

Chapter **2**

VISUAL FORMS

- Basic Visual Form
- Stream Habitat Survey
- Stream Flow
- Channel Cross-Section: Part 1
- Channel Cross-Section: Part 2
- Wentworth Pebble Count
- Site Sketch
- Visual Biological Survey

GEORGIA ADOPT-A-STREAM: Basic Visual Form

To be used with: Photo Points, Wentworth Pebble Count, Cross Section, Bio Survey, Stream Habitat Survey, Stream Flow and Site Sketch

SITE INFORMATION	Group Name: _____	Event Date: _____ (MMDDYYYY)
	Group ID: G-_____ Site ID: S-_____	Time Sample Collected: _____ (HHMM am/pm)
	Stream Name: _____	Time Spent Sampling: _____ (Min)
	Monitor(s): _____	Total Time Spent Traveling (<i>optional</i>): _____ (Min)
	Number of Participants: _____	Furthest Distance Traveled (<i>optional</i>): _____ (Miles)
WEATHER	Present conditions (check all that apply)	
	<input type="checkbox"/> Heavy Rain <input type="checkbox"/> Steady Rain <input 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: _____ In Last Hours/Days: _____ *Refer to <i>wunderground.com</i> for rainfall data
OBSERVATIONS	Flow/Water Level: <small>(check all that apply)</small> <input type="checkbox"/> Dry <input type="checkbox"/> Stagnant/Still <input type="checkbox"/> Low <input type="checkbox"/> Normal <input type="checkbox"/> High <input type="checkbox"/> Flood (over banks)	
	Water Clarity: <input type="checkbox"/> Clear/Transparent <input type="checkbox"/> Cloudy/Somewhat Turbid <input type="checkbox"/> Opaque/Turbid <input type="checkbox"/> Other: _____	
	Water Color: <input type="checkbox"/> No Color <input 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 type="checkbox"/> Oily sheen: Does it break when disturbed? Yes/No (circle one) <input type="checkbox"/> Algae <input type="checkbox"/> Foam <input type="radio"/> Greater than 3" high <input type="radio"/> It is pure white <input type="checkbox"/> Other: _____	
	Water Odor: <input 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: _____	
	Trash: <input type="checkbox"/> None <input type="checkbox"/> Yes, I did a cleanup <input type="checkbox"/> This site needs an organized cleanup	
PHOTO POINTS	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.	
	Reference Location (RL): Latitude (+) _____ (DD.DDDD°) Longitude (-) _____ (DD.DDDD°)	
	Compass bearing to permanent Photo Point Location (PPL): Degrees (°) _____	
	Distance to permanent Photo Point Location (PPL) from Reference Location (RL): Distance _____ (ft/in)	
	Camera height at permanent Photo Point location (PPL): Height _____ (ft/in)	
COMMENTS	<p style="text-align: center;">Any changes since you last sampled at this site? If yes, please describe.</p> 	

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

GEORGIA ADOPT-A-STREAM: Stream Habitat Survey

(Also fill out the Basic Visual Form when completing this survey)

Type of Stream:

- Rocky bottom
 Muddy bottom

Habitat Parameter	Excellent ----- -Poor											
6. Channel Alteration												
Is the stream channel altered by humans? Determine right/left bank by facing downstream	No evidence of channelization (straightening) or alterations such as dredging, agriculture, concrete banks or construction activities.				Some evidence of channelization (straightening) and/or alterations such as dredging, agriculture, concrete banks or construction activities.				Most of stream reach channelized and/or many alterations present such as dredging, agriculture, concrete banks or construction activities.			What did you see?
												Score
10 9 8 7 6 5 4 3 2 1 0												
7. Channel Sinuosity												
Does the channel have lots of curves and bends? Determine right/left bank by facing downstream	Yes, bends in the channel are frequent.				There are more bends than straight sections.				There are more straight sections than sections with bends or channel is entirely straight.			What did you see?
												Score
10 9 8 7 6 5 4 3 2 1 0												
8. Bank Stability												
How stable are the streambanks? Determine right/left bank by facing downstream	Bank stable; erosion, scouring, undercutting or bank failure absent or minimal. Vegetation overhanging the stream is abundant.				Bank moderately stable; evidence of small areas of erosion, undercutting and scouring, or bank failure present. Moderate amounts of overhanging vegetation present.				Bank unstable; many eroded and scoured areas with undercutting; bank failure present; steep banks. Little overhanging vegetation present.			What did you see?
												Score (Add both banks)
Left bank: 5 4.5 4 3.5 3 2.5 2 1.5 1 .5 0 Right bank: 5 4.5 4 3.5 3 2.5 2 1.5 1 .5 0												
9. Vegetative Protection												
Are streambanks covered & shaded by a variety of vegetation? Determine right/left bank by facing downstream	Most streambank surfaces covered and shaded by a large variety of vegetation (trees, shrubs, flowering plants and grasses).				Some streambank surfaces covered and shaded by some variety of vegetation (trees, shrubs, flowering plants and grasses).				Few streambank surfaces covered and shaded by vegetation. Little variety of vegetation. Streambank dominated by one type of vegetation (trees, shrubs, flowering plants and grasses).			What did you see?
												Score (Add both banks)
Left bank: 5 4.5 4 3.5 3 2.5 2 1.5 1 .5 0 Right bank: 5 4.5 4 3.5 3 2.5 2 1.5 1 .5 0												
10. Riparian Vegetative Zone Width												
What is the amount of buffer available? Determine right/left bank by facing downstream	Buffer present; a large variety of vegetation extends at least three channel widths on each side.				Some buffer present; some variety of vegetation extends two to one channel width on each side. Human activities have impacted buffer zone.				Little or no buffer present; vegetation extends less than one channel width on each side. Human activities substantially impact buffer zone.			What did you see?
												Score (Add both banks)
Left bank: 5 4.5 4 3.5 3 2.5 2 1.5 1 .5 0 Right bank: 5 4.5 4 3.5 3 2.5 2 1.5 1 .5 0												

Stream Habitat Score: **Excellent (69-90)** **Good (46-68)** **Fair (23-45)** **Poor (0-22)** Total second side _____

Please submit data at: www.GeorgiaAdoptAStream.org
 Or send to: 4220 International Parkway, Suite 101, Atlanta, Georgia 30354
 Fax: 404-675-6245 Phone: 404-675-6240

Total first side _____

Total _____

GEORGIA ADOPT-A-STREAM: Stream Flow

(Also fill out the Basic Visual Form when completing this survey)

CALCULATE AREA

Area = depth x width

It is advisable to take multiple depth and width measurements

Always start at the water's edge with a first measurement of zero

All data should be recorded in feet, with inches replaced by decimals

Depth Measurements	1.	2.	3.	4.	5.	6.	7.	8.	sum
	0 ft								

Average Depth ft = $\frac{\text{sum of depth measurements}}{\text{number of measurements}}$

Width Measurements	1.	2.	sum
	<input type="text"/> ft	<input type="text"/>	<input type="text"/>

Average Width ft = $\frac{\text{sum of width measurements}}{\text{number of measurements}}$

Area ft² = width X depth

CALCULATE SPEED- Measure the time it takes a float to travel a desired distance

It is advisable to take at least 2 measurements of current speed

Take measurements from the stream run

length = feet (20 feet is recommended)

time in seconds	1.	2.	3.	4.	sum
	<input type="text"/> s	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

average time s = $\frac{\text{sum of time measurements}}{\text{number of measurements}}$

Speed ft/s = $\frac{\text{length in feet}}{\text{average time in seconds}}$

CALCULATE STREAM FLOW

Flow cfs = Area X Speed X Coefficient

Flow in cubic feet per second

0.9 coefficient for muddy bottom stream
0.8 coefficient for rocky bottom stream

GEORGIA ADOPT-A-STREAM: Channel Cross-Section: Part 1
(Also fill out the Basic Visual Form when completing this survey)

Measurements are always taken from the left stream bank, looking downstream. Depth measurements are taken every two feet and in sections where there is a notable change. Be sure to note left and right bankfull, water edge, and sand bars.

CROSS-SECTION			
Distance from LEFT Pin		Measurement Depth	Comments
Point	Ft.	Ft.	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

CROSS-SECTION			
Distance from LEFT Pin		Measurement Depth	Comments
Point	Ft.	Ft.	
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
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45			
46			
47			
48			
49			
50			

GEORGIA ADOPT-A-STREAM: Channel Cross-Section: Part 2
(Also fill out the *Basic Visual Form* when completing this survey)

Graph Paper for Stream Channel Cross-section Measurements

DEPTH

WIDTH

Right

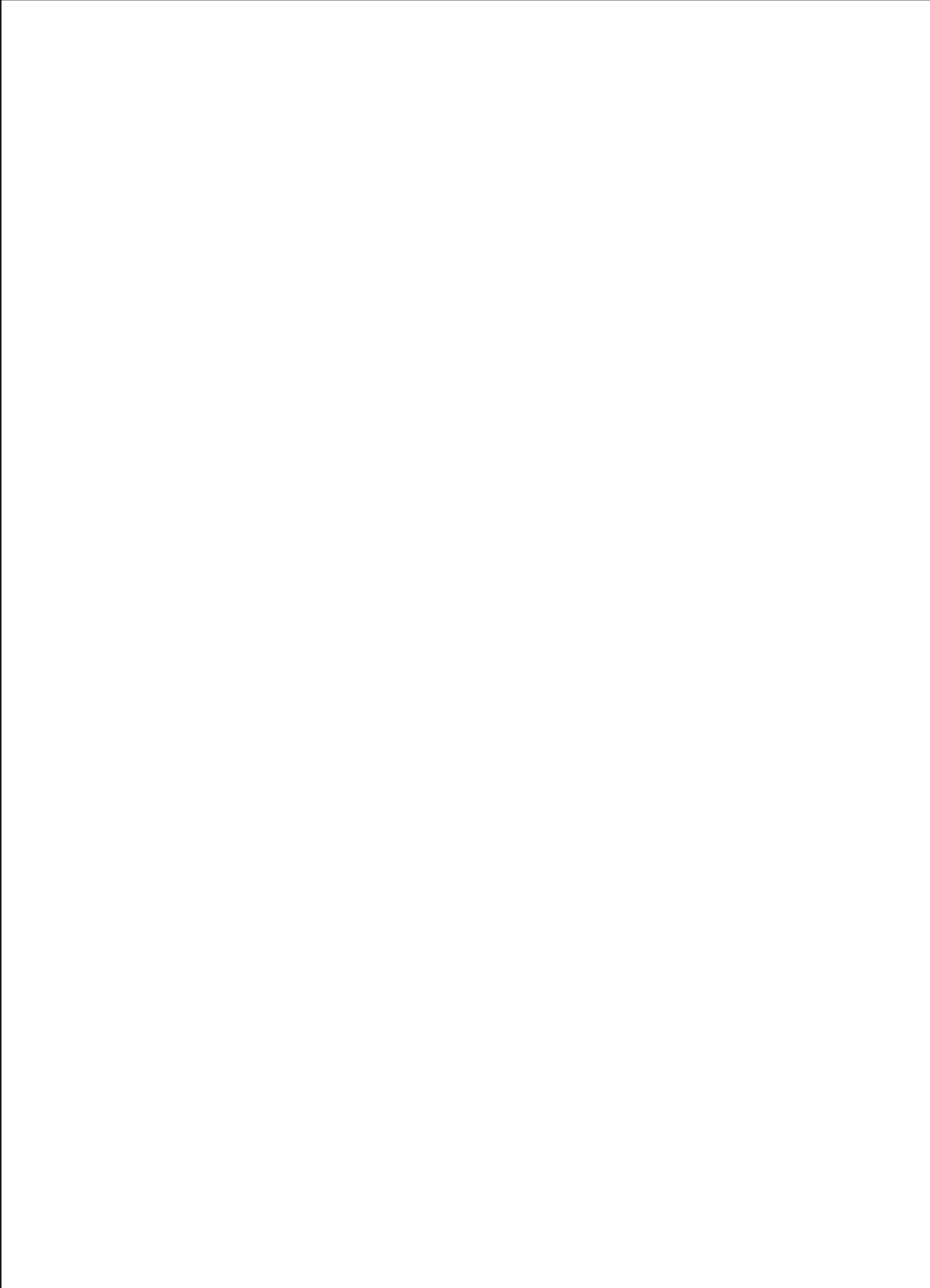
Left (looking downstream)

GEORGIA ADOPT-A-STREAM: Wentworth Pebble Count
(Also fill out the Basic Visual Form when completing this survey)

Count#/Size Class	Silt/Clay	Sand	Gravel	Cobble	Boulder	Bedrock
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
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45						
46						
47						
48						
49						

Count#/Size Class	Silt/Clay	Sand	Gravel	Cobble	Boulder	Bedrock
50						
51						
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58						
59						
60						
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86						
87						
88						
89						
90						
91						
92						
93						
94						
95						
96						
97						
98						
99						
100						
Total in each column (%)						

GEORGIA ADOPT-A-STREAM: Site Sketch
(Also fill out the Basic Visual Form when completing this survey)



GEORGIA ADOPT-A-STREAM: Visual Biological Survey

(Also fill out the Basic Visual Form when completing this survey)

1. Wildlife in or around the stream:

- amphibians waterfowl reptiles mammals mussels/clams/oysters
 crustaceans birds

2. Fish in the stream: (Check all that apply)

- no yes, but rare yes abundant
 small (1-2") medium (3-6") large (7" and above)

Are there barriers to fish movement?

- none beaver dams waterfalls > 1ft
 dams road barriers other: _____

3. Aquatic plants in the stream: (Check all that apply)

- none

- | | | |
|--|--------------------------|--------------------------|
| <input type="checkbox"/> attached plants | occasional | plentiful |
| stream margin/edge | <input type="checkbox"/> | <input type="checkbox"/> |
| pools | <input type="checkbox"/> | <input type="checkbox"/> |
| near riffle | <input type="checkbox"/> | <input type="checkbox"/> |

- | | | |
|---|--------------------------|--------------------------|
| <input type="checkbox"/> free-floating plants | occasional | plentiful |
| stream margin/edge | <input type="checkbox"/> | <input type="checkbox"/> |
| pools | <input type="checkbox"/> | <input type="checkbox"/> |
| near riffle | <input type="checkbox"/> | <input type="checkbox"/> |

4. Extent of algae in the stream:

a) Are the submerged stones, twigs, or other material in the stream coated with a layer of algae? (Check all that apply)

- none

- | | | |
|------------------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> brownish: | occasional | plentiful |
| light coating | <input type="checkbox"/> | <input type="checkbox"/> |
| heavy coating | <input type="checkbox"/> | <input type="checkbox"/> |

- | | | |
|------------------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> greenish: | occasional | plentiful |
| light coating | <input type="checkbox"/> | <input type="checkbox"/> |
| heavy coating | <input type="checkbox"/> | <input type="checkbox"/> |

- | | | |
|---------------------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> other: _____ | occasional | plentiful |
| light coating | <input type="checkbox"/> | <input type="checkbox"/> |
| heavy coating | <input type="checkbox"/> | |

- b) Are there any filamentous (string-like) algae?
- | | none | occasional | plentiful |
|--------------|--------------------------|--------------------------|--------------------------|
| brownish | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| greenish | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| other: _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- c) Are any detached “clumps” or “mats” of algae floating on the water’s surface?
- | | none | occasional | plentiful |
|--------------|--------------------------|--------------------------|--------------------------|
| brownish | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| greenish | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| other _____: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

5. Presence of naturally occurring organic material in stream: (*Good habitat for aquatic organisms*)

- Logs or large woody debris: none occasional plentiful
 Leaves, twigs, root mats, etc.: none occasional plentiful

6. Stream shade cover: How well is the water surface shaded by vegetation?

Looking down stream:

