



## Watershed Report Card: Pine River



### People and Places:

#### Watershed Population:

2000 census - 13,589  
 2010 census - 15,170

#### Largest Cities - Population:

Breezy Point - 2,346  
 Pine River - 944  
 Emily - 813  
 Jenkins - 430  
 Fifty Lakes - 387

#### Counties - % of watershed:

Cass - 50 %  
 Crow Wing - 47 %  
 Aitkin - 2 %  
 Hubbard - 0 %

### Watershed Area:

#### Watershed size:

500,887 acres  
 783 square miles

#### Watershed Surface Area:

Percent Land - 88 %  
 Percent Water - 12 %

#### HUC8 ID:

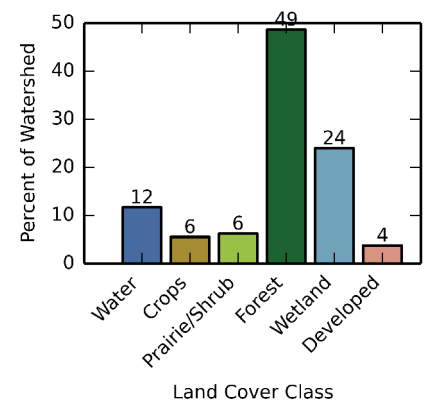
07010105

#### Basin Name:

Mississippi Headwaters (0701)

### Land Use:

#### Percent of watershed area by land cover type:

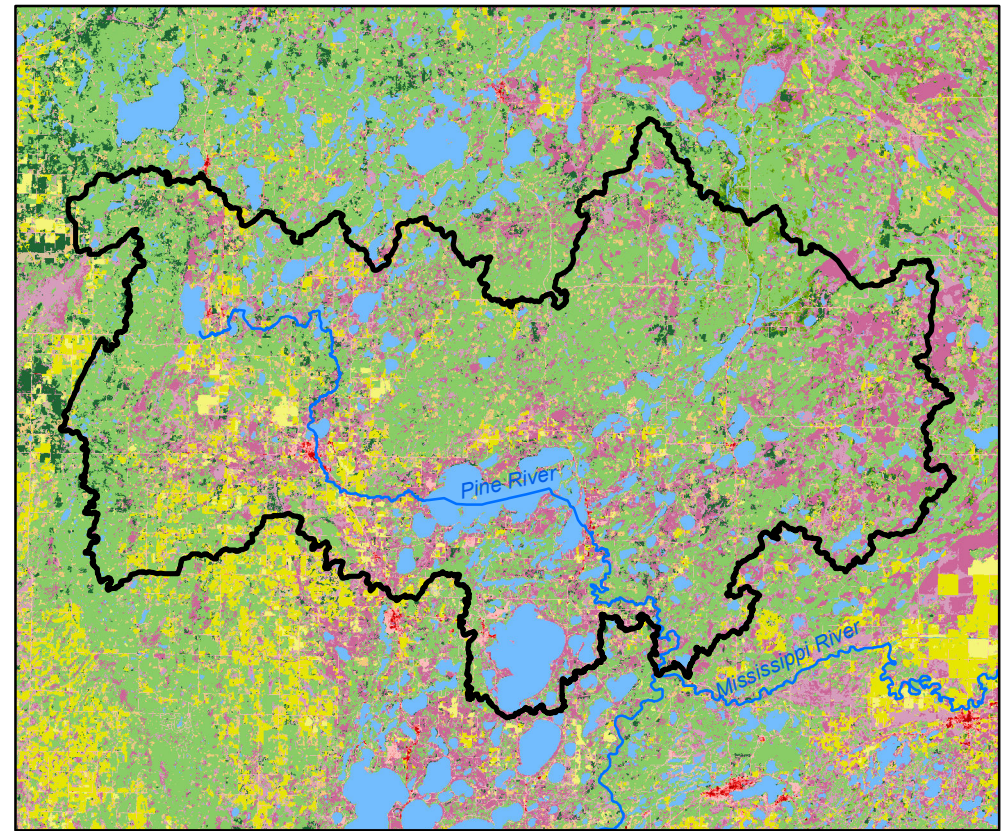
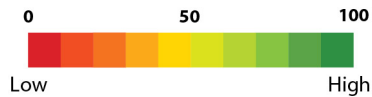
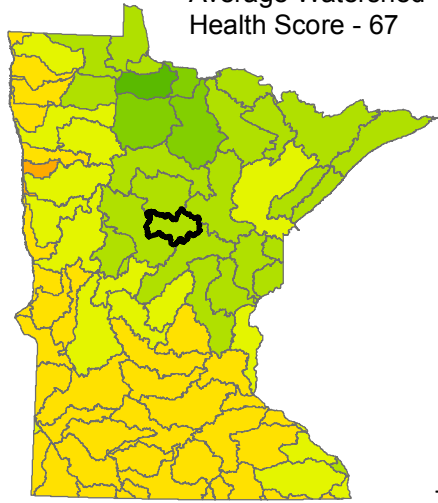




# Watershed Health Report - Major Watershed

## Pine River

Average Watershed Health Score - 67



These health scores are calculated at the Major Watershed (HUC8) scale. Health score names followed by (\*) are also calculated at the DNR Catchment scale (subdivided HUC12). Those results are reported on the following pages.



### Hydrology

Component Health Score (index average) 91

#### Index Scores

Perennial Cover*	94
Impervious Cover*	86
Water Withdrawal*	99
Flow Variability	68
Hydrologic Storage	94
<b>Sub-Scores</b>	
Altered Streams*	91
Surface Storage	98



### Geomorphology

Component Health Score (index average) 59

#### Index Scores

Soil Erosion Potential*	75
Groundwater Susceptibility	31
Climate Vulnerability	70



### Biology

Component Health Score (index average) 43

#### Index Scores

Terrestrial Habitat Quality*	21
Stream Species Quality*	58
Species Richness	54
At-Risk Species Richness	38



### Connectivity

Component Health Score (index average) 46

#### Index Scores

Terrestrial Habitat Connectivity	30
Aquatic Connectivity*	72
Riparian Connectivity*	97



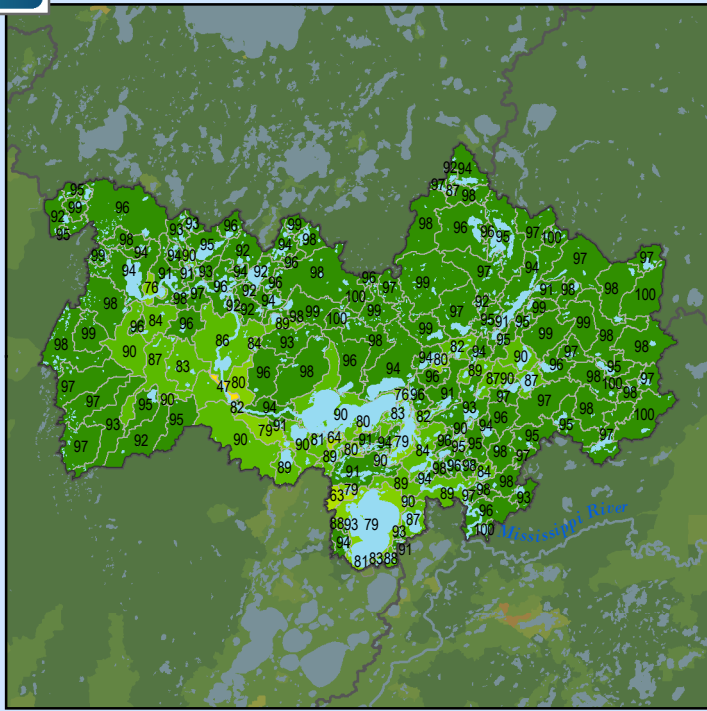
### Water Quality

Component Health Score (index average) 95

#### Index Scores

Non-Point Pollution Sources	90
<b>Sub-Score</b>	
Phosphorus Risk*	87
Localized Pollution Sources*	89
Assessments	95

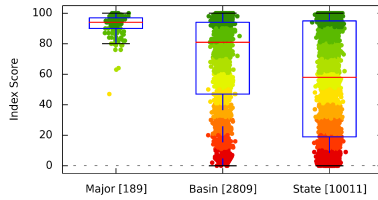
### Perennial Cover (2011)



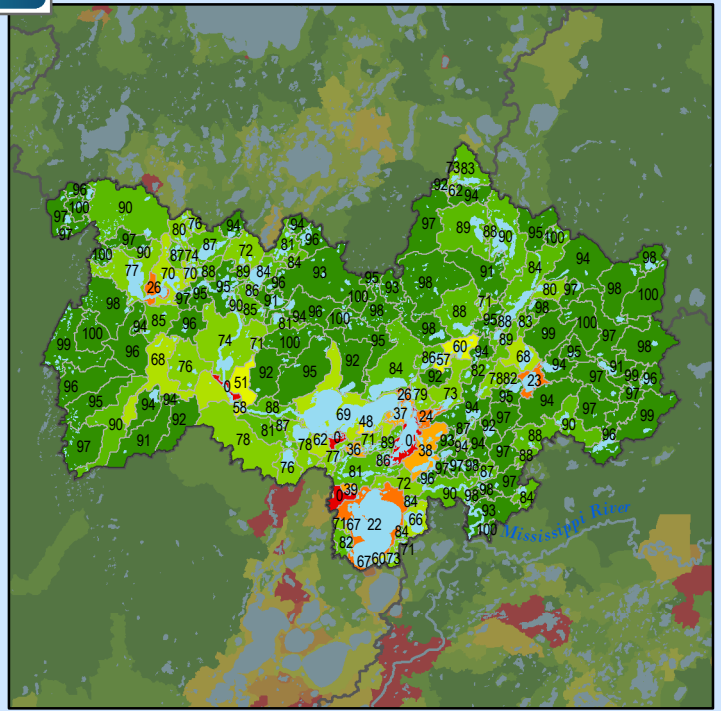
#### Health Score Distributions:

Pine River

Min: 47  
 Max: 100  
 Median: 94.0  
 Mean: 92.44  
 Standard Dev: 7.11



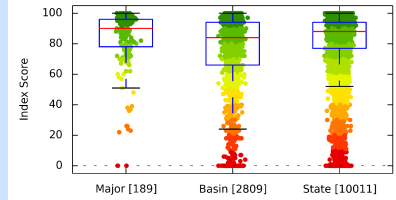
### Impervious Cover (2011)



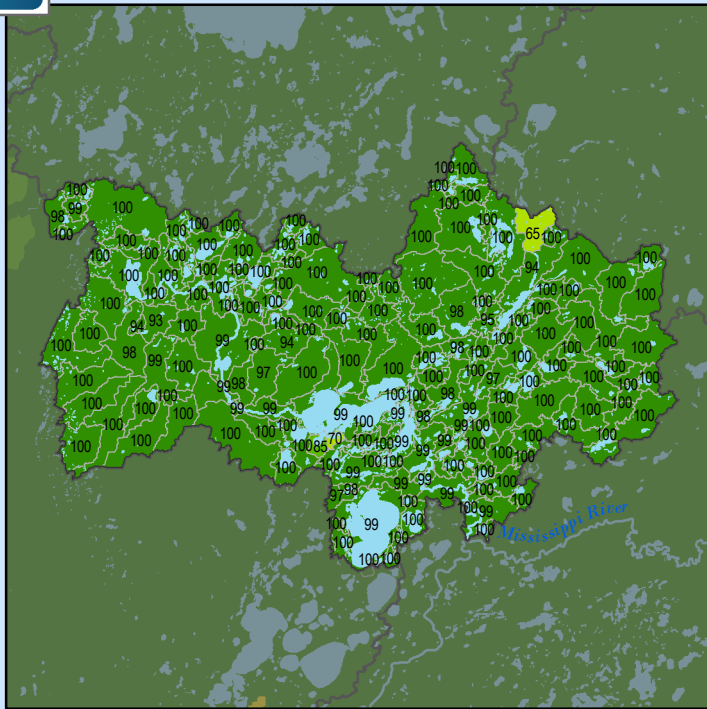
#### Health Score Distributions:

Pine River

Min: 0  
 Max: 100  
 Median: 90.0  
 Mean: 82.89  
 Standard Dev: 20.41



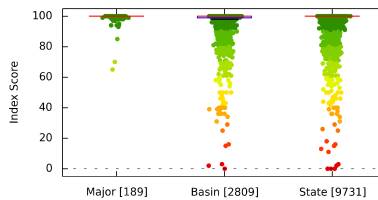
### Water Withdrawal Index



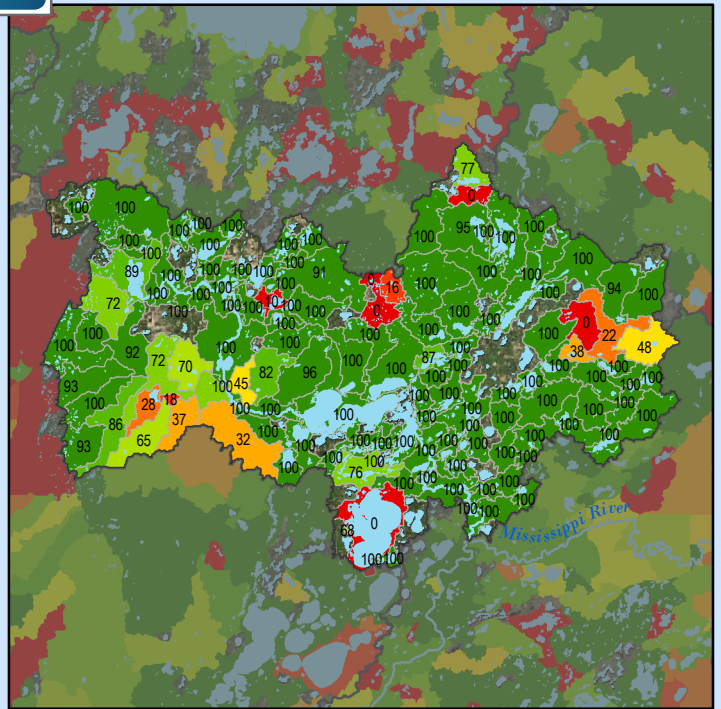
#### Health Score Distributions:

Pine River

Min: 65  
 Max: 100  
 Median: 100.0  
 Mean: 99.19  
 Standard Dev: 3.63



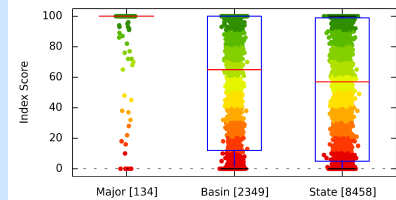
### Altered Streams



#### Health Score Distributions:

Pine River

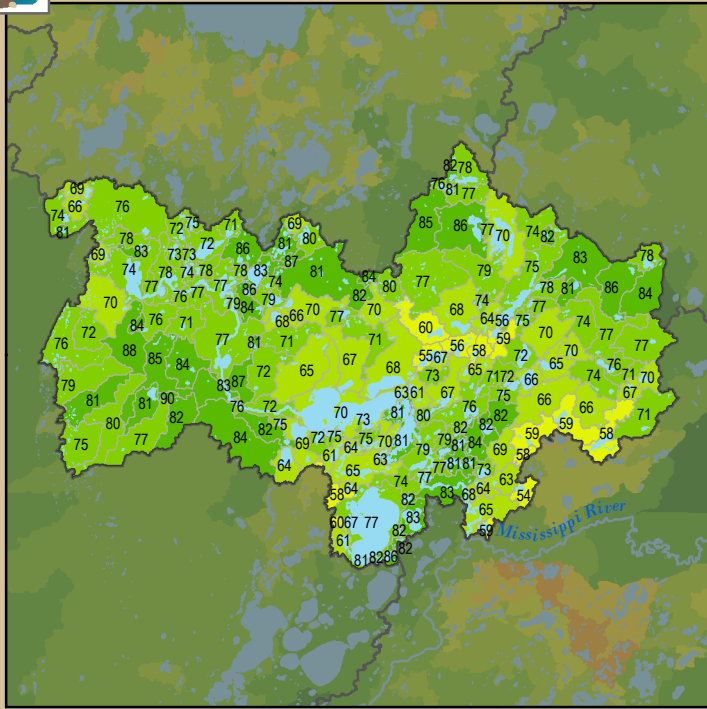
Min: 0  
 Max: 100  
 Median: 100.0  
 Mean: 88.75  
 Standard Dev: 26.1





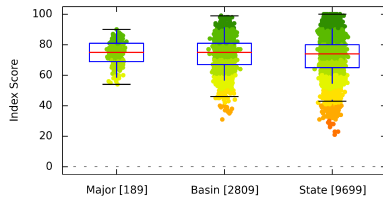


### Soil Erosion Potential

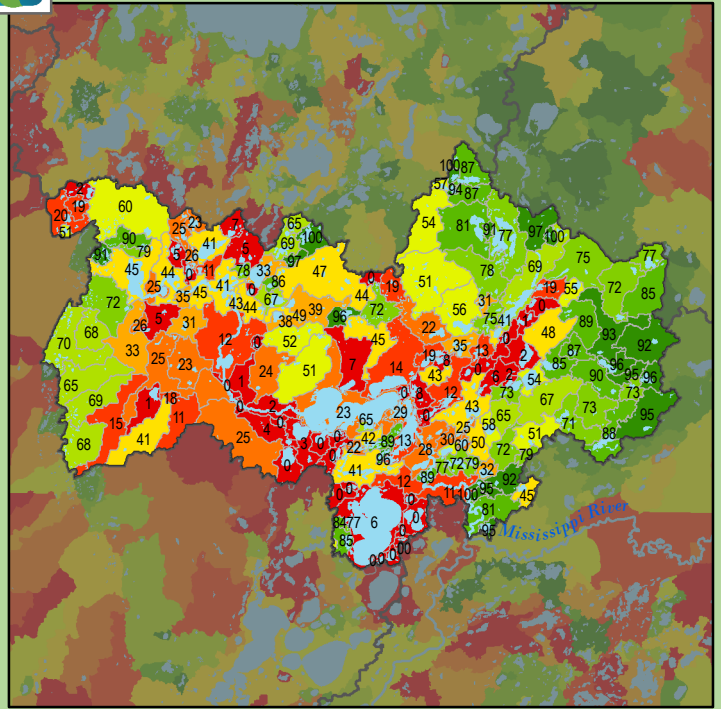


#### Health Score Distributions:

Pine River  
 Min: 54  
 Max: 90  
 Median: 75.0  
 Mean: 74.27  
 Standard Dev: 7.95

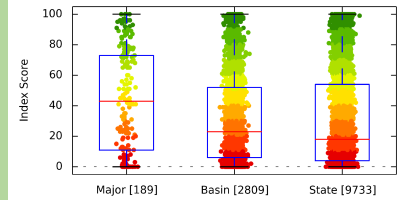


### Terrestrial Habitat Quality

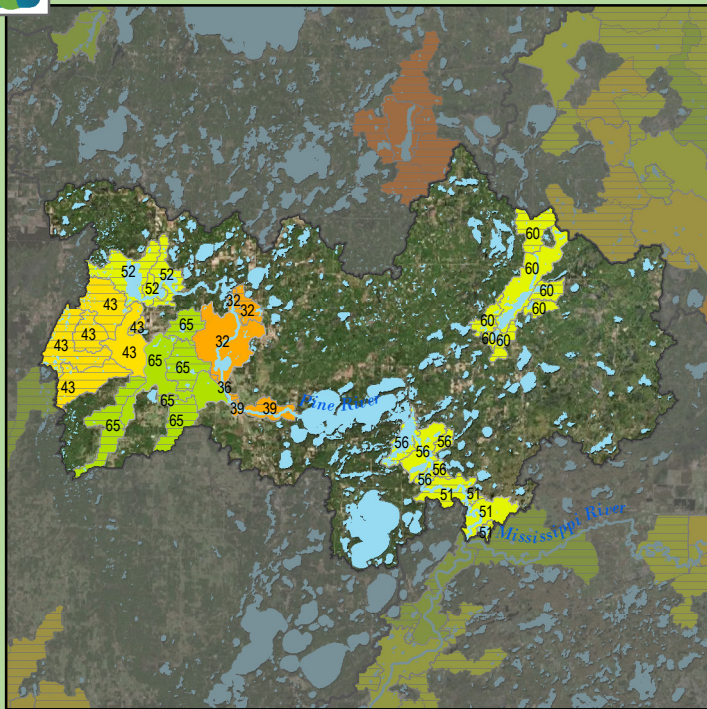


#### Health Score Distributions:

Pine River  
 Min: 0  
 Max: 100  
 Median: 43.0  
 Mean: 43.58  
 Standard Dev: 33.64

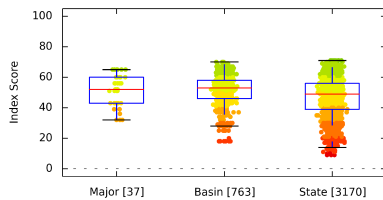


### Stream Species Quality - Mussel Score

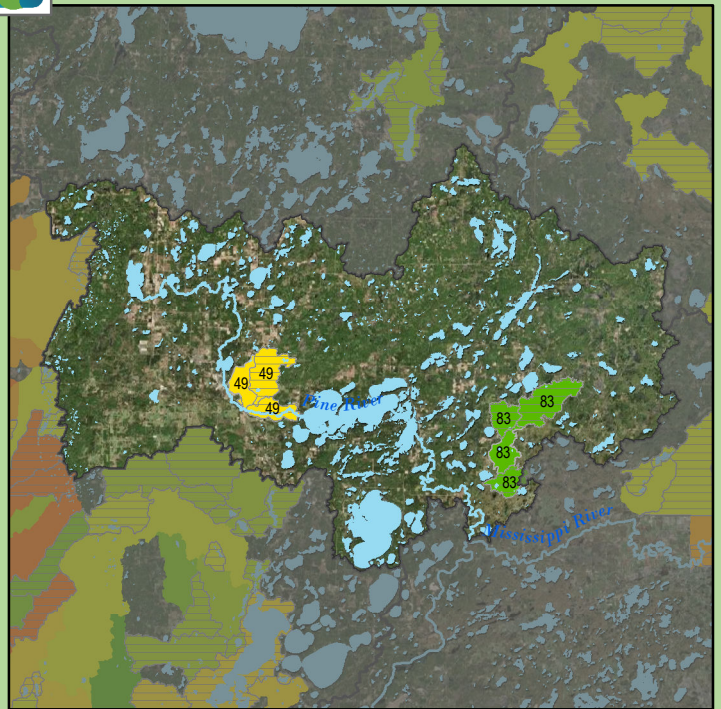


#### Health Score Distributions:

Pine River  
 Min: 32  
 Max: 65  
 Median: 52.0  
 Mean: 51.84  
 Standard Dev: 10.17

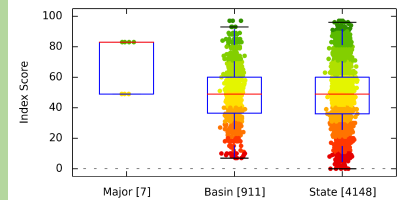


### Stream Species Quality - Aquatic Invertebrate IBI



#### Health Score Distributions:

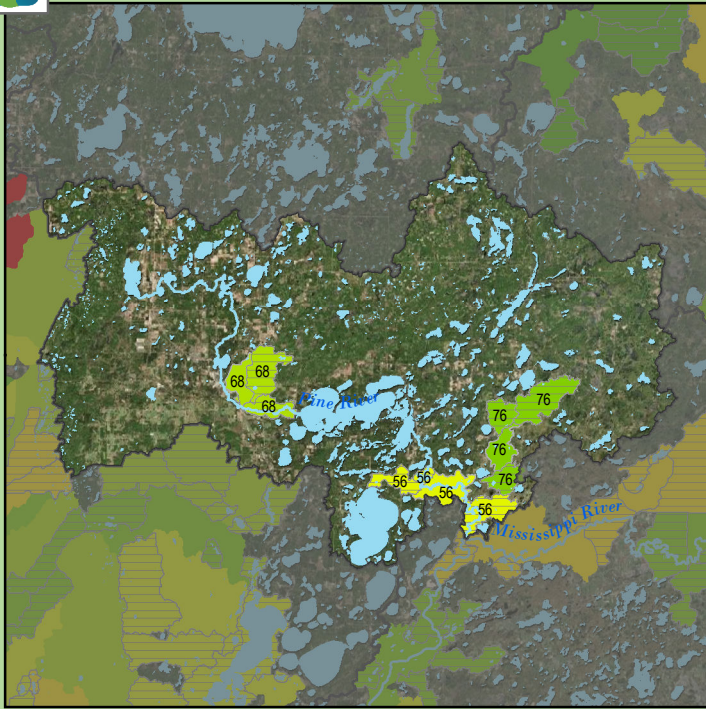
Pine River  
 Min: 49  
 Max: 83  
 Median: 83.0  
 Mean: 68.43  
 Standard Dev: 16.83







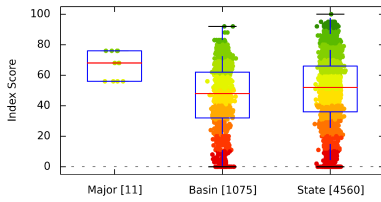
### Stream Species Quality - Fish IBI



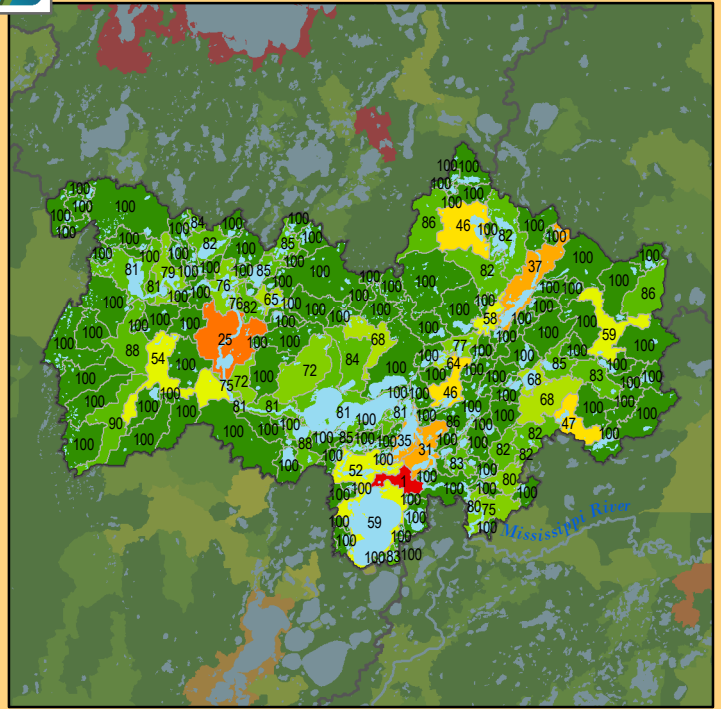
#### Health Score Distributions:

Pine River

- Min: 56
- Max: 76
- Median: 68.0
- Mean: 66.55
- Standard Dev: 8.57



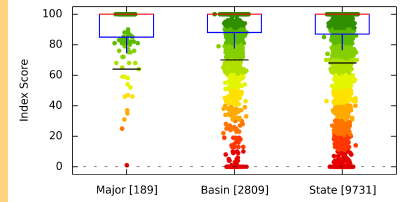
### Aquatic Connectivity



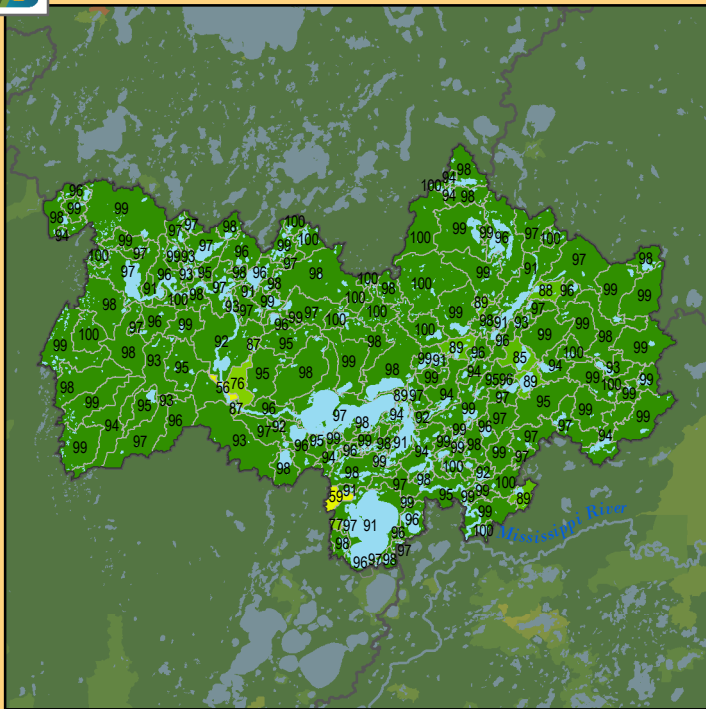
#### Health Score Distributions:

Pine River

- Min: 1
- Max: 100
- Median: 100.0
- Mean: 91.4
- Standard Dev: 16.55



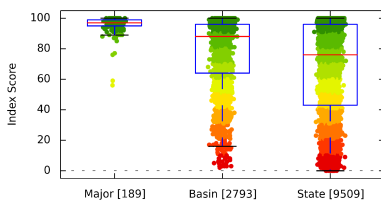
### Riparian Connectivity



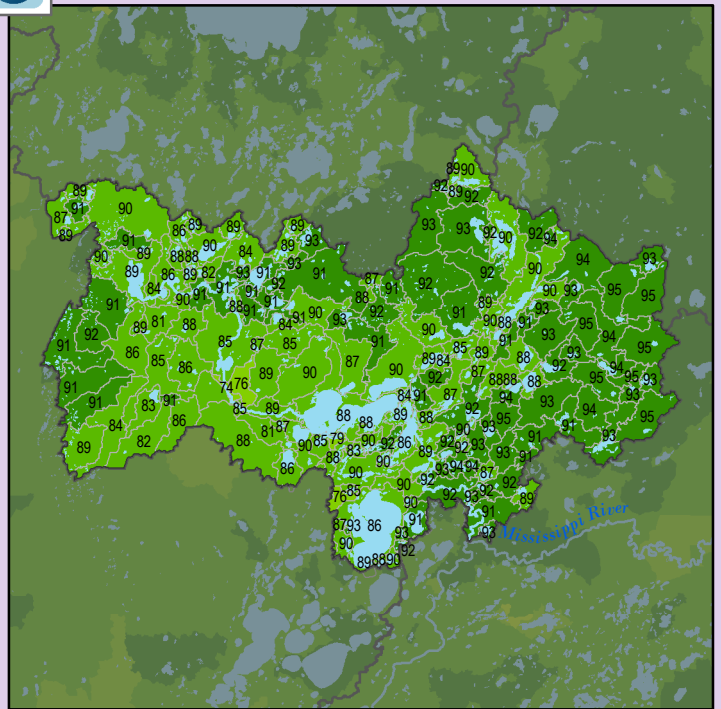
#### Health Score Distributions:

Pine River

- Min: 56
- Max: 100
- Median: 97.0
- Mean: 95.98
- Standard Dev: 5.44



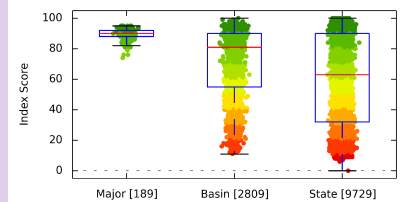
### Non-Point Source - Phosphorus Risk



#### Health Score Distributions:

Pine River

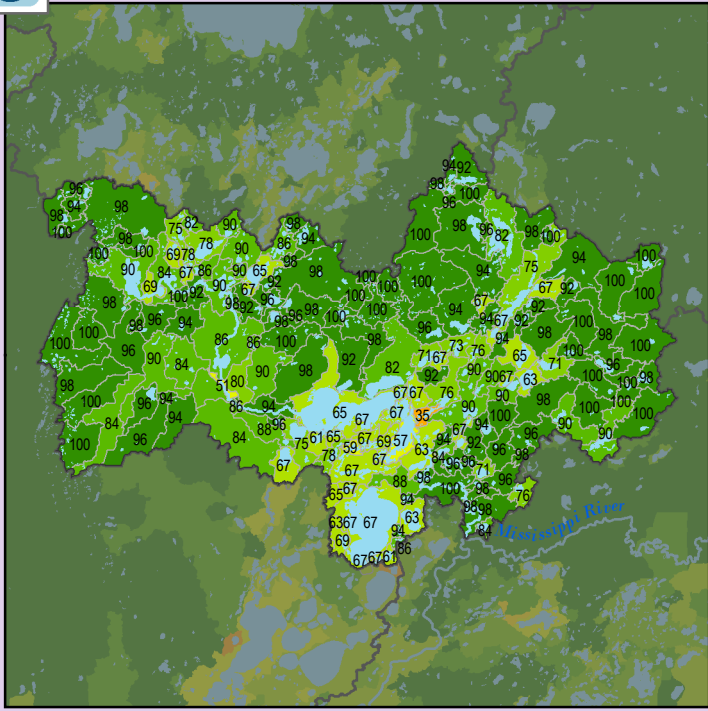
- Min: 74
- Max: 95
- Median: 90.0
- Mean: 89.6
- Standard Dev: 3.61





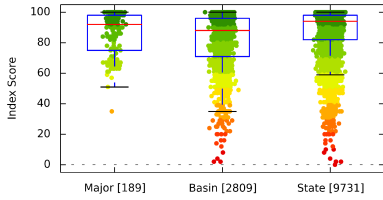


### Localized Pollution Sources

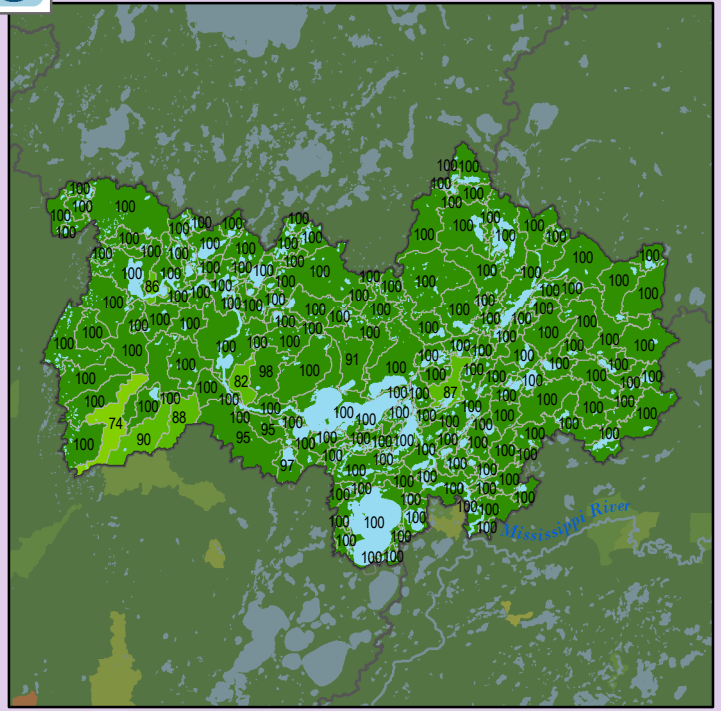


#### Health Score Distributions:

Pine River  
 Min: 35  
 Max: 100  
 Median: 92.0  
 Mean: 86.74  
 Standard Dev: 13.68

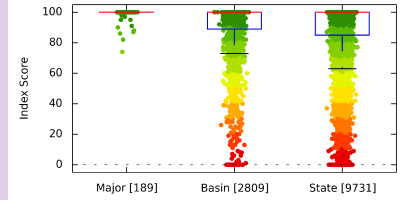


### Localized Pollution Sources - Animal Units

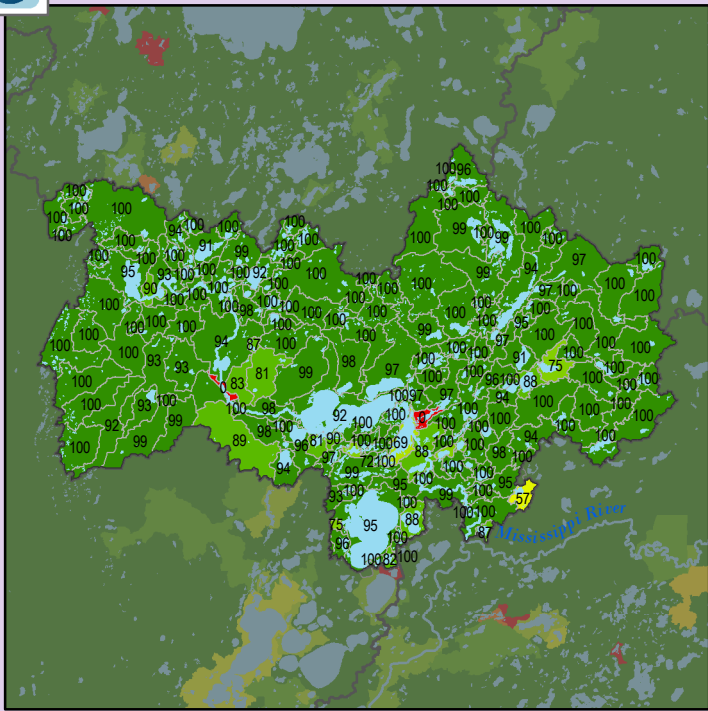


#### Health Score Distributions:

Pine River  
 Min: 74  
 Max: 100  
 Median: 100.0  
 Mean: 99.38  
 Standard Dev: 2.98

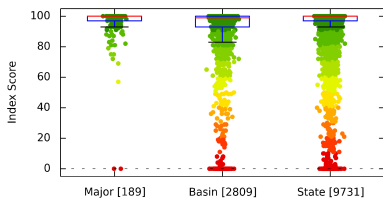


### Localized Pollution Sources - Potential Contaminants

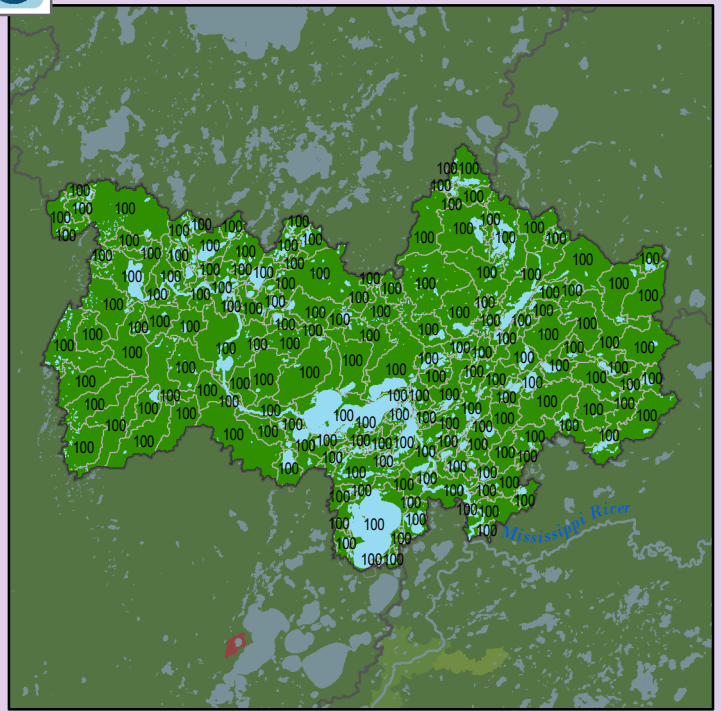


#### Health Score Distributions:

Pine River  
 Min: 0  
 Max: 100  
 Median: 100.0  
 Mean: 96.03  
 Standard Dev: 11.75

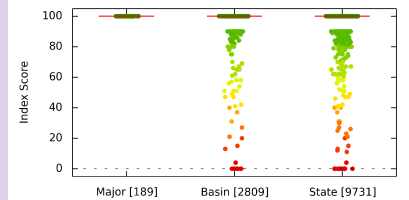


### Localized Pollution Sources - Superfund Sites



#### Health Score Distributions:

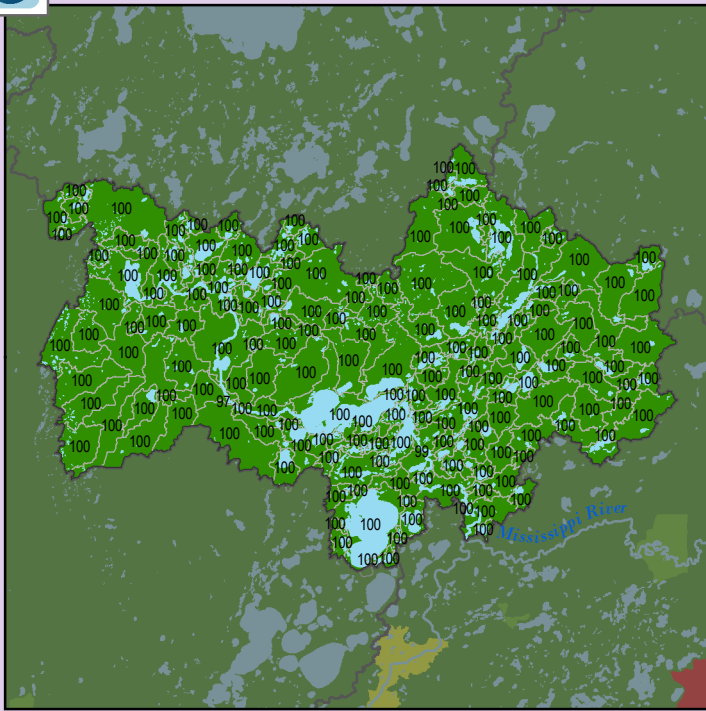
Pine River  
 Min: 100  
 Max: 100  
 Median: 100.0  
 Mean: 100.0  
 Standard Dev: 0.0







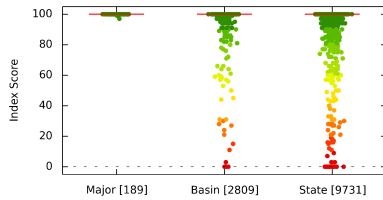
### Localized Pollution Sources - Wastewater Treatment



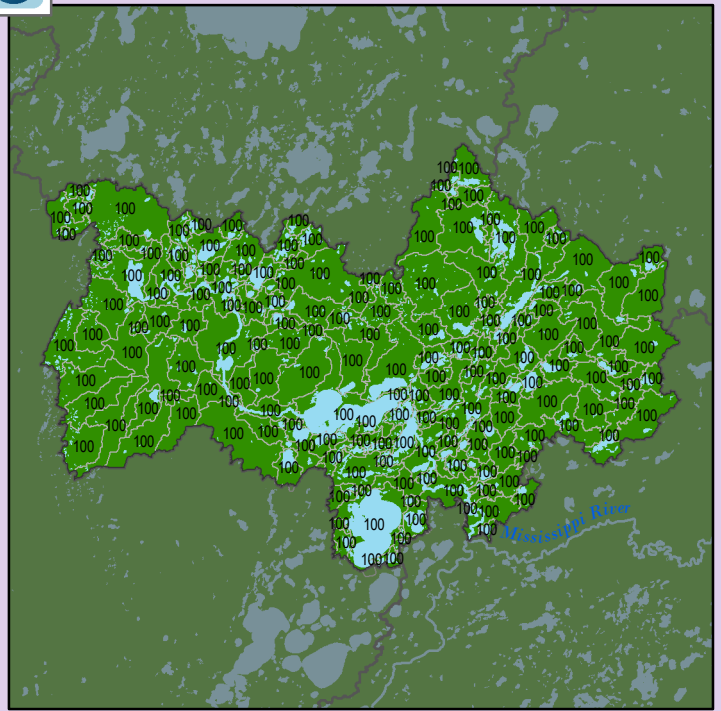
#### Health Score Distributions:

Pine River

Min: 97  
Max: 100  
Median: 100.0  
Mean: 99.98  
Standard Dev: 0.23



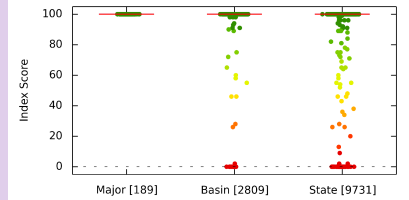
### Localized Pollution Sources - Open Pit Mines



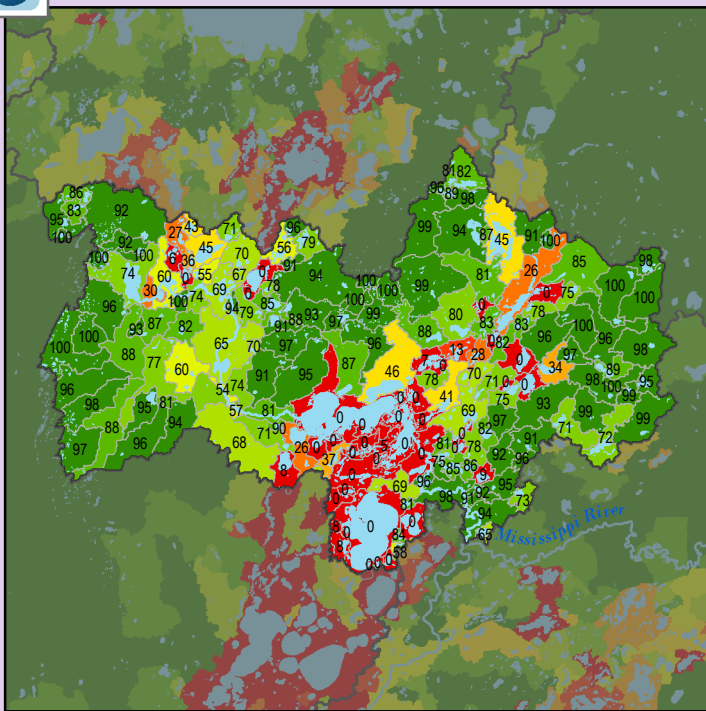
#### Health Score Distributions:

Pine River

Min: 100  
Max: 100  
Median: 100.0  
Mean: 100.0  
Standard Dev: 0.0



### Localized Pollution Sources - Septic Systems



#### Health Score Distributions:

Pine River

Min: 0  
Max: 100  
Median: 81.0  
Mean: 63.82  
Standard Dev: 37.13

