Stream Habitat Assessment
Field Data Sheet

Painting a picture

Field Data Sheet

- Purpose: To assess the physical habitat (ie: describe the stream bottom, sides, and surrounding area)
- Physical characteristics have a direct impact on the macroinvertabrates and fish.

Choosing a Field Data Sheet

- In most cases, the **“Rocky Bottom Sampling”** sheet will be used. Rocky bottom habitats will typically be flowing habitats
- The Muddy Bottom sheets would be used for non-flowing environments (ponds and lakes).

Parameters

1. Attachment Sites for Macro-invertebrates
2. Embeddedness
3. Shelter for Fish and Macro-invertebrates
4. Channel Alteration
5. Sediment Deposition
6. Stream Velocity and Depth combinations
7. Channel Flow status
8. Bank Vegetative Protection
9. Condition of Banks
10. Riparian Vegetative Zone Width

Physical Description

- Each parameter will be scored as optimal, suboptimal, marginal, or poor.
- Within each category is a number range.
  - Optimal: 16-20
  - Suboptimal: 11-15
  - Marginal: 6-10
  - Poor: 0-5

Attachment Sites for Macros

- Attachment sites based on the amount of coble verses the amount of gravel, sand, and boulders.
  - More cobble = more attachment sites.
  - Cobble is typically rock 4” diameter to 12” diameter.
- Wider, longer riffle/run sections are favored.

Attachment Sites and Embeddedness

Optimal Range *(William Taft, MI DNR)*

Poor Range *(William Taft, MI DNR)*

Embeddedness

- Embeddedness is based on how “entrenched” the cobble or other substrate material is.
- Embedded cobble will be hard to “dig up” whereas poorly embedded cobble can be picked up with little effort.
- Observations of embeddedness should be taken in the **upstream** and **central portions** of riffles and cobble substrate areas.

Shelter for fish and macros

- Look for things that fish and macros might live in or around such as snags, logs, undercut banks etc.
- If these things are found in >50% of the site, that is optimal. If these things are absent from the site or <10% of the site, that is poor.

Channel Alteration

- If the channel has been altered by direct human activity it will score low (poor).
- Direct human activity includes: straightening, dredging, artificial embankments, gabions, dams, culverts, etc.
- Stream restoration projects are a type of alteration, in many cases this is “good” alteration.

6b. Channel Alteration—Low Gradient

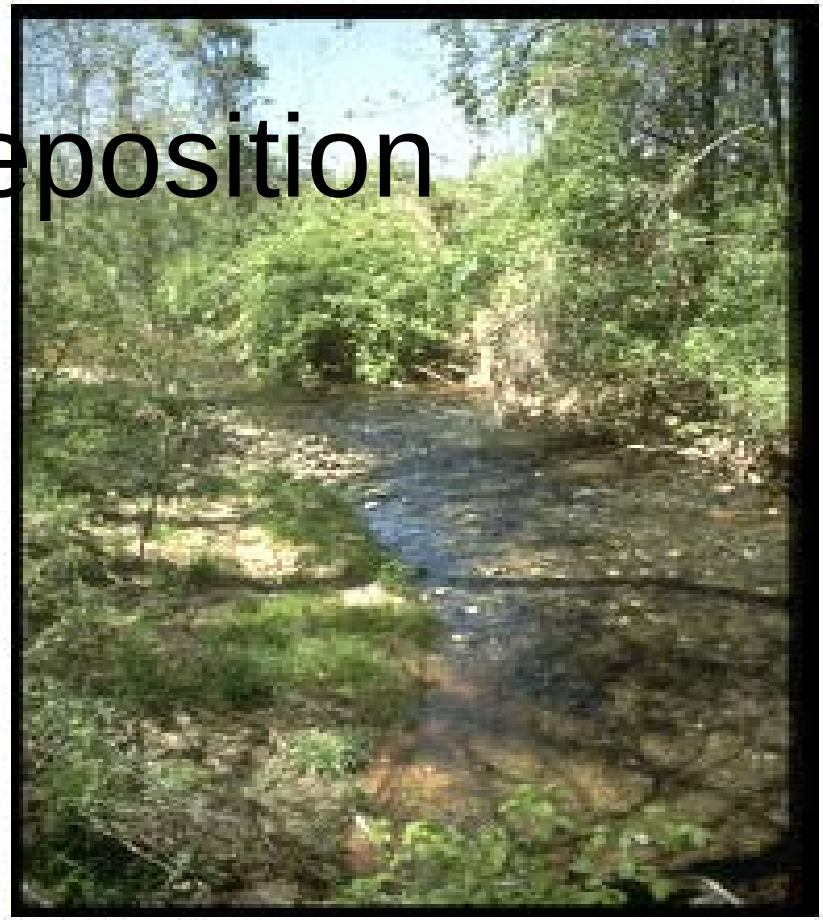
Optimal Range

Poor Range *(John Maxted, DE DNREC)*

Sediment Deposition

- Sediment Deposition is evident where stream flow decreases (bends) or by obstructions (dams, bridges, snags).
  - Point bar formation is a result of sediment deposition.
- Little or no deposition is optimal.
- Sediment Deposition is not embeddedness!

Sediment Deposition



Optimal Range

Poor Range
(arrows pointing to sediment deposition)

Stream Velocity and Depth Combinations

- Four possible flow patters:
  - (Slow deep, Slow shallow, Fast deep, Fast shallow)
  - Presence of all four patterns indicates the stream can maintain a stable environment.

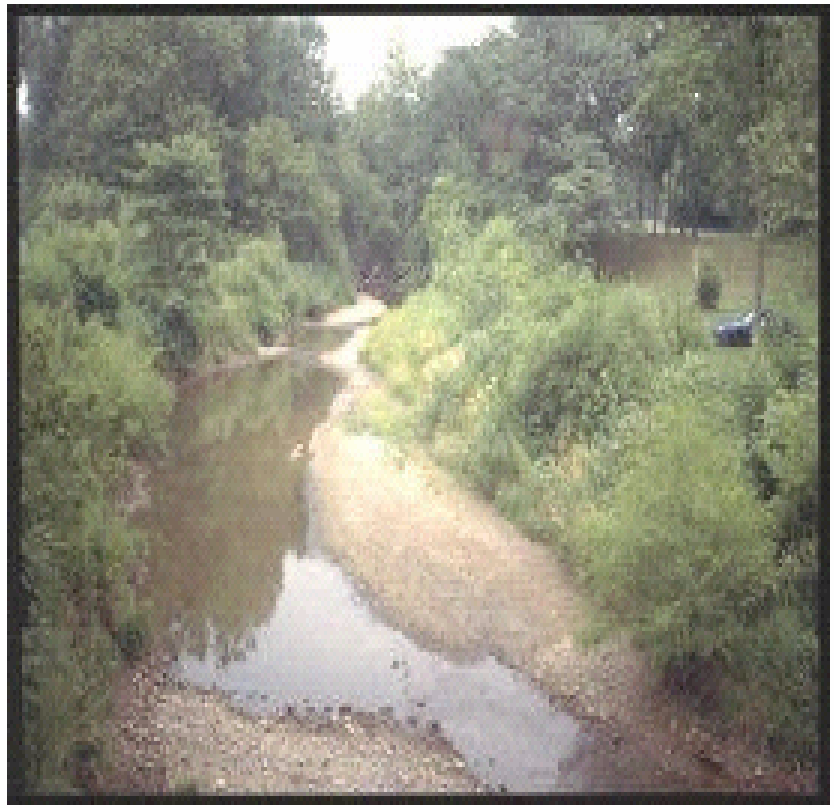
Optimal Range
(arrow pointing out an undisturbed riparian zone)

Channel Flow Status

- The amount of water in the channel.
  - A stream channel that is mostly dry except for a few stagnant pools scores poor.
  - A channel the is flowing steadily with most of the substrate covered by water scores optimal.

5b. Channel Flow Status—Low Gradient

Optimal Range



Poor Range

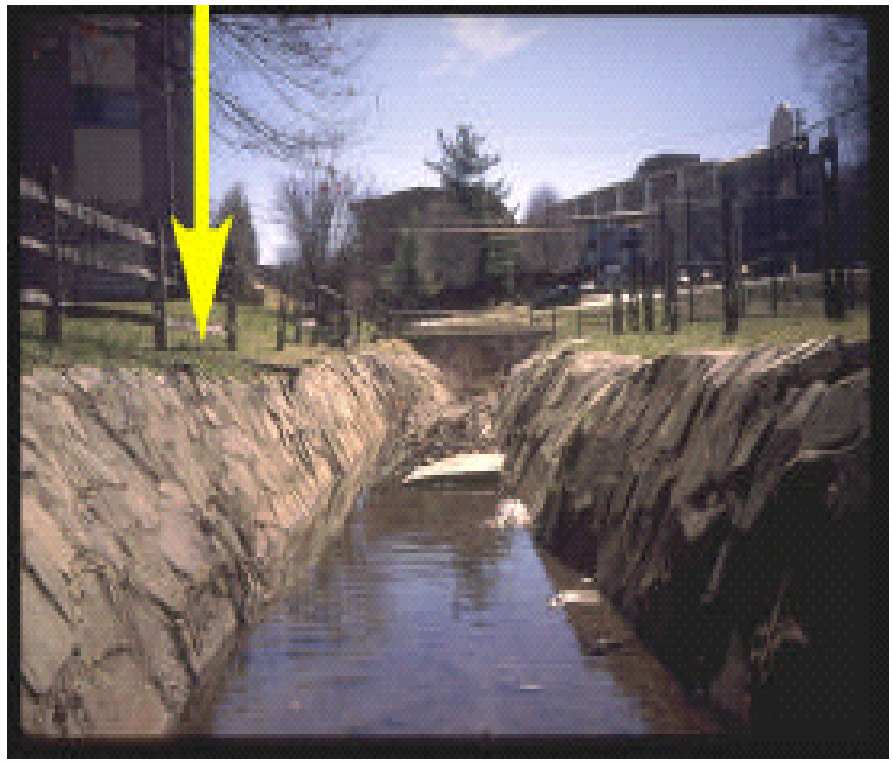
(James Stahl, IN DEM)

Bank Vegetative Protection

- Note: Look at each bank *individually!*
- The banks should be covered by trees, shrubs, and other plants.
- Mowing and grazing animals results in poor vegetative protection.

9b. Bank Vegetative Protection—Low Gradient

Optimal Range *(Peggy Morgan, FL DEP)*



Poor Range *(MD Save Our Streams)*

(arrow pointing to channelized streambank with no vegetative cover)

Condition of Banks

- Stable, non-eroding (typically not vertical) banks are optimal.
- Banks that are or have the potential to erode, are considered poor.

8b. Bank Stability (condition of banks)—Low Gradient

Optimal Range *(Peggy Morgan, FL DEP)*

Poor Range
(arrow highlighting unstable streambanks)

Riparian Zone Width

- Wider is better!
- Look at the width of the riparian zone.
- Look for evidence (or lack thereof) of human activity.
- Human activity may include: parking lots, road beds, clear cuts, mowed areas, and crops within the riparian zone.

Riparian Zone Width

Poor Range (MD Save Our St
(arrow emphasizing lack of riparian zor

Optimal Range
(arrow emphasizing an undisturbed riparian zone)

Synopsis

- For the physical assessment of your site…
  - Fill out the **Rocky Bottom** assessment sheet.
  - Assess stream physical characteristics twice each year.
  - Assessment is subjective.


Assess this stream

Assess this stream