

**Watershed Summary Information**

**Accounting Unit Name:** Northwestern Lake Michigan  
**State(s):** WI  
**Political Boundaries:** Kewaunee, Door, Brown, Sheboygan  
**Major Waterways:** Ahnapee R  
Silver Cr  
Stony Cr  
School Cr  
Logan Cr  
**Number of Stations in Watershed:** Tier1 - 12  
Tier2 - 5  
Tier3 - 3



Figure 43. Watershed Location Map

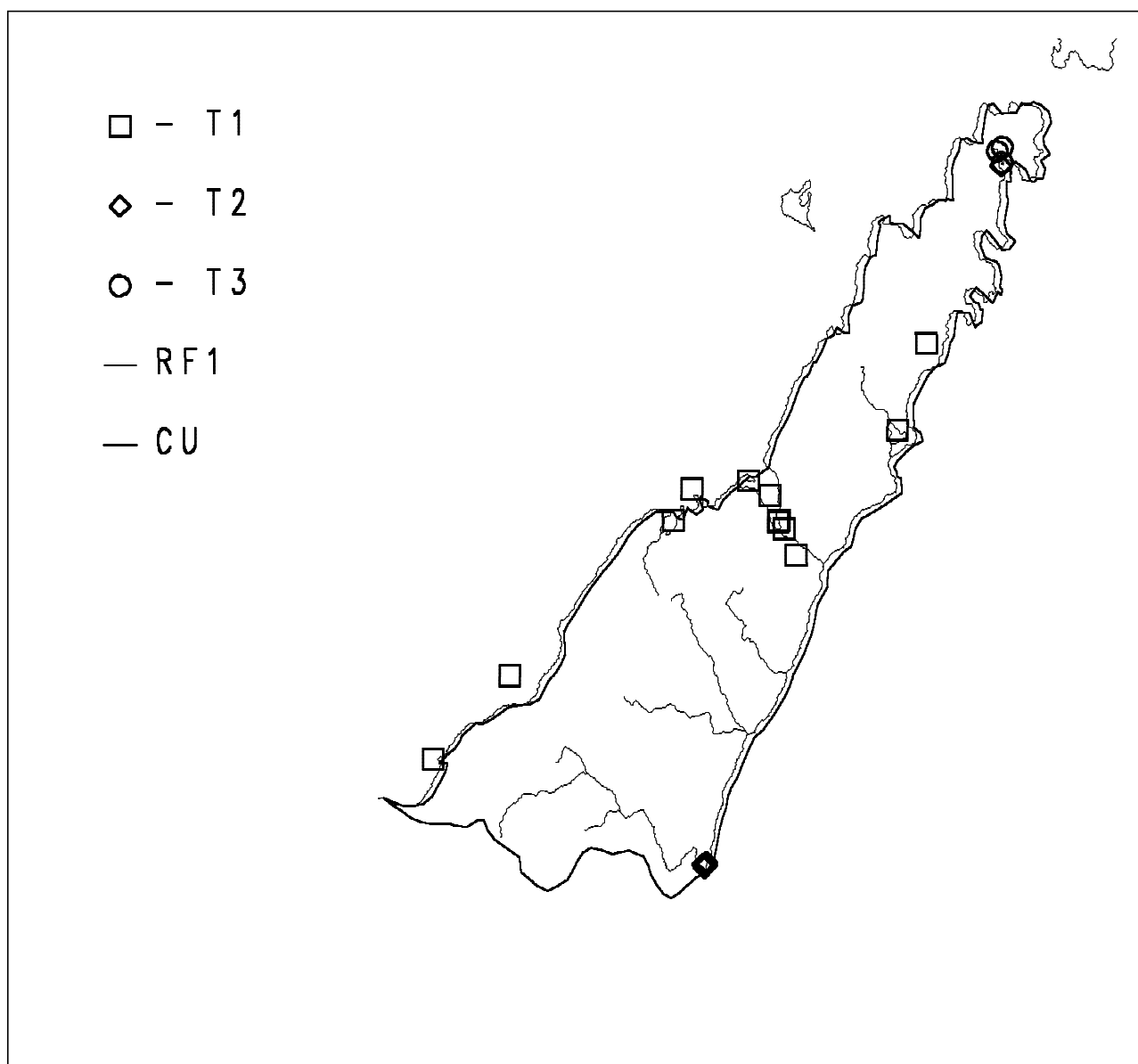


Figure 44. Major Waterways and Location of Sampling Stations

## Data Source(s) Used in Evaluation

Source: **GR. LAKE** Agency: **22**

Monitoring Program: **USEPA-ERL-Duluth**

Num. of Stations: 1 Date Range: 1988

Source: **STORET** Agency: **21WIS**

Monitoring Program: **Wisconsin DNR Div Env Protection Water And Sediment Data**

Num. of Stations: 8 Date Range: 1990-91

Source: **STORET** Agency: **21WITIS**

Monitoring Program: **Tissue Data Wisconsin Dept of Nat Res Div of Environ Protection**

Num. of Stations: 11 Date Range: 1980-86

## Chemicals Responsible for Sampling Station Classification as Tier 1 or Tier 2

Classifying Parameter	Number of Stations							
	All Parameters				Aquatic Life		Human Health	
	Total	T.1&2	Tier1	Tier2	Tier1	Tier2	Tier1	Tier2
Polychlorinated biphenyls	12	12	12	.	1	.	11	1
DDT	11	6	.	6	.	1	.	5
Lead	12	5	.	5	.	2	.	3
Copper	12	4	.	4	.	4	.	.
Dieldrin	9	3	.	3	.	.	.	3
Anthracene	4	1	.	1	.	1	.	.
Cadmium	6	1	.	1	.	1	.	.
Chromium	12	1	.	1	.	1	.	.
Chrysene	4	1	.	1	.	1	.	.
Nickel	1	1	.	1	.	1	.	.
Pyrene	4	1	.	1	.	1	.	.

## Sediment Chemistry Data: Chemical Summary

Sediment Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Acenaphthene	3	0.00	0.00	0	.	.
Acenaphthylene	3	0.00	0.00	0	.	.
Anthracene	4	12.50	0.00	1	50.00	50.00
Arsenic	3	2793.33	2700.00	3	4120.00	1560.00
Benzo(a)pyrene	1	0.00	0.00	0	.	.
Benzo(b)fluoranthene	3	0.00	0.00	0	.	.
Benzo(ghi)perylene	3	0.00	0.00	0	.	.
Benzo(k)fluoranthene	3	0.00	0.00	0	.	.
BHC	2	0.00	0.00	0	.	.
Cadmium	4	637.50	430.00	4	1410.00	280.00
Chlordane	2	0.16	0.16	2	0.19	0.12
Chromium	9	16443.33	11000.00	9	64990.00	6000.00
Chrysene	4	32.50	0.00	1	130.00	130.00
Copper	9	15712.22	18000.00	9	38000.00	4000.00
Dibenzo(a,h)anthracene	3	0.00	0.00	0	.	.
Dieldrin	1	0.25	0.25	1	0.25	0.25
Dioxins	2	0.02	0.02	2	0.04	0.00
DDT	4	0.73	0.00	1	2.92	2.92
Endrin	1	0.00	0.00	0	.	.
Fluoranthene	4	95.00	10.00	2	360.00	20.00
Fluorene	3	0.00	0.00	0	.	.
Indeno(1,2,3-cd)pyrene	3	0.00	0.00	0	.	.
Lead	9	25915.56	16000.00	9	100000.0	5000.00
Mercury	8	53.75	50.00	8	90.00	30.00
Methoxychlor	1	2.70	2.70	1	2.70	2.70

Sediment Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Mirex/Dechlorane	1	0.00	0.00	0	.	.
Nickel	1	34930.00	34930.00	1	34930.00	34930.00
Phenanthrene	4	52.50	25.00	2	160.00	50.00
Polychlorinated biphenyls	1	710.00	710.00	1	710.00	710.00
Pyrene	4	65.00	25.00	2	210.00	50.00
Silver	5	0.00	0.00	0	.	.
Zinc	1	90000.00	90000.00	1	90000.00	90000.00

## Tissue Residue Data: Chemical Summary

Tissue Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Arsenic	7	0.00	0.00	0	.	.
BHC	14	0.00	0.00	0	.	.
Cadmium	7	0.00	0.00	0	.	.
Chlordane	80	1.25	0.00	2	50.00	50.00
Chromium	9	0.00	0.00	0	.	.
Copper	9	1066.67	1000.00	9	1400.00	1000.00
Dieldrin	19	20.00	0.00	4	230.00	20.00
DDT	94	85.96	0.00	18	1800.00	70.00
Endrin	2	0.00	0.00	0	.	.
Hexachlorobenzene	7	0.00	0.00	0	.	.
Lead	9	3888.89	5000.00	7	5000.00	5000.00
Mercury	9	190.00	210.00	9	210.00	100.00
Methoxychlor	7	0.00	0.00	0	.	.
Pentachlorophenol	7	0.00	0.00	0	.	.
Polychlorinated biphenyls	66	8447.42	5000.00	64	55000.00	230.00
Toxaphene	1	0.00	0.00	0	.	.

**Watershed Summary Information**

**Accounting Unit Name:** Northwestern Lake Michigan

**State(s):** WI MI

**Political Boundaries:** Marinette, Dickinson, Florence, Menominee, Iron, Forest

**Major Waterways:** Menominee R  
Pine R  
Pike R  
Sturgeon R  
Badwater L

**Number of Stations in Watershed:** Tier1 - 12  
Tier2 - 6  
Tier3 - 3

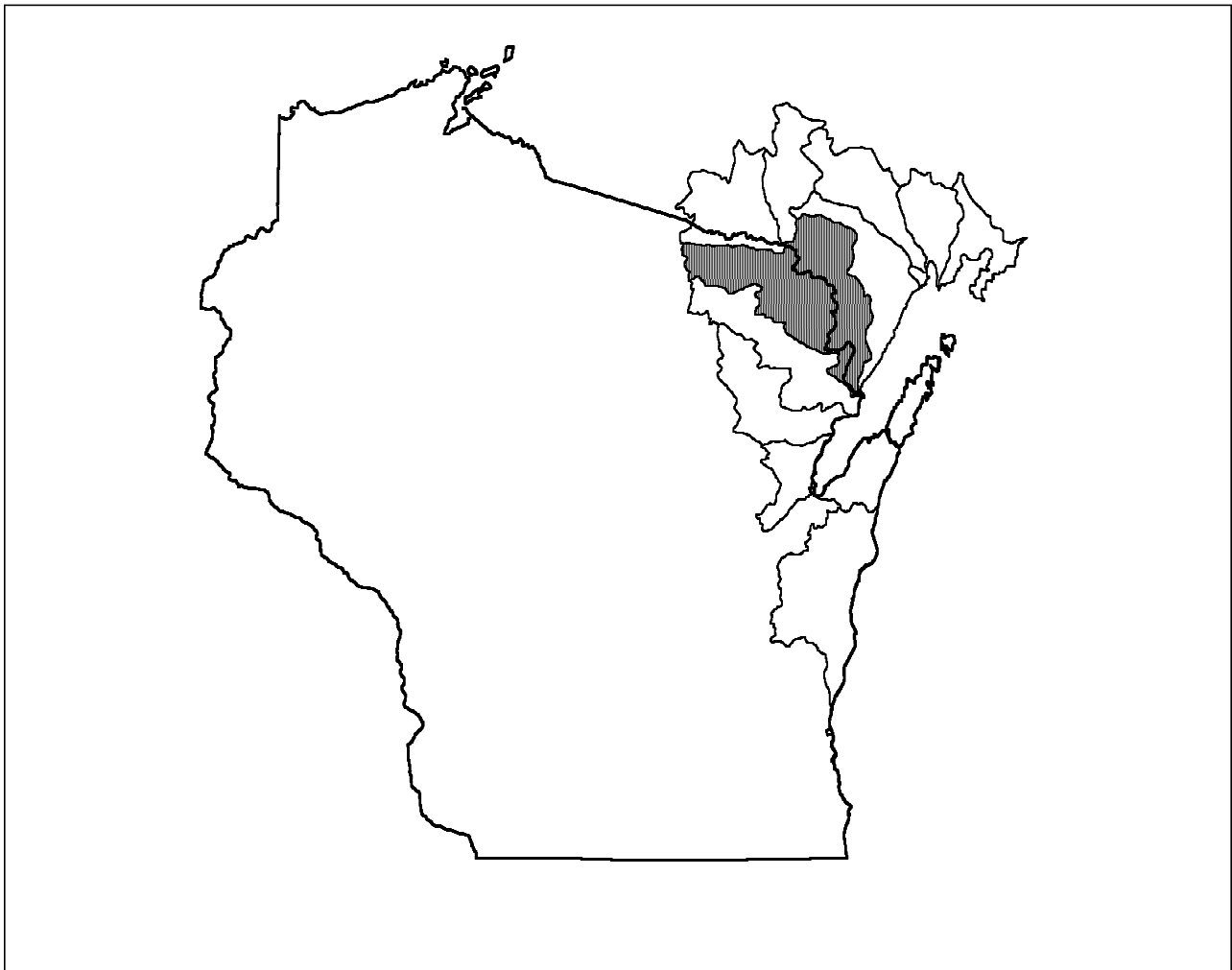
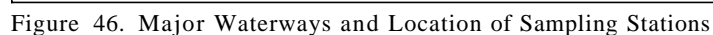


Figure 45. Watershed Location Map



Source: **STORET** Agency: **11BIOACC**  
Monitoring Program: **USEPA National Bioaccumulation Study**  
Num. of Stations: 1 Date Range: 1986

Source: **STORET** Agency: **21WIS**  
Monitoring Program: **Wisconsin DNR Div Env Protection Water And Sediment Data**  
Num. of Stations: 11 Date Range: 1986-92

Source: STORET Agency: 21WITIS

Monitoring Program: Tissue Data Wisconsin Dept of Nat Res Div of Environ Protection

Num. of Stations: 7 Date Range: 1983-90

## Chemicals Responsible for Sampling Station Classification as Tier 1 or Tier 2

Classifying Parameter	Number of Stations							
	All Parameters				Aquatic Life		Human Health	
	Total	T.1&2	Tier1	Tier2	Tier1	Tier2	Tier1	Tier2
Mercury	17	13	5	8	5	6	.	2
Copper	12	10	.	10	.	10	.	.
Pyrene	9	9	2	7	2	7	.	.
Chrysene	9	9	1	8	1	8	.	1
Arsenic	13	8	4	4	4	4	.	.
Lead	11	7	.	7	.	7	.	.
Polychlorinated biphenyls	9	6	5	1	.	.	5	1
Anthracene	9	6	1	5	1	5	.	.
Cadmium	8	5	.	5	.	5	.	.
Benzo(b)fluoranthene	7	4	.	4	.	1	.	4
Fluorene	9	3	1	2	1	2	.	.
Phenanthrene	9	2	2	.	2	.	.	.
Acenaphthene	9	2	1	1	1	1	.	.
Fluoranthene	9	2	1	1	1	1	.	.
Dieldrin	5	2	.	2	.	.	.	2
DDT	11	2	.	2	.	.	.	2
Indeno(1,2,3-cd)pyrene	9	2	.	2	.	1	.	2
Acenaphthylene	9	1	1	.	1	.	.	.
Dibenzo(a,h)anthracene	9	1	1	.	1	.	.	1
Dioxins	1	1	1	.	.	.	1	.
Benzo(ghi)perylene	9	1	.	1	.	1	.	.
Benzo(k)fluoranthene	7	1	.	1	.	1	.	1
Chlordane	5	1	.	1	.	.	.	1
Nickel	1	1	.	1	.	1	.	.

## Sediment Chemistry Data: Chemical Summary

Sediment Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Acenaphthene	13	25402.31	0.00	3	330000.0	100.00
Acenaphthylene	13	3846.15	0.00	1	50000.00	50000.00
Aldrin	4	0.00	0.00	0	.	.
Anthracene	13	18551.54	130.00	7	240000.0	130.00
Antimony	1	800.00	800.00	1	800.00	800.00
Arsenic	14	333702.9	33350.00	14	3518000	3000.00
Benzo(b)fluoranthene	10	10459.00	630.00	8	100000.0	190.00

Sediment Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Benzo(ghi)perylene	13	3656.92	160.00	8	46000.00	130.00
Benzo(k)fluoranthene	10	4908.00	425.00	8	46000.00	160.00
BHC	4	0.00	0.00	0	.	.
Cadmium	10	1110.00	795.00	10	3780.00	300.00
Chlordane	4	0.00	0.00	0	.	.
Chromium	10	21300.00	21000.00	10	32000.00	14000.00
Chrysene	13	15960.77	640.00	11	200000.0	130.00
Copper	17	35588.24	29000.00	17	80000.00	5000.00
Diazinon/Spectracide	2	0.00	0.00	0	.	.
Dibenzo(a,h)anthracene	13	315.38	0.00	1	4100.00	4100.00
Dieldrin	4	0.00	0.00	0	.	.
DDT	18	0.00	0.00	1	0.01	0.01
Endosulfan mixed isomers	4	0.00	0.00	0	.	.
Endrin	4	0.00	0.00	0	.	.
Ethion/Bladen	2	0.00	0.00	0	.	.
Fluoranthene	13	39550.77	1200.00	12	500000.0	120.00
Fluorene	13	15427.69	0.00	4	200000.0	130.00
Heptachlor	4	0.00	0.00	0	.	.
Heptachlor epoxide	4	0.00	0.00	0	.	.
Indeno(1,2,3-cd)pyrene	13	4610.00	210.00	9	58000.00	150.00
Lead	17	36764.71	30000.00	17	110000.0	5000.00
Malathion	2	0.00	0.00	0	.	.
Mercury	18	648.33	470.00	18	2600.00	50.00
Methoxychlor	4	0.00	0.00	0	.	.
Mirex/Dechlorane	4	0.00	0.00	0	.	.
Nickel	1	31000.00	31000.00	1	31000.00	31000.00
Phenanthrene	13	70731.54	820.00	11	910000.0	240.00
Polychlorinated biphenyls	4	2.25	0.00	1	9.00	9.00
Pyrene	13	44676.92	890.00	11	570000.0	170.00
Silver	4	25.00	0.00	1	100.00	100.00
Toxaphene	4	0.00	0.00	0	.	.
Zinc	1	77000.00	77000.00	1	77000.00	77000.00

## Tissue Residue Data: Chemical Summary

Tissue Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Arsenic	3	0.00	0.00	0	.	.
Biphenyl	2	0.00	0.00	0	.	.
BHC	5	1.66	0.00	1	8.31	8.31
Cadmium	1	30.00	30.00	1	30.00	30.00
Chlordane	12	33.63	0.00	5	170.00	18.40
Chlorpyrifos/Dursban	2	0.00	0.00	0	.	.



Tissue Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Copper	1	230.00	230.00	1	230.00	230.00
Dicofol/Kelthane	2	0.00	0.00	0	.	.
Dieldrin	6	38.33	20.00	3	100.00	40.00
Dioxins	4	0.01	0.01	4	0.03	0.00
DDT	17	650.04	0.00	7	8100.00	10.70
Endrin	2	0.00	0.00	0	.	.
Heptachlor	2	0.00	0.00	0	.	.
Heptachlor epoxide	2	0.00	0.00	0	.	.
Hexachlorobenzene	3	0.00	0.00	0	.	.
Hexachlorobutadiene	2	0.00	0.00	0	.	.
Isopropalin	2	0.00	0.00	0	.	.
Mercury	16	666.25	575.00	16	1800.00	190.00
Methoxychlor	2	0.00	0.00	0	.	.
Mirex/Dechlorane	2	1.66	1.66	1	3.32	3.32
Pentachlorobenzene	2	0.00	0.00	0	.	.
Pentachloronitrobenzene/Quin	2	0.00	0.00	0	.	.
Pentachlorophenol	1	0.00	0.00	0	.	.
Polychlorinated biphenyls	18	2875.76	1500.00	14	17720.00	200.00
Tetrachlorobenzene, 1,2,4,5-	2	0.00	0.00	0	.	.
Trichlorobenzene, 1,2,4-	2	0.00	0.00	0	.	.
Trichlorophenol, 2,4,5-	1	0.00	0.00	0	.	.
Trichlorophenol, 2,4,6-	1	0.00	0.00	0	.	.
Trifluralin/Treflan	2	0.00	0.00	0	.	.