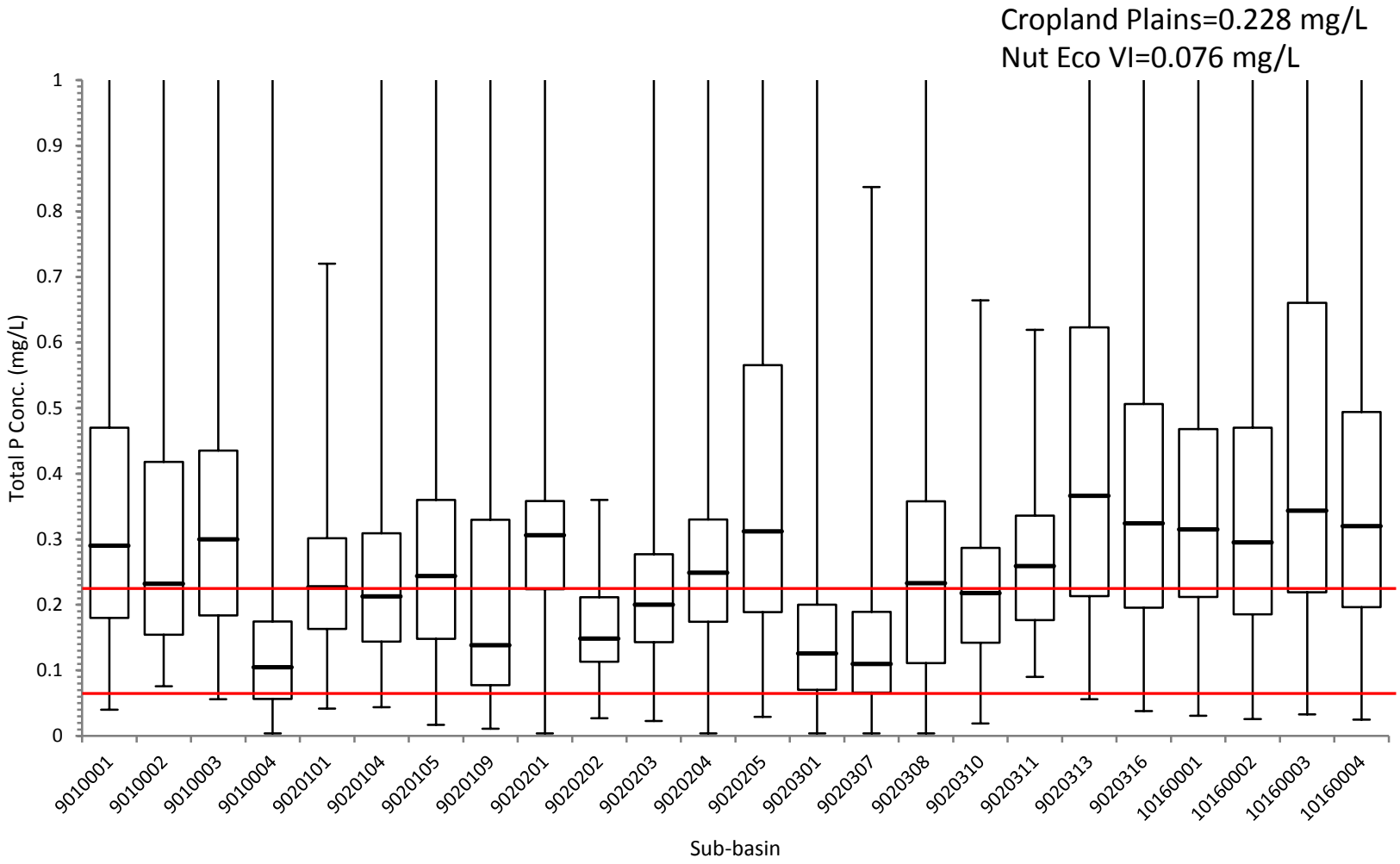
Total P – Cropland Plains/ Level VI Ecoregion Sub-basins



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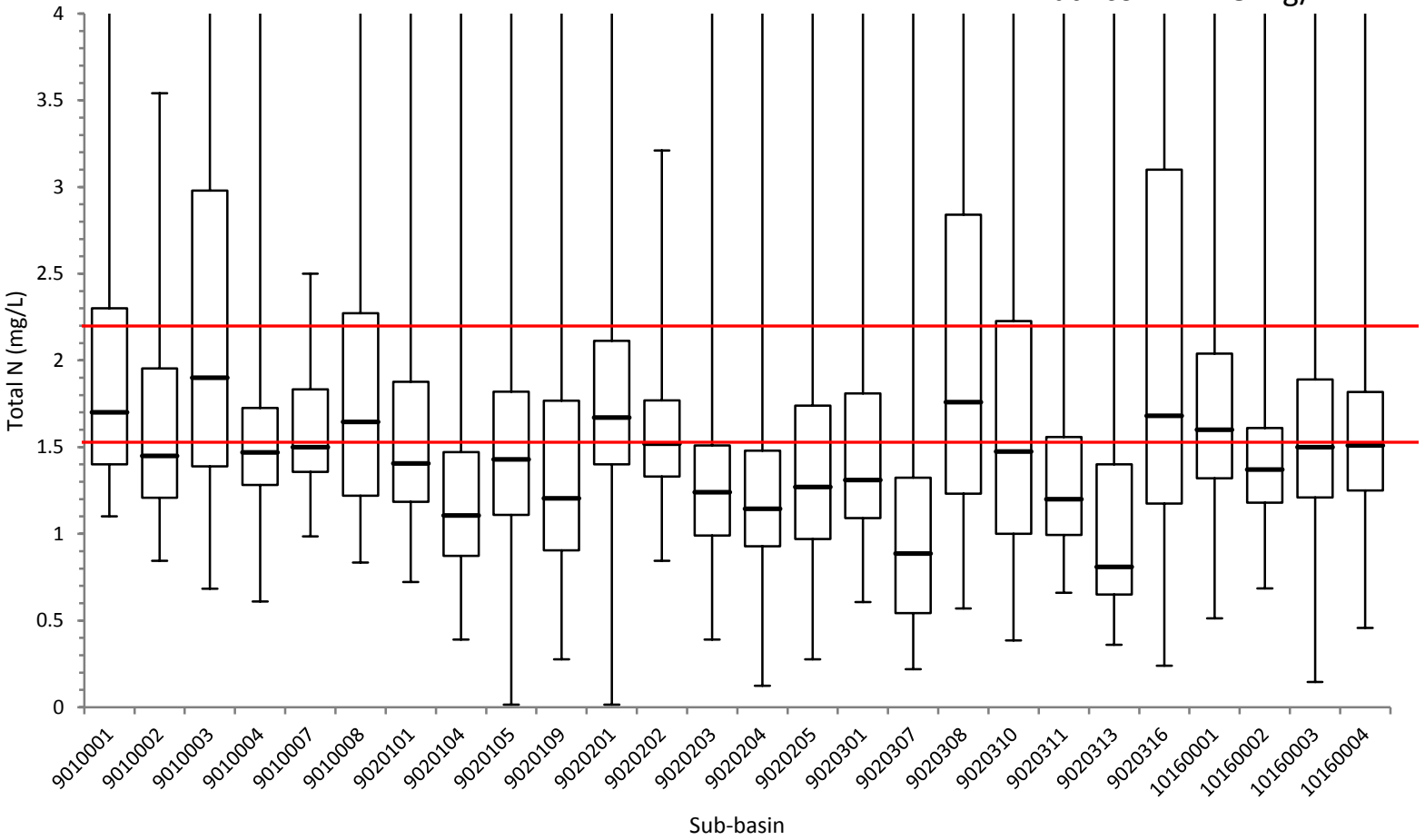
Total N – Cropland Plains/ Nutrient Ecoregion VI Sub-basins

Cropland Plains=1.525 mg/L
Nut Eco VI=2.18 mg/L



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Questions?

Questions?

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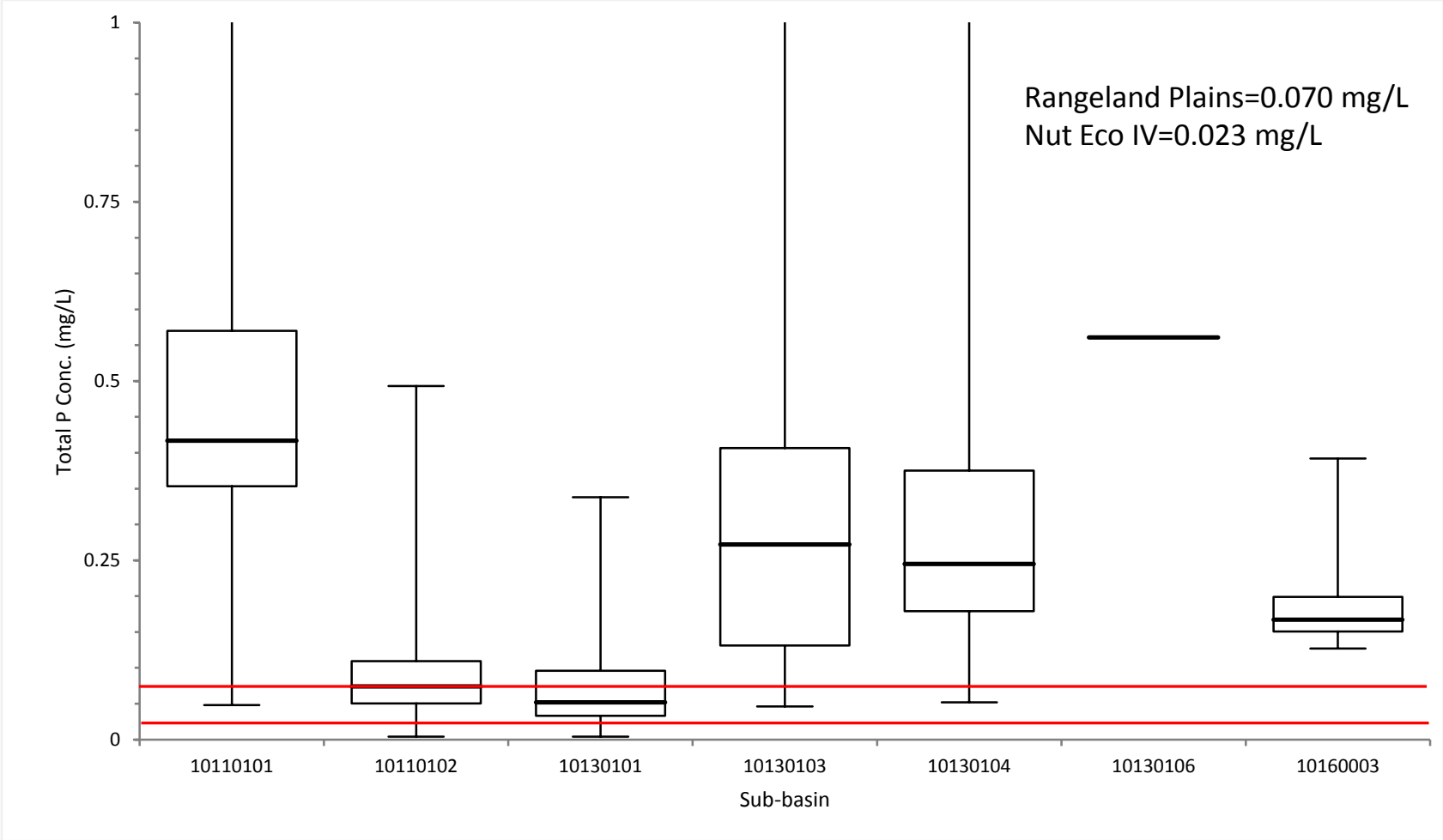
Total P – Nutrient Ecoregion IV Sub-basins



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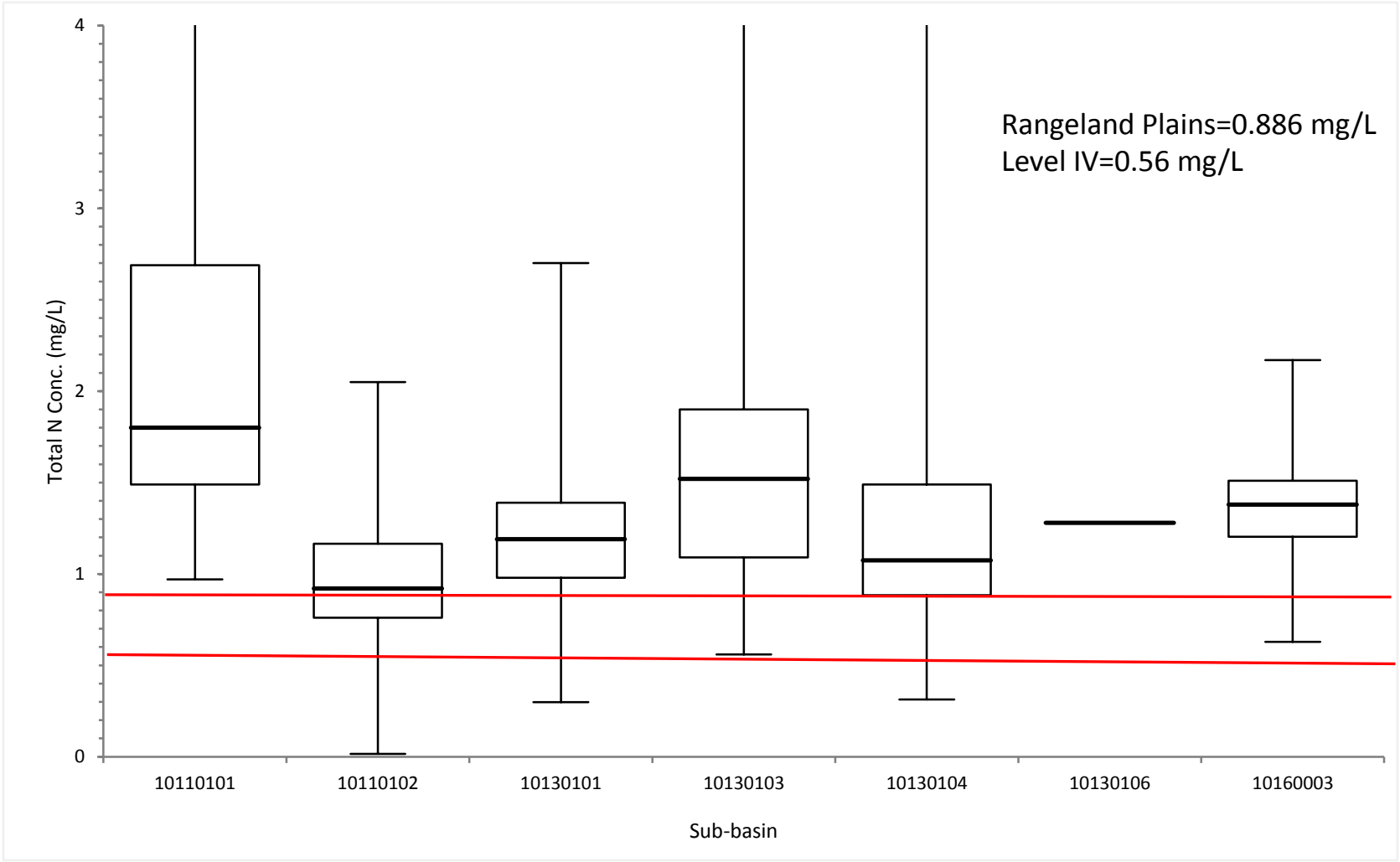
Total N – Nutrient Ecoregion IV Sub-basins



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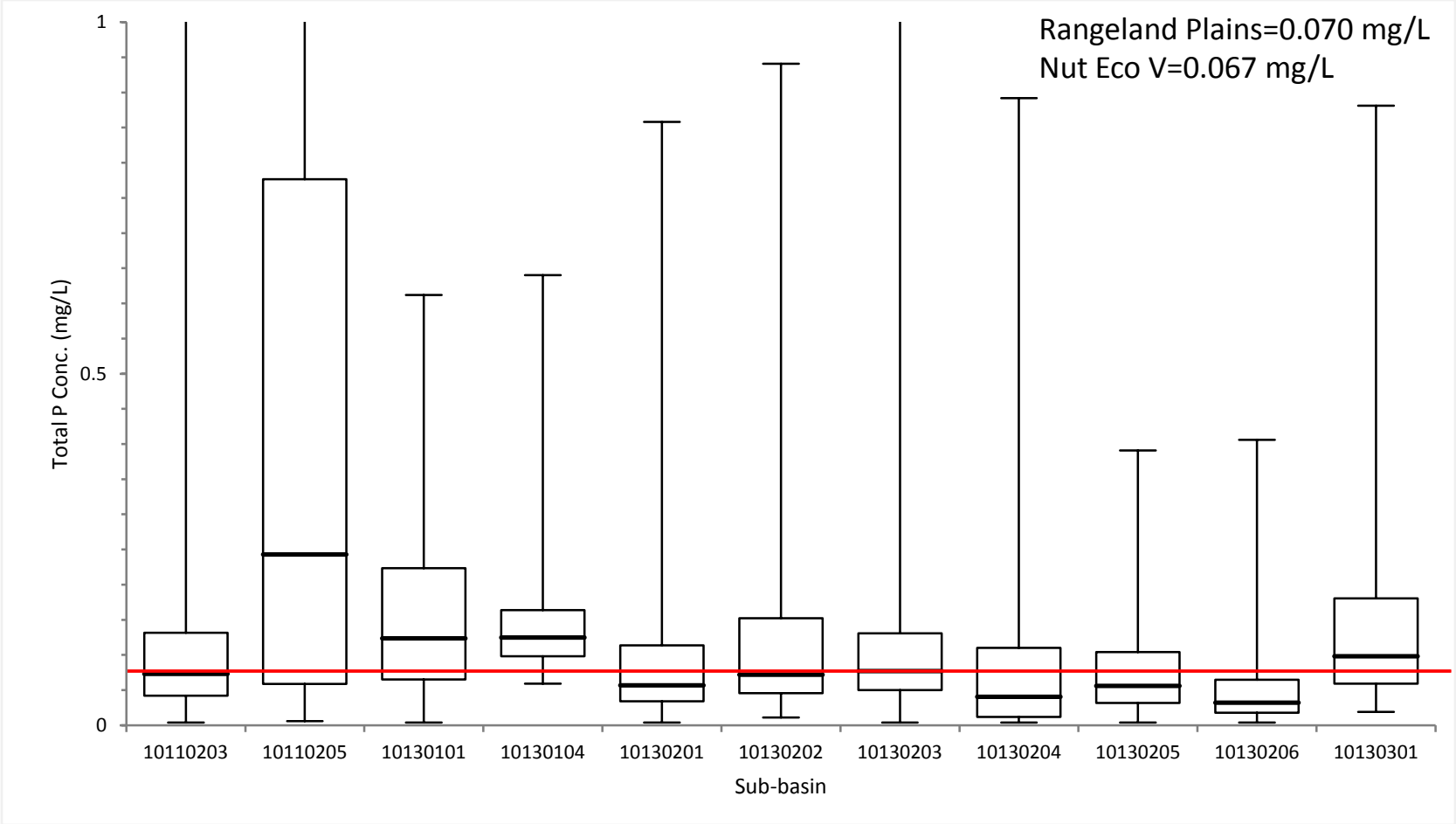
Total P – Nutrient Ecoregion V Sub-basins



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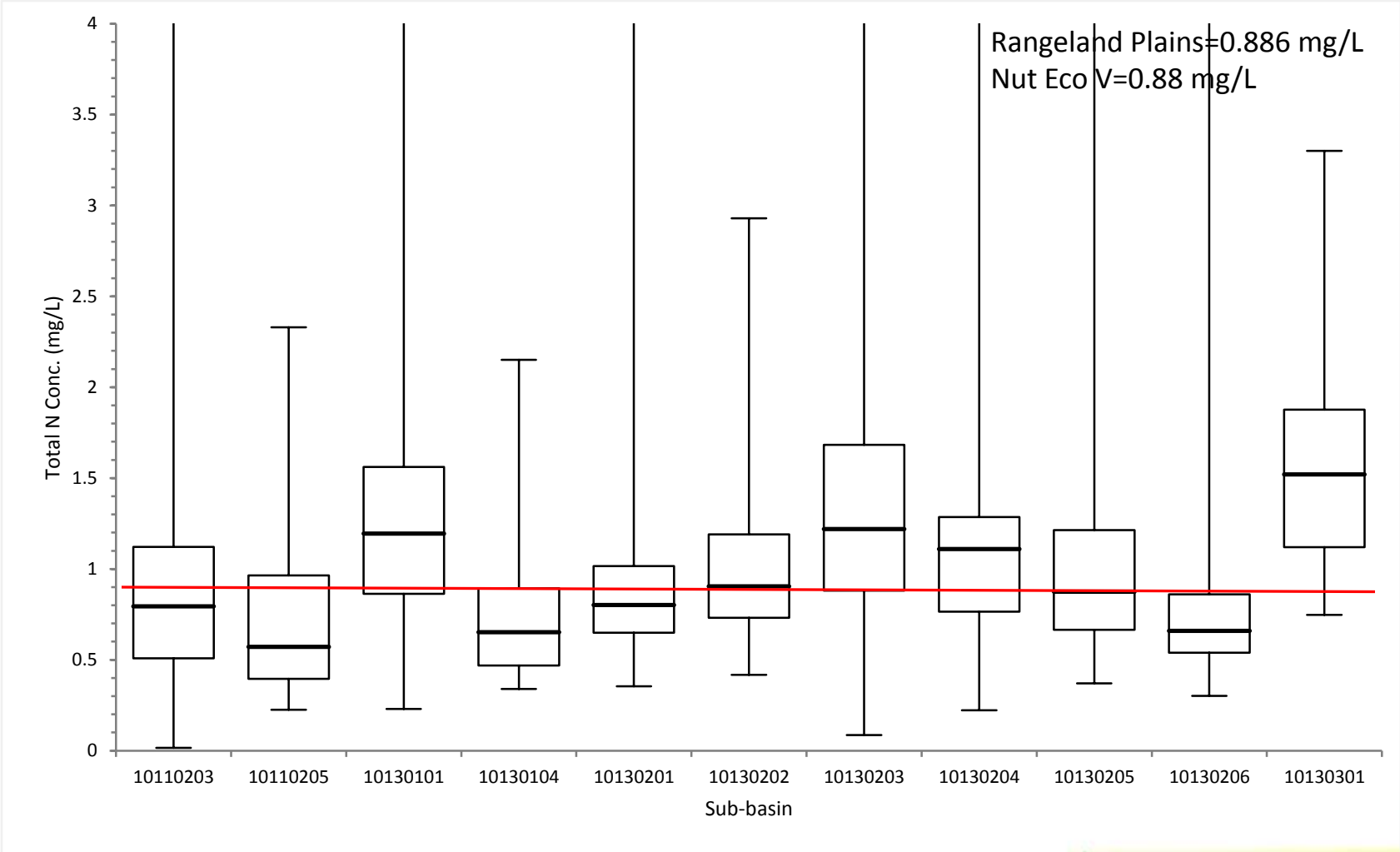
Total N – Nutrient Ecoregion V Sub-basins



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