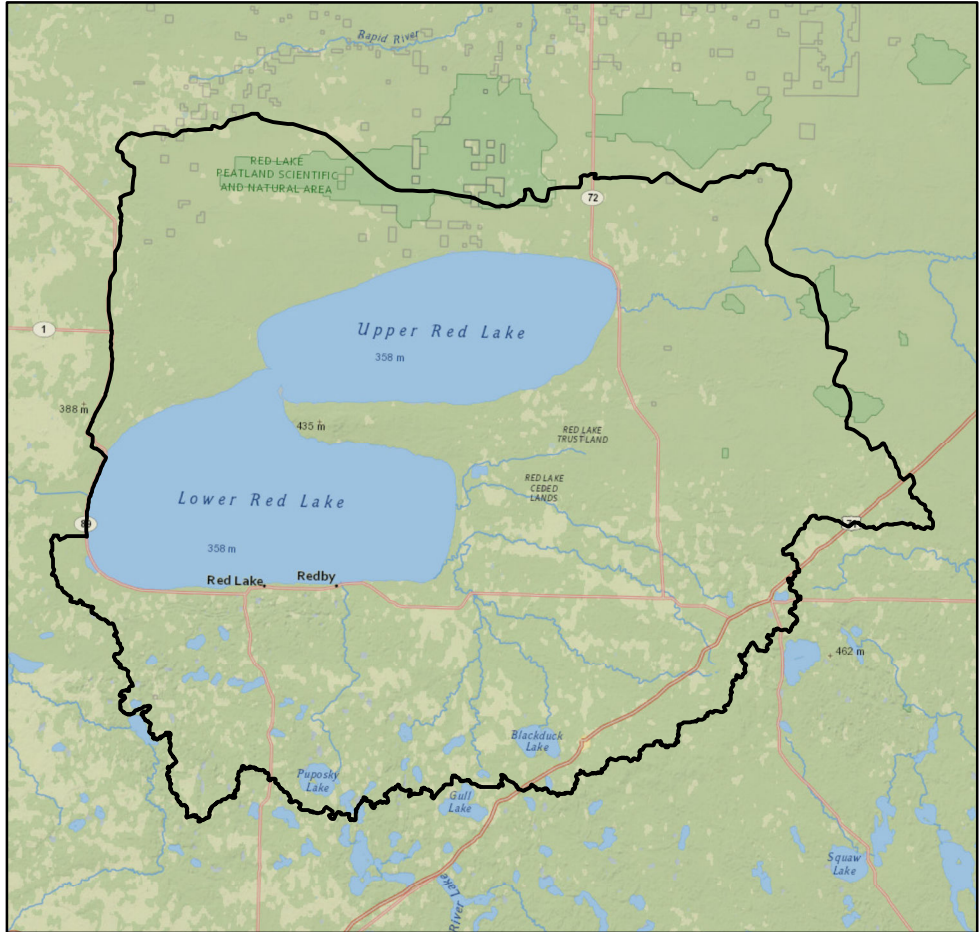




Watershed Report Card: Upper/Lower Red Lake



People and Places:

Watershed Population:

2000 census - 10,085
 2010 census - 10,784

Largest Cities - Population:

Blackduck - 785
 Hines - 689
 Nebish - 290
 Kelliher - 262
 Langor - 213

Counties - % of watershed:

Beltrami - 81 %
 Koochiching - 16 %
 Clearwater - 2 %
 Itasca - 1 %

Watershed Area:

Watershed size:

1,241,690 acres
 1,940 square miles

Watershed Surface Area:

Percent Land - 76 %
 Percent Water - 24 %

HUC8 ID:

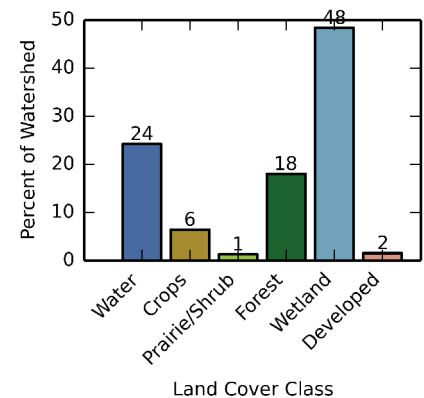
09020302

Basin Name:

Red River (0902)

Land Use:

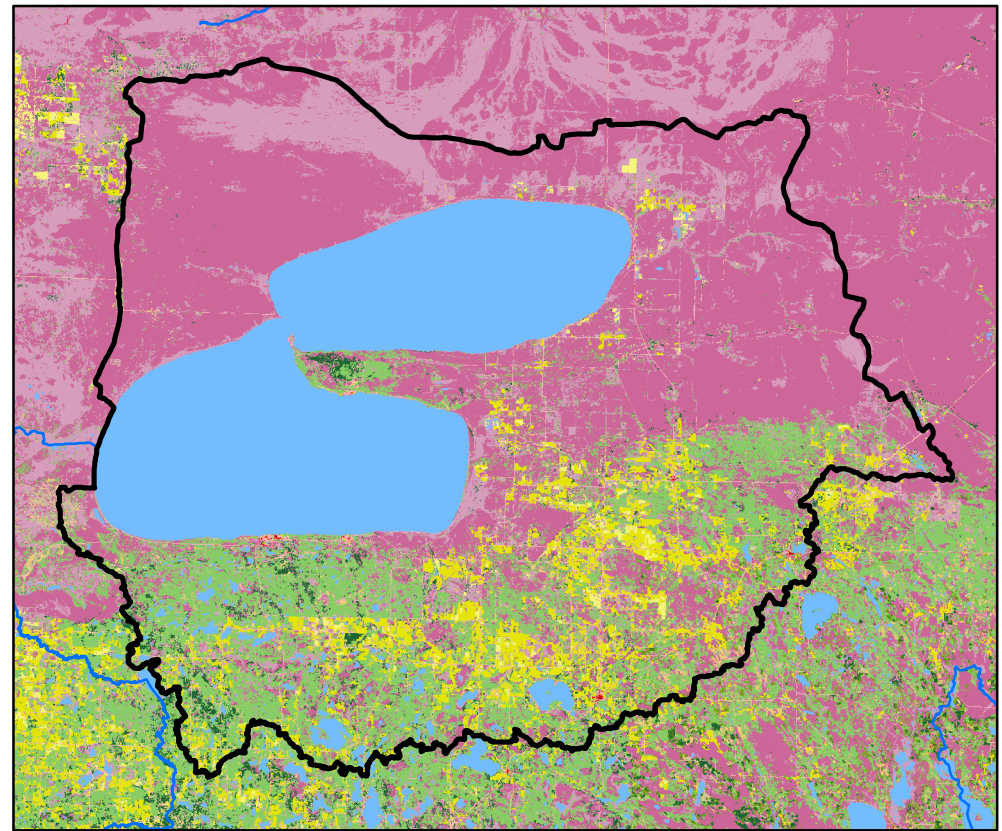
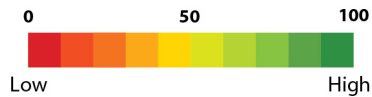
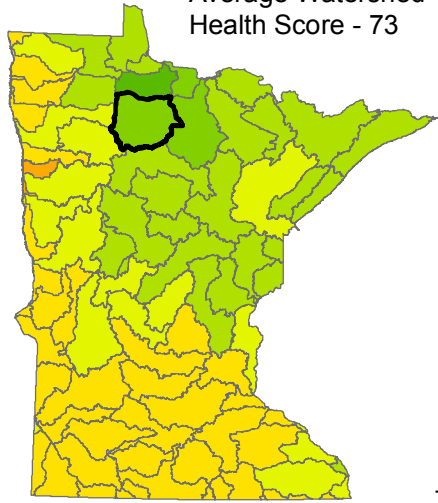
Percent of watershed area by land cover type:



Watershed Health Report - Major Watershed

Upper/Lower Red Lake

Average Watershed Health Score - 73



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) 86

Index Scores

Perennial Cover*	97
Impervious Cover*	96
Water Withdrawal*	99
Flow Variability	61
Hydrologic Storage	74
Sub-Scores	
Altered Streams*	48
Surface Storage	99



Geomorphology

Component Health Score (index average) 87

Index Scores

Soil Erosion Potential*	86
Groundwater Susceptibility	76
Climate Vulnerability	99



Biology

Component Health Score (index average) 52

Index Scores

Terrestrial Habitat Quality*	55
Stream Species Quality*	65
Species Richness	57
At-Risk Species Richness	31



Connectivity

Component Health Score (index average) 64

Index Scores

Terrestrial Habitat Connectivity	60
Aquatic Connectivity*	87
Riparian Connectivity*	96



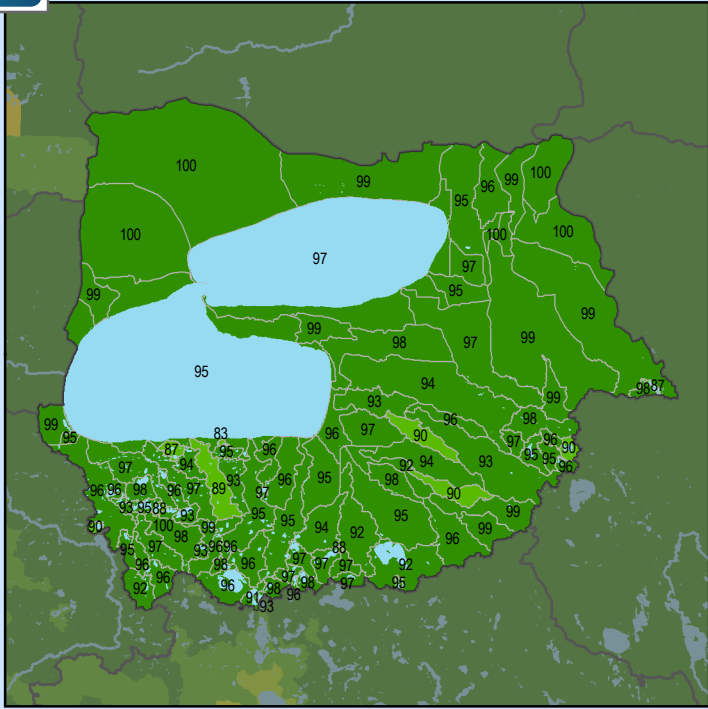
Water Quality

Component Health Score (index average) 76

Index Scores

Non-Point Pollution Sources	92
Sub-Score	
Phosphorus Risk*	92
Localized Pollution Sources*	98
Assessments	36

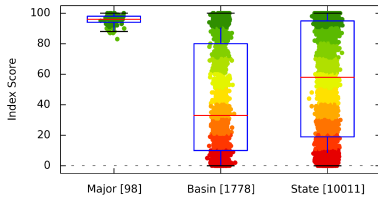
Perennial Cover (2011)



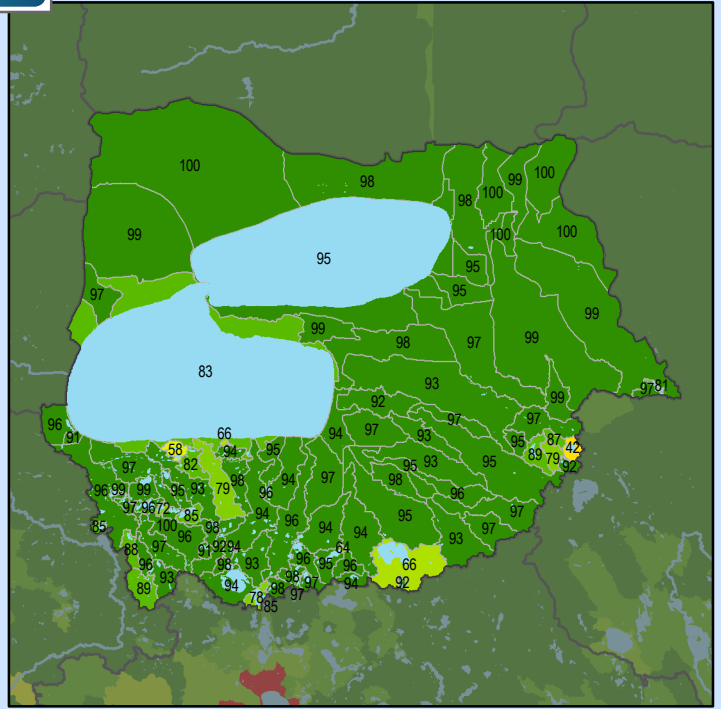
Health Score Distributions:

Upper/Lower Red Lake

Min: 83
 Max: 100
 Median: 96.0
 Mean: 95.46
 Standard Dev: 3.27



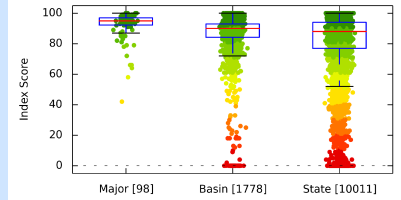
Impervious Cover (2011)



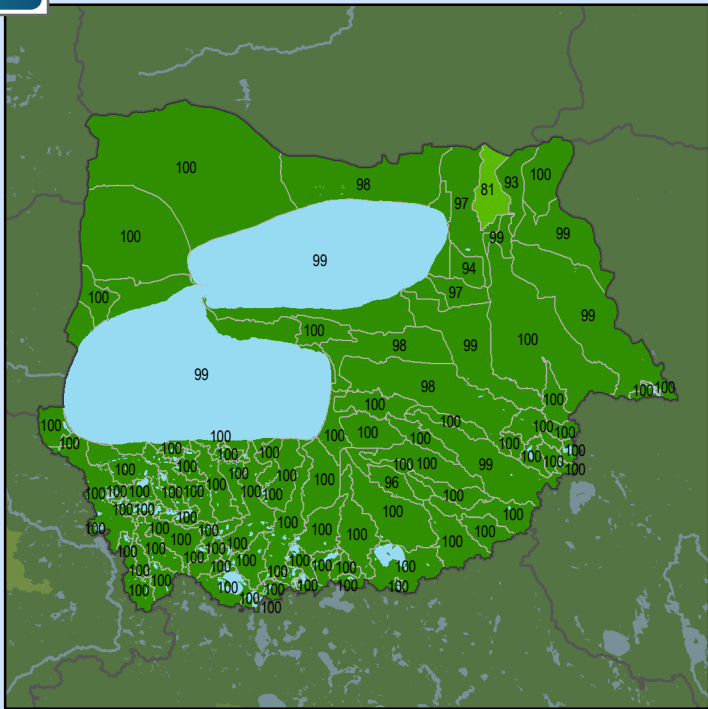
Health Score Distributions:

Upper/Lower Red Lake

Min: 42
 Max: 100
 Median: 95.0
 Mean: 92.32
 Standard Dev: 9.57



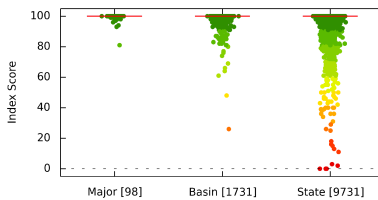
Water Withdrawal Index



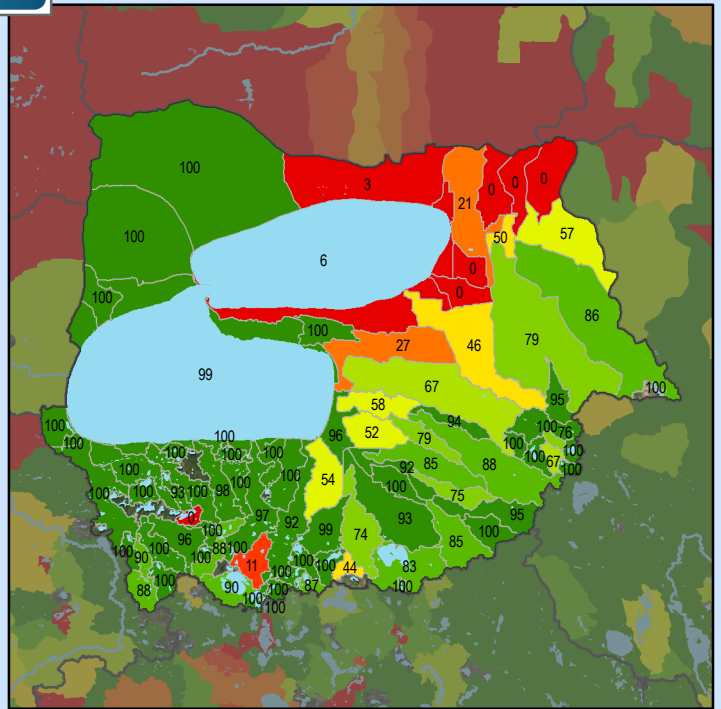
Health Score Distributions:

Upper/Lower Red Lake

Min: 81
 Max: 100
 Median: 100.0
 Mean: 99.44
 Standard Dev: 2.19



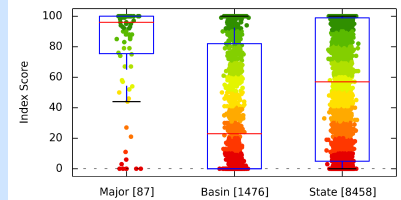
Altered Streams



Health Score Distributions:

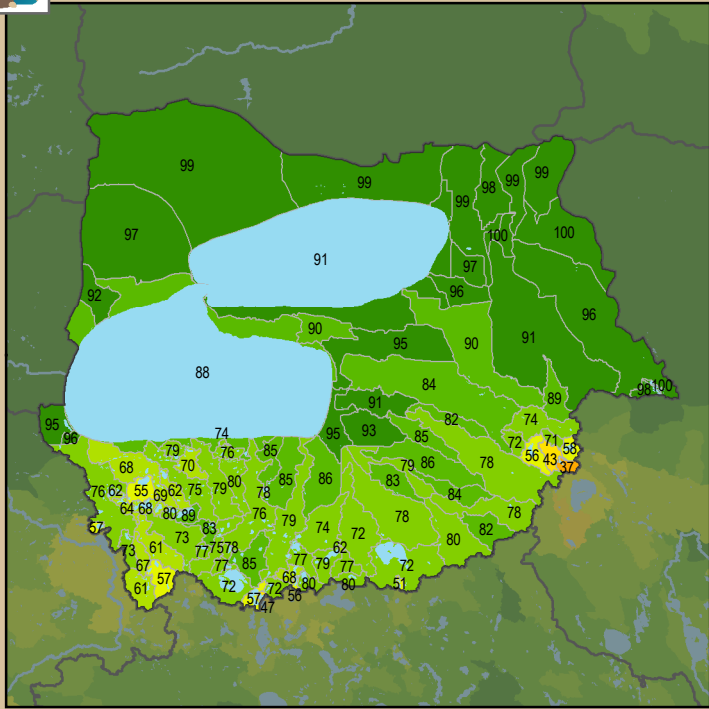
Upper/Lower Red Lake

Min: 0
 Max: 100
 Median: 96.0
 Mean: 79.94
 Standard Dev: 31.5





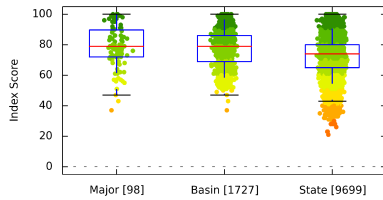
Soil Erosion Potential



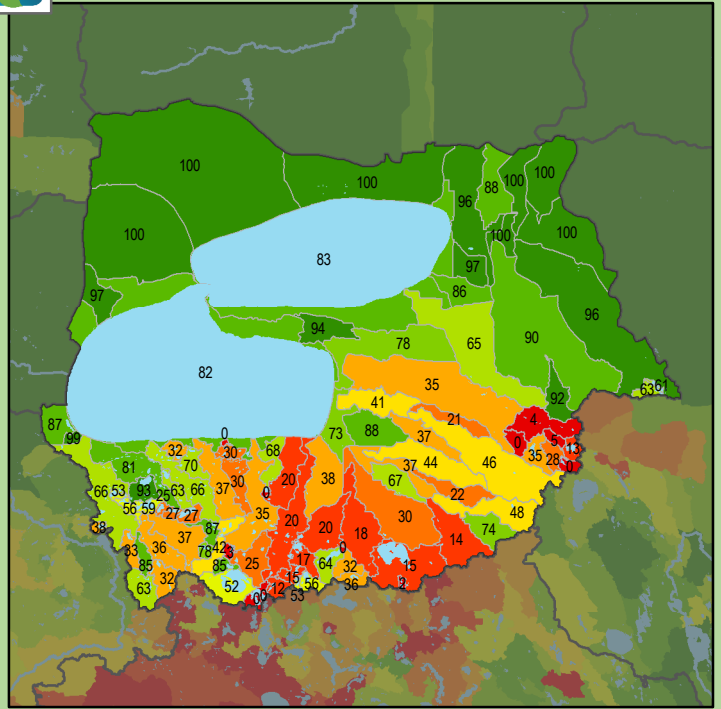
Health Score Distributions:

Upper/Lower Red Lake

Min: 37
Max: 100
Median: 79.0
Mean: 78.55
Standard Dev: 14.05



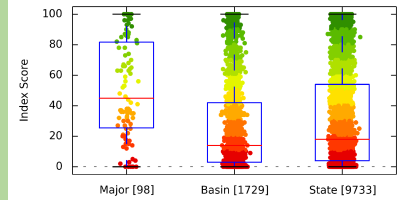
Terrestrial Habitat Quality



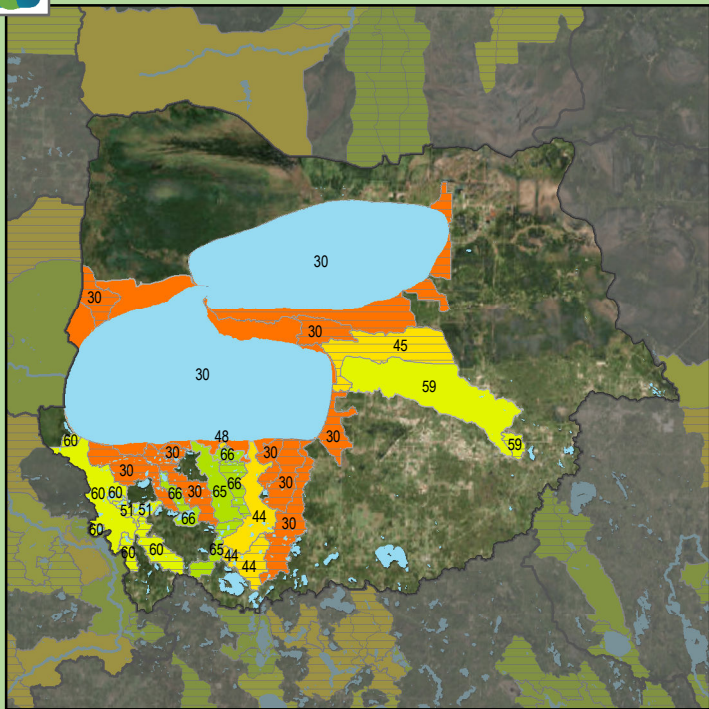
Health Score Distributions:

Upper/Lower Red Lake

Min: 0
Max: 100
Median: 45.0
Mean: 50.49
Standard Dev: 31.97



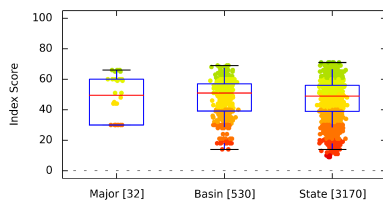
Stream Species Quality - Mussel Score



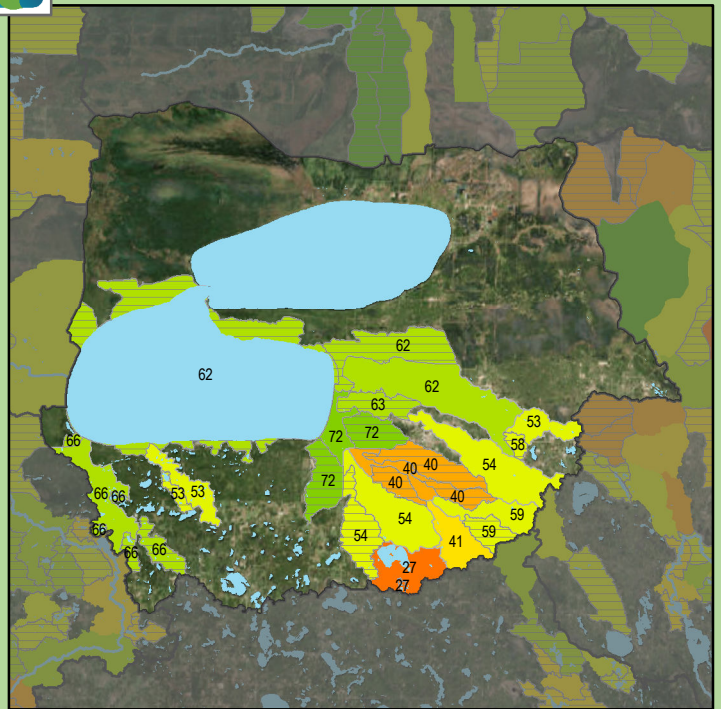
Health Score Distributions:

Upper/Lower Red Lake

Min: 30
Max: 66
Median: 49.5
Mean: 47.78
Standard Dev: 14.38



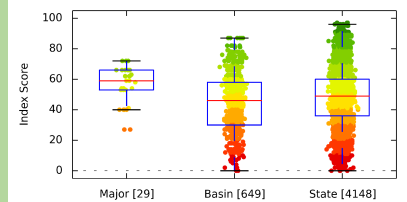
Stream Species Quality - Aquatic Invertebrate IBI



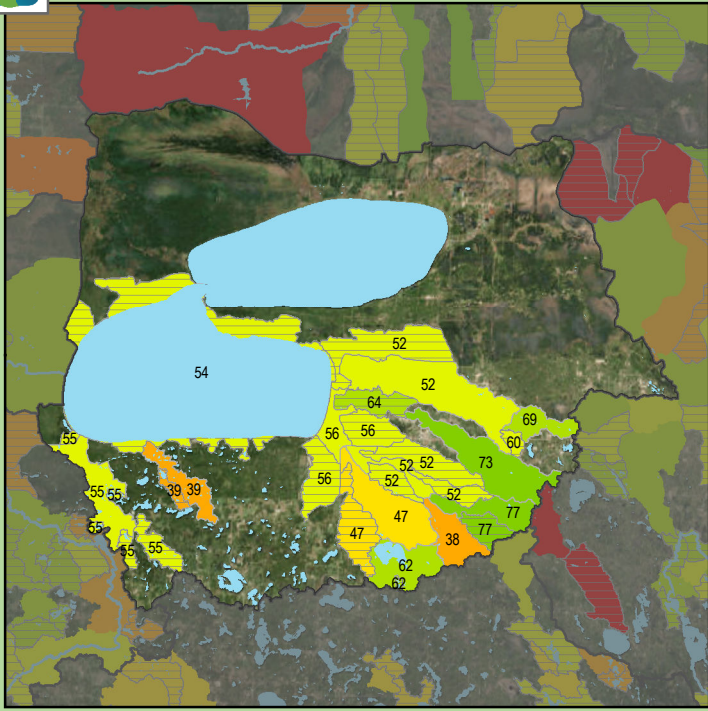
Health Score Distributions:

Upper/Lower Red Lake

Min: 27
Max: 72
Median: 59.0
Mean: 55.62
Standard Dev: 12.47



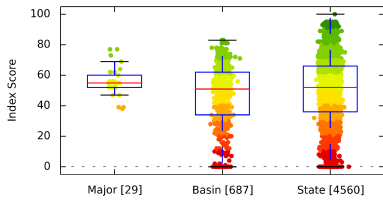
Stream Species Quality - Fish IBI



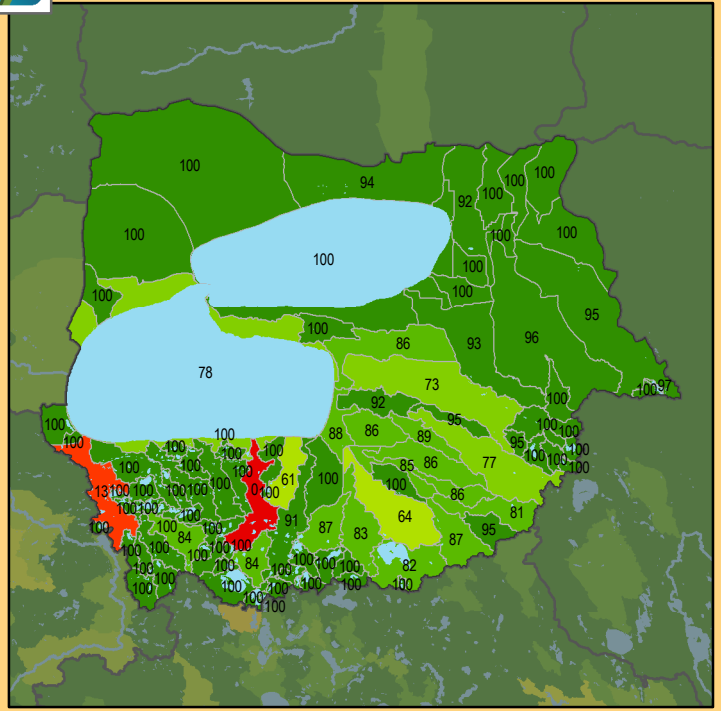
Health Score Distributions:

Upper/Lower Red Lake

Min: 38
 Max: 77
 Median: 55.0
 Mean: 55.79
 Standard Dev: 9.58



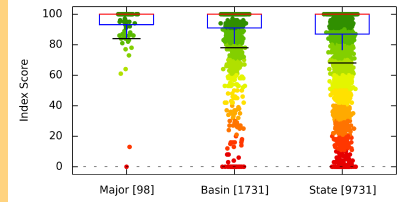
Aquatic Connectivity



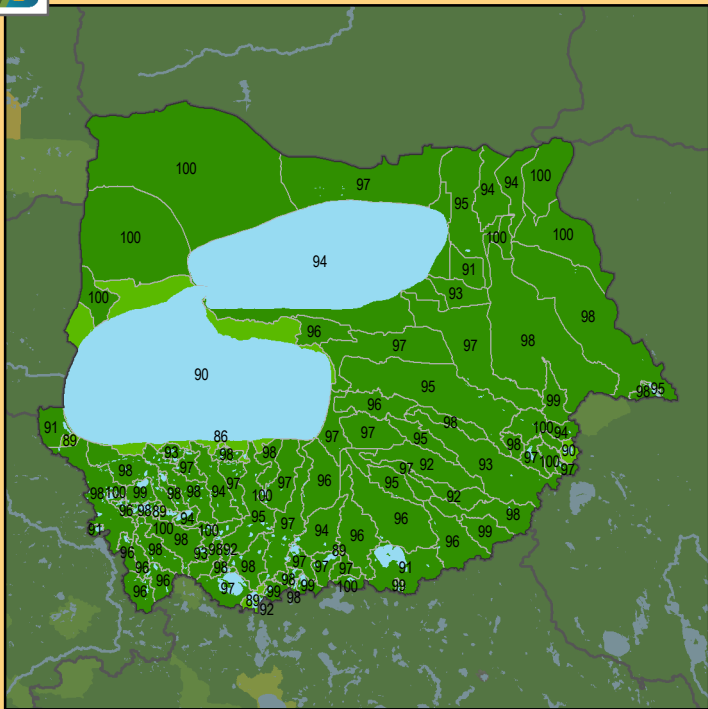
Health Score Distributions:

Upper/Lower Red Lake

Min: 0
 Max: 100
 Median: 100.0
 Mean: 93.83
 Standard Dev: 14.95



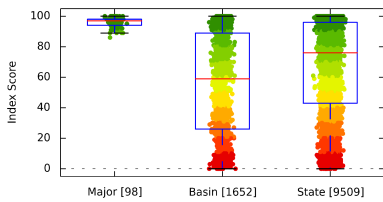
Riparian Connectivity



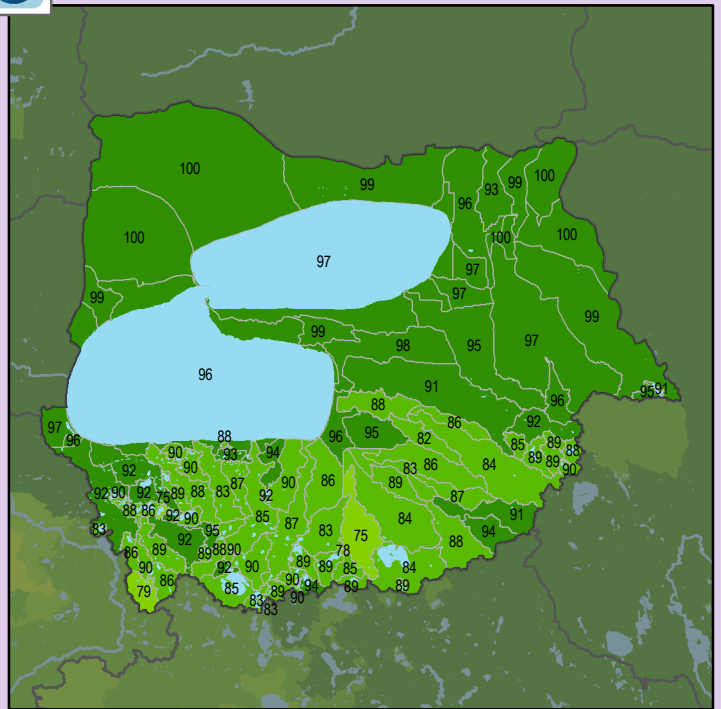
Health Score Distributions:

Upper/Lower Red Lake

Min: 86
 Max: 100
 Median: 97.0
 Mean: 96.08
 Standard Dev: 3.13



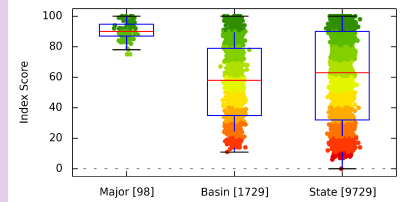
Non-Point Source - Phosphorus Risk



Health Score Distributions:

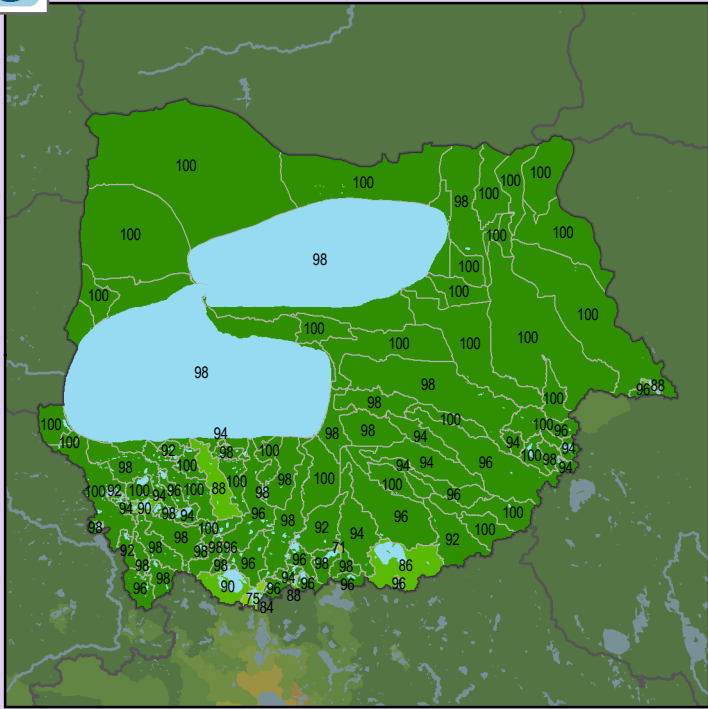
Upper/Lower Red Lake

Min: 75
 Max: 100
 Median: 90.0
 Mean: 90.26
 Standard Dev: 5.56





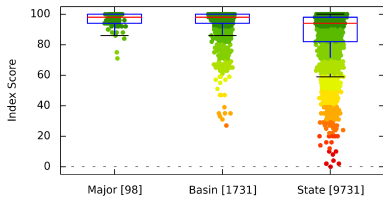
Localized Pollution Sources



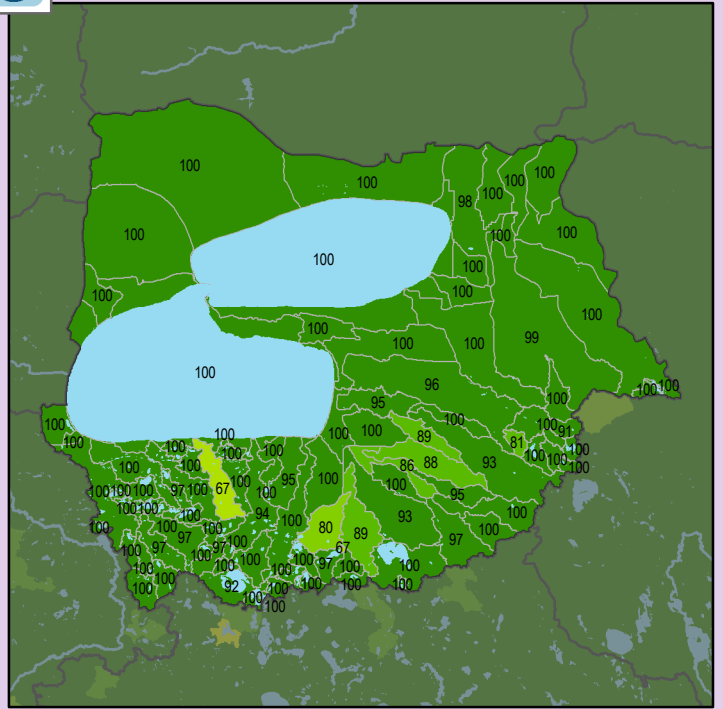
Health Score Distributions:

Upper/Lower Red Lake

Min: 71
Max: 100
Median: 98.0
Mean: 96.33
Standard Dev: 4.86



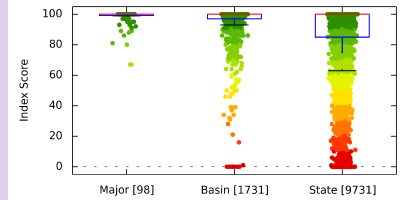
Localized Pollution Sources - Animal Units



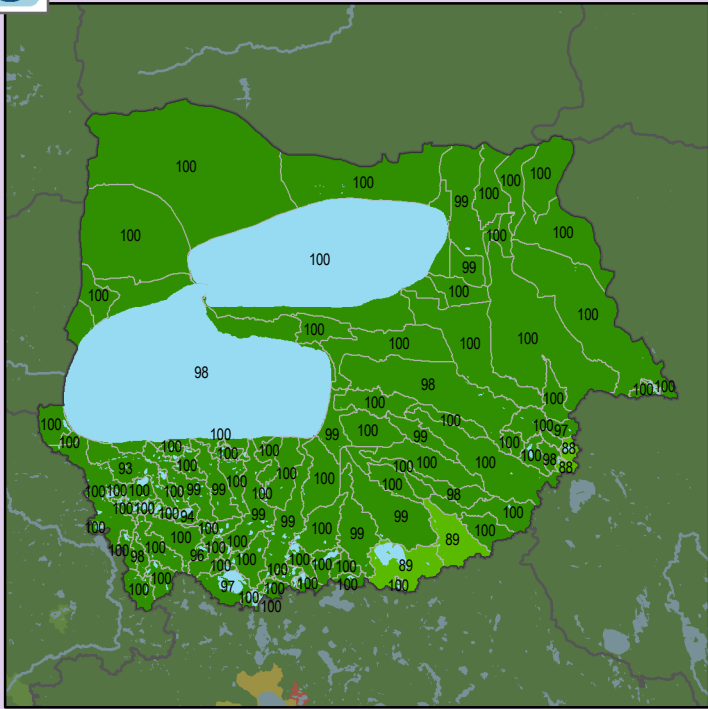
Health Score Distributions:

Upper/Lower Red Lake

Min: 67
Max: 100
Median: 100.0
Mean: 97.65
Standard Dev: 5.9



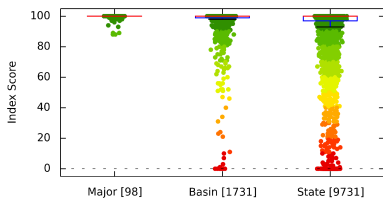
Localized Pollution Sources - Potential Contaminants



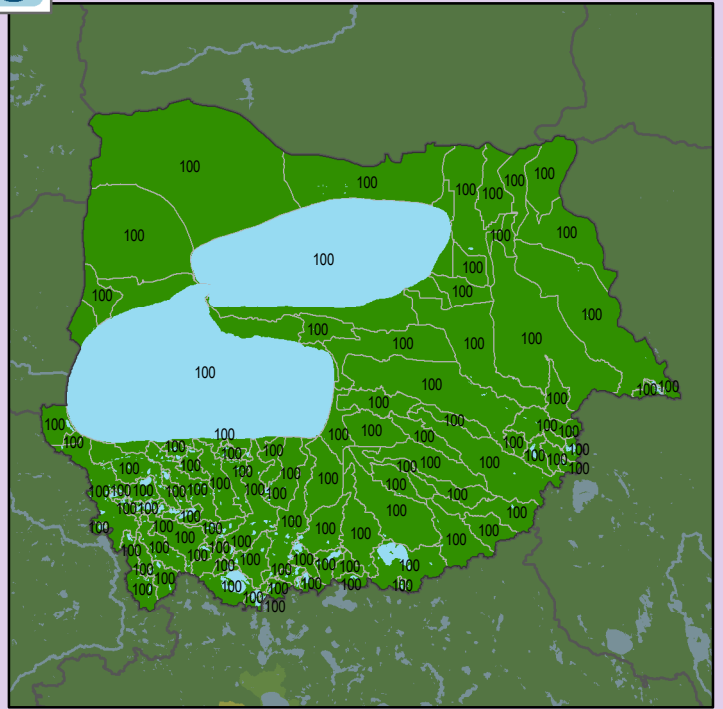
Health Score Distributions:

Upper/Lower Red Lake

Min: 88
Max: 100
Median: 100.0
Mean: 99.09
Standard Dev: 2.47



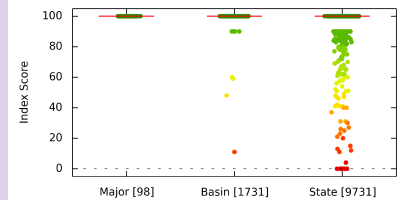
Localized Pollution Sources - Superfund Sites



Health Score Distributions:

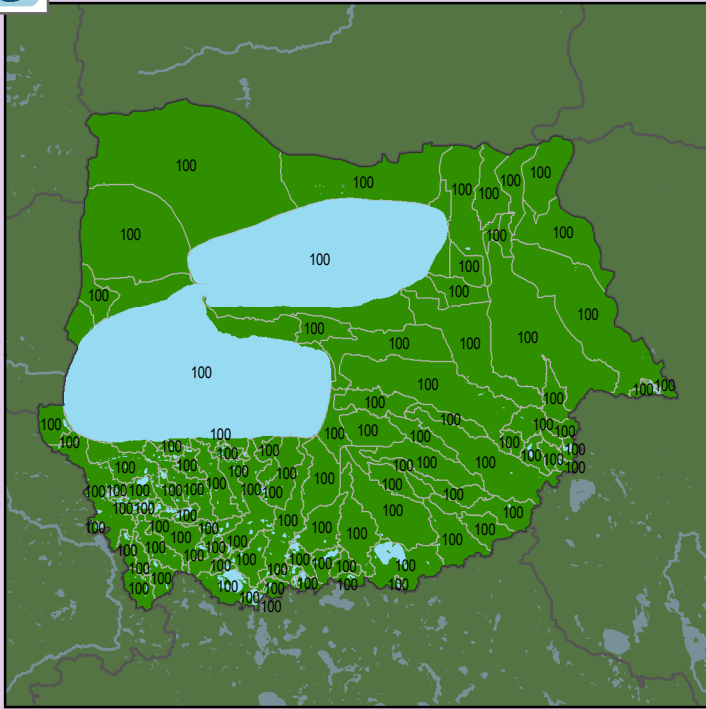
Upper/Lower Red Lake

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





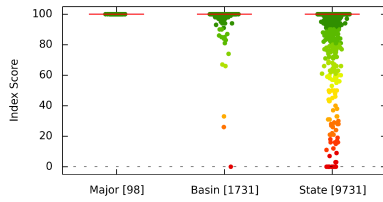
Localized Pollution Sources - Wastewater Treatment



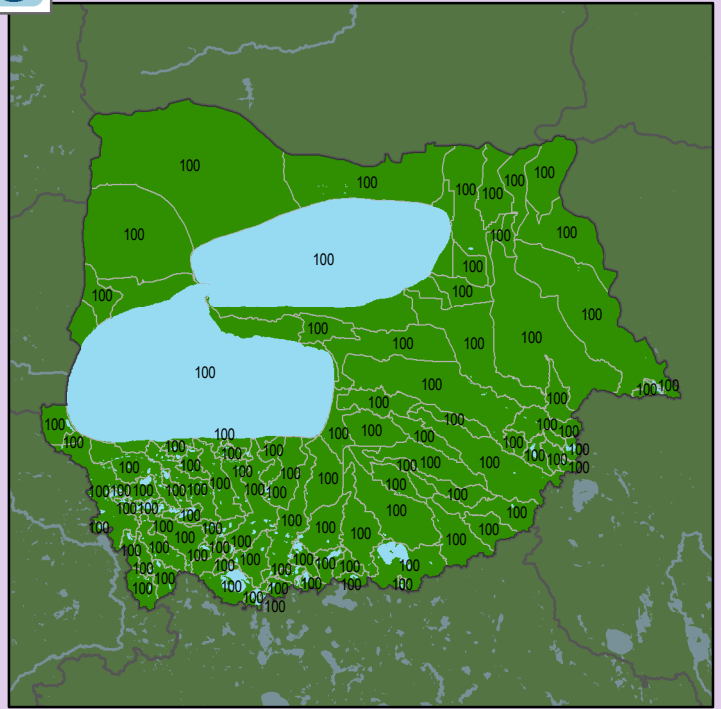
Health Score Distributions:

Upper/Lower Red Lake

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



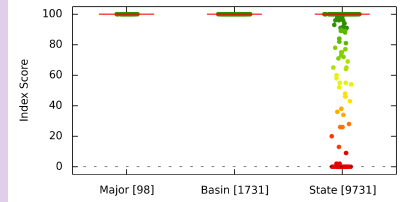
Localized Pollution Sources - Open Pit Mines



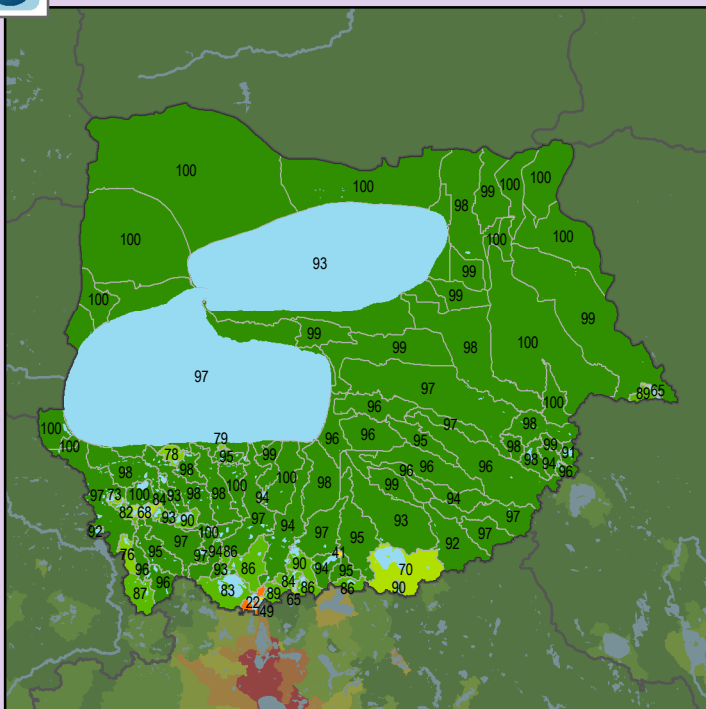
Health Score Distributions:

Upper/Lower Red Lake

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



Localized Pollution Sources - Septic Systems



Health Score Distributions:

Upper/Lower Red Lake

- Min: 22
- Max: 100
- Median: 96.0
- Mean: 91.65
- Standard Dev: 12.63

