

Water quality standards for Deep Creek watershed (lake and tributary streams)

Surface water quality standards

Maryland's surface water quality standards (including all surface waters in the Deep Creek watershed) are defined in Code of Maryland Regulations (COMAR) - 26.08.02 (MD Dept. Environment Water Quality regulations), accessible through the Division of State Documents web site at: http://www.dsd.state.md.us/comar/SubtitleSearch.aspx?search=26.08.02.* and select the appropriate regulatory reference.

A water quality standard consists of three parts:

- **Designated Uses** that set one or more goals for a water body (e.g., support of aquatic life, drinking water supply or a coldwater fishery). ***NOTE:** The present application of "Use" will be changed to "Class" if proposed changes in Maryland's water quality standards are approved by EPA. In this summary, the proposed "Class" is utilized.*
- **Criteria** are established water quality limits that, when met, support the designated uses and may include specific, numeric criteria for certain chemical substances, bacteria, acidity and physical characteristics (e.g., temperature) as well as narrative criteria that may describe pollutants or a class of pollutants without specific criteria (e.g., metals at concentrations that are low enough that they will not interfere with aquatic life).
- **Antidegradation policy** - which describes State policy to not allow waters to degrade and lists and updates a listing of high quality waters in the State

This approach was developed within amendments to the federal Water Pollution Control Act (pre-1972) and redefined in the federal Clean Water Act of 1972 and its amendments. States are required to review and update their standards every three years or as necessary.

For more information about the State's water quality standards process, contact John Backus, Environmental Pgm Mgr, MD Dept. Environment, Science Svcs. Admin., 1800 Washington, Blvd., Baltimore, MD Baltimore (<mailto:jbackus@maryland.gov> ; tel #410-537-3965)

Ground water quality standards?

For various historic, legal, political and technical reasons, protection of ground water quality does not follow the surface water approach. There are a myriad of federal and State programs designed to protect ground water to support varied uses (some of the same uses defined for surface waters). These protection efforts include: wellhead protection programs to protect ground water sources of drinking water, Underground Injection Control Programs to manage waste and storage wells, ground water withdrawal permits and monitoring ground water quality. Efforts to identify ground water/aquifer areas, existing quality and use documentation and criteria development for different ground waters classes are often limited to priority areas (some States have defined Statewide ground water quality standards)

See, "Groundwater jurisdiction under the Clean Water Act: The tributary groundwater dilemma" - online at: <http://lawdigitalcommons.bc.edu/cgi/viewcontent.cgi?article=1337&context=ealr> for an interesting read on the subject.

Deep Creek Lake watershed - water quality standards

COMAR 26.08.02.xx - Designated uses

Surface waters of the Deep Creek watershed (Maryland 8-digit watershed - 05020203), including:

- Deep Creek Lake,
- all tributaries draining to the lake, and
- the portion of Deep Creek between the Youghiogheny River and the dam

- are all classified as **Class III-P (Nontidal Cold Water and Public Water Supply) - 26.08.02.02B(6)**.

The only portion of the mainstem Youghiogheny River watershed in Maryland (not including tributaries of and the Casselman River) not classified as Class III-P is upstream of the Broadford Lake dam, which is designated as **Class I-P - (Water Contact Recreation, Protection of Aquatic Life, and Public Water Supply) - 26.08.02.02B(2)**, a similar, but warm-water (non-trout) public water supply classification.

A map showing designated uses of surface waters in Garrett County is shown in a separate file (GarrettCoDesignatedUse_2010_For_DCL_WQSc.pdf)

26.08.02.03(B) - General uses

Any reasonable and lawful use is permitted provided that the surface water quality is not adversely affected by the use. General criteria here are narrative - prohibiting pollution (defined as creating a nuisance or interfering with designated uses or is unsightly, creating taste or odor problems, changing the existing color of water, or are harmful to human, animal, plant or aquatic life) by:

- substances attributable to sewage, industrial waste, or other waste that will settle and create a sludge deposit
- material, such as floating debris, oil, grease, scum and other floating material attributable to sewage, industrial waste or other sources,
- high temperatures or corrosive substances ,
- toxic substances and acute toxicity.

NOTE: Local laws (water supply reservoir rules) may restrict specific uses to protect drinking water quality, including restricting public access, prohibiting water contact recreation or limit boating).

26.08.02.02B - Designated Uses

Class III-P waters are suitable for:

- water contact sports;
- play and leisure time activities where individuals may come in direct contact with the surface water;
- fishing;
- growth and propagation of fish (other than trout), other aquatic life, and wildlife;
- agricultural water supply;
- industrial water supply;
- public water supply, and specifically
- have the potential for/are suitable for growth and propagation of trout and are capable of supporting self-sustaining trout populations and their associated food organisms.

(NOTE: Not all of the more general uses have to exist simultaneously)

26.08.02.03-3 - Water Quality Criteria Specific to Designated Uses.

For each water Class, there are specific criteria defined to protect all uses for a class, including, Class III-P waters - (**COMAR 26.08.02.03-3(E)**):

- **dissolved oxygen** - not less than 5 mg/L at any time
- **water temperature** - may not exceed 68°F (20°C) *or* the ambient temperature of surface waters (ambient water temperature - defined as not impacted by a point source discharge)
- **pH** - not less than 6.5 or greater than 8.5
- **chlorophyll** (in reservoirs classified as Class III-P) – where:
 - (1) The arithmetic mean of a number of chlorophyll **a** samples measured during the growing season (May 1 to September 30) as a 30-day moving average may not exceed 10 micrograms per liter; and
 - (2) the 90th-percentile of measurements taken during the growing season may not exceed 30 micrograms per liter
- **bacteria** - specific limits for *Enterococci* or *Escherichia (E.) coli* – depending on the frequency of use (see table below) details in COMAR 26.08.02.03-3 (A)(1)(a. Table 1).

Freshwater	All Areas	Frequent use (Upper 75% CL)	Moderately Frequent use (Upper 82% CL)	Occasional use (Upper 90% CL)	Infrequent use (Upper 95% CL)
<i>Enterococci</i>	33	61	78	107	151
<i>E. coli</i>	126	235	298	410	576

CL = confidence level All bacterial numbers are counts per 100 milliliters

- **color** - in surface water may not exceed 75 units (a light brown color) as a monthly average - measured in Platinum Cobalt (PtCo) units. (**NOTE: Color can affect water clarity but it is usually measured in surface waters only with respect to assessing drinking water quality in raw and/or finished water – not as a routine measurement for other uses. Color can affect water clarity - measured by Secchi depth).**
- **total residual chlorine** – 0 (zero), as chlorine or chlorine-containing compounds may not be used in the treatment of wastewaters (required to support trout as sensitive, cold-water species)
- **turbidity** - may not exceed levels detrimental to aquatic life (usually addressing limits established for dredging/discharge activities to not to exceed 50 NTU (nephelometric turbidity units)).

26.08.02.03-1 - Toxic Substance Water Quality Criteria for Surface Waters - describing the application of **26.08.02.03-2** - a long list of Numerical Criteria for Toxic Substances defining the upper limits of toxic pollutants protecting aquatic life from acute (short-term) and chronic (long-term) toxicity impacts and human health, for consumption of water and/or fish under the following material categories:

- Inorganic substances
- Organic substances
- Polycyclic aromatic hydrocarbons
- Pesticides and chlorinated compounds, and
- Ammonia - acute and chronic exposure