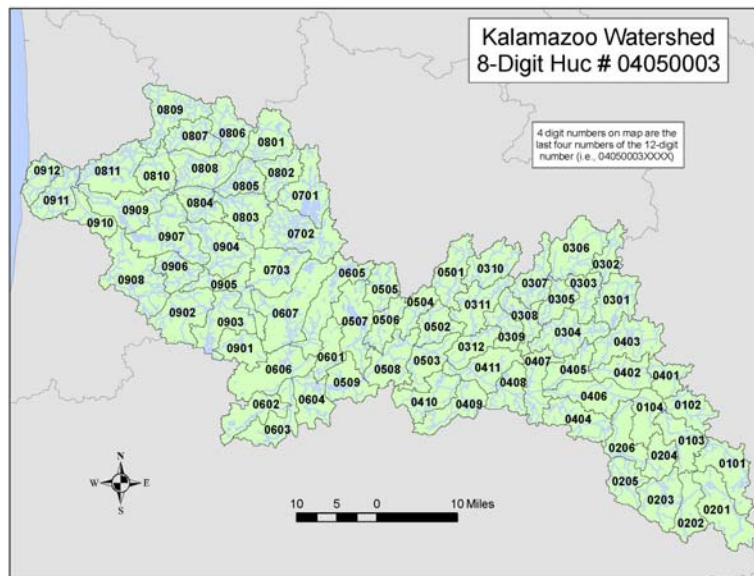


# Kalamazoo River Watershed

Hydrologic Unit Code: 04050003

For more information, see the USEPA "Surf Your Watershed" website at [cfpub.epa.gov/surf/huc.cfm?huc\\_code=04050003](http://cfpub.epa.gov/surf/huc.cfm?huc_code=04050003) or contact the Michigan Department of Environmental Quality at 517-335-6969 to request a copy of report number:

- MI/DEQ/WB-05/066, "A Biological Survey of Sites in the Upper Kalamazoo River Watershed, Calhoun and Jackson Counties, Michigan, Aug 2004"
- MI/DEQ/WB-05/067, "A Biological Survey of Sites in the North and South Branches of the Kalamazoo River Watershed, Calhoun, Hillsdale, and Jackson Counties, Michigan, Aug 2004"
- MI/DEQ/WB-05/064, "A Biological Survey of the Kalamazoo River and Selected Tributaries from the City of Battle Creek to Lake Michigan, Jul-Sept 2004"
- MI/DEQ/WB-05/065, "A Biological Survey of Sites in the Battle Creek River Watershed, Barry, Calhoun, and Eaton Counties, Michigan, June and Aug 2004".



## Subwatersheds of the Kalamazoo River Watershed

- |   |  |
|---|--|
| 0101 Upper North Branch Kalamazoo River             | 0507 Gull Creek                          |
| 0102 Spring Arbor and Concord Drain                 | 0508 Eagle Lake-Kalamazoo River          |
| 0103 Middle North Branch Kalamazoo River            | 0509 Morrow Lake-Kalamazoo River         |
| 0104 Lower North Branch Kalamazoo River             | 0601 Comstock Creek                      |
| 0201 Horseshoe Lake-South Branch Kalamazoo River    | 0602 West Fork Portage Creek             |
| 0202 Cobb Lake-South Branch Kalamazoo River         | 0603 Portage Creek                       |
| 0203 Beaver Creek-South Branch Kalamazoo River      | 0604 Davis Creek-Kalamazoo River         |
| 0204 Swains Lake Drain-South Branch Kalamazoo River | 0605 Spring Brook                        |
| 0205 Lampson Run Drain                              | 0606 Averill Lake-Kalamazoo River        |
| 0206 South Branch Kalamazoo River                   | 0607 Silver Creek-Kalamazoo River        |
| 0301 Narrow Lake-Battle Creek                       | 0701 Gun Lake-Gun River                  |
| 0302 Relaid Mills Drain-Battle Creek                | 0702 Fenner Creek-Gun River              |
| 0303 Big Creek                                      | 0703 Gun River                           |
| 0304 Headwaters Indian Creek                        | 0801 Green Lake Creek                    |
| 0305 Indian Creek                                   | 0802 Fales Drain-Rabbit River            |
| 0306 Dillon Relaid Drain-Battle Creek               | 0803 Miller Creek                        |
| 0307 Townline Brook Drain-Battle Creek              | 0804 Bear Creek                          |
| 0308 Ackley Creek-Battle Creek                      | 0805 Buskirk Creek-Rabbit River          |
| 0309 Clear Lake-Battle Creek                        | 0806 Headwaters Little Rabbit River      |
| 0310 Headwaters Wanadoga Creek                      | 0807 Little Rabbit River                 |
| 0311 Wanadoga Creek                                 | 0808 Pigeon Creek-Rabbit River           |
| 0312 Battle Creek                                   | 0809 Black Creek                         |
| 0401 Headwaters South Branch Rice Creek             | 0810 Silver Creek-Rabbit River           |
| 0402 South Branch Rice Creek                        | 0811 Rabbit River                        |
| 0403 North Branch Rice Creek                        | 0901 Sand Creek                          |
| 0404 Wilder Creek                                   | 0902 Base Line Creek                     |
| 0405 Rice Creek                                     | 0903 Pine Creek                          |
| 0406 Montcalm Lake-Kalamazoo River                  | 0904 Schnable Brook                      |
| 0407 Buckhorn Lake-Kalamazoo River                  | 0905 Trowbridge Dam-Kalamazoo River      |
| 0408 Pigeon Creek-Kalamazoo River                   | 0906 Tannery Creek-Kalamazoo River       |
| 0409 Harper Creek                                   | 0907 Lake Allegan-Kalamazoo River        |
| 0410 Minges Brook                                   | 0908 Swan Creek                          |
| 0411 Willow Creek-Kalamazoo River                   | 0909 Bear Creek-Kalamazoo River          |
| 0501 Headwaters Wabascon Creek                      | 0910 Mann Creek                          |
| 0502 Wabascon Creek                                 | 0911 Peach Orchard Creek-Kalamazoo River |
| 0503 Harts Lake-Kalamazoo River                     | 0912 Kalamazoo River                     |
| 0504 Sevenmile Creek                                |  |
| 0505 Headwaters Augusta Creek                       |  |
| 0506 Augusta Creek                                  |  |

- MI/DEQ/WD-04/041, "A Biological Survey of Sites in the Rabbit River Watershed Allegan County, Michigan Aug 2003".
- MI/DEQ/WD-03/103, "Water Quality Monitoring of Lake Allegan and Select Stations on the Kalamazoo River, 2002".

## Watershed Management Plans

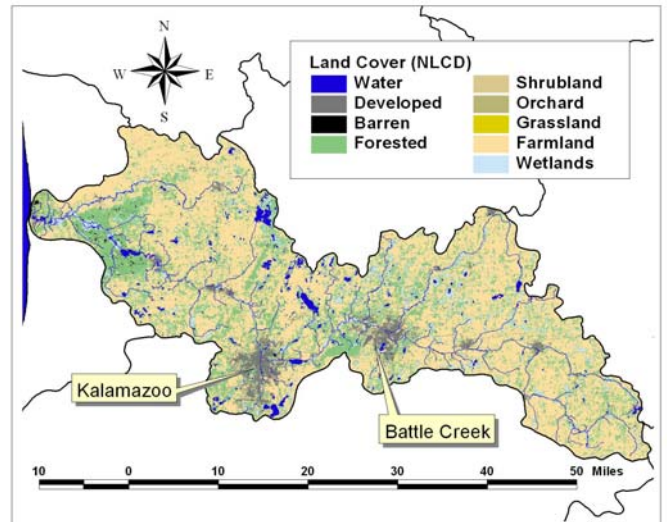
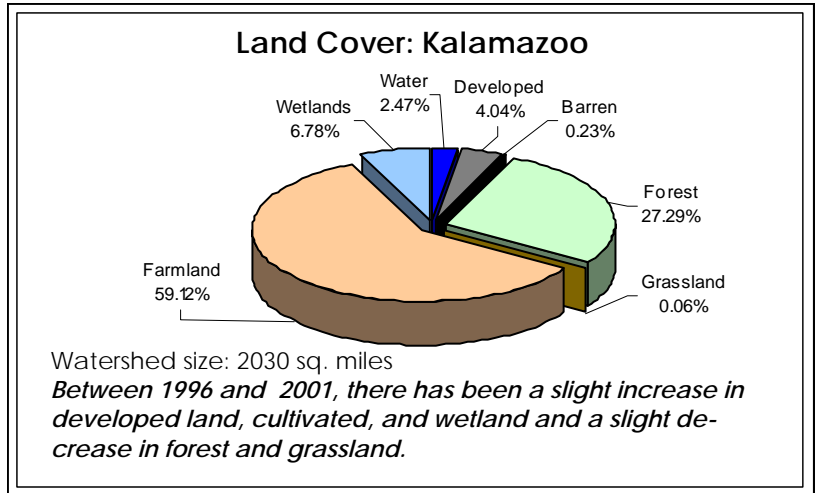
- Battle Creek River and Rice Creek Watershed -- Calhoun Conservation District
- Davis Creek Watershed -- Forum for Greater Kalamazoo
- Davis, Gourdneck and Portage Creeks — City of Portage
- Four Townships Area — Four Townships Water Resources Council
- Greater Battle Creek Area — Battle Creek Area Clean Water Partners
- Gun and Rabbit River Watershed -- Allegan Conservation District
- Portage and Arcadia Creek — Forum of Greater Kalamazoo
- Mainstem 3 Corridor Watershed -- Kalamazoo Stormwater Workgroup
- Kalamazoo River watershed, Kalamazoo River Watershed Council—[www.kalamazooriver.org](http://www.kalamazooriver.org)

## Watershed Groups

- Kalamazoo River Watershed Council — [www.kalamazooriver.org/Mambo/](http://www.kalamazooriver.org/Mambo/)
- The Forum of Greater Kalamazoo — [www.theforum.org](http://www.theforum.org)
- Four Townships Water Resources Council — [www.kbs.msu.edu/ftwrc](http://www.kbs.msu.edu/ftwrc)
- Calhoun Conservation District — [www.calhouncd.org](http://www.calhouncd.org)
- Allegan Conservation District — [www.allegancd.org](http://www.allegancd.org)
- Match-e-be-nash-she-wish Band of Pottawatomi (Gun Lake Band)
- Lake Allegan/Kalamazoo River TMDL Implementation Committee—[www.kalamazooriver.com](http://www.kalamazooriver.com)

## Watershed Overview

- The Kalamazoo basin watershed covers 2030 square miles.
- The Kalamazoo River Watershed drains eight counties in Southwest Lower Michigan and empties into Lake Michigan at Saugatuck, Michigan.
- The Kalamazoo River is an Area of Concern due to PCB contamination.
- The Nature Conservancy identified the following important ecological areas, species, and resources in the watershed:
  - ◊ Allegan Barrens have Lakeplain Wet-Mesic Prairie, Inland Coastal Plain Marsh, Lakeplain Wet Prairie, Central Water Lily Aquatic Wetland, and Interdunal Wetland.
  - ◊ Allegan Barrens is home to Eastern Massasauga, Ottoe's Skipper, Karner Blue Butterfly, Sprague's Pygarcctic, Hall's Bulrush, and, Reticulated or Netted Nutrush.
  - ◊ Fort Custer has Blanchard's Cricket Frog, Blanding's Turtle, and Eastern Massasauga.
  - ◊ Headwaters have Leatherleaf Bog, interlobate headwater streams (Lake Michigan drainage), kettle moraine lakes, large rivers in southwest Michigan till plains (not coastal reach), and tributary streams in medium textured moraines (southern Ionia moraines).
  - ◊ Fort Custer has Central Mesic Tallgrass Prairie, Cinquefoil - Sedge Prairie Fen, Red Maple - Ash - (Elm) Swamp Forest, White Oak - Red Oak / Early Meadow-Rue Forest, Silver Maple - Elm - (Cottonwood) Forest, and White Oak - Red Oak Dry-Mesic Forest.
  - ◊ Fort Custer has important large, deep, stream-connected lakes.
  - ◊ The Spring Brook-Kalamazoo Nature Center has the endangered Mitchell's Satyr (which is found in small numbers in locations in Michigan, Indiana, Ohio, and Maryland).
  - ◊ Upper Kalamazoo tributaries have kettle moraine lakes, interlobate headwater streams (Lake Michigan drainage), and large rivers in southwest Michigan till plains (not coastal reach).



Data Sources. Land cover map and percentages: National Land Cover database, 1992 ([edc.usgs.gov/products/landcover/nlcd.html](http://edc.usgs.gov/products/landcover/nlcd.html)); Land use change: NOAA Coastal Change Analysis Program, 1996 and 2001 ([www.csc.noaa.gov/crs/lca/ccap.html](http://www.csc.noaa.gov/crs/lca/ccap.html)); Total Maximum Daily Load (TMDL) Impaired Waters: Surf Your Watershed ([www.epa.gov/surf](http://www.epa.gov/surf))

## Watershed Activities

- Runoff from agriculture and developed land has created impairments for excessive nutrients and sedimentation for a number of streams in the watershed. Erosion and stream stability have been problematic for parts of the watershed.
- Improving water quality and preserving aquatic habitat are among the highest priorities for the watershed.

### Impaired (303d) Waters

Waterbody Name	Impairment
Allegan Lake	PCB Fish Consumption Advisory
Battle Creek River	PCB Fish Consumption Advisory
Ceresco Impoundment	PCB Fish Consumption Advisory
Crooked Creek	Macroinvertebrate Community Rated Poor
Davis Creek	Oil
Fenner Creek	Macroinvertebrate Community Rated Poor
Fenner Lake	Phosphorus PCB Fish Consumption Advisory Mercury (Fish Tissue) Nuisance Plant Growths
Fish Lake	Mercury (Fish Tissue)
Gull Lake	Mercury PCB Fish Consumption Advisory
Hamilton Impoundment (Rabbit River)	PCB Fish Consumption Advisory
Kalamazoo Lake	PCB Fish Consumption Advisory
Kalamazoo River	Mercury
Kalamazoo River (Includes Lakes and Impoundments)	PCB Fish Consumption Advisory
Kalamazoo River Watershed	PCBs
Morrow Pond	PCB Fish Consumption Advisory
Pine Lake	Mercury (Fish Tissue)
Rabbit River	PCB Fish Consumption Advisory
Selkirk Lake	Mercury (Fish Tissue)
Swimmers Lake - Markin Glen County Beach	Pathogens

## Kalamazoo River Area of Concern Activities

### Location

The lower 40 miles of the Fox River and Green Bay

### Stressors and Primary Contaminants

- PCBs
- Phosphorus
- Suspended solids
- Mercury
- Urban and rural runoff
- Sediments
- Aquatic exotic species
- Wetland loss
- Habitat alteration

### Programs

- Clean Water Act – Integrated TMDL for the Lower Fox
- Superfund
- Natural Resource Trustee's Damage Assessment

### Clean-Up Actions

- Watershed NPS abatement
- Remedial investigation completed remedial action nearly ongoing. Dredging and PCB removal (Deposit in 11,000 cubic yards of sediment removed,, Deposit 56/57: 80,000 cubic yards of sediment removed OU1 335,000 cubic yards of sediment removed, and Phase I, 132,000 cubic yards of sediment removed)
- Dissolved oxygen wasteload
- Deposit N, 56, 57
- Cumulative sediments remediated from 1998-2007 – 558,000 cubic yards
- Consent Decree for Phase I Fox River clean-up announced 4/12/06, Unilateral Administrative Order issued November 2007 for remainder of river contamination (from OU2 to OU5)

### Delisting Targets

- Will be started in 2008

### Key Activity Needed

- Dredging
- Pollution Prevention
- Stream buffers
- Habitat protection and restoration
- Coordination with RAP program for AOC delisting purposes
- Coordination with integrated TMDL

### Challenges

- Rapid land development
- Contaminated material disposal
- Seeing through completion of cleanup for OUs 2-5

### Next Steps

- Implement 4/12//06 Consent Decree for detailed engineering for the final cleanup plan.
- Compliance with the Unilateral Administrative Order issued November 13, 2007
- Remediation (using dredging/disposal, capping and sand covers) I of an additional 7.5 million cubic yards of sediment.
- Final cleanup expected to be complete approximately 2020. River monitoring will continue indefinitely.
- Implement integrated TMDL