# STREAM HABITAT ASSESSMENT

Michigan Clean Water Corps

## I. Stream, Team, Location Information

Site ID:_____  Date:_____  Time:_____

Location:_____

Name(s):_____

## II. Stream and Riparian Habitat

| A. General Information<br>*Circle one or more answers as appropriate* | | | | | | Notes and Observations:<br>Give further explanation when needed. |
|---|---|---|---|---|---|---|
| 1 Average Stream Width (ft) | < 10 | 10-25 | 25-50 | >50 | | |
| 2 Average Stream Depth (ft) | <1 | 1-3 | >3 | >5 | | |
| 3 Has this stream been channelized? (Stream shape constrained through human activity- look for signs of dredging, armored banks, straightened channels) | Yes, currently | Yes, sometime in the past | No | Don't know | | |
| 4 Estimate of current stream flow | Dry or Intermittent | Stagnant | Low | Medium | High | |
| 5 Highest water mark (in feet above the current level) | <1 | 1-3 | 3-5 | 5-10 | >10 | |
| 6 Which of these habitat types are present? | Riffles | Deep Pools | Large woody debris | Large rocks | Undercut bank | |
| | Overhanging vegetation | Rooted Aquatic Plants | Other: | Other: | Other: | |
| 7 Estimate of turbidity | Clear | Slightly Turbid (can partially see to bottom) | | Turbid (cannot see to bottom) | | |
| 8 Is there a sheen or oil slick visible on the surface of the water? | No | Yes | | | | |
| 9 If yes to #8, does the sheen break up when poked with a stick? | Yes (sheen is most likely natural) | | No (sheen could be artifical) | | | |
| 10 Is there foam present on the surface of the water? | No | Yes | | | | |
| 11 Is yes to #10, does the foam feel gritty or soapy? | Gritty (foam is most likely natural) | | Soapy (foam could be artifical) | | | |
| The following are optional measurements not currently funded by MiCorps | | | | | | |
| 8 Water Temperature | | | | | | |
| 9 Dissolved Oxygen | | | | | | |
| 10 pH | | | | | | |
| 11 Water Velocity | | | | | | |

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## II. Stream and Riparian Habitat (continued)

**B. Streambed Substrate**

Estimate percent of stream bed composed of the following substrate.

If group will take transects and pebble counts (in Section IV), check this box and record the measured percentages. ☐

| Substrate type | Size | Percentage |
|---|---|---|
| Boulder | >10" diameter | |
| Cobble | 2.5 - 10" diameter | |
| Gravel | 0.1 - 2.5" diameter | |
| Sand | coarse grain | |
| Fines: Silt/Detritus/Muck | fine grain/organic matter | |
| Hardpan/Bedrock | solid clay/rock surface | |
| Artificial | man-made | |
| Other (specify) | | |

**C. Bank stability and erosion.**

Summarize the extent of erosion along <u>each bank separately</u> on a scale of 1 through 10, by circling a value below.  Left/right banks are identified by looking downstream.

| Excellent | Good | Marginal | Poor |
|---|---|---|---|
| Banks Stable.  No evidence of erosion or bank failure. Little potential for problems during floods.  < 5% of bank affected. | Moderately stable.  Small areas of erosion.  Slight potential for problems in extreme floods.  5-30% of bank in reach has areas of erosion. | Moderately unstable. Erosional areas occur frequently and are somewhat large.  High erosion potential during floods.  30-60% of banks in reach are eroded. | Unstable. Many eroded areas.  > 60% banks eroded. Raw areas frequent along straight sections and bends. Bank sloughing obvious. |
| LEFT BANK  10  - 9 | LEFT BANK  8 - 7 - 6 | LEFT BANK    5 - 4 - 3 | LEFT BANK  2 - 1 - 0 |
| RIGHT BANK 10 - 9 | RIGHT BANK 8 - 7 - 6 | RIGHT BANK  5 - 4 - 3 | RIGHT BANK  2 - 1 - 0 |

*You may wish to take photos of unstable or eroded banks for your records. Record date and location.*

**Comments:**

## II. Stream and Riparian Habitat (continued)

### D. Plant Community

Estimate the percentage of the stream covered by overhanging vegetation _____ %

Using the given scale, estimate the relative abundance of the following:

| *Plants in the stream:* | | *Plants on the bank/riparian zone:* | |
|---|---|---|---|
| Algae on Surfaces of Rocks or Plants | Filamentous Algae (Streamers) | Shrubs | Trees |
| Macrophytes (Standing, Floating Plants) | **0= Absent 1= Rare 2= Common  3= Abundant 4= Dominant** | Grasses | **0= Absent 1= Rare 2= Common  3= Abundant 4= Dominant** |
| Identified species (optional) | | Identified species (optional) | |
| | | | |
| | | | |

### E. Riparian Zone

The riparian zone is the vegetated area that surrounds the stream. Right/Left banks are identified by looking downstream.

*1. Left Bank*

Circle those land-use types that you can see from this stream reach.

Wetlands        Forest          Residential Lawn    Park          Shrub, Old Field        Agriculture

Construction    Commercial      Industrial      Highways    Golf Course    Other_____

*2. Right Bank*

Circle those land-use types that you can see from this stream reach.

Wetlands        Forest          Residential Lawn    Park          Shrub, Old Field        Agriculture

Construction    Commercial      Industrial      Highways    Golf Course    Other_____

3. Summarize the size and quality of the riparian zone along each bank separately on a scale of 1 through 10, by circling a value below.

| Excellent | Good | Marginal | Poor |
|---|---|---|---|
| Width of riparian zone >150 feet, dominated by vegetation, including trees, understory shrubs, or non-woody macrophytes or wetlands; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally. | Width of riparian zone 75-150 feet; human activities have impacted zone only minimally. | Width of riparian zone 10-75 feet; human activities have impacted zone a great deal. | Width of riparian zone ,10 feet; little or no riparian vegetation due to human activities. |
| LEFT BANK   10 - 9 | LEFT BANK  8 - 7 - 6 | LEFT BANK   5 - 4 - 3 | LEFT BANK   2 - 1 - 0 |
| RIGHT BANK 10 - 9 | RIGHT BANK 8 - 7 - 6 | RIGHT BANK 5 - 4 - 3 | RIGHT BANK 2 - 1 - 0 |

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## III. Sources of Degradation

1. In what ways is this stream degraded, if any?

2. Does a team need to come out and collect trash?

3. Based on what you can see from this location, what are the potential causes and level of severity of this degradation? Only judge what you can see from the site.

| (Severity:  S – slight; M – moderate; H – high) (Indicate all that apply) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Crop Related Sources | S | M | H | Land Disposal | S | M | H |
| Grazing Related Sources | S | M | H | On-site Wastewater Systems | S | M | H |
| Intensive Animal Feeding Operations | S | M | H | Silviculture (Forestry) | S | M | H |
| Highway/Road/Bridge Maintenance and Runoff | S | M | H | Resource Extraction (Mining) | S | M | H |
| Channelization | S | M | H | Recreational/Tourism Activities (general) | S | M | H |
| Dredging | S | M | H | • Golf Courses | S | M | H |
| Removal of Riparian Vegetation | S | M | H | • Marinas/Recreational Boating (water releases) | S | M | H |
| Bank and Shoreline Erosion/ Modification/Destruction | S | M | H | • Marinas/Recreational Boating (bank or shoreline erosion) | S | M | H |
| Flow Regulation/ Modification (Hydrology) | S | M | H | Debris in Water | S | M | H |
| Invasive Species | S | M | H | Industrial Point Source | S | M | H |
| Construction:  Highway, Road, Bridge, Culvert | S | M | H | Municipal Point Source | S | M | H |
| Construction: Land Development | S | M | H | Natural Sources | S | M | H |
| Urban Runoff | S | M | H | Source(s) Unknown | S | M | H |

Additional comments:

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## IV. Optional quantitative measurements

### A. Transects and Pebble Counts

To take quantitative stream habitat measurements, conduct 5-10 transects of your stream reach. Required equipment: tape measure long enough to stretch across the stream, and graduated rod or stick to measure water depth. Data sheet is on the next page.

Directions:
1) Determine stream width.
2) Use the rod to measure depth (D) and substrate (S) at more than 10 but less than 20 regular intervals along the entire transect.  (For streams less than 10 feet wide, measure every ½ foot, for streams about 10 feet wide, measure every foot, etc.)
3)  At every depth measurement, identify the single piece of substrate that the rod lands on (can be arbitrary).
4). For every measurement, enter the reading on the tape measure, the depth, and the substrate on the data sheet on the next page.

Data use:  The depth and tape measure reading can be used to produce stream cross-section profiles.  The pebble count can be used to give a more accurate percentage breakdown of the stream substrate than simply making an eyeball estimate (see Section II-B).

### B. Bank Height

Vertical banks higher than 3 feet are usually unstable, while banks less than 1 foot, especially with overhang, provide good habitat for fish.  While doing the transects, measure the bank heights and record the angle of the bank (right, acute, or obtuse) as indicated on the data sheet.  Left/right banks are identified by looking downstream.

Data use:  Calculate the percentage of banks with right, obtuse, and acute angles.  Right angles indicate higher erosive potential, while acute angles improve the habitat structure of a stream.


## V.  Final Check

This data sheet was checked for completeness by: _____

Name of person who entered data into data exchange: _____

Date of data entry:_____


## VI. Credits

This habitat assessment was created for the MiCorps Volunteer Stream Monitoring Program from a combination of habitat assessments from the Huron River Watershed Council, the Friends of the Rouge River, and the Michigan Department of Environmental Quality.  Version 1.0, June 2009.

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## STREAM TRANSECT DATASHEET

B:  Boulder -- more than 10"  
C:  Cobble -- 2.5 - 10"  
G:  Gravel – 0.1 – 2.5"  
S:  Sand -- fine particles, gritty  

F:  Fines: Silt/Detritus/Muck  
H:  Hardpan/Bedrock  
A:  Artificial  
O:  Other (specify)  

T= Reading on tape  
D = Depth  
S = Substrate  

| | EXAMPLE | | | Transect # | | | Transect # | | | Transect# | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Stream Width** | 13.3 feet | | | | | | | | | | | |
| | **T** | **D** | **S** | **T** | **D** | **S** | **T** | **D** | **S** | **T** | **D** | **S** |
| Beginning Water's Edge: | 1.5 | | | | | | | | | | | |
| 1 | 2.5 | 0.4 | G | | | | | | | | | |
| 2 | 3.5 | 0.4 | G | | | | | | | | | |
| 3 | 4.5 | 0.4 | G | | | | | | | | | |
| 4 | 5.5 | 0.2 | C | | | | | | | | | |
| 5 | 6.5 | 0 | S | | | | | | | | | |
| 6 | 7.5 | 0.6 | S | | | | | | | | | |
| 7 | 8.5 | 0.7 | G | | | | | | | | | |
| 8 | 9.5 | 0.7 | G | | | | | | | | | |
| 9 | 10.5 | 0.6 | C | | | | | | | | | |
| 10 | 11.5 | 0.7 | B | | | | | | | | | |
| 11 | 12.5 | 0.4 | G | | | | | | | | | |
| 12 | 13.5 | 0.3 | F | | | | | | | | | |
| 13 | 14.5 | 0.2 | F | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |
| Ending Water's Edge | 14.8 | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Bank Side | **L** | **R** | | **L** | **R** | | **L** | **R** | | **L** | **R** | |
| Bank Height | 1.7 feet | 0.5 feet | | | | | | | | | | |
| Does the bank have an undercut? | N | Y | | | | | | | | | | |
| If so, how wide is it? | | 1 ft | | | | | | | | | | |
| Bank Angles: Sketch | ∟ | ◿ | | | | | | | | | | |

Sketch examples:



Undercut (Acute)     Obtuse     Right