

Lower Fox River Watershed

Hydrologic Unit Code: 04030204

More information is available at the USEPA "Surf Your Watershed" website at cfpub.epa.gov/surf/huc.cfm?huc_code=04030204

The Wisconsin Department of Natural Resources manages the watershed as part of the Lower Fox River management area that includes the East River, Baird Creek, Bower Creek, Duck-Apple Ashwaubenon Creek, and Plum Creek subwatersheds. For more information, see the Wisconsin Department of Natural Resources' "Wisconsin's Basins" website at dnr.wi.gov/org/gmu/gmu.html

Watershed Groups

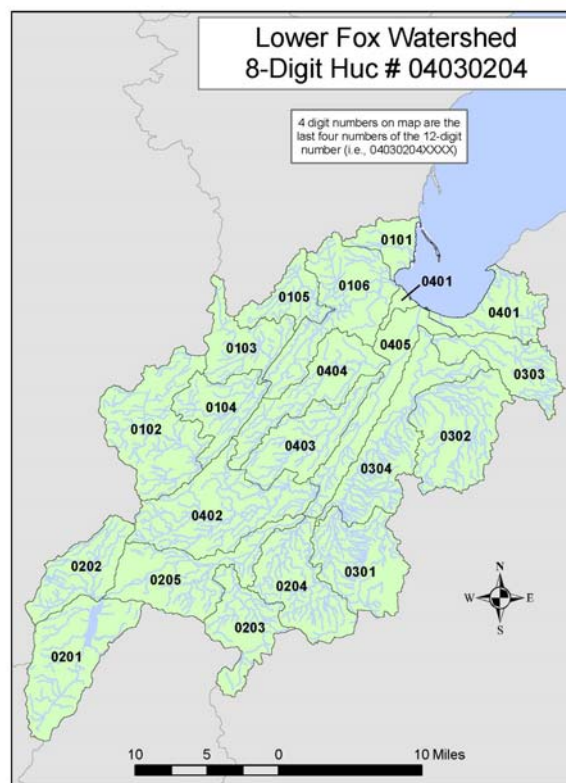
- Lower Fox Basin Partners, Kendra Axness, [kendra.axness@ces.uwex.edu]
- Brown County Land Conservation Department, Bill Hafz [hafs-bc@co.brown.wi.us] www.co.brown.wi.us/land_conservation/
- Outagamie County Land Conservation Department, Greg Baneck [baneckg@co.outagamie.wi.us]
- Oneida Tribe of Indians, Mike Finney [mfinney@oneidanation.org]
- Fox Wolf Watershed Alliance — www.fwwa.org
- Rivers Alliance of Wisconsin — www.wisconsinrivers.org
- Richard Stoll, Green Bay Water Basin Team Leader, [richard.stoll@wisconsin.gov]
- University of Wisconsin Seagrant, Vicky Harris [harrisv@uwgb.edu]
- Science and Technical Advisory Committee – Green Bay RAP, John Kennedy [jkennedy@gbmsd.org]
- US Fish and Wildlife Service, Louise Clemency [Louise.Clemency@fws.gov]
- Baird Creek Preservation Foundation -- www.Bairdcreek.org
- Northeast Wisconsin Land Trust, Jim Klinkert [jimk@newlt.org]
- PCB remediation effort -- Fox River, Greg Hill [Gregory.Hill@Wisconsin.gov]
- Green Bay Area Great Lakes Sports Fisherman, Tom Patzke 920-822-2342 -- www.great-lakes.org/wi/greenbayareaglsf.html
- Brown County Conservation Alliance, Ron Vanderloop President, 929-494-4886
- Nature Conservancy in the Green Bay Watershed, Mike Grimm [mgrimm@tnc.org] -- nature.org/wisconsin

Watershed Management Plans

- Brown County Land and Water Resource Management Plan 2004 – 2008 www.co.brown.wi.us/land_conservation/ResourcesReports2.htm
- Nonpoint Source Control Plan for the East River Priority Watershed Project Publication WR-274-93
- Lower Green Bay Remedial Action Plan
- Outagamie County Land and Water Resource Management Plan
- Nonpoint Source Control Plan for the Duck, Apple and Ashwaubenon Creeks Priority Watershed Plan Publication WT- 493-97

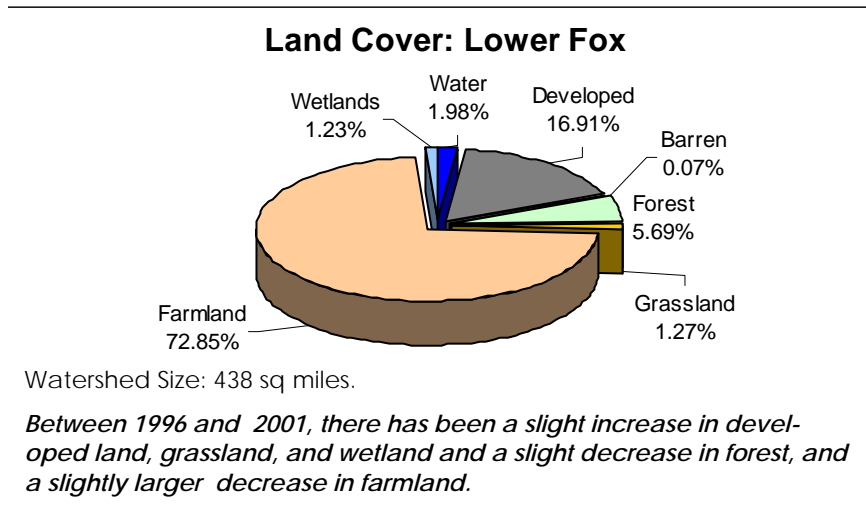
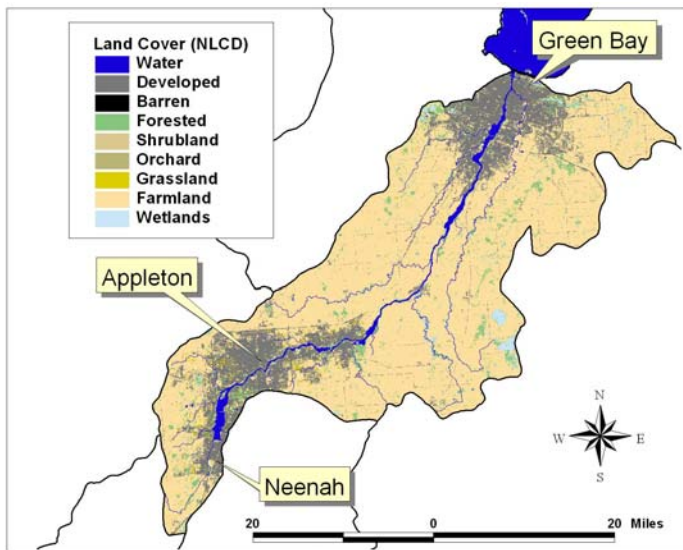
Watershed Overview

- The Lower Fox River originates at the outlet of Lake Winnebago and flows northeast for 39 miles where it empties into the bay of Green Bay. The Lower Green Bay and Fox River Area of Concern (AOC) consists of the lower 11.2 km of the Fox River below DePere Dam and a 55 km² area of southern Green Bay out to Point au Sable and Long Tail Point.
- The Lower Fox River has the most paper mills of any river in the world.
- Agriculture land is the predominant land use in the basin. 44% of the Lower Fox Watershed in Brown County is Agriculture, 32% Urban/ Developed, 10% Woods; only ½ of a percent remain in Wetlands. Land use of the watershed in Outagamie County is predominately Urban/Developed.



Subwatersheds of the Lower Fox River Watershed

- 0101 Dead Horse Bay-Frontal Green Bay
- 0102 Upper Duck Creek
- 0103 Oneida Creek
- 0104 Middle Duck Creek
- 0105 Trout Creek
- 0106 Lower Duck Creek
- 0201 Little Lake Butte des Mortes
- 0202 Mud Creek
- 0203 Kankapot Creek
- 0204 Plum Creek
- 0205 Garners Creek-Fox River
- 0301 Upper East River
- 0302 Bower Creek
- 0303 Baird Creek
- 0304 Lower East River
- 0401 Point du Sable-Frontal Green Bay
- 0402 Apple Creek
- 0403 Ashwaubenon Creek
- 0404 Dutchman Creek
- 0405 City of Green Bay-Fox River



- The Lower Fox Basin contains the highest concentration of Dairy Cows in the State of Wisconsin. There is currently not enough cropland available for land application of animal and other land applied waste. Currently only 1.85 acres of cropland per 1 animal unit are available for nutrient management plans (3 acres per AU are needed).
- Much of the drinking water in the basin is derived from groundwater. However, the City of Green Bay receives its drinking water from Lake Michigan. Several communities constructed a pipeline from Lake Michigan at Manitowoc to suburban Green Bay in 2007.
- The main stem of the Fox River in the Lower Fox River Basin is fragmented by a series of 17 locks and 12 dams that were built in the mid 1800's to aid navigation or produce power.
- The Oneida Reservation, established by an 1838 Treaty, is in the basin. It is participating in the State's priority watershed program and the WTCAC.
- Wildlife diversity and populations are affected by the variability of habitats within the basin. The two main terrestrial habitats within the basin are Agricultural land and woodland. Aquatic habitats within the area are wetland, riverine, and lacustrine (lakes or lake-like).
- Numerous endangered, threatened and otherwise rare species exist in the basin, including the endangered Barn Owl and the threatened Small White Lady's Slipper.
- Recreational highlights include wildlife watching, hiking, fishing, hunting, bicycling, horseback riding, snowmobiling, skiing, camping, picnicking, and water sports.
- Wildlife include songbirds, White-tailed Deer, Rabbits, Red Fox, Coyote, Pheasant, Hungarian Partridge, Squirrel, Skunk, Raccoon, Upland Game Birds, Waterfowl, Bats, small mammals and invertebrates, reptiles, amphibians and many others.
- The Niagara Escarpment runs from the southwest corner of the watershed to the Northeast towards Door County.
- The Multi-rib Vallonia is an important species in the Greenleaf Escarpment area.
- West Shore of Green Bay contains 50% of all remaining wetlands in Lake Michigan Drainage Basin.

Watershed Activities

- West Shore of Green Bay contains 50% of all remaining wetlands in Lake Michigan Drainage Basin. The West Shore Pike Habitat Wetland Restoration project (2007-2009) is funded by Natural Resources Damage Assessment and administered by Brown County Land Conservation Department and US Fish and Wildlife Service. Goals are to restore wetlands for pike spawning and install vegetated buffer strips.
- Hydraulic dredging of PCB-contaminated sediment started in the Lower Fox River at Little Lake Butte des Morts. Over the next decade as much as 4.0 million cubic yards of contaminated sediment will be removed from a 39-mile stretch of the Lower Fox River. On the Sheboygan River, the cleanup of a 14-mile stretch of the river, as well as adjacent soil and groundwater, is expected to take seven years.
- Environmental concerns include habitat loss, deterioration and fragmentation from rapid development and conversion of rural lands; inadequate cropland for land application of animal and other waste; private well and groundwater contamination of karst areas adjacent to the Niagara escarpment; water quality problems from contaminated sediment, runoff in urban and agricultural areas, floodplain development and overuse of groundwater supplies (with groundwater quality implications); heavy recreational use of resources, such as lakes and shorelines; exotic species are a continuing emerging problem. Plant species such as Reed Canary Grass, Purple Loosestrife, Buckthorn, Garlic Mustard and Eurasian Water Milfoil quickly out-compete native species and affect ecosystem balance. Zebra Mussels and Rusty Crayfish are spreading, disrupting stream and lake ecology; monitoring of wildlife populations, water quality, and ecosystem function are needed to understand the status and trends of

Data Sources. Land cover map and percentages: National Land Cover database, 1992 (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); Total Maximum Daily Load (TMDL) Impaired Waters: Surf Your Watershed (www.epa.gov/surf)

resources.

- The main priorities identified in the integrated management plan include: Increase and protect critical habitats and habitat integrity; sustain a diverse, balanced and healthy ecosystem; Improve surface water and groundwater quality and identify water conservation opportunities; establish a self-sustaining, balanced, and diversified edible fish community; manage resources for multiple users; strengthen program support and enforcement initiatives; and Improve educational programs.

Waterbody Name	Impairment
Apple Creek *	Phosphorus, Degraded Habitats, Organic Enrichment/Low Dissolved Oxygen, Sediment, Temperature
Baird Creek	Degraded Habitat, Dissolved Oxygen, Phosphorus, Sediment
Duck Creek (1)	Phosphorus, Dissolved Oxygen, Sediment
Dutchman Creek	Ammonia, Aquatic Toxicity, Dissolved Oxygen, Phosphorus
East River * *	Metals, Phosphorus, Aquatic Toxicity, Degraded Habitat, Dissolved Oxygen, Sediment
Fox River (Seg. 1)	Phosphorus, Dissolved Oxygen, PCB Fish Consumption Advisories
Fox River (Seg. 2 lower)	Phosphorus, Dissolved Oxygen, PCB Fish Consumption Advisories
Fox River (Seg. 3 Lower)	Phosphorus, Dissolved Oxygen, PCB Fish Consumption Advisories
Kankapot Creek	Degraded Habitat, Sediment
Mud Creek	Degraded Habitat, Sediment
Neenah Slough	Phosphorus, Dissolved Oxygen, PCB Fish Consumption Advisories
Plum Creek	Degraded Habitat, Sediment, Temperature
Tributary to East River	PCBs, Aquatic Toxicity

Area of Concern Activities

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