

Chapter 4

DIRECTIONS FOR COMPLETING FORMS

- General Monitoring Information
- Bacterial Data Form
- Example Form

General Monitoring Information

This chapter directs the volunteer step by step through the process of completing the Georgia Adopt-A-Stream Bacterial Data Form. Before you get started, pull your Bacterial Data Form out and photocopy it, or download it from www.GeorgiaAdoptAStream.org so that you have extra blank forms to work with in the future. The following is a description of how to complete this form. Example of a completed form is shown at the end of this chapter.

The Georgia Adopt-A-Stream Chemical/Bacterial Data Form can be used if you are combining both of these monitoring methods at the same site. The Bacterial section is filled out in the same way as the Bacterial Data Form. Please refer to the Chemical Monitoring manual for information on filling out the Chemical section of this form.

The UGA Adopt-A-Stream Submission Form is used if you are taking samples to be sent to their laboratory. It is necessary to contact UGA Cooperative Extension Service first to receive their specific bottles for sampling.

Bacterial Data Form

SITE INFORMATION

Group Name: Choosing a group name is covered in the Georgia Adopt-A-Stream's introductory manual, Getting to Know Your Watershed, and registration of this group should be completed online in the database. Each of your monitoring sites will be registered to your group name.

Group ID: This is the ID number provided to you by the Georgia Adopt-A-Stream online database after you register your group. It will be in the format AAS-G- ###.

Site ID: When you register each of your monitoring sites, the online database will send you your site number, in the format AAS-S- ####. This site number allows you and the State to identify the exact location of your monitoring site.

Stream Name: List the stream name that you registered with the online database.

Monitors: List all QA/QC volunteers who assisted with monitoring.

Number of Participants: List the number of people who joined you as you monitored (both certified and non-certified volunteers).

Event Date (MMDDYYYY): The time of year you conduct your survey is very important. List the date of your sampling event in the MMDDYYYY format.

Time Sample Collected (HHMM): Document the time of day you began sampling. Try to be consistent and go out at about the same time each time you monitor.

Time Spent Sampling (in minutes): Report the time spent monitoring. Include preparation time for sampling and processing of samples. This is required information. *Example:* 1 individual went sampling from noon-1pm, this would be 60 minutes of sampling time. Or if 4 individuals sampled from noon-1pm, this would still be 60 minutes of sampling time.

Total Time Spent Traveling (in minutes; optional): Report the time spent traveling to/from sampling site. *Example:* 1 individual traveled 10 minutes to and 10 minutes from the site, this would be 20 minutes of travel time reported. Or, if there is more than one individual traveling to and from the site, report the sum of each monitor's to/from travel time. So if Mary traveled 20 minutes, Larry 10 minutes, and Dan 30 minutes, the total time to report would be 60 minutes.

Furthest Distance Traveled (in miles; optional): Your mileage to and from your site. This can be reported a few different ways. *Example:* 1 individual traveled 10 miles to and 10 miles from the site; this would be 20 miles reported. Or, if there is more than one individual traveling to and from the site, report the longest distance traveled. So if Mary traveled 20 miles, Larry 10 miles, and Dan 30 miles, you would report Dan's mileage, since it was the furthest.

WEATHER

Present Conditions: Please select all that apply: Heavy Rain, Steady Rain, Intermittent Rain, Overcast (no blue sky between any of the clouds), Partly Cloudy (clouds present but also some blue sky), or Clear/Sunny (no clouds).

Amount of Rain, if Known: Please check your local weather station or go to wunderground.com to find out the most recent rain levels in the past 24-48 hours in inches. If you have a rain gauge at your site, you may also use this for your measurement.

OBSERVATIONS

Note: You will need a clear cup or bottle and a white background to determine water color, water clarity and water odor. To evaluate these three parameters, take a water sample from your monitoring site.

Flow/Water Level

Even if your waterway is flooded or completely dry, that is valuable information and data. Please still fill out the datasheet as completely as possible (weather, air temperature, flow, comments section) and submit your information to the Adopt-A-Stream database.

Select one of the following:

- **Dry:** The stream or lake is dry with no visible pools.
- **Stagnant/Still (streams only):** This occurs when the water body is not flowing downstream. You should also check this box if there are pools of water in the stream or river bed that are not connected by flowing water (the bed is dry in between pools).
- **Low:** This is when the water level is lower than normal. There are a few indicators that the level is low: some parts of the creek or lake bed are dry between the water surface and the shoreline plants, or aquatic plants/algae are now exposed and lying out of the water.
- **Normal:** Based off of your observations and opinion, this is what your water body's level normally looks like.
- **High:** This is when the water body is higher than normal. Look for partially submerged shoreline vegetation, which is usually out of the water.
- **Flood (over banks):** Please do not sample when it is flooding, but a record of this level is important to note.

***NOTE:** With major changes in weather patterns, our waterways may exhibit periods of time not conducive to base flow water quality testing, including periods of extreme drought or flooding. Georgia Adopt-A-Stream encourages citizens to remember safe monitoring practices when major storms appear and waterways rise to unsafe levels.

Water Clarity

Select one of the following that describes the relative cloudiness of the water:

- **Clear/Transparent:** Water can transmit light rays and one can see through the water.
- **Cloudy/Somewhat Turbid:** Water can transmit some light rays, but one cannot see through the water.
- **Opaque/Turbid:** Neither clear nor cloudy; water cannot allow light to pass through most likely due to stirred up sediment.
- **Other**

Water Color

Select one of the following that describes the relative color of the water:

- **No Color**
- **Brown/Muddy**
- **Green**
- **Milky/White**
- **Tannic**
- **Other**

Water Surface

Select any of the following that describes the appearance of the water surface which can be a physical indicator of water pollution:

- **Clear:** No appearance of anything on the water surface.
- **Oily Sheen:** This is a multicolored reflection that may indicate oil floating in the stream. Some sheens are natural (a byproduct of iron bacteria), and may break into geometric patterns when touched (you can use a stick). Test if the oily sheen breaks when disturbed and select “yes” or “no.”
- **Algae:** Note if any types of algae are present in your stream. Algae are simple plants which do not grow true roots, stems, or leaves and which live mainly in water. They can be brown, green, reddish and can grow on rocks, the streambed or float on the surface.
- **Foam:** The presence of foam can be natural or due to pollution (e.g. detergents or nutrients). Foam that is several inches high and does not brush apart easily is generally due to some sort of pollution.
 - **If Foam is Present:**
Select if it is more than 3 inches tall and/or if it is pure white in color.
- **Other:** Explain what you see on the water surface.

Water Odor

Select one of the following:

- **Natural/None**
- **Gasoline**
- **Sewage**
- **Rotten Egg**
- **Fishy**
- **Chlorine**
- **Other**

***NOTE:** DO NOT SMELL if there is a strong chemical odor or there is an appearance of chemical spill.

Trash

Trash is a form of pollution and is not only unsightly, but can affect the health of our waterways including aquatic life. Removing trash from streams is a simple way to protect and improve your waterways and can be done individually or with a larger group such as Rivers Alive (RiversAlive.org) and Georgia Adopt-A-Stream. The information you collect will support the efforts of these programs to identify sites across the state needing a cleanup.

Select any of the following:

- **None:** What a luxury, you monitor at a trash free site!
- **Yes, I did a cleanup:** Great, you successfully cleaned your site!
- **This site needs an organized cleanup:** Help! There is more trash present than our group can handle, and a larger effort needs to be conducted.

COMMENTS

This section is open to your personal observations of your site. Please write down information not captured by the datasheets including alterations to your site that are new since you last monitored (“*ATV tracks were seen up and down the stream channel*” or “*site access has changed to the west side of the bank*”) or biological observations (“*algal growth was tremendous*” or “*fishes were seen*”) as well as any other significant changes.

PHOTOS

Please take images to document your observations and changes in water quality conditions. Photo point directions are located in the Visual Stream Survey manual which can be downloaded from www.GeorgiaAdoptAStream.org. Images of your site can be submitted online.

Bacterial Section

This section records all of the information from incubating the water sample to finding the final *E. coli* level of your sample.

Sample Holding Time (HH): This is the time from when you collected the sample from the waterway to the time you begin plating the sample. Ideally, this is less than six hours but can be up to 24 hours.

Date START (MMDDYYYY): The date you started incubating your blank and sample plates.

Time START (HHMM): This is the time you put your samples in the incubator. This is important so you know when the plates are ready to be counted.

Date END (MMDDYYYY): Record the date you take the samples out of the incubator.

Time END (HHMM): List the time you take the samples out of the incubator. It is important to know the length of time the samples have been incubated. This should be within 24 +/- 1 hour of when you placed the sample plates into the incubator.

MIN Temp (°C): This is the minimum temperature the incubator reached during the time the samples were inside. The digital thermometer will record both the minimum and the maximum temperatures.

MAX Temp (°C): Document the maximum temperature of the incubator while the samples were inside. The temperatures within the incubator should stay within +/- 1°C of 35°C.

Colonies: The number of blue colonies with entrapped air bubbles for each of your plates including the blank. The blank should show no trace of any bacteria, red or blue colonies.

Total Number of Colonies: The sum of your plates (do not include the blank).

Find AVG of number of colonies: Describe how you determined the average number of colonies for your sample by recording the total number of colonies divided by the total number of sample plates. The final *E. coli* level is found by multiplying this by 100.

cfu/100mL: Record the final *E. coli* level of your sample. If you get a high level, look back at Chapter 2 in the section “Getting High Bacteria Counts” to determine if you need to take further action.

Comments

This section is open to your personal observations of your site. Please write down information not captured by the datasheets including alterations to your site that are new since you last monitored (“*ATV tracks were seen up and down the stream channel*” or “*site access has changed to the west side of the bank*”) or biological observations (“*algal growth was tremendous*” or “*fishes were seen*”) as well as any other significant changes.

EXAMPLE FORM

GEORGIA ADOPT-A-STREAM: Bacterial Form

To be conducted every month

SITE INFORMATION	Group Name: <u>Chattahoochee Hills Creek Keepers</u> Event Date: <u>07252013</u> (MMDDYYYY)		
	Group ID: G- <u>1214</u> Site ID: S- <u>1507</u>		Time Sample Collected: <u>0900</u> (HHMM am/pm)
	Stream Name: <u>Little Bear Creek</u>		Time Spent Sampling: <u>15</u> (Min)
	Monitor(s): <u>Mary and Matt Mayfly</u>		Total Time Spent Traveling (optional): <u>20</u> (Min)
	Number of Participants: <u>2</u>		Furthest Distance Traveled (optional): <u>15</u> (Miles)
WEATHER	Present conditions (check all that apply) <input type="checkbox"/> Heavy Rain <input type="checkbox"/> Steady Rain <input checked="" type="checkbox"/> Intermittent Rain <input type="checkbox"/> Overcast <input type="checkbox"/> Partly Cloudy <input type="checkbox"/> Clear/Sunny		Amount of rain, if known? Amount in Inches: <u>0.5</u> In Last Hours/Days: <u>3 days</u> *Refer to <i>wunderground.com</i> for rainfall data
OBSERVATIONS	Flow/Water Level: (check all that apply) <input type="checkbox"/> Dry <input type="checkbox"/> Stagnant/Still <input type="checkbox"/> Low <input checked="" type="checkbox"/> Normal <input type="checkbox"/> High <input type="checkbox"/> Flood (over banks)		
	Water Clarity: <input type="checkbox"/> Clear/Transparent <input checked="" type="checkbox"/> Cloudy/Somewhat Turbid <input type="checkbox"/> Opaque/Turbid		
	Water Color: <input type="checkbox"/> No Color <input checked="" type="checkbox"/> Brown/Muddy <input type="checkbox"/> Green <input type="checkbox"/> Milky/White <input type="checkbox"/> Tannic <input type="checkbox"/> Other: _____		
	Water Surface: <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Oily Sheen: does it break when disturbed? Yes/No (circle one) <input checked="" type="checkbox"/> Algae <input type="checkbox"/> Foam <input type="radio"/> Greater than 3" high <input type="radio"/> It is white		
	Water Odor: <input checked="" type="checkbox"/> Natural/None <input type="checkbox"/> Gasoline <input type="checkbox"/> Sewage <input type="checkbox"/> Rotten Egg <input type="checkbox"/> Fishy <input type="checkbox"/> Chlorine <input type="checkbox"/> Other: _____		
	Photos: Please take images to document your observations and changes in water quality conditions. Photo point directions can be found in the manuals. Images can be submitted online with your other data.		
	Trash: <input type="checkbox"/> None <input checked="" type="checkbox"/> Yes, I did a cleanup <input checked="" type="checkbox"/> This site needs an organized cleanup		
BACTERIAL	3M Petrifilm Method: <i>Escherichia coli</i> Run three (3) plates/tests for each site, plus one (1) blank plate. Process within 6-24hrs, incubate at 35°C ±1° and read at 24 ± 1 hr		
	Plate	Colonies	Find AVG of Number of Colonies
	Blank	0	(total # colonies/total # of plates (do not include blank))
	1	2	(<u>6</u> / <u>3</u>) x 100 =
	2	1	Sample Holding Time (HH): <u>02</u>
	3	3	Date START (MMDDYYYY): <u>07252013</u> Date END (MMDDYYYY): <u>07262013</u>
	Total # Colonies	6	Time START (HHMM): <u>1130</u> Time END (HHMM): <u>1145</u>
			MIN Temp (°C): <u>34.6</u> MAX Temp (°C): <u>35.2</u>
COMMENTS	<p style="text-align: center;">Any changes since you last sampled at this site? If yes, please describe.</p> <p style="text-align: center;">Yes. There is new foot bridge being constructed 100 feet upstream of our monitoring site.</p>		

Please submit data to our online database at www.GeorgiaAdoptAStream.org

