



State of Ohio
Environmental Protection Agency

Antidegradation Classifications Assigned to
State and National Scenic Rivers in Ohio
under Proposed Rules, March 25, 2002

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prepared by
Division of Surface Water

Introduction

Federal Water Quality Standard (WQS) program regulations require that States adopt and use an antidegradation policy. The policy has two distinct purposes. *First, an antidegradation policy must provide a systematic and reasoned decision making process to evaluate the need to lower water quality.* Regulated activities should not lower water quality unless the need to do so is demonstrated based on technical, social and economic criteria. ***The second purpose of an antidegradation policy is to ensure that the State's highest quality streams, rivers and lakes are preserved.*** This document deals with the latter aspect of the antidegradation policy.

Section 6111.12(A)(2) of the Ohio Revised Code specifically requires that the Ohio EPA establish provisions “ensuring that waters of exceptional recreational and ecological value are maintained as high quality resources for future generations.” Table 1 explains the proposed classification system to accomplish this directive. The shaded categories denote the special higher resource quality categories. The proposed rule contains 157 stream segments classified as either State Resource Waters (SRW) or Superior High Quality Waters (SHQW). The approximate mileage in each classification is shown in Table 1. The total mileage in both classifications represents less than four percent of Ohio’s streams. Refer to “*Methods and Documentation Used to Propose State Resource Water and Superior High Quality Water Classifications for Ohio’s Water Quality Standards*” (Ohio EPA, 2002) for further information about the process used to develop the list of streams. The specific data considered for each of the individual river segments is also available upon request.

Table 1 Key features associated with the antidegradation categories in Ohio’s proposed water quality standards, OAC 3745-1-05.

Category	Key Attributes, or why a water would be designated in the category	Practical Impacts stream miles classified in proposed rule
Outstanding National Resources Waters	water has unique attributes and has national significance; may not be adequately protected by beneficial use classification system	very restrictive, no lowering of water quality permitted (exceptions allowed for short term disturbances) Zero miles
State Resource Waters	water is among the very best within Ohio; supports very diverse aquatic life and/or endangered or threatened species	70 % set aside implemented to preserve water quality near existing condition; more stringent pollution controls for new sources; social/economic justification (SEJ) needed to lower water quality 975 miles
Superior High Quality Waters	supports diverse aquatic life and/or endangered or threatened species	35 % set aside implemented to preserve water quality above the minimum standards required under beneficial use; more stringent pollution controls for new sources; SEJ needed to lower water quality 1,430 miles
General High Quality Waters	supports typical aquatic life community	must meet applicable standards, requires an SEJ and determination of need before water quality is lowered 58,125 miles
Limited Quality Waters	beneficial use classification is Limited Resource Water or Modified WWH	must meet applicable standards, but no SEJ review needed to lower water quality

This document explains the rationale for the antidegradation classifications proposed for Ohio's Scenic Rivers. Pursuant to the existing antidegradation rule, consultation with the Department of Natural Resources was initiated.

"... the Director, in consultation with the Director of the Department of Natural Resources, shall consider available information on water bodies in Ohio and determine appropriate high quality water designations. Each determination shall consider attributes of exceptional recreational or ecological value, the national significance of the water body, and other existing and planned uses of the water body" (OAC 3745-1-05(E)(2)).

One aspect of this consultation centered on the State's scenic rivers (see letter Lewis to Dudley, August 15, 2001). The issues and questions raised in this letter were explored by Ohio EPA staff and discussed in subsequent meetings with Bob Gable, Scenic River Coordinator. Under the existing rule all scenic rivers are classified as State Resource Waters. The present rule can result in rather significant declines in water quality attributable to domestic sources of wastewater, while it prohibits more than a *de minimus* amount (five percent of background) of toxic chemicals to be discharge from any industrial or commercial sources (either direct discharges or indirect discharges to a municipal sewage treatment plant). The concerns of the Scenic River program are to obtain the highest degree of protection for all scenic rivers while not unduly compromising economic development of nearby communities. The remainder of this document describes the modeling analysis and biological data interpretation conducted by Ohio EPA to address these concerns. It also summarizes the information compiled for a variety of sources on the economic investments and recreational value for some of the State's scenic rivers.

Methods

Modeling Analysis - Two State Scenic Rivers, the Stillwater River and the Kokosing River, were selected as representative case examples. Simple wasteload allocation calculations (i.e., involving a single existing discharge permit) were run for ammonia and a heavy metal. The input data are described in Table 2 and were obtained from the respective permits and other available sources.

Biological Data Interpretation -

Refer to *Methods and Documentation Used to Propose State Resource Water and Superior High Quality Water Classifications for Ohio's Water Quality Standards* (Ohio EPA, 2002) for a complete explanation of the data interpretation that was conducted. The results showed that, except for the Maumee River, all of the State's scenic rivers have extensive reaches that are among the highest quality in Ohio. The ecological value, recreational value, and importance of each National and State designated scenic river was discussed with Ohio DNR staff.

Economic Investments and Recreational Values - Information on the economic investments made on scenic rivers and their recreational value was collected by Ohio DNR through contacts with local officials, watershed groups, etc. Copies of the information supplied are on file at Ohio EPA.

Table 2. Description of scenarios tested.

River - Set Aside % and Pollutants	Wasteload Allocation Input Variables*			
	Background River Conditions	Existing Source permit limits	Additional Point Source *	Water Quality Standard
Stillwater River - 35% & 70%	N/A	Englewood WWTP	New source	
FLOW (cfs)	22	3.87	3.09	N/A
Ammonia (mg/l)	0.17	2.0	1.0	0.8
Copper (ug/l)	5	no limit		25
Kokosing River - 35% & 70%	N/A	Mt. Vernon WWTP	New source	
FLOW (cfs)	27.01	7.74	1.55	N/A
Ammonia (mg/l)	0.025	6.0	1.0	1.5
Lead (ug/l)	1	no limit		19

* Gray shading denotes output values; all new wastewater plants treating sanitary sewage must meet 1 mg/l ammonia.

Results

There are 20 individual stream segments located in eleven (11) river systems in Ohio's State Scenic Rivers Program. General information about the program and each of the State's scenic rivers can be found at <http://www.ohiodnr.com/dnap/smenu.html>. Based on the biological data interpretation referenced above and the considerations described below, all the scenic river segments except the Maumee River were listed as State Resource Waters in the proposed antidegradation classification system (see attachment 1).

Modeling Analysis - Wasteload allocation calculations were run using representative scenarios (see Table 2) to forecast what impact the proposed set aside provisions would have on point source dischargers (industrial and municipal wastewater treatment plants). The results of each modeling scenario are shown in Table 3. The proposed antidegradation set aside provision does not make discharge limits more stringent for existing permits. The wasteload allocation scenarios illustrate what impact the set asides will have on new or expanded source(s) of wastewater. These results show that future increased discharges of sanitary wastewater can be accommodated within the bounds of both set asides levels (35% and 70%) because ammonia effluent limits are controlled through Best Available Demonstrated Control Technology (BADCT).

Under the current regulations, the discharge of toxic chemicals from direct or indirect industrial sources to a State Resource Water is limited a de minimus amount. This is defined as a five (5) percent change in the ambient concentration of the chemical. A comparison of this current requirement with those of the two set aside provisions is shown in Table 4. In each case the set aside provisions allow a greater potential industrial source pollutant loadings and a resultant higher instream concentration. However, it should be remembered that the individual antidegradation review process must be followed to determine if water quality should be lowered, and by how much, based upon the specific situation. If the scenic rivers in these test scenarios were classified as General High Quality Waters there would be no set aside provisions, and the maximum allowable pollutant loadings for heavy metals and similar toxic pollutants could be over three times greater than under the proposed State Resource Water classification.

Economic Investments and Recreational Values - The public and private investment in the State's scenic river system is substantial. These waters are among the most valued and used for recreational purposes. The following facts were extracted from information supplied by Ohio DNR and other sources.

Chagrin River, East Branch, and Aurora Branch

- Local Watershed Group: Chagrin River Watershed Partners, Inc.
- Protected lands held by the Chagrin River Land Conservancy exceeds \$50 million.
- Protected lands held by other organizations of approximately 7,600 acres

Grand River

- Local Watershed Group: Grand River Partners
- Protected lands within watershed of approximately 25,000 acres
- Many ongoing programs aimed at protecting headwater streams, habitat conservation, public education, and reducing impacts of agricultural land use, forestry, and urbanization.

Table 3. Comparison of wasteload allocation results under proposed State Resource Water vs. Superior High Quality Water set aside provisions.

River - Set Aside % and Pollutants	Calculated Loads						
	Total Assimilative Capacity	Background Load	Existing Load	Remaining Load	Load Set Aside	Additional Point Source Load *	Additional Unused Capacity
Stillwater River - 35%							
Ammonia (kg/day)	56.7	9.2	18.9	28.6	10	7.6	11.0
Copper (kg/day)	1.404	0.196	N/A	1.208	0.423	≤ 0.785* *	**
Stillwater River - 70%							
Ammonia (mg/l)	56.7	9.2	18.9	28.6	20	7.6	1.0
Copper (ug/l)	1.4.4	0.196	N/A	1.208	0.846	≤0.362* *	**
Kokosing River - 35%							
Ammonia (mg/l)	133.2	1.65	113.6	17.95	6.28	3.8	7.87
Lead (ug/l)	1.567	0.082	N/A	1.485	0.52	≤0.965* *	**
Kokosing River - 70%							
Ammonia (kg/day)	133.2	1.65	113.6	17.95	12.562	3.8	1.59
Lead (kg/day)	1.567	0.082	N/A	1.485	1.040	≤ 0.445* *	**

* For ammonia the discharge of sanitary wastewater is governed the technology performance standard (BADCT) of 1 mg/l.

* * The allocation of metal loads to the existing source and new source(s) is determined on a case specific basis and must be equal to or less than the value in additional point source load column. If less, the difference between that allocated to point sources and this value is unused capacity.

Table 4. Permit limits and instream concentrations of heavy metals under current and proposed antidegradation rules.

River (pollutant)	Rule and Classification	Highest Permit Limit Allowable	Resulting instream concentration	Controlling Factor
Stillwater River (copper)	Existing State Resource Water	6 ug/l	5.3 ug/l	<i>De Minimus</i> (5%) change instream no SEJ review
	Proposed State Resource Water	21.3 ug/l	9.9 ug/l	70% set aside SEJ review
	Proposed Superior High Quality Water	46 ug/l	17.4 ug/l	35% set aside SEJ review
	Proposed General High Quality Water	71 ug/l	25 ug/l	no set aside WQS criteria SEJ review
Kokosing River (lead)	Existing State Resource Water	1.2 ug/l	1.05 ug/l	<i>De Minimus</i> (5%) change instream no SEJ review
	Proposed State Resource Water	19.6 ug/l	6.1 ug/l	70% set aside SEJ review
	Proposed Superior High Quality Water	42.5 ug/l	12.4 ug/l	35% set aside SEJ review
	Proposed General High Quality Water	65.3 ug/l	19 ug/l	no set aside WQS criteria SEJ review

Olentangy River

- Local Watershed Group: Nine active organizations including Friends of the Lower Olentangy Watershed, Olentangy River Alliance, and Olentangy River Valley Association.
- Protected lands within watershed of approximately 2,130 acres

Little Miami River

- Local Watershed Group: Little Miami, Inc.
- Protected lands with watershed of over 2,790 acres
- Recreational uses include adjacent bike trail with estimated annual usage of 420,000 people annually and seven canoe liveries with a total estimated value of annual business exceeding \$1.7 million.

Sandusky River

- Local Watershed Group: Sandusky River Watershed Coalition
- Protected lands of approximately 1,070 acres within the watershed
- Actively promoting stream buffers, establishing wetlands, encouraging conservation tillage, providing education, and reducing sediment, nutrient, and pesticide loading,

Stillwater River and Greenville Creek

- Local Watershed Group: Stillwater River Association
- Protected lands of approximately 2,680 acres
- Over \$2 million raised for the Stillwater Project to improve water quality through implementation of best management practices, restoration/protection of riparian zones, and reduction of nonpoint source pollution.

Upper Cuyahoga River

- Local Watershed Group: Friends of the Crooked River
- Protected lands of 33,400 acres

Conclusions

The conclusions reached are as follows:

- ▶ except for the Maumee River, all of the State's scenic rivers have extensive reaches that are among the most ecologically valuable in Ohio and are therefore proposed as State Resource Waters;
- ▶ the set asides of remaining pollutant load assimilative capacity imposed by the proposed antidegradation rule do not impact existing point source discharge permit limits;
- ▶ new or expanded sources of sanitary wastewater (e.g., city and county sewage treatment plants) are not adversely impacted by the proposed set asides;
- ▶ new or expanded industrial sources of toxic chemicals that require permit limits (i.e., heavy metals and organic chemicals from direct industrial discharge or industrial contributions to municipal sewage plants) can receive higher discharge limits under the proposed set aside provisions than compared to the limits allowable under the existing rule for State Resource Waters;
- ▶ the SRW classification and the associated set aside of 70% provides a greater margin of protection than the SHQW classification and will result in a significantly better water quality with regards to instream heavy metal concentrations; and
- ▶ the substantial public and private investments made in the State's scenic rivers attest to their ecological and recreational value.

For Further Information

Questions and requests for files or documents referenced should be addressed to Mr. Chris Skalski at the following address:

Ohio EPA, Lazarus Government Center, P.O. Box 1049, Columbus, Ohio 43216-1049.
Phone: (614) 644-2028 Fax: (614) 644-2745 E-mail: chris.skalski@epa.state.oh.us.

The proposed antidegradation rules and many of the supporting documents are also available on the Division of Surface Water website <http://www.epa.state.oh.us/dsw>.

Attachment 1

List of the 32 streams proposed as State Resource Waters. The streams in **bold** (19) are also State or National Scenic Rivers.

Water body name	Tributary of	Drainage basin
Aurora branch - state route 82 (RM 17.08) to the mouth	Chagrin river	Chagrin
Bantas fork	Twin creek	Great miami
Big darby creek	Scioto river	Scioto
Captina creek - north/south forks (RM 25.42) to state route 7 (RM 0.70)	Ohio river	Central ohio tributaries
Chagrin river - aurora branch (RM 27.09) to state route 6 (RM 11.1)	Lake erie	Chagrin
Conneaut creek - state line (RM 23.83) to the mouth	Lake erie	Ashtabula
Cuyahoga river - troy-burton township line (RM 83.9) to u.s. route 14 (RM 60.75)	Lake erie	Cuyahoga
East branch chagrin river - heath road (RM 14.49) to the mouth	Chagrin river	Chagrin
Fish creek - state line (RM 5.57) to the mouth	St. joseph river	Maumee
Grand river - state route 322 (RM 67.08) to u.s.route 20 (RM 5.67)	Lake erie	Grand
Greenville creek - state line (RM 34.48) to the mouth	Stillwater river	Great miami
Kokosing river	Walhonding river	Muskingum
Little beaver creek	Ohio river	Little beaver creek
Little darby creek	Big darby creek	Scioto
Little miami river	Ohio river	Little miami
Middle fork little beaver creek - middle run (RM 8.57) to the mouth	Little beaver creek	Little beaver creek
North branch kokosing river	Kokosing river	Muskingum
North fork little beaver creek - state line (RM 7.75) to the mouth	Little beaver creek	Little beaver creek
North fork little miami river	Little miami river	Little miami
Olentangy river - delaware dam (RM 32.35) to old wilson bridge road (RM 11.45)	Scioto river	Scioto

Water body name	Tributary of	Drainage basin
Paint creek - rocky fork (RM 37.12) to north fork (RM 3.80)	Scioto river	Scioto
Pleasant run	Sugar run	Scioto
Sandusky river - u.s. route 30 (RM 82.1) to roger young memorial park in fremont (RM 16.6)	Lake erie	Sandusky
Scioto brush creek - mccullough creek (RM 10.20) to the mouth	Scioto river	Scioto
South fork scioto brush creek - shawnee creek (RM 8.30) to the mouth	Scioto brush creek	Scioto
Stillwater river - riffle road (RM 55.90) to the englewood dam (RM 9.01)	Great miami river	Great miami
Twin creek	Great miami river	Great miami
Wakatomika creek	Muskingum river	Muskingum
Walhonding river	Tuscarawas river	Muskingum
West fork little beaver creek - brush creek (RM 15.99) to the mouth	Little beaver creek	Little beaver creek
Unnamed tributary to east branch black river at RM 39.06	East branch black river	Black
Vermilion river - southwest branch (RM 47.66) to state route 2 (RM 3.15)	Lake erie	Vermilion