

Designated Uses and Water Quality Criteria

Designated Use ^{1,2}	Associated Pollutants	Description and Water Quality Standards	
Agriculture	Hydrology Pathogens Nutrients	DESC:	Water supply adequate for agricultural purposes including livestock watering, irrigation and crop spraying.
		SUPPORTED	WQS: MDEQ does not conduct specific assessments to evaluate this use. It is assumed that the use is being supported unless there is site-specific information indicating otherwise.
Industrial Water Supply	Suspended Solids	DESC:	Water supply and quality adequate for commercial or industrial applications or for noncontact food processing.
		SUPPORTED	WQS: MDEQ does not conduct specific assessments to evaluate this use. It is assumed that the use is being supported unless there is site-specific information indicating otherwise.
Navigation³	Sediment	DESC:	Waters (large enough for canoes and kayaks) must maintain navigable conditions.
		THREATENED	WQS: MDEQ does not conduct specific assessments to evaluate this use. It is assumed that the use is being supported unless there is site-specific information indicating otherwise.
Warmwater Fishery	Sediment Nutrients Dissolved Oxygen Temperature Hydrology	DESC:	The ability of the water body to support a balanced, integrated, adaptive community of fish species that thrive in relatively warm water, including bass, pike, walleye and panfish.
		IMPAIRED	WQS: Rule 50: Surface waters of the state shall not have any of the following physical properties in unnatural quantities which are or may become injurious to any designated use including <i>turbidity</i> , color, oil films, floating solids, foams, settable solids, <i>suspended solids</i> and deposits. (A general rule of thumb is that total suspended solids (TSS) less than 20mg/l is clear, between 40 and 80 mg/l is cloudy and water with TSS over 150mg/l appears brown and opaque.) Rule 60: <i>Nutrients</i> shall be limited to the extent necessary to prevent stimulation of growths of aquatic rooted, attached, suspended, and floating plants, fungi or bacteria which may become injurious to waters of the state. Point source dischargers are limited to 1 mg/l as a monthly average.

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Warmwater Fishery (continued)			<p>Rule 65: Minimum <i>dissolved oxygen</i> (DO) concentration of 5 mg/L shall be maintained in the epilimnion during stratification. DO should be greater than 5 mg/L at all other times.</p> <p>Rule 69: Natural daily and seasonal <i>temperature</i> fluctuation shall be preserved.</p> <p>Rule 72: Inland lakes should not receive a heat load which would increase the <i>temperature</i> above the following monthly maximum temperatures: J(45), F(45), M (50), A (60), M (70), J (75), J (80), A (85), S (80), O (70), N (60), D (50)</p> <p>Rule 75: Rivers and stream should not receive a heat load which would increase the <i>temperature</i> greater that the following monthly maximum temperatures: J(38), F(38), M (41), A (56), M (70), J (80), J (83), A (81), S (74), O (64), N (49), D (39).</p> <p><i>Hydrology</i>: Habitat is most often negatively affected by extreme hydrology. MDEQ's Procedure 51 evaluates habitat quality using nine metrics (0-135) that rate from excellent to poor. Scores above 35 are considered fair.</p> <p>Other biocriteria⁵: MDEQ Procedure 51 evaluates fish communities using 10 different metrics that rate water bodies from excellent (+5 to +10) to poor (-10 to -5). Fish ratings above -4 are considered acceptable.</p>
Other indigenous aquatic life⁴	Sediment Tempera- ture Hydrology	DESC:	Water quality is adequate to support reproduction of indigenous animals, plants and insects.
IMPAIRED		WQS:	<p>Rule 50: Surface waters of the state shall not have any of the following physical properties in unnatural quantities which are or may become injurious to any designated use including <i>turbidity</i>, color, oil films, floating solids, foams, settable solids, <i>suspended solids</i> and deposits. (A general rule of thumb is that total suspended solids (TSS) less than 20mg/l is clear, between 40 and 80 mg/l is cloudy and water with TSS over 150mg/l appears brown and opaque.)</p> <p>Rule 72: Inland lakes should not receive a heat load which would increase the <i>temperature</i> above the following monthly maximum temperatures: J(45), F(45), M (50), A (60), M (70), J (75), J (80), A (85), S (80), O (70), N (60), D (50)</p> <p>Rule 75: Rivers and stream should not receive a heat load which would increase the <i>temperature</i> greater that the following monthly maximum temperatures: J(38), F(38), M (41), A (56), M (70), J (80), J (83), A (81), S (74), O (64), N (49), D (39).</p> <p><i>Hydrology</i>: Habitat is most often negatively affected by extreme</p>

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			<p>hydrology. MDEQ's Procedure 51 evaluates habitat quality using nine metrics (0-135) that rate from excellent to poor. Scores above 35 are considered fair.</p> <p>Other biocriteria⁵: MDEQ Procedure 51 evaluates macroinvertebrate communities using 9 different metrics that rate insect communities from excellent (+5 to +9) to poor (-9 to -5). Fish ratings above -4 are considered acceptable.</p>
Partial Body Contact	<i>E.coli</i> bacteria	DESC:	Water quality is safe for activities normally involving direct contact of some part of the body with the water, but not normally involving immersion of the head or ingesting water, including fishing, wading, hunting and dry boating.
IMPAIRED		WQS:	Rule 62: Surface waters shall not contain more than a maximum of 1,000 <i>E.coli</i> per 100 milliliters (based on the geometric mean of 3 or more samples).
Total body contact	<i>E.coli</i> bacteria	DESC:	From May 1 st through October 31 st , water quality is safe for activities normally involving direct contact with water to the point of complete submergence. Particularly immersion of the head, with considerable risk of ingesting water including swimming.
IMPAIRED		WQS:	Rule 62: Surface waters shall not contain more than 130 <i>E.coli</i> per 100 milliliters (as a 30-day geometric mean). At no time should waters of the state contain more than a maximum of 300 <i>E.coli</i> per 100 milliliters.
Fish Consumption⁶	Mercury PCBs	DESC:	The water body should provide a fishery that is safe for human consumption that is consistent with the level of protection provided by state guidelines.
IMPAIRED		WQS:	Rule 57: The geometric mean of water column mercury concentration cannot exceed 0.0018ug/l.
			Rules are currently being developed.

¹Designated uses that do not apply to the Macatawa Watershed are not included here.

²Designated uses are listed in R323.1100 of Part 4, Part 31 of PA 451, 1994 as amended.

³Navigation is not defined under the Part 4 rules. The description included here is based on descriptions provided in other approved watershed management plans.

⁴Other indigenous aquatic life is not defined under Part 4 rules. The description included here is based on descriptions provided in other approved watershed management plans.

⁵ Data referenced from :

Schneider 2000. Manual of fishery survey methods II. Michigan Department of Natural Resources, Fisheries Special Report 25.

Creal et al. 1996. Update of GLEAS Procedure 51 and Metric Scoring and Interpretation. Michigan Department of Environmental Quality. MI/DEQ/SWQ-96-068.

⁶ Data referenced from:

The Michigan Department of Community Health Fish Advisory Guidelines 2011/2012

The Michigan Department of Environmental Quality, Fish Contaminant Monitoring Program, 2010 Annual Report, Recommendations for Changes to the 2011 Michigan Department of Community Health Fish Consumption Advisory. MI/DEQ/WRD-11/028

Personal Communication with Joseph Bohr, Aquatic Biologist with Michigan Department of Environmental Quality, 2/6/2012

Personal Communication with Kory Groetsch, Toxicologist at Michigan Department of Community Health, 2/6/2012