

# **Reference Materials**

## **Section**

# Natural Resources Acronym Guide

## State/County Agencies

DATCP	Department of Agriculture, Trade and Consumer Protection
DNR	Department of Natural Resources
DOC	Department of Commerce
DOT	Department of Transportation
LCD	Land Conservation Department
LWCB	Land and Water Conservation Board
NPM	Nutrient and Pest Management
UWEX	University of Wisconsin - Extension
WGNHS	WI Geographical and Natural History Survey

## Federal Agencies (many have county or regional offices)

EPA	Environmental Protection Agency
FSA	Farm Services Administration
NRCS	Natural Resources Conservation Service
RC&D	Resource Conservation & Development
USCOE	U. S. Army Corp of Engineers
USDA	U. S. Department of Agriculture
USFS	U. S. Forest Service
USFWS	U. S. Fish and Wildlife Service
USGS	U. S. Geological Survey

## Conservation Programs

CRP	Conservation Reserve Program (federal)
CREP	Conservation Reserve Enhancement Program (federal)
EQIP	Environmental Quality Incentive Program (federal)
FIP	Forestry Incentive Program (federal)
FPP	Farmland Preservation Program (state)
GHRA	Glacial Habitat Restoration Area (state)
LESA	Land Evaluation Site Assessment
MFL	Managed Forest Law (state)
NPS	Nonpoint Source Program (state)
SIP	Stewardship Incentive Program (federal)
TRM	Targeted Resource Management Program (state)
WRP	Wetland Reserve Program (federal)
WHIP	Wildlife Habitat Incentives Program (federal)

## Conservation Organizations

RRHI	Rock River Headwaters, Inc. (formerly Horicon Marsh Area Coalition)
RRC	Rock River Coalition
RRP	Rock River Watershed Partnership

## Educational Initiatives

WAV	Water Action Volunteers
WERC	Water Education Resource Centers
WET	Project WET (Water Education)
WILD	Project WILD (Wildlife Education)

# Glossary

## A

**Algae:** simple, single-celled aquatic plant. A good indicator of excessive nutrients of lakes and streams.

**Animal Waste Management Advisory Committee (AWACs):** four state-wide prohibitions regarding animal waste management; these are management practices relating to manure storage and stacking, streambank management, and containing manure discharges.

**Aquatic Communities:** referring to the species associated with water areas, such as lake, stream, wetlands, etc.

**Aquifers:** underground water reservoirs, found within layers of permeable rock, sand or gravel.

**Arsenic:** a highly poisonous metallic element from human and natural sources (i.e.- limestone).

## B

**Bacteria:** single-celled, microscopic organisms, act as decomposers; some cause disease but others are important decomposers of organic material.

**Basin:** a large geographic area comprised of many small watersheds.

**Bedrock:** any solid rock exposed at the earth's surface or overlain by unconsolidated materials.

**Best Management Practices (BMPs):** an array of technical practices that protect natural resources from urban and rural land use impacts.

**Biodiversity:** the variety of organisms found within a specific geographic region.

**Buffers or Buffer strips:** a variable width area maintained with natural vegetation between a potential pollutant source and a waterbody that provides natural filtration and other forms of protection.

## C

**Closing (as in site closing):** when the site has met all DNR code requirements for cleaning up environmental contaminants from surface water, groundwater or soil.

**Community wells:** wells that serve a residential population of 25 or more people/day (includes municipal and 'other than municipal' wells).

**Conservation Reserve Enhancement Program (CREP):** federal and state funding to assist farmers with conservation practices; such as shoreland buffers and wetland restoration; to help control soil and nutrient runoff from fields.

**Conservation Reserve Program (CRP):** a federal agriculture crop set aside program aimed at reducing crop surpluses on highly erodible sites and establishing perennial cover.

**Conservation tillage:** planting row crops while only slightly disturbing the soil, a protective layer of plant residue remains on the surface and decreases erosion.

**Contaminant:** an unwanted substance that has been added to another substance.

## D

**Drumlin:** oval to elongated shaped hills formed by advancing glaciers, having a high rise and long taper towards the direction of ice movement; WI has the highest concentration of drumlin in the world.

**Dry mesic prairies:** native grasslands on medium dry soils with thin top soil and found on sand and gravel deposits.

## E

**Ecology:** the study of the interactions of living organisms with one another and their nonliving environment, study of the structure and function of nature.

**Edge habitat:** area where 2 different ecological communities meet (ie- woods and prairie).

**Effigy mound:** geometric or animal shaped earthen mounds constructed by middle woodland cultures (700-1100AD) for example: Lizard mounds-West Bend and Mendota state hospital grounds.

**Effluent:** solid, liquid or gas wastes (by-products) that are disposed on land, water or in the air; usually to mean wastewater discharge.

**Endangered Species (WI):** any species whose continued existence as a viable component of this state's wild animals or plants is determined by the Department to be in jeopardy on the basis of scientific evidence.

**EPA 303(d) list:** water bodies not meeting surface water quality standards of the federal Clean Water Act.

**Environmental Repair Program (ERP):** where a documented release of a contaminant (ie-pesticides, hazardous wastes, etc.) to water or soil has occurred (see also LUST).

**Eutrophication:** physical, chemical and biological changes that take place in a water body when it receives plant nutrients, nitrates and phosphates from erosion and runoff from the surrounding land/basin.

**Exceptional Resource Waters (ERW):** Surface waters which provide valuable fisheries, hydrologically or geologically unique features, outstanding recreational opportunities, unique environmental settings, and which are not significantly impacted by human activities. (WDNR, Chapter 102.11).

**Exotic Species:** a non-native species introduced from another geographic area.

## F

**Fish Advisory:** indication to people who consume fish; the species and #s of fish that are recommended for consumption (lake/waterbody specific - mercury).

**Flashy stream:** a stream or river characterized by dramatic fluctuations in flow, in which sharply higher flows in wet weather can be followed by very low flows in dry weather.

**Flora:** referring to any plant species.

**Fauna:** referring to any animal species.

## G

**Glaciers:** massive sheets of ice found in mountains or continental land masses during cooler climatic conditions; last glaciers in WI was during the WI ice age, ending 12,000 years ago.

**Grassland:** open, treeless community of native or exotic grasses and/or wildflowers.

**Gristmills:** a business that grinds grains, earlier models operated on hydropower (millponds, etc.).

**Groundwater:** water that flows below the ground surface through saturated soil, glacial deposits or rocks.

## H

**Habitat fragmentation:** the division of woodlands and grasslands from large contiguous blocks to small scattered remnants, which can result in the loss of wildlife species dependent of large continuous tracts of habitat.

**Hazardous waste:** any solid, liquid, or container that can easily catch fire, is corrosive to skin, tissue, or metal, is unstable and can explode or release toxic fumes.

**Headwaters:** the beginning of a small stream/river watershed.

**Hypoxic zone:** an area in the Gulf of Mexico where the water contains low oxygen levels and cannot support marine life due to the large quantities of nutrients, coming down the Mississippi river from upstream.

## I

**Impervious surfaces:** a ground cover such as cement, asphalt, or packed clay or rock through which water cannot penetrate; this leads to increases in the amount and velocity of runoff and corresponds to increases in soil erosion and nutrient transport.

**Impoundments:** artificial waterbodies created by obstructing or restricting waterflow.

**Impaired Waters (303d):** surface waters that are not meeting their designated use; such as swimmable, fishable, drinkable, etc.

**Invasive plants:** primarily non-native, aggressive plants that out compete and displace native plants in an ecosystem.

## K

**Kettle and kame:** landform features created by glacial action; kettles-depressions in the land resulting from melting ice blocks, kames-a "hay stack" hill made from sand and gravel deposits.

## L

**Landfill:** waste disposal site on land in which waste is spread in thin layers, compacted and covered with a fresh layer of clay or plastic foam each day.

**Leaking underground storage tanks (LUST):** any site where there has been a documented release of contaminants (usually petroleum products) from an underground storage tank (see also ERP).

## M

**Migration:** annual, seasonal movements between wintering areas and breeding grounds.

**Moraines:** complex series of sand, gravel, and rock deposits formed at the margins of melting glaciers.

**Mound builders:** prehistoric Indian cultures that interred their dead in earthen mounds.

## N

**Neo-tropical species:** birds that nest in northern temperate zone and winter in sub-tropic/tropic zones.

**Niagrian Escarpment:** a bedrock outcropping of limestone/dolomite found across eastern WI, the same material that forms Niagara Falls.

**Nitrogen:** a non-metallic element existing as a colorless, odorless gas; an important nutrient in plant growth.

**Nonpoint source pollution:** pollution whose sources cannot be traced to a single point such as a municipal or industrial wastewater treatment plant discharge pipe. Nonpoint sources include eroding farmland and construction sites, urban streets, and barnyards. Pollutants from these sources reach waterbodies in runoff, and can be controlled through proper land management.

## O

**Oak savannahs:** a transitional community between prairie and forest, sustained by fires, characterized by scattered, open grown oak and hickory trees and grasses and forbs.

**Ozone:** protective layer in the upper atmosphere, shielding the earth from harmful (UV) radiation; at ground level it is a form of human-caused atmospheric pollution or smog.

## P

**Perennial rivers:** a river channel that has running water throughout the year.

**Permeable soil:** soil that allows for the infiltration of water into the earth.

**Persistent Bioaccumulative Toxin (PBT):** long-lasting substances that can build up to harmful levels in the food chain.

**Phosphorus:** a nutrient, that when reaching lakes in excess amounts, can lead to over fertile conditions and algae blooms.

**Photosynthesis:** process used by plants and other produces to make food from sunlight, CO<sub>2</sub>, minerals and water. Oxygen is a by-product.

**Point source pollution:** sources of pollution that can be traced back to a single point, such as a municipal or industrial wastewater treatment plant discharge pipe.

**Prairie:** a plant community dominated by a diversity of perennial herbaceous plants growing between a majority of grasses, categorized by soil conditions and very deep-rooted plants or wide-spreading root systems.

**Private wells:** any well that's not a community well (or public well) that serves less than 25 people/day.

## R

**Riffles:** shallower, fast-flowing section of river or stream consisting of cobbles and boulders, alternating with deeper pool habitat.

**Rough Fish:** fish detrimental to aquatic habitats and or native fisheries and or not having any commercial value, such as: suckers (not listed as T/E), common carp, goldfish, freshwater drum, burbot, bowfin, garfish, sea lamprey, alewives, gizzard shad, rainbow smelt and mooneyes.

**Runoff:** precipitation not absorbed by the soil; flows across ground surface instead of infiltrating the ground.

## S

**Sedimentation:** soil particles suspended in stormwater that can settle in streambeds/waterbodies and disrupt the natural flow of water.

**Shoreland / Shoreline:** a state mandated water resource protection district that Wisconsin counties must adopt. Shorelands include lands adjacent to navigable waters within 1,000 feet of the ordinary high-water mark of a lake, pond, or flowage and within 300 feet of the ordinary high-water mark or floodplain of a river.

**Smart Growth:** development that uses a variety of strategies to enhance existing communities and protect community characteristics in a way that is compatible with the natural environment; encouraging more town-oriented, pedestrian-friendly development.

**Special concern species (WI):** Those species about which some problem of abundance or distribution is suspected but not yet proven. The main purpose is to focus attention on the species before they become threatened or endangered.

**Species diversity:** number of different species and their relative abundance in a given area.

**Sprawl (Urban sprawl):** low-density, automobile-dependent, and land-consuming outward growth of a city; the spread of urban congestion and development into suburban and rural areas adjoining urban areas.

**Stormwater:** water derived from a storm event or conveyed thru a storm sewer system.

**Stratosphere:** second layer of the atmosphere, extending from ~ 17-48km (11-30miles) above the earth's surface containing ozone which filters 99% of the incoming harmful UV radiation emitted by the sun.

## T

**Terminal moraine:** glacial ridges of sand and gravel at the outer most extent of glacial advance.

**Threatened Species:** wild species that is still in abundant in its natural range but is likely to become endangered because of decline in numbers.

**Till:** sand and gravel materials deposited by glacial running waters.

**Toxic substance:** a chemical or mixture of chemicals, which through significant exposure or ingestion, inhalation by an organism, directly or indirectly will cause death, disease, behavioral/ immunological abnormalities in the reproduction or physical deformities in a species or their offspring.

## V

**Veligers:** immature microscopic form of a mussel (i.e. - zebra mussels).

## W

**Water Quality Management Areas (WQMAs):** areas of land 1,000 feet from lakes and 300 feet from navigable waterways or an susceptible to groundwater contamination due to high groundwater or shallow bedrock.

**Watershed:** region that drains into a specific body of water, such as a river or lake. An area of land, few acres to 1,000s, drains or sheds to a stream, river, or lake.

**Weeds:** undesirable, often non-native plants that compete with native plants.

**Well casing:** a pipe that holds the well open and prevents shallow groundwater from entering the well; the length of the well casing depends on the local geology and groundwater conditions.

**Well head protection areas:** sections of land that protect public wells from contamination by controlling land use in the recharge area.

**Wetland:** habitat that is saturated with water all or at least part of the time, often because of flat topography (swamps, bogs, marshes, floodplain forests, and fens).

**Wetlands Reserve Program:** a federal program with state partnering to restore the functions and values of wetlands and to preserve riparian areas through conservation easements and wetland reconstruction.

**Woodland culture:** most recent prehistoric Indian cultures (prior to 1600s); a complex of cultures known for: social hierarchy (evolving tribes), agricultural practices, pottery-making, "diverse" tools (arrowheads, hoes, hooks, etc.).



# Cities, Townships and Villages in the Rock River Basin

Listed below are the Cities (C), Townships (T), and Villages (V) of the Upper and Lower Rock River Basins. The Basin and Watersheds in which they are located are also listed. Because Basins and Watersheds do not follow political boundaries, some of the listings are split between two or more Basins or Watersheds. For more information about the watersheds, refer to the Lower Rock River Basin and Upper Rock River Basin watershed appendices.

## Watershed Codes:

### Lower Rock River Basin

01 Turtle Creek	06 Yahara River and Lake Kegonsa	11 Lower Koshkonong Creek
02 Blackhawk Creek	07 Badfish Creek	12 Upper Koshkonong Creek
03 Bass Creek	08 Yahara River and Lake Monona	13 Bark River
04 Rock River/Milton	09 Yahara River and Lake Mendota	14 Whitewater Creek
05 Marsh Creek	10 Six Mile and Pheasant Branch Creek	15 Scuppernong River

### Upper Rock River Basin

01 Middle Rock River	05 Mauneshia River	09 Oconomowoc River
02 Lower Crawfish River	06 Upper Crawfish River	10 Ashippun River
03 Beaver Dam River	07 Johnson Creek	11 Rubicon River
04 Calamus Creek	08 Sinissippi Lake	12 Upper Rock River
		13 East Branch Rock River

County	Type	City / Village	Basin - Watershed
Columbia	T	Arlington	Lower Rock – 09
	V	Arlington	Lower Rock – 09
	T	Columbus	Upper Rock – 02, 05, 06
	C	Columbus	Upper Rock – 02, 06 (Dodge Co.)
	T	Courtland	Upper Rock – 03,06
	V	Fall River	Upper Rock – 06
	T	Fountain Prairie	Upper Rock – 03, 06
	T	Hampden	Upper Rock – 05, 06
	T	Leeds	Upper Rock – 06 / Lower Rock – 09
	T	Lowville	Upper Rock – 06
	T	Otsego	Upper Rock – 06
	T	Randolph	Upper Rock – 03
	V	Randolph	Upper Rock – 03
Dane	T	Albion	Lower Rock – 11
	T	Blooming Grove	Lower Rock – 08
	T	Bristol	Upper Rock – 05 / Lower Rock – 09, 12
	T	Burke	Lower Rock – 08, 09, 12
	V	Cambridge	Lower Rock – 11
	T	Christiana	Lower Rock – 11, 12

## Cities, Townships and Villages in the Rock River Basin

County	Type	City / Village	Basin - Watershed
Dane	T	Cottage Grove	Lower Rock – 06
	V	Cottage Grove	Lower Rock – 06
	T	Dane	Lower Rock – 10
	V	Dane	Lower Rock – 10
	T	Deerfield	Upper Rock – 05 / Lower Rock – 12
	V	Deerfield	Lower Rock – 12
	V	Deforest	Lower Rock – 09
	T	Dunkirk	Lower Rock – 06
	T	Dunn	Lower Rock – 08
	C	Fitchburg	Lower Rock – 07, 08
	C	Madison	Lower Rock – 08, 09, 10
	V	Maple Bluff	Lower Rock – 08
	V	Marshall	Upper Rock – 05
	V	McFarland	Lower Rock – 06, 08
	T	Medina	Upper Rock – 05 / Lower Rock – 12
	T	Middleton	Lower Rock – 10
	C	Middleton	Lower Rock – 10
	C	Monona	Lower Rock – 08
	T	Oregon	Lower Rock – 07
	V	Oregon	Lower Rock – 07
	T	Pleasant Springs	Lower Rock – 06
	V	Rockdale	Lower Rock – 11
	T	Rutland	Lower Rock – 07
	V	Shorewood Hills	Lower Rock – 08
	T	Springfield	Lower Rock – 10
	C	Stoughton	Lower Rock – 06
	C	Sun Prairie	Lower Rock – 09, 12
	T	Sun Prairie	Lower Rock – 12
	T	Vienna	Lower Rock – 9, 10
	V	Waunakee	Lower Rock – 10
	T	Westport	Lower Rock – 09, 10
T	Windsor	Lower Rock – 09	
T	York	Upper Rock – 02, 05	
Dodge	T	Ashippun	Upper Rock – 08, 10, 11
	T	Beaver Dam	Upper Rock – 03, 12
	C	Beaver Dam	Upper Rock – 03
	V	Brownsville	Upper Rock – 13
	T	Burnett	Upper Rock – 03, 12
	T	Calamus	Upper Rock – 02, 03, 04, 06
	T	Chester	Upper Rock – 12
	T	Clyman	Upper Rock – 03, 08
	V	Clyman	Upper Rock – 08
	C	Columbus	Upper Rock – 02, 06
	T	Elba	Upper Rock – 02, 04, 06
	T	Emmet	Upper Rock – 01, 03, 08

# Cities, Townships and Villages in the Rock River Basin

County	Type	City / Village	Basin - Watershed
Dodge	T	Fox Lake	Upper Rock – 03
	C	Fox Lake	Upper Rock – 03
	C	Hartford	Upper Rock – 10, 11
	T	Herman	Upper Rock – 08, 11, 13
	C	Horicon	Upper Rock – 08, 12
	T	Hubbard	Upper Rock – 08, 12, 13
	T	Hustisford	Upper Rock – 08, 10, 11
	V	Hustisford	Upper Rock – 08
	V	Iron Ridge	Upper Rock – 08
	C	Juneau	Upper Rock – 03, 08
	V	Kekoskee	Upper Rock – 12, 13
	T	Lebanon	Upper Rock – 08, 10
	T	LeRoy	Upper Rock – 12, 13
	T	Lomira	Upper Rock – 13
	V	Lomira	Upper Rock – 13
	T	Lowell	Upper Rock – 02, 03, 04
	V	Lowell	Upper Rock – 03
	C	Mayville	Upper Rock – 13
	V	Neosho	Upper Rock – 11
	T	Oak Grove	Upper Rock – 03, 08, 12
	T	Portland	Upper Rock – 02, 05
	V	Randolph	Upper Rock – 03
	V	Reeseville	Upper Rock – 03
	T	Rubicon	Upper Rock – 08, 10, 11
	T	Shields	Upper Rock – 02, 03, 04
	T	Theresa	Upper Rock – 13
	V	Theresa	Upper Rock – 13
	T	Trenton	Upper Rock – 03, 12
	C	Watertown	Upper Rock – 01, 07, 08
	C	Waupun	Upper Rock – 12
T	Westford	Upper Rock – 03, 04	
T	Williamstown	Upper Rock – 08, 12, 13	
Fond du Lac	T	Alto	Upper Rock – 03, 12
	V	Brandon	Upper Rock – 12
	T	Byron	Upper Rock – 13
	T	Merton	Upper Rock – 12
	T	Oakfield	Upper Rock – 12, 13
	T	Waupun	Upper Rock – 12
C	Waupun	Upper Rock – 12	
Green Lake	T	Mackford	Upper Rock – 03, 12
Jefferson	T	Aztalan	Upper Rock – 01, 02, 07
	V	Cambridge	Lower Rock – 11
	T	Cold Spring	Lower Rock – 13, 14, 15
	T	Concord	Upper Rock – 07, 08 / Lower Rock – 13

## Cities, Townships and Villages in the Rock River Basin

County	Type	City / Village	Basin - Watershed
Jefferson	T	Farmington	Upper Rock -01, 07, 08
	C	Fort Atkinson	Upper Rock - 11
	T	Hebron	Upper Rock - 01 / Lower Rock - 13
	T	Ixonia	Upper Rock - 08, 10
	C	Jefferson	Upper Rock - 01, 02, 07
	T	Jefferson	Upper Rock - 01, 02, 07
	V	Johnson Creek	Upper Rock - 01, 07
	T	Koshkonong	Lower Rock - 11
	T	Lake Mills	Upper Rock - 02 / Lower Rock - 11, 12
	C	Lake Mills	Upper Rock - 02
	T	Milford	Upper Rock - 01, 02
	T	Oakland	Lower Rock - 11
	T	Palmyra	Lower Rock - 15
	V	Palmyra	Lower Rock - 15
	T	Sullivan	Lower Rock - 13
	V	Sullivan	Lower Rock - 13
	T	Sumner	Lower Rock - 11
	C	Waterloo	Upper Rock - 05
	T	Waterloo	Upper Rock - 02, 05
	C	Watertown	Upper Rock - 01, 07, 08 (Dodge Co.)
T	Watertown	Upper Rock - 01, 07, 08	
C	Whitewater	Lower Rock - 14 (Walworth Co.)	
Rock	T	Beloit	Lower Rock - 02
	C	Beloit	Lower Rock - 01, 02, 03
	T	Bradford	Lower Rock - 01, 02
	T	Center	Lower Rock - 03, 05
	T	Clinton	Lower Rock - 01
	V	Clinton	Lower Rock - 01
	C	Edgerton	Lower Rock - 11
	V	Footville	Lower Rock - 03
	T	Fulton	Lower Rock - 06
	T	Harmony	Lower Rock - 04
	T	Janesville	Lower Rock - 02
	C	Janesville	Lower Rock - 02, 03, 04
	T	Johnstown	Lower Rock - 02, 11, 14
	T	La Prairie	Lower Rock - 01, 02
	T	Lima	Lower Rock - 11, 14
	T	Magnolia	Lower Rock - 04
	T	Milton	Lower Rock - 04, 11
	C	Milton	Lower Rock - 04, 11
	T	Newark	Lower Rock - 03
	T	Plymouth	Lower Rock - 03
T	Porter	Lower Rock - 07	
T	Rock	Lower Rock - 02, 03	
T	Spring Valley	Lower Rock - 03	
T	Turtle	Lower Rock - 01	

## Cities, Townships and Villages in the Rock River Basin

County	Type	City / Village	Basin - Watershed
Rock	T	Union	Lower Rock – 05, 07
	T	Darien	Lower Rock – 01
	V	Darien	Lower Rock – 01
	T	Delavan	Lower Rock – 01
	C	Delavan	Lower Rock – 01
	C	Elkhorn	Lower Rock – 01
Walworth	V	Fontana on Geneva Lake	Lower Rock – 01
	T	Geneva	Lower Rock – 01
	T	La Grange	Lower Rock – 15
	T	Linn	Lower Rock – 01
	T	Richmond	Lower Rock – 01
	T	Sharon	Lower Rock – 01
	V	Sharon	Lower Rock – 01
	T	Sugar Creek	Lower Rock – 01
	T	Walworth	Lower Rock – 01
	V	Walworth	Lower Rock – 01
	T	Whitewater	Lower Rock – 14, 15
	C	Whitewater	Lower Rock – 14 (Jefferson Co.)
Washington	T	Addison	Upper Rock – 11, 13
	T	Barton	Upper Rock – 13
	T	Erin	Upper Rock – 09, 10
	T	Hartford	Upper Rock – 10, 11
	C	Hartford	Upper Rock – 10, 11
	T	Polk	Upper Rock – 09, 11
	T	Richfield	Upper Rock – 09 / Lower Rock – 13
	V	Slinger	Upper Rock – 09, 11
	T	Wayne	Upper Rock – 13
Waukesha	V	Chenequa	Upper Rock – 09
	T	Delafield	Lower Rock – 13
	V	Dousman	Lower Rock – 13
	T	Eagle	Lower Rock – 15
	T	Genesee	Lower Rock – 13
	V	Hartland	Lower Rock – 13
	T	Lisbon	Lower Rock – 13
	T	Merton	Upper Rock – 09 / Lower Rock – 13
	V	Merton	Lower Rock – 13
	V	Nashotah	Lower Rock – 13
	T	Oconomowoc	Upper Rock – 08, 09, 10
	C	Oconomowoc	Upper Rock – 09
	T	Ottawa	Lower Rock – 13, 15
	T	Summit	Upper Rock – 09 / Lower Rock – 13
	V	Wales	Lower Rock – 13, 15

# Nonpoint Source Groundwater Contamination Potential

## Ranked by Watershed

Each watershed within the Rock River Basin was ranked based on land coverage and groundwater sample analytical results in the DNR's Groundwater Retrieval Network database. The table below lists each watershed score and gives a short description of the land cover and groundwater sample analytical data that determined the score. **Please refer to the NPS ranking tables in the reference section (p138-139).** A score of 20 or more is considered medium. At 30 or greater, the score is considered high for groundwater contamination potential. Abbreviations include:

1. ES: Groundwater enforcement standard as per NR 140 Wis. Adm. Code.  
For nitrate the groundwater ES is 10 ppm.
2. PAL: Groundwater Preventive Action Limit as per NR 140 Wis. Adm. Code.  
For nitrate the groundwater ES is 2 ppm.
3. CAFO: Confined Animal Feeding Operation, which consists of the equivalent of 1000 animal units.

<b>Watershed</b>	<b>Score</b>	<b>Comments</b>
Turtle Creek	96.14	Land cover in the watershed is 76% agriculture and 2% urban. Of 52 wells sampled for nitrate, 26% exceeded the ES and 55% exceeded the PAL. There are 2 CAFOs in the watershed.
Blackhawk Creek	103.03	Land cover is 76% agriculture and 10% urban. Pesticides were detected in 65 wells and of 56 wells sampled, 25% exceeded the ES and 71% exceeded the PAL for nitrate.
Bass Creek	97.73	The watershed is 6.5% urban and 73% agricultural land cover. Pesticides have been detected in 72 wells. Of 22 wells sampled for nitrate, 31% exceeded the ES and 59% exceeded the PAL.
Rock River/Milton	82.08	Pesticides were detected in 12 wells and of 23 wells sampled, 13% exceeded the Es and 78% exceeded the PAL for nitrate. Land use is 10% urban and 71% agriculture.
Marsh Creek	90.00	The watershed is 76% agriculture. Pesticides were detected in 13 wells. Of 15 wells sampled for nitrate, 13% exceeded ES and 60% exceeded PAL.
Yahara River and Lake Kegonsa	80.41	Pesticides were detected in 121 wells in the watershed. Of 87 wells sampled for nitrate 25% exceeded the ES and 58% exceeded the PAL.
Badfish Creek	86.95	Land cover is 85% agriculture. Pesticides have been detected in 72 wells and of 63 wells sampled for nitrate, 30% exceeded ES and 68% exceeded PAL.

<b><u>Watershed</u></b>	<b><u>Score</u></b>	<b><u>Comments</u></b>
Yahara River and Lake Monona	76.96	The watershed is 22% agriculture, 31% urban, 10% open water and 8% wetland. Pesticides have been detected in 71 wells. Of 37 wells sampled for nitrate, 30% exceeded ES and 59% exceeded PAL.
Yahara River and Lake Mendota	94.20	Of 118 wells sampled for nitrate, 30% exceeded the ES and 62% exceeded the PAL. Pesticides were detected in 106 wells. Land cover is 72% agriculture and there are 2 CAFOs in the watershed.
Six Mile and Pheasant Branch Creeks	83.51	Fifty-two percent of the land cover is agriculture and 13% is urban. Of 130 wells sampled for nitrate, 43% exceeded the ES and 46% exceeded the PAL. Pesticides were detected in 93 wells. There is one CAFO in then watershed.
Lower Koshkonong Creek	78.23	Of 110 wells sampled for nitrate, 21% exceeded the ES and 58% exceeded the PAL. Pesticides have been detected in 112 wells. There are 2 CAFOs in the watershed and is 56% agriculture & 2% urban.
Upper Koshkonong Creek	86.66	Agriculture is 83 % of land cover in the watershed. Pesticides have been detected in 82 wells and of 64 wells tested for nitrate, 26% exceeded the ES and 51% exceeded the PAL.
Bark River	56.12	Land use is 43% agriculture. Of 65 wells sampled for nitrate,9%exceeded ES and 31% exceeded PAL.
Whitewater Creek	78.04	This watershed is 61% agriculture. Of 18 wells sampled for nitrate 11% exceeded the ES and 55% exceeded PAL. Pesticides were detected in 16wells.
Scuppernong River	64.38	The watershed is 50% agriculture and has one CAFO. Of 12 wells sampled for nitrate 8% exceeded the ES and 66% exceeded the PAL.
Middle Rock River	64.32	The watershed is 60% agriculture.
Lower Crawfish River	85.69	There are 2CAFOs in the watershed which is 70% agricultural land. Pesticides have been detected in 19 wells and of 32 wells sampled for nitrate, 12.5% exceeded the ES and 37% exceeded the PAL.
Beaver Dam River	83.40	Pesticides have been detected in 155 wells. Of 201 wells tested for nitrate, 24% and 37% exceeded the ES and PAL respectively. The watershed is 64% agriculture, 2% urban and 15% wetland.
Calamus Creek	67.70	The watershed is 67% agricultural land.

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<b><u>Watershed</u></b>	<b><u>Score</u></b>	<b><u>Comments</u></b>
Maunsha River	85.46	There are 2 CAFOs in the watershed, which is 70% agricultural land. Pesticides have been detected in 51 wells. Of 40 wells sampled for nitrate, 15% exceeded the ES and 42% exceeded the PAL.
Upper Crawfish River	91.87	The watershed is 73% agricultural land. Pesticides have been detected in 56 wells and of 33 wells sampled for nitrate, 42% exceeded the ES and 51% exceeded the PAL.
Johnson Creek	72.40	The watershed is 62% agricultural land and 18% wetland. Of 12 wells sampled for nitrate, 8% exceeded the Es and 25% exceeded the PAL.
Sinissippi Lake	65.76	There are 2 CAFOs in the watershed and is 62% agriculture.
Oconomowoc River	60.45	There is 1 CAFO in the watershed, which is 41% agricultural land, 6% urban, 16% forest and 13% wetland. Of 53 wells tested for nitrate, 7.5% exceeded the ES and 62% exceeded the PAL.
Ashippun River	57.78	The watershed is 57% agricultural land.
Rubicon River	74.48	The watershed is 59% agriculture. 9 wells tested for nitrate 11%exceeded ES and 55%exceeded PAL.
Upper Rock River	60.18	The watershed is 59% agricultural land cover.
East Branch Rock River	71.18	There is one CAFO in the watershed, which is 66% agricultural land cover. Pesticides have been detected in 21 wells.

## Wellhead Protection Planning

Within the Rock River Basin the following communities have approved wellhead protection plans: Cottage Grove, Deerfield, Delafield, Elkhorn, Oregon, Sharon, Stoughton, Token Creek, Town of Burke, Waunakee, Westport, Whitewater, Beaver Dam, Fox Lake Correctional Institution, Hartford, Jefferson, Johnson Creek, Lake Mills, Oconomowoc, Slinger, Watertown, and Waupun.



# Nonpoint Source Watershed Ranking

All watershed and their streams, lakes, and groundwater rankings (as of March 2002) appear below. These rankings determine if a watershed or project (submitted under the Targeted Resource Management or Urban Nonpoint Pollution programs) are perspective candidates for selection or funding under these programs.

Key to Table: GW = groundwater  
NA = not applicable, no lake  
NR = not ranked

## Upper Rock River Basin Watersheds

Watershed Codes:

01 Middle Rock River	05 Maunsha River	09 Oconomowoc River
02 Lower Crawfish River	06 Upper Crawfish River	10 Ashippun River
03 Beaver Dam River	07 Johnson Creek	11 Rubicon River
04 Calamus Creek	08 Sinissippi Lake	12 Upper Rock River
		13 East Branch Rock River

## Lower Rock River Basin Watersheds

Watershed Codes:

01 Turtle Creek	06 Yahara River and Lake Kegonsa	11 Lower Koshkonong Creek
02 Blackhawk Creek	07 Badfish Creek	12 Upper Koshkonong Creek
03 Bass Creek	08 Yahara River and Lake Monona	13 Bark River
04 Rock River/Milton	09 Yahara River and Lake Mendota	14 Whitewater Creek
05 Marsh Creek	10 Six Mile and Pheasant Branch Creek	15 Scuppernong River

*(continued next page)*

NPS Ranking - Watershed and Lakes List							303(d) Listed
Map ID	Watershed ID	Watershed Name	Overall	Streams	Lakes	GW	Ranking Notes
278	UR01-011	Middle Rock River	Low	Low	NA	high	PL/95: Rock Lake
269	UR02-011	Lower Crawfish River	Low	Low	NA	high	PWS/90-01
246	UR03-011	Beaver Dam River	High	NA	NA	high	
260	UR04-011	Calamus Creek	NR	NR	NR	high	
274	UR05-011	Maunasha River	Low	Low	Low	high	
258	UR06-011	Upper Crawfish River	High	High	Low	high	
285	UR07-011	Johnson Creek	Low	Low	NA	high	
261	UR08-011	Simissippi Lake	High	High	High	high	PWS-/83;Closed
291	UR09-011	Oconomowoc River	High	NA	NA	high	
272	UR10-011	Ashippun River	NR	NR	NR	high	High-SS: pike lake, Butler Creek
265	UR11-011	Rubicon River	Med	Med	NR	high	High-L: Horicon Marsh Local stakeholder group formed to address Horicon issues
262	UR12-011	Upper Rock River	High	Med	High	high	High-L: Horicon Marsh Local stakeholder group formed to address Horicon issues
268	UR13-011	East Branch Rock River	High	High	High	high	

NPS Ranking - Watershed and Lakes List							303(d) Listed
Map ID	Watershed ID	Watershed Name	Overall	Streams	Lakes	GW	Ranking Notes
325	LR01-012	Turtle Creek	High	NA	NA	high	PWS-/82; Closed
322	LR02-012	Blackhawk Creek	Low	Low	NR	high	
328	LR03-012	Bass Creek	High	High	NR	high	
320	LR04-012	Rock River/Milton	Low	Low	NR	high	
321	LR05-012	Marsh Creek	Low	Low	NR	high	
289	LR06-012	Yahara River and Lake Kegonsa	Med	Med	Low	high	High-SS: Door Cr. ; High-L: Gibbs lake
308	LR07-012	Badfish Creek	Med	Med	NR	high	SS/91-01: Spring Creek
287	LR08-012	Yahara River and Lake Monona	High	NA	NA	high	PWS/86-00
270	LR09-012	Yahara River and Lake Mendota	High	NA	NA	high	PWS/96-05
276	LR10-012	Six Mile and Pheasant Branch Creeks	High	NA	NA	high	PWS/80 & 95 as part of L. Mendota project
290	LR11-012	Lower Koshkonong Creek	High	High	Med	high	PL/92-05: Lake Ripley; High-Allen Cr.;
281	LR12-012	Upper Koshkonong Creek	High	High	Med	high	
277	LR13-012	Bark River	Med	Med	High	high	High-LC: Bark River W/S Lakes
312	LR14-012	Whitewater Creek	Low	NR	Low	high	
307	LR15-012	Scuppernon River	Low	NR	Low	high	

# Sewage Bypass for 1994-1999

## Waste water Treatment Plant

Sewage bypassing occurs when waste water treatment plants send untreated sewage into the receiving waters to prevent treatment plant overload. Sewage bypassing into rivers or streams occurs mostly during severe storm events (Rain) when rainwater enters sewer pipes, but can also occur due to mechanical failure within the plant (Mechanical). The DNR works with treatment plants to correct water inflow problems. On the next several pages you will find information on the Basin's wastewater treatment plant bypass history. For more information on sewage bypassing in the Rock River Basin, contact the DNR wastewater engineer at (608)275-3267

<u>Wastewater Treatment Plant</u>	<u>Date</u>	<u>Volume Bypassed</u>	<u>Reason</u>	
<b>Ashippun Sanitary District</b>	1996 June 17	115,000 gallons	Rain	
	1997 February 21 June 21	4,000 gallons 218,000 gallons	Rain Rain	
<b>Beaver Dam</b>	1995 August 9	85,000 gallons	Rain	
	1998 March 31	19,000 gallons	Rain	
<b>Brandon</b>	1998 March 30 April 8	2.7 million gallons 500 gallons	Rain Mechanical	
	<b>Brownsville</b>	1998 July 20	5,000 gallons	Mechanical
<b>Cambridge</b>	1996 June 7 June 17	40,000 gallons 1 million gallons	Rain Rain	
	<b>Clinton</b>	1996 April 18 April 19	100,000 gallons 7,500 gallons	Rain Mechanical
<b>Columbus</b>		1994 July 7	2.95 million gallons	Rain
	1995 August 7 August 9 August 28	1.6 million gallons 3.1 million gallons 5,000 gallons	Rain Rain Rain	
		1996 June 17 August 6	8.4 million gallons 500 gallons	Rain Rain
			1998 March 30 August 6	1.8 million gallons 300,000 gallons

## Sewage Bypassing for 1994-1999 (con.)

<u>Wastewater Treatment Plant</u>	<u>Date</u>	<u>Volume Bypassed</u>	<u>Reason</u>	
<b>Fall River</b>	1996	June 17	720,000 gallons	Rain
		December 5	1,000 gallons	Mechanical
	1998	March 31	648,000 gallons	Rain
		April 15	408,000 gallons	Rain
		August 6	144,000 gallons	Rain
	1999	April 23	288,000 gallons	Rain
<b>Fort Atkinson</b>	1997	February 6	4,300 gallons	Mechanical
<b>Fox Lake</b>	1995	August 9	3,000 gallons	Rain
	1996	January 19	26,000 gallons	Rain
		June 17	72,000 gallons	Rain
	1998	March 30	100 gallons	Rain
	1999	July 20	2.7 million gallons	Rain
<b>Fox Lake P/R</b>	1999	July 21	25,000 gallons	Rain
<b>Horicon</b>	1995	November 21	100 gallons	Mechanical
	1999	July 21	37,000 gallons	Rain
<b>Hubbard</b>	1994	August 27	8,000 gallons	Mechanical
		August 28	8,000 gallons	Mechanical
<b>Hustisford</b>	1995	August 9	80,000 gallons	Rain
		August 16	10,000 gallons	Rain
	1996	June 17	450,000 gallons	Rain
	1998	December 7	10,000 gallons	Mechanical
	1999	July 20	175,000 gallons	Rain

(continued on the next page)

<b><u>Wastewater Treatment Plant</u></b>	<b><u>Date</u></b>	<b><u>Volume Bypassed</u></b>	<b><u>Reason</u></b>
<b>Iron Ridge</b>	1995 August 9	336,000 gallons	Rain
	1996 August 6	42,000 gallons	Rain
	1998 March 31	840,000 gallons	Rain
	1999 April 23	588,000 gallons	Rain
<b>Jefferson</b>	1999 May 17	36,000 gallons	Rain
<b>Kegonsa Sanitary District</b>	1996 October 12	1,000 gallons	Mechanical
<b>Lake Mills</b>	1994 May 17	18,000 gallons	Mechanical
	September 14	9,000 gallons	Mechanical
	1996 August 30	1,000 gallons	Mechanical
	1998 June 20	500 gallons	Mechanical
	1999 January 19	1,000 gallons	Mechanical
<b>Lomira</b>	1994 January 11	10,000 gallons	Mechanical
	January 14	10,000 gallons	Mechanical
<b>Madison Sanitary District</b>	1994 June 18	200,000 gallons	Mechanical
	1996 March 29	50,000 gallons	Mechanical
	April 4	4,500 gallons	Mechanical
	June 17	36.1 million gallons	Rain
	1997 May 12	100,000 gallons	Mechanical
	May 31	100 gallons	Mechanical
<b>Madison TN</b>	1996 February 13	1,500 gallons	Mechanical
<b>Madison, City</b>	1994 January 27	800 gallons	Mechanical
	February 5	3,000 gallons	Mechanical
	March 9	200,000 gallons	Mechanical
	August 17	3,000 gallons	Mechanical
	September 29	86,000 gallons	Mechanical
	November 10	100 gallons	Mechanical
	December 1	500 gallons	Mechanical

## Sewage Bypassing for 1994-1999 (con.)

<u>Wastewater Treatment Plant</u>	<u>Date</u>	<u>Volume Bypassed</u>	<u>Reason</u>
<b>Madison, City (con.)</b>	1995 February 21	2,000 gallons	Mechanical
	May 24	300 gallons	Mechanical
	June 21	750 gallons	Mechanical
	June 23	300 gallons	Mechanical
	June 25	4,000 gallons	Mechanical
	December 1	10,000 gallons	Mechanical
<b>Madison, City (con.)</b>	1996 February 2	600,000 gallons	Mechanical
	1997 April 19	300 gallons	Mechanical
	May 20	5,000 gallons	Mechanical
<b>Marshall</b>	1996 June 17	300,000 gallons	Rain
	1998 March 31	60,000 gallons	Rain
<b>Mayville</b>	1995 August 9	48,000 gallons	Rain
	1997 June 21	75,000 gallons	Rain
	1998 March 30	816,000 gallons	Rain
	1999 July 20 July 31	1.24 million gallons 10,000 gallons	Rain Mechanical
<b>Mendota Sanitary District</b>	1994 May 5	400,000 gallons	Mechanical
<b>Middleton</b>	1994 March 2	100 gallons	Mechanical
<b>Oconomowoc</b>	1997 March 4	10,000 gallons	Mechanical
	1998 January 22	24,000 gallons	Mechanical
<b>Randolph</b>	1996 June 17	3.2 million gallons (est.)	Rain
	1998 April 2	700,000 gallons	Rain
	1999 July 21	3 million gallons	Rain
<b>Slinger</b>	1996 June 17	144,000 gallons	Rain
<b>Stoughton</b>	1996 June 17	455,000 gallons	Rain

*continued next page*

<b><u>Wastewater Treatment Plant</u></b>	<b><u>Date</u></b>	<b><u>Volume Bypassed</u></b>	<b><u>Reason</u></b>
<b>Sun Prairie</b>	1995 May 1	1,500 gallons	Mechanical
<b>Theresa</b>	1995 January 11	200 gallons	Mechanical
	1996 July 3	1,000 gallons	Mechanical
	1998 March 31	144,000 gallons	Rain
	1999 July 20	625,000 gallons	Rain
<b>Waupun</b>	1996 June 17	1.9 million gallons	Rain
	1997 June 11	1,000 gallons	Mechanical
	1999 July 20	1.4 million gallons	Rain
<b>Watertown</b>	1996 June 17	4.24 million gallons	Rain
	1998 March 31	1.43 million gallons	Rain
	1999 April 23	1.1 million gallons	Rain
<b>Walworth Co. Metro Sanitary District</b>	1995 August 5	300,000 gallons	Mechanical
	August 16	58,000 gallons	Mechanical
<b>Waterloo</b>	1995 October 25	6,500 gallons	Mechanical

# Public Participation Process

The Rock River State of the Basin Report's public participation process did not follow the traditional public agency process. This process generally consists of writing an internal draft report and then later in the process holding an, often single, public hearing. We believed that this method of engaging the public isn't as effective as desired or needed. We believe the more ownership the public has in developing the report, its issues, goals and recommendations, the more the public will get involved in making the plan a reality.

To achieve our goal of more public involvement and at an earlier, more effective time, the Department, the Rock River Coalition (RRC), and the University of Wisconsin-Extension (UWEX) worked closely together, developed the following public participation process.

## **Joint Partnership Development of National Heritage River Nomination - December 1997**

The Department, the RRC, the Rock River Watershed Partnership (RRP), the Horicon Marsh Area Coalition, and UWEX developed the first comprehensive Basin-wide environmental protection, economic sustainability, tourism, cultural and historical preservation strategy for the Rock River Basin. Multiple stakeholders were approached for their identification of basin issues, goals and recommendations. More than 100 letters were received in support of the plan.

## **First Basin-wide Public Forum "Forum for the Future" - November 1998**

The Department, the RRC, the RRP, and UWEX hosted the forum to gather public input into a more detailed assessment of Basin-wide resource issues, goals and recommendations. A survey was sent out pre-forum, along with the forum invitation, to over 1,600 Basin residents, businesses, conservation organizations and agencies requesting their input in defining the most important natural resource issues in the Basin. Over 180 people attended the forum and helped define and refine critical issues identified in the survey. As a result of the Forum, seven Basin-wide issue teams formed. By 2002, over 70 stakeholders from a diverse array of local, county and state agencies, businesses and organizations were involved with the issue teams. The Issue Teams have completed a number of very successful on-the-ground projects and continue to develop future projects.

## **Second Basin-wide Public Forum "The Power of Partnerships" - April 2000**

The Department, the RRC and UWEX hosted the forum at which over 90 participants from diverse backgrounds joined in confirming the direction of the issue teams and celebrating the actions taken since the first forum. Additional issue and project identification was conducted at the forum.

## **In-House State of the Basin Report Writing Began - January 2000**

As part of our process, outside partners from various public arenas reviewed and began commenting on even this, the first preliminary draft.



**First broad based internal review of the report conducted - September 2000**

Additional outside public and private partner review solicited and incorporated.

**Basin-wide Open House at Lake Mills Community Center - January 2001**

Full basin-wide external partnership and citizen review solicited. The draft report was made available on the DNR Web site. Hard copies were sent out prior to the meeting and handed out at the open house. The open house itself, was set up to be interactive to more powerfully engage citizen participation in developing the most critical basin issues, goals and recommendations. Individual natural resource and issue related areas were set up around the hall. Agency staff and public partners at each 'station' explained this aspect of the draft report and actively solicited public insight and comments on these issues and any new recommendations on important issues and goals.

Press Releases were sent out basin-wide to publicize the report and the length of the comment period

**Official Legal Notice Public Hearing - January 2002**

Conducted electronically and via hard copy availability. The draft State of the Basin Report was posted on on the DNR website with links from the UWEX Rock River Basin web site. In addition, letters were sent out to a broad spectrum of public and private partners with information on the web sites and offering to send them either hard copies of the draft report and/or CDs. The Rock River Basin Educator sent notice of the report to 120 agency and business staff, organizational members and interested citizens via a basin list serve.

Press releases were sent out to publicize the report availability and the length of the comment period.

**Report Finalized - April 2002**

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