

**8. Sediment Deposition**  
Sediments are naturally deposited in slow-flow parts of streams. High levels of deposition create an unstable, continually changing bottom.

Very little of bottom affected; minor accumulation of fine and coarse material at snags and submerged vegetation; little or no enlargement of islands or point bars.

Less than half of the bottom affected; moderate accumulation; substantial sediment/sand movement only during major storm event; some new increase in bar formation.

More than half of bottom affected with major deposits; pools shallow, heavily silted; large deposits may be present on both banks; sediment deposits are an obstruction to the water flow.

Heavy deposits of fine material. Increased bar development. More than 50% of the bottom changing frequently. Pools almost absent due to substantial sediment/sand deposition.

Total score: \_\_\_\_\_

4

3

2

1

**9. Embeddedness**  
Estimate how much sand or sediment is burying rocks in stream bottom. Assess only at riffle or run areas (fast, turbulent waters).

Rocks are easy to move, very little surrounding sediment.

Rocks are half buried by fine sediment, more difficult to move.

Rocks mostly covered by fine sediment and need to be dislodged.

Fine sediment covering rocks; mostly buried. Rocks will not dislodge without digging out.

Total score: \_\_\_\_\_

4

3

2

1

**10. Attachment Sites for Macroinvertebrates**  
Assess riffle size and substrate as habitat for macroinvertebrates. Assess only at riffle areas (fast, turbulent waters).

Riffle is as wide as stream and length is twice as long; cobble predominates; boulders and gravel are common.

Riffle is as wide and as long as stream width. Cobble less abundant; boulders and gravel common.

Riffle is not as wide as stream and length is less than the width. Run area may be lacking. Gravel or large boulders and bedrock prevalent; some cobble present.

Riffle is virtually non-existent; large boulders and bedrock prevalent; cobble lacking.

Total score: \_\_\_\_\_

4

3

2

1

**Grand Total** (Record on front cover): \_\_\_\_\_

## Habitat Check-List for Rocky Bottom Streams



A rocky bottom stream is characterized by naturally occurring gravel, cobbles, and boulders substrate in any combination. These streams have definite riffle areas (fast, turbulent waters).

Before you begin, please check the following Quality Assurance procedures:

Coordinators verified that this is a rocky bottom stream.

Marked off 300 foot segment on bank for assessment.

No unusual odors. (If odors, report to the Stormwater office and *do not* enter the water).

Normal water appearance. (If not, report to Stormwater and *do not* enter the water).

Normal water level and it is safe to enter the stream.

Date of Assessment: \_\_\_\_\_

Name: \_\_\_\_\_

Stream Name: \_\_\_\_\_

Location: \_\_\_\_\_ (County, Road(s), etc.)

ID: \_\_\_\_\_

**TOTAL SCORE** (Add up all 10 parameters):

*Assess habitat annually. Compare scores year-to-year at this site, to a reference site, or to the average score within the watershed.*

Habitat scores will range from 13 (poor) – 52 (excellent).

Scan and email your report to [wsmith@townofchapelhill.org](mailto:wsmith@townofchapelhill.org) or mail/deliver to: Wendy Smith  
Chapel Hill Stormwater Management Division, 208 N Columbia St, Chapel Hill, NC 27514  
For more information, call (919) 969-7246

Download and print data sheets from  
[watermonitoring.uwex.edu/wav/monitoring/sheets.html](http://watermonitoring.uwex.edu/wav/monitoring/sheets.html)

# Habitat Assessment Check-List for Rocky Bottom Streams

*Directions:* Each parameter is listed in the column along the left-hand side, starting with riparian vegetation. Read each numbered category in the row to find the best match for your stream. Circle the number in that category. Add up your scores for both left and right banks (or one total score) and enter total at left under parameter description. **Determine left or right banks by looking upstream (where water is coming from).**

Habitat Parameter	4	3	2	1
<p><b>1. Riparian Vegetation</b> Estimate width of riparian vegetation along each bank. Score entire 300 ft.</p> <p>Left Bank: _____</p> <p>Right Bank: _____</p> <p>Total Score: _____</p>	<p>Width of riparian vegetation is more than 50 feet; no evidence of human activities (e.g. parking lots, roadbeds, mowed areas, crops, clearcuts) within the zone.</p> <p>Left Bank: 4 Right Bank: 4</p>	<p>Width of riparian vegetation is 36-50 feet.</p> <p>Left Bank: 3 Right Bank: 3</p>	<p>Width of riparian vegetation is 20-35 feet.</p> <p>Left Bank: 2 Right Bank: 2</p>	<p>Width of riparian vegetation is less than 20 feet.</p> <p>Left Bank: 1 Right Bank: 1</p>
<p><b>2. Bank Vegetation</b> Estimate percentage of vegetation along each bank. Score entire 300 ft.</p> <p>Left Bank: _____</p> <p>Right Bank: _____</p> <p>Total Score: _____</p>	<p>More than 90% of the streambank surfaces covered by natural vegetation, including trees, shrubs, or other plants. No evidence of grazing or mowing; almost all plants allowed to grow naturally.</p> <p>Left Bank: 4 Right Bank: 4</p>	<p>Seventy to 90% of the streambank surfaces covered by natural vegetation; plant variety limited to one or two species. Slight vegetative disruption evident.</p> <p>Left Bank: 3 Right Bank: 3</p>	<p>Fifty to 69% of the streambank surfaces covered by vegetation. Patches of bare soil or closely cropped vegetation more common.</p> <p>Left Bank: 2 Right Bank: 2</p>	<p>Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very common; vegetation has been cut to 2 inches or less; resembles a lawn.</p> <p>Left Bank: 1 Right Bank: 1</p>
<p><b>3. Bank Stability</b> Estimate stability of each bank. Note: artificial embankments are classified as channel alterations in #4. Score entire 300 ft.</p> <p>Left Bank: _____</p> <p>Right Bank: _____</p> <p>Total Score: _____</p>	<p>Banks stable—no evidence of erosion or bank slumping (less than 5%).</p> <p>Left Bank: 4 Right Bank: 4</p>	<p>Moderately stable; infrequent, small areas of erosion mostly healed over with new vegetation evident.</p> <p>Left Bank: 3 Right Bank: 3</p>	<p>Moderately unstable; over half of banks in site have areas of erosion; high erosion potential during floods (no vegetation, steeply sloping banks).</p> <p>Left Bank: 2 Right Bank: 2</p>	<p>Unstable; many eroded areas; bare areas frequent along straight sections and bends; obvious bank collapse or failure; half to all of the bank has erosional scars.</p> <p>Left Bank: 1 Right Bank: 1</p>
<p><b>4. Channel Alteration</b> Estimate extent of channel modification. Score entire 300 ft.</p> <p>Total Score: _____</p>	<p>Stream with normal or meandering pattern. No channelization, dredging or artificial embankments (e.g., riprap).</p> <p>4</p>	<p>Some stream straightening, artificial embankments or dams are present, (usually in area of bridge abutments) no evidence of recent channel alteration activity.</p> <p>3</p>	<p>Artificial embankments present on both banks and more than half of stream site straightened, dredged or otherwise altered.</p> <p>2</p>	<p>Banks shored with gabions (a fortified embankment) or concrete; over 80% of the site straightened or disrupted.</p> <p>1</p>
<p><b>5. Channel Flow Status</b> Assess water level within stream channel. Score entire 300 ft.</p> <p>Total Score: _____</p>	<p>Water reaches base of both shorelines and a minimal amount of channel substrate is exposed.</p> <p>4</p>	<p>Water fills more than 75% of the channel; some channel substrate is exposed.</p> <p>3</p>	<p>Water fills about half of the channel and/or riffle substrates are mostly exposed. Water is shallow (less than 18 inches deep).</p> <p>2</p>	<p>Very little water in channel.</p> <p>1</p>
<p><b>6. Stream velocity/depth</b> To estimate velocity, time how long it takes a stick to float 20 ft. Repeat five times. Divide average time into 20 to get feet per second. Slow is less than one foot per second. Shallow is &lt;18".</p> <p>Total Score: _____</p>	<p>All four velocity/depth combinations are present: A. slow/deep B. fast/deep C. slow/shallow D. fast/shallow</p> <p>4</p>	<p>Three of the four velocity/depth combinations are present. Circle three that are present: A. slow/deep B. fast/deep C. slow/shallow D. fast/shallow</p> <p>3</p>	<p>Only two of the four velocity/depth combinations are present. Circle two that are present: A. slow/deep B. fast/deep C. slow/shallow D. fast/shallow</p> <p>2</p>	<p>Dominated by one velocity/depth category. Circle one that is present: A. slow/deep B. fast/deep C. slow/shallow D. fast/shallow</p> <p>1</p>
<p><b>7. In-stream habitat for fish</b> Assess available habitat structure for fish within the stream. Score entire 300 ft.</p> <p>Total Score: _____</p>	<p>Over 50% of the site has submerged logs, undercut banks, large rocks/cobble or other stable habitat.</p> <p>4</p>	<p>Thirty percent to 50% of site has submerged logs, undercut banks, large rocks/cobble or other stable habitat.</p> <p>3</p>	<p>Less than 30% of site has submerged logs, undercut banks, rocks/cobble or other stable habitat.</p> <p>2</p>	<p>Less than 10% of site has any fish habitat; lack of habitat obvious.</p> <p>1</p>