2013 Triennial Review of Water Quality Standards

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2013 TRIENNIAL REVIEW OF WATER QUALITY STANDARDS

The Clean Water Act (CWA) requires that States review their water quality standards every three years (Triennial Review) and revise the standards as necessary. A water quality standard consists of three parts:

1. **Designated Uses** that set goals for a water body. Examples are support of aquatic life, drinking water supply or a coldwater fishery such as trout.
2. **Criteria** that support the designated uses. There are numerous criteria for chemical substances, bacteria, acidity and physical characteristics (e.g., temperature). Examples include dissolved oxygen sufficient to support aquatic life or metals in sufficiently low concentrations that they will not interfere with aquatic life.
3. **Antidegradation policy**. Maryland has a policy in place, and updates the list of high quality waters each triennium if needed.

Note: The Maryland water quality standards are found in the Code of Maryland regulations (COMAR) at 26.08.01 – 26.08.02. Maryland regulations may be accessed online at the Division of State Documents web site: www.dsd.state.md.us. Click on COMAR Online and enter the appropriate regulatory reference.

DESIGNATED USES

During the current review of Maryland's water quality standards, careful consideration has been given to ensure waterbodies have appropriate designated uses assigned to them and that the meaning of those uses is clear. Maryland currently assigns a "Designated Use" to each waterbody. For example, a waterbody may be given the designated use *"Use I-P - Water Contact Recreation, and Protection of Nontidal Warmwater Aquatic Life, and Public Water Supply"*. This description gives the overall goal of the waterbody but does not provide, in detail, all of the specific designated uses such as agricultural water supply, industrial water supply, fishing, etc. The name *"Use I-P"* is more accurately, a group or class of designated uses. Therefore, in the interest of consistency and clarity, MDE has renamed "Use" to "Class". For example, Use I-P will become Class I-P.

DEFINITIONS

New definition for "Class" - *"Class" means the combination of waterbody type (e.g. non-tidal) and designated uses given to each waterbody.*

STREAM SEGMENT DESIGNATIONS

Designated Use Changes

MDE has biological and temperature data identifying certain waterbodies whose designated use (class) may not be accurately captured. Certain waterbodies that are currently designated as warmwater (Use I) or recreational trout waters (Use IV) maintain either a coldwater regime or have coldwater obligate species, including trout, which are indicative of a natural coldwater environment. The CWA requires that the waterbody's existing use be protected through appropriate designation. Table 1 shows those waterbodies for which MDE has data to support redesignation (reclassification).
See Table 1 - Redesignations to Use III and III-P Class waters.

Stream Segment Coordinates

Regulation .08 (Stream Segment Designations) includes geographical coordinates as well as narrative language describing and defining the extent of each waterbody and where the specific designated uses apply. In a few cases, the narrative descriptions or coordinates describing a waterbody location needed to be corrected and/or improved. In addition, multiple geographical coordinate systems are being used in this regulation. MDE has standardized the coordinate system using only latitude and longitude in decimal degree format.

WATER QUALITY CRITERIA

Toxic Substances

MDE amended and added to the toxic substance criteria found in COMAR 26.08.02.03-2. These include the addition of new criteria for the pesticides Carbaryl and Diazinon and the organic compound nonylphenol. These new and revised criteria reflect updates to EPA's National Recommended Water Quality Criteria. In addition, a correction to the criteria for alpha-BHC is

necessary. The criteria currently were published incorrectly in COMAR. These criteria should apply only to human health.

Ammonia Criteria

Formulas for the acute and chronic criteria for ammonia, found in the footnotes for their respective tables, were found to have errors - likely a result of transcribing and formatting into COMAR. MDE corrected and made the formatting changes to these formulas, which are used to calculate specific criteria based on the resources present.

Ammonia Criteria Corrections:
The acute water quality criteria for total ammonia where salmonids may be present were calculated using the following equation, which may also be used to calculate unlisted values:
Acute water quality criteria for ammonia (salmonids present):

$$= \frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}$$

The acute water quality criteria for total ammonia where salmonids are absent were calculated using the following equation, which may also be used to calculate unlisted values: Acute water quality criteria for ammonia (salmonids absent):

$$= \frac{0.411}{1+10^{7.204-pH}} + \frac{58.4}{1+10^{pH-7.204}}$$

The freshwater chronic water quality criteria for total ammonia where fish early life stages may be present were calculated using the following equation, which may also be used to calculate unlisted values:

Freshwater chronic water quality criterion for ammonia (fish early life stages present):

$$= \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) \times MIN(2.85, 1.45 \times 10^{0.028\times(25-T)})$$

The freshwater chronic water quality criteria for total ammonia where fish early life stages are absent were calculated using the following equation, which may also be used to calculate unlisted values:

Freshwater chronic water quality criterion for ammonia (fish early life stages absent):

$$= \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) \times 1.45 \times 10^{0.028\times(25-MAX(T,7))}$$

Color

The current water quality criterion for color applies to all waters except those designated as Use

I-P. When this criterion was initially adopted, it should have applied to all waters. However, Use I-P waters were inadvertently excluded. This correction was made.

Restoration Variances

"Restoration Variance", as defined in COMAR 26.08.01.01 *"means a temporary exception to the water quality standards allowing nonattainment of designated uses granted in situations where no enforcement action will be taken if the nonattainment is due to the existence of one or more of the justifications in 40 CFR §131.10(g). Restoration variances will be reviewed every 3 years at a minimum as required by the Clean Water Act and EPA regulations."*

The following Chesapeake Bay Segments have been assigned restoration variances:

- Chesapeake Bay Mainstem Segment 4 mesohaline (CB4MH)
- Patapsco River mesohaline (PATMH)
- Lower Chester River Mesohaline (CHSMH)
- Eastern Bay Mesohaline (EASMH)

COMAR 26.08.02.02 C. (8)(h) further explains, "*The percentage of allowable exceedance for restoration variances is based on water quality modeling and incorporates the best available data and assumptions. The restoration variances are temporary, and will be reviewed at a minimum every three years, as required by the Clean Water Act and EPA regulations. The variances may be modified based on new data or assumptions incorporated into the water quality model."*

A combination of the Chesapeake Bay observed Water Quality data and the Chesapeake Bay Modeling framework is used to support the development of Maryland's Chesapeake Bay water quality standards (i.e. those standards associated with Use II waters), criteria, TMDL, and Watershed Implementation Plan. Since the development of the Bay TMDL (2010) and subsequent Phase I (2010) and Phase II (2012) Watershed Implementation Plans, the existing data and modeling tools continue to confirm the same water quality variances that are adopted into Maryland's water quality standards. Therefore, amendments to the restoration variances are not warranted at this time.

ANTIDEGRADATION

Based on recent biological monitoring information, eight high quality (Tier II) waters were added to the current list of 236 high quality waters.
See Table 2 - Additions to list of Tier II Waters

TABLE 1 -STREAM SEGMENT DESIGNATIONS

Redesignations to Use III and III-P Class waters.

COMAR Description	Previous Use (Class)	New Use (Class)	COMAR Limits	LAT	LONG
Shade Run and all tributaries	I	III		39.6844552	-79.1641487
Spiker Run and all tributaries	I	III		39.6800005	-79.1698678
North Branch Casselman River and all tributaries	I	III		39.6685382	-79.1777412
Puzzley Run and all tributaries	I	III		39.7218528	-79.2322542
Unnamed tributary to the Casselman River and all tributaries to this unnamed tributary	I	III	Headwaters begin near intersection of Route 40 and Chestnut Ridge Road	39.7093648	-79.1173885
Mill Run and all tributaries	I-P	III-P	Upstream from Route 220 McMullen Highway	39.5336526	-78.8861738
Piney Creek and all tributaries	I-P	III-P	Upstream from Frostburg Watershed boundary	39.7213232	-78.9600853
North Branch Potomac River	I-P	III-P	Mainstem only, From Jennings Randolph Dam downstream to confluence with Laurel Run near Bloomington	39.4742592	-79.1054876
Wet Stone Branch and all tributaries	IV-P	III-P		39.6471461	-76.4317120
Unnamed tributary to Deer Creek and all tributaries to this unnamed tributary	IV-P	III-P	Near Rock Ridge Road	39.6379398	-76.4245606
Little Deer Creek and all tributaries	IV-P	III-P		39.6607883	-76.4397319
Elbow Branch and all tributaries	IV-P	III-P		39.6184678	-76.1692399
Unnamed tributary to the South Branch Patapsco River at Marriottsville and all tributaries to this unnamed tributary	I	III		39.3519555	-76.8989854
Cowen Run and all tributaries	I	III		39.4308087	-76.5225735
Piney Branch and all tributaries	I	III		39.3570494	-76.9965431
Lanes Run and all tributaries	IV-P	III-P	Upstream of confluence with Indian Springs Run	39.6669055	-77.9940741
White Sulfur Run and all tributaries	IV-P	III-P		39.6608966	-78.4581858
Fifteenmile Creek and all tributaries	IV-P	III-P	Upstream of the intersection of Fifteenmile Creek Road and Route 40	39.6824187	-78.4575429

COMAR Description	Previous Use (Class)	New Use (Class)	COMAR Limits	LAT	LONG
Terrapin Run and all tributaries	IV-P	III-P	Upstream from Route 68	39.6688543	-78.4333885
Spring Lick and all tributaries	IV-P	III-P		39.6561599	-78.3968523
Big Run (along Green Ridge) and all tributaries	I-P	III-P		39.5247372	-78.5334971
Unnamed tributary to the Potomac River that flows through Twigg Hollow and all tributaries to this unnamed tributary	I-P	III-P	Upstream of terminus of Outdoor Club Road	39.5792199	-78.4609021
Unnamed tributary to the Potomac River that flows through Roby Hollow and all tributaries to this unnamed tributary	I-P	III-P		39.5885947	-78.4299873
Unnamed tributary to the Potomac River that flows through Devil's Alley and all tributaries to this unnamed tributary	I-P	III-P		39.6076989	-78.4282339
Unnamed tributary to Sideling Hill Creek at Piney Grove	IV-P	III-P	Upstream of the intersection of Orleans Road and Route 40	39.7056806	-78.3773562
Unnamed Tributary to Sideling Hill Creek that flows through Swain Hollow and all tributaries to this unnamed tributary	IV-P	III-P		39.6785489	-78.3409787
Munson Spring Branch and all tributaries	I-P	III-P	Upstream from a point due north of the Route 68 Exit 77	39.7056257	-78.2467556
Unnamed Tributary to Rattle Run that flows through the Hickory Ridge Unit and all tributaries to this unnamed tributary	IV-P	III-P		39.6922482	-78.0222777
Unnamed Tributary to Little Conococheague Creek at Polecat Hollow Road and all tributaries to this unnamed tributary	I-P	III-P	From confluence with Little Conococheague parallel to Polecat Hollow Road	39.6918722	-77.9399516
Middle Creek and all tributaries	I-P	III-P	Upstream of the confluence with an unnamed trib south of Geaslin Drive	39.4488291	-77.6033433
Unnamed tributary to Talbot Branch and all tributaries to this unnamed tributary	IV-P	III-P	Stream's mouth is located near intersection of Black Ankle Road and Talbot Run Road	39.4558870	-77.1606506

COMAR Description	Previous Use (Class)	New Use (Class)	COMAR Limits	LAT	LONG
Unnamed tributary to Talbot Branch and all tributaries to this unnamed tributary	IV-P	III-P	Stream's mouth is located 500 meters east of the intersection of Black Ankle Road and Talbot Run Road	39.4540041	-77.1541741
Unnamed tributary to Big Pipe Creek and all tributaries	IV-P	III-P	Upstream from confluence with another unnamed tributary just south of Wine Road	39.6758210	-76.9415526
Unnamed tributary to Broad Creek and all tributaries	I-P	III-P	Upstream of confluence with another unnamed tributary	39.6896953	-76.2378228
Happy Valley Branch and all tributaries	I	III	Upstream of Route 222 Bainbridge Road	39.6021243	-76.0942468
Unnamed tributary to the Susquehanna River and all tributaries	I	III		39.5796186	-76.0878535
Little Morgan Run and all tributaries	I	III	Upstream from confluence with unnamed tributary near Klees Mill Road	39.4369889	-76.9878922
Bennett Creek and all tributaries	I-P	III-P	Upstream from confluence with Unnamed tributary	39.3024462	-77.2177073

TABLE 2 - TIER II WATERS

Additions to list of Tier II Waters:

Date	Stream Name	County	12-Digit Watershed	From Lat	From Long	To Lat	To Long	Baseline:			
2012	Beaver Run 2	Carroll	021309071057	39.51555	-76.93302	39.50302	-76.91245	Fish IBI:	4.50	Benthic IBI:	4.00
2012	Bens Run 1	Baltimore	021309061018	39.31682	-76.79279	39.31402	-76.79400	Fish IBI:	4.44	Benthic IBI:	4.00
2012	Buffalo Run 3	Garrett	050202010019	39.68781	-79.41738	39.68685	-79.41002	Fish IBI:	4.00	Benthic IBI:	4.25
2012	Cattail Branch UT 1	Harford	021202020328	39.62017	-76.49403	39.63521	-76.49927	Fish IBI:	5.00	Benthic IBI:	4.33
2012	Fisherman Creek 1	Saint Mary's	021401030712	38.21065	-76.40307	38.19762	-76.41925	Fish IBI:	4.67	Benthic IBI:	4.00
2012	Mattawoman Creek 2	Charles, Prince George's	021401110786	38.65234	-76.90833	38.65252	-76.91689	Fish IBI:	4.00	Benthic IBI:	4.14
2012	Swanson Creek 4	Charles	021311010892	38.56522	-76.76043	38.56323	-76.75701	Fish IBI:	4.00	Benthic IBI:	4.60
2012	Zekiah Swamp Run 7	Charles	021401080768	38.61910	-76.82968	38.61393	-76.83266	Fish IBI:	4.17	Benthic IBI:	4.86