

# Environmental Water Quality: Georgia's Water Quality Standards

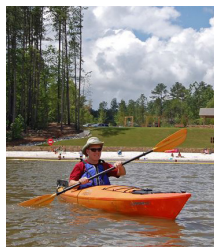
Revised by Gary L. Hawkins, UGA Extension Water Quality Coordinator

The Environmental Protection Division (GAEPD) of the Georgia Department of Natural Resources (GADNR) is responsible for setting and enforcing water quality standards. The goals of establishing these standards are to “provide enhancement of water quality and prevention of pollution; to protect the public health or welfare in accordance with the public interest for drinking water supplies, conservation of fish, wildlife, and other beneficial aquatic life, and agricultural, industrial, recreational, and other reasonable and necessary uses and to maintain and improve the biological integrity of the waters of the State.”

--Rules and Regulations for Water Quality Control, Chapter 391-3-6-.03(2)(a)

The State of Georgia classifies all waters into categories, which have different standards depending on the designated use of the water body. These designated uses include:

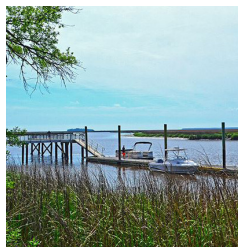
- Fishing
- Drinking Water Supply
- Recreation
- Coastal Fishing
- Wild River
- Scenic River



a)



b)



c)



d)



e)

Examples of designated uses: a) recreation, b) wild/scenic river, c) coastal fishing, d) drinking water source, e) fishing. Images from Georgia Department of Natural Resources. <http://gastateparks.org>

## How is a stream or river's designated use determined?

- Fishing: the water supports the propagation of fish, shellfish, game, and other aquatic life.
- Drinking Water Supply: Waters approved as a source for public drinking water systems permitted by the Georgia EPD. Waters classified for drinking water supplies will also support fishing use and any other use requiring water of a lower quality.
- Recreation: the water supports general recreational activities such as water skiing, boating, or swimming.
- Wild River/Scenic River: these are usually grouped together and refer to streams or rivers that are wild or scenic. This is the highest water quality standard.
- Coastal Fishing: refers to those waters along the ocean side of Georgia's coast that support recreational and commercial fishing.

## Water Quality Standards

Georgia's water quality standards consist of two groups of criteria; the general criteria that apply to all waters and the specific criteria that change based on use.

### General water quality

The general water quality criteria include:

- Waters shall be free of materials, oils, and scum associated with municipal or domestic sewage, industrial waste, or any other waste that will settle to form sludge deposits, produce turbidity, color, or odor, or that may otherwise interfere with legitimate water uses.
- Waters shall be free from toxic, corrosive, acidic, and caustic substances in amounts that are harmful to humans, animals, or aquatic life.

General criteria also include acute (one time exposure) and chronic (exposure over a period of time) concentrations of metals, as well as maximum allowable concentrations of pollutants such as pesticides and other chemicals.

These criteria can be found in the GAEPD's document "Rules and Regulations for Water Quality Control."



### Specific water quality criteria

The specific criteria for water quality depends on: Fecal Coliform/bacteria, Dissolved Oxygen, pH, Temperature, metals, pesticides and other organic chemicals.

Based on Georgia Rules and Regulations for Water Quality Control (Chapter 391-3-6-.03) .

A more detailed discussion of what each specific water quality criteria follows:

The presence of *Fecal Coliform Bacteria* in water bodies indicates that the water has been contaminated with fecal material of man or animals. The presence of bacteria not only decreases the quality of the environment for aquatic life, but also indicates a potential health risk to humans and animals exposed to the water.

*Dissolved Oxygen (DO)* is the amount of oxygen dissolved in water. Aquatic life, including fish and plants, depend on DO for survival. Concentration of DO in water is highly dependent on temperature (higher temperature, lower DO) but pollution also tends to lower the DO.

*pH* indicates the acidity or basic nature of a solution. pH should be relatively neutral (around 7.0) to support aquatic life. Lemon juice is acidic, with a pH of 2.2-2.4, while baking soda is basic, with a pH of 8.0.

*Temperature* affects the capability of chemicals and other pollutants to dissolve in water. Therefore, increased temperature makes it easier for pollutants to dissolve. Temperature also affects dissolved oxygen content; DO decreases as temperatures increase. Consequently, high temperatures are detrimental to aquatic life.

*Nutrients*, such as nitrogen and phosphorus, are needed by most aquatic plants and fish. However, excessive levels of these nutrients can cause too much plant and algal growth. This will lower the DO, increase turbidity, and may decrease recreational opportunities. Currently, Georgia only has nutrient standards on a limited number of lakes, however nutrient standards for all waters will be established in the near future. The following table list the specific water quality criteria for the General water uses.

	<b>Fecal Coliform Bacteria</b>	<b>Dissolved Oxygen</b>	<b>pH</b>	<b>Temperature</b>
Drinking Water Supply (not treated drinking water)	May-Oct: < 200 colonies/100mL as geometric mean Nov-Apr: < 4000 colonies/100mL (instantaneous max)	> 5 mg/L daily average Not < 4 mg/L at all times	Between 6.0 and 8.5	< 90°F
Recreation	Coastal waters: 100 colonies/100mL Other: 200 colonies/100mL	> 5 mg/L daily average Not < 4 mg/L at all times	Between 6.0 and 8.5	< 90°F
Fishing	May-Oct: < 500 colonies/100mL as geometric mean Nov-Apr: < 4000 colonies/100mL (instantaneous max)	> 5 mg/L daily average Not < 4 mg/L at all times	Between 6.0 and 8.5	< 90°F
Coastal Fishing	May-Oct: < 500 colonies/100mL as geometric mean Nov-Apr: < 4000 colonies/100mL (instantaneous max)	Site specific	Between 6.0 and 8.5	< 90°F
Wild River	No alteration of natural WQ			
Scenic River	No alteration of natural WQ			

### How do I know if waters in my area are meeting Georgia’s water quality standards?

All waters in the State of Georgia that do not meet Georgia’s standards are placed on the Georgia 303(d) list. The 303(d) list (named for the section of the Federal Clean Water Act that requires it) is a list that identifies the polluted water bodies in the State and sets priorities for their clean up. A water body qualifies for this list if it is polluted or otherwise degraded to a point where it cannot support its designated use (based on water quality monitoring). This list is closely connected to water quality standards. If a water body violates water quality standards set by the State of Georgia, it will likely be included in the 303(d) list. The Georgia Environmental Protection Division of the Georgia Department of Natural Resources provides the Georgia 303(d) list of impaired waters on their website at <https://epd.georgia.gov/georgia-305b303d-list-documents> . The U.S. Environmental Protection Agency (USEPA) also has list of impaired waters on their Surf Your Watershed web page at [www.epa.gov/surf](http://www.epa.gov/surf).

If a water body that you are concerned about is not on the list or the EPA’s website, it does not necessarily mean that it meets state standards because water quality can change over time and some water bodies have not yet been monitored.

If you suspect a water body in your area may not meet water quality standards, ask your local Extension Agent how you can determine if the stream meets state standards. You can also contact the Georgia Environmental Protection Division or your local Regional Development Center (contact information on page 4).

The Georgia Environmental Protection Division (GAEPD) is responsible for submitting a completed 303(d) list of impaired waters to Congress every two years.

### **Categorized uses:**

- Water bodies are categorized using a 5-part system. The GAEPD adopted the five-part categorization method in 2008. The five-part system is: (Category 1 – Data indicate that waters are meeting their designated use(s).
- Category 2 – A water has more than one designated use and data indicate that at least one designated use is being met, but there is insufficient evidence to determine whether all uses are being met.
- Category 3 – There is insufficient data/information to make a determination as to whether or not the designated use(s) is being met.
- Category 4a – Data indicate that at least one designated use is not being met, but a TMDL(s) has been completed for the parameter(s) that is causing a water not to meet its use(s). Category 4b - Data indicate that at least one designated use is not being met, but there are actions in place (other than a TMDL) which are predicted to lead to compliance with water quality standards.
- Category 4c – Data indicate that at least one designated use is not being met, but the impairment is not caused by a pollutant.
- Category 5 – Data indicate that at least one designated use is not being met and TMDL(s) need to be completed for one or more pollutants.
- A water body is assessed as supporting its designated use (Category 1) if all criteria are met.
- A water body is placed on the not supporting list (Category 4 or 5) if the conditions as listed above are true.
- A water body is placed on the use assessment pending (Category 2 or 3) if the conditions as listed above are true.
- A water body can be listed on two different categories if for example it is impaired for two or more pollutants.

### **What are the main sources of water quality impairment in Georgia?**

- Water bodies in Georgia are typically impaired due to one or more of the following conditions or pollutants: Fecal coliform
- Low dissolved oxygen
- Metals (lead, copper, zinc, mercury)
- Fish consumption guidelines
- Impacted biological communities
- pH
- Toxicity
- Sediment

From: EPA's 2000 Section 303 (d) List Fact Sheet for Georgia.

### **What happens if a water body in my area makes the 303(d) list?**

If a water body does not meet water quality standards and is consequently listed on the 303(d) list, it is a candidate for a Total Maximum Daily Load (TMDL) being set. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards. It also includes an allocation of that amount to the sources of pollution. A TMDL adds up all of the allowable loads of a single pollutant from all the point and nonpoint sources that contribute pollution. It also takes into account error by introducing a margin of safety and requires that a clean-up plan be developed and implemented. For more information on TMDLs please see UGA Extension Bulletin 1242-2: Total Maximum Daily Loads in Georgia.

### **Contacts and More Information**

Your local County Extension Agent can help answer questions concerning water quality and Total Maximum Daily Loads. To contact them you can call 1-800-ASK-UGA1 or find them on the UGA website at <http://extension.uga.edu>.

### **Other Resources**

- Georgia EPD:  
<http://epd.georgia.gov/georgia-water-quality-standards>
- Georgia's Regional Commissions:  
Northwest Georgia – [www.nwgrc.org](http://www.nwgrc.org)  
Georgia Mountains – [www.gmrc.ga.gov](http://www.gmrc.ga.gov)  
Atlanta – <http://atlantaregional.com>  
Three Rivers – [www.threeriversrc.org](http://www.threeriversrc.org)  
Northeast Georgia – [www.negrcc.org](http://www.negrcc.org)  
Middle Georgia – [www.middlegeorgiarc.org](http://www.middlegeorgiarc.org)  
Central Savannah River Area – <http://csrarc.ga.gov>  
River Valley – [www.rivervalleyrc.org](http://www.rivervalleyrc.org)  
Heart of Georgia Altamaha – [www.hogarc.org](http://www.hogarc.org)  
Southwest Georgia – [www.swgrc.org](http://www.swgrc.org)  
Southern Georgia – [www.sgrc.us](http://www.sgrc.us)  
Coastal – [www.crc.ga.gov](http://www.crc.ga.gov)
- Georgia's Rules and Regulations for Water Quality Control:  
<http://rules.sos.state.ga.us/docs/391/3/6/03.pdf>
- EPA's Surf Your Watershed:  
[www.epa.gov/surf/](http://www.epa.gov/surf/)
- University of Georgia Environmental Services Laboratory:  
<http://aesl.ces.uga.edu/>

### **References**

Georgia EPD 2014 Listing Methodology - [https://epd.georgia.gov/sites/epd.georgia.gov/files/related\\_files/site\\_page/303d\\_Listing\\_Methodology\\_Y2014.pdf](https://epd.georgia.gov/sites/epd.georgia.gov/files/related_files/site_page/303d_Listing_Methodology_Y2014.pdf)

*extension.uga.edu/publications*

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