CHAPTER 3

Water Quality Monitoring And Assessment

Background

Water Resources Atlas The river miles and lake acreage estimates are based on the U.S. Geological Survey (USGS) 1:100,000 Digital Line Graph (DLG), which provides a national database of hydrologic traces. The DLG in coordination with the USEPA River Reach File provides a consistent computerized methodology for summing river miles and lake acreage. The 1:100,000 scale map series is the most detailed scale available nationally in digital form and includes 75 to 90 percent of the hydrologic features on the USGS 1:24,000 scale topographic map series. Included in river mile estimates are perennial streams (streams that flow all year), intermittent streams (streams that stop flowing during dry weather), and ditches and canals (waterways constructed by man).

The estimates for Georgia are 44,056 miles of perennial streams, 23,906 miles of intermittent streams, and 603 miles of ditches and canals for a total of 70,150 geological stream miles. The estimates for the number of lakes in Georgia are 11,813 with a total acreage of 425,382. This information is summarized in Table 3-1.

Georgia has 14 major river basins. These are the Altamaha, Chattahoochee, Coosa, Flint, Ochlockonee, Ocmulgee, Oconee, Ogeechee, St. Marys, Satilla, Savannah, Suwannee, Tallapoosa, and the Tennessee. The rivers in Georgia provide the water needed by aquatic life, animals and humans to sustain life. Water also provides significant recreational opportunities, is used for industrial purposes, drives turbines to provide electricity, and assimilates our wastes.

Water Use Classifications and Water Quality Standards The Board of Natural Resources is authorized through the Rules and Regulations for Water Quality Control to establish water use classifications and water quality standards for the waters of the State.

For each water use classification, water quality standards or criteria have been developed, which establish the framework used by the Environmental Protection Division to make water use regulatory decisions. All of Georgia's waters are currently classified as fishing, recreation, drinking water, wild river, scenic river, or coastal fishing. Table 3-2 provides a summary of water use classifications and criteria for each use. Georgia's rules and regulations protect all waters for the use of primary contact recreation by having a fecal coliform bacteria standard of a geometric mean of 200 per 100 ml for all waters with the use designations of fishing or drinking water to apply during the months of May - October (the recreational season).

TABLE 3-1. WATER RESOURCES ATLAS

State Population (2006 Estimate)	9,383,941
State Surface Area	57,906 sq.mi.
Number of Major River Basins	14
Number of Perennial River Miles	44,056 miles
Number of Intermittent River Miles	23,906 miles
Number of Ditches and Canals	603 miles
Total River Miles	70,150 miles
Number of Lakes Over 500 Acres	48
Acres of Lakes Over 500 Acres	265,365 acres
Number of Lakes Under 500 Acres	11,765
Acres of Lakes Under 500 Acres	160,017 acres
Total Number of Lakes & Reservoirs, Ponds	11,813
Total Acreage of Lakes, Reservoirs, Ponds	425,382 acres
Square Miles of Estuaries	854 sq.mi.
Miles of Coastline	100
Acres of Freshwater Wetlands	4,500,000 acres
Acres of Tidal Wetlands	384,000 acres

Georgia has also adopted 31 numeric standards for protection of aquatic life and 92 numeric standards for the protection of human health. Table 3-3 provides a summary of toxic substance standards that apply to all waters in Georgia.

Georgia has six large publicly owned lakes that have specific water quality standards. These lakes are West Point, Jackson, Walter F. George, Lanier, Allatoona, and Carter's. Standards were adopted for chlorophyll-a,

TABLE 3-2. WATER USE CLASSIFICATIONS AND INSTREAM WATER QUALITY STANDARDS FOR EACH USE

	Bacteria (fecal coliform)		Dissolved Oxygen[1] (other than trout streams)[2]		pH	Temperature (other than trout streams)[2]	
Use Classification	**30-Day Geometric Mean[3] (no./100 mL)**	**Maximum (no./100mL)**	**Daily Average (mg/L)**	**Minimum (mg/L)**	**Std. Units**	**Maximum Rise (°F)**	**Maximum (°F)**
Drinking Water requiring treatment	1,000 (Nov-April) 200 (May-Oct)	4,000 (Nov-April)	5.0	4.0	6.0-8.5	5	90
Recreation	200 (Freshwater) 100 (Coastal)	--	5.0	4.0	6.0-8.5	5	90
Coastal Fishing[4]	1,000 (Nov-Apr) 200 (May-Oct)	4,000 (Nov-Apr)	5.0 If it is determined that the "natural condition" in the waterbody is less than the values stated above, then the criteria will revert to the "natural condition" and the water quality standard will allow for a 0.1 mg/L deficit from the "natural" dissolved oxygen value. Up to a 10% deficit will be allowed if it is demonstrated that resident aquatic species shall not be adversely affected.	4.0	6.0-8.5	5	90
Fishing	1,000 (Nov-April) 200 (May-Oct)	4,000 (Nov-April)	5.0	4.0	6.0-8.5	5	90
Wild River		No alteration of natural water quality					
Scenic River		No alteration of natural water quality					

[1]The dissolved oxygen criteria as specified in individual water use classifications shall be applicable at a depth of one meter below the water surface; in those instances where depth is less than two meters, the dissolved oxygen criterion shall be applied at a mid-depth. On a case specific basis, alternative depths may be specified.

[2]Standards for Trout Streams for dissolved oxygen are a daily average of 6.0 mg/L and a minimum of 5.0 mg/L. No temperature alteration is allowed in Primary Trout Streams and a temperature change of 2°F is allowed in Secondary Trout Streams.

[3]Geometric means should be "based on at least four samples collected from a given sampling site over a 30-day period at Intervals not less than 24 hours." The geometric mean of a series of N terms is the Nth root of their product. Example: the geometric mean of 2 and 18 is the square root of 36.

[4]Standards are same as fishing with the exception of dissolved oxygen, which is site specific.

pH, total nitrogen, phosphorus, fecal coliform bacteria, dissolved oxygen, and temperature. Standards for major tributary phosphorus loading were also established. The standards for the six lakes are summarized in Table 3-4.

Water Quality Monitoring

Goals The goal of the watershed protection program in Georgia is to effectively manage, regulate, and allocate the water resources of Georgia. In order to achieve this goal, it is necessary to monitor the water resources of the State to establish baseline and trend data, document existing conditions, study impacts of specific discharges, determine improvements resulting from upgraded water pollution control plants and other restoration activities, support enforcement actions, establish wasteload allocations for new and existing facilities, develop TMDLs, verify water pollution control plant compliance, collect data for criteria development, and document water use impairment and reasons for problems causing less than full support of designated water uses. Trend monitoring, targeted monitoring, probabilistic monitoring, intensive surveys, lake, estuary, biological, toxic substance monitoring, aquatic toxicity testing, and facility compliance sampling are some of the monitoring tools used by the GAEPD.

TABLE 3-3. GEORGIA INSTREAM WATER QUALITY STANDARDS FOR ALL WATERS: TOXIC SUBSTANCES

(Excerpt from Georgia's Rules and Regulations for Water Quality Control Chapter 391-3-6-.03 - Water Use Classifications and Water Quality Standards)

(i) Instream concentrations of the following chemical constituents which are considered to be other toxic pollutants of concern in the State of Georgia shall not exceed the criteria indicated below under 7-day, 10-year minimum flow (7Q10) or higher stream flow conditions except within established mixing zones:

1. 2,4-Dichlorophenoxyacetic acid (2,4-D)	70 μg/L
2. Methoxychlor	0.03 μg/L*
3. 2,4,5-Trichlorophenoxy propionic acid (TP Silvex)	50 μg/L

(ii) Instream concentrations of the following chemical constituents listed by the U.S. Environmental Protection Agency as toxic priority pollutants pursuant to Section 307(a)(1) of the Federal Clean Water Act (as amended) shall not exceed the acute criteria indicated below under 1-day, 10-year minimum flow (1Q10) or higher stream flow conditions and shall not exceed the chronic criteria indicated below under 7-day, 10-year minimum flow (7Q10) or higher stream flow conditions except within established mixing zones or in accordance with site specific effluent limitations developed in accordance with procedures presented in 391-3-6-.06. Unless otherwise specified, the criteria below are listed in their total recoverable form. Because most of the numeric criteria for the metals below are listed as the dissolved form, total recoverable concentrations of metals that are measured instream will need to be translated to the dissolved form in order to compare the instream data with the numeric criteria. This translation will be performed using guidance found in "Guidance Document of Dynamic Modeling and Translators August 1993" found in Appendix J of EPA's Water Quality Standards Handbook: Second Edition, EPA-823-B-94-005a or by using other appropriate guidance from EPA.

		Acute	Chronic
1.	Arsenic		
	(a) Freshwater	340 μg/L [1]	150 μg/L [1]
	(b) Coastal and Marine Estuarine Waters	69 μg/L [1]	36 μg/L [1]
2.	Cadmium		
	(a) Freshwater	1.0 μg/L [1, 3]	0.15 μg/L [1, 3]
	(b) Coastal and Marine Estuarine Waters	40 μg/L [1]	8.8 μg/L [1]
3.	Chromium III		
	(a) Freshwater	320 μg/L [1,3]	42 μg/L [1,3]
	(b) Coastal and Marine Estuarine Waters	--	--
4.	Chromium VI		
	(a) Freshwater	16 μg/L [1]	11 μg/L [1]
	(b) Coastal and Marine Estuarine Waters	1,100 μg/L [1]	50 μg/L [1]
5.	Copper		
	(a) Freshwater	7.0 μg/L [1,2*,3]	5.0 μg/L [1,2*,3]
	(b) Coastal and Marine Estuarine Waters	4.8 μg/L [1,2]	3.1 μg/L [1,2]
6.	Lead		
	(a) Freshwater	30 μg/L [1,3]	1.2 μg/L [1,2*,3]
	(b) Coastal and Marine Estuarine Waters	210 μg/L [1]	8.1 μg/L [1]
7.	Mercury		
	(a) Freshwater	1.4 μg/L	0.012 μg/L [2]
	(b) Coastal and Marine Estuarine Waters	1.8 μg/L	0.025 μg/L [2]
8.	Nickel		
	(a) Freshwater	260 μg/L [1,3]	29 μg/L [1,3]
	(b) Coastal and Marine Estuarine Waters	74 μg/L [1]	8.2 μg/L [1]
9.	Selenium		
	(a) Freshwater	--	5.0 μg/L
	(b) Coastal and Marine Estuarine Waters	290 μg/L [1]	71 μg/L [1]
10.	Silver	-- [4]	-- [4]
11.	Zinc		
	(a) Freshwater	65 μg/L [1,3]	65 μg/L [1,3]
	(b) Coastal and Marine Estuarine Waters	90 μg/L [1]	81 μg/L [1]
12.	Lindane [Hexachlorocyclohexane (g-BHC-Gamma)]		
	(a) Freshwater	0.95 μg/L	
	(b) Coastal and Marine Estuarine Waters	0.16 μg/L	

[1] The in-stream criterion is expressed in terms of the dissolved fraction in the water column. Conversion factors used to calculate dissolved criteria are found in the EPA document – National Recommended Water Quality Criteria – EPA 2006.

[2] The in-stream criterion is lower than the EPD laboratory detection limits (A "*" indicates that the criterion may be higher than or lower than EPD laboratory detection limits depending upon the hardness of the water).
[3] The aquatic life criteria for these metals are expressed as a function of total hardness (mg/L) in a water body. Values in the table above assume a hardness of 50 mg/L CaCO3. For other hardness values, the following equations from the EPA document – National Recommended Water Quality Criteria – EPA 2006 should be used.

Cadmium
acute criteria = $(e^{(1.0166[\ln(\text{hardness})] - 3.924)})(1.136672-[(\ln \text{hardness})(0.041838)]$ μg/L
chronic criteria = $(e^{(0.7409[\ln(\text{hardness})] - 4.719)})(1.101672-[(\ln \text{hardness})(0.041838)]$ μg/L

Chromium III
acute criteria = $(e^{(0.8190[\ln(\text{hardness})] + 3.7256)}$ (0.316) μg/L
chronic criteria = $(e^{(0.8190[\ln(\text{hardness})] + 0.6848)})$(0.860) μg/L

Copper
acute criteria = $(e^{(0.9422[\ln(\text{hardness})] - 1.700)})$(0.96) μg/L
chronic criteria = $(e^{(0.8545[\ln(\text{hardness})] - 1.702)})$(0.96) μg/L

Lead
acute criteria = $(e^{(1.273[\ln(\text{hardness}) - 1.460)})(1.46203 - [(\ln \text{hardness})(0.145712)])$ μg/L
chronic criteria = $(e^{(1.273[\ln(\text{hardness}) - 4.705)})(1.46203 - [(\ln \text{hardness})(0.145712)])$ μg/L

Nickel
acute criteria = $(e^{(0.8460[\ln(\text{hardness})] + 2.255)})$(.998) μg/L
chronic criteria = $(e^{(0.8460[\ln(\text{hardness})] + 0.0584)})$(.997) μg/L

Zinc
acute criteria = $(e^{(0.8473[\ln(\text{hardness})] + 0.884)})$(0.978) μg/L
chronic criteria = $(e^{(0.8473[\ln(\text{hardness})] + 0.884)})$(0.986) μg/L

[4] This pollutant is addressed in 391-3-6-.06.

(iii) Instream concentrations of the following chemical constituents listed by the U.S. Environmental Protection Agency as toxic priority pollutants pursuant to Section 307(a)(1) of the Federal Clean Water Act (as amended) shall not exceed criteria indicated below under 7-day, 10-year minimum flow (7Q10) or higher stream flow conditions except within established mixing zones or in accordance with site specific effluent limitations developed in accordance with procedures presented in 391-3-6-.06.

1.	Chlordane (CAS RN[1] 57749)	
	(a) Freshwater	0.0043 μg/L*
	(b) Coastal and Marine Estuarine Waters	0.004 μg/L*
2.	Cyanide (CAS RN[1] 57125)	
	(a) Freshwater	5.2 μg/L*
	(b) Coastal and Marine Estuarine Waters	1.0 μg/L*
3.	Dieldrin (CAS RN[1] 60571)	
	(a) Freshwater	0.056 μg/L*
	(b) Coastal and Marine Estuarine Waters	0.0019 μg/L*
4.	4,4'-DDT (CAS RN[1] 50293)	0.001 μg/L*
5.	a-Endosulfan (CAS RN[1] 959988)	
	(a) Freshwater	0.056 μg/L*
	(b) Coastal and Marine Estuarine Waters	0.0087 μg/L*
6.	b-Endosulfan (CAS RN[1] 33213659)	
	(a) Freshwater	0.056 μg/L*
	(b) Coastal and Marine Estuarine Waters	0.0087 μg/L*
7.	Endrin (CAS RN[1] 72208)	
	(a) Freshwater	0.036 μg/L*
	(b) Coastal and Marine Estuarine Waters	0.0023 μg/L*
8.	Heptachlor (CAS RN[1] 76448)	
	(a) Freshwater	0.0038 μg/L*
	(b) Coastal and Marine Estuarine Waters	0.0036 μg/L*
9.	Heptachlor Epoxide (CAS RN[1] 1024573)	
	(a) Freshwater	0.0038 μg/L*
	(b) Coastal and Marine Estuarine Waters	0.0036 μg/L*
10	Pentachlorophenol (CAS RN[1] 87865)	
	(a) Freshwater[2]	15 μg/L*[2]
	(b) Coastal and Marine Estuarine Waters	7.9 μg/L*

11.	PCBs	
	(a) Freshwater	0.014 μg/L*
	(b) Coastal and Marine Estuarine Waters	0.03 μg/L*
12.	Phenol (CAS RN[1] 108952)	300 μg/L
13.	Toxaphene (CAS RN[1] 8001352)	0.0002 μg/L*

[1]"CAS RN" or the Chemical Abstract Service (CAS) Registry Number is a unique numerical identifier assigned to each chemical and some chemical mixtures.
[2]The instream freshwater criterion for pentachlorophenol is a function of pH, determined by the formula ($e^{(1.005(pH)-5.134)}$). At a pH equal to 7.8 standard units the criterion is 15 μg/L.
*The in-stream criterion is lower than the EPD laboratory detection limits.

(iv) Instream concentrations of the following chemical constituents listed by the U. S. Environmental Protection Agency as toxic priority pollutants pursuant to Section 307(a)(1) of the Federal Clean Water Act (as amended) shall not exceed criteria indicated below under annual average or higher stream flow conditions:

1.	Acenaphthene (CAS RN[1] 83329)	990 μg/L
2.	Acenaphthylene (CAS RN[1] 208968)	**
3.	Acrolein (CAS RN[1] 107028)	9.3 μg/L
4.	Acrylonitrile (CAS RN[1] 107131)	0.25 μg/L
5.	Aldrin (CAS RN[1] 309002)	0.000050 μg/L
6.	Anthracene (CAS RN[1] 120127)	40000 μg/L
7.	Antimony	640 μg/L
8.	Arsenic (Total)	
	(a) Drinking Water Supplies	10 μg/L
	(b) All Other Classifications	50 μg/L
9.	Benzidine (CAS RN[1] 92875)	0.0002 μg/L
10.	Benzo(a)Anthracene (CAS RN[1] 56553)	0.018 μg/L
11.	Benzo(a)Pyrene (CAS RN[1])	0.018 μg/L
12.	3,4-Benzofluoranthene (CAS RN[1] 205992)	0.018 μg/L
13.	Benzene (CAS RN[1] 71432)	51 μg/L
14.	Benzo(ghi)Perylene (CAS RN[1] 191242)	**
15.	Benzo(k)Fluoranthene (CAS RN[1] 207089)	0.018 μg/L
16.	Beryllium	**
17.	a-BHC-Alpha (CAS RN[1] 319846)	0.0049 μg/L
18.	b-BHC-Beta (CAS RN[1] 319857)	0.017 μg/L
19.	Bis(2-Chloroethyl)Ether (CAS RN[1] 111444)	0.53 μg/L
20.	Bis(2-Chloroisopropyl)Ether (CAS RN[1] 108601)	65000 μg/L
21.	Bis(2-Ethylhexyl)Phthalate (CAS RN[1] 117817)	2.2 μg/L
22.	Bromoform (Tribromomethane) (CAS RN[1] 75252)	140 μg/L
23.	Butylbenzyl Phthalate (CAS RN[1] 85687)	1900 μg/L
24.	Carbon Tetrachloride (CAS RN[1] 56235)	1.6 μg/L
25.	Chlorobenzene (CAS RN[1] 108907)	1600 μg/L
26.	Chlorodibromomethane (CAS RN[1] 124481)	13 μg/L
27.	2-Chloroethylvinyl Ether (CAS RN[1] 110758)	**
28.	Chlordane (CAS RN[1] 57749)	0.00081 μg/L
29.	Chloroform (Trichloromethane) (CAS RN[1] 67663)	470 μg/L
30.	2-Chloronaphthalene (CAS RN[1] 91587)	1600 μg/L
31.	2-Chlorophenol (CAS RN[1] 95578)	150 μg/L
32.	Chrysene (CAS RN[1] 218019)	0.018 μg/L
33.	Dibenzo(a,h)Anthracene (CAS RN[1] 53703)	0.018 μg/L
34.	Dichlorobromomethane (CAS RN[1] 75274)	17 μg/L
35.	1,2-Dichloroethane (CAS RN[1] 107062)	37 μg/L
36.	1,1-Dichloroethylene (CAS RN[1] 75354)	7100 μg/L
37	1,2 – Dichloropropane (CAS RN[1] 78875)	15 μg/L
38.	1,3-Dichloropropylene (CAS RN[1] 542756)	21 μg/L
39.	2,4-Dichlorophenol (CAS RN[1] 120832)	290 μg/L
40.	1,2-Dichlorobenzene (CAS RN[1] 95501)	1300 μg/L
41.	1,3-Dichlorobenzene (CAS RN[1] 541731)	960 μg/L
42.	1,4-Dichlorobenzene (CAS RN[1] 106467)	190 μg/L
43.	3,3'-Dichlorobenzidine (CAS RN[1])	0.028 μg/L
44.	4,4'-DDT (CAS RN[1] 50293)	0.00022 μg/L
45.	4,4'-DDD (CAS RN[1] 72548)	0.00031 μg/L
46.	4,4'-DDE (CAS RN[1] 72559)	0.00022 μg/L
47.	Dieldrin (CAS RN[1] 60571)	0.000054 μg/L

48.	Diethyl Phthalate (CAS RN[1] 84662)	44000 μg/L
49.	Dimethyl Phthalate(CAS RN[1] 131113)	1100000 μg/L
50.	2,4-Dimethylphenol (CAS RN[1] 105679)	850 μg/L
51.	2,4-Dinitrophenol (CAS RN[1] 51285)	5300 μg/L
52.	Di-n-Butyl Phthalate (CAS RN[1] 84742)	4500 μg/L
53.	2,4-Dinitrotoluene (CAS RN[1] 121142)	3.4 μg/L
54.	1,2-Diphenylhydrazine (CAS RN[1] 122667)	0.20 μg/L
55.	Endrin (CAS RN[1] 72208)	0.060 μg/L
56.	Endrin Aldehyde (CAS RN[1] 7421934)	0.30 μg/L
57.	alpha – Endosulfan (CAS RN[1] 959988)	89 μg/L
58.	beta – Endosulfan (CAS RN[1] 33213659)	89 μg/L
59.	Endosulfan Sulfate (CAS RN[1] 1031078)	89 μg/L
60.	Ethylbenzene (CAS RN[1] 100414)	2100 μg/L
61.	Fluoranthene (CAS RN[1] 206440)	140 μg/L
62.	Fluorene (CAS RN[1] 86737)	5300 μg/L
63.	Heptachlor (CAS RN[1] 76448)	0.000079 μg/L
64.	Heptachlor Epoxide (CAS RN[1] 1024573)	0.000039 μg/L
65.	Hexachlorobenzene (CAS RN[1] 118741)	0.00029 μg/L
66.	Hexachlorobutadiene (CAS RN[1] 87683)	18 μg/L
67.	Hexachlorocyclopentadiene (CAS RN[1] 77474)	1100 μg/L
68.	Hexachloroethane (CAS RN[1] 67721)	3.3 μg/L
69.	Indeno(1,2,3-cd)Pyrene (CAS RN[1] 193395)	0.018 μg/L
70.	Isophorone (CAS RN[1] 78591)	960 μg/L
71.	Lindane [Hexachlorocyclohexane (g-BHC-Gamma)](CAS RN[1] 58899)	1.8 μg/L
72.	Methyl Bromide (Bromomethane) (CAS RN[1] 74839)	1500 μg/L
73.	Methyl Chloride (Chloromethane) (CAS RN[1] 74873)	**
74.	Methylene Chloride (CAS RN[1] 75092)	590 μg/L
75.	2-Methyl-4,6-Dinitrophenol (CAS RN[1] 534521)	280 μg/L
76.	3-Methyl-4-Chlorophenol (CAS RN[1] 59507)	**
77.	Nitrobenzene (CAS RN[1] 98953)	690 μg/L
78.	N-Nitrosodimethylamine (CAS RN[1] 62759)	3.0 μg/L
79.	N-Nitrosodi-n-Propylamine (CAS RN[1] 621647)	0.51 μg/L
80.	N-Nitrosodiphenylamine (CAS RN[1] 86306)	6.0 μg/L
81.	PCBs	0.000064 μg/L
82.	Pentachlorophenol (CAS RN[1] 87865)	3.0 μg/L
83.	Phenanthrene (CAS RN[1] 85018)	**
84.	Phenol (CAS RN[1] 108952)	857000 μg/L
85.	Pyrene (CAS RN[1] 129000)	4000 μg/L
86.	1,1,2,2-Tetrachloroethane (CAS RN[1] 79345)	4.0 μg/L
87.	Tetrachloroethylene (CAS RN[1] 127184)	3.3 μg/L
88.	Thallium	0.47 μg/L
89.	Toluene (CAS RN[1] 108883)	5980 μg/L
90.	Toxaphene (CAS RN[1] 8001352)	0.00028 μg/L
91.	1,2-Trans-Dichloroethylene (CAS RN[1] 156605)	10000 μg/L
92.	1,1,2-Trichloroethane (CAS RN[1] 79005)	16 μg/L
93.	Trichloroethylene (CAS RN[1] 79016)	30 μg/L
94.	2,4,6-Trichlorophenol (CAS RN[1] 88062)	2.4 μg/L
95.	1,2,4-Trichlorobenzene (CAS RN[1] 120821)	70 μg/L
96.	Vinyl Chloride (CAS RN[1] 75014)	2.4 μg/L

[1]"CAS RN" or the Chemical Abstract Service (CAS) Registry Number is a unique numerical identifier assigned to each chemical and some chemical mixtures.
**These pollutants are addressed in 391-3-6-.06.

(v) Site specific criteria for the following chemical constituents will be developed on an as-needed basis through toxic pollutant monitoring efforts at new or existing discharges that are suspected to be a source of the pollutant at levels sufficient to interfere with designated uses:

1. Asbestos

(vi) instream concentrations of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) must not exceed 0.0000000051 μg/L under long-term average stream flow conditions.

(vii) Mercury: For the protection of human health, total mercury concentrations bioaccumulating in a waterbody, in a representative population of fish, shellfish and/or other seafood representing different trophic levels, shall not exceed a total mercury concentration in edible tissues of 0.3 mg/kg wet weight. This standard is in accord with

the USEPA *Water Quality Criterion for the Protection of Human Health: Methylmercury*, (January 2001, EPA-823-R-01-001), and because nearly 100% of the mercury in fish tissue is methylmercury, adoption of the standard as total mercury is an additional conservative measure. The representative fish tissue total mercury concentration for a waterbody is determined by calculating a Trophic-Weighted Residue Value, as described by the Georgia EPD Protocol (October 19, 2001).

(f) Applicable State and Federal requirements and regulations for the discharge of radioactive substances shall be met at all times.

TABLE 3-4. WATER QUALITY STANDARDS FOR MAJOR LAKES

(17) **Specific Criteria for Lakes and Major Lake Tributaries**. In addition to the general criteria, the following lake specific criteria are deemed necessary and shall be required for the specific water usage as shown:

(a) West Point Lake: Those waters impounded by West Point Dam and downstream of U.S. 27 at Franklin.

(i) Chlorophyll a: For the months of April through October, the average of monthly photic zone composite samples shall not exceed 27 μg/L at the LaGrange Water Intake more than once in a five-year period.

(ii) pH: Within the range of 6.0 - 9.5.

(iii) Total Nitrogen: Not to exceed 4.0 mg/L as Nitrogen in the photic zone.

(iv) Phosphorus: Total lake loading shall not exceed 2.4 pounds per acre-foot of lake volume per year.

(v) Fecal Coliform Bacteria:

1. U.S. 27 at Franklin to New River: Fecal coliform bacteria shall not exceed the Fishing criterion as presented in 391-3-6-.03(6)(c).
2. New River to West Point Dam: Fecal coliform bacteria shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b).

(vi) Dissolved Oxygen: A daily average of 5.0 mg/L and no less than 4.0 mg/L at all times at the depth specified in 391-3-6-.03(5)(f).

(vii) Temperature: Not to exceed 90°F. At no time is the temperature of the receiving waters to be increased more than 5°F above intake temperature.

(viii) Major Lake Tributaries: For the following tributaries, the annual total phosphorus loading to West Point Lake shall not exceed the following:

1. Yellow Jacket Creek at Hammet Road:	11,000 pounds.
2. New River at Hwy 100:	14,000 pounds.
3. Chattahoochee River at U.S. 27:	1,400,000 pounds.

(b) Lake Walter F. George: Those waters impounded by Walter F. George Dam and upstream to Georgia Highway 39 near Omaha.

(i) Chlorophyll a: For the months of April through October, the average of monthly photic zone composite samples shall not exceed 18 μg/L at mid-river at U.S. Highway 82 or 15 μg/L at mid-river in the dam forebay more than once in a five-year period.

(ii) pH: Within the range of 6.0-9.5 standard units.

(iii) Total Nitrogen: Not to exceed 3.0 mg/L as nitrogen in the photic zone.

(iv) Phosphorous: Total lake loading shall not exceed 2.4 pounds per acre-foot of lake volume per year.

(v) Fecal Coliform:

1. Georgia Highway 39 to Cowikee Creek: Fecal coliform bacteria shall not exceed the Fishing criterion as presented in 391-3-6-.03(6)(c)(iii).
2. Cowikee Creek to Walter F. George Dam: Fecal coliform bacteria shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(I).

(vi) Dissolved Oxygen: A daily average of no less than 5.0 mg/L and no less than 4.0 mg/L at all times at the depth specified in 391-3-6-.03(5)(f).

(vii) Temperature: Water temperature shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(iv).

(viii) Major Lake Tributary: The annual total phosphorous loading to Lake Walter F. George, monitored at the Chattahoochee River at Georgia Highway 39, shall not exceed 2,000,000 pounds.

(c) Lake Jackson: Those waters impounded by Lloyd Shoals Dam and upstream to Georgia Highway 36 on the South and Yellow Rivers, upstream to Newton Factory Bridge Road on the Alcovy River and upstream to Georgia Highway 36 on Tussahaw Creek.

(i) Chlorophyll a: For the months of April through October, the average of monthly mid-channel photic zone composite samples shall not exceed 20 μg/L at a location approximately 2 miles downstream of the confluence of the South and Yellow Rivers at the junction of Butts, Newton and Jasper Counties more than once in a five-year period.

(ii) pH: Within the range of 6.0-9.5 standard units.

(iii) Total Nitrogen: Not to exceed 4.0 mg/L as nitrogen in the photic zone.

(iv) Phosphorous: Total lake loading shall not exceed 5.5 pounds per acre-foot of lake volume per year.

(v) Fecal Coliform: Fecal coliform bacteria shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(I).

(vi) Dissolved Oxygen: A daily average of 5.0 mg/L and no less than 4.0 mg/L at all times at the depth specified in 391-3-6-.03(5)(f).

(vii) Temperature: Water temperature shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(iv).

(viii) Major Lake Tributaries: For the following major tributaries, the annual total phosphorous loading to Lake Jackson shall not exceed the following:

1. South River at Island Shoals:	179,000 pounds
2. Yellow River at Georgia Highway 212:	116,000 pounds
3. Alcovy River at Newton Factory Bridge Road:	55,000 pounds
4. Tussahaw Creek at Fincherville Road:	7,000 pounds

(d) Lake Allatoona: Those waters impounded by Allatoona Dam and upstream to State Highway 5 on the Etowah River, State Highway 5 on Little River, the Lake Acworth dam, and the confluence of Little Allatoona Creek and Allatoona Creek. Other impounded tributaries to an elevation of 840 feet mean sea level corresponding to the normal pool elevation of Lake Allatoona.

(i) Chlorophyll a: For the months of April through October, the average of monthly mid-channel photic zone composite samples shall not exceed the chlorophyll a concentrations at the locations listed below more than once in a five-year period:

1. Upstream from the Dam	10 μg/L
2. Allatoona creek upstream from I-75	12 μg/L
3. Mid-Lake downstream from Kellogg Creek	10 μg/L
4. Little River upstream from Highway 205	15 μg/L
5. Etowah River upstream from Sweetwater Creek	14 μg/L

(ii) pH: within the range of 6.0-9.5 standard units

(iii) Total Nitrogen: Not to exceed a growing season average of 4 mg/L as nitrogen in the photic zone.

(iv) Phosphorous: Total lake loading shall not exceed 1.3 pounds per acre-foot of lake volume per year.

(v) Fecal Coliform:

1. Etowah River, State Highway 5 to State Highway 20: Fecal coliform bacteria shall not exceed the Fishing Criterion as presented in 391-3-6-.03(6)(c)(iii).
2. Etowah River, State Highway 20 to Allatoona Dam; Fecal coliform bacteria shall not exceed the Recreation criteria as presented in 391-3-6-.03(6)(b)(i).

(vi) Dissolved Oxygen: A daily average of 5.0 mg/L and no less than 4.0 mg/L at all times at the depth specified in 391-3-6-.03(5)(g).

(vii)Temperature:

1. Etowah River, State Highway 5 to State Highway 20: Water temperature shall not exceed the Fishing criterion as presented in 391-3-6-.03(6)(b)(iv).
2. Etowah River State Highway 20 to Allatoona Dam: Water temperature shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(iv).

(viii) Major Lake Tributaries: For the following major tributaries, the annual total phosphorous loading to Lake Allatoona shall not exceed the following:

1. Etowah River at State Highway 5 spur and 140, at the USGS gage	340,000 lbs/yr
2. Little River at State Highway 5 (Highway 754)	42,000 lbs/yr
3. Noonday Creek at North Rope Mill Road	38,000 lbs/yr
4. Shoal Creek at State Highway 108 (Fincher Road)	12,500 lbs/yr

(e) Lake Sidney Lanier: Those waters impounded by Buford Dam and upstream to Belton Bridge Road on the Chattahoochee River, 0.6 miles downstream from State Road 400 on the Chestatee River, as well as other impounded tributaries to an elevation of 1070 feet mean sea level corresponding to the normal pool elevation of Lake Sidney Lanier.

(i) Chlorophyll a: For the months of April through October, the average of monthly mid-channel photic zone composite samples shall not exceed the chlorophyll a concentrations at the locations listed below more than once in a five-year period:

1. Upstream from the Buford Dam forebay	5 μg/L
2. Upstream from the Flowery Branch confluence	5 μg/L
3. At Browns Bridge Road (State Road 369)	5 μg/L
4. At Bolling Bridge (State Road 53) on Chestatee River	10 μg/L
5. At Lanier Bridge (State Road 53) on Chattahoochee River	10 μg/L

(ii) pH: Within the range of 6.0-9.5 standard units.

(iii) Total Nitrogen: Not to exceed 4 mg/L as nitrogen in the photic zone.

(iv) Phosphorous: Total lake loading shall not exceed 0.25 pounds per acre-foot of lake volume per year.

(v) Fecal Coliform: Fecal coliform bacteria shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(l).

(vi) Dissolved Oxygen: A daily average of 5.0 mg/L and no less than 4.0 mg/L at all times at the depth specified in 391-3--6-.03(5)(g).

(vii) Temperature: Water temperature shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(iv).

(viii) Major Lake Tributaries: For the following major tributaries, the annual total phosphorous loading to Lake Sidney Lanier shall not exceed the following:

1. Chattahoochee River at Belton Bridge Road	178,000 pounds
2. Chestatee River at Georgia Highway 400	118,000 pounds
3. Flat Creek at McEver Road	14,400 pounds

(f) Carters Lake: Those waters impounded by Carters Dam and upstream on the Coosawattee River as well as other impounded tributaries to an elevation of 1072 feet mean sea level corresponding to the normal pool elevation of Carters Lake.

(i) Chlorophyll a: For the months of April through October, the average of monthly mid-channel photic zone composite samples shall not exceed the chlorophyll a concentrations at the locations listed below more than once in a five-year period:

1. Carters Lake upstream from Woodring Branch	5 μg/L
2. Carters Lake at Coosawattee River embayment mouth	10 μg/L

(ii) pH: within the range of 6.0 – 9.5 standard units.
(iii) Total Nitrogen: Not to exceed 4.0 mg/L as nitrogen in the photic zone.
(iv) Phosphorous: Total lake loading shall not exceed 172,500 pounds or 0.46 pounds per acre-foot of lake volume per year.
(v) Fecal Coliform: Fecal coliform bacteria shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(i).
(vi) Dissolved Oxygen: A daily average of 5.0 mg/L and no less than 4.0 mg/L at all times at the depth specified in 391-3-6-.03(5)(g).
(vii) Temperature: Water temperature shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(iv).
(viii) Major Lake Tributaries: For the following major tributaries, the annual total phosphorous loading at the compliance monitoring location shall not exceed the following:

1. Coosawattee River at Old Highway 5	151,500 pounds
2. Mountaintown Creek at U.S. Highway 76	8,000 pounds

Long-Term Trend Monitoring

Long term monitoring of streams at strategic locations throughout Georgia, trend or ambient monitoring, was initiated by the GAEPD during the late 1960s. This work has been conducted by EPD associates and through cooperative agreements with federal, state, and local agencies that collect samples from groups of stations at specific, fixed locations throughout the year.

The cooperating agencies conduct certain tests in the field and ship stream samples to the GAEPD or UGA laboratories for additional laboratory analyses. Although there have been a number of changes over the years, much of the trend monitoring is still accomplished through similar cooperative agreements.

Today the GAEPD contracts with the United States Geological Survey (USGS) for the statewide trend sampling work, and with the Columbus Water Works for sample collection on the Chattahoochee River below Columbus. In 2010, GAEPD added 41 flow gages to its monitoring network as part of the State Water Plan. Table 3-5 provides a list of the USGS stream gages funded by GAEPD. GAEPD also funds three continuous water quality monitors operated by the USGS on the Coosa River at the Georgia/Alabama Stateline, Chattahoochee River at HWY 92, and the Savannah Harbor at the Corps Dock. In addition, GAEPD continues to operate the continuous water quality monitor at Capps Ferry on the Chattahoochee River south of Metro Atlanta, which records dissolved oxygen, pH, temperature and specific conductance data every 15 minutes. The data are collected in real-time and updated daily on the GAEPD's website.

Targeted Monitoring

In addition to trend monitoring done through cooperative agreements, GAEPD associates collect monthly samples from a number of locations across the state in a targeted monitoring effort. In targeted monitoring, sites are monitored at least once a month for a year. A different set of targeted sites are then selected for monitoring the next year.

Figure 1 shows the monitoring network stations for the sample collection period 2012-2013. This figure includes the State-wide trend monitoring network stations (that are sampled every year), the targeted monitoring stations, probabilistic stations, as well as stations sampled by Georgia's Coastal Resources Division for 2012 and 2013. A list of all of these stations and a list of the parameters sampled is presented in Table 3-6, Tables 3-7, Table 3-8, Table 3-11 and Table 3-12.

TABLE 3-5. USGS STREAM GAGES FUNDED BY GAEPD

USGS Number	Station Name and Location
Savannah River Basin	
02177000	Chattooga River near Clayton, GA
02191300	Broad River above Carlton, GA
02192000	Broad River near Bell, GA
02193340	Kettle Creek near Washington, GA
02193500	Little River near Washington, GA
02197598	Brushy Creek at Campground Road near Wrens, GA
021964832	Savannah River above Augusta Canal, near Bonair, GA
02197830	Brier Creek near Waynesboro, GA
02198375	Savannah River near Estill, GA
02198840	Savannah River at Port Wentworth, GA
02198950	Middle River at GA 25, at Port Wentworth, GA
21989792	Little Back River at GA 25, at Port Wentworth, GA
02198980	Savannah River at Fort Pulaski
02197000	Savannah River at Augusta, GA
Ogeechee River Basin	
02201000	Williamson Swamp Creek at Davisboro, GA
02202190	Ogeechee River At GA 24, near Oliver, GA
02203518	Canoochee River at Bridge 38, at Fort Stewart
02202680	Ogeechee River at GA 204, near Ellabell, GA
02203536	Ogeechee River at US 17, near Richmond Hill, GA
02200120	Ogeechee River GA 88, near Grange GA
Altamaha River Basin	
02215000	Ocmulgee River at US 341, near Hawkinsville, GA
02215100	Tucsawhatchee Creek near Hawkinsville, GA
02215500	Ocmulgee River at Lumber City, GA
02216180	Turnpike Creek near McRae, GA
02214075	Echecommee Creek at Houston Road, near Byron, GA
02214590	Big Indian Creek at US 341, near Clinchfield, GA
02215900	Little Ocmulgee River at GA 149, at Scotland, GA
02208000	Yellow River at Rocky Plains Road, near Rocky Plains, GA
02209000	Alcovy River below Covington, GA
02212735	Ocmulgee River at GA 18, at Dames Ferry, GA
02211800	Towaliga River at GA 83, near Juliette, GA
02204520	South River at GA 81, at Snapping Shoal, GA
02223360	Big Sandy Creek at US 441, near Irwinton, GA
02223190	Commissioner Creek at US 441, at McIntyre, GA
02223110	Buffalo Creek at GA 272, near Oconee, GA
02225270	Ohoopee River at GA 297, near Swainsboro, GA
Suwannee River Basin	
02314495	Suwannee River above Fargo, GA+
02314500	Suwannee River at US 441, at Fargo, GA
02318000	Little River near Adel, GA*
02318700	Okapilco Creek at GA 33, near Quitman, GA
02315920	Alapaha River at GA 125/32, near Irwinville, GA
Satilla River Basin	
02226362	Satilla River at GA 158, near Waycross, GA
02227270	Alabaha River at GA 203, nea Blackshear, GA
02228070	Satilla River at US 17, at Woodbine, GA
St Mary's River Basin	
02231254	St. Mary's River at I-95, near Kingsland, GA
Ochlockonee River Basin	
02327500	Ochlockonee River near Thomasville, GA
02327355	Ochlockonee River at GA 188 near Coolidge, GA

Chattahoochee River Basin	
02336300	Peachtree Creek at Atlanta, GA
02337500	Snake Creek near Whitesburg, GA
02338660	New River near Corinth, GA
02343940	Sawhatchee Creek at Cedar Springs, GA
02342850	Hanahatchee Creek at Union Road, near Union GA
02343225	Pataula Creek ar US 82, near Georgetown, GA
23432415	Chattahoochee River 0.36 miles Downstream of WFG Dam, near Gaines, GA
02343805	Chattahoochee River at Mile 46, near Columbia, AL
02338840	Yellow Jacket Creek at Hammett Road, below Hogansville, GA
02342881	Chattahoochee River at Spur 39, near Omaha, GA
02331000	Chattahoochee River near Leaf, GA
Flint River Basin	
02344700	Line Creek near Senoia, GA
02349900	Turkey Creek at Byromville,GA
02351500	Muckalee Creek near Americus, GA
02353265	Ichawaynochaway Creek at GA 37, near Morgan, GA
02353400	Pachitla Creek near Edison, GA
02353500	Ichawaynochaway Creek at Milford, GA
02355350	Ichawaynochaway Creek below Newton, GA
02355665	Flint River at Riverview Plantation, near Hopeful, GA
02357000	Spring Creek near Iron City, GA*
02350600	Kinchafoonee Creek at Preston. GA
02354410	Chickasawhatchee Creek near Leary, GA
02354475	Spring Creek near Leary, GA
02354800	Chickasawhatchee Creek at Elmodel, GA
02354800	Ichawaynochaway Creek near Elmodel, GA
Coosa River Basin	
02381090	Mountaintown Creek At Ga 76, Near Ellijay, Ga
02381600	Fausett Creek near Talking Rock, GA
02384540	Mill Creek near Crandall, GA
02385800	Holly Creek near Chatsworth, GA
02398000	Chattooga River at Summerville, GA
02395000	Etowah River near Kingston, GA
Tennessee River Basin	
03568933	Lookout Creek near New England, GA
03550500	Nottely River near Blairsville, GA
03567340	West Chickamauga Creek at GA 146, near Lakeview, GA
Tallapoosa River Basin	
02413000	Little Tallapoosa at GA 27, at Carrolton, GA

FIGURE 1
GEORGIA MONITORING NETWORK
STATION LOCATIONS 2012-2013

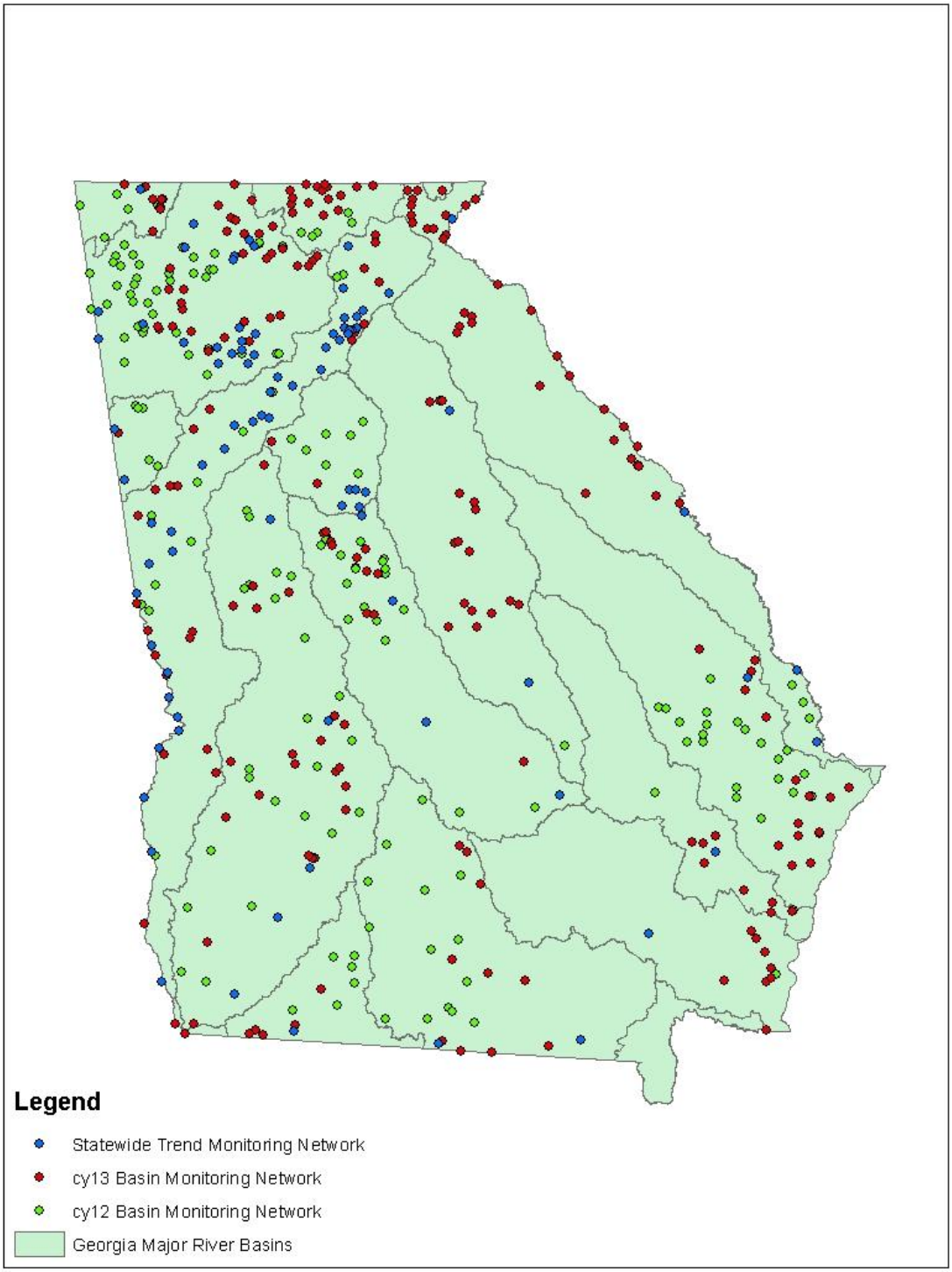

TABLE 3-6. STATEWIDE TREND MONITORING NETWORK (CORE): RIVERS/STREAMS; LAKE/RESERVOIR STANDARD TRIBUTARY STATIONS

Rivers and streams stations are sampled monthly for field and chemical parameters every year. Four fecal coliform bacterial samples are collected each calendar quarter to calculate four geometric means. Lakes and reservoir stations are sampled monthly during the "growing season" from April through October.

Georgia Station Number	Sampling Site	River Basin	Sampling Organization	Waterbody Type/ Project	Latitude	Longitude
0102060101	Chattooga River at US Hwy. 76 near Clayton, GA	Savannah	USGS	Trend Monitoring	34.8140	-83.3064
0106050209	Savannah River at 0.5 mile downstream from Spirit Creek	Savannah	USGS	Trend Monitoring	33.3306	-81.9153
0109020701	Savannah River at Seaboard Coast Line Railway, north of Clyo, GA	Savannah	USGS	Trend Monitoring	32.5250	-81.2640
0109060602	Savannah River at US Hwy. 17 (Houlihan Bridge)	Savannah	USGS	Trend Monitoring	32.1658	-81.1539
0202030701	Ogeechee River at Georgia Hwy. 24 near Oliver, GA	Ogeechee	USGS	Trend Monitoring	32.4948	-81.5558
0301060102	Oconee River at Barnett Shoals Road near Athens, GA	Oconee	USGS	Trend Monitoring	33.8562	-83.3265
0302090102	Oconee River at Interstate Hwy. 16 near Dublin, GA	Oconee	USGS	Trend Monitoring	32.4804	-82.8582
0403030501	South River at Island Shoals Road near Snapping Shoals, Ga.	Upper Ocmulgee	USGS	Trend Monitoring (Lake Trib)	33.4527	-83.9271
0403060301	Yellow River at Georgia Hwy. 212 near Stewart, Ga.	Upper Ocmulgee	USGS	Trend Monitoring (Lake Trib)	33.4543	-83.8813
0403080201	Alcovy River at Newton Factory Bridge Road near Stewart, Ga.	Upper Ocmulgee	USGS	Trend Monitoring (Lake Trib)	33.4494	-83.8283
0403090301	Tussahaw Creek at Fincherville Road near Jackson, Ga.	Upper Ocmulgee	USGS	Trend Monitoring (Lake Trib)	33.3789	-83.9634
0503160201	Ocmulgee River at New Macon Water Intake	Ocmulgee	USGS	Trend Monitoring	32.8992	-83.6641
0504030101	Ocmulgee River at Hawkinsville, GA	Ocmulgee	USGS	Trend Monitoring	32.2818	-83.4628
0504080601	Ocmulgee River at US Hwy. 341 at Lumber City, GA	Ocmulgee	USGS	Trend Monitoring	31.9199	-82.6743
0606040104	Altamaha River 6.0 miles downstream from Doctortown, GA	Altamaha	USGS	Trend Monitoring	31.6233	-81.7653
0701070405	Satilla River at Georgia Hwy.15 and Hwy.121	Satilla	USGS	Trend Monitoring	31.2167	-82.1625
0901010508	Suwannee River at US Hwy. 441 near Fargo, GA	St. Marys	USGS	Trend Monitoring	30.6806	-82.5606
0903080302	Withlacoochee River at Clyattsville-Nankin Road near Clyattsville, GA	Suwannee	USGS	Trend Monitoring	30.6747	-83.3947
1003010102	Ochlockonee River at Hadley Ferry Road near Calvary, Ga.	Ochlockonee	USGS	Trend Monitoring	30.7317	-84.2355
1105010601	Flint River at SR 92 near Griffin, GA	Flint	USGS	Trend Monitoring	33.3089	-84.3931

Georgia Station Number	Sampling Site	River Basin	Sampling Organization	Waterbody Type/ Project	Latitude	Longitude
1106010701	Flint River at SR 26 near Montezuma	Flint	USGS	Trend Monitoring	32.2929	-84.0440
1108010102	Flint River at SR 234 near Albany, GA	Flint	USGS	Trend Monitoring	31.5524	-84.1463
1108040101	Flint River at SR 37 at Newton, GA	Flint	USGS	Trend Monitoring	31.3094	-84.3350
1108070302	Flint River at US Hwy. 27-B near Bainbridge, GA	Flint	USGS	Trend Monitoring	30.9109	-84.5805
1201030401	Chattahoochee River at Belton Bridge Road near Lula, Ga.	Chattahoochee	USGS	Trend Monitoring (Lake Trib)	34.4451	-83.6842
1201050101	Dicks Creek at Forest Service Road 144-1 near Neels Gap, GA	Chattahoochee	USGS	Trend Monitoring (Lake Trib)	34.6797	-83.9372
1201060401	Chestatee River at SR 400 near Dahlonega, Ga.	Chattahoochee	USGS	Trend Monitoring (Lake Trib)	34.4667	-83.9689
1201080302	Flat Creek at McEver Road near Gainesville, Ga.	Chattahoochee	USGS	Trend Monitoring (Lake Trib)	34.2658	-83.8850
1202070301	Yellow Jacket Creek at Hammet Road near Hogansville, GA	Chattahoochee	USGS	Trend Monitoring (Lake Trib)	33.1392	-84.9753
1202050501	New River at SR 100 near Corinth, Ga.	Chattahoochee	USGS	Trend Monitoring	33.2353	-84.9878
1202060101	Chattahoochee River at US Hwy. 27 near Franklin, Ga.	Chattahoochee	USGS	Trend Monitoring (Lake Trib)	33.2792	-85.1000
1202110104	Lake Harding - Dam Forebay (aka Chatt. River US Bartletts Ferry Dam)	Chattahoochee	CWW	Trend Monitoring	32.6633	-85.09028
1202130502	Lake Oliver - Chattahochee River at Columbus Water Intake near Columbus, GA	Chattahoochee	CWW	Trend Monitoring	32.5214	-84.9983
1203010104	Chattahoochee River downstream from Columbus Water Treatment Facility	Chattahoochee	CWW	Trend Monitoring	32.4089	-84.9803
1203060101	Chattahoochee River downstream Oswichee Creek	Chattahoochee	CWW	Trend Monitoring	32.3000	-84.9369
1203060601	Chattahoochee River at Hichitee Creek (River Mile 127.6)	Chattahoochee	CWW	Trend Monitoring	32.2308	-84.9232
1203060602	Chattahoochee River at Spur 39 near Omaha, GA (Seaboard Railroad)	Chattahoochee	USGS	Trend Monitoring (Lake Trib)	32.1436	-85.0453
1204080101	Chattahoochee River at SR 91 near Steam Mill, GA	Chattahoochee	USGS	Trend Monitoring	30.9775	-85.0053
1308020601	Tallapoosa River at Georgia Hwy. 8 near Tallapoosa, Ga.	Tallapoosa	USGS	Trend Monitoring	33.7408	-85.3364
1308090601	Little Tallapoosa River at Georgia Hwy. 100 near Bowden, GA	Tallapoosa	USGS	Trend Monitoring	33.4928	-85.2792
1401020703	Conasauga River at US Hwy. 76 near Dalton, GA	Coosa	USGS	Trend Monitoring	34.7830	-84.8730

Georgia Station Number	Sampling Site	River Basin	Sampling Organization	Waterbody Type/ Project	Latitude	Longitude
1401050106	Conasauga River at Tilton Bridge near Tilton, GA	Coosa	USGS	Trend Monitoring	34.6667	-84.9283
1402030502	Mountaintown Creek at SR 282 (US Hwy. 76) near Ellijay, Ga.	Coosa	USGS	Trend Monitoring	34.7034	-84.5398
1402040103	Coosawattee River at Georgia Hwy. 5 near Ellijay, Ga.	Coosa	USGS	Trend Monitoring	34.6717	-84.5002
1403060401	Oostanaula River at Rome Water Intake near Rome, GA	Coosa	USGS	Trend Monitoring	34.2703	-85.1733
1404060301	Etowah River at SR 5 spur near Canton, Ga.	Coosa	USGS	Trend Monitoring (Lake Trib)	34.2397	-84.4944
1404070401	Shoal Creek at SR 108 (Fincher Road) near Waleska, Ga.	Coosa	USGS	Trend Monitoring (Lake Trib)	34.2608	-84.5956
1404080802	Noonday Creek at Georgia Hwy. 92 near Woodstock, Ga.	Coosa	USGS	Trend Monitoring (Lake Trib)	34.0861	-84.5306
1404080904	Little River at Georgia Hwy. 5 near Woodstock, Ga.	Coosa	USGS	Trend Monitoring (Lake Trib)	34.1222	-84.5043
1404150101	Etowah River at Hardin Bridge (FAS 829) near Euharlee, GA	Coosa	USGS	Trend Monitoring	34.18886	-84.9251
1405010601	Coosa River - GA/Alabama State Line Monitor near Cave Springs	Coosa	USGS	Trend Monitoring	34.1983	-85.4439
1405050401	Chattooga River at Holland-Chattoogaville Road (FAS1363) near Lyerly, Ga.	Coosa	USGS	Trend Monitoring	34.3356	-85.4453
1501080101	West Chickamauga Creek - Georgia Highway 146 near Ringgold, Ga.	Coosa	USGS	Trend Monitoring	34.9572	-85.2056

Routine field parameters include: gage height, air temperature, water temperature, dissolved oxygen, pH, conductivity, turbidity.

Routine chemical parameters include: BOD5, alkalinity, hardness, ammonia, nitrite+nitrate nitrogen, phosphorus, TOC and fecal coliform bacteria.

TABLE 3-7. GEORGIA TARGETED MONITORING NETWORK 2012

Rivers and stream stations are sampled monthly for field and chemical parameters for one calendar year. For stations where fecal coliform bacteria is collected, four fecal coliform bacterial samples are collected each calendar quarter during the year. Basin lakes and reservoirs are sampled monthly during the growing season during the calendar year.

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
0104060201	Wilmington River at Marker # 19	Savannah	Brunswick WP	Estuary Monitoring	31.93242	-80.9771	X				X	
0109030202	Runs Branch @ Effingham Co Rd 63 (Sistes Ferry Rd) nr Clyo	Savannah	Brunswick WP	Stream Targeted	32.45997	-81.2919	X				X	
0109030303	Ebenezer Creek at Long Bridge Road (CR 307) near Stillwell, Ga.	Savannah	Brunswick WP	Stream Targeted	32.36458	-81.2308	X	X	X		X	
0109030503	Sweigoffer Creek at Lake Cherie Road near Rincon, GA	Ogeechee	Brunswick WP	Stream Targeted	32.288	-81.191	X				X	
0202040201	Mill Creek at Lakeview Rd.	Ogeechee	Brunswick WP	Stream Targeted	32.49264	-81.7782	X				X	
0202040301	Mill Creek at Bulloch County Road 386 Old River Road near Brooklet, Ga.	Ogeechee	Brunswick WP	Stream Targeted	32.43836	-81.5786	X	X	X	X	X	X
0202050302	Ash Branch at CR 2021 (Kangeter Loop)	Ogeechee	Brunswick WP	Stream Targeted	32.23254	-81.5702	X	X			X	
0202050402	Upper Black Creek at CR 582 (Arcola Rd.)	Ogeechee	Brunswick WP	Stream Targeted	32.27574	-81.6283	X				X	
0202050801	Black Creek at State Road 30 near Blichton, Ga.	Ogeechee	Brunswick WP	Stream Targeted	32.16704	-81.4869	X	X			X	
0202060501	Ogeechee River at Morgans Bridge Rd. near Bloomingdale, GA	Ogeechee	Brunswick WP	Stream Targeted	32.08038	-81.3851	X		X		X	
0202060601	Ogeechee River at U.S. Hwy 17	Ogeechee	Brunswick WP	Stream Targeted	31.97824	-81.2887	X		X		X	
0202060603	Sterling Creek at Harris Trail Road near Richmond Hill, GA	Ogeechee	Brunswick WP	Stream Targeted	31.91797	-81.3072	X	X			X	
0202060604	Ogeechee River at Fort McAllister State Park	Ogeechee	Brunswick WP	Estuary Monitoring	31.89565	-81.1979	X	X				
0203010701	Canoochee River at SR 121 near Metter, GA.	Ogeechee	Brunswick WP	Stream Targeted	32.35591	-82.0899	X				X	
0203020501	Fifteenmile Creek at Candler County Road 28 near Metter, Ga.	Ogeechee	Brunswick WP	Stream Targeted	32.34734	-82.0434	X				X	
0203030401	Tenmile Creek at Road S2242 (Adabelle Road) near Excelsior, Ga.	Ogeechee	Brunswick WP	Stream Targeted	32.27965	-81.9616	X				X	
0203030701	Cedar Creek at State Road 129 at Claxton, Ga.	Ogeechee	Brunswick WP	Stream Targeted	32.17425	-81.9223	X				X	
0203031102	Canoochee River - Daisy Nevils Rd. near Daisy, Ga.	Ogeechee	Brunswick WP	Stream Targeted	32.17861	-81.8289	X				X	
0203040601	Lotts Creek at State Road 250 (Nevils-Daisy Rd)near Nevils, Ga.	Ogeechee	Brunswick WP	Stream Targeted	32.26442	-81.8084	X	X			X	
0203040701	Little Lotts Creek at SR46 near Stateboro, GA	Ogeechee	Brunswick WP	Stream Targeted	32.32603	-81.8024	X	X	X	X	X	X
0203041001	Thick Creek at CR197 (Daisy Nevils Hwy.) near Daisy, Ga	Ogeechee	Brunswick WP	Stream Targeted	32.2167	-81.8252	X	X			X	

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
0203050601	Taylors Creek at SR119/144 near Hinesville, GA	Ogeechee	Brunswick WP	Stream Targeted	31.89354	-81.6324	X	X			X	
0203050702	Canoochee Creek at SR 129 near Hinesville, GA	Ogeechee	Brunswick WP	Stream Targeted	31.94893	-81.633	X				X	
0203060601	Canoochee River - Georgia Highway 67	Ogeechee	Brunswick WP	Stream Targeted	31.98306	-81.3853	X		X		X	
0204010101	Little Ogeechee River at Osteen Road near Savannah, GA	Ogeechee	Brunswick WP	Stream Targeted	32.12034	-81.3326	X		X		X	
0204010103	Little Ogeechee River at U.S. Highway 17 near Burroughs, Ga.	Ogeechee	Brunswick WP	Stream Targeted	32.00732	-81.2368	X		X		X	
0204020104	St Catherines Sound at Medway River near Midway, GA	Ogeechee	Brunswick WP	Estuary Monitoring	31.70659	-81.1587	X				X	
0204030102	Peacock Creek at Lewis Fraser Road nr Midway, Ga.	Ogeechee	Brunswick WP	Stream Targeted	31.78775	-81.4905	X				X	
0204030402	Little Ogeechee River @ Green Island	Ogeechee	Brunswick WP	Estuary Monitoring	31.88823	-81.088	X				X	
0204040101	South Newport River at U.S. Highway 17 at South Newport, Ga.	Ogeechee	Brunswick WP	Stream Targeted	31.64296	-81.3936	X		X	X	X	
0204040103	Sapelo Sound at South Newport River near Barbour Island, GA	Ogeechee	Brunswick WP	Estuary Monitoring	31.55411	-81.2004	X				X	
0301100102	Lake Oconee At Highway 44, Oconee River Arm	Oconee	Atlanta WP	Lake Monitoring	33.43139	-83.2657	X	X				
0301100602	Lake Oconee 300 Meters Upstream Wallace Dam (Dam Forebay)	Oconee	Atlanta WP	Lake Monitoring	33.35167	-83.1608	X	X				
0301110502	Lake Oconee - Richland Creek Arm	Oconee	Atlanta WP	Lake Monitoring	33.3947	-83.1767	X	X				
0301170701	Lake Sinclair - Little River & Murder Creek Arm, U/S U.S. Hwy 441	Oconee	Atlanta WP	Lake Monitoring	33.189	-83.2953	X	X				
0301170702	Lake Sinclair - 300 Meters Upstream Dam (Dam Forebay)	Oconee	Atlanta WP	Lake Monitoring	33.14282	-83.2026	X	X				
0301180104	Lake Sinclair - Midlake, Oconee River Arm	Oconee	Atlanta WP	Lake Monitoring	33.1968	-83.2742	X	X				
0302050501	Commissioner Creek at US 441 near McIntyre, GA	Oconee	Tifton WP	Stream Targeted	32.84972	-83.1931	X		X			
0302140102	Peterson Creek - CR 58 near Glenwood, GA	Oconee	Tifton WP	Stream Targeted	32.16236	-82.6457	X	X			X	
0403010201	Doless Creek at Flat Shoals Road near Decatur, GA	Ocmulgee	Atlanta WP	Stream Targeted	33.705898	-84.27743						X
0403010501	South River - Georgia Highway 155 near Lithonia, Ga.	Ocmulgee	Atlanta WP	Stream Targeted	33.65389	-84.1867	X					
0403010601	Honey Creek at State Road 212 near Conyers, Ga.	Ocmulgee	Atlanta WP	Stream Targeted	33.57972	-84.0642	X	X				X
0403050104	Yellow River at Pleasant Hill Road near Lithonia ,GA	Ocmulgee	Atlanta WP	Stream Targeted	33.73382	-84.0616	X	X	X			
0403050204	Dried Indian Creek at Flat Shoals Road near Porterdale GA	Ocmulgee	Atlanta WP	Stream Targeted	33.539	-83.872	X					X
0403050401	Little Haynes Creek at State Road 138 near Conyers, Ga.	Ocmulgee	Atlanta WP	Stream Targeted	33.72167	-83.9183	X	X				X
0403070602	Big Flat Creek at Youth Monroe Road near Loganville, Ga.	Ocmulgee	Atlanta WP	Stream Targeted	33.79508	-83.8419	X	X				

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring
0403090302	Lake Jackson at confluence of Alcovy River and Yellow/South River Branch	Ocmulgee	Atlanta WP	Lake Monitoring	33.36823	-83.8633	X	X				
0403090306	Lake Jackson - Dam Forebay	Ocmulgee	Atlanta WP	Lake Monitoring	33.322	-83.8409	X	X				
0503100503	Big Sandy Creek at State Road 87 near Sandy, Ga.	Ocmulgee	Atlanta WP	Stream Targeted	33.19528	-83.8506	X	X				
0503110405	Cabin Creek at Water Works Road near Jackson, GA	Ocmulgee	Atlanta WP	Stream Targeted	33.22609	-84.063	X	X	X		X	X
0503110501	Buck Creek at Chappell Mill Road near Barnsville, Ga.	Ocmulgee	Atlanta WP	Stream Targeted	33.179	-84.098	X		X		X	X
0503110502	Brushy Creek at SR 36 near Patillo GA	Ocmulgee	Atlanta WP	Stream Targeted	33.202	-84.065	X				X	
0503110602	Towaliga River at Kinards Mill Road near Jackson, Ga.	Ocmulgee	Atlanta WP	Stream Targeted	33.2473	-84.0613	X	X			X	
0503110606	High Falls Lake - Midlake	Ocmulgee	Atlanta WP	Lake Monitoring	33.1973	-84.031	X	X				
0503110608	High Falls Lake - Dam Forebay	Ocmulgee	Atlanta WP	Lake Monitoring	33.1799	-84.0209	X	X				
0503120201	Little Towaliga River at High Falls Rd. near Forsyth, Ga	Ocmulgee	Atlanta WP	Stream Targeted	33.129	-83.972	X		X		X	
0503120404	Towaliga River - Georgia Highway 83	Ocmulgee	Atlanta WP	Stream Targeted	33.11472	-83.8706	X	X	X		X	
0503130301	Allison Creek nr Round Oak-Juliette Rd nr Hillsboro, GA	Ocmulgee	Atlanta WP	Stream Targeted	33.10760	-83.71405						X
0503130501	Falling Creek - FAS 1640 Near East Juliet	Ocmulgee	Atlanta WP	Stream Targeted	33.09972	-83.7236	X	X				
0503130502	Hurricane Creek nr Hitchiti Experimental Forest Rd nr Juliette, GA	Ocmulgee	Atlanta WP	Stream Targeted	33.03645	-83.70655						X
0503130503	Caney Creek nr Caney Creek Rd nr Hillsboro, GA	Ocmulgee	Atlanta WP	Stream Targeted	33.05569	-83.70073						X
0503130701	Rum Creek at Blue Store Road (County Road 193) near Forsyth,	Ocmulgee	Atlanta WP	Stream Targeted	33.06877	-83.8847	X				X	X
0503130702	Chambliss Creek at Maynard Chuch Road (County Road 13) near	Ocmulgee	Atlanta WP	Stream Targeted	33.05	-83.88	X				X	
0503130703	Lake Juliette - Midlake	Ocmulgee	Atlanta WP	Lake Monitoring	33.0464	-83.8106	X	X				
0503130704	Lake Juliette - Dam Forebay	Ocmulgee	Atlanta WP	Lake Monitoring	33.0338	-83.7572	X	X				
0503140203	Tobesofkee Creek at Mountpelier Road near Forsyth, Ga.	Ocmulgee	Atlanta WP	Stream Targeted	32.98	-83.93	X					X
0503140501	Tobesofkee Creek - U.S. Highway 80 near Macon, GA	Ocmulgee	Atlanta WP	Stream Targeted	32.799	-83.757	X					
0503140503	Lake Tobesofkee - Midlake	Ocmulgee	Atlanta WP	Lake Monitoring	32.8346	-83.8161	X	X				
0503140505	Lake Tobesofkee - Dam Forebay	Ocmulgee	Atlanta WP	Lake Monitoring	32.8215	-83.7706	X	X				
0503140505	Tobesofkee Creek at SR 74 near Macon, GA	Ocmulgee	Atlanta WP	Stream Targeted	32.866	-83.839	X					
0503150303	Little Echeconne Creek at Smith Chapel Road near Musella, Ga.	Ocmulgee	Atlanta WP	Stream Targeted	32.80993	-83.9205	X					

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring
0503150604	Echeconnee Creek at Houston Road near Warner Robins, GA	Ocmulgee	Atlanta WP	Stream Targeted	32.692	-83.701	X		X			
0503160403	Walnut Creek at Jeffersonville Road at Macon, Ga.	Ocmulgee	Atlanta WP	Stream Targeted	32.85215	-83.5931	X					
0504060202	Little House Creek at Bethelehem Rd near Abbeville, GA	Ocmulgee	Tifton WP	Stream Prob	31.83847	-83.262	X				X	
0504070301	Big Horse Creek at State Road 117 near Lumber City, Ga.	Ocmulgee	Tifton WP	Stream Targeted	31.85194	-82.8269	X	X				
0606050204	Altamaha River - channel marker #201 off Wolf Island	Altamaha	Brunswick WP	Estuary Monitoring	31.32006	-81.3103	X	X				
0607050601	Ohoopee River at State Road 178 near Glennville, Ga.	Altamaha	Brunswick WP	Stream Targeted	31.92028	-82.1128	X					
0701120304	St. Andrews Sound at Satilla Riv near	Satilla	Brunswick WP	Estuary Monitoring	31.00609	-81.4292	X	X			X	
0703020101	Turtle River off Hermitage Island	Satilla	Brunswick WP	Estuary Monitoring	31.22028	-81.5642	X	X				
0703020106	Turtle River - Georgia Highway 303	Satilla	Brunswick WP	Estuary Monitoring	31.18694	-81.5314	X	X				
0703020110	Brunswick River - U.S. Highway 17	Satilla	Brunswick WP	Estuary Monitoring	31.1164	-81.4858	X	X	X	X		
0703040208	Cumberland Sound at St. Marys Riv nr St Marys, GA	Satilla	Brunswick WP	Estuary Monitoring	30.72807	-81.4898	X	X			X	
0902010201	Alapaha River at State Road 112 near Rochelle, Ga.	Suwannee	Tifton WP	Stream Targeted	31.89639	-83.4886	X					
0902060201	Reedy Creek at County Road 57 (Firecracker Road) near Ocilla, Ga.	Suwannee	Tifton WP	Stream Targeted	31.51565	-83.261	X					
0902100101	Banks Lake - Near Lakeland, Ga.	Suwannee	Brunswick WP	Lake Monitoring	31.02667	-83.1056	X	X				
0902110201	Mud Creek at County Road 112 (Vann Road) near Valdosta, Ga	Suwannee	Tifton WP	Stream Targeted	30.77778	-83.18	X	X			X	
0903010401	Withlacoochee River at State Road 76 (Adel Rd.) near Nashville, Ga	Suwannee	Tifton WP	Stream Targeted	31.19833	-83.2725	X	X				
0903020102	New River - U.S. Highway 82 Near Tifton	Suwannee	Tifton WP	Stream Targeted	31.4425	-83.4758	X	X			X	
0903030202	Beatty Branch at Beatty Road near Barretts, GA	Suwannee	Tifton WP	Stream Prob	30.98622	-83.2204	X				X	
0903040104	Giddens Mill Creek At N. Elm Street	Suwannee	Tifton WP	Stream Prob	31.14873	-83.4336	X	X				
0903040405	Withlacoochee River - SR133 nr Valdosta, Ga. (formerly called Ga. Hwy 94)	Suwannee	Tifton WP	Stream Targeted	30.85	-83.3397	X				X	
0903040406	Sugar Creek	Suwannee	Tifton WP	Stream Prob	30.83825	-83.3144	X					X
0903050101	Okapilco Creek at County Road 182 (James Buckner Road) near Moultrie, Ga.	Suwannee	Tifton WP	Stream Targeted	31.25472	-83.7939	X					
0903070201	Piscola Creek at State Road 38 near Dixie, Ga.	Suwannee	Tifton WP	Stream Targeted	30.79306	-83.7064	X				X	
0903080101	Withlacoochee River - U.S. Highway 84	Suwannee	Tifton WP	Stream Targeted	30.79306	-83.4536	X		X			
0904010101	Little River at State Road 112 near Ashburn, Ga.	Suwannee	Tifton WP	Stream Targeted	31.67444	-83.6906	X					

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring
0904030201	Town Creek at County Road 169 near Sylvester, Ga.	Suwannee	Tifton WP	Stream Targeted	31.48667	-83.8061	X				X	
1002010501	Ochlockonee River at Zion Grove Church Rd. near Coolidge, GA	Ochlockonee	Tifton WP	Stream Targeted	31.0565	-83.8995	X	X			X	
1002010601	Little Creek at County Road 480 (Lower Meigs Rd.) near Moultrie, GA	Ochlockonee	Tifton WP	Stream Targeted	31.11246	-83.8803	X					
1002030301	Big Creek at State Road 35 near Coolidge, GA	Ochlockonee	Tifton WP	Stream Prob	30.97528	-83.8878	X					
1002040301	Lost Creek at State Road 111 near Meigs, GA	Ochlockonee	Tifton WP	Stream Targeted	31.10556	-84.0086	X	X				
1002050301	East Branch Barnetts Creek @ Co Rd 159 nr Ochlockonee, GA	Ochlockonee	Tifton WP	Stream Targeted	30.94694	-84.0717	X		X			X
1002060201	Oquina Creek at County Road 138 (Old Cassidy Rd.) near Thomasville, GA	Ochlockonee	Tifton WP	Stream Targeted	30.86917	-83.9836	X		X		X	
1002080302	Tired Creek at State Road 111 near Cairo, GA	Ochlockonee	Tifton WP	Stream Prob	30.83611	-84.2406	X				X	X
1003020301	Little Attapulgus Creek at State Rd 241 near Attapulgus, GA	Ochlockonee	Tifton WP	Stream Targeted	30.71806	-84.49	X	X	X		X	X
1003020501	Swamp Creek at US Hwy 27 near Attapulgus, GA	Ochlockonee	Tifton WP	Stream Targeted	30.71944	-84.4114	X	X	X			
1105010203	Camp Creek 319(h) nr Walker Rd, Creekview Cir, Riverdale, GA	Flint	Atlanta WP	Stream Targeted	33.57508	-84.4337						X
1105020301	Flat Creek at Georgia Highway 74 near Peachtree City, GA	Flint	Atlanta WP	Stream Targeted	33.34111	-84.5389	X	X				
1105020302	Line Creek At Georgia Highway 85 Near Senoia	Flint	Atlanta WP	Stream Targeted	33.31944	-84.5236	X	X				
1105060201	Powder Creek at SR 109 near Lifesy Springs, GA	Flint	Atlanta WP	Stream Targeted	33.037	-84.358	X					X
1105060401	Elkins Creek at Dripping Rock Rd near Molena, GA	Flint	Atlanta WP	Stream Targeted	32.9703	-84.5161	X					X
1105060402	Spring Creek at Thundering Springs Rd near Molena, GA	Flint	Atlanta WP	Stream Targeted	32.9672	-84.4972	X	X				X
1105070201	Cane Creek at Cove Road near Woodbury, GA	Flint	Atlanta WP	Stream Targeted	32.959	-84.545	X					
1105070401	Pigeon Creek at Pigeon Creek Road near Manchester, GA	Flint	Atlanta WP	Stream Targeted	32.86874	-84.6122	X					X
1105070502	Flint Riv at Sprewell Bluff State Park near	Flint	Atlanta WP	Stream Targeted	32.85599	-84.4768	X	X	X	X	X	X
1105090401	Potato Creek at Alabama Road near Piedmont, Ga.	Flint	Atlanta WP	Stream Targeted	33.01419	-84.2607	X	X				X
1105090701	Potato Creek at State Road 74 near Thomaston, Ga.	Flint	Atlanta WP	Stream Targeted	32.90417	-84.3625	X					
1105120601	Ulcohatchee Creek at Charlie Reeves Road near Roberta, Ga.	Flint	Atlanta WP	Stream Targeted	32.70892	-84.1878	X	X	X			
1106010201	Beaver Creek - Winchester Road Near Marshallville	Flint	Tifton WP	Stream Targeted	32.41	-83.9794	X	X				X
1106010601	Sweetwater Creek at Old Stage Road	Flint	Tifton WP	Stream Targeted	32.19128	-84.0862	X					X
1106020901	Buck Creek at State Road 240 near Ideal, Ga.	Flint	Tifton WP	Stream Targeted	32.30917	-84.1619	X	X				

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring
1106040401	Lime Creek nr Vienna, GA at Middle River Road	Flint	Atlanta WP	Stream Targeted	32.06931	-84.10647						X
1106040701	Lime Creek at Peggy Shepherd Road east of Americus, GA	Flint	Tifton WP	Stream Targeted	32.035	-83.9925	X	X	X	X	X	X
1106050201	Turkey Creek - Georgia Highway 90 At Byromville	Flint	Tifton WP	Stream Targeted	32.19556	-83.9008	X	X				
1106060110	Lake Blackshear - Midlake	Flint	Tifton WP	Lake Monitoring	31.9665	-83.9342	X	X				
1106060801	Swift Creek at Jamestown Road near Warwick, Ga.	Flint	Tifton WP	Stream Targeted	31.83889	-83.8547	X				X	X
1106061001	Lake Blackshear - Dam Forebay	Flint	Tifton WP	Lake Monitoring	31.8479	-83.9394						
1106070701	Flint Riv at SR 32 nr Albany, GA	Flint	Tifton WP	Stream Targeted	31.72525	-84.0182	X		X			
1106090501	Flint River Reservoir - Midlake, Flint River Arm	Flint	Tifton WP	Lake Monitoring	31.6085	-84.119	X	X				
1106090502	Flint River Reservoir (Lake Worth) - Dam Forebay	Flint	Tifton WP	Lake Monitoring	31.6033	-84.1365	X	X				
1107020301	Lanahassee Creek at US 280 near Preston, Ga.	Flint	Tifton WP	Stream Targeted	32.0498	-84.5069	X	X				X
1107030101	Trib Kinchafoonee Creek@Spanns Mill Road	Flint	Tifton WP	Stream Prob	32.00177	-84.5055	X					
1107050201	Mossy Creek nr Smithville, GA	Flint	Atlanta WP	Stream Targeted	31.88518	-84.35880						X
1107090301	Muckaloochee Creek at Smithville Road near Starksville, Ga.	Flint	Tifton WP	Stream Targeted	31.8132	-84.1721	X	X				
1107100301	Lake Worth (original) - Above Hwy 91 Bridge / Diversion Dam (aka Lake Chehaw)	Flint	Tifton WP	Lake Monitoring	31.6109	-84.15	X	X				
1108080405	Lake Seminole - Flint River Arm @ Spring Creek	Flint	Tifton WP	Lake Monitoring	30.7627	-84.8171	X	X				
1109020201	Little Ichawaynochaway Crk at CR 3 nr Shellman, GA	Flint	Tifton WP	Stream Targeted	31.80353	-84.64	X	X	X	X	X	X
1109040401	Carters Crk at CR 22 nr Cuthbert, GA	Flint	Tifton WP	Stream Prob	31.63582	-84.7201	X				X	
1109090201	Chickasawhatchee Creek at State Road 37 near Elmodel, Ga.	Flint	Tifton WP	Stream Targeted	31.3525	-84.4861	X		X			
1110020101	Dry Creek at Five Bridge Rd. near Blakely, Ga	Flint	Tifton WP	Stream Targeted	31.34571	-84.8641	X	X	X			X
1110050101	Spring Creek at State Road 91 near Colquitt, Ga.	Flint	Tifton WP	Stream Targeted	31.17056	-84.7428	X				X	
1110070101	Spring Creek At U.S. Highway 84	Flint	Tifton WP	Stream Targeted	30.97528	-84.7456	X		X			
1110080301	Fishpond Drain @ Town and County Road	Flint	Tifton WP	Stream Targeted	31.0237	-84.8923	X	X				
1201040404	Lake Sidney Lanier - Little River Embayment, Betw M1WC & 3LR	Chattahoochee	Atlanta WP	Lake Monitoring	34.355	-83.8427	X	X				
1201060203	Yahoola Creek nr Captain McDonald Rd nr Dahlonega, GA	Chattahoochee	Atlanta WP	Stream Targeted	34.53206	-83.96400						X
1201060301	Cane Creek at Radio Rd. nr Dahlonega, GA	Chattahoochee	Atlanta WP	Stream Targeted	34.52077	-84.00728						X

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[2]
1201070501	Lake Sidney Lanier at Boling Bridge (State Road 53) on Chestatee River	Chattahoochee	Atlanta WP	Lake Monitoring	34.31235	-83.9501	X	X				
1201080103	Lake Sidney Lanier at Lanier Bridge (State Road 53) on Chattahoochee River	Chattahoochee	Atlanta WP	Lake Monitoring	34.32195	-83.8802	X	X				
1201080203	Lake Sidney Lanier at Browns Bridge Road (State Road 369)	Chattahoochee	Atlanta WP	Lake Monitoring	34.26167	-83.9507	X	X				
1201080304	Lake Sidney Lanier - Flat Creek Embayment, 100' U/S M7FC	Chattahoochee	Atlanta WP	Lake Monitoring	34.2587	-83.9198	X	X				
1201080307	Lake Sidney Lanier - Balus Creek Embayment, 0.34m SE M6FC	Chattahoochee	Atlanta WP	Lake Monitoring	34.2504	-83.9244	X	X				
1201080401	Lake Sidney Lanier - Mud Crk Embayment, Betw Marina & Ramp	Chattahoochee	Atlanta WP	Lake Monitoring	34.2333	-83.9373	X	X				
1201080403	Lake Lanier upstream from Flowery Branch Confluence (Midlake)	Chattahoochee	Atlanta WP	Lake Monitoring	34.20028	-83.9829	X	X				
1201080603	Lake Sidney Lanier - Six Mile Creek Embayment, 300' E M9SM	Chattahoochee	Atlanta WP	Lake Monitoring	34.2335	-84.0287	X	X				
1201080902	Lake Sidney Lanier upstream of Buford Dam Forebay	Chattahoochee	Atlanta WP	Lake Monitoring	34.16278	-84.0671	X	X				
1201090205	Chattahoochee River at McGinnis Ferry Road	Chattahoochee	Atlanta WP	Stream AWW	34.05056	-84.0977	X	X				
1201090705	Chattahoochee River - DeKalb County Water Intake	Chattahoochee	Atlanta WP	Stream AWW	33.9731	-84.2631	X	X	X			
1201110101	Big Creek at Roswell Water Intake near Roswell, Ga.	Chattahoochee	Atlanta WP	Stream AWW	34.01785	-84.3525	X	X				X
1201110107	March Creek At Brandon Mill Road	Chattahoochee	Atlanta WP	Stream Targeted	33.9475	-84.38722						X
1201110109	Chattahoochee River at Cobb County Water Intake near Roswell, Ga.	Chattahoochee	Atlanta WP	Stream AWW	33.9443	-84.405	X	X				
1201110609	Chattahoochee River - Atlanta Water Intake	Chattahoochee	Atlanta WP	Stream AWW	33.8278	-84.455	X	X	X			
1201120403	Peachtree Creek at Northside Drive near Atlanta, Ga.	Chattahoochee	Atlanta WP	Stream AWW	33.8194	-84.4078	X	X	X	X		X
1202010104	Chattahoochee River at Bankhead Highway	Chattahoochee	Atlanta WP	Stream AWW	33.79528	-84.5078	X	X	X	X		
1202010301	Utoy Creek At Great Southwest Parkway	Chattahoochee	Atlanta WP	Stream Targeted	33.743506	-84.56832						X
1202020802	Sweetwater Creek at Interstate Highway 20	Chattahoochee	Atlanta WP	Stream Targeted	33.7728	-84.6147	X	X				X
1202030102	Chattahoochee River - Georgia Highway 92	Chattahoochee	Atlanta WP	Stream AWW	33.6567	-84.6736	X	X	X			
1202031202	Chattahoochee River at Capps Ferry Road near Rico, Ga.	Chattahoochee	Atlanta WP	Stream AWW	33.5778	-84.8086	X	X				
1202040201	Cedar Creek at Brimer Road near Roscoe, Ga.	Chattahoochee	Atlanta WP	Stream Targeted	33.48083	-84.8381	X	X				
1202040701	Centralhatchee Creek at U.S. Highway 27 near Franklin, Ga.	Chattahoochee	Atlanta WP	Stream Targeted	33.31111	-85.1044	X	X				
1202060802	West Point Lake at LaGrange Water Intake near LaGrange, Ga. (aka Chatt. River at Lagrange Intake)	Chattahoochee	Atlanta WP	Lake Monitoring	33.0783	-85.1108	X	X				

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring
1202070201	Blue Creek at County Line Rd near Hogansville, GA	Chattahoochee	Atlanta WP	Stream Targeted	33.1832	-84.8626	X	X	X	X	X	X
1202080208	West Point Lake - Dam Forebay	Chattahoochee	Atlanta WP	Lake Monitoring	32.9208	-85.1834	X	X				
1202090501	Long Cane Crk at New Hutchinson Mill Road Near Lagrange, GA	Chattahoochee	Atlanta WP	Stream Targeted	32.966	-85.072	X					
1202091204	Long Cane Crk at Old West Point Rd nr West Point, GA	Chattahoochee	Atlanta WP	Stream Targeted	32.86577	-85.1593	X		X			
1202091302	Chattahoochee River at Hwy 29 at West Point, Ga.	Chattahoochee	Atlanta WP	Stream Targeted	32.8777	-85.1806	X		X			
1202100702	Flat Shoals Crk at SR 103 nr West Point, Ga.	Chattahoochee	Atlanta WP	Stream Targeted	32.83685	-85.1158	X					
1202110102	Lake Harding - Midlake, Main Body	Chattahoochee	Atlanta WP	Lake Monitoring	32.7379	-85.1125	X	X				
1202110104	Lake Harding - Dam Forebay (aka Chatt. River US Bartletts Ferry Dam)	Chattahoochee	Atlanta WP	Lake Monitoring	32.6633	-85.0903	X	X				
1202130501	Goat Rock Lake - Dam Forebay	Chattahoochee	Atlanta WP	Lake Monitoring	32.6112	-85.0794	X	X				
1202130503	Lake Oliver - Dam Forebay	Chattahoochee	Atlanta WP	Lake Monitoring	32.516	-85.0009	X	X				
1203070101	Hannahatchee Creek at Moores Store Rd	Chattahoochee	Tifton WP	Stream Prob	32.14166	-84.7532	X					X
1203130102	Lake Walter F. George at U.S. Highway 82 (aka Chatt. River at Hwy 82)	Chattahoochee	Tifton WP	Lake Monitoring	31.89194	-85.1208	X	X				
1203160102	Lake Walter F. George at Dam Forebay	Chattahoochee	Tifton WP	Lake Monitoring	31.62917	-85.0725	X	X				
1204010101	Chattahoochee River at State Road 37 near Fort Gaines, Ga.	Chattahoochee	Tifton WP	Stream Targeted	31.60417	-85.0553	X					
1204070101	Lake Andrews - Dam Forbay	Chattahoochee	Tifton WP	Lake Monitoring	31.2632	-85.113	X	X				
1204080104	Lake Seminole - Chattahoochee Arm, Lower	Chattahoochee	Tifton WP	Lake Monitoring	30.7662	-84.9201	X	X				
1204080106	Lake Seminole - Dam Forebay	Chattahoochee	Tifton WP	Lake Monitoring	30.7115	-84.8647	X	X				
1308010501	Little River at East Church Road near Buchanan, Ga.	Tallapoosa	Atlanta WP	Stream Targeted	33.85323	-85.1695	X					
1308010601	Tallapoosa River at U.S. Highway 27 near Felton, Ga.	Tallapoosa	Atlanta WP	Stream Targeted	33.86333	-85.2136	X		X			
1308010602	Cochran Creek at Bennett Street near Buchanan, GA	Tallapoosa	Atlanta WP	Stream Targeted	33.85746	-85.1969	X					
1308080601	Buck Creek at State Road 16 near Carrollton, Ga.	Tallapoosa	Atlanta WP	Stream Targeted	33.59238	-85.1293	X					
1308090202	Buffalo Creek At U.S. Highway 27	Tallapoosa	Atlanta WP	Stream Targeted	33.561667	-85.07306						X
1401010202	Jacks River at Old Highway 2 near Tennga, Ga.	Coosa	Atlanta WP	Stream Targeted	34.9881	-84.6344						X
1401020801	Mill Creek nr FS 630, Crandall, GA	Coosa	Atlanta WP	Stream Targeted	34.87267	-84.7242						X
1401040101	Holly Creek at Old CCC Camp Rd nr Chatsworth, GA	Coosa	Atlanta WP	Stream Targeted	34.81209	-84.65405						X

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
1401050301	Swamp Creek 319(h) nr Nance Springs Dr and Old Tilton Rd nr Dalton, GA	Coosa	Atlanta WP	Stream Targeted	34.66853	-84.94585						X
1401050401	Polecat Creek at County Line Road near Nickelsville, GA	Coosa	Cartersville WP	Stream Targeted	34.61583	-84.87306	X				X	X
1401090203	Trib E. Chickamauga Cr	Coosa	Cartersville WP	Stream Targeted	34.875	-85.091	X		X		X	X
1401100101	Mud Creek at Captain Wood Road near LaFayette	Coosa	Cartersville WP	Stream Targeted	34.70679	-85.41737	X		X		X	X
1402010401	Royston Creek at Big Creek Road	Coosa	Cartersville WP	Stream Prob	34.67517	-84.3374	X					X
1402010601	Cartecay River at State Road 2 Connector near Ellijay, Ga.	Coosa	Cartersville WP	Stream Targeted	34.6858	-84.4744	X	X	X			
1402020502	Ellijay River at SR 52 (River Street) near Ellijay, Ga.	Coosa	Cartersville WP	Stream Targeted	34.6927	-84.4791	X	X	X			
1402040401	Carters Lake (CR1) - Upper Lake, Coosawattee Arm	Coosa	Cartersville WP	Lake Monitoring	34.62087	-84.6212	X	X				
1402040402	Carters Lake - Midlake (upstream from Woodring Branch)	Coosa	Cartersville WP	Lake Monitoring	34.6076	-84.638	X	X				
1402060501	Salacoa Creek at Lovebridge Road NE near Redbud, Ga.	Coosa	Cartersville WP	Stream Targeted	34.51667	-84.7972	X	X	X			
1402080201	Sugar Creek at Coniston Road near Carters. GA	Coosa	Cartersville WP	Stream Targeted	34.63667	-84.74222	X				X	X
1402080401	Dry Creek at Pleasant Hill Road near Redbud, GA	Coosa	Cartersville WP	Stream Targeted	34.55194	-84.7792	X	X	X			
1402080402	Dry Creek at Jim Tom Road near Calhoun	Coosa	Cartersville WP	Stream Targeted	34.55753	-84.7551	X		X		X	X
1402080701	Crane Eater Creek at Pine Chapel Road near Calhoun, GA	Coosa	Cartersville WP	Stream Targeted	34.53111	-84.87222	X	X			X	X
1403010401	Oostanaula River at Georgia Highway 156 near Calhoun, Ga.	Coosa	Cartersville WP	Stream Targeted	34.4919	-85.0136	X		X	X		
1403010402	Bow Creek at Old Rome Dalton Road NW near Sugar Vally	Coosa	Cartersville WP	Stream Targeted	34.53859	-85.02672	X		X		X	X
1403030301	Johns Creek at State Road 156 near Curryville, Ga.	Coosa	Cartersville WP	Stream Targeted	34.4412	-85.0953	X					X
1403040101	Little Armuchee Creek at Farmersville Road near Summerville	Coosa	Cartersville WP	Stream Targeted	34.50795	-85.21793	X		X		X	X
1403040202	Storey Mill Creek @ Ben Mosley Circle near Armuchee	Coosa	Cartersville WP	Stream Targeted	34.42465	-85.25967	X		X		X	X
1403040301	Heath Creek at Texas Valley Road NW near Rome, Ga.	Coosa	Cartersville WP	Stream Targeted	34.38241	-85.2304	X	X				
1403040402	Trib to Little Armuchee Creek @ Farmersville Road near Summerville	Coosa	Cartersville WP	Stream Targeted	34.47814	-85.23422	X		X		X	X
1403050201	Trib to Ruff Cr	Coosa	Cartersville WP	Stream Targeted	34.577	-85.203	X		X		X	X
1403050702	Trib to Armuchee Creek @ Turkey Mountain Road	Coosa	Cartersville WP	Stream Targeted	34.3846	-85.14463	X		X		X	X
1403060301	Dozier Creek at Bells Ferry Road near Rome, GA	Coosa	Cartersville WP	Stream Targeted	34.32083	-85.11028	X				X	X
1404010303	Nimblewill Creek at Nimblewill Gap Rd, nr Dahlonega, GA	Coosa	Cartersville WP	Stream Targeted	34.574970	-84.176488						X

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring
1404080101	Little River at Batesville Road near Arnold Mill	Coosa	Atlanta WP	Stream Targeted	34.136925	-84.36112						X
1404080201	Chicken Creek at Batesville Road near Arnold Mill	Coosa	Atlanta WP	Stream Targeted	34.130573	-84.35324						X
1404080902	Lake Allatoona at Little River upstream from Highway 205	Coosa	Cartersville WP	Lake Monitoring	34.15861	-84.5772	X	X				
1404080903	Rose Creek At Towne Lake Parkway	Coosa	Cartersville WP	Stream Prob	34.13278	-84.5725	X					
1404090401	Lake Allatoona Upstream from Dam	Coosa	Cartersville WP	Lake Monitoring	34.16083	-84.7258	X	X				
1404090404	Lake Allatoona at Allatoona Creek Upstream from Interstate 75	Coosa	Cartersville WP	Lake Monitoring	34.08583	-84.7114	X	X				
1404100104	Lake Allatoona at Etowah River upstream from Sweetwater Creek (Marker 44E/45E)	Coosa	Cartersville WP	Lake Monitoring	34.19	-84.5778	X					
1404100201	Stamp Creek at State Road 20 near Cartersville, Ga.	Coosa	Cartersville WP	Stream Targeted	34.21632	-84.686	X	X				
1404100409	Lake Allatoona downstream from Kellogg Creek (Markers 18/19E)	Coosa	Cartersville WP	Lake Monitoring	34.13861	-84.6392	X	X				
1404110401	Little Pumpkinvine Creek (North) at Seven Hills Blvd near Acworth, GA	Coosa	Atlanta WP	Stream Targeted	34.02293	-84.78697						X
1404120301	Racoon Creek at Picklesville Road near Stilesboro, GA	Coosa	Cartersville WP	Stream Targeted	34.12444	-84.89194	X				X	X
1404130102	Etowah River at U.S. Highway 41 near Cartersville, Ga.	Coosa	Cartersville WP	Stream Targeted	34.1533	-84.771	X					
1404150501	Connesena Creek at Old Rome Road near Kingston, GA	Coosa	Cartersville WP	Stream Targeted	34.2357	-84.9725	X		X		X	X
1404160402	Dykes Crk at Dykes Crk Xing nr Rome, GA	Coosa	Cartersville WP	Stream Targeted	34.26357	-85.0855	X	X	X	X	X	X
1404160601	Silver Creek at Crescent Avenue near Rome, Ga.	Coosa	Cartersville WP	Stream Targeted	34.23278	-85.17806	X				X	X
1404160702	Etowah River at Turner Mccall Boulevard (Hwy 27) near Rome, Ga.	Coosa	Cartersville WP	Stream Targeted	34.25416	-85.164	X		X	X		
1405010101	Horeseleg Creek at South Hanks Street at Rome, GA	Coosa	Cartersville WP	Stream Targeted	34.26028	-85.2025	X				X	X
1405010106	Coosa River at Blacks Bluff Road near Rome, Ga.	Coosa	Cartersville WP	Stream Targeted	34.206	-85.2804	X			X		
1405020401	Lake Creek at Chubb Road near Cave Spring	Coosa	Cartersville WP	Stream Targeted	34.08834	-85.28473	X		X		X	X
1405040101	Chattooga Creek - County Road 56, S Of Lafayette	Coosa	Cartersville WP	Stream Targeted	34.67833	-85.2933	X					X
1405040201	Duck Creek at SR 337 near Center Post, GA	Coosa	Cartersville WP	Stream Targeted	34.619	-85.347	X	X				
1405040301	Spring Creek at State Road 337 near Trion, Ga.	Coosa	Cartersville WP	Stream Targeted	34.58444	-85.3653	X	X				
1405040601	Cane Creek at Halls Valley Road near Trion/Lafayette	Coosa	Cartersville WP	Stream Targeted	34.62209	-85.24822	X		X		X	X
1405040701	Cane Creek at Club Drive near Trion, Ga.	Coosa	Cartersville WP	Stream Targeted	34.56083	-85.3104	X					
1405050102	Chattooga River at U.S. Hwy 27 near Summerville	Coosa	Cartersville WP	Stream Targeted	34.46717	-85.3352	X	X	X	X		

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
1405050301	Clarks Creek at Talliaferro Springs Road near Lyerly	Coosa	Cartersville WP	Stream Targeted	34.37825	-85.39428	X		X		X	X
1405080101	East Fork Little River at State Road 48 near Cloudland, Ga.	Coosa	Cartersville WP	Stream Targeted	34.52268	-85.5049	X					X
1501090101	East Chickamauga Crk at Lower Gordon Springs Rd nr Dalton, GA	Tennessee	Cartersville WP	Stream Targeted	34.74692	-85.1236	X	X	X	X	X	X
1501090303	Trib. Tiger Creek off SR 2 near Ringgold	Tennessee	Cartersville WP	Stream Targeted	34.9048	-85.06788	X		X		X	X
1501100401	West Chickamauga Creek at Glass Mill Road near Chickamauga, Ga.	Tennessee	Cartersville WP	Stream Targeted	34.85313	-85.2737	X	X				
1501110101	Chattanooga Creek at State Road 341 near Chattanooga, Tennessee	Tennessee	Cartersville WP	Stream Targeted	34.92284	-85.3457	X	X				X
1501130101	Higdon Creek at SR 136 near Gass, GA	Tennessee	Cartersville WP	Stream Prob	34.86551	-85.5754	X					
1502010501	Lake Chatuge LMP 12 at State Line (aka Hiawassee River)	Tennessee	Cartersville WP	Lake Monitoring	34.98333	-83.7886	X	X				
1502080301	Nottely River - Morgan Bridge near Blairsville, GA	Tennessee	Cartersville WP	Stream Targeted	34.84111	-83.9361	X					
1502080302	West Fork Wolf Creek at W. Wolf Creek Road near Choestoe, GA	Tennessee	Cartersville WP	Stream Targeted	34.79178	-83.9122	X					X
1502080601	Lake Nottely (LMP15A) at Reece Creek	Tennessee	Cartersville WP	Lake Monitoring	34.91152	-84.0506	X	X				
1502080602	Lake Nottely - Dam Forebay (aka Nottely River - Upstream From Nottley Dam)	Tennessee	Cartersville WP	Lake Monitoring	34.95778	-84.0922	X	X				
1503010201	Cooper Creek at State Road 60 near Suches, Ga.	Tennessee	Cartersville WP	Stream Targeted	34.74324	-84.1246	X	X	X			X
1503010302	Rock Creek - Bridge 1.5 Mile Upstream From Mouth	Tennessee	Cartersville WP	Stream Targeted	34.72861	-84.1558	X					X
1503010501	Noontootla Creek - Newport Road Near Dial	Tennessee	Cartersville WP	Stream Targeted	34.74722	-84.2264	X					X
1503010701	Lake Blue Ridge (LMP18) - 300 Meter Upstream Of Dam	Tennessee	Cartersville WP	Lake Monitoring	34.88167	-84.28	X	X				
1503010702	Lake Blue Ridge (LMP18A) - 4 miles upsteam Dam	Tennessee	Cartersville WP	Lake Monitoring	34.84017	-84.2731	X	X				
1505060201	Panther Creek @ logging Rd off CR 56	Tennessee	Cartersville WP	Stream Targeted	34.3427	-85.4909	X		X		X	X

[1] **Sampling Organization:** Atlanta WP = GAEPD Atlanta office; Brunswick WP = GAEPD Brunswick Regional office, Cartersville WP = GAEPD Cartersville Regional Office Tifton WP = GAEPD Tifton Regional office.

[2] **Routine field parameters include:** gage height / tape down or discharge measurement, air temperature, water temperature, dissolved oxygen, pH, specific conductivtance.

[2] **Routine chemical parameters include:** turbidity, specific conductance, 5-day BOD, pH, alkalinity, hardness, suspended solids, ammonia, nitrate-nitrite, Kjeldahl nitrogen, total phosphorus, total organic carbon, and fecal coliform.

Basin lakes field, chemical and biological parameters include: water depth, secchi disk transparency, photic zone depth, air temperature, depth profiles for dissolved oxygen, temperature, pH, and specific conductance, and chemical analyses for turbidity, specific conductance, 5-day BOD, pH, alkalinity, hardness, suspended solids, ammonia, nitrate-nitrite, Kjeldahl nitrogen, total phosphorus, total organic carbon, and chlorophyll a.

[3] **Biomonitoring:** conducted for invertebrates and periphyton using Georgia EPD protocols.

TABLE 3-8. GEORGIA TARGETED MONITORING NETWORK 2013

Rivers and streams stations are sampled monthly for field and chemical parameters for one calendar year. For stations where fecal coliform bacteria is collected,four fecal coliform bacterial samples are collected each calendar quarter during the year. Basin lakes and reservoirs are sampled monthly during the growing season for the calendar year.

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
0102010101	North Fork Chattooga River at State Rd. 28 nr Pine Mountain	Savannah	Atlanta WP	Stream Targeted	34.91877	-83.16922	X				X	
0102060102	Lake Tugalo - u/s Tugalo Lake Rd (aka Bull Sluice Rd.)	Savannah	Atlanta WP	Lake Monitoring	34.737805	-83.340555	X				X	
0102060103	Lake Tugalo - Upstream From Tugaloo Dam	Savannah	Atlanta WP	Lake Monitoring	34.715	-83.351694	X				X	
0102060301	Warwoman Creek at Earls Ford Road near Pine Mtn., GA	Savannah	Atlanta WP	Stream Targeted	34.88458	-83.22883	X				X	
0102060501	Stekoa Creek - FAS 881 Near Chechero, Ga.	Savannah	Atlanta WP	Stream Targeted	34.83528	-83.34694	X				X	X
0102070101	Coleman River	Savannah	Atlanta WP	Stream Targeted	34.95203	-83.5166	X		X		X	X
0102070102	Charlies Creek	Savannah	Atlanta WP	Stream Targeted	34.95895	-83.57158	X		X		X	X
0102070302	Tallulah River	Savannah	Atlanta WP	Stream Targeted	34.91069	-83.54007	X		X		X	
0102070303	Popcorn Creek	Savannah	Atlanta WP	Stream Targeted	34.88128	-83.55913	X		X		X	X
0102070501	Lake Burton - 1/4 mile South of Burton Island (aka Tallulah River)	Savannah	Cartersville WP	Lake Monitoring	34.835233	-83.553817	X				X	
0102070502	Lake Burton - Dampool (aka Tallulah River u/s Lake Burton Dam)	Savannah	Cartersville WP	Lake Monitoring	34.795317	-83.5401	X				X	
0102070801	Lake Rabun - Approx. 4.5 mi u/s Dam (Mid Lake)	Savannah	Cartersville WP	Lake Monitoring	34.763533	-83.455817	X				X	
0102070802	Lake Rabun - Dampool (aka Tallulah River - Upstream From Mathis Dam)	Savannah	Cartersville WP	Lake Monitoring	34.764722	-83.417778	X				X	
0102130101	Lake Hartwell @ Interstate 85	Savannah	Atlanta WP	Lake Monitoring	34.484167	-83.029833	X				X	
0103020103	Lake Hartwell - Dam Forebay	Savannah	Atlanta WP	Lake Monitoring	34.358733	-82.824417	X				X	
0103030702	Lake Russell Between Markers 42 and 44 (Mid Lake)	Savannah	Atlanta WP	Lake Monitoring	34.127778	-82.673611	X				X	
0103030704	Lake Richard B. Russell - Dam Forebay	Savannah	Atlanta WP	Lake Monitoring	34.026333	-82.594167	X				X	
0103100103	Clarks Hill Lake- Savannah River At U.S. Highway 378	Savannah	Atlanta WP	Lake Monitoring	33.857861	-82.399583	X				X	
0103100301	Clarks Hill Lake- Savannah River At Dordon Crk.	Savannah	Atlanta WP	Lake Monitoring	33.765861	-82.271778	X				X	
0103100302	Clarks Hill Lake - Dam Forebay	Savannah	Atlanta WP	Lake Monitoring	33.662694	-82.198528	X				X	
0104010801	North Fork Broad River at State Road 51 near Carnesville, Ga.	Savannah	Atlanta WP	Stream Targeted	34.322891	-83.186876	X				X	

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
0104010901	Stephans Creek at Hubbard Rd. near Carnesville, GA	Savannah	Atlanta WP	Stream Targeted	34.349	-83.23	X	X			X	
0104010902	Middle Fork Broad River at State Road 51 near Franklin Springs, GA	Savannah	Atlanta WP	Stream Targeted	34.292	-83.181	X				X	
0104021001	Nails Creek at State Road 106 at Fort Lamar, Ga.	Savannah	Atlanta WP	Stream Targeted	34.276	-83.267	X	X			X	
0104021101	Hudson River at State Road 106 at Fort Lamar, Ga.	Savannah	Atlanta WP	Stream Prob	34.24866	-83.271042	X	X	X		X	
0104060201	Mouth of Wilmington River - Marker #19 Wassaw Sound	Savannah	Brunswick	Estuary Monitoring	31.932416	-80.977111	X					
0104060501	Broad River - Georgia Highway 17	Savannah	Atlanta WP	Stream Targeted	33.972531	-82.770874	X				X	
0105040301	Clarks Hill Lake - Little River At Highway 47	Savannah	Atlanta WP	Lake Monitoring	33.692722	-82.338805	X				X	
0106010402	Long Branch at SR 104	Savannah	Atlanta WP	Stream Prob	33.5704	-82.1905	X		X		X	
0106030301	Kiokee Creek at SR 104 near Evans	Savannah	Atlanta WP	Stream Targeted	33.600583	-82.232666	X				X	
0106030501	Uchee Creek at State Road 104 near Evans, Ga.	Savannah	Atlanta WP	Stream Targeted	33.566944	-82.183388	X				X	
0106050206	Butler Creek - Near the Levee	Savannah	Atlanta WP	Stream Targeted	33.373056	-81.948333	X		X		X	
0106050301	Butler Creek at State Road 4 near Augusta, GA	Savannah	Atlanta WP	Stream Targeted	33.413417	-82.087283	X		X		X	
0108010302	Whites Creek at Wire Road near Thomson	Savannah	Atlanta WP	Stream Targeted	33.436	-82.509	X		X		X	
0202010102	Ogeechee River at Rocky Ford Road nr Rocky Ford, Ga.	Ogeechee	Brunswick WP	Stream Targeted	32.64942	-81.8409	X	X	X			
0202020501	Ogeechee Creek at State Road 17 at Oliver, Ga.	Ogeechee	Brunswick WP	Stream Targeted	32.524444	-81.539722	X	X			X	
0202020502	Ogeechee Creek at Old Creek Rd. near Newington, Ga.	Ogeechee	Brunswick WP	Stream Targeted	32.587	-81.518	X	X			X	
0202030701	Ogeechee River - Georgia Highway 24 nr Oliver, Ga.	Ogeechee	Brunswick WP	Stream Targeted	32.49475	-81.555833	X	X	X		X	
0202040301	Mill Creek at Bulloch County Road 386 Old River Road near Brooklet, Ga.	Ogeechee	Brunswick WP	Stream Targeted	-81.5786	32.43836	X	X	X	X	X	X
0202060601	Ogeechee River at U.S. Hwy 17	Ogeechee	Brunswick WP	Stream Prob	31.97824	-81.28871	X					
0202060604	Ogeechee River at Fort McAllister State Park	Ogeechee	Brunswick WP	Stream Targeted	31.890611	-81.200778	X					
0204020101	Medway River - near mouth of Dickson Creek	Ogeechee	Brunswick WP	Stream Targeted	31.758139	-81.272166	X					
0204020104	St Catherines Sound at Medway River near Midway, GA	Ogeechee	Brunswick WP	Estuary Monitoring	31.715469	-81.156798	X	X				
0204030402	Little Ogeechee River @ Green Island	Ogeechee	Brunswick WP	Estuary Monitoring	31.88823	-81.08798	X					
0204040101	South Newport River at U.S. Highway 17 at South Newport, Ga.	Ogeechee	Brunswick WP	Stream Targeted	31.642958	-81.393565	X					
0204040103	Sapelo Sound at South Newport River near Barbour Island, GA	Ogeechee	Brunswick WP	Estuary Monitoring	31.554108	-81.200361	X					

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
0204040107	North Newport River - Halfmoon Landing	Ogeechee	Brunswick WP	Stream Targeted	31.698867	-81.278283	X					
0204050201	Sapelo River - Mouth of Broro River - 1.4 miles South of Shellman's Bluff	Ogeechee	Brunswick WP	Estuary Monitoring	31.544861	-81.316027	X					
0209030201	Ogeechee River ar SR119 near Guyton, GA	Ogeechee	Brunswick WP	Stream Targeted	32.29742	-81.450278	X	X	X			
0301030501	Barber Creek at Daniels Bridge Road near Athens, Ga.	Oconee	Atlanta WP	Stream Targeted	33.89935	-83.443383	X	X	X			
0301030710	Tributary to Middle Oconee River near Athens, GA	Oconee	Atlanta WP	Stream Targeted	33.908	-83.386	X	X	X			
0301050508	North Oconee River at Whitehall Road near Whitehall, Ga.	Oconee	Atlanta WP	Stream Prob	33.906944	-83.36	X	X	X		X	
0301100102	Lake Oconee At Highway 44, Oconee River Arm	Oconee	Atlanta WP	Lake Monitoring	33.431394	-83.265734	X					
0301100602	Lake Oconee 300 Meters Upstream Wallace Dam (Dam Forebay)	Oconee	Atlanta WP	Lake Monitoring	33.351667	-83.160833	X					
0301110502	Lake Oconee - Richland Creek Arm	Oconee	Atlanta WP	Lake Monitoring	33.3947	-83.1767	X					
0301170701	Lake Sinclair - Little River & Murder Creek Arm, U/S U.S. Hwy 441	Oconee	Atlanta WP	Lake Monitoring	33.189	-83.2953	X					
0301170702	Lake Sinclair - 300 Meters Upstream Dam (Dam Forebay)	Oconee	Atlanta WP	Lake Monitoring	33.142817	-83.202617	X					
0301180104	Lake Sinclair - Midlake, Oconee River Arm	Oconee	Atlanta WP	Lake Monitoring	33.1968	-83.2742	X					
0302040602	Mikes Mill Creek @ Hazard Road near Oconee, GA	Oconee	Atlanta WP	Stream Prob	32.8776	-82.9121	X		X		X	
0302040701	Buffalo Creek at Georgia Highway 272 near Oconee, Ga.	Oconee	Atlanta WP	Stream Targeted	32.89162	-82.96093	X		X			
0302050301	Commissioner Creek at Shepard Bridge Rd. near McIntyre, GA	Oconee	Atlanta WP	Stream Targeted	32.881	-83.233	X		X			
0302050501	Commissioner Creek at US 441 near McIntyre, GA	Oconee	Atlanta WP	Stream Targeted	32.84972	-83.193056	X		X			
0302050601	Commissioner Creek at Georgia Highway 112 near Toomsboro, Ga.	Oconee	Atlanta WP	Stream Targeted	32.830817	-83.079117	X		X			
0302060302	Big Sandy Creek at SR 18 near Jeffersonville, GA	Oconee	Atlanta WP	Stream Targeted	32.7696	-83.33421	X		X			
0302070102	Big Sandy Creek at US 441 near Irwinton, GA	Oconee	Atlanta WP	Stream Targeted	32.76654	-83.16793	X		X			
0403010102	South River at Macon Drive near Atlanta, GA	Ocmulgee	Atlanta WP	Stream Targeted	33.694	-84.391	X	X	X			
0403060202	Walnut Creek at Elliot Road near McDonough, GA	Ocmulgee	Atlanta WP	Stream Targeted	33.4823	-84.1188	X	X	X		X	
0403090302	Lake Jackson at confluence of Alcovy River and Yellow/South River Branch	Ocmulgee	Atlanta WP	Lake Monitoring	33.368229	-83.863339	X					
0403090306	Lake Jackson - Dam Forebay	Ocmulgee	Atlanta WP	Lake Monitoring	33.322	-83.8409	X					
0503100604	Ocmulgee River at Hwy 83 near Juliette, GA	Ocmulgee	Atlanta WP	Stream Prob	33.1591	-83.8241	X		X		X	
0503110405	Cabin Creek at Calwell Rd near Jackson, GA	Ocmulgee	Atlanta WP	Stream Targeted	33.23518	-84.07057	X					

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
0503110602	Towaliga River at Kinards Mill Road near Jackson, Ga.	Ocmulgee	Atlanta WP	Stream Targeted	33.2473	-84.0613	X					
0503110606	High Falls Lake - Midlake	Ocmulgee	Atlanta WP	Lake Monitoring	33.1973	-84.031	X					
0503110608	High Falls Lake - Dam Forebay	Ocmulgee	Atlanta WP	Lake Monitoring	33.1799	-84.0209	X					
0503120404	Towaliga River - Georgia Highway 83	Ocmulgee	Atlanta WP	Stream Targeted	33.114722	-83.870556	X					
0503130703	Lake Juliette - Midlake	Ocmulgee	Atlanta WP	Lake Monitoring	33.0464	-83.8106	X					
0503130704	Lake Juliette - Dam Forebay	Ocmulgee	Atlanta WP	Lake Monitoring	33.0338	-83.7572	X					
0503140503	Lake Tobesofkee - Midlake	Ocmulgee	Atlanta WP	Lake Monitoring	32.8346	-83.8161	X					
0503140505	Lake Tobesofkee - Dam Forebay	Ocmulgee	Atlanta WP	Lake Monitoring	32.8215	-83.7706	X					
0505020302	Little Ocmulgee River @ U.S. Hwy 280	Ocmulgee	Tifton WP	Stream Targeted	-82.888138	32.080859	X	X				
0604050101	Darien River - near Darien	Altamaha	Brunswick WP	Stream Targeted	31.367222	-81.436111	X				X	
0606030701	Goose Creek at Woods Road (County Road 30) near Jesup, Ga.	Altamaha	Brunswick WP	Stream Targeted	31.676389	-81.908333	X					
0606040102	Altamaha River - U.S. Hwy 301 near Doctortown, Ga..	Altamaha	Brunswick WP	Stream Prob	31.666389	-81.838611	X				X	
0606040301	Penholoway Creek at U.S. 341 near Jesup, Ga.	Altamaha	Brunswick WP	Stream Targeted	31.566667	-81.838333	X		X		X	
0606040501	Jones Creek at U.S. Highway 25 near Ludowici, Ga.	Altamaha	Brunswick WP	Stream Targeted	31.705278	-81.760556	X				X	X
0606050102	Altamaha River - Seaboard Railway at Everett	Altamaha	Brunswick WP	Stream Targeted	31.426944	-81.605556	X		X		X	
0606050203	South Altamaha River - U.S. Highway 17	Altamaha	Brunswick WP	Stream Targeted	31.319722	-81.448056	X					
0606050204	Altamaha River - channel marker #201 off Wolf Island	Altamaha	Brunswick WP	Estuary Monitoring	31.319166	-81.325	X					
0701120101	Satilla River at U.S. Highway 17 at Woodbine, Ga.	Satilla	Brunswick WP	Stream Targeted	30.974444	-81.725833	X					
0701120302	Satilla River - at marker A15 - 13 miles south of Brunswick	Satilla	Brunswick WP	Estuary Monitoring	30.964444	-81.485833	X	X	X			
0701120304	St. Andrews Sound at Satilla Riv near	Satilla	Brunswick WP	Estuary Monitoring	30.983162	-81.453238	X					
0703020101	Turtle River off Hermitage Island	Satilla	Brunswick WP	Estuary Monitoring	31.220278	-81.564167	X					
0703020106	Turtle River - Georgia Highway 303	Satilla	Brunswick WP	Estuary Monitoring	31.186944	-81.531389	X					
0703020110	Brunswick River - U.S. Highway 17	Satilla	Brunswick WP	Estuary Monitoring	31.1164	-81.4858	X					
0703030205	St. Andrew Sound At Mouth Of Jointer Creek	Satilla	Brunswick WP	Estuary Monitoring	31.034722	-81.455556	X	X				
0703040208	Cumberland Sound at St. Marys Riv nr St Marys, GA	Satilla	Brunswick WP	Estuary Monitoring	30.728073	-81.489794	X					

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
0901030201	Suwannoochee Creek @ U.S. Highway 84	Suwanee	Tifton WP	Stream Targeted	-82.880556	30.985833	X	X				
0901050301	Toms Creek @ Toms Creek Rd	Suwanee	Tifton WP	Stream Targeted	-82.75636	30.65378	X				X	
0902050101	Willacoochee River @ Perry House Rd.	Suwanee	Tifton WP	Stream Targeted	-83.262252	31.660538	X	X				
0902050303	Willacoochee River @ Frank Church Rd.	Suwanee	Tifton WP	Stream Targeted	-83.22877	31.635132	X	X				
0902050403	Willacoochee River @ Hwy 158	Suwanee	Tifton WP	Stream Targeted	-83.1462	31.4718	X	X				
0902100101	Banks Lake - Near Lakeland, Ga.	Suwanee	Tifton WP	Lake Monitoring	31.026667	-83.105555	X					
0902110302	Alapahoochee River @ SR 135	Suwanee	Tifton WP	Stream Targeted	-83.087778	30.628333	X				X	
0903040101	Withlacoochee River @ CR31 (Futch's Ferry Rd)	Suwanee	Tifton WP	Stream Prob	-83.3174	31.0956	X	X	X		X	
0903080304	Trib to Withlacoochee River @ Clyattville Nankin Rd	Suwanee	Tifton WP	Stream Prob	-83.3799	30.68099	X	X	X		X	
0903090102	Jumping Gully Creek @ Jumping Gully Rd	Suwanee	Tifton WP	Stream Targeted	-83.265833	30.634167	X	X			X	
1002050301	East Branch Barnetts Creek @ Co Rd 159 nr Ochlockonee, GA	Ochlockonee	Tifton WP	Stream Targeted	-84.0717	30.94694						X
1002080401	Tired Creek @ Midway-Stephens Rd	Ochlocknee	Tifton WP	Stream Targeted	-84.2295	30.76388	X				X	
1003010102	Ochlockonee River @ Hadley Ferry Rd.	Ochlocknee	Tifton WP	Stream Targeted	-84.235533	30.731717	X				X	
1003020201	Attapulgus Creek @ U.S. Hwy 27	Ochlocknee	Tifton WP	Stream Targeted	-84.453611	30.732778	X				X	
1003020301	Little Attapulgus Creek @ SR 241	Ochlocknee	Tifton WP	Stream Targeted	-84.49	30.718056	X		X		X	X
1003020501	Swamp Creek @ U.S. Hwy 27	Ochlocknee	Tifton WP	Stream Targeted	-84.411389	30.719444	X				X	
1105010203	Camp Creek 319(h) nr Walker Rd, Creekview Cir, Riverdale, GA	Flint	Atlanta WP	Stream Targeted	-84.4337	33.57508						X
1105060402	Spring Creek at Thundering Springs Rd near Molena, GA	Flint	Atlanta WP	Stream Targeted	-84.4972	32.9672						X
1105070401	Pigeon Creek at Pigeon Creek Road near Manchester, GA	Flint	Atlanta WP	Stream Targeted	-84.6122	32.86874						X
1105070502	Flint Riv at Sprewell Bluff State Park near	Flint	Atlanta WP	Stream Targeted	32.855988	-84.476812	X	X	X	X	X	X
1105090501	Trib to Potato Creek at Rocky Bottom Rd. near Thomaston, GA	Flint	Atlanta WP	Stream Prob	32.93523	-84.28026	X	X	X		X	
1106010104	Beaver Creek @ East RailRoad Street	Flint	Tifton WP	Stream Prob	-84.00945	32.314	X		X		X	
1106010601	Sweetwater Creek at Old Stage Road	Flint	Tifton WP	Stream Targeted	-84.0862	32.19128						X
1106030301	Horsehead Creek @ Fieds Crossing Rd	Flint	Tifton WP	Stream Targeted	-83.945992	32.2761172	X		X		X	
1106040701	Lime Creek @ Springhill Church Rd	Flint	Tifton WP	Stream Targeted	-83.9925	32.035	X	X	X	X	X	

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
1106040801	Flint River @ SR 27	Flint	Tifton WP	Stream Targeted	-83.9775	32.0586	X		X			
1106060110	Lake Blackshear - Midlake	Flint	Tifton WP	Lake Monitoring	31.9665	-83.9342	X					
1106061001	Lake Blackshear - Dam Forebay	Flint	Tifton WP	Lake Monitoring	31.8479	-83.9394	X					
1106090501	Flint River Reservoir - Midlake, Flint River Arm	Flint	Tifton WP	Lake Monitoring	31.6085	-84.119	X					
1106090502	Flint River Reservoir (Lake Worth) - Dam Forebay	Flint	Tifton WP	Lake Monitoring	31.6033	-84.1365	X					
1107020101	Clear Creek @ CR79	Flint	Tifton WP	Stream Targeted	-84.613247	32.083889	X		X		X	X
1107040401	Bear Creek Trib @ Ivy Mill Rd (CR 63)	Flint	Tifton WP	Stream Targeted	-84.441237	31.916283	X		X		X	X
1107070403	Parker's Mill Creek @ Northshore (Northside) Dr	Flint	Tifton WP	Stream Targeted	-84.252338	32.127686	X		X		X	
1107080102	Town Creek @ N Lee Street	Flint	Tifton WP	Stream Targeted	-84.231251	32.079413	X		X		X	X
1107100301	Lake Worth (original) - Above Hwy 91 Bridge / Diversion Dam (aka Lake Chehaw)	Flint	Tifton WP	Lake Monitoring	31.6109	-84.15	X					
1108080405	Lake Seminole - Flint River Arm @ Spring Creek	Flint	Tifton WP	Lake Monitoring	30.7627	-84.8171	X					
1109020201	Little Ichawaynochaway Creek @ CR3	Flint	Tifton WP	Stream Targeted	-84.640013	31.803532	X	X	X	X	X	X
1110050101	Spring Creek @ SR 91	Flint	Tifton WP	Stream Targeted	-84.742778	31.170556	X					
1201010101	Chatahoochee River nr Chattahcoochee River Rd, near Helen, GA	Chattahoochee	Atlanta WP	Stream Targeted	34.733893	-83.7775503	X		X		X	X
1201010302	Dukes Creeknr Richard B Russell Scenic Hwy SR 348 nr Helen, GA	Chattahoochee	Atlanta WP	Stream Targeted	34.69374	-83.7776433	X		X		X	X
1201030404	Flat Creek at Hub Head Rd. near	Chattahoochee	Atlanta WP	Stream Prob	34.4958	-83.7426	X		X		X	
1201040404	Lake Sidney Lanier - Little River Embayment, Betw M1WC & 3LR	Chattahoochee	Atlanta WP	Lake Monitoring	34.355	-83.8427	X					
1201050502	Testnatee Creek at Gene Nix Road near Cleveland, GA	Chattahoochee	Atlanta WP	Stream Prob	34.568484	-83.835822	X		X		X	
1201070501	Lake Sidney Lanier at Boling Bridge (State Road 53) on Chestatee River	Chattahoochee	Atlanta WP	Lake Monitoring	34.31235	-83.950103	X					
1201080103	Lake Sidney Lanier at Lanier Bridge (State Road 53) on Chattahoochee River	Chattahoochee	Atlanta WP	Lake Monitoring	34.32195	-83.880171	X					
1201080203	Lake Sidney Lanier at Browns Bridge Road (State Road 369)	Chattahoochee	Atlanta WP	Lake Monitoring	34.261666	-83.950662	X					
1201080209	Flat Creek at Dorsey Street near	Chattahoochee	Atlanta WP	Stream Targeted	34.28144	-83.83244	X					
1201080304	Lake Sidney Lanier - Flat Creek Embayment, 100' U/S M7FC	Chattahoochee	Atlanta WP	Lake Monitoring	34.2587	-83.9198	X					
1201080307	Lake Sidney Lanier - Balus Creek Embayment, 0.34m SE M6FC	Chattahoochee	Atlanta WP	Lake Monitoring	34.2504	-83.9244	X					

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
1201080309	Balus Creek At Old Flowery Branch Road	Chattahoochee	Atlanta WP	Stream Targeted	34.2475	-83.890833	X					
1201080401	Lake Sidney Lanier - Mud Crk Embayment, Betw Marina & Ramp	Chattahoochee	Atlanta WP	Lake Monitoring	34.2333	-83.9373	X					
1201080402	Mud Creek at McEver Road near Flowery Branch, GA	Chattahoochee	Atlanta WP	Stream Targeted	34.205944	-83.914777	X					
1201080403	Lake Lanier upstream from Flowery Branch Confluence (Midlake)	Chattahoochee	Atlanta WP	Lake Monitoring	34.200278	-83.982869	X					
1201080603	Lake Sidney Lanier - Six Mile Creek Embayment, 300' E M9SM	Chattahoochee	Atlanta WP	Lake Monitoring	34.2335	-84.0287	X					
1201080902	Lake Sidney Lanier upstream of Buford Dam Forebay	Chattahoochee	Atlanta WP	Lake Monitoring	34.162778	-84.067108	X					
1201090205	Chattahoochee River at McGinnis Ferry Road	Chattahoochee	Atlanta WP	Stream AWW	34.050556	-84.097701	X	X	X			
1201090705	Chattahoochee River - DeKalb County Water Intake	Chattahoochee	Atlanta WP	Stream AWW	33.9731	-84.2631	X	X	X			
1201110101	Big Creek at Roswell Water Intake near Roswell, Ga.	Chattahoochee	Atlanta WP	Stream AWW	34.017851	-84.352492	X	X				X
1201110109	Chattahoochee River at Cobb County Water Intake near Roswell, Ga.	Chattahoochee	Atlanta WP	Stream AWW	33.9443	-84.405	X	X				
1201110609	Chattahoochee River - Atlanta Water Intake	Chattahoochee	Atlanta WP	Stream AWW	33.8278	-84.455	X	X	X			
1201120403	Peachtree Creek at Northside Drive near Atlanta, Ga.	Chattahoochee	Atlanta WP	Stream AWW	33.8194	-84.407778	X	X	X			X
1202010104	Chattahoochee River at Bankhead Highway	Chattahoochee	Atlanta WP	Stream AWW	33.795278	-84.507778	X	X	X			
1202020102	Town Branch at Brewer Rd. near Villa Rica, GA	Chattahoochee	Atlanta WP	Stream Targeted	33.754	-84.862	X	X				
1202020201	Lick Log Creek at Laird Rd. near Powder Springs, GA	Chattahoochee	Atlanta WP	Stream Targeted	33.853	-84.767	X	X				
1202020802	Sweetwater Creek at Interstate Highway 20	Chattahoochee	Atlanta WP	Stream AWW	33.7728	-84.614722	X	X				
1202030102	Chattahoochee River - Georgia Highway 92	Chattahoochee	Atlanta WP	Stream AWW	33.6567	-84.673611	X	X	X			
1202031202	Chattahoochee River at Capps Ferry Road near Rico, Ga.	Chattahoochee	Atlanta WP	Stream AWW	33.5778	-84.808611	X	X				
1202040102	Acorn Creek At Highway 5	Chattahoochee	Atlanta WP	Stream Targeted	33.468056	-84.959444	X	X				
1202040401	Whooping Creek At Highway 5	Chattahoochee	Atlanta WP	Stream Targeted	33.461389	-84.997222	X	X				
1202040502	Milligan Creek at Star Point Rd. near Roopville, GA	Chattahoochee	Atlanta WP	Stream Targeted	33.440331	-85.083574	X	X				
1202060105	Hillabahatchee Creek at CR 210 near Frolona, GA	Chattahoochee	Atlanta WP	Stream Targeted	33.311218	-85.187675	X	X	X	X	X	X
1202060802	West Point Lake at LaGrange Water Intake near LaGrange, Ga. (aka Chatt. River at Lagrange Intake)	Chattahoochee	Atlanta WP	Lake Monitoring	33.0783	-85.110833	X					
1202080208	West Point Lake - Dam Forebay	Chattahoochee	Atlanta WP	Lake Monitoring	32.9208	-85.1834	X					

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
1202091302	Chattahoochee River at Hwy 29 at West Point, Ga.	Chattahoochee	Atlanta WP	Stream Targeted	32.8777	-85.18063	X					
1202110102	Lake Harding - Midlake, Main Body	Chattahoochee	Atlanta WP	Lake Monitoring	32.7379	-85.1125	X					
1202110104	Lake Harding - Dam Forebay (aka Chatt. River US Bartletts Ferry Dam)	Chattahoochee	Atlanta WP	Lake Monitoring	32.6633	-85.090278	X					
1202120401	Palmetto Creek at Fortune Hole Rd. near Hamilton, GA	Chattahoochee	Atlanta WP	Stream Targeted	32.73504	-84.85072	X					
1202120502	Mulberry Creek at US 27 near Hamilton, GA	Chattahoochee	Atlanta WP	Stream Prob	32.7085	-84.8698	X		X		X	
1202130501	Goat Rock Lake - Dam Forebay	Chattahoochee	Atlanta WP	Lake Monitoring	32.6112	-85.0794	X					
1202130503	Lake Oliver - Dam Forebay	Chattahoochee	Atlanta WP	Lake Monitoring	32.516	-85.0009	X					
1203070101	Hannahatchee Creek at Moores Store Rd	Chattahoochee	Tifton WP	Stream Targeted	32.14166	-84.7532						X
1203090101	Talipahoga Rum Creek @ Wall Rd	Chattahoochee	Tifton WP	Stream Targeted	32.116831	-85.01159	X		X		X	X
1203130102	Lake Walter F. George at U.S. Highway 82 (aka Chatt. River at Hwy 82)	Chattahoochee	Tifton WP	Lake Monitoring	31.891944	-85.120833	X					
1203150102	Pataula Creek @ James Holder Rd	Chattahoochee	Tifton WP	Stream Targeted	32.029467	-84.70593	X		X		X	
1203160102	Lake Walter F. George at Dam Forebay	Chattahoochee	Tifton WP	Lake Monitoring	31.629167	-85.0725	X					
1204070101	Lake Andrews - Dam Forbay	Chattahoochee	Tifton WP	Lake Monitoring	31.2632	-85.113	X					
1204080104	Lake Seminole - Chattahoochee Arm, Lower	Chattahoochee	Tifton WP	Lake Monitoring	30.7662	-84.9201	X					
1204080106	Lake Seminole - Dam Forebay	Chattahoochee	Tifton WP	Lake Monitoring	30.7115	-84.8647	X					
1308020601	Tallapoosa River - Georgia Highway 8 below Tallapoosa, Ga.	Tallapoosa	Atlanta WP	Stream Prob	33.740833	-85.336389	X		X		X	
1308030301	Walker Creek at Providence Church Road near Tallapoosa, Ga.	Tallapoosa	Atlanta WP	Stream Targeted	33.724788	-85.319515	X					
1401010201	Jacks River at County Road 187 near Higdon, Ga.	Coosa	Cartersville WP	Stream Targeted	34.90467	-84.5221	X					
1401010202	Jacks River at Old Highway 2 near Tennga, Ga.	Coosa	Atlanta WP	Stream Targeted	34.9881	-84.6344	X		X		X	X
1401020801	Mill Creek	Coosa	Atlanta WP	Stream Targeted	34.87267	-84.7242	X		X		X	X
1401040101	Holly Creek	Coosa	Atlanta WP	Stream Targeted	34.81209	-84.65405	X		X		X	X
1401040102	Shanty Creek	Coosa	Atlanta WP	Stream Targeted	34.8011	-84.62978	X		X		X	X
1401040501	Rock Creek	Coosa	Atlanta WP	Stream Targeted	34.74241	-84.67341	X		X		X	X
1402010402	Tickanetly Creek at Macedonia Road	Coosa	Atlanta WP	Stream Targeted	34.66946	-84.33365	X				X	

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
1402010404	Cartecay River at Lower Cartecay Road	Coosa	Cartersville WP	Stream Targeted	34.638611	-84.408889	X					
1402010405	Clear Creek at Clear Creek Rd	Coosa	Cartersville WP	Stream Prob	34.6325	-84.4032	X					
1402010502	Clear Creek at Blackberry Mountain Road	Coosa	Atlanta WP	Stream Targeted	34.61959	-84.43696	X				X	
1402020202	Rock Creek at Rock Creek Road	Coosa	Cartersville WP	Stream Targeted	34.7785	-84.39	X					
1402020501	Kells Creek at Kells Ridge Drive	Coosa	Atlanta WP	Stream Targeted	34.73064	-84.47409	X				X	
1402030301	Conasauga Creek at Mountaintown Road	Coosa	Atlanta WP	Stream Targeted	34.73055	-84.56439	X				X	
1402030501	Mountaintown Creek at Craigtown Road	Coosa	Atlanta WP	Stream Targeted	34.73225	-84.56183	X				X	
1402040202	Flat Creek at SR 382	Coosa	Atlanta WP	Stream Targeted	34.63985	-84.57445	X				X	
1402040401	Carters Lake (CR1) - Upper Lake, Coosawattee Arm	Coosa	Cartersville WP	Lake Monitoring	34.62087	-84.6212	X	X				
1402040402	Carters Lake - Midlake (upstream from Woodring Branch)	Coosa	Cartersville WP	Lake Monitoring	34.6076	-84.638	X	X				
1403010301	Snake Creek at Pocket Road at Sugar Valley, GA	Coosa	Cartersville WP	Stream Targeted	34.55722	-85.0164	X	X				
1403010501	Oostanaula River at Reeves Station Road near Calhoun, GA	Coosa	Cartersville WP	Stream Prob	34.45111	-85.0283	X					
1403020101	Oothkalooga Creek at Lacey Road	Coosa	Cartersville WP	Stream Targeted	34.35519	-84.9355	X					
1403020201	Oothkalooga Creek at Woody Road	Coosa	Cartersville WP	Stream Targeted	34.38425	-84.9435	X					
1403020303	Blackwood Creek at U.S. Hwy 41	Coosa	Cartersville WP	Stream Targeted	34.4595	-84.9345	X	X				
1404010102	West Fork Montgomery at nr Hightower Church Rd	Coosa	Cartersville WP	Stream Targeted	34.624449	-84.12517	X					
1404010203	Jones Creek at Jones Creek Rd	Coosa	Cartersville WP	Stream Targeted	34.60201	-84.15124	X					
1404010303	Nimblewill Creek at Nimblewill Gap Rd, nr Dahlonega, GA	Coosa	Cartersville WP	Stream Targeted	34.57497	-84.1764878	X					X
1404020201	Amicalola Creek - 0.3 Miles Upstream From Falls	Coosa	Cartersville WP	Stream Targeted	34.571389	-84.241389	X					
1404040401	Long Swamp Creek at Conns Creek Rd near Ball Ground, Ga.	Coosa	Cartersville WP	Stream Targeted	34.3267	-84.344837	X	X				X
1404050601	Sharp Mountain Creek at State Road 5 near Ball Ground, Ga.	Coosa	Cartersville WP	Stream Targeted	34.31083	-84.403801	X					X
1404070101	Shoal Creek @ little Refuge rd near Waleska	Coosa	Cartersville WP	Stream Prob	34.2937	-84.5697	X	X				
1404080902	Lake Allatoona at Little River upstream from Highway 205	Coosa	Cartersville WP	Lake Monitoring	34.158611	-84.577222	X					
1404090401	Lake Allatoona Upstream from Dam	Coosa	Cartersville WP	Lake Monitoring	34.160833	-84.725845	X					
1404090404	Lake Allatoona at Allatoona Creek Upstream from Interstate 75	Coosa	Cartersville WP	Lake Monitoring	34.085833	-84.711389	X					

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
1404100102	Downing Creek At Highway 205	Coosa	Cartersville WP	Stream Targeted	34.1975	-84.530278	X					
1404100104	Lake Allatoona at Etowah River upstream from Sweetwater Creek (Marker 44E/45E)	Coosa	Cartersville WP	Lake Monitoring	34.19	-84.577778	X					
1404100201	Stamp Creek at State Road 20 near Cartersville, Ga.	Coosa	Cartersville WP	Stream Targeted	34.216323	-84.686017	X					X
1404100409	Lake Allatoona downstream from Kellogg Creek (Markers 18/19E)	Coosa	Cartersville WP	Lake Monitoring	34.138611	-84.639167	X					
1404130103	Etowah River at SR293 at Cartersville, GA	Coosa	Cartersville WP	Stream Targeted	34.146389	-84.771389	X					
1404150401	Two Run Creek at SR293 near Kingston, GA	Coosa	Cartersville WP	Stream Targeted	34.242778	-84.889722	X	X				
1404160201	Toms Creek at Norton Road near Kingston, GA	Coosa	Cartersville WP	Stream Targeted	34.264722	-84.993611	X					
1404160401	Dykes Creek at SR 293 / Kingston Hwy near Kingston, GA	Coosa	Cartersville WP	Stream Targeted	34.25392	-85.0798	X	X		X		
1404160402	Dykes Crk at Dykes Crk Xing nr Rome, GA	Coosa	Cartersville WP	Stream Targeted	34.26357	-85.0855	X	X	X	X	X	X
1501080502	Peavine Creek at Old Dixie Highway near Graysville, Ga.	Tennessee	Cartersville WP	Stream Targeted	34.96424	-85.176	X					
1501090101	East Chickamauga Crk at Lower Gordon Springs Rd nr Dalton, GA	Tennessee	Cartersville WP	Stream Targeted	34.74692	-85.1236	X	X		X		X
1501090201	East Chickamauga Creek at Bandy Road near Ringgold, Ga.	Tennessee	Cartersville WP	Stream Prob	34.867	-85.08211	X					
1501090202	Dry Creek at Houston Valley Road near Ringgold, Ga.	Tennessee	Cartersville WP	Stream Targeted	34.85857	-85.0883	X					
1501090301	Tiger Creek at State Road 3 near Ringgold, Ga.	Tennessee	Cartersville WP	Stream Targeted	34.9055	-85.0774	X	X				
1501090501	Little Chickamauga Creek at Hackett Mill Road near Ringgold, Ga.	Tennessee	Cartersville WP	Stream Targeted	34.90699	-85.1217	X					
1501110301	Dry Creek at Maple Street near Chattanooga, Tennessee	Tennessee	Cartersville WP	Stream Targeted	34.97839	-85.3029	X	X				X
1502010207	Darrell Creek	Tennessee	Atlanta WP	Stream Targeted	34.95947	-83.36154	X		X		X	X
1502010501	Lake Chatuge LMP 12 at State Line (aka Hiawassee River)	Tennessee	Cartersville WP	Lake Monitoring	34.983333	-83.788611	X					
1502040201	Brasstown Creek at State Road 66 near Young Harris, Ga.	Tennessee	Atlanta WP	Stream Targeted	34.97303	-83.88188	X				X	
1502060103	Butler Creek @ Hawks Claw Rd	Tennessee	Cartersville WP	Stream Prob	34.9773	-84.12623	X					
1502060104	Moccasin Creek @ Murphy Hwy	Tennessee	Cartersville WP	Stream Targeted	34.978	-84.066	X					X
1502080501	Coosa Creek at Blue Ridge Hwy near Blairsville, GA	Tennessee	Atlanta WP	Stream Targeted	34.85159	-83.99388	X				X	X
1502080601	Lake Nottely (LMP15A) at Reece Creek	Tennessee	Cartersville WP	Lake Monitoring	34.91152	-84.0506	X					
1502080602	Lake Nottely - Dam Forebay (aka Nottely River - Upstream From Nottley Dam)	Tennessee	Cartersville WP	Lake Monitoring	34.957778	-84.092222	X					

Georgia Station Number	Sampling Site	River Basin	Sampling Organization[1]	Waterbody Type/ Project	Latitude	Longitude	Routine[2]	Fecal coliform	Metals	Pesticides	OrthoPhosporus	Biomonitoring[3]
1502080702	Young Cane Creek	Tennessee	Atlanta WP	Stream Targeted	34.83574	-84.08393	X				X	X
1502080801	Ivylog Creek at Ivylog Road near Blairsville, GA	Tennessee	Cartersville WP	Stream Targeted	34.935442	-83.9802098	X					X
1502090102	Nottely River at John Smith Road near Ivylog, Ga.	Tennessee	Cartersville WP	Stream Targeted	34.98064	-84.0893	X					
1502090104	South Fork Rapier Mill Creek	Tennessee	Cartersville WP	Stream Targeted	34.984264	-84.1996528	X					
1503010701	Lake Blue Ridge (LMP18) - 300 Meter Upstream Of Dam	Tennessee	Cartersville WP	Lake Monitoring	34.881667	-84.28	X					
1503010702	Lake Blue Ridge (LMP18A) - 4 miles upsteam Dam	Tennessee	Cartersville WP	Lake Monitoring	34.84017	-84.2731	X					
1503020201	Bryan Creek	Tennessee	Cartersville WP	Stream Targeted	34.898848	-84.1757514	X					
1503020301	Hemptown Creek at State Road 245 near Mineral Bluff, Ga.	Tennessee	Atlanta WP	Stream Targeted	34.91571	-84.27938	X				X	
1503020401	Houthouse Creek at Humphrey Mill Rd near Mineral Bluff	Tennessee	Cartersville WP	Stream Targeted	34.955776	-84.2943572	X					

[1] **Sampling Organization:** Atlanta WP = GAEPD Atlanta office; Brunswick WP = GAEPD Brunswick Regional office, Cartersville WP = GAEPD Cartersville Regional Office Tifton WP = GAEPD Tifton Regional office.

[2] **Routine field parameters include:** gage height / tape down or discharge measurement, air temperature, water temperature, dissolved oxygen, pH, specific conductivtance.

[2] **Routine chemical parameters include:** turbidity, specific conductance, 5-day BOD, pH, alkalinity, hardness, suspended solids, ammonia, nitrate-nitrite, Kjeldahl nitrogen, total phosphorus, total organic carbon, and fecal coliform.

Basin lakes field, chemical and biological parameters include: water depth, secchi disk transparency, photic zone depth, air temperature, depth profiles for dissolved oxygen, temperature, pH, and specific conductance, and chemical analyses for turbidity, specific conductance, 5-day BOD, pH, alkalinity, hardness, suspended solids, ammonia, nitrate-nitrite, Kjeldahl nitrogen, total phosphorus, total organic carbon, and chlorophyll a.

[3] **Biomonitoring:** conducted for invertebrates and periphyton using Georgia EPD protocols.

Intensive Surveys Intensive surveys complement long term fixed station monitoring as these studies focus intensive monitoring on a particular issue or problem over a shorter period of time. Several basic types of intensive surveys are conducted including model calibration surveys and impact studies. The purpose of a model calibration survey is to collect data to calibrate a mathematical water quality model. Models are used for wasteload allocations and/or TMDLs and as tools for use in making regulatory decisions. Impact studies are conducted where information on the cause and effect relationships between pollutant sources and receiving waters is needed. In many cases biological information is collected along with chemical data for use in assessing environmental impacts.

Biological Monitoring Biological monitoring is performed in order to assess the biological integrity of the States waters. The Department of Natural Resources' Wildlife Resource Division has been conducting bioassessments using fish as the indicator species since the early 1990's. The primary technique for determining the quality of fish communities is called the Index of Biotic Integrity (IBI). This index utilizes the numbers and types of fish species present in

a stream to produce a stream score or rating for comparison across streams within a particular ecoregion or to the same stream over time. Biological monitoring is useful in detecting intermittent sources of pollution that may not be caught in trend or targeted monitoring of water quality parameters. The Tennessee Valley Authority has also collected fish IBI data in Georgia. In 2007, the GAEPD began utilizing macroinvertebrate biological data in addition to fish data for assessing the biotic integrity of wadeable streams in Georgia.

Lake Monitoring The GAEPD has maintained monitoring programs for Georgia's public lakes since the late 1960's. Currently, Georgia has six major lakes that have standard criteria approved by legislature, which include: Sydney Lanier, Allatoona, West Point, Walter F. George, Jackson and Carters. These lakes are sampled every year from April to October when primary productivity is highest. In addition to the six lakes with criteria, Georgia has 21 other major lakes (lakes over 500 acres). Prior to 2008, these lakes were monitored quarterly on a basin rotation cycle, so each lake was sampled once every 5 years. Beginning in 2008, EPD began to monitor these lakes monthly from April to October instead of quarterly. In addition, in 2008, EPD began to transition from monitoring these lakes on a basin rotation cycle to monitoring them each year. This transition was done over a period of time by adding a set of lakes (by basin) to the annual monitoring program each year. By 2012, EPD was monitoring all major lakes annually (except for those in the Savannah River Basin). Major lakes in the Savannah River Basin were added to the annual monitoring program in 2014. The data collected in the annual monitoring of lakes includes depth profiles for dissolved oxygen, temperature, pH, and specific conductance, Secchi disk transparency, and chemical analyses for chlorophyll *a*, total phosphorus, nitrogen compounds, and turbidity.

The monitoring of major lakes (> 500 acres) since 1984 has continued to use Carlson's Trophic State Index (TSI) as a tool to mark trophic state trends. Currently, all major lakes are monitored monthly April through October. Three measurements (secchi depth, chlorophyll-a and total phosphorus) are used to calculate TSIs each month and are combined into a total trophic state index (TTSI). A growing-season average TTSI for the dampool location for each lake is then used to assess the trophic status. Other field data and observations are also used to assess the trophic condition of each lake and to establish categories of lakes relative to need for restoration and/or protection. The major lakes listed in Table 3-9 are ranked according to the average seasonal TSI.

TABLE 3-9. MAJOR LAKES RANKED BY SUM OF TOTAL TROPHIC STATE INDEX VALUES (2013)

Major Lake	TTSI Ranking	Major Lake	TTSI Ranking	Major Lake	TTSI Ranking
High Falls	180	Banks	148	Juliette	139
Blackshear	170	Oliver	148	Chatuge	137
Jackson	164	Harding	150	Clarks Hill	134
Tobesofkee	163	Walter F. George	151	Blue Ridge	133
Oconee	162	Allatoona	144	Lanier	132
West Point	155	Nottely	144	Russell	131
Sinclair	154	Goat Rock	143	Rabun	128
Seminole	151	Carters*	141	Burton	125
Worth	150	Tugalo	139	Hartwell	117

*Carters Lake does not have a dam pool site due to the pump-back activity from the re-regulation reservoir. Data listed is from the mid-lake station. Sample for Lake Chatuge taken at State line.

Fish Tissue Monitoring This general contaminants assessment project is focused on fish tissue sampling and analyses, risk-based data assessment, and annual publication of consumption guidance in Georgia's Freshwater & Saltwater Sport Fishing Regulations and in Guidelines for Eating Fish from Georgia Waters. Fish tissue samples are typically collected in the fall from Georgia lakes and rivers, and analyzed in the winter and spring. Site-specific sampling in Georgia estuaries occurs between the spring and fall on a case specific basis. The sampling is conducted by either the GADNR Wildlife Resources Division (WRD), or the Coastal Resources Division (CRD), depending on whether the site is freshwater (WRD), or estuarine/marine waters (CRD). Samples are catalogued and transported to GAEPD or University of Georgia laboratories and results are reported to the GAEPD the following late summer or early fall. The data from the annual collections are utilized in reassessments that are incorporated annually into the *Guidelines for Eating Fish for Georgia Waters* and *Georgia's Freshwater and Saltwater Sport Fishing Regulations*. The first risk-based consumption guidance was published in 1995. As part of the implementation of the Federal Clean Air Mercury Rule (CAMR), it was recognized that a more rigorous monitoring program of mercury in fish tissue would be required to support trend analysis and the efficacy of future reductions in air mercury emissions. A subproject was designed and implemented in 2006 consisting of 22 fish mercury trend stations, which will be monitored annually. Nineteen stations are fresh water and 3 are estuarine. The mercury in fish trend monitoring sites are provided in Table 3-10.

TABLE 3-10. MERCURY IN FISH TREND MONITORING STATIONS

Antioch Lake at Rocky Mtn. PFA	Flint River below Ichawaynochaway Creek
Oostanaula River at Georgia Hwy. 140	Lake Kolomoki at Kolomoki State Park
Lake Acworth	Satilla River below U.S. Hwy. 82
Lake Tugalo	Okefenokee Swamp National Wildlife Refuge
Bear Creek Reservoir	Banks Lake National Wildlife Refuge
Randy Pointer Lake (Black Shoals Reservoir)	Savannah River at U.S. Hwy. 301
Chattahoochee River below Morgan Falls	Savannah River at I-95
Chattahoochee River Below Franklin	Ogeechee River at Ga. Hwy. 204
Lake Tobesofkee	Wassaw Sound
Ocmulgee River below Macon at Ga. Hwy. 96	Altamaha Delta and Sound
Lake Andrews	St. Andrews Sound

Toxic Substance Stream Monitoring The GAEPD has focused resources on the management and control of toxic substances in the State's waters for many years. Toxic substance analyses have been conducted on samples from selected trend monitoring stations since 1973. Wherever discharges were found to have toxic impacts or to include toxic pollutants, the GAEPD has incorporated specific limitations on toxic pollutants in NPDES discharge permits. In 1983 the GAEPD intensified toxic substance stream monitoring efforts. This expanded toxic substance stream monitoring project included facility effluent, stream, sediment, and fish sampling at specific sites downstream of selected industrial and municipal discharges. From 1983 through 1991, ten to twenty sites per year were sampled as part of this project. Continued work is performed on a site-specific basis and as part of the targeted monitoring program.

Aquatic Toxicity Testing Biomonitoring requirements are currently addressed in all municipal and industrial NPDES permits. In January 1995, the GAEPD issued approved NPDES Reasonable Potential Procedures that further delineate required conditions for conducting whole effluent toxicity (WET) testing for municipal and industrial discharges. The Reasonable Potential Procedures were updated in 2001 and the GAEPD additionally developed a WET Strategy that provided more detail as to how the State would determine which facilities

needed a WET limit in their permit. This strategy outlined minimum data requirements for different types of facilities. The GAEPD conducted aquatic toxicity tests on municipal and industrial water pollution control plant effluents from 1985 through 1997. Funding for GAEPD's aquatic toxicity testing laboratory was redirected to TMDL monitoring and the toxicity testing requirements were turned over to the individual permittees.

Coastal Monitoring The Coastal Resources Division (CRD) conducts the majority of coastal monitoring in the State. CRD conducts water quality monitoring in estuarine and near-shore coastal waters through its Public Health Water Quality Monitoring Program. This Program has three distinct parts. The Shellfish Sanitation and Beach Water Quality Monitoring Programs are concerned with public health, while the Nutrient Sampling Program is designed to generate baseline-monitoring data for trends. A list of the beaches monitored in 2012 and 2013 can be found in Table 3-11. A list of the stations monitored under the Shellfish Sanitation program can be found in Table 3-12 (these stations are also included in Figure 1). The nutrient sampling that was performed was conducted at a subset of the Shellfish Sanitation monitoring stations. Table 3-12 indicates which stations were monitored for nutrients. More detail regarding the work conducted by CRD can be found in Chapter 5. GAEPD has, over the past few years, intensified its own coastal monitoring program. Currently, GAEPD monitors eight locations throughout Georgia's sounds. The data collected included depth profiles for dissolved oxygen, temperature, pH, and specific conductance, Secchi disk transparency, and chemical analyses for chlorophyll *a*, total phosphorus, nitrogen compounds, and turbidity.

Facility Compliance Sampling In addition to surface water quality monitoring, the GAEPD conducts evaluations and compliance sampling inspections of municipal and industrial water pollution control plants and State-permitted industrial pretreatment facilities. Compliance sampling inspections include collection of 24-hour composite samples, evaluation of the permittee's sampling and flow monitoring provisions and sampling documentation. In excess of 170 sampling inspections were conducted by the GAEPD in Fiscal Years 2012-2013. The results were used to confirm validity of permittee self-monitoring data and as supporting evidence in enforcement actions.

Probabilistic Monitoring In order to determine the quality of all the waters in the State, the GAEPD would either have to sample and assess each individual waterbody (which is not possible due to the resources that would be needed) or would have to develop a scientific survey that would be representative of all the State's waters. Probabilistic monitoring provides a scientifically defensible way to sample a subset of all waters and then to use the results of this sampling to provide an estimate of the quality of all waters of the State. GAEPD has participated in various National probabilistic monitoring in the past including USEPA's 2007 National Lakes Assessment Survey; USEPA's 2009, National Rivers and Streams Assessment (wadeable portion); USEPA's 2011 National Wetlands Condition Assessment; USEPA's 2012 National Lake Assessment; and USEPA's 2013 National Rivers and Streams Assessment (wadeable portion). In cooperation with CRD, Georgia sampled 51 wetland sites using EPA's national protocol. GAEPD sampled 13 lakes, and 17 wadeable streams.

Table 3-11 Beaches Monitored by CRD in 2012 & 2013

Station ID	Beach Name	County	Frequency*
BIRP	Blythe Island Sandbar Beach	Glynn	Monthly
BOSS	Ossabaw Island Bradley Beach	Chatham	Monthly
CNBF	Contentment Bluff Sandbar Beach	McIntosh	Monthly
DALL	Dallas Bluff Sandar Beach	McIntosh	Monthly
JICC	Jekyll Island - Clam Creek Beach	Glynn	Weekly
JIM	Jekyll Island - Middle Beach at Convention Center	Glynn	Weekly
JIN	Jekyll Island - North Beach at Dexter Lane	Glynn	Weekly
JIS	Jekyll Island - South Beach at 4-H Camp	Glynn	Weekly
JISA	Jekyll Island - St. Andrews Beach	Glynn	Weekly
JISD	Jekyll Island - South Dunes Picnic Area Beach	Glynn	Weekly
JIWY	Jekyll Island - Captain Wylly Road Crossover Beach	Glynn	Weekly
KING	Kings Ferry County Park Beach	Chatham	Quarterly
REIM	Reimolds Pasture Beach	Glynn	Monthly
SEN	Sea Island - North Beach	Glynn	Monthly
SES	Sea Island - South Beach	Glynn	Monthly
SIF	Saint Simons Island - 5th Street Crossover Beach	Glynn	Weekly
SIM	Saint Simons Island - Middle Beach (aka East Beach Old Coast Guard Station)	Glynn	Weekly
SIMA	Saint Simons Island - Massengale Park Beach	Glynn	Weekly
SIN	Saint Simons Island - North Beach at Goulds Inlet	Glynn	Weekly
SIS	Saint Simons Island - South Beach at Lighthouse	Glynn	Weekly
SKID	Skidaway Narrows County Park Beach (aka Butterbean Beach)	Chatham	Monthly
SOSS	Ossabaw Island South Beach	Chatham	Monthly
TYM	Tybee Island - Middle Beach at Center Terrace	Chatham	Weekly
TYN	Tybee Island - North Beach at Gulick Street	Chatham	Weekly
TYP	Tybee Island - Polk Street Beach	Chatham	Weekly
TYS	Tybee Island - South Beach at Chatham Street	Chatham	Weekly
TYST	Tybee Island - Strand Beach at Pier	Chatham	Weekly

*Stations sampled monthly are monitored April – October.

Table 3-12 Stations Monitored by CRD under the Shellfish Sanitation and Nutrient Monitoring Programs in 2012 & 2013

Station ID	Latitude	Longitude	Description	Nutrients 2012	Nutrients 2013
1049	31.92866	-81.01839	southernmost tributary off Romerly Marsh Creek		
1050	31.92503	-81.00860	northern mouth of Habersham Creek		
1052	31.94317	-81.00914	northernmost tributary off Romerly Marsh Creek		
1152	31.92557	-80.98520	Old Romerly Marsh Creek		
1153	31.92993	-80.98919	Romerly Marsh Creek Chatham		
1154	31.97741	-80.96789	Halfmoon River at Beard Creek	X	X
1155	31.95172	-80.98532	Tybee Cut South	X	X
1159	31.96792	-80.93600	Pa Cooper Creek		
1200	31.94600	-80.93000	Mouth of House Creek Chatham	X	X
1201	31.95500	-80.93300	North of House Creek/Wassaw Sound Chatham		
1222	32.01500	-80.92400	Cut Oyster Creek to Bull River Chatham		
1223	32.01400	-80.91600	North Fork Oyster Creek Chatham	X	X
1224	31.99800	-80.91200	North Junction Lazaretto & Oyster Creeks Chatham		
1225	31.99500	-80.91000	South Junction Lazaretto & Oyster Creeks Chatham	X	X
1337	32.02829	-80.94725	Bull River upstream of Betz Creek	X	X
1338	32.02005	-80.94529	Betz Creek		
1352	31.96058	-81.01186	Priest Landing Chatham		
3242	31.68500	-81.29600	Medway River Near Sunbury	X	X
3249	31.68600	-81.27700	Halfmoon East		
3255	31.73400	-81.19400	Mouth of Jones Hammock Creek		
3273	31.74100	-81.16100	Bear River across from Newell Creek		
3275	31.77100	-81.16998	Bear River across from Kilkenny	X	X
3285	31.75680	-81.27240	Dickinson Creek Mouth	X	X
3286	31.74765	-81.25410	Jones Creek Mouth		
3288	31.72800	-81.22028	Medway River East of Sunbury Creek		
3291	31.68940	-81.19400	Van Dyke Creek Mouth	X	X
3319	31.68713	-81.15633	Walburg Northwest	X	X
4092	31.51000	-81.27800	Eagle Creek, McIntosh		
4100	31.53000	-81.33000	Back River at July Cut	X	X
4120	31.52777	-81.25732	Mud River at Dog Hammock		
4122	31.59343	-81.26117	Little Mud River at Barbour Island River	X	X
4123	31.53432	-81.22433	Sapelo Sound at Highpoint	X	X
4175	31.44200	-81.30600	Old Teakettle Creek, McIntosh	X	X
4177	31.47600	-81.33200	Shellbluff Creek, McIntosh	X	X
4178	31.48800	-81.32300	Creighton Narrows, McIntosh		
4179	31.48500	-81.29500	New Teakettle Creek, McIntosh		
4180	31.52300	-81.29100	Front River, McIntosh		
4184	31.55400	-81.31400	Juliention River, McIntosh	X	X
4185	31.56360	-81.25778	Little Mud River, McIntosh		
4186	31.55775	-81.23293	South Mouth Barbour Island River, McIntosh	X	X
4187	31.59300	-81.23600	Middle Barbour Island River, McIntosh		
4188	31.61500	-81.21400	Middle Wahoo River, McIntosh		
4190	31.63200	-81.22400	South Swain River, McIntosh		
4191	31.63400	-81.23700	North Swain River, McIntosh	X	X
4195	31.56232	-81.21815	Todd River, McIntosh		

Station ID	Latitude	Longitude	Description	Nutrients 2012	Nutrients 2013
4196	31.50300	-81.33500	Crescent River, McIntosh	X	X
4197	31.49100	-81.33200	Crescent River, South-end of Creighton, McIntosh		
4304	31.55900	-81.27400	Julienton River mouth, McIntosh		
4305	31.54800	-81.30800	Julienton River middle, McIntosh		
4306	31.53900	-81.30200	Four Mile Island southwest, McIntosh	X	X
4330	31.55500	-81.29000	Jolly Creek		
4333	31.38741	-81.28912	South end of Sapelo Island	X	X
4400	31.55700	-81.29400	Julienton River, middle, McIntosh		
5069	31.05500	-81.46900	Jointer River Mouth, Glynn	X	X
5105	31.100	-81.516	Jointer River - Mac's Basin		
5198	31.08900	-81.47900	Mouth Cedar Creek, Glynn	X	X
5199	31.08000	-81.50600	Jointer River, Glynn		
5200	31.07100	-81.48300	Cobb Creek, Glynn		
5322	31.09100	-81.51500	Jointer Island West, Glynn		
5357	31.10200	-81.52700	Jointer Creek at Sage Dock, Glynn		
5358	31.10600	-81.53300	Jointer Creek upstream of Sage Dock, Glynn	X	X
5359	31.06400	-81.52600	Little Satilla River at Honey Creek, Glynn		
6201	31.03900	-81.49100	Little Satilla River, Camden	X	X
6210	30.89200	-81.51200	Cabin Bluff, Camden	X	X
6212	30.90400	-81.46100	North Brickhill River, Camden		
6213	30.86300	-81.49700	Delaroche Creek Mouth, Camden		
6214	30.85000	-81.47700	South Brickhill River, Camden		
6215	30.85800	-81.54100	Mouth Black Point Creek, Camden		
6216	30.84900	-81.54200	Crooked River, Camden	X	X
6217	30.84100	-81.52100	Crooked River South, Camden	X	X
6218	30.82300	-81.49800	South Crooked River Mouth, Camden	X	X
6300	30.92700	-81.45200	Cumberland River-Marker #39, Camden	X	X
6317	30.91100	-81.48500	Cumberland River East Shellbine, Camden		
6318	30.86100	-81.50800	Delaroche Creek Headwaters, Camden	X	X
6323	30.85500	-81.46700	Brickhill River Upstream 6214, Camden	X	X
6343	30.86800	-81.48500	Brickhill River West Bend, Camden		
6344	30.88300	-81.47900	Mumford Creek at Brickhill River, Camden		
6360	31.06930	-81.54500	Maiden Creek	X	X
6361	31.05470	-81.53900	Honey Creek	X	X
6411	30.88100	-81.51100	Downstream from Cabin Bluff @ marker 51A, Camden		
6412	30.87000	-81.49900	Upstream from DeLaroache ck @ marker 55, Camden		

In addition to participating in the National projects, beginning in 2010, GAEPD began to conduct probabilistic monitoring of the State's streams. Between 2010 and 2013 approximately 75 streams were sampled as part of the probabilistic monitoring project. The results of these four years of data predict that approximately 59% of Georgia's streams are supporting their designated uses; that 21% of the streams are impaired due to low dissolved oxygen; that approximately 3% are impaired for pH, 10% are impaired for metals, and 93% are impaired for fecal coliform bacteria. None of the streams monitored as part of the probability survey were impaired for high temperature, so temperature is not predicted to be source of impairment for many waters in the State. It is important to note that accuracy of predictions is highly dependent upon the sample size. The more sites that are sampled under the probabilistic study, the more likely it is that the results seen in the sampled sites will reflect the stream population as a whole. Typically, one would want a sample size of at least 30 to 50 sites. While 75 sites were sampled as part of the probabilistic study, all the parameters reported above were not measured at each site. Dissolved oxygen, pH and temperature data were collected at each of the 75 sites, but metals were only collected at 21 of the 75 sites and only 14 of the sites had fecal coliform bacteria data available. The low sample size for fecal coliform bacteria causes there to be a very wide confidence interval in predicting the number of streams that may be impaired for bacteria in the State (the predicted percentage of impairment ranges from 66% to 100%).

Georgia EPD is currently in the process of reevaluating the State's instream criteria for dissolved oxygen. There are places in the State (particularly in South Georgia) where dissolved oxygen concentrations are often naturally lower than the State's current criteria. The percentage of streams assessed as impaired for dissolved oxygen may change once the new criteria are adopted.

Surface Water Quality Summary

Data Assessment Water quality data are assessed to determine if standards are met and if the water body supports its designated or classified water use. If monitoring data show that standards are not achieved, the water body is said to be "not supporting" the designated use. The data reviewed included GAEPD monitoring data, and data from other State, Federal, local governments, and data from groups with GAEPD approved QA/QC programs. Table 3-13 provides a list of agencies that contributed data used to develop the 2014 report. The data may have been submitted specifically for the 2014 list or for previous listing cycles.

Appendix A includes an integrated list of waters for which data have been assessed. This list includes waters that have been assessed as "supporting" their designated uses and those assessed as "not supporting" their designated uses. In addition, some waters were placed in a third category called "assessment pending". Waters were placed in the "assessment pending" group when the data available for a water were insufficient to make an assessment as to whether the water was supporting its designated uses or not. Appendix A also includes Georgia's 2014 Listing Assessment Methodology which provides a description of how Georgia compares different types of water quality data with Georgia's water quality criteria in making assessment decisions.

Evaluation of Use Support Table 3-14 provides summary information from Appendix A on the total number of stream miles, lake acres, or square miles of sounds/harbors that fall in each assessment category.

Assessment of Causes of Nonsupport of Designated Uses There are many potential pollutants that may interfere with the designated use of rivers, streams, lakes, estuarine, and coastal waters. These can be termed the causes of use nonsupport. Based on information presented in Appendix A, Table 3-15 summarizes the parameters of

concern or the causes which contributed to nonsupport of water quality standards or designated uses of a particular water body type.

Assessment of Potential Sources of Nonsupport of Designated Uses

Pollutants that impact water bodies in Georgia may come from point or nonpoint sources. Point sources are discharges into waterways through discrete conveyances, such as pipes or channels. Municipal and industrial wastewater treatment facilities are the most common point sources. Point sources also include overflows of combined storm and sanitary sewers. Nonpoint sources are diffuse sources of pollution primarily associated with run off from the land following a rainfall event. Table 3-16 summarizes information presented in Appendix A concerning the sources of pollutants that prevent achievement of water

TABLE 3-13. CONTRIBUTORS OF WATER QUALITY DATA FOR ASSESSMENT OF GEORGIA WATERS

DNR-EPD, Watershed Planning & Monitoring Program
DNR-EPD, Wastewater Reg. Program (Municipal)
DNR-EPD, Wastewater Reg. Program (Industrial)
DNR, Wildlife Resources Division
DNR, Coastal Resources Division
State University of West Georgia
Gainesville College
Georgia Institute of Technology
U.S. Environmental Protection Agency
U.S. Geological Survey
U.S. Army Corps of Engineers
U.S. Forest Service
Tennessee Valley Authority
Cobb County
Dekalb County
Douglas County Water & Sewer Authority
Fulton County
Gwinnett County
City of Gainesville
City of LaGrange
Georgia Mountains R.D.C.
City of Conyers
Lake Allatoona (Kennesaw State University)
Lake Blackshear (Lake Blackshear Watershed Association)
Lake Lanier (University of Georgia)
West Point (LaGrange College/Auburn University)
Georgia Power Company
Oglethorpe Power Company
Alabama DEM
City of College Park
Kennesaw State University
University of Georgia
Town of Trion
Cherokee County
Clayton County Water Authority
City of Atlanta
Columbus Water Works
Columbus Unified Government
City of Cartersville
Georgia Ports Authority
Chattahoochee/Flint RDC
Upper Etowah Adopt-A-Stream
Middle Flint RDC
Central Savannah RDC
Chatham County
City of Savannah
Heart of Georgia RDC
City of Augusta
Southwire Company
DNR-EPD, Brunswick Coastal District
DNR-EPD, Hazardous Waste Mgmt. Branch
Ellijay High School
DNR, Georgia Parks Recreation & Historic Sites Division
DNR-EPD, Ambient Monitoring Unit (Macroinvertebrate Team
Forsyth County
Tyson Foods, Inc.
South Georgia RDC
Northeast GA RDC
Ogeechee Canoochee Riverkeeper
Screven County
Coastal GA RDC
City of Roswell
City of Alpharetta
Columbia County
Southwest GA RDC
Southeast GA RDC
Coweta County
Middle GA RDC
Bartow County
Atlanta Regional Commission
Soquee River Watershed Partnership
Upper Chattahoochee Riverkeeper
Henry County

TABLE 3-14
EVALUATION OF USE SUPPORT BY WATER BODY TYPE AND ASSESSMENT CATEGORY
2012-2013

Degree of Use Support	Streams/Rivers (miles)	Lakes/Reservoirs (acres)	Sounds/Harbors (sq. miles)	Coastal Streams/Rivers (miles)	Coastal Beaches (miles)
Support	5,480	208,853	62	283	31
Not Support	8,282	123,397	14	78	3
Assessment Pending	496	61,185	9	84	0
Total	14,258	393,435	85	445	34

quality standards and use support in various water bodies in Georgia.

Priorities for Action The list of waters in Appendix A includes all waters for which available data was assessed against applicable water quality standards and designated uses were determined to be supported, not fully supported, or it was determined that more data was needed before an assessment was made "assessment pending". This list of waters has become a comprehensive list of waters for Georgia incorporating the information requested by Sections 305(b), 303(d), 314, and 319 of the Federal CWA. Waters listed in Appendix A are active 305(b) waters. Lakes or reservoirs within these categories provide information requested in Section 314 of the CWA. Waters with nonpoint sources identified as a potential cause of a standards violation are considered to provide the information requested in the CWA Section 319 nonpoint assessment. The 303(d) list is made up of all waters within category 5 in Appendix A. The proposed date for development of a TMDL for 303(d) waters is indicated within the priority column on the list of waters.

TABLE 3-15
CAUSES OF NONSUPPORT OF DESIGNATED USES BY WATER BODY TYPE
2012-2013

Cause Category	Rivers/Streams (miles) Contributions to Impairment[1]
Pathogens	**4,626**
Fecal Coliform	4,626
Biologic Integrity (Bioassessments)	**2,865**
Maroinvertebrates (Bio M)	626
Fish (Bio F)	2,359
Bioassays	**10**
Whole Effluent Toxicity	10
Oxygen Depletion	**1,232**
Dissolved Oxygen	1,232
Thermal Impacts	**17**
Temperature	17
Toxic Inorganics	**161**
Arsenic	3
Cadmium	21
Copper	35
Lead	69
Mercury	2
Zinc	58
Toxic Organics	**383**
1,1,2-Trichloroethane	1
Tetrachloroethylene	7
PCB in Fish Tissue	375

Metals	**1,113**
Cadmium	21
Copper	35
Lead	69
Mercury	2
Zinc	58
Mercury in Fish Tissue (TWR)	991
pH/Acidity/Caustic Conditions	**194**
pH	194
Nutrients (Macronutrients/Growth Factors)	30
Objectionable Algae	**30**
Pesticides	**1**
Alpha-BHC	1
Beta-BHC	1
Other	**225**
Commercial Fishing Ban (CFB)	225
Cause Category	**Lakes/Reservoirs (acres) Contributions to Impairment[1]**
Pathogens	**194**
Fecal Coliform	194
Thermal Impacts	**650**
Temperature	650
Oxygen Depletion	**1,540**
Oxygen Dissolved	1,540
Nutrients (Macornutrients/Growth Factors)	**2,752**
Phosphorus	2,752
Toxic Inorganics	**225**
Copper	225
Toxic Organics	**91,613**
PCB in Fish Tissue	91,613
Metals	**1,479**
Copper	225
Mercury in Fish Tissue (TWR)	1,254
Pesticides	**20**
DDD	20
DDE	20
Observed Effects	**7,424**
Chlorophyll *a*	7,424
pH/Acidity/Caustic Conditions	**19,197**
pH	19,197
Cause Category	**Coastal Streams (miles) Contributions to Impairment[1]**
Pathogens	**36**
Fecal Coliform	36
Oxygen Depletion	**35**
Dissolved Oxygen	35
Toxic Organics	**26**
Polychlorinated biphenyls	4
PCB in Fish Tissue	26
Metals/Toxic Inorganics	**9**
Cadmium	2
Mercury	4
Selenium	5
Pesticides	**8**
Dieldrin in Fish Tissue	3
Toxaphene in Fish Tissue	5
Other	**30**
Commercial Fishing Ban (CFB) & Shellfish Ban (SB)	30
Cause Category	**Coastal Beaches (miles) Contributions to Impairment[1]**
Pathogens	**3.04**
Enterococcus	3.04
Cause Category	**Sounds/Harbors (sq. miles) Contributions to Impairment[1]**
Oxygen Depletion	**4**
Dissolved Oxygen	4

Toxic Inorganics	**10**
Arsenic	10

[1]The total mileage/acreage provided for each impairment category (e.g. Pathogens, Toxic Organics, Metals, etc.) is a summation of the mileage/acreage of all the waters impaired by one or more of the pollutants in the category. Since a water may be negatively affected by more than one pollutant in a given impairment category, the total mileage/acreage for the impairment category may be less than the sum of the miles of each of the individual pollutants in that category.

TABLE 3-16
POTENTIAL SOURCES OF NONSUPPORT OF DESIGNATED USES BY WATER BODY TYPE
2012-2013

Source Category	Rivers/Streams (miles) Contributions to Impairment[1]
Hydromodification	**20**
Dams of Impoundments (Dam)	20
Industrial Sources	**293**
Industrial Point Source Discharge (I1)	42
Industrial Stormwater Discharge (I2)	285
Municipal Permitted Discharges	**288**
Combined Sewer Overflows	93
Municipal Point Source Discharges	195
Nonpoint Sources	**8,208**
Non-Point Source (NP)	6,402
Urban Runoff (UR)	2,238

Source Category	Lakes/Reservoirs (acres) Contributions to Impairment[1]
Industrial Sources	**56,600**
Industrial Point Source Discharge (I1)	650
Industrial Stormwater Discharge (I2)	55,950
Nonpoint Sources	**66,797**
Non-Point Source (NP)	66,603
Urban Runoff (UR)	**35,639**

Source Category	Coastal Beaches (Miles) Contributions to Impairment[1]
Nonpoint Sources	**3.04**
Non-Point Source (NP)	3.04

Source Category	Coastal Streams (Miles) Contributions to Impairment[1]
Industrial Sources	**31**
Industrial Point Source Discharge (I1)	29
Industrial Stormwater Discharge (I2)	10
Municipal Permitted Discharges	**21**
Municipal Point Source Discharges	21
Nonpoint Sources	**50**
Non-Point Source (NP)	18
Urban Runoff (UR)	40

Source Category	Sounds/Harbors (Sq. Miles) Contributions to Impairment[1]
Nonpoint Sources	**14**
Urban Runoff (UR)	14
Non-Point Source (NP)	10
Municipal	**4**
Municipal Point Sources (M)	4
Industrial Sources	**4**
Industrial Point Source Discharge (I1)	4

[1]The total mileage/acreage provided for each source category (e.g. Industrial, Municipal, Nonpoint, etc.) is a summation of the mileage/acreage of all the waters impaired by one or more of the sources in the category. Since a water may be negatively affected by more than one source in a given source category, the total mileage/acreage for the source category may be less than the sum of the miles of each of the individual sources in that category.

CHAPTER 4
Wetland Programs

Estimates of the total extent of Georgia's wetlands have varied from 4.9 to 7.7 million acres, including more than 600,000 acres of open water habitat found in estuarine, riverine, palustrine, and lacustrine environments. Estimates of wetland losses in the state from colonial times to the present range between 20-25% of the original wetland acreage.

Georgia has approximately 100 miles of shoreline along the south Atlantic coast, with extensive tidal marshes separating barrier islands composed of Pleistocene and Holocene sediments from the mainland. Georgia's barrier islands and tidal marshes are well preserved compared to other South Atlantic states. Georgia's coastline and tidal marshes are managed under the Coastal Marshlands Protection and Shore Protection Acts of 1970 and 1979 respectively, and are considered to be well preserved compared to other South Atlantic states.

Elevations within Georgia's boundaries range from sea level to 4,788 feet at Brasstown Bald in the Blue Ridge Mountain Province. At the higher elevations, significant, pristine cool water streams originate and flow down steep to moderate gradients until they encounter lower elevations of the Piedmont Province. Many of the major tributaries originating in the mountains and Piedmont have been impounded for hydropower and water supply reservoirs. These man-made lakes constitute significant recreational resources and valuable fishery habitat. At the Fall Line, streams flowing southeasterly to the Atlantic, or south-southwesterly to the Gulf, have formed large floodplains as each encounters the soft sediments of the upper Coastal Plain.

Other significant wetlands found in the state are associated with blackwater streams originating in the Coastal Plain, lime sink-holes, spring heads, Carolina bays, and the Okefenokee Swamp, a vast bog-swamp measuring approximately one-half million acres in south Georgia and north Florida. The swamp drains to the east by the St. Marys River into the Atlantic, and to the west by the Suwannee River into the Gulf.

The lower Coastal Plain has frequently been referred to as the Atlantic Coastal Flatwoods region, where seven tidal rivers headwater in the ancient shoreline terraces and sediments of Pleistocene age. Scattered throughout the flatwoods are isolated depressional wetlands and drainageways dominated by needle-leaved and broad-leaved tree species adapted to long hydroperiods.

Due to considerable variation in the landscape in topography, hydrology, geology, soils, and climatic regime, the state has one of the highest levels of biodiversity in the eastern United States. The state provides a diversity of habitats for nearly 4,000 vascular plant species and slightly less that 1,000 vertebrate species. Numerous plant and animal species are endemic to the state. Many of the rarer species are dependent upon wetlands for survival.

Extent of Wetland Resources

Assessments of wetland resources in Georgia have been conducted by the USDA Natural Resources Conservation Service, the U.S. Fish and Wildlife Service (USFWS), and the Georgia Department of Natural Resources. The extent and location of specific tidal marsh types have been reported in numerous scientific papers and reports. Estimates of other specific wetlands types, such as bottomland hardwood swamps, are also reported in studies on a regional scale.

Hydric soils as mapped in county soil surveys are useful indicators of the location and extent of wetlands for the majority of Georgia counties with complete surveys. The dates of photography from which the survey maps are derived vary widely across the state. There is an ongoing effort by NRCS to develop digital databases at the soil mapping unit level. Published soil surveys have proven useful in wetland delineation in the field and in the development of wetland inventories. County acreage summaries provide useful information on the distribution of wetlands across the state.

The USFWS National Wetland Inventory (NWI) utilizes soil survey information during photo-interpretation in the development of the 7.5 minute, 1:24,000 scale products of this nationwide wetland inventory effort. Wetlands are classified according to a system developed by Cowardin et al. (1979), providing some level of detail as to the characterization of individual wetlands. Draft products are available for the 1,017 7.5-minute quadrangles in the state of Georgia, and many final map products have been produced. All of these quadrangles are available in a digital format, and an effort is underway to combine them into a single, seamless database for Georgia. Although not intended for use in jurisdictional determinations of wetlands, these products are invaluable for site surveys, trends analysis, and landuse planning.

A complementary database was completed by Georgia DNR in 1991 and was based on classification of Landsat TM satellite imagery. Due to the limitations of remote sensing technology, the classification scheme was simplified in comparison to the Cowardin system used with NWI. The targeted accuracy level for the overall landcover assessment using Landsat imagery was 85%. However, the classification error was not necessarily distributed equally throughout all classes.

Similar Landsat-based landcover databases have been produced with more recent satellite imagery. The Federal government completed mapping in Georgia using imagery from the mid-1990s as part of the National Landcover Database. The Georgia Gap Analysis Program, supported in part by funding from Georgia DNR, completed an 18-class database using imagery from 1997-1999. Both these databases include wetland landcover classes. More recently, the Natural Resources Spatial Analysis Laboratory at the University of Georgia completed an updated landcover dataset using 2008 imagery. This dataset is available from the Georgia GIS Clearinghouse.

Additional habitats have been mapped through the Georgia Coastal Land Conservation Initiative that may be helpful in identifying wetlands. Mapping was done by botanists with the Wildlife Resources Division (WRD) for the 11 coastal county area in 2010 to show the NatureServe classification of habitats within this area.

NWI for Georgia's six coastal counties was updated by the Coastal Resources Division (CRD) using 2006 base imagery. This dataset represents an approximately 25-year update considering the inventory was originally mapped in the early 1980s. A summary of wetland acreages derived from this database is as follows: Estuarine: Emergent=351,236, Unconsolidated Shore=10,700, Scrub-Shrub=4,495, and Forested=2,053; Lacustrine: Aquatic Bed=108, Uncosolidated Shore=32, Emergent=10; Marine: Uncosolidated Shore=3,084; Palustrine: Forested=339,743, Emergent=52,511, Scrub-Shrub=30,899, Unconsolidated Bottom=8,242, Aquatic Bed=832, Unconsolidated Shore=193; Riverine: Unconsolidated Shore=90. A full report can be found on CRD's website and the data from NWI can be found at www.fws.gov.

CRD also produced an NWI Plus database, which adds additional descriptors to the updated NWI dataset and provides a functional component to wetlands in the six-county area. Wetlands are rated as having either a High Potential, Moderate Potential, or Low to No Potential to function in a given capacity. Eleven functions are identified for the six coastal counties.

In addition, CRD completed an Impacted Wetland Inventory that was initiated to identify, assess, and inventory impacted wetlands in Chatham, Bryan, Liberty, McIntosh, Glynn, and Camden counties along the coast. The project area includes all estuarine and marine and tidal fresh wetlands, as defined by Cowardin et. al (1979) and delineated by the NWI updates for the six coastal counties (completed in 2009, based on 2006 base imagery). For more information about the dataset, contact CRD.

Wetland Trends In Georgia

The loss of wetlands has become an issue of increasing concern to the general public because of associated adverse impacts to flood control, water quality, aquatic wildlife habitat, rare and endangered species habitat, aesthetics, and recreation. Historically,

wetlands were often treated as "wastelands" that needed "improvement". Today, "swamp reclamation" acts are no longer funded or approved by Congress and wetland losses are in part lessened. However, we still lack accurate assessments for current and historic wetland acreages. For this reason, we have varying accounts of wetland losses, which provide some confusion in the public's mind as to trends.

The most precise measure of Georgia's wetland acreage has been developed by the USFWS's National Wetland Inventory Status and Trends projects. The *Status And Trends in the Conterminous United States, Mid-1970 's to Mid-1980' s* report (1991), provides details of a statistically sound study based upon 206 sample plots of four (4) square miles each that were delineated and measured from 1975 and 1982 aerial photography. The total acreage of wetlands for Georgia was estimated at 7,714,285 acres in 1982 as compared to earlier estimates of 5.2 million acres. This estimate is considerably higher than the total shown in a 1984 trend study and is due in part to higher quality photography and an increase in the number of man-made ponds.

Georgia's total wetland area covers an estimated 20 percent of the State's landscape. This total includes approximately 367,000 acres of estuarine wetlands and 7.3 million acres of palustrine wetlands (forested wetlands, scrub-shrub, and emergents). A net wetland loss due to conversion of approximately 78,000 acres was estimated for the 7-year period (1975 – 1982), while 455,000 acres were altered by timber harvesting. These latter estimates are less reliable than the total acreage and are slightly higher than the 1984 study. Regardless of the method used to measure total acreage or wetland losses, Georgia still retains the highest percentage of pre-colonial wetland acreage of any southeastern state. The state lacks the resources to conduct an independent monitoring program on the rate of freshwater wetland loss or degradation. The most recent NWI report, *Status and Trends of Wetlands in the Conterminous United States, 2004 to 2009*, provides information on a national scale.

All dredge and fill activities in freshwater wetlands are regulated in Georgia by the U.S. Army Corps of Engineers (COE). Joint permit procedures between the COE and DNR, including public notices, are carried out in tidally influenced wetlands. Separate permits for alterations to salt marsh and the State's waterbottoms are issued by the Coastal Marshlands Protection Committee, a State permitting authority. Enforcement is carried out by the State, COE and EPA in tidal waters, and by the COE and EPA in freshwater systems. Normal agricultural and silvicultural operations are exempted under Section 404 regulations with certain conditions.

Integrity of Wetland Resources

Wetland Functions and Uses. In Georgia, wetland uses are tied to both the state water quality standards through the definition of "water" or "waters of the state," and to established criteria for wetlands protection (Chap. 391-3-16-.03) associated with the Comprehensive Planning Act of 1989 (O.C.G.A. § 12-2-8).

The definition of "water" or "waters of the State" (Chap. 391-3-6) means "any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, wetlands, and all other bodies of surface or subsurface water, natural or artificial, lying within or forming a part of the boundaries of the state which are not entirely confined and retained completely upon the property of a single individual partnership, or corporation". The waters use classifications and general criteria for all waters are discussed elsewhere in this report.

The Comprehensive Planning Act requires all local governments and regional development commissions to recognize or acknowledge the importance of wetlands for the public good in the landuse planning process. All local governments (municipalities and county governments) were required, beginning in 1990 and ending in 1995, to meet minimum criteria for wetland use and protection. Each government is required to map wetlands using DNR or NWI maps, and describe how wetlands will be protected from future development.

The wetlands protection criteria define freshwater "wetlands" as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (33 CFR 32.93)." This definition is not intended to include "coastal marshlands" as defined by the Coastal Marshlands Protection Act. The minimum area of wetlands to be identified in landuse planning is not to exceed five acres.

The categories of freshwater wetlands and aquatic habitats to be identified, defined and mapped by the State and included in landuse planning are open water, non-forested emergent, scrub/shrub, forested and altered wetlands. Landuse plans must address at least the following considerations with regard to wetland classes identified in the database:

1) Whether impacts to an area would adversely affect the public health, safety, welfare, or the property of others.
2) Whether the area is unique or significant in the conservation of flora and fauna including threatened, rare or endangered species.
3) Whether alteration or impacts to wetlands will adversely affect the function, including the flow or quality of water, cause erosion or shoaling, or impact navigation.
4) Whether impacts or modification by a project would adversely affect fishing or recreational use of wetlands.
5) Whether an alteration or impact would be temporary in nature.
6) Whether the project contains significant state historical and archaeological resources, defined as "Properties On or Eligible for the National Register of Historic Places".
7) Whether alteration of wetlands would have measurable adverse impacts on adjacent sensitive natural areas.
8) Where wetlands have been created for mitigation purposes under Section 404 of the Clean Water Act, such wetlands shall be considered for protection.

The mapping of altered wetlands – defined as "areas with hydric soils that have been denuded of natural vegetation and put to other uses, such as pasture, row crops, etc., but that otherwise retain certain wetland functions and values" – has not been completed due to a lack of resources. It is unlikely that there will be any significant resources committed at the state or federal levels for monitoring wetland alterations and conversions in the near future.

Acceptable uses of wetlands were identified in wetland protection criteria as the following:

Timber production and harvesting. The socio-economic value of wetlands for consumptive uses such as timber and wood products production is extremely high. High quality hardwoods are produced along the major river corridors throughout the state. There are established "best management practices" for harvesting in wetlands; the level of compliance with these voluntary standards is monitored by the Georgia Forestry Commission in cooperation with the DNR-EPD.

Wildlife and fisheries management. Wetlands are an invaluable resource, both ecologically and economically. They are among the state's most biologically productive ecosystems and are crucial as habitats for wildlife. Wetlands function as essential breeding, spawning, nursery, nesting, migratory, and/or wintering habitat for much of the migratory and resident fauna. More than 40% of the state threatened and endangered plant and animal species depend heavily on wetlands. Coastal wetlands function as nursery and spawning grounds for 60-90% of commercial fin and shellfish catches. In addition, high levels of plant productivity in coastal wetlands contribute to corresponding levels of invertebrate organisms upon which fish and other animals feed. Plant decomposition in wetlands is also an important process in providing suitable habitat for waterfowl, which contributes to the economy through hunting-related expenditures.

Wastewater treatment. Wetlands help to maintain water quality and improve degraded water by removing, transforming, or retaining nutrients; processing chemical and organic wastes and pollutants; and reducing sediment loads. Wetlands function as sediment, toxic substance, and nutrient traps, performing functions similar to a waste treatment plant. Wetland vegetation filters and retains sediments which otherwise enter lakes, streams, and reservoirs, often necessitating costly maintenance dredging activities. Wetlands may also perform similar purification functions with respect to ground water. Wetlands that are hydrologically connected to ground water can also be a source of aquifer recharge, in which case the natural settling and filtering of pollutants can help protect groundwater quality. As with any filter, wetlands can be damaged, overloaded, or made nonfunctional. Wetlands conservation and careful management of point and non-point pollutants can provide good wetland filtration of materials.

Recreation. The non-consumptive uses of wetlands may contribute most significantly and positively to quality of life, yet these uses are often undervalued or unrecognized. Wetlands are habitats of great diversity and beauty and provide open space for recreational and visual enjoyment. They support a myriad of recreational activities including boating, swimming, birdwatching, and photography. In addition, tidal, coastal, and inland wetlands provide educational opportunities for nature observation and scientific study.

Natural water quality treatment or purification. (See "Wastewater treatment" above). Maintaining the biological and ecological integrity of wetlands is essential to the capitalization of these natural systems for the improvement of water quality and quantity. The polluting, filling, silting, channelizing, draining, dredging, and converting to other uses of wetlands are destructive to the ecological functions of wetlands.

Other uses permitted under Section 404 of the Clean Water Act. Such uses must have an overwhelming public interest. Unacceptable uses of wetlands include:

- Receiving areas for toxic or hazardous waste or other contaminants;
- Hazardous or sanitary waste landfills; and
- Other uses unapproved by local governments.

The criteria established by the State for freshwater wetlands are designed to assist in the identification and protection of wetlands, and do not constitute a state or local permit program. The protection of coastal marshlands, seashores, and tidal waterbottoms is described under the Estuary and Coastal Assessment section of this report.

LLWW descriptors were added to the updated wetland inventory data (2006 base imagery) to create CRD's NWI Plus database for the six coastal counties. The NWI Plus data will be used to better characterize wetlands in this region and to be able to predict wetland functions at the landscape level. The functions used are:

- Surface Water Detention
- Coastal Storm Surge Detention
- Streamflow Maintenance
- Nutrient Transformation
- Carbon Sequestration
- Retention of Sediment and Other Particulates
- Bank and Shoreline Stabilization
- Provision of Fish and Aquatic Invertebrate Habitat
- Provision of Waterfowl and Waterbird Habitat
- Provision of Other Wildlife Habitat
- Provision of Habitat for Unique, Uncommon, or Highly Diverse Plant Communities

Wetland Monitoring. The state maintains monitoring and enforcement procedures for estuarine marshes under authority of the Coastal Marshlands Protection Act of 1970. Over-flights are made of the Georgia coastline to locate potential violations. Restoration and penalties are provided for in the Act.

In 2011, CRD and EPD conducted field monitoring for the National Wetlands Condition Assessment (NWCA) effort initiated by EPA. The overall goal of the NWCA was to monitor freshwater and estuarine wetlands nationally during 2011 to determine their current

condition. Pre-existing point locations were used to randomly select wetlands to be evaluated during this project. CRD sampled 32 estuarine wetland sites, and EPD sampled 18 palustrine forested wetland sites. Multiple indicators were used to assess wetland health including vegetation characterization, soil profiles, hydrology and algal community. In addition, a Rapid Assessment Method (RAM) was evaluated across regions and wetland classes to determine the effectiveness of RAMs in wetland management disciplines. Specifically, the RAM identifies stressors to the wetland. Collectively, these parameters provide an indication of overall wetland condition.

Also in 2011, EPD initiated a wetland monitoring and assessment program using an ecoregion-level approach. The goal of the program is to develop appropriate wetland assessment protocols. To date, forty-five wetland sites within three ecoregions have been selected and monitored using various protocols, including NWCA protocols. This approach will be continued in other ecoregions in Georgia, and to the extent possible, is being coordinated with wetland monitoring being conducted by other Region 4 states within the same ecoregions.

Additional Wetland Protection Activities

Georgia is protecting its wetlands through land acquisition, public education, land use planning, regulatory programs, and wetland restoration. Additional protection to wetlands is provided either directly or indirectly by several statutes listed below, but described elsewhere in this report. These state laws are as follows:

- Coastal Marshlands Protection Act
- Shore Protection Act
- Water Quality Control Act
- Ground Water Use Act
- Safe Drinking Water Act
- Erosion and Sedimentation Control Act
- Metropolitan Rivers Protection Act

In 2011, a Wetlands Management Unit was formed within EPD to enhance the capabilities of EPD's regulatory functions (401 water quality certification review/issuance for Section 404 permits, and compensatory mitigation program oversight) and to coordinate and advance EPD's wetlands program.

Land Conservation. To date, the Department of Natural Resources has protected in fee over 460,000 acres of conservation land and another 11,374 acres through permanent conservation easements. Between 2012 and September 2014, the Department of Natural Resources acquired 24,531 acres of conservation land. Notable acquisitions protecting stream and wetland habitat included additions to the Paulding Forest WMA, Flat Tub WMA, Sheffield WMA, Penholoway Swamp WMA and Griffins Ridge WMA.

Between 2008 and 2010, the Coastal and Estuarine Land Conservation Program through CRD has assisted in acquiring 11,000 acres at Ft. Barrington and the Murff Tracts along the Altamaha River. These acquisitions, along with others by various partners, bring the protection of properties in the lower Altamaha Delta to just over 100,000 acres.

Through its Private Lands Program, Georgia DNR provides technical assistance to private landowners to encourage protection and restoration of natural habitats. Working with other state and federal agencies as well as non-governmental organizations, DNR biologists assist private landowners in the development of management plans that will protect important wildlife habitats, including wetlands and streams. An online publication entitled "Landowner's Guide- Conservation Easements for Natural Resource Protection" can be found at the following web address: http://www.georgiawildlife.com/node/2275

Education And Public Outreach. The Wildlife Resources Division is involved in aquatic education, providing training for educators in wetland values and developing and coordinating teaching materials. The Aquatic Education Program consists of three key components: Youth Education, Adult Education, and Kids Fishing Events. Youth Education involves training educators to use Aquatic Project Wild (APW), which consists of instructional workshops and supplementary conservation curriculum materials for teachers of K-12 grade children. Adult Education consists primarily of producing educational

materials such as the annual Freshwater and Saltwater Sport Fishing Regulations, Reservoir and Southeast Rivers Fishing Predictions, Small Georgia Lakes Open to Public Fishing, Introduction to Trout Fishing, news releases, brochures, radio Public Service Announcements, videos, and staff presentations to sportsmen and civic organizations, as well as large events. The purpose of Kids Fishing Events (KFEs) is to introduce youth and their families to the joys of recreational fishing. The Aquatic Education Program touches tens of thousands of youths and adults each year, bringing these people closer to the environment, and teaching them conservation principles that are important to sustaining wetlands and healthy fish populations.

The Coastal Resources Division has one position within the Division that assumes the role of coastal educator. The largest coastal education gathering, Coastfest, is hosted by CRD each October. In addition, CRD relies on partners such as the Coastal Adopt-a-Wetland program and the Sapelo Island National Estuarine Research Reserve to carry out messages important to CRD.

The Adopt-a-Wetland (AAW) program facilitates volunteer-based monitoring of wetlands in Georgia, and fosters a sense of personal and community responsibility. The program provides training for volunteers to perform monitoring in freshwater and coastal wetlands. To date, over 150 volunteers have conducted chemical and biological monitoring at over 130 coastal sites.

State Wildlife Action Plan

In 2005, the Wildlife Resources Division of Georgia DNR completed "A Comprehensive Wildlife Conservation Strategy for Georgia". This document, also known as the State Wildlife Action Plan, identified high priority species and habitats in Georgia, described problems affecting these species and habitats, and outlined specific research, conservation and monitoring needs to maintain the state's wildlife diversity. Protection of wetland and aquatic habitats was identified as a critical wildlife conservation need. The following are some specific conservation challenges that are being addressed by Georgia DNR and its conservation partners:

1. Protection and Maintenance of Healthy Vegetated Stream Buffers

Establishment and maintenance of vegetated riparian buffers is one of the most important and cost-effective conservation measures for protection of water quality and aquatic ecosystem health. Many of Georgia's streams suffer from insufficient stream buffers and are thus at risk of water quality impairment resulting from land-disturbing activities, introduction of toxic chemicals or excess nutrients, and thermal impacts from lack of shading. These impacts can greatly influence the aquatic biodiversity within a watershed. Establishment of substantial vegetated buffers is highly recommended for all high priority streams.

Strategies to protect and maintain healthy stream buffers include working with state and county road departments to improve placement and design of road turnouts, developing standards for stream corridor protection on public lands, and providing information on high priority streams to mitigation bankers to encourage restoration and enhancement of vegetated buffers. Other strategies include providing financial incentives to private landowners to fence livestock out of streams and working with local governments and developers to ensure protection of stream buffers when development plans are considered.

2. Protection of Isolated Wetlands

Isolated wetlands comprise an important group of habitats for wildlife, including more than 45 Georgia species of conservation concern (Comer et al., 2005). Studies of the extent and condition of isolated wetlands indicate a consistent trend toward degradation and loss. A study of Carolina bays in Georgia indicated that the majority of the smaller bays showed evidence of hydrologic alterations or other forms of degradation (VandeGenachte and Cammack, 2002). Other examples of important isolated wetlands include solution pits on granite outcrops, shallow depressions in pine flatwoods, Grady ponds, limesink ponds, and sandhill ponds. Depression wetlands that have direct connections to

groundwater may be significantly impacted by excessive groundwater withdrawals. Other isolated wetlands have been impacted by introduction of predatory fish, excessive inputs of sediments or nutrients, ditching and draining, or conversion to agricultural uses.

Georgia DNR and other organizations are working to protect examples of these wetland habitats through fee-simple acquisition or conservation easements. Programs providing financial and other incentives are being directed to private landowners to encourage the protection, restoration, and management of these important wetlands. Permits for groundwater and surface water withdrawals should be administered with careful consideration of resulting impacts to these and other wetlands.

3. Protection of Headwater Streams
Headwater streams are found in the upper reaches of watersheds and may have flowing water for only a portion of the year. Headwater streams account for the majority of stream miles in a given watershed. Like isolated wetlands, these habitats are important for a wide variety of wildlife species, including several rare species of concern. These headwater systems are also important for maintenance of habitat quality in the higher-order perennial streams which they feed (Meyer et al 2003). Intermittent/ephemeral streams and associated seepage wetlands are often overlooked when streams and wetlands are mapped. In areas where development pressures are high or agricultural uses are prevalent, these habitats may be adversely affected by land disturbing activities.

Protection of headwater streams and associated wetlands is critical for protection of wildlife diversity and maintenance of water quality. Greater emphasis should be placed on accurate mapping and delineation of headwater streams. The effects of groundwater and surface water withdrawals on headwater streams and associated wetlands should be monitored.

4, Control of Invasive Species
The long-term effects of nonnative species on native wildlife species are generally considered to be second only to direct habitat destruction or conversion. Approximately 42% of the species listed as Endangered or Threatened under the federal Endangered Species Act are significantly impacted by invasive exotic species. Feral hogs, red shiners, and flathead catfish are examples of nonnative animals that can cause serious impacts to wetland or aquatic communities. A number of nonnative plants such as Nepal grass, Chinese tallow tree, hydrilla, water hyacinth, common reed, and Chinese privet also pose serious threats to Georgia's streams and wetlands.

In response to these threats, Georgia DNR coordinated the development of a statewide invasive species strategy, which was completed in 2009. Implementation of this strategy will be coordinated by the Georgia Invasive Species Task Force, which was formally established through a memorandum of understanding between the Georgia Forestry Commission, Georgia DNR, Georgia Department of Agriculture, and the University of Georgia in 2009. The Georgia Invasive Species Strategy can be found at: http://www.georgiawildlife.com/conservation/invasives-pests.

5. Protection of Caves and Other Karst Environments
Caves, limesinks, sagponds, and springs represent some of the most sensitive natural habitats in Georgia. These karst environments harbor many of Georgia's rarest and most imperiled species, and are susceptible to impacts from a wide variety of human activities, from residential and commercial development to road and utility construction, excessive groundwater withdrawal, recreational activities, and altered water quality. Protection of karst environments is essential for maintenance of Georgia's biological diversity. Georgia's Cave Protection Act of 1977 (O.C.G.A. § 12-4-140) provides for protection of caves, sinkholes, and speleothems (cave formations), prohibits the storage of hazardous materials and dumping of litter, garbage, or other materials in caves, and prohibits the harming, killing or removal of wildlife found within caves except by authorized personnel.

6. Reducing Impacts from Development and Other Activities

Continued growth of Georgia's human population and associated loss or fragmentation of natural habitats will result in additional impacts to native species found in wetland and aquatic habitats. Of particular concern are habitat specialist species adapted to rare or sensitive habitats. The highest rated conservation actions related to reduction or avoidance of impacts from development and other activities on wetland and aquatic habitats include:

- Decrease the impact of poorly designed road crossings on fish passage. Work with FEMA, Georgia DOT, and county road departments to improve fish passage with bottomless culverts or free-span bridges.
- Expand use of WRD biodiversity data for environmental review, public outreach, permitting, and development of site management plans to minimize impacts on rare species and sensitive habitats.
- Reduce impacts of unpaved roads, parking lots, boat ramps, and camping areas on aquatic habitats.
- Work with Georgia DOT and federal agencies to minimize impacts from highway construction and facilitate protection and mitigation of high priority habitats.
- Facilitate training for and compliance with Best Management Practices for erosion and sedimentation control, stormwater runoff, and stream buffer protection.

Specific programs and funding mechanisms for protection of natural habitats in Georgia are outlined in the State Wildlife Action Plan, which can be found at the following website: http://www.georgiawildlife.com/conservation/wildlife-action-plan

M.A.R.S.H. Projects

The Wildlife Resources Division has a cooperative agreement with Ducks Unlimited (DU) for the purpose of acquiring, developing, restoring, or enhancing waterfowl habitat. A major aspect of this agreement is the M.A.R.S.H. program (Matching Aid to Restore States Habitat). Under the M.A.R.S.H. program, 7.5% of the money raised by DU in Georgia is made available as matching funds for work to develop, improve, or restore waterfowl habitat.

CHAPTER 5
Estuary and Coastal Programs

Background
The Georgia Department of Natural Resources (DNR) Coastal Resources Division (CRD) manages Georgia's coastal resources. The CRD's Ecological Services Section administers Georgia's Coastal Management Program and its enforceable authorities, manages Georgia's shellfish harvest program, and conducts water quality monitoring based on specific grants and programmatic requirements. The CRD's Marine Fisheries Section manages Georgia's marine fisheries, balancing the long-term health of fish populations with the needs of those who fish for commercial and recreational purposes. The Section conducts scientific surveys of marine organisms and their habitats; collects harvest and fishing effort information; and assesses, restores and enhances fish habitats; along with other responsibilities. The DNR Wildlife Resources (WRD) and Environmental Protection Divisions (GAEPD) each play additional roles to manage resources in the Georgia coastal environment.

Georgia Coastal Management Program
Recognizing the economic importance of environmentally sensitive coastal areas, the Federal Coastal Zone Management Act of 1972 encourages states to balance sustainable development with resource protection in their coastal zone. As an incentive, the federal government awards states financial assistance to develop and implement coastal zone management programs that fulfill the guidelines established by the Act. Georgia entered this national framework in 1998 upon the approval of the Georgia Coastal Management Program (GCMP) by the National Oceanic and Atmospheric Administration. Financial assistance under the federal grant to the GCMP has been used, in part, to support the Public Health Water Quality Monitoring Program described below.

The Coastal Management Program has provided guidance and technical assistance to improve coastal water quality in general, and in the development of a Coastal Non-Point Source Control Program in particular. Under the Coastal Zone Management Act Reauthorization Amendments of 1990, Congress added a section entitled "Protecting Coastal Waters." That section directs states with federally approved coastal management programs to develop a Coastal Non-Point Source Program. To that end, the GAEPD is assisting the GCMP in l) identifying land uses which may cause or contribute to the degradation of coastal waters, 2) identifying critical coastal areas adjacent to affected coastal waters, 3) identification of appropriate measures related to land use impacts to achieve and maintain water quality standards and designated uses, and 4) identifying management boundaries to more effectively manage land use impacts and water uses to protect coastal waters.

Public Health Water Quality Monitoring Program
The CRD conducts water quality monitoring in estuarine and near-shore coastal waters through its Public Health Water Quality Monitoring Program. This Program has three distinct parts. The Shellfish Sanitation and Beach Water Quality Monitoring Programs are concerned with public health. The Nutrient Sampling Program is designed to generate baseline-monitoring data for trends.

Shellfish Sanitation Program
CRD's Shellfish Sanitation Program monitors the quality of Georgia's shellfish harvest waters for harmful bacteria that might affect the safety of shellfish for human consumption. Seven (7) harvest areas are designated for recreational picking of oysters and clams by the general public. An additional seventeen (17) harvest areas are designated for the commercial harvest of oysters and clams.

The US Food and Drug Administration's National Shellfish Sanitation Program (NSSP) establishes national standards to show that shellfish harvest areas are "not subject to contamination from human and/or animal fecal

matter in amounts that in the judgment of the State Shellfish Control Authority may present an actual or potential hazard to public health." Water samples from each approved harvest area are collected by CRD and analyzed regularly to ensure the area is below the established fecal coliform threshold. Waters approved for shellfish harvest must have a geometric mean that does not exceed the threshold set forth by the NSSP.

County	Approved	Leased	Public
Chatham	15,351 acres	4,887 acres	1,267 acres
Bryan/Liberty	55,747 acres	1,706 acres	936 acres
McIntosh	50,170 acres	13,756 acres	1,974 acres
Glynn/Camden	37,018 acres	4,855 acres	4,355 acres

TABLE 5-1. LOCATION AND SIZE OF AREAS APPROVED FOR SHELLFISH HARVEST

Water quality sampling occurs every other month at eighty- eight (88) stations in five (5) counties on the coast including Chatham, Liberty, McIntosh, Glynn, and Camden counties. These stations are located to provide representative coverage of all the approved harvest areas along the coast.

Beach Monitoring Program

The Beach Monitoring Program was developed in response to the federal Beaches Environmental Assessment and Coastal Health (BEACH) Act of 2000. The BEACH Act is an amendment to the Federal Clean Water Act. The Act requires states to: 1) identify and prioritize their coastal recreational beaches; 2) monitor the beaches for the presence of the bacterial indicator Enterococcus; 3) notify the public when the EPA threshold for Enterococcus has been exceeded; and 4) report the location, monitoring, and notification data to EPA.

Georgia's recreational beaches have been identified and prioritized into three (3) tiers based on their use and proximity to potential pollution sources. Tier 1 beaches are high-use beaches. Tier 2 beaches are lower-use beaches. Tier 3 beaches are lowest-use or at low probability for potential pollution. Water quality sampling occurs regularly depending upon the tier: Tier 1 beaches are monitored weekly year-round; Tier 2 beaches are monitored monthly from April through October and Tier 3 beaches are not monitored. Beaches that exceed the threshold for Enterococcus are put under a swimming advisory that is not lifted until the levels of bacteria are sufficiently reduced, based on resampling. Beaches under a permanent swimming advisory are monitored quarterly.

Nutrient Sampling Program

The Nutrient Sampling Program collects nutrient baseline data in coastal sounds and estuaries. High nutrient loads have been linked to outbreaks of harmful algal blooms in other states and can result in large kills of fish and other marine life as well as human sickness. CRD has been collecting nutrients at eighty-four (84) stations along the coast since 2000 to establish baseline trends in nitrite nitrogen, ammonia nitrogen, total dissolved phosphorus, ortho- phosphate, and silicate.

Due to budget reductions in 2010, changes were made to both the coastal river and estuarine sampling regimes. In response to drought conditions between 2011 and 2013, temperature, salinity, conductivity, dissolved oxygen and pH were collected monthly in the Ogeechee, Altamaha, Satilla, and St. Mary's Rivers at seven (7) sites in each river to provide data for the upper estuary/lower salinity environments. Due to continued budget reductions and higher rainfall totals in 2013, river sampling was terminated in 2014. Samples are also collected at thirty-five (35) of the eighty-eight (88) shellfish sample sites to provide nutrient, chlorophyll a and fecal coliform bacteria data from tidal rivers and sounds. Currently, through a memorandum of understanding, Coastal Resources Division has agreed to collect the samples and ship

them to the contract laboratory in Athens, GA and the Georgia Environmental Protection Division has agreed to pay for the analysis of the nutrient samples.

Coastal Streams, Harbors, and Sounds

This 305(b) report contains information on many coastal streams, harbors, and sounds. Several water bodies have been shown to have low dissolved oxygen (DO) readings over discrete periods of time during an annual cycle. EPD has categorized these streams as needing further assessment. A large percentage of the low dissolved oxygen readings occurred in the late summer and early fall of 2003, a period of prolonged, extreme drought. In addition to the dry conditions, water temperatures and salinities during this period were noted to be well above average for all of the water quality monitoring stations in coastal Georgia. To more accurately represent and report on natural dissolved oxygen levels in coastal water bodies, additional directed effort will be required at each location to increase the general state of knowledge for these estuarine systems.

Coastal Beaches

This report contains information on twenty-seven (27) coastal beaches. Of these, twenty-three (23) are considered to be supporting their designated use of coastal recreation. Four (4) beaches are considered as not supporting their designated use. Two (2) are located on Jekyll Island at the St. Andrews picnic area and at Clam Creek These beaches are Tier 1 and are sampled weekly year-round. The other two (2) "not supporting" beaches are Tier 2 beaches, which are sampled less frequently. The Kings Ferry beach is located at a small municipal park on the Ogeechee River in Chatham County. Reimold's Pasture is a small island in Buttermilk sound at the mouth of the Altamaha River.

Data Not Included in Assessment

Much of the data used to generate the 305(b)/303(d) list for coastal streams, harbors, and sounds were collected by CRD for the programs as described earlier in this chapter. Other data are used by CRD to address fisheries management or recreational use in specific areas along the coast, but much of these data do not meet the minimum spatial or temporal (frequency) criteria of the GAEPD 2010 listing methodology guidance document and cannot be used to assess the ability of a water body to support its designated use(s).

Data from the Georgia National Coastal Assessment (NCA) Program (2000-2006) were not included for this listing period. NCA data are based on a probabilistic, random sampling design with only one sample per year at each location. For the purposes of 305(b)/303(d), these data may be used in the future to augment existing data sets.

The state's list of assessed waters for beaches does not contain all the coastal beaches that have been identified and prioritized by CRD. Tier 3 beaches are not monitored, so no data are available for assessment. Tier 3 beaches have few potential pollution sources.

Commercial and Recreational Fisheries

CRD has several projects that produce information used to determine the status of commercially and recreationally important fish, crustaceans, and mollusks. The Ecological Monitoring Survey (EMS) conducts monthly assessment trawls (blue crabs, shrimp, and beginning in 2003, finfish) in the Wassaw, Ossabaw, Sapelo, St. Simons, St. Andrew and Cumberland estuaries. Data from this survey are used to describe the abundance, size composition, reproductive status of penaeid shrimp and blue crab. In addition, information collected on finfish and other invertebrate species since 2003 provides a broad ecologically based evaluation of species' abundance, distribution, and diversity in these estuaries. The EMS conducts several other surveys including: a small trawl survey targeting juvenile specimens in the upper creeks monthly in three sound systems, Ossabaw, Altamaha, St. Andrews using similar techniques and protocols (albeit on a smaller

scale) as the assessment survey; and the American Eel young-of-the-year YOY survey used to assess annual recruitment success of glass eels. The Marine Sportfish Population Health Survey uses gill and trammel nets to capture finfish in the Wassaw and Altamaha River Delta estuaries from June to November. These data have been used in coast-wide stock assessments for red drum.

The Fisheries Statistics Work Unit collects catch and effort information from the recreational and commercial fisheries in cooperation with the National Marine Fisheries Service. Total annual commercial landings in Georgia ranged from 6.65 to 11.26 million pounds of product during the period from 2002 to 2012, with an annual average of 8.08 million pounds. Penaeid shrimps are the most valuable catch in Georgia commercial landings, averaging nearly 8.65 million dollars (2.50 million pounds of tails) in unadjusted, ex-vessel value during recent years. Catches are composed primarily of white shrimp (*Litopenaeus setiferus*) during the fall, winter and spring, and brown shrimp (*Farfantepenaeus aztecus*) during the summer. These shrimp spawn in oceanic waters, but depend on the salt marsh wetlands to foster their juvenile and sub-adult stages. White shrimp landings have varied over the last 50 years with a recent downward trend due to declining fishing effort. Research has shown that densities of spawning stock, and to a lesser extent fall harvest, respond strongly to cold air outbreaks during the early winter that can produce wide scale kills of white shrimp, and to a suite of environmental variables impacting the salt marsh ecosystem that produce a range of growing conditions. Cold weather kills have been associated with abnormally cold winters in 1984, 1989, and 2000.

Blue crabs live longer than penaeid shrimps (3-4 years versus 1-2 years), and also exhibit less extreme fluctuations in annual abundance from one year to the next. Reported annual blue crab (*Callinectes sapidus*) landings in 2012 were above the most recent 10-year average of 3.73 million pounds (2010 = 4.21 million pounds). A severe drought from 1998 to 2002 reduced annual harvest 80% of the long-term average of 7.99 million pounds. That drought resulted in a reduction in the quantity of oligohaline and mesohaline areas within Georgia's estuaries. This effect was more pronounced in estuaries that did not receive direct freshwater inflow from rivers. It is believed this altered salinity profile resulted in: (1) higher blue crab predation; (2) increased prevalence of the fatal disease caused by the organism, *Hematodinium* sp*;* (3) reduction in the quantity of oligohaline nursery habitat and (4) recruitment failure. Although drought conditions persisted over the last few years (2010-12), the effects were not as severe as seen in the previous drought period.

Commercial finfish landings fluctuate annually depending on market conditions and the impacts of management. American shad populations in the Altamaha River have fluctuated over the past 30 years. Anecdotal evidence indicates that participation in the American shad fishery continues to decline. Apparently, as older fishermen leave, there are few new entrants into the fishery. Since 2001, effort estimates have been collected using a trip ticket system with effort being recorded as the number of trips for both the set and drift gill net fisheries. Effort generally declined from a high of 538 reported trips in 2006 to a low of 247 reported trips in 2011. Regulations enacted by the Atlantic States Marine Fisheries Commission's Fishery Management Plan on American Shad (Amendment 3), mandated additional monitoring efforts. Additionally, sustainability plans were required of any water system where commercial fishing is conducted. In Georgia, only the Altamaha, Ogeechee, and Savannah Rivers have commercial fisheries. The commercial fishery on the Ogeechee is very small, with effort averaging < 10 reported trips,, landings averaging < 500 lbs, and participation averaging < 3 fishers. By contrast, the Altamaha accounts for the majority of the harvest and reported trips.

Total landings of bivalve mollusks have fluctuated greatly over the last 30 years. During the 1970's landings were totally dominated by oysters (*Crassostrea sp.*),

generally over 50,000 pounds of raw meats per annum. During the early 1980's fishermen increasingly focused on hard clams (*Mercenaria sp.*) due to stock declines in other areas along the east coast and their market value. This combined with increasing acreages available for harvest activities due to water quality certifications, allowed the replacement of oysters by clams as the premier species from 1986-1988. From 1988-1992 clam landings again declined and oyster landings grew. Since 1990, the clam landings have shown a general increase in contrast to the oyster fishery that, after large catches from 1989-92, have shown a steady decline since. In 2009, clam harvest was approximately 73,254 lbs of meat, while oyster harvest was only 9,676 lbs of meat. Shellfish harvest landings have continued to increase since 2009. In 2013, clam harvest increased to approximately 131,131 lbs of meat and oyster harvest was down and totaled 16, 220 lbs of meat. Labor costs have effected this change in combination with temporary inaccessibility to some grounds because of conflicts over harvest rights. No acreage has been lost due to deteriorating water quality. Current research is focusing on improvements in stock genetics (growth and appearance enhancements), cultch substrate comparisons, and establishing new populations.