

**Table 2: Michigan’s Designated Uses (DU)**

What Does Designated Use Really Mean?	DU	Activities Protected
	Agriculture	Water Quality Standards for water used by farmers for irrigation of crops
	Navigation	Water Quality Standards for water used for traveling
	Industrial Water Supply	Water Quality Standards for water used by industry in manufacturing
	Public Water Supply	Water Quality Standards for water used by public for drinking water, both for treated and untreated
	Fisheries	Water Quality Standards for water used by residents and businesses for fishing as a food source
	Other Indigenous Aquatic Life and Wildlife	Water Quality Standards for water that is the habitat for aquatic life, both for cold water and warm water species
	Recreation	Water Quality Standards for water used by residents for recreational purposes, standards can be for non contact, partial contact, or short term and long-term contact

### 3.1 Conditions and Trends

Eighty-three percent of Washtenaw County drains to either the Huron River or the Raisin/Saline Rivers. These two waterways reflect the changing character of the landscape in Washtenaw County. Historically, the landscape was dominated by agriculture. The Huron and Raisin maintained a largely rural character with stable banks and an intact floodplain. Mill ponds are scattered across the county. From Barton Pond to the eastern county line, the Huron River was dammed for hydroelectric power.

The County’s agricultural land is being transformed into low-density residential landscape often referred to as ‘exurban.’ The exurban development pattern is auto oriented, consuming more acreage for parking, roads, driveways, and rooftops per capita than urban and sub-urban landscapes.

The impervious surfaces associated with exurban development disrupt the water cycle by preventing rainfall from entering the ground. Water is instead channeled to the nearest lake, stream or river. The result is an increase in the rate and amount of runoff and decrease in the amount of water retained in the wetlands, vegetation, and soils, or recharged to the underground aquifer. Runoff is increased by the removal of natural vegetation and soil compaction that accompanies land development. Consequently, rivers, lakes and streams are chemically, physically and biologically altered.

In Michigan all waters have seven designated uses (Table 2):

1. Agriculture
2. Navigation
3. Industrial Water Supply
4. Public Water Supply
5. Fisheries
6. Other Indigenous Aquatic Life and Wildlife
7. Recreation

When there are problems identified with water quality that could pose a public health threat, measures are taken to properly inform the public. For instance, when fish are found to have levels of contaminants higher than levels deemed safe by the Michigan Department of Community Health, a fish advisory is issued. Similarly, if contaminant levels in water are higher than the designated level for recreational use beach monitoring may result in beach closing or prohibition of full body contact sports like swimming.

Currently, there are 20 Washtenaw County waterways and segments of waterways that have been specifically identified as not meeting the minimum state Water Quality Standards (WQS) associated with designated uses (Table 3). Many of the problems result from storm water runoff, including high *Escherichia coli* (*E. coli*) levels from illicit connections of sanitary waste to storm waste, and from pets waste and urban wildlife; phosphorus from erosion and lawn fertilizer; heavy metals, oil and grease, and mercury deposition from airborne particles. All of these contaminants are washed into waterways from our increasingly paved environment. Of equal concern are increasing flood frequencies and flashy stream flows that threaten downstream property and degrade habitat, leading to reduced aquatic and wildlife diversity.

There are two kinds of monitoring criteria evaluated to determine if a water body is meeting the Water Quality Standards: Biological and Numeric.

- Biological Criteria – the biological health of a water body in comparison to a reference site. Looking at the species diversity and the presence of sensitive species like mayflies, stoneflies, and dobson flies or hellgrammites, indicates the overall biological health. These criteria can be used to rate streams qualitatively into categories like excellent, good, acceptable, or poor.

- Numeric Criteria – the level of pollutants in comparison to set standards. Chemical pollutants, like arsenic, mercury, phosphorus, or pathogens (*E. coli*) all have maximum contaminant levels that are associated with each designated use. The EPA recommends standards for designated uses and publishes this information for each state.<sup>2</sup>

Since it is not feasible to collect numeric data for every body of water, biological sampling can be used to indicate areas that need further study.

### More detail regarding water quality measurements can be found at:

- ◆ **HRWC Adopt-a-Stream**  
<http://www.hrwc.org>
- ◆ **HRWC Sampling**  
<http://www.hrwc.org>
- ◆ **Stony Creek**  
<http://www.emich.edu/wrc/stonycreek>
- ◆ **Raisin River**  
<http://www.riverraisin.org>
- ◆ **Rouge River**  
<http://www.therouge.org>
- ◆ **Ann Arbor Drinking Water Plant**  
<http://www.a2gov.org>
- ◆ **DEQ NPDES**  
<http://www.michigan.gov/deqnpdes>
- ◆ **USGS Real-Time Gauges**  
<http://water.usgs.gov>

<sup>2</sup>See: <http://www.epa.gov/waterscience/criteria/wqcriteria.html>

**Table 3: Total Maximum Daily Load Schedule**

<b>WATER BODY</b>	<b>TMDL SCHEDULE</b>	<b>TMDL APPROVED</b>	<b>LOCATION</b>	<b>SIZE</b>	<b>PROBLEM</b>
Allen Creek	2004	Included in Huron River	Geddes Pond Dam upstream to Geddes Avenue	2 Miles	WQS exceedances of <i>E. coli.</i> , pathogens (Rule100)
Barton Pond (Huron River)	2010	no	Impoundment of Huron River in vicinity of Barton	210 Acre	FCA-PCBs
Ford Lake	2003	Nov 2004	Ypsilanti, upstream of Belleville Lake	975 Acre 2 Miles	Nuisance algal growths, phosphorus
Ford/Belleville Lake	2010	no	Impoundments of the Huron River located in the vicinity of Ypsilanti	2245 Acre	FCA-PCBs, Mercury
Four Mile Lake	2011	no	West of Dexter and NE of Chelsea	256 Acre	Fish Tissue-Mercury
Honey Creek	2009	no	Confluence of Huron River at Wagner Rd	0.5 Miles	Pathogens (Rule 100)
Horseshoe Lake Drain	2009	no	Barker Road at the Horseshoe Lake outlet.	1.4 Miles	Macroinvertebrate community rated poor
Huron River (Geddes Pond)	2000	Sept 2001	Geddes Pond Dam upstream to Geddes Avenue	2 Miles	Pathogens (Rule 100)
Johnson Creek	2007	Aug 2007	From the confluence with the Walled lake branch upstream to 5 Mile rd. West of Currie Rd.	7 Miles	WQS exceedances for D.O.
Letts Creek	2004	REMOVED			Fish and macroinvertebrate communities rated poor
Malletts Creek	2004	Sept 2004	Huron River confluence at Packard Road	2 Miles	Fish and macroinvertebrate communities rated poor
Paint Creek	2005	no	R6E, T3S, Sec. 12 at Ypsilanti	4.6 Miles	D.O.; Fish kills; Pathogens (Rule 100)
Portage Lake	2011	no	SE of Pinckney	644 Acre	Mercury Lake
Saline River	2000	Nov 2002	Near Mooreville, Section 28, York Township	1 Miles	Untreated sewage discharge, pathogens (Rule 100)
Second Sister Lake	2011	no	W. of Ann Arbor	8 Acre	Fish Tissue-Mercury
South Lake	2011	no	N. of Lyndon Center	197 Acre	Fish Tissue-Mercury
Swift Run Creek	2004	Jan 2005	Huron River confluence at Ellsworth Road.	3.7 Miles	Macroinvertebrate community rated poor
Unnamed Lake	2011	no	S. of Ford Lake in the NE corner of Sec. 26, T3S,	2 Acre	FCA-PCBs; Fish Tissue-Mercury
Whitmore Lake	2010	no	Vicinity of Whitmore Lake	677 Acre	FCA-PCBs
Willow Run Creek	2000	REMOVED			WQS exceedances for PCBs