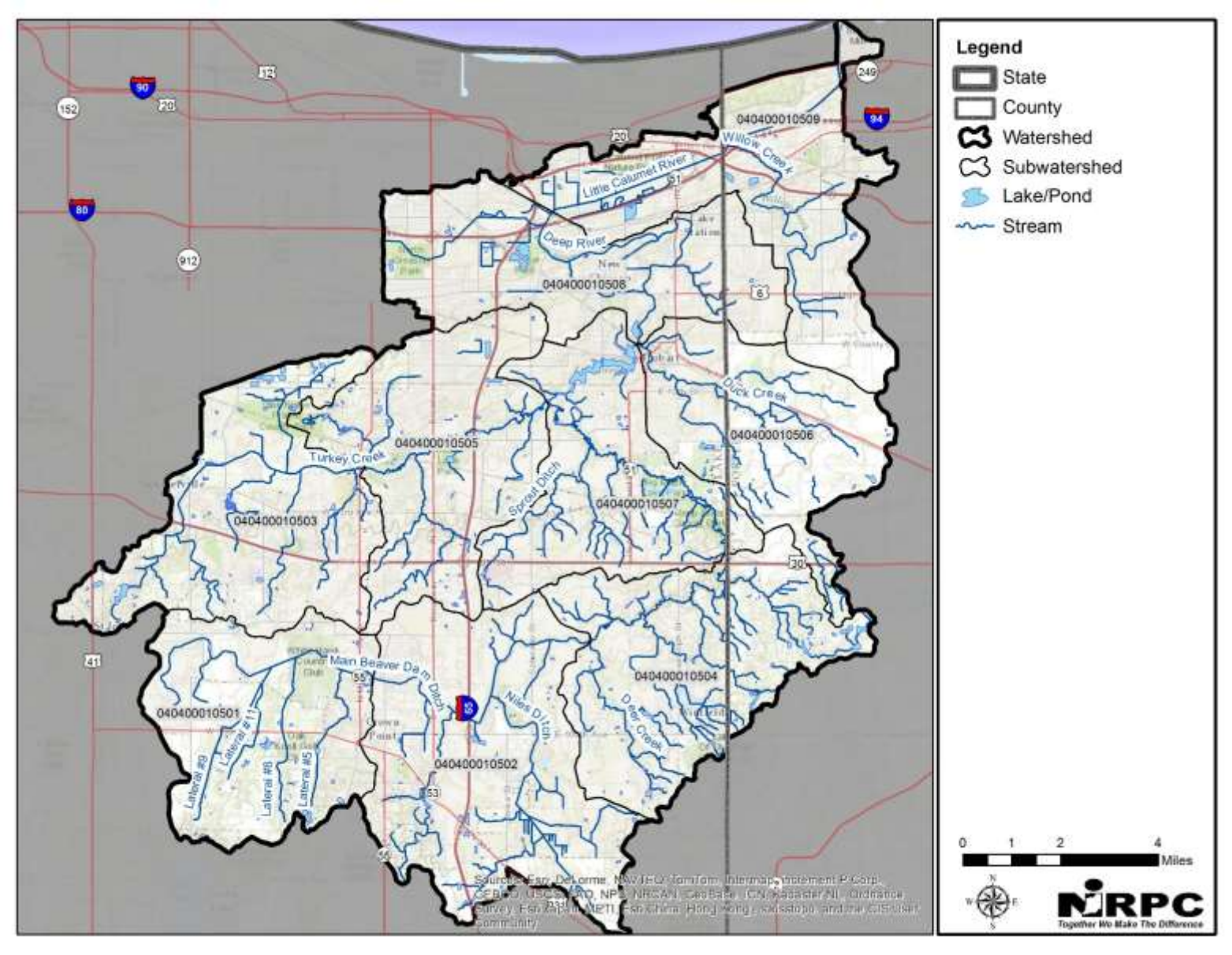
Deep River-Portage Burns Waterway Initiative

Public Meeting

Douglas Center

October 21, 2014

Our Watershed



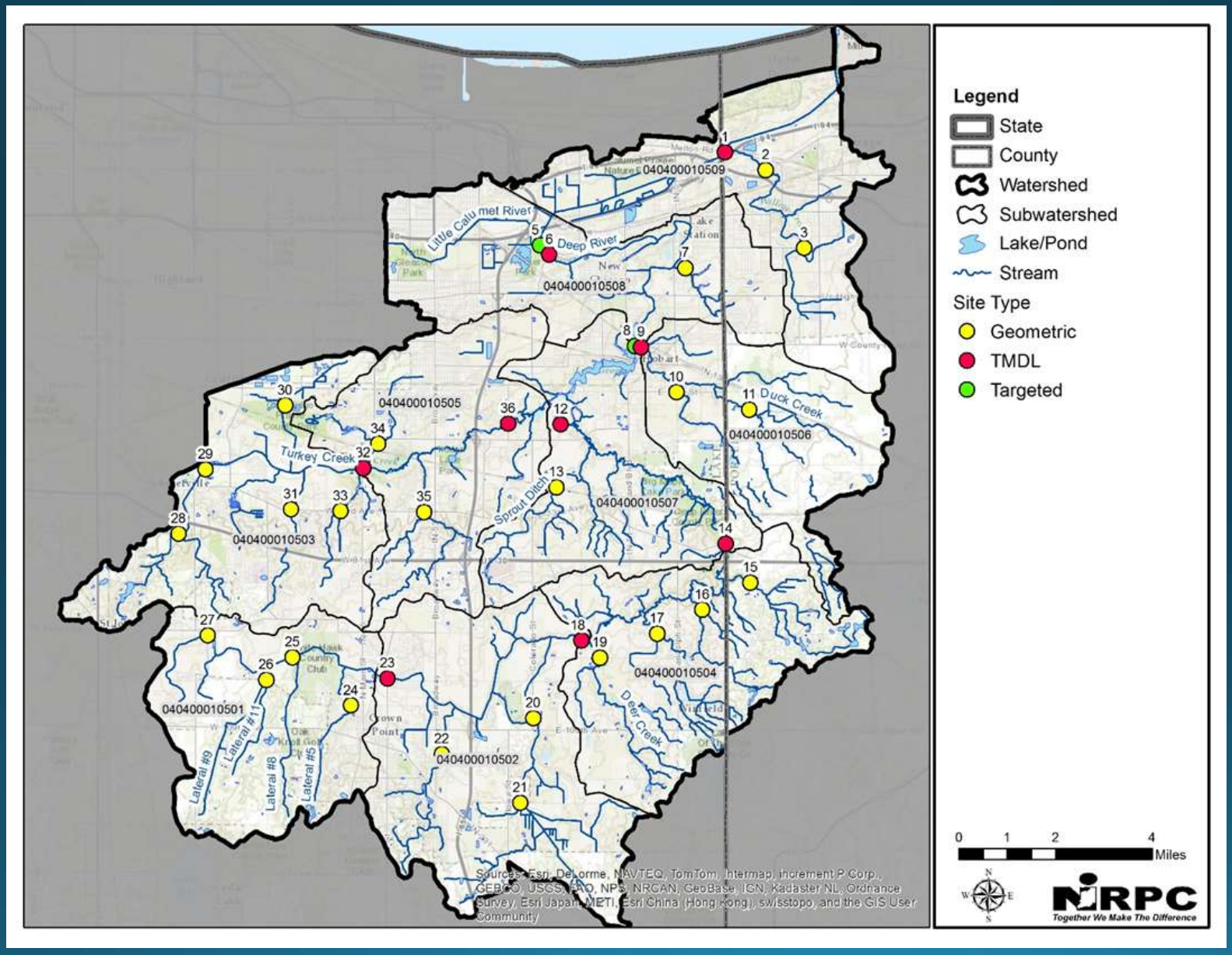
Agenda

- Introductions
- Target Values to Restore/Protect Stream Health
- Baseline Assessment Findings
- Next Steps
- Adjourn

Water Quality Targets

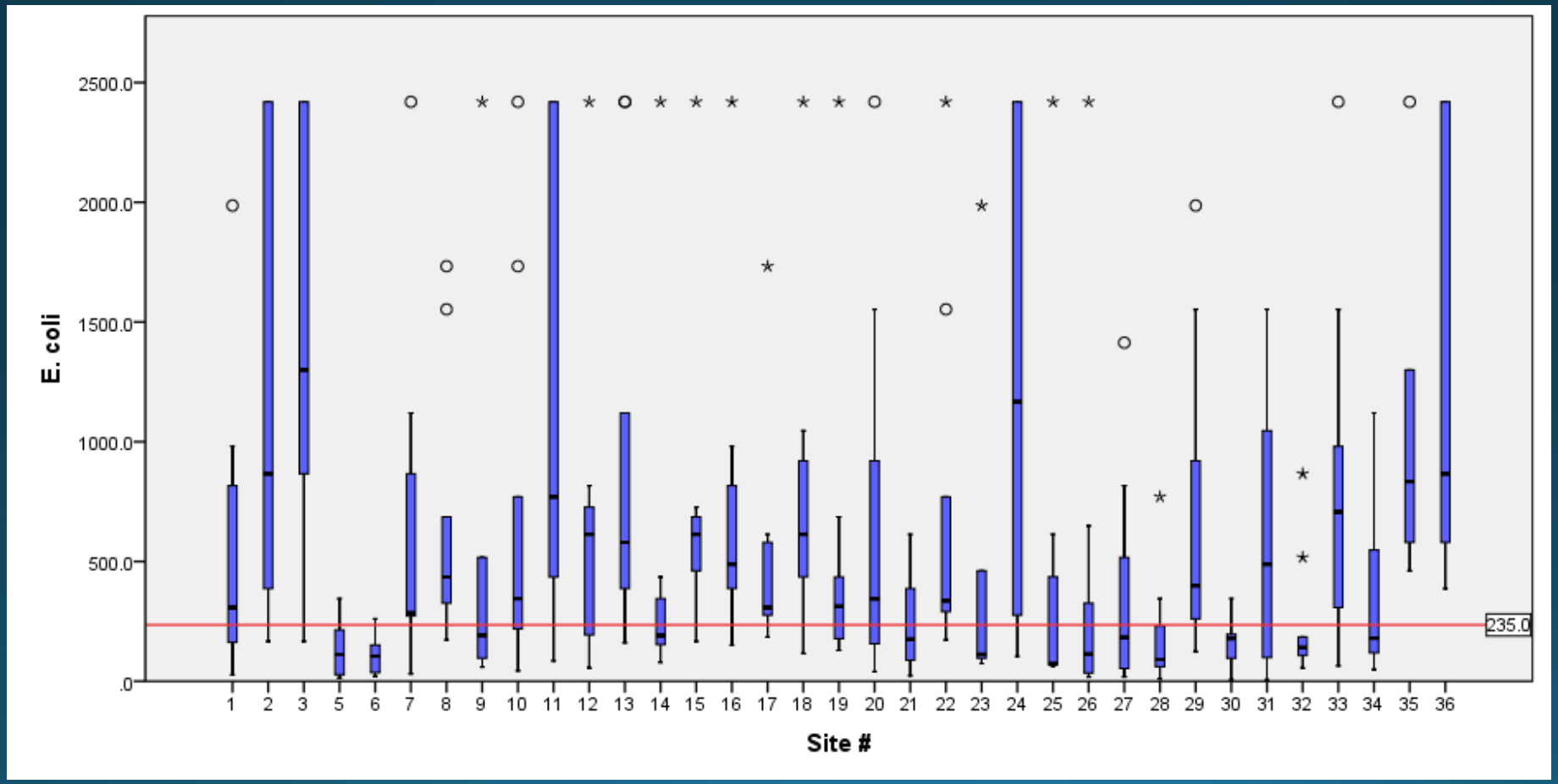
Monitored to Assess	Parameter	Threshold Level	Source
Recreational Use	E. coli	Maximum: 235 CFU/100 mL (single sample	Indiana Administrative Code (327 IAC 2-1.5-8)
Aquatic Life Use	Temperature	Dependent on time of year (varies by month)	Indiana Administrative Code (327 IAC 2-1-6)
Aquatic Life Use	Dissolved Oxygen (DO)	Minimum: 4.0 mg/L Maximum: 12 mg/L	Indiana Administrative Code (327 IAC 2-1-6)
Aquatic Life Use	Total Phosphorus (TP)	Maximum: 0.3 mg/L 0.07 mg/L (fish community protection threshold)	TMDL Morris & Simon (2012)
Aquatic Life Use	Nitrate + Nitrite	Maximum: 10 mg/L in waters designated as a drinking water source 0.13 mg/L (fish community protection threshold)	Indiana Administrative Code (327 IAC 2-1-6) Morris & Simon (2012)
Aquatic Life Use	Total Kjeldahl Nitrogen (TKN)	1.27 mg/L (2nd break point for observed community response) 0.4 mg/L (fish community protection threshold)	Morris & Simon (2012)
Aquatic Life Use	Ammonia	0 – 0.21 mg/L (pH & temperature dependent) 0.03 mg/L (fish community protection threshold)	Indiana Administrative Code (327 IAC 2-1-6) Morris & Simon (2012)
Aquatic Life Use	Total Suspended Solids (TSS)	Maximum: 30 mg/L	TMDL
Aquatic Life Use	Turbidity	10.4 NTU 25 NTU	EPA Recommendation Minnesota TMDL
Aquatic Life Use	Qualitative Habitat Evaluation Index (QHEI)	> 51 points	Aquatic Life Use Support Criteria
Aquatic Life Use	Index of Biotic Integrity (IBI)	≥36 points	Aquatic Life Use Support Criteria
Aquatic Life Use	Macroinvertebrate Index of Biotic Integrity (mIBI)	≥36 points	Aquatic Life Use Support Criteria

Monitoring Sites



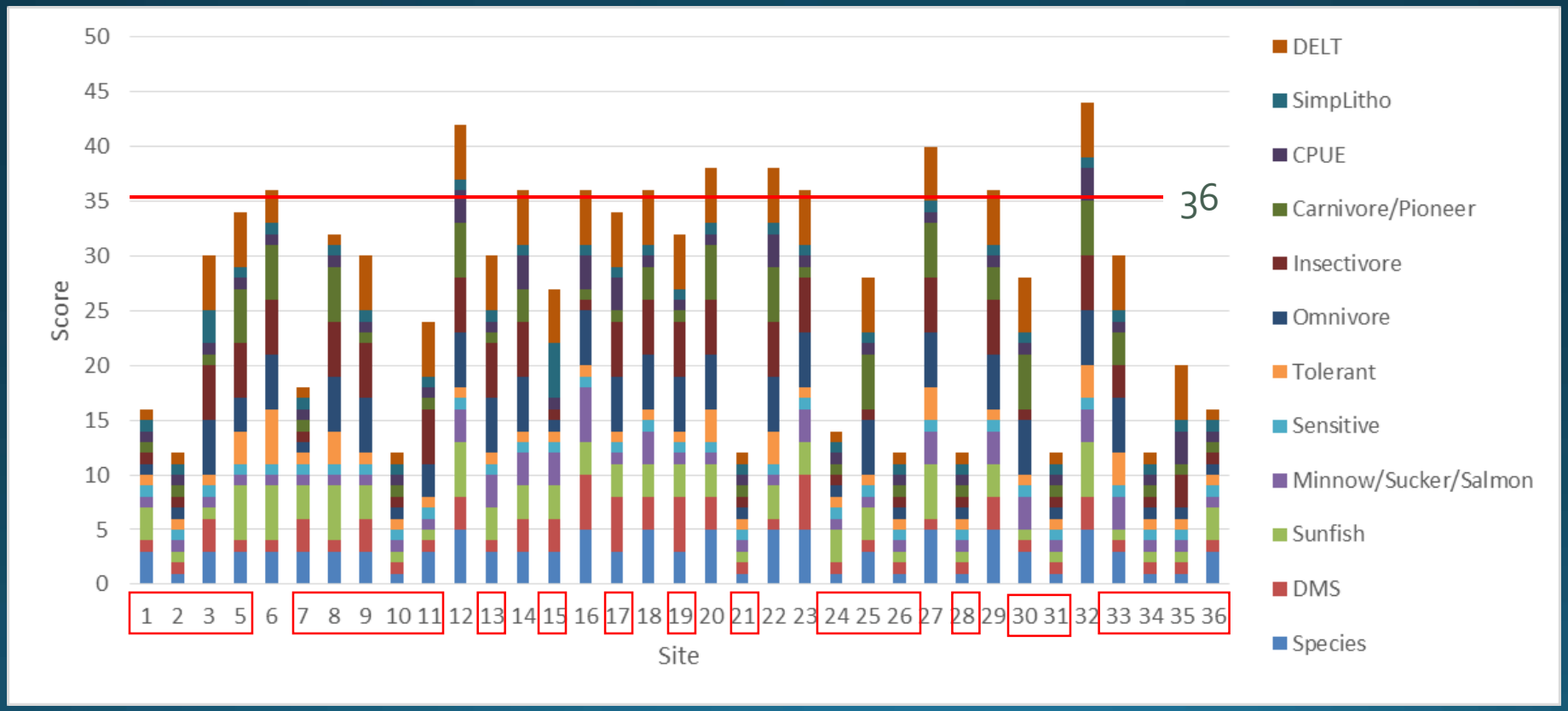
Recreational Use- Is water quality safe enough for swimming?

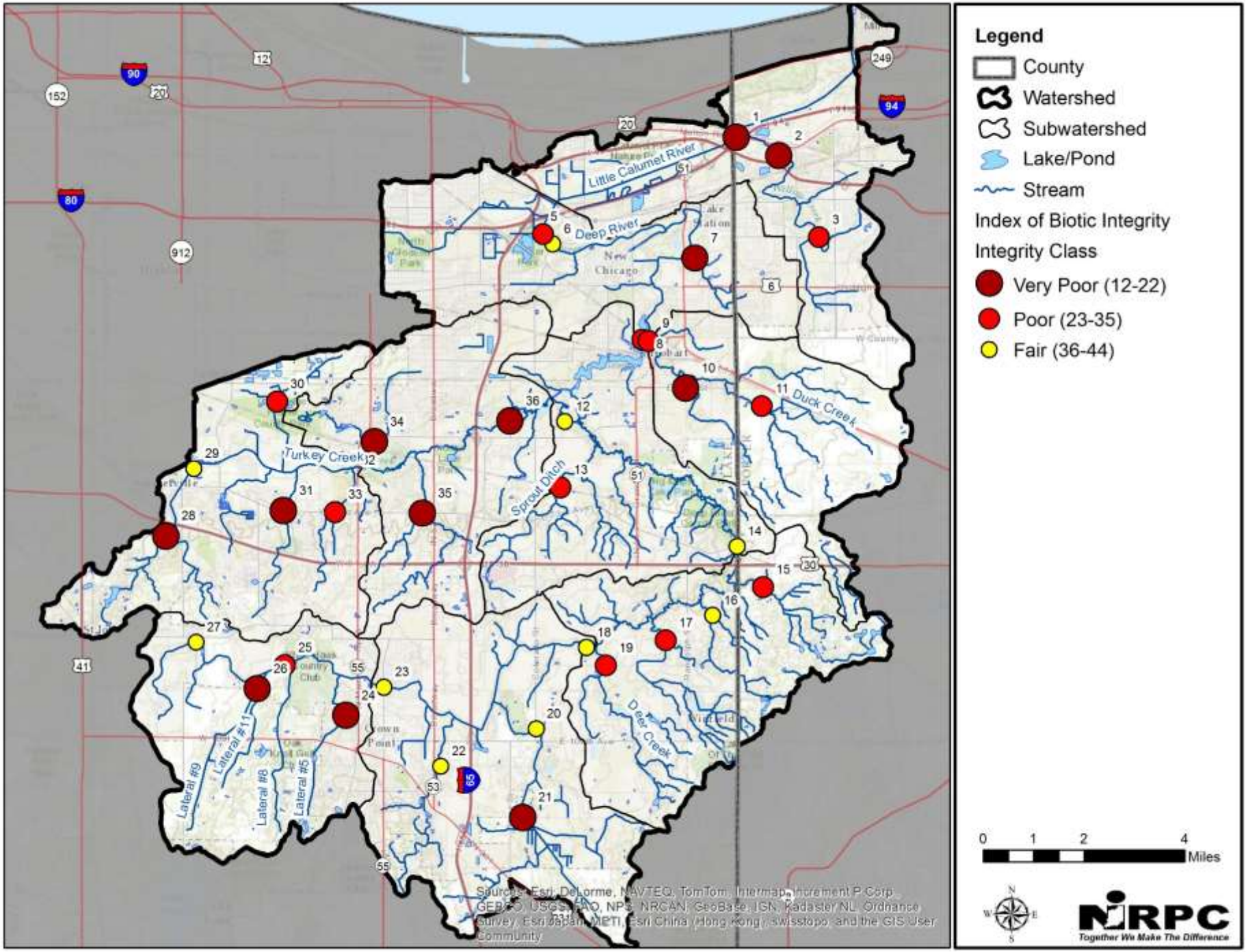
E. coli


E. coli
2500.0
2000.0
1500.0
1000.0
500.0
.0
235.0
1 2 3 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Site #

Do the streams support a healthy fishery?

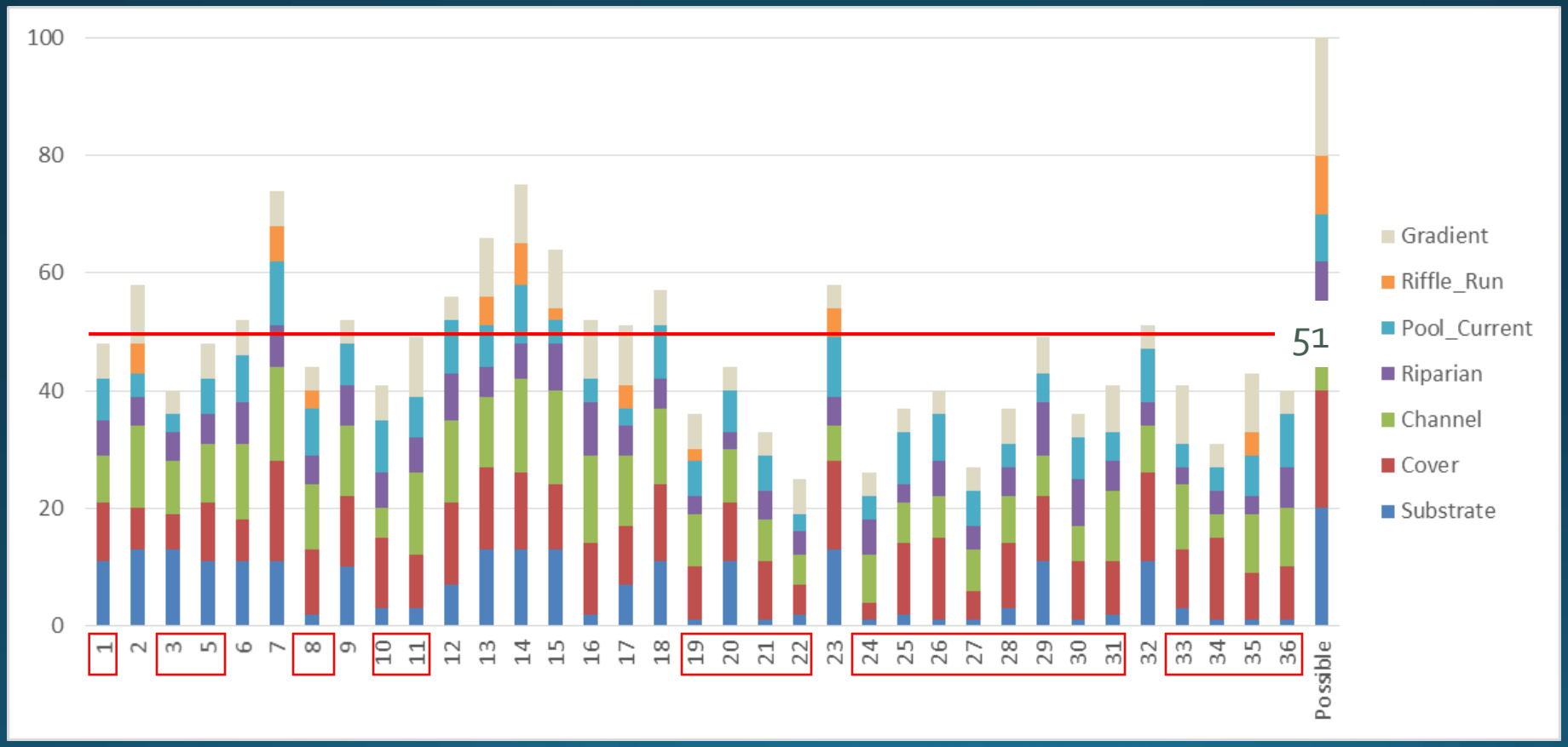
Index of Biotic Integrity



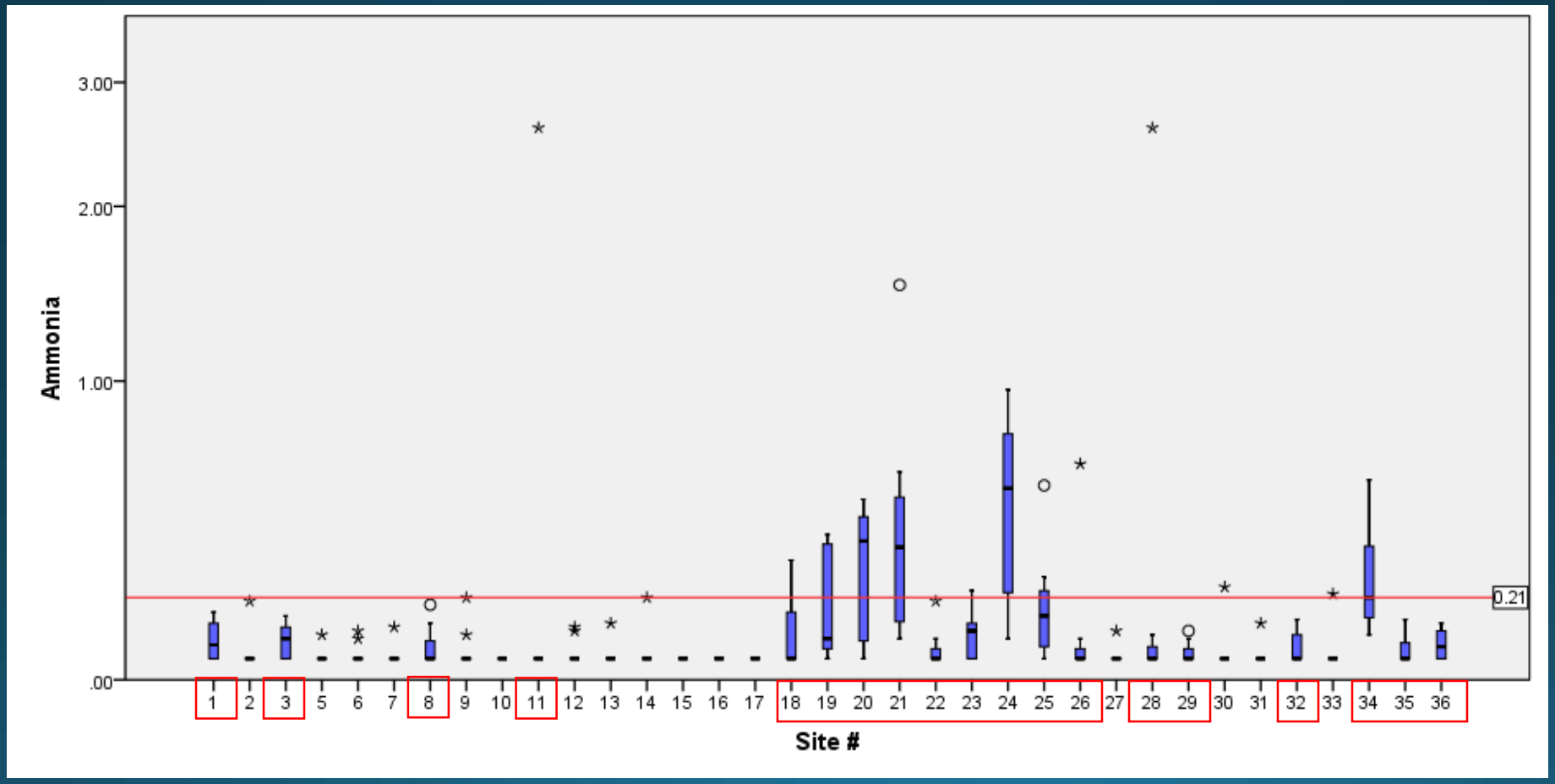

Legend
County
Watershed
Subwatershed
Lake/Pond
Stream
Index of Biotic Integrity
Integrity Class
Very Poor (12-22)
Poor (23-35)
Fair (36-44)
Little Calumet River
Deep River
Turkey Creek
Sprout Ditch
Duck Creek
Deer Creek
Lateral #9
Lateral #11
Lateral #8
Lateral #5
0 1 2 4
Miles
NRPC
Together We Make The Difference
Source: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

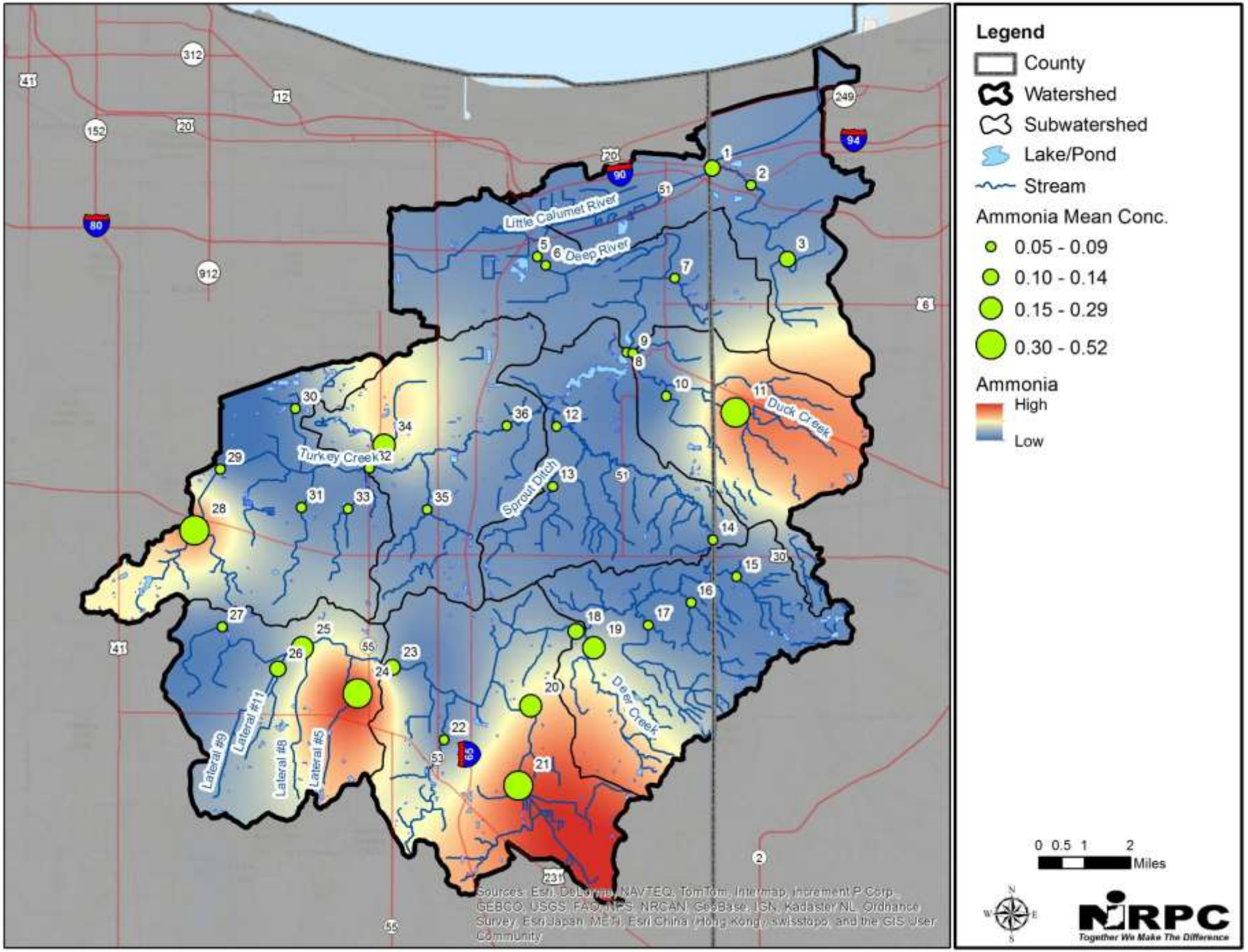
If Not, Why?

Habitat Quality



Toxicity: Ammonia




Legend
County
Watershed
Subwatershed
Lake/Pond
Stream
Ammonia Mean Conc.
0.05 - 0.09
0.10 - 0.14
0.15 - 0.29
0.30 - 0.52
Ammonia
High
Low
Little Calumet River
Deep River
Turkey Creek
Sprout Ditch
Duck Creek
Deer Creek
Lateral #11
Lateral #9
Lateral #8
Lateral #5
0 0.5 1 2
Miles
N
S
E
W
NIRPC
Together We Make The Difference
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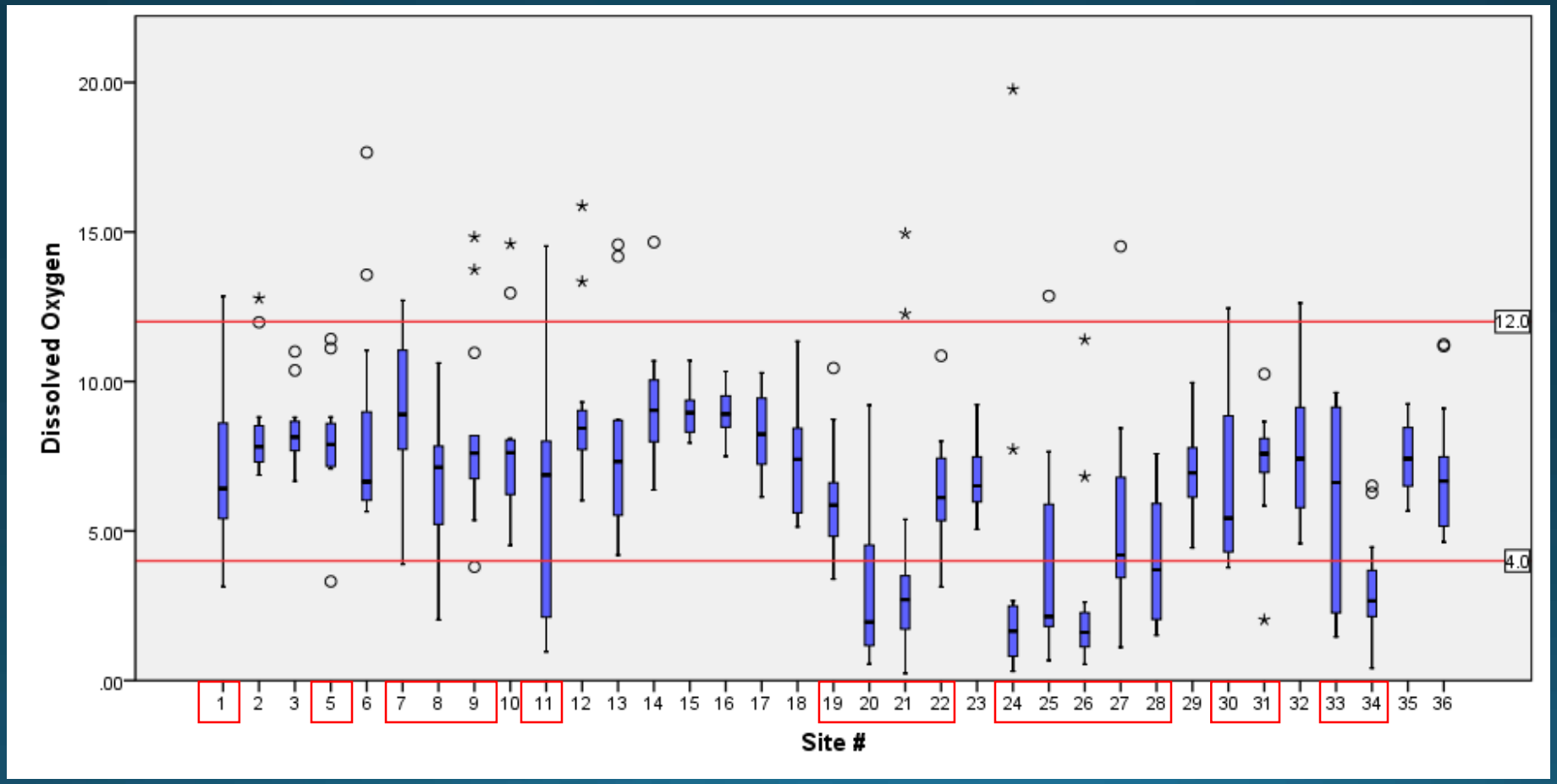
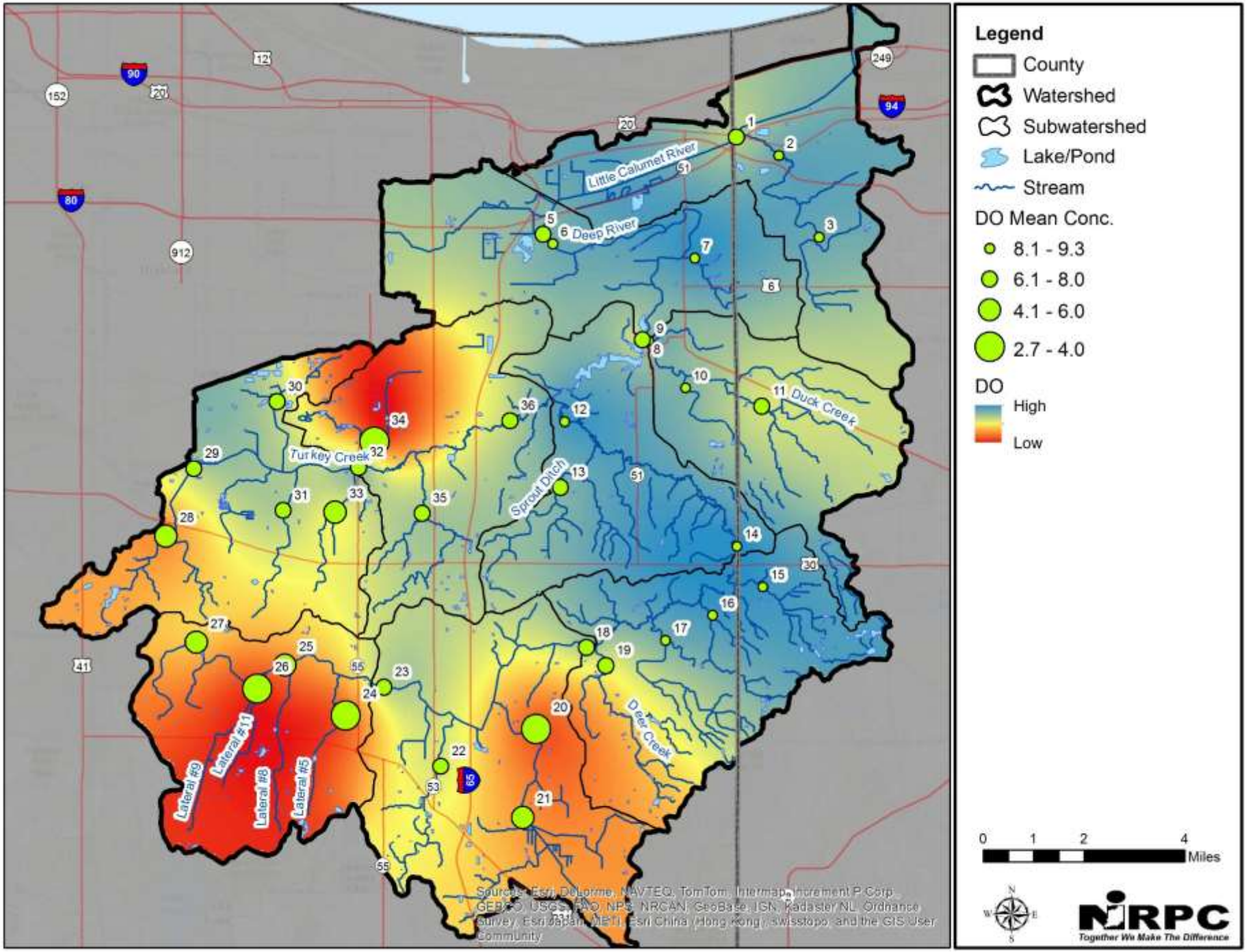
Dissolved Oxygen




Legend
County
Watershed
Subwatershed
Lake/Pond
Stream
DO Mean Conc.
8.1 - 9.3
6.1 - 8.0
4.1 - 6.0
2.7 - 4.0
DO
High
Low
Little Calumet River
Deep River
Turkey Creek
Sprout Ditch
Duck Creek
Deer Creek
Lateral #9
Lateral #11
Lateral #8
Lateral #5
0 1 2 4
Miles
N
W E
S
NIRPC
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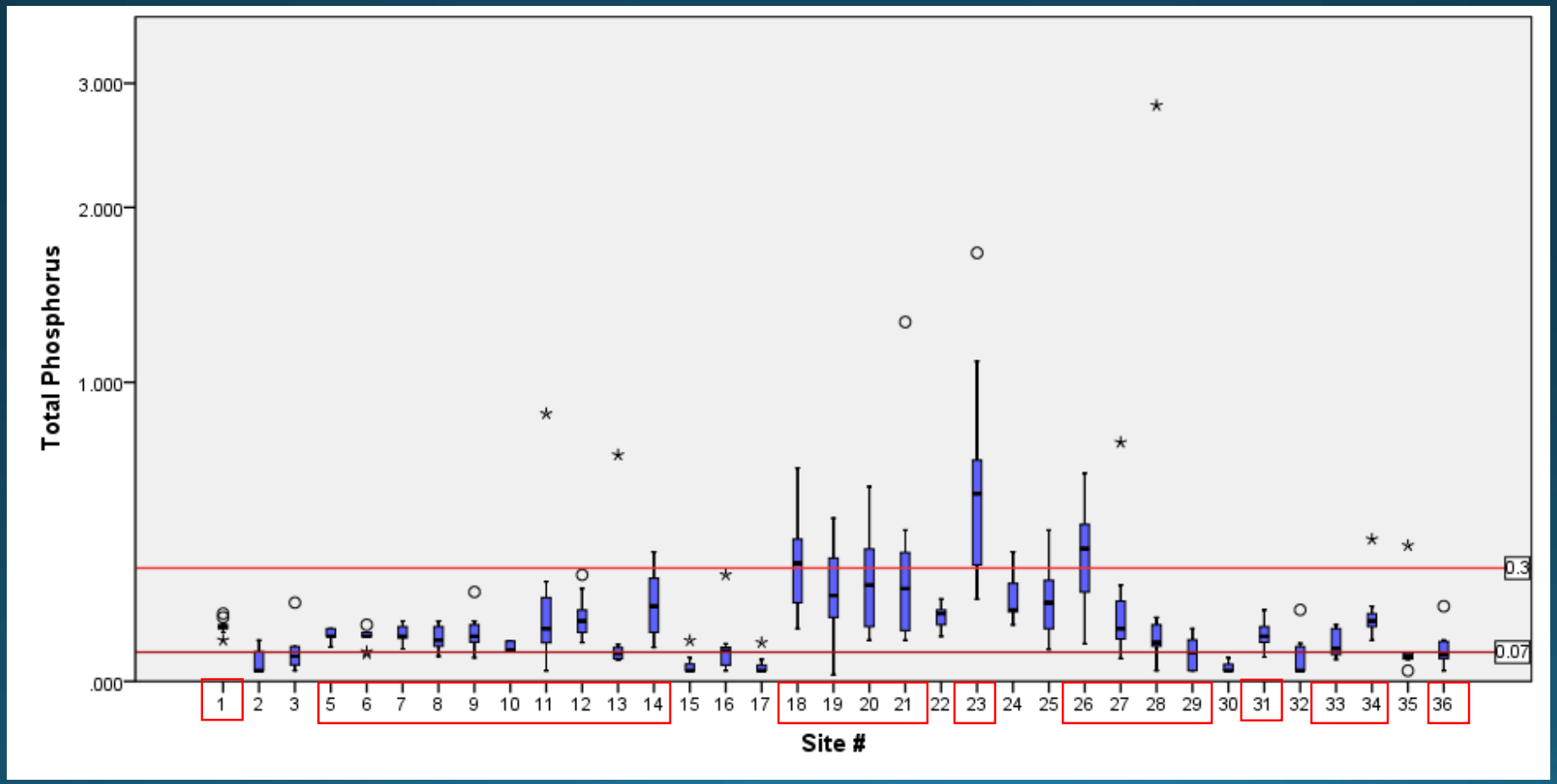
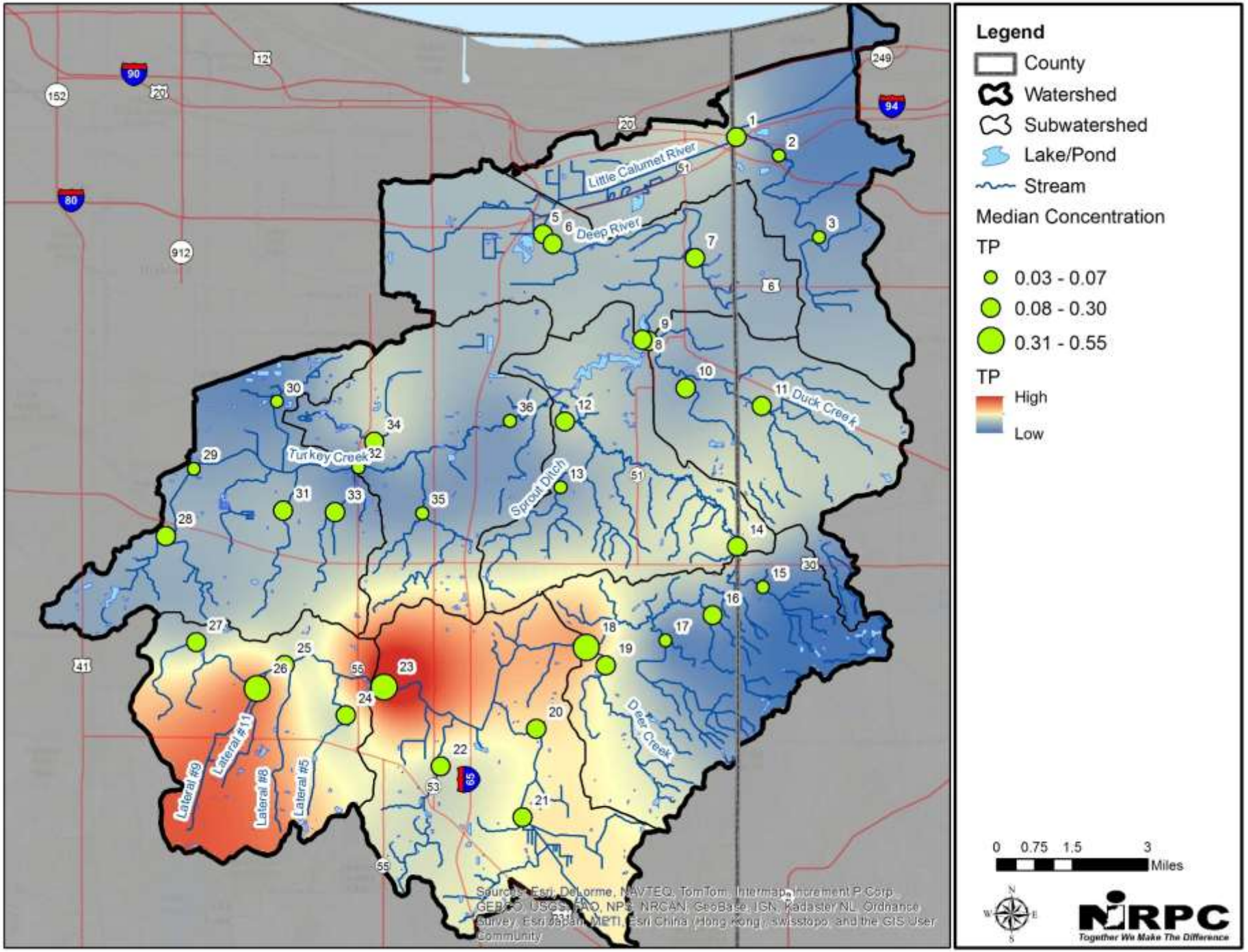
Nutrients: Phosphorus




Legend
County
Watershed
Subwatershed
Lake/Pond
Stream
Median Concentration
TP
0.03 - 0.07
0.08 - 0.30
0.31 - 0.55
TP
High
Low
Little Calumet River
Deep River
Turkey Creek
Sprout Ditch
Duck Creek
Deer Creek
Lateral #9
Lateral #11
Lateral #8
Lateral #5
0 0.75 1.5 3
Miles
NRPC
Together We Make The Difference
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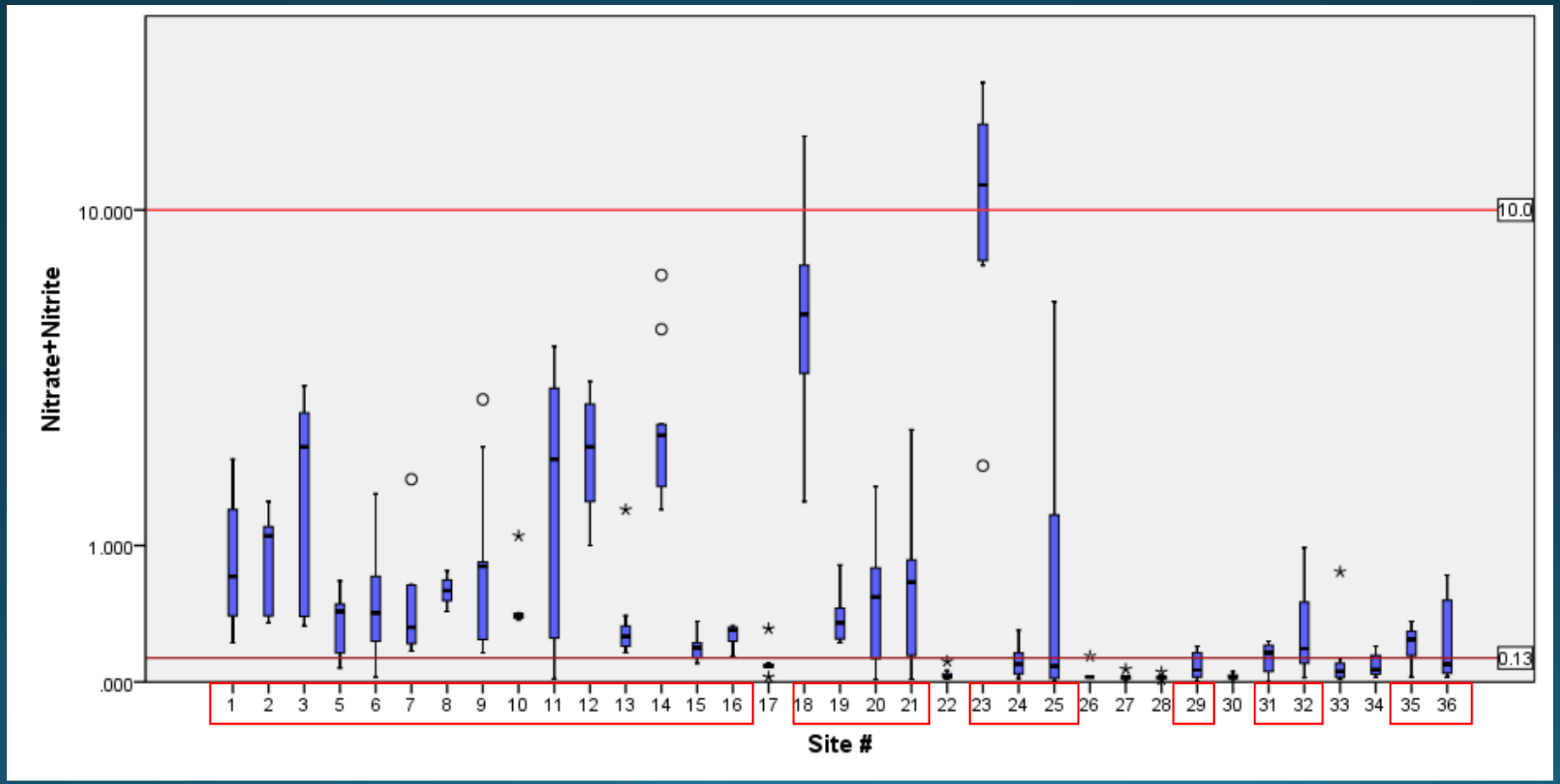
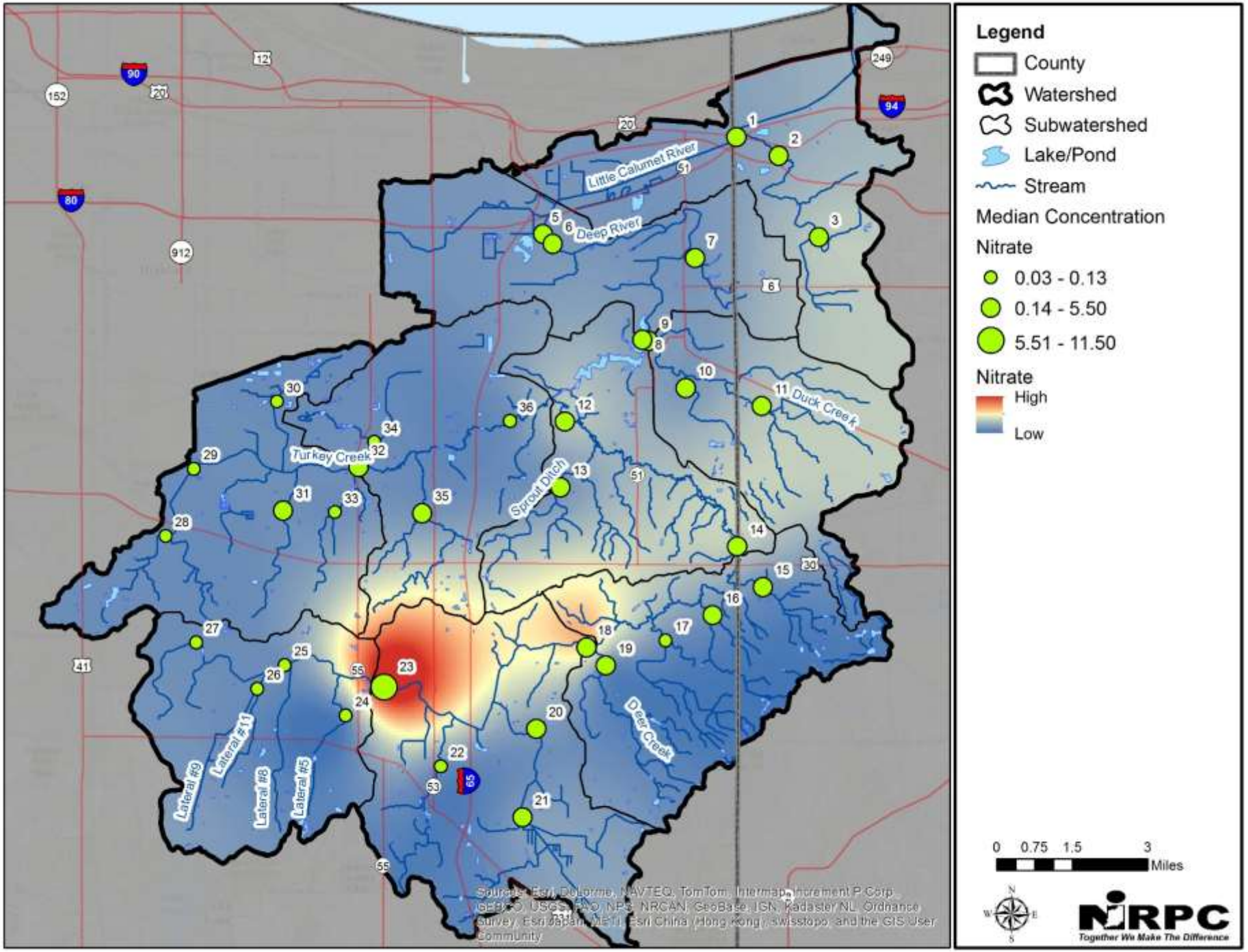
Nutrients: Nitrate




Legend
County
Watershed
Subwatershed
Lake/Pond
Stream
Median Concentration
Nitrate
0.03 - 0.13
0.14 - 5.50
5.51 - 11.50
Nitrate
High
Low
Little Calumet River
Deep River
Turkey Creek
Sprout Ditch
Duck Creek
Deer Creek
Lateral #9
Lateral #11
Lateral #8
Lateral #5
0 0.75 1.5 3
Miles
N
W
E
S
NIRPC
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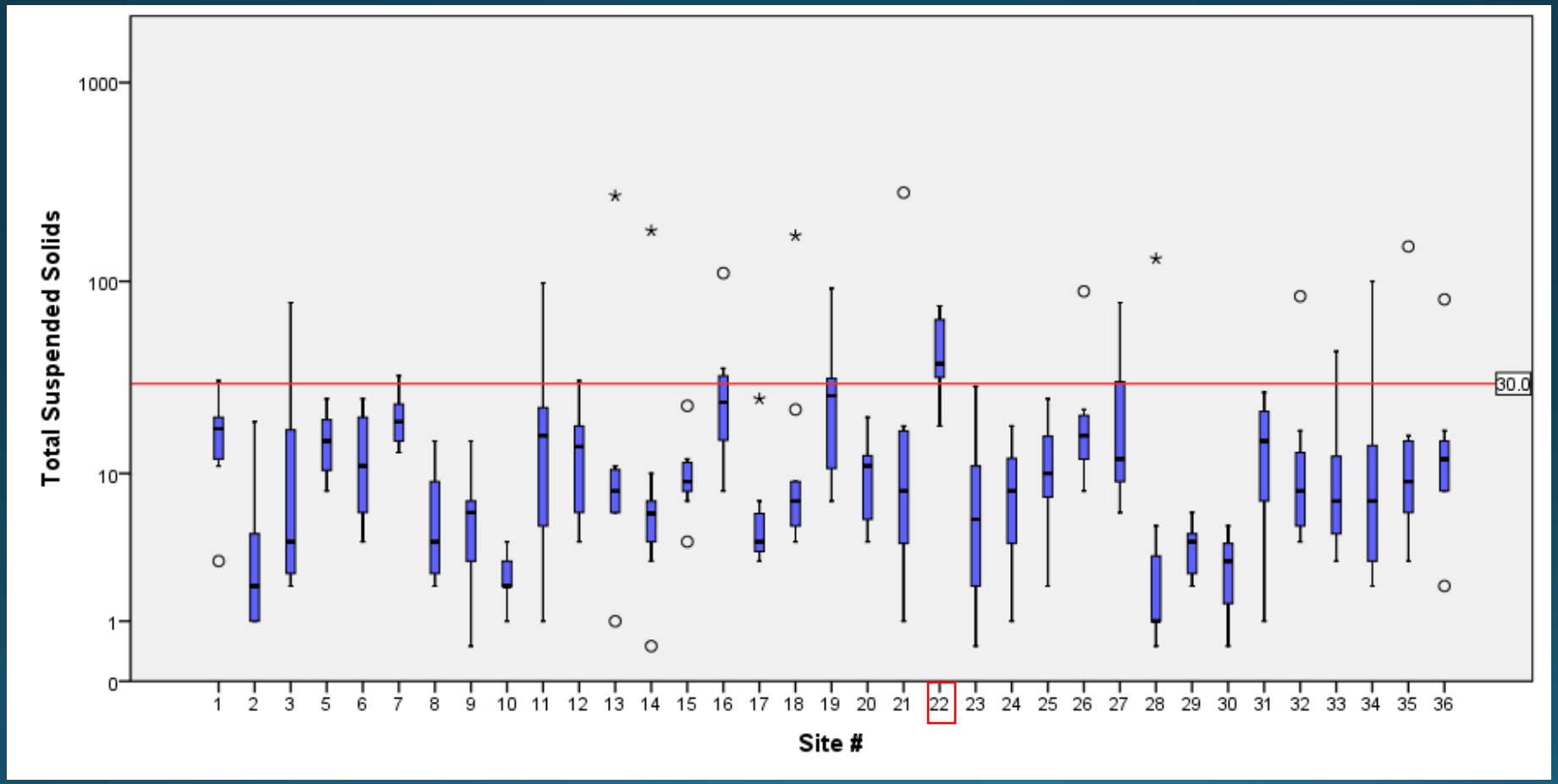
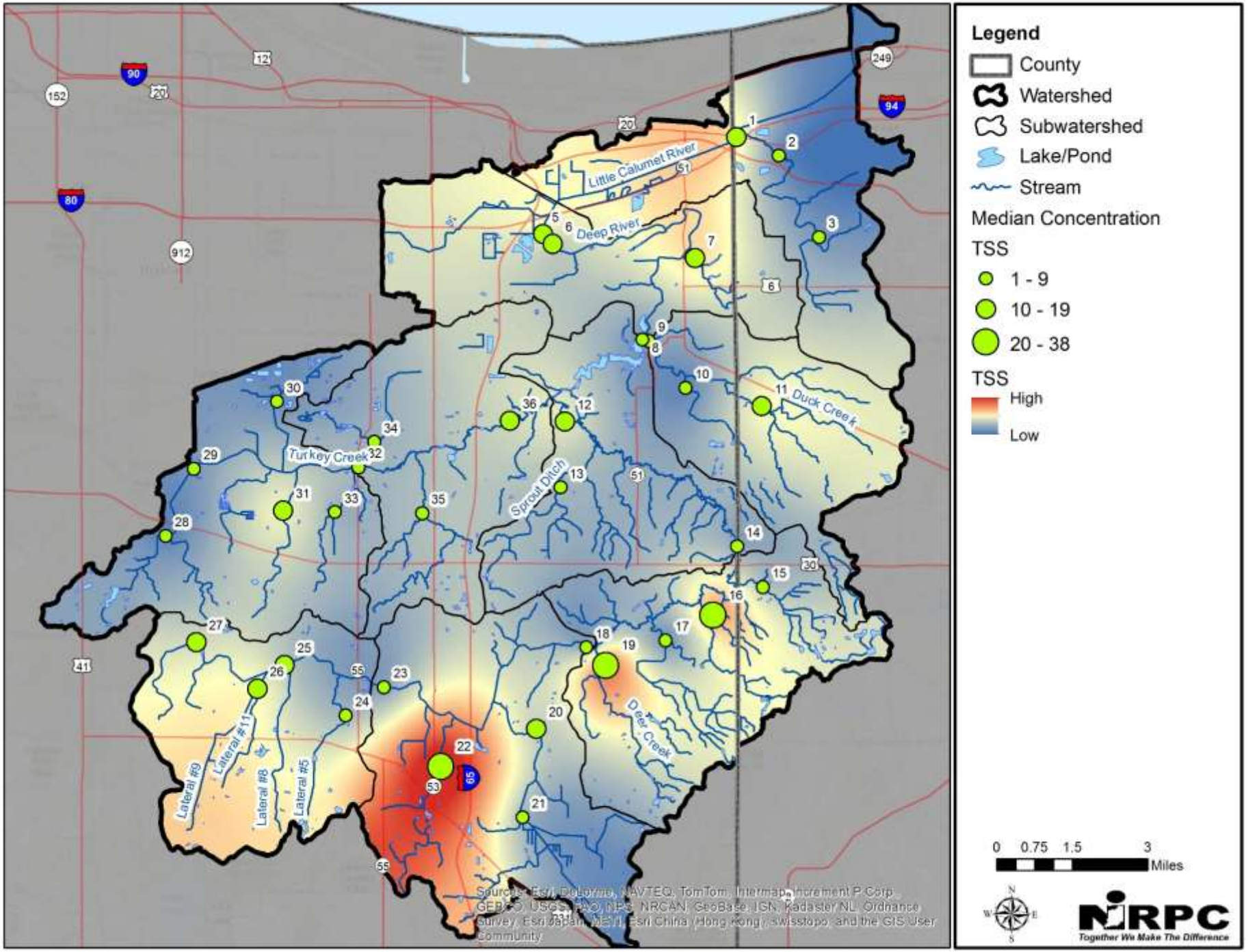
Sediment- Suspended Solids




Legend
County
Watershed
Subwatershed
Lake/Pond
Stream
Median Concentration
TSS
1 - 9
10 - 19
20 - 38
TSS
High
Low
Little Calumet River
Deep River
Turkey Creek
Sprout Ditch
Duck Creek
Deer Creek
Lateral #9
Lateral #11
Lateral #8
Lateral #5
0 0.75 1.5 3
Miles
N
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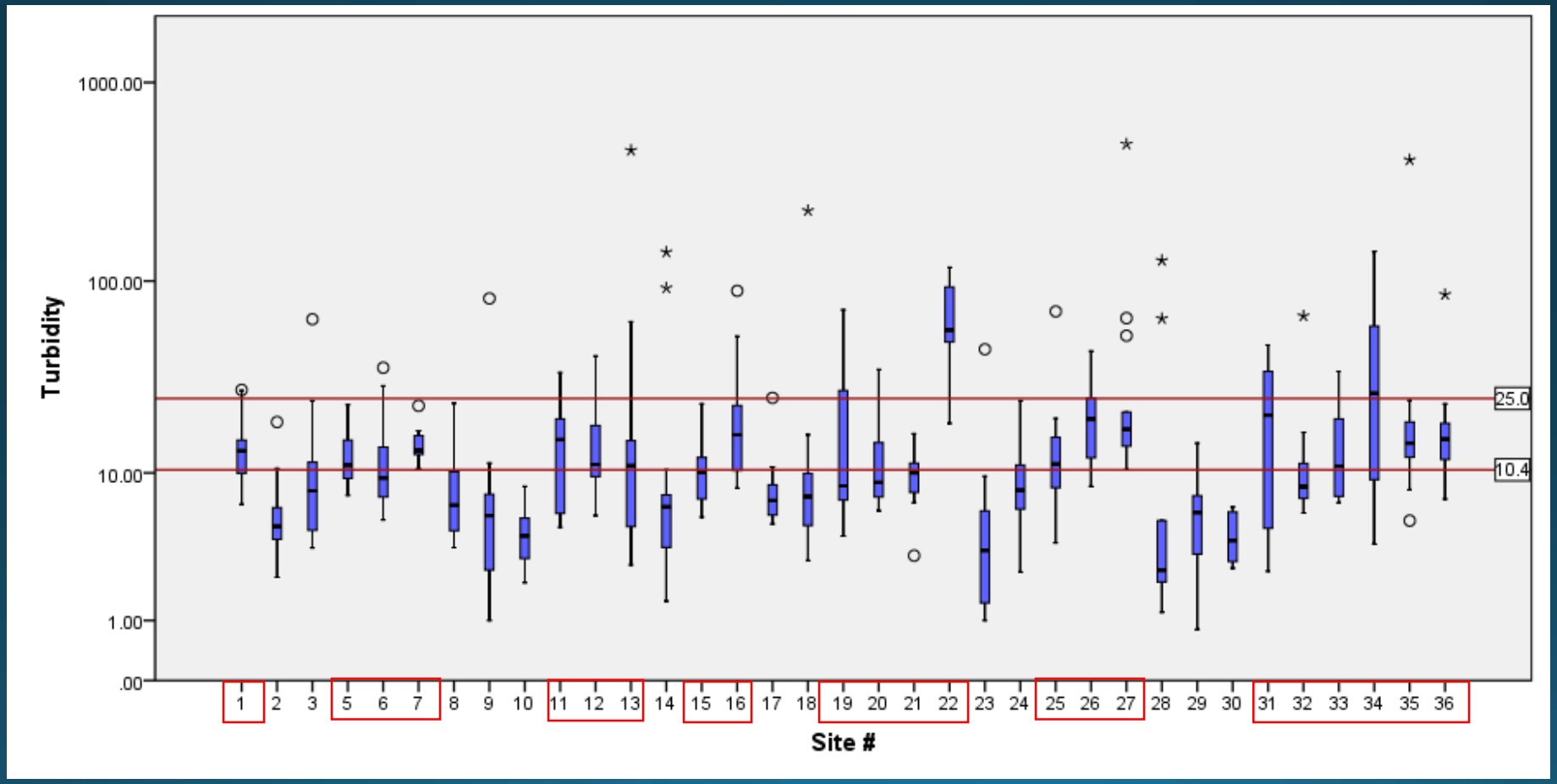
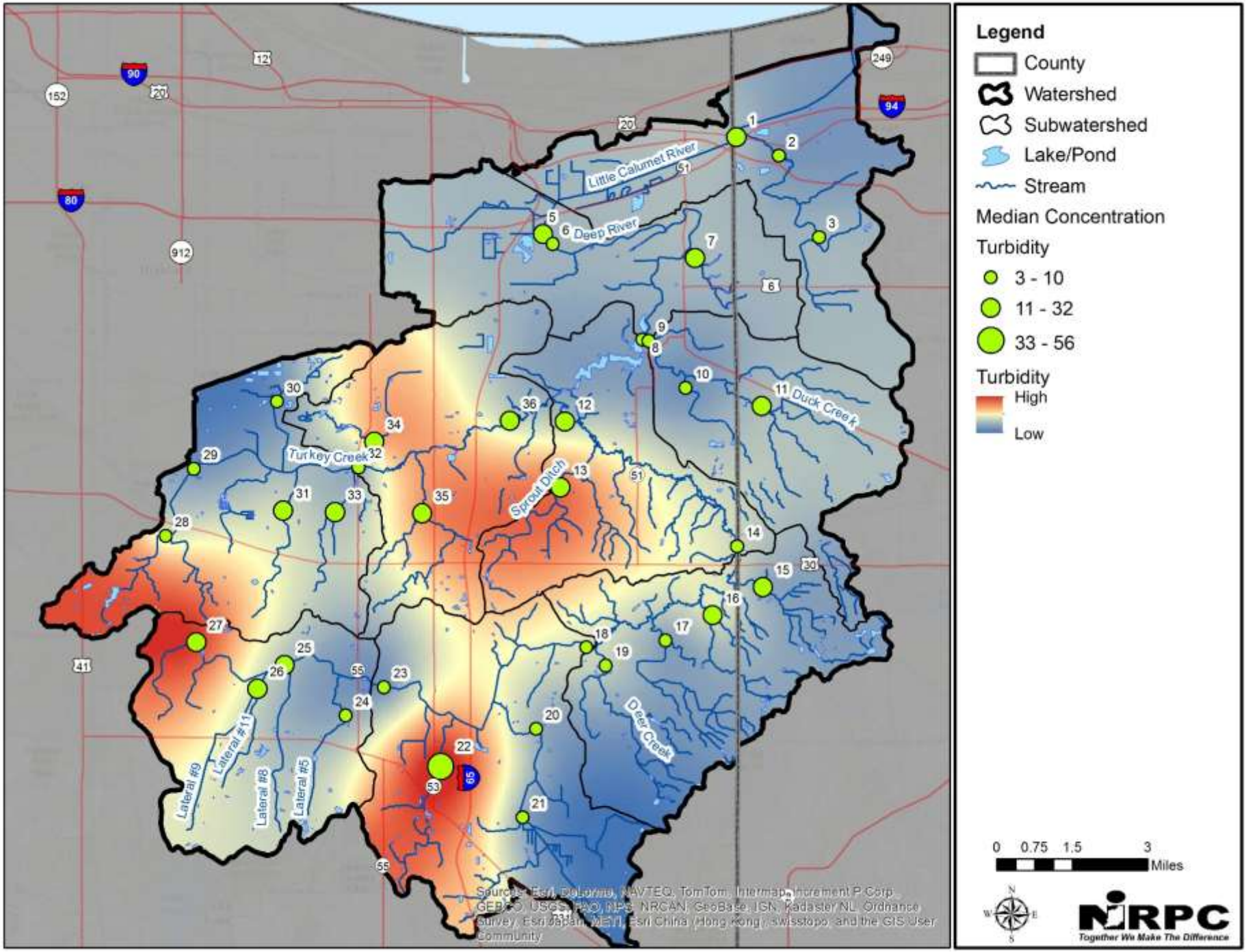
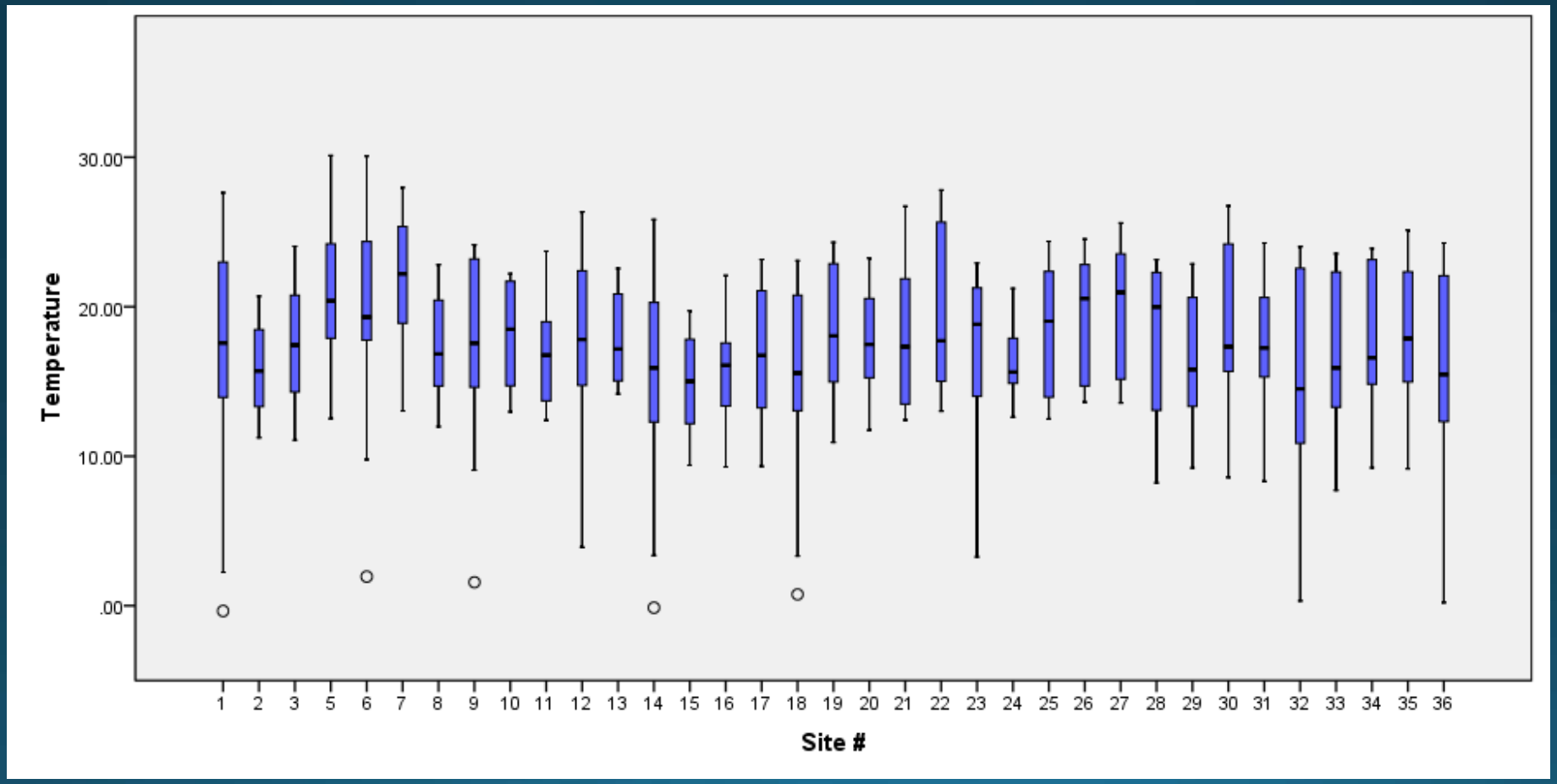
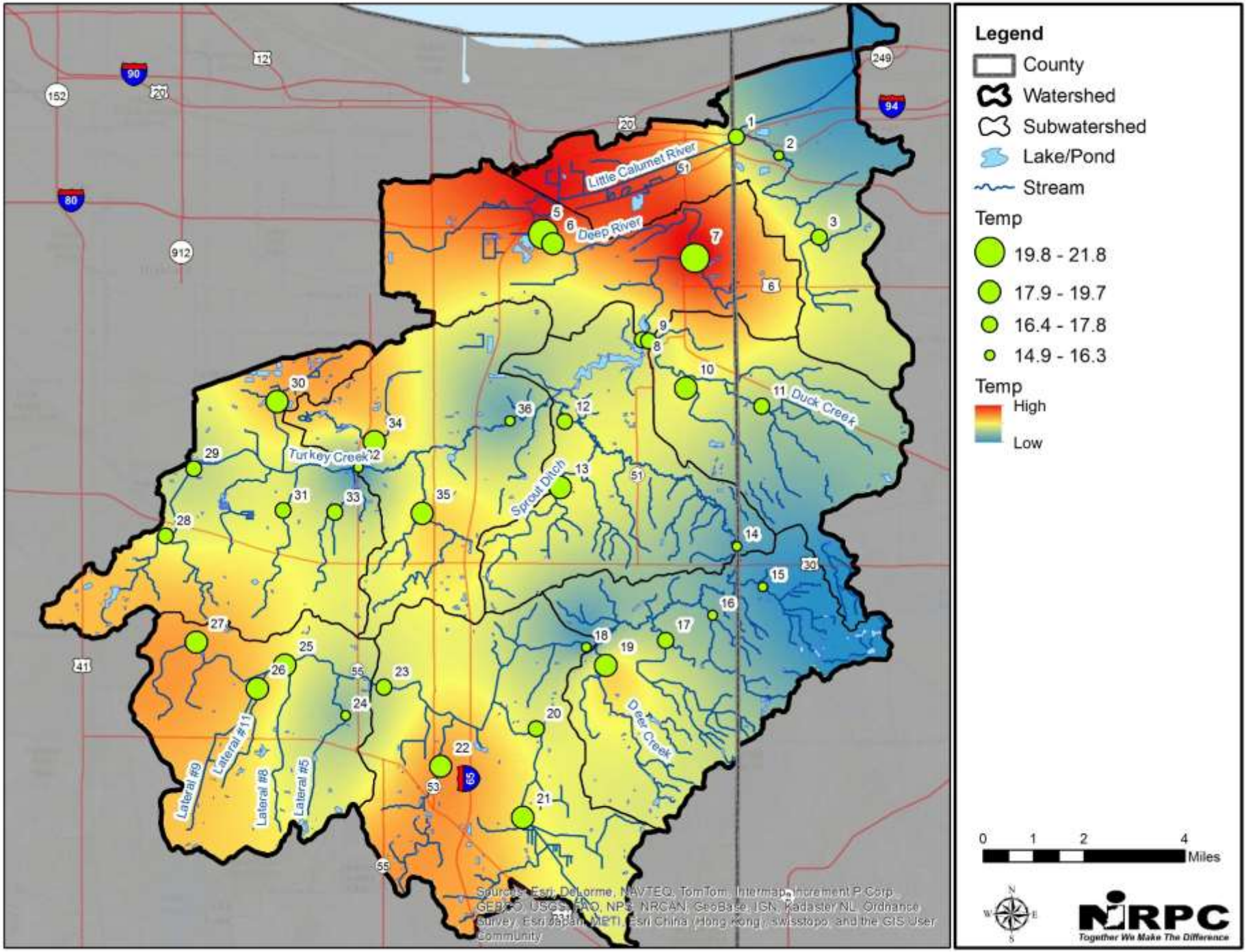
Turbidity


Turbidity
1000.00
100.00
10.00
1.00
.00
25.0
10.4
1 2 3 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Site #


Legend
County
Watershed
Subwatershed
Lake/Pond
Stream
Median Concentration
Turbidity
3 - 10
11 - 32
33 - 56
Turbidity
High
Low
Little Calumet River
Deep River
Turkey Creek
Sprout Ditch
Duck Creek
Deer Creek
Lateral #9
Lateral #11
Lateral #8
Lateral #5
0 0.75 1.5 3
Miles
NRPC
Together We Make The Difference

Temperature




Legend
County
Watershed
Subwatershed
Lake/Pond
Stream
Temp
19.8 - 21.8
17.9 - 19.7
16.4 - 17.8
14.9 - 16.3
Temp
High
Low
Little Calumet River
Deep River
Turkey Creek
Sprout Ditch
Duck Creek
Deer Creek
Lateral #9
Lateral #11
Lateral #8
Lateral #5
0 1 2 4
Miles
N
W
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The Watershed Management Plan

- Watershed Community Initiative (elements 1-3)
- Watershed Inventory (elements 4-16)
- Identify Problems & Causes (elements 17-18)
- Identify Sources & Calculate Loads (elements 19-21)
- Set Goals & Identify Critical Areas (elements 22-24)
- Choose Measures/ Best Management Practices (elements 25-26)
- Action Register & Schedule (element 27-31)
- Tracking Effectiveness (elements 32-33)

Looking Ahead

- Identify problems that reflect the concerns we have chosen to focus on
- Potential causes for each problem
- Potential sources for each pollution problem
- Pollutant loads
- Load reductions needed
- Set goals and identify critical areas

NEXT MEETING: November 18th, 10 a.m.-12 p.m. at NIRPC

Questions/Comments?

Joe Exl
Senior Water Resource Planner
Northwestern Indiana Regional Planning Commission
6100 Southport Road
Portage, IN 46368
219-763-6060 x137
jexl@nirpc.org

http://www.nirpc.org/environment/deep-river-portage-burns-waterway-initiative.aspx