CHAPTER 3: LAND AND WATER RESOURCE CONDITIONS

Basins/Geography

Wood County consists of two major drainage basins. They are the Black-Buffalo-Trempealeau River Basin and the Central Wisconsin River Basin. Wood County has traditionally managed its natural resources by drainage basins and watersheds. This approach has been successful in developing working relationships with adjoining counties and their conservation staff. It has also brought a coordinated effort in resource management with state agencies such as the Wisconsin Department of Natural Resources and Department of Agriculture, Trade and Consumer Protection. These agencies have used the basin approach of natural resource management for many years. The following is a list of the Wood County River Basins and their watersheds:

Black-Buffalo-Treampealeau Basin

BR07 – East Fork Black River Watershed

Central Wisconsin River Basin

UW02 – Lower Yellow River Watershed
UW03 – Cranberry Creek Watershed
UW04 – Hemlock Creek Watershed
UW05 – Upper Yellow River Watershed
UW08 – Wisconsin Rapids Watershed
UW09 – Seven-Mile/Ten Mile Creek Watershed
UW10 – Four-Mile/ Five Mile Creek Watershed
UW11 – Mill Creek Watershed
UW14 – Little Eau Pleine River Watershed

Exceptional and Outstanding Resource Waters

Wisconsin has classified many of the state's highest quality waters as Outstanding Resource Waters or Exceptional Resource Waters. Currently, Wood County has five resources that are listed as Exceptional Resource Waters. They are portions of Bloody Run Creek, Five Mile Creek, Lynn Creek, Rocky Creek, and Seven Mile Creek. There are no resources in Wood County that are listed as Outstanding Resource Waters.

Impaired Waters

The listing of waters under the Clean Water Act (s.303(d) are waters, which are not meeting water quality standards. There are three listed impaired water bodies in Wood County. They include Lake Dexter, Mill Creek above Junction City, and the Wisconsin River near Port Edwards. The DNR conducted 303d monitoring in 2006 on Lake Dexter.

Lake Dexter is currently on the list of impaired waters for bacteria. Data analysis is not yet completed but a recommendation to list Lake Dexter for impacts as a result of eutrophication on the 2008 list is likely.

East Fork Black River Watershed

The East Fork Black River is a 90 square mile watershed and has 137 miles of streams. This watershed is located in the western portion of Wood County and is primarily forested with some agriculture. The DNR has ranked the groundwater contamination potential in the East Fork Black River as low to medium.

Lower Yellow River Watershed

The Lower Yellow River is a 243 square mile watershed and has 245 miles of streams. It is located in Juneau, Wood, and Jackson Counties. This watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on surface and ground water data, the overall ranking is low. The majority of the watershed streams are ditched. Very little information about current use classification is available. A portion of the watershed lies within the Necedah National Wildlife Refuge. The refuge was established as a breeding ground for migratory birds and other wildlife. Historically the land in and around the refuge was once a vast open peat bog with scattered islands of savanna and woodland. Once settlers arrived, the land use surrounding the refuge drastically changed. Fires from logging slash burned uncontrollably throughout the area. By the 1930's the peat was mostly gone and many farmers were looking for land with richer soils and longer growing seasons. Although agriculture proved economically unsuccessful, more than 94 miles of ditches and intermittent streams were left behind. Today they are used for water control. The groundwater contamination potential ranking for the Lower Yellow River Watershed is medium to high.

Cranberry Creek Watershed

The Cranberry Creek is a 70 square-mile watershed and has 101 miles of streams. It is located in Juneau and Wood Counties, but most of the watershed is located in the south central part of Wood County. This watershed is made up of very diverse habitats ranging from a bombing range to cranberry marshes. This watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on surface and ground water data, the overall ranking is low. The DNR also completed baseline stream monitoring in 2004 and used this data to re-rank the surface water in this watershed. Based on data collected this watershed still received a low surface water ranking. As the name implies, Cranberry Creek Watershed is mainly cranberry marshes. There are 17 to 20 cranberry growing operations with over 100 cranberry bogs. The DNR lacks information about water quality impacts as a result of surface water discharges from these marshes. There is a concern that nutrients from fertilizers and pesticides/herbicides discharged from these marshes could be degrading water quality and harming sensitive species of aquatic life. Stream flow in many of the

ditches is controlled by structures for cranberry production. Cranberry Creek appears turbid during base flow because of high iron content in the groundwater. Cranberry Creek supports a diverse warm water fishery. Water chemistry sampling in 2005 found total phosphorus concentrations in Cranberry Creek lower than other streams monitored in the basin that year. The groundwater contamination potential ranking for the Cranberry Creek Watershed is medium to high.

Hemlock Creek Watershed

The Hemlock Creek is a 160 square mile watershed and has 82 miles of streams. It is located in the central part of Wood County running from just north of Arpin in a southerly direction to the county line. This watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on surface and ground water data, the overall ranking is high. Cranberry marshes exist within the Hemlock Creek Watershed. The DNR lacks information in regards to water quality impacts that are a result of surface water discharges from the cranberry bogs. There is a concern that contaminants from fertilizers and pesticides are being discharged from various nonpoint sources, which may be degrading water quality and harming sensitive species of aquatic life. Hemlock Creek currently receives point source discharges from the villages of Arpin and Vesper. Additional monitoring is recommended to determine affects of agriculture to this watershed. Soil erosion in the towns of Arpin and Hansen located in the upper portion of the watershed causes impacts to the overall water quality of the watershed. The groundwater contamination potential ranking for the Hemlock Creek Watershed is medium to high.

Upper Yellow River Watershed

The Upper Yellow River is a 224 square mile watershed and has 171 miles of streams. It is located in the counties of Wood, Clark, and Marathon. That portion of the watershed in Wood County is located from northwest of Marshfield and running south to the Dexter Lake dam. This watershed was ranked using the Department of Natural Resources Nonpint Source Priority Watershed Selection Criteria. Based on surface and groundwater data, the overall ranking is high. The Upper Yellow River Watershed was funded as a Priority Watershed Project by the WDNR in 1993. It was completed in 2005. Final reporting for the completion of this project has not yet been finished. Animal waste runoff from barnyards or pasturelands occurs on the main tributaries of the Yellow River. Surface water erosion is a problem in the watershed. Biotic index values for those streams sampled indicated fair to poor water quality. The groundwater contamination potential ranking for the Upper Yellow River Watershed is low to medium.

Wisconsin Rapids Watershed

The Wisconsin Rapids Watershed is 116 square miles and has 55 miles of streams. It is located in the counties of Juneau, Wood and Portage. This area is heavily populated and incorporates the towns of Nekoosa, Port Edwards, Rudolph and part of Wisconsin Rapids. This watershed is highly developed with industry and supports several large

paper mills within a relatively small section of the Wisconsin River. The Wisconsin Rapids Watershed has an overall Nonpoint Source ranking of low based upon available stream, lake, and groundwater data. The watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. The watershed ranked low for NPS pollution impacts on surface water quality. The DNR completed baseline stream monitoring in 2004 and used this data to re-rank surface water in the watershed from low to medium. The lower reaches of Moccasin Creek and the mid-reaches of Lynn Creek are classified trout waters and should be protected from thermal loading that results from urban development. The groundwater portion of the watershed ranked high for NPS pollution control because of documented groundwater quality impacts. The groundwater contamination potential ranking for the Wisconsin Rapids Watershed is mostly high.

Seven-Mile/Ten Mile Creek Watershed

The Seven-Mile/Ten-Mile creek is a 106 square mile watershed and has 73 miles of streams. It is located in the counties of Adams, Portage, Wood, and Waushara. In Wood County it is located in the southeastern corner. This watershed is a maze of ditches and laterals that were created to drain lowland areas for agricultural activities. There are large sections of land that have been purchased by the state that are being maintained for grassland ecosystems. This watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on surface and groundwater data, the overall ranking is high. Maintenance dredging continues on the established ditches in order to remove sediment and vegetation from the channel. A recent decision by the DATCP requires maintenance dredging to go no deeper than the approved profile. The WDNR supports this because over-dredging removes critical in-stream habitat for trout and other aquatic organisms, creates deep, low velocity pools, increases sedimentation and reduces potential spawning areas. The groundwater contamination potential ranking for the Seven-Mile/Ten Mile Creek Watershed is high.

Four-Mile/Five-Mile Creek Watershed

The Four-Mile/Five Mile Creek is a 211 square mile watershed and has 136 miles of streams. It is located in Portage County and in the east central part of Wood County. This watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on available surface and groundwater data, the overall ranking is medium. Three cranberry marshes exist along the Wisconsin River northeast of Biron. It is unknown whether these marshes are contributing a significant amount of nutrients to the Wisconsin River. Water drawn from ditches reduces stream depth, decreases adult fish cover, reduces spawning areas for trout, and likely exposes fish redds, and may result in an increase of water temperatures. Discharges from cranberry marshes can adversely affect water temperatures, deposit sediment, and release nutrients to the ditches. Periodic impounding of the ditches to flood marshes prevents fish migration, increases water temperatures and de-waters downstream reaches. The groundwater contamination potential ranking for the Four-Mile/Five Mile Creek Watershed is high.

Mill Creek Watershed

The Mill Creek is a 195 square mile watershed and has 105 miles of streams. It is located in Portage County and in the northeastern part of Wood County running southeasterly from Marshfield to Portage County. The Mill Creek Watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on available surface and groundwater data, the overall ranking is high. Mill Creek is a 47-mile tributary of the Wisconsin River. Mill Creek is listed as an impaired waterbody on EPA's 303(d) list for low dissolved oxygen. The stream is impacted by stormwater runoff from Marshfield, sedimentation, barnyard and cropland run-off, flashy stream flow, streambank erosion, and nutrient enrichment. The groundwater contamination potential ranking for the Mill Creek Watershed is low to medium. The Wood County Land Conservation Department continues to partner with the "Friends of Mill Creek Watershed, Inc.," to educate the public about natural resources and programs that can help improve the environment and increase the overall value of Mill Creek. The Friends of the Mill Creek Watershed, Inc., is a non-profit organization that brings together community members to improve and conserve the Mill Creek Watershed.

Little Eau Pleine River Watershed

The Little Eau Pleine River is a 264 square mile watershed and has 197 miles of streams. It is located in the counties of Clark, Portage, Marathon, and Wood. In Wood County it is located in the northeast corner. This watershed is one of many watersheds that drain into the DuBay Flowage. This watershed was ranked high using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on surface and groundwater data, the overall ranking is low. A shallow groundwater table allows unused herbicides, pesticides, and fertilizers to leach into the groundwater without it being filtered out in the soil profile. Water quality problems are intensified by high rates of surface runoff due to the silty soils. The groundwater contamination potential ranking for the Little Eau Pleine River watershed is low to medium.