

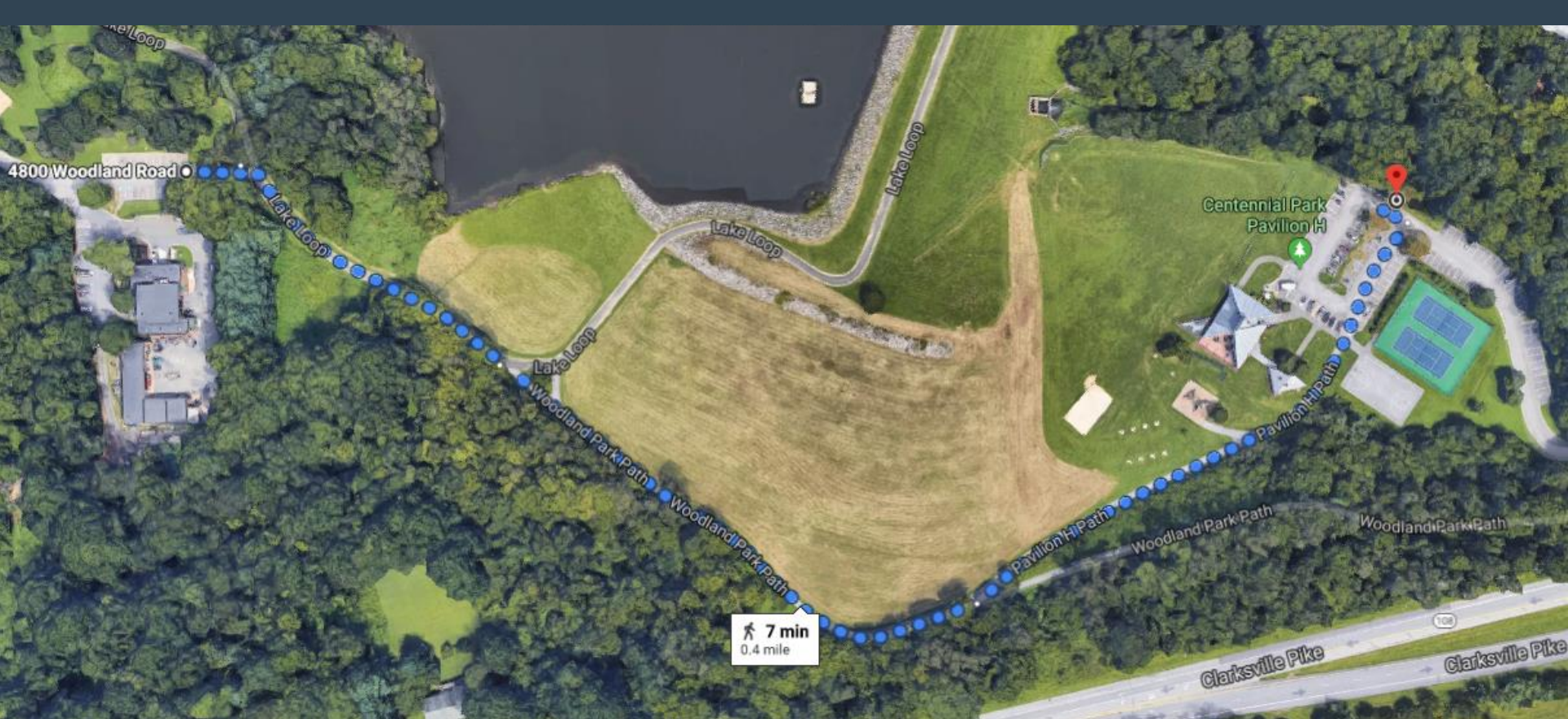
# 2019 MBSS Habitat Assessment Certification Training



Howard Community College  
May 28, 2019

## What's required for Certification?

1. Attend THIS protocol presentation
  2. Attend field demo/training of habitat assessment protocols
    - 10:15 this morning
  3. Take and PASS the written test – 11:30 this morning
  4. On you own: visit the habitat assessment audit site and score habitat anytime between this afternoon and Thursday evening.
    - Turn your assessment in to Jono, Jay, or Jason to be graded in front of you by 8am Friday morning. Early submissions appreciated
    - “Correct” answers determined by consensus within MBSS group
- **No one will fail the audit component in 2019!**
    - But you must pass the written test (90%) and complete the field audit



**Email with link to directions  
will be sent to the entire  
MBSS training group later  
this morning**



Midpoint of audit site from left bank – Howard Co. park land

\*Private property on RB beyond sewer line ROW

– Please do not venture beyond sewer line ROW on RB

## MBSS Summer Habitat

MBSS SPRING HABITAT DATA SHEET Page  of

**SITE** Watershed Code  Segment  Type  Year  Reviewer: First  Second

**DATE** Year  Month  Day

Dist. from Nearest Road to Site (m)  
 Trash Rating 0 - 20

**LANDUSE (Y/N)**

<input type="checkbox"/> Old Field	<input type="checkbox"/> Residential
<input type="checkbox"/> Deciduous Forest	<input type="checkbox"/> Commercial/Industrial
<input type="checkbox"/> Coniferous Forest	<input type="checkbox"/> Cropland
<input type="checkbox"/> Wetland	<input type="checkbox"/> Pasture
<input type="checkbox"/> Surface Mine	<input type="checkbox"/> Orchard/Vineyard/Nursery
<input type="checkbox"/> Landfill	<input type="checkbox"/> Golf Course

**ROAD CULVERT** Present in Segment? (Y/N)   
Sampleable? (Y/N)   
Width of Culvert (m)   
Length of Culvert (m)

**STREAM GRADIENT** Location (m)  Height (m)   
1    
2    
3

**CHANELIZATION** Evidence of Channel Straightening or Dredging (Y/N)

TYPE	LEFT BANK	BOTTOM	RIGHT BANK
Concrete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gabion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rip-Rap	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Earthen Berm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dredge Spoil Off Channel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pipe Culvert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Actual Site Midpoint Coordinates (Taken at Time of Sampling)**

Stream Blockages

Stream Block Ht. (m)   
Stream Block Type   
Lat  Long

MBSS SUMMER HABITAT DATA SHEET Page  of

**SITE** Watershed Code  Segment  Type  Year  Reviewer: First  Second

**BANK EROSION** Left Bank  Right Bank   
Extent (m)   
Severity: 0 = none, 1 = min, 2 = mod, 3 = severe  
Average Height (m)

**HABITAT ASSESSMENT**

1. Instream Habitat (0-20)	<input type="text"/>
2. Epifaunal Substrate (0-20)	<input type="text"/>
3. Velocity/Depth Diversity (0-20)	<input type="text"/>
4. Pool/Glide/Eddy Quality (0-20)	<input type="text"/>
5. Riffle/Run Quality (0-20)	<input type="text"/>
6. Embeddedness (%)	<input type="text"/>
7. Shading (%)	<input type="text"/>

**BAR FORMATION & SUBSTRATE**

Severity: 0 = none, 1 = min, 2 = mod, 3 = severe	<input type="checkbox"/> Cobble
	<input type="checkbox"/> Gravel
	<input type="checkbox"/> Sand
	<input type="checkbox"/> Silt/Clay

**STREAM CHARACTER**

<input type="checkbox"/> Braided	<input type="checkbox"/> Gravel	<input type="checkbox"/> Boulder >2m
<input type="checkbox"/> Riffle	<input type="checkbox"/> Sand	<input type="checkbox"/> Boulder <2m
<input type="checkbox"/> Run/Glide	<input type="checkbox"/> Silt/Clay	<input type="checkbox"/> Beaver Pond
<input type="checkbox"/> Deep Pool (>= 0.5m)	<input type="checkbox"/> Cobble	<input type="checkbox"/> Overhead Cover
<input type="checkbox"/> Shallow Pool (< 0.5m)	<input type="checkbox"/> Bedrock	<input type="checkbox"/> Undercut Bank
		<input type="checkbox"/> Orange Floc

A = Absent P = Present E = Extensive

**Woody Debris**

<input type="checkbox"/>	No. of Instream Woody Debris
<input type="checkbox"/>	No. of Dewatered Woody Debris
<input type="checkbox"/>	No. of Instream Rootwads
<input type="checkbox"/>	No. of Dewatered Rootwads

**Maximum Depth (cm)** Wetted  Thaling   
Depth (cm)   
Width (cm)   
Time (sec)

**Alternative Flow Measurements**

Distance (cm)	<input type="text"/>
Depth (cm)	<input type="text"/>
Width (cm)	<input type="text"/>
Time (sec)	<input type="text"/>

**COMMENTS:**

### MBSS Habitat Certification Data Sheet

APPLICANT: \_\_\_\_\_ ORGANIZATION: \_\_\_\_\_ DATE: \_\_\_\_\_

BANK EROSION	HABITAT ASSESSMENT	RIPARIAN VEGETATION (facing upstream)																												
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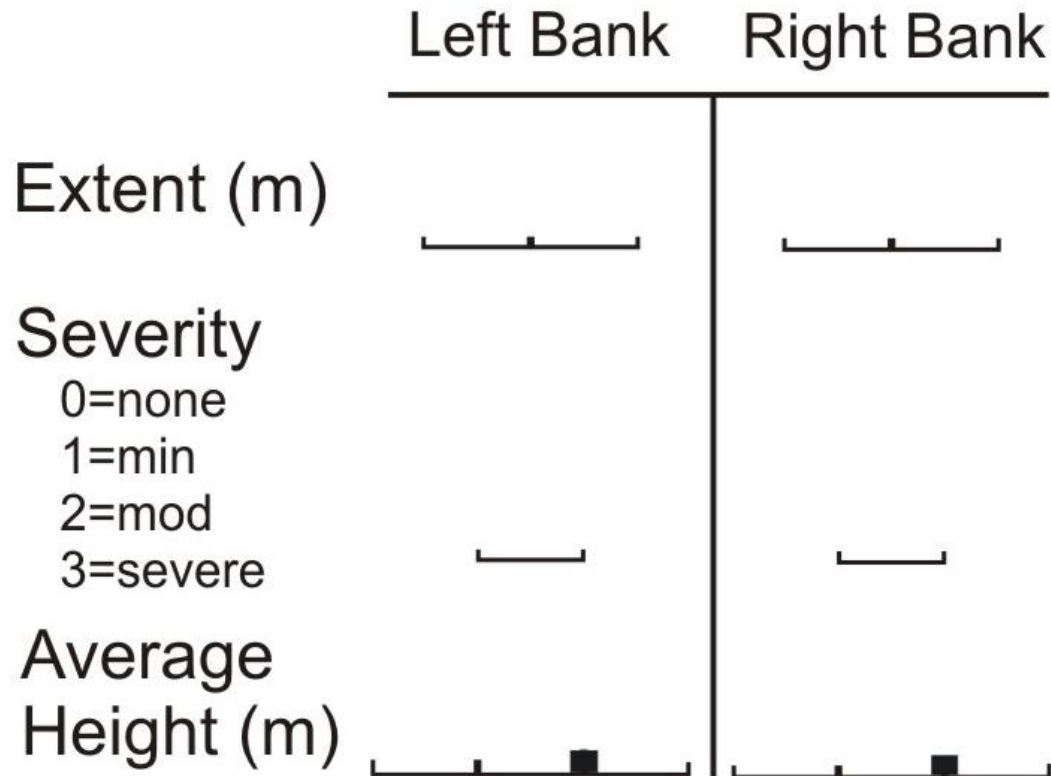
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## MBSS Habitat Certification

- **Bank Erosion**
- Bar Formation
- Habitat Assessment
- Stream Character
- Woody Debris
- Riparian Vegetation
- Channelization

# MBSS Summer Habitat

## BANK EROSION



# MBSS Summer Habitat



No bank erosion

Extent = 0

Severity = 0 (none)

Average Height = 0



# MBSS Summer Habitat



Minimum bank erosion

Extent = 10 m

Severity = 1

Average Height = 0.2 m

# MBSS Summer Habitat



Moderate bank erosion

Extent = 40 m

Severity = 2

Average Height = 0.6 m

# MBSS Summer Habitat



Severe bank erosion

Extent = 75 m

Severity = 3

Average Height = 2 m

# MBSS Summer Habitat

## MBSS Habitat Certification Data Sheet

APPLICANT: \_\_\_\_\_ ORGANIZATION: \_\_\_\_\_ DATE: \_\_\_\_\_


<p><b>BANK EROSION</b></p> <p>Left Bank    Right Bank</p> <p>Extent (m) <input type="checkbox"/><input type="checkbox"/> <input type="checkbox"/><input type="checkbox"/></p> <p>Severity 0 = none 1 = min 2 = mod 3 = severe</p> <p>Average Height (m) <input type="checkbox"/><input type="checkbox"/> <input type="checkbox"/><input type="checkbox"/></p> <p><b>BAR FORMATION &amp; SUBSTRATE</b></p> <p>Severity 0 = none 1 = min 2 = mod 3 = severe</p> <p><input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input type="checkbox"/> Sand <input type="checkbox"/> Silt/Clay</p>	<p><b>HABITAT ASSESSMENT</b></p> <p>1. Instream Habitat (0-20)..... <input type="checkbox"/><input type="checkbox"/></p> <p>2. Epifaunal Substrate (0-20)..... <input type="checkbox"/><input type="checkbox"/></p> <p>3. Velocity/Depth Diversity (0-20)..... <input type="checkbox"/><input type="checkbox"/></p> <p>4. Pool/Glide/Eddy Quality (0-20)..... <input type="checkbox"/><input type="checkbox"/></p> <p>Extent (m)..... <input type="checkbox"/><input type="checkbox"/></p> <p>5. Riffle/Run Quality (0-20)..... <input type="checkbox"/><input type="checkbox"/></p> <p>Extent (m)..... <input type="checkbox"/><input type="checkbox"/></p> <p>6. Embeddedness (%)..... <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/></p> <p>7. Shading (%)..... <input type="checkbox"/><input type="checkbox"/></p>	<p><b>RIPARIAN VEGETATION</b> (facing upstream)</p> <p>LEFT BANK    RIGHT BANK</p> <p>Width (50m max) <input type="checkbox"/><input type="checkbox"/> <input type="checkbox"/><input type="checkbox"/></p> <p>Adjacent Land Cover <input type="checkbox"/><input type="checkbox"/> <input type="checkbox"/><input type="checkbox"/></p> <p>Vegetation Type <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/></p> <p>Buffer Breaks (Y/N) <input type="checkbox"/> <input type="checkbox"/></p> <p>LEFT BANK    RIGHT BANK</p> <p>Storm Drain <input type="checkbox"/> <input type="checkbox"/></p> <p>Tile Drain <input type="checkbox"/> <input type="checkbox"/></p> <p>Impervious Drainage <input type="checkbox"/> <input type="checkbox"/></p> <p>Gully <input type="checkbox"/> <input type="checkbox"/></p> <p>Orchard <input type="checkbox"/> <input type="checkbox"/></p> <p>Crop <input type="checkbox"/> <input type="checkbox"/></p> <p>Pasture <input type="checkbox"/> <input type="checkbox"/></p> <p>New Construction <input type="checkbox"/> <input type="checkbox"/></p> <p>Dirt Road <input type="checkbox"/> <input type="checkbox"/></p> <p>Gravel Road <input type="checkbox"/> <input type="checkbox"/></p> <p>Raw Sewage <input type="checkbox"/> <input type="checkbox"/></p> <p>Railroad <input type="checkbox"/> <input type="checkbox"/></p> <p>Buffer Break Types (M = minor; S = severe)</p>																															
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## MBSS Summer Habitat Data Sheet

- Bank Erosion
- **Bar Formation**
- Habitat Assessment
- Stream Character
- Woody Debris
- Riparian Vegetation
- Channelization

# MBSS Summer Habitat

## BAR FORMATION & SUBSTRATE

<b>Severity</b> 0=none 1=min 2=mod 3=extensive		<input type="checkbox"/>	Cobble
		<input type="checkbox"/>	Gravel
		<input type="checkbox"/>	Sand
		<input type="checkbox"/>	Silt/Clay

Characterize most dominant substrate type

# MBSS Summer Habitat



Bar Formation = None

# MBSS Summer Habitat



Bar Formation = Minor  
(Sand, Gravel)

# MBSS Summer Habitat



Bar Formation = Moderate  
(Sand, Silt/Clay)



# MBSS Summer Habitat



Bar Formation = Extensive  
(Cobble, Gravel, Sand, Silt/Clay)

# MBSS Summer Habitat

## MBSS Habitat Certification Data Sheet

APPLICANT: \_\_\_\_\_ ORGANIZATION: \_\_\_\_\_ DATE: \_\_\_\_\_

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## MBSS Summer Habitat Data Sheet

- Bank Erosion
- Bar Formation
- **Habitat Assessment**
- Stream Character
- Woody Debris
- Riparian Vegetation
- Channelization

# MBSS Summer Habitat

HABITAT ASSESSMENT	
1. Instream Habitat (0-20).....	<input type="text"/> <input type="text"/>
2. Epifaunal Substrate (0-20).....	<input type="text"/> <input type="text"/>
3. Velocity/Depth Diversity (0-20).....	<input type="text"/> <input type="text"/>
4. Pool/Glide/Eddy Quality (0-20).....	<input type="text"/> <input type="text"/>
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Extent (m).....	<input type="text"/> <input type="text"/>
6. Embeddedness (%).....	<input type="text"/> <input type="text"/> <input type="text"/>
7. Shading (%).....	<input type="text"/> <input type="text"/> <input type="text"/>

# MBSS Summer Habitat

MBSS Stream Habitat Assessment Guidance Sheet				
Habitat Parameter	Optimal 16-20	Sub-Optimal 11-15	Marginal 6-10	Poor 0-5
1. Instream Habitat <sup>(a)</sup>	Greater than 50% of a variety of cobble, boulder, submerged logs, undercut banks, snags, rootwads, aquatic plants, or other stable habitat	30-50% of stable habitat. Adequate habitat	10-30% mix of stable habitat. Habitat availability less than desirable	Less than 10% stable habitat. Lack of habitat is obvious
2. Epifaunal Substrate <sup>(b)</sup>	Preferred substrate abundant, stable, and at full colonization potential (riffles well developed and dominated by cobble; and/or woody debris prevalent, not new, and not transient)	Abund. of cobble with gravel &/or boulders common; or woody debris, aquatic veg., undercut banks, or other productive surfaces common but not prevalent /suited for full colonization	Large boulders and/or bedrock prevalent; cobble, woody debris, or other preferred surfaces uncommon	Stable substrate lacking; or particles are over 75% surrounded by fine sediment or flocculent material
3. Velocity/Depth Diversity <sup>(c)</sup>	Slow (<0.3 m/s), deep (>0.5 m); slow, shallow (<0.5 m); fast (>0.3 m/s), deep; fast, shallow habitats all present	Only 3 of the 4 habitat categories present	Only 2 of the 4 habitat categories present	Dominated by 1 velocity/depth category (usually pools)
4. Pool/Glide/Eddy Quality <sup>(d)</sup>	Complex cover/&/or depth > 1.5 m; both deep (> .5 m)/shallows (< .2 m) present	Deep (>0.5 m) areas present; but only moderate cover	Shallows (<0.2 m) prevalent in pool/glide/eddy habitat; little cover	Max depth <0.2 m in pool/glide/eddy habitat; or absent completely
5. Riffle/Run Quality <sup>(e)</sup>	Riffle/run depth generally >10 cm, with maximum depth greater than 50 cm (maximum score); substrate stable (e.g. cobble, boulder) & variety of current velocities	Riffle/run depth generally 5-10 cm, variety of current velocities	Riffle/run depth generally 1-5 cm; primarily a single current velocity	Riffle/run depth < 1 cm; or riffle/run substrates concreted
6. Embeddedness <sup>(f)</sup>	Percentage that gravel, cobble, and boulder particles are surrounded by line sediment or flocculent material.			
7. Shading <sup>(g)</sup>	Percentage of segment that is shaded (duration is considered in scoring). 0% = fully exposed to sunlight all day in summer; 100% = fully and densely shaded all day in summer			

\* Use to answer certification test questions

# MBSS Summer Habitat

## Instream Habitat - Habitat quality as it relates to fishes

Habitat Parameter	Optimal 16-20	Sub-Optimal 11-15	Marginal 6-10	Poor 0-5
<b>1. Instream Habitat<sup>(a)</sup></b>	<b>Greater than 50% of a variety of cobble, boulder, submerged logs, undercut banks, snags, rootwads, aquatic plants, or other stable habitat</b>	<b>30-50% of stable habitat. Adequate habitat</b>	<b>10-30% mix of stable habitat. Habitat availability less than desirable</b>	<b>Less than 10% stable habitat. Lack of habitat is obvious</b>

# MBSS Summer Habitat

## Instream Habitat



**Optimal**  
16-20

**Greater than 50% of a variety of cobble, boulder, submerged logs, undercut banks, snags, rootwads, aquatic plants, or other stable habitat**

Score = 20

**Sub-Optimal**  
11-15

**30-50% of stable habitat. Adequate habitat**

Score = 14

# MBSS Summer Habitat

## Instream Habitat



<b>Marginal</b> <b>6-10</b>
<b>10-30% mix of stable habitat. Habitat availability less than desirable</b>

Score = 8

<b>Poor</b> <b>0-5</b>
<b>Less than 10% stable habitat. Lack of habitat is obvious</b>

Score = 4

# MBSS Summer Habitat

## Epifaunal Substrate - Habitat quality as it relates to benthic macroinvertebrates

**MBSS Stream Habitat Assessment Guidance Sheet**

Habitat Parameter	Optimal 16-20	Sub-Optimal 11-15	Marginal 6-10	Poor 0-5
<b>2. Epifaunal Substrate<sup>(b)</sup></b>	<b>Preferred substrate abundant, stable, and at full colonization potential (riffles well developed and dominated by cobble; and/or woody debris prevalent, not new, and not transient)</b>	<b>Abund. of cobble with gravel &amp;/or boulders common; or woody de-bris, aquatic veg., undercut banks, or other pro-ductive surfaces common but not prevalent /suited for full colonization</b>	<b>Large boulders and/or bedrock prevalent; cobble, woody debris, or other preferred surfaces uncommon</b>	<b>Stable substrate lacking; or particles are over 75% surrounded by fine sediment or flocculent material</b>



## Epifaunal Substrate



**Preferred substrate abundant, stable, and at full colonization potential (riffles well developed and dominated by cobble; and/or woody debris prevalent, not new, and not transient)**

**Optimal  
Score = 19**



**Abund. of cobble with gravel &/or boulders common; or woody de-bris, aquatic veg., undercut banks, or other pro-ductive surfaces common but not prevalent /suited for full colonization**

**Sub-optimal  
Score = 14**

## Epifaunal Substrate



**Large boulders and/or bedrock prevalent; cobble, woody debris, or other preferred surfaces uncommon**

**Marginal  
Score = 8**



**Stable substrate lacking; or particles are over 75% surrounded by fine sediment or flocculent material**

**Poor  
Score = 2**

# MBSS Summer Habitat

**Velocity/Depth Diversity** – Based on the variety of velocity/depth regimes present at a site

## MBSS Stream Habitat Assessment Guidance Sheet

Habitat Parameter	Optimal 16-20	Sub-Optimal 11-15	Marginal 6-10	Poor 0-5
3. <b>Velocity/Depth Diversity<sup>(c)</sup></b>	Slow (<0.3 m/s), deep (>0.5 m); slow, shallow (<0.5 m); fast (>0.3 m/s), deep; fast, shallow habitats all present	Only 3 of the 4 habitat categories present	Only 2 of the 4 habitat categories present	Dominated by 1 velocity/depth category (usually pools)

# MBSS Summer Habitat

**Pool/Glide/Eddy Quality** – Based on the depth and spatial complexity of slow water habitat present at site

## MBSS Stream Habitat Assessment Guidance Sheet

Habitat Parameter	Optimal 16-20	Sub-Optimal 11-15	Marginal 6-10	Poor 0-5
4. Pool/Glide/Eddy Quality <sup>(d)</sup>	Complex cover/&/or depth > 1.5 m; both deep (> .5 m)/shallows (< .2 m) present	Deep (>0.5 m) areas present; but only moderate cover	Shallows (<0.2 m) prevalent in pool/glide/eddy habitat; little cover	Max depth <0.2 m in pool/glide/eddy habitat; or absent completely

# MBSS Summer Habitat

**Riffle/Run Quality** – Based on the depth, complexity, and functional importance of riffle/run habitat present at site

## MBSS Stream Habitat Assessment Guidance Sheet

Habitat Parameter	Optimal 16-20	Sub-Optimal 11-15	Marginal 6-10	Poor 0-5
5. Riffle/Run Quality <sup>(a)</sup>	Riffle/run depth generally >10 cm, with maximum depth greater than 50 cm (maximum score); substrate stable (e.g. cobble, boulder) & variety of current velocities	Riffle/run depth generally 5-10 cm, variety of current velocities	Riffle/run depth generally 1-5 cm; primarily a single current velocity	Riffle/run depth < 1 cm; or riffle/run substrates concreted

**Embeddedness** – Measured at fastest flowing section in the 75 m site

6. Embeddedness <sup>(n)</sup>	Percentage that gravel, cobble, and boulder particles are surrounded by fine sediment or flocculent material.
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- \* Measure embeddedness in fastest flowing areas in the site
  - if no riffle within 75m site, riffle near the site can be used

# MBSS Summer Habitat



0%

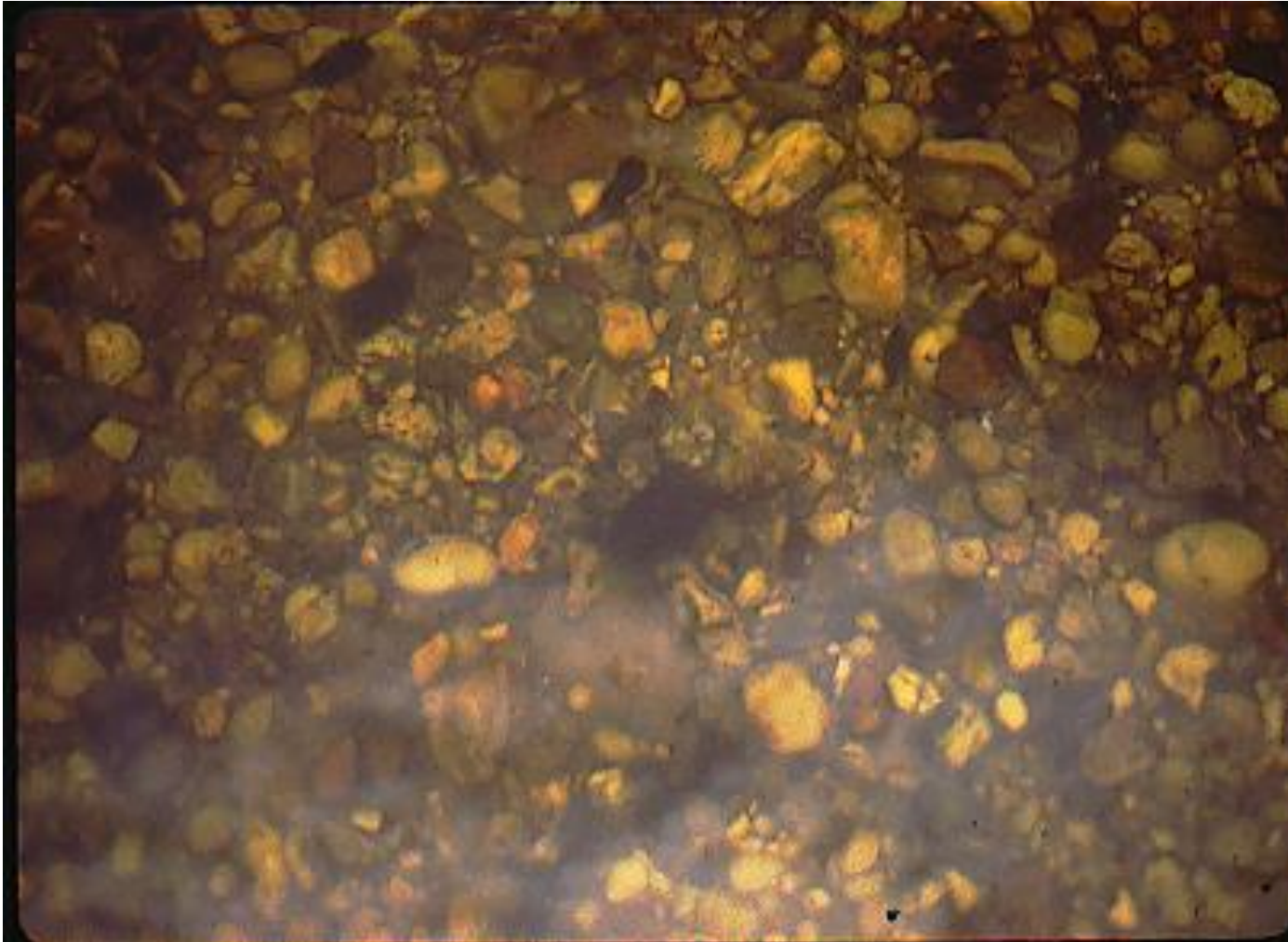
# MBSS Summer Habitat



20%

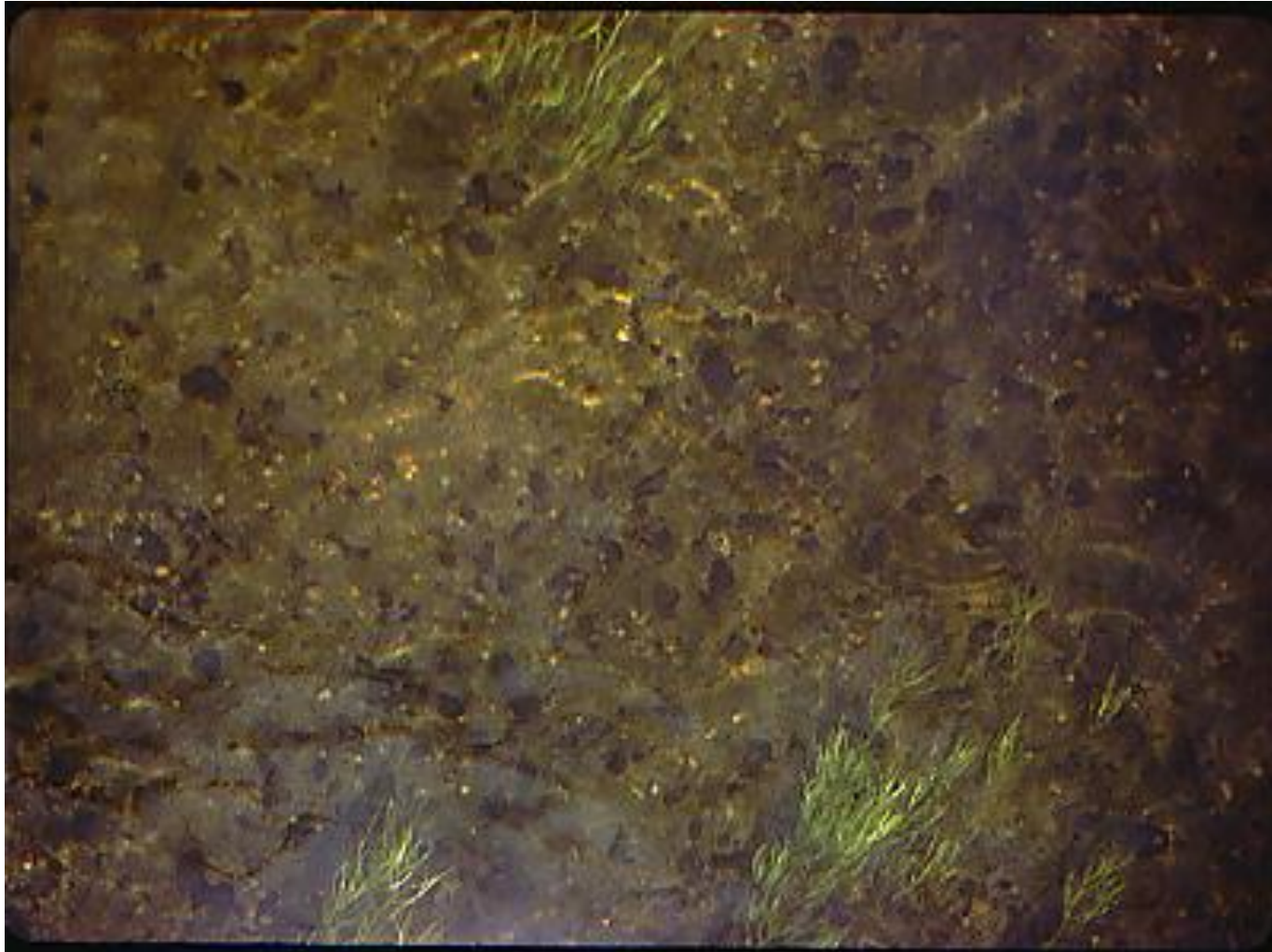


# MBSS Summer Habitat



50%

# MBSS Summer Habitat



85%

# MBSS Summer Habitat



100%

## MBSS Summer Habitat

**Percent Shading** – Rated based on degree and duration of shading at a site throughout the day

7. Shading<sup>(g)</sup>

Percentage of segment that is shaded (duration is considered in scoring). 0% = fully exposed to sunlight all day in summer; 100% = fully and densely shaded all day in summer

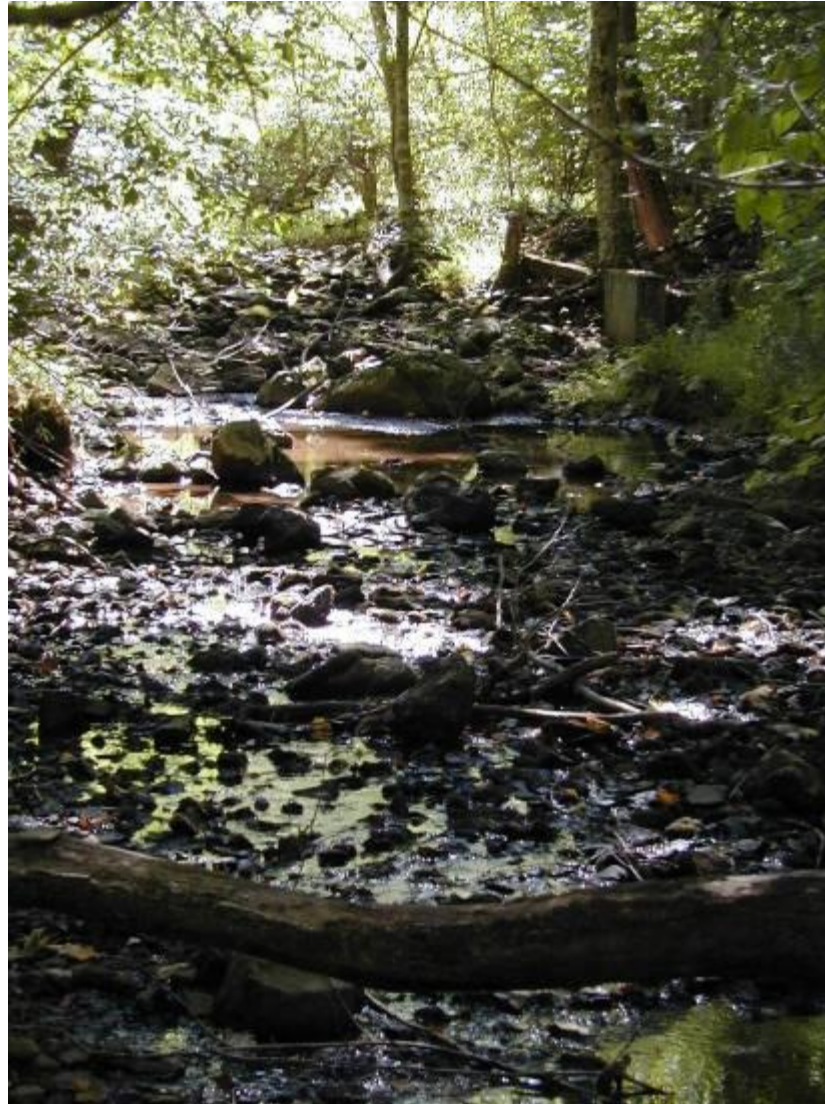
# MBSS Summer Habitat



05/09/2018

100%

# MBSS Summer Habitat



75%

# MBSS Summer Habitat



0%

# MBSS Summer Habitat

## MBSS Habitat Certification Data Sheet

APPLICANT: \_\_\_\_\_ ORGANIZATION: \_\_\_\_\_ DATE: \_\_\_\_\_

<p><b>BANK EROSION</b></p> <p>Left Bank    Right Bank</p> <p>Extent (m) <input type="checkbox"/><input type="checkbox"/> <input type="checkbox"/><input type="checkbox"/></p> <p>Severity <input type="checkbox"/> 0 = none 1 = min 2 = mod 3 = severe</p> <p>Average Height (m) <input type="checkbox"/><input type="checkbox"/> <input type="checkbox"/><input type="checkbox"/></p>	<p><b>HABITAT ASSESSMENT</b></p> <p>1. Instream Habitat (0-20)..... <input type="checkbox"/><input type="checkbox"/></p> <p>2. Epifaunal Substrate (0-20)..... <input type="checkbox"/><input type="checkbox"/></p> <p>3. Velocity/Depth Diversity (0-20)..... <input type="checkbox"/><input type="checkbox"/></p> <p>4. Pool/Glide/Eddy Quality (0-20)..... <input type="checkbox"/><input type="checkbox"/></p> <p>Extent (m)..... <input type="checkbox"/><input type="checkbox"/></p> <p>5. Riffle/Run Quality (0-20)..... <input type="checkbox"/><input type="checkbox"/></p> <p>Extent (m)..... <input type="checkbox"/><input type="checkbox"/></p> <p>6. Embeddedness (%)..... <input type="checkbox"/><input type="checkbox"/></p> <p>7. Shading (%)..... <input type="checkbox"/><input type="checkbox"/></p>	<p><b>RIPARIAN VEGETATION</b> (facing upstream)</p> <p>LEFT BANK    RIGHT BANK</p> <p>Width (50m max) <input type="checkbox"/><input type="checkbox"/> <input type="checkbox"/><input type="checkbox"/></p> <p>Adjacent Land Cover <input type="checkbox"/><input type="checkbox"/> <input type="checkbox"/><input type="checkbox"/></p> <p>Vegetation Type <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/></p> <p>Buffer Breaks (Y/N) <input type="checkbox"/> <input type="checkbox"/></p> <p>LEFT BANK    RIGHT BANK</p> <p>Storm Drain <input type="checkbox"/> <input type="checkbox"/></p> <p>Tile Drain <input type="checkbox"/> <input type="checkbox"/></p> <p>Impervious Drainage <input type="checkbox"/> <input type="checkbox"/></p> <p>Gully <input type="checkbox"/> <input type="checkbox"/></p> <p>Orchard <input type="checkbox"/> <input type="checkbox"/></p> <p>Crop <input type="checkbox"/> <input type="checkbox"/></p> <p>Pasture <input type="checkbox"/> <input type="checkbox"/></p> <p>New Construction <input type="checkbox"/> <input type="checkbox"/></p> <p>Dirt Road <input type="checkbox"/> <input type="checkbox"/></p> <p>Gravel Road <input type="checkbox"/> <input type="checkbox"/></p> <p>Raw Sewage <input type="checkbox"/> <input type="checkbox"/></p> <p>Railroad <input type="checkbox"/> <input type="checkbox"/></p> <p>Buffer Break Types (M = minor; S = severe)</p>																															
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## MBSS Summer Habitat Data Sheet

- Bank Erosion
- Bar Formation
- Habitat Assessment
- **Stream Character**
- Woody Debris
- Riparian Vegetation
- Channelization



# MBSS Summer Habitat

STREAM CHARACTER							
A = Absent	P = Present	E = Extensive					
<input type="checkbox"/>	Braided	<input type="checkbox"/>	Gravel	<input type="checkbox"/>	Boulder >2m		
<input type="checkbox"/>	Riffle	<input type="checkbox"/>	Sand	<input type="checkbox"/>	Boulder <2m		
<input type="checkbox"/>	Run/Glide	<input type="checkbox"/>	Silt/Clay	<input type="checkbox"/>	Beaver Pond		
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Maximum Depth (cm)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Orange Floc

# MBSS Summer Habitat

## MBSS Habitat Certification Data Sheet

APPLICANT: \_\_\_\_\_ ORGANIZATION: \_\_\_\_\_ DATE: \_\_\_\_\_

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## MBSS Summer Habitat Data Sheet

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- Bar Formation
- Habitat Assessment
- Stream Character
- **Woody Debris**
- Riparian Vegetation
- Channelization

# MBSS Summer Habitat

Woody Debris		
<input type="text"/>	<input type="text"/>	No. of Instream Woody Debris
<input type="text"/>	<input type="text"/>	No. of Dewatered Woody Debris
<input type="text"/>	<input type="text"/>	No. of Instream Rootwads
<input type="text"/>	<input type="text"/>	No. of Dewatered Rootwads

## Large Woody Debris

- 10 cm diameter
- 1.5 m long

## Rootwads

- 15 cm DBH

## Instream

- In direct contact with water

## Dewatered

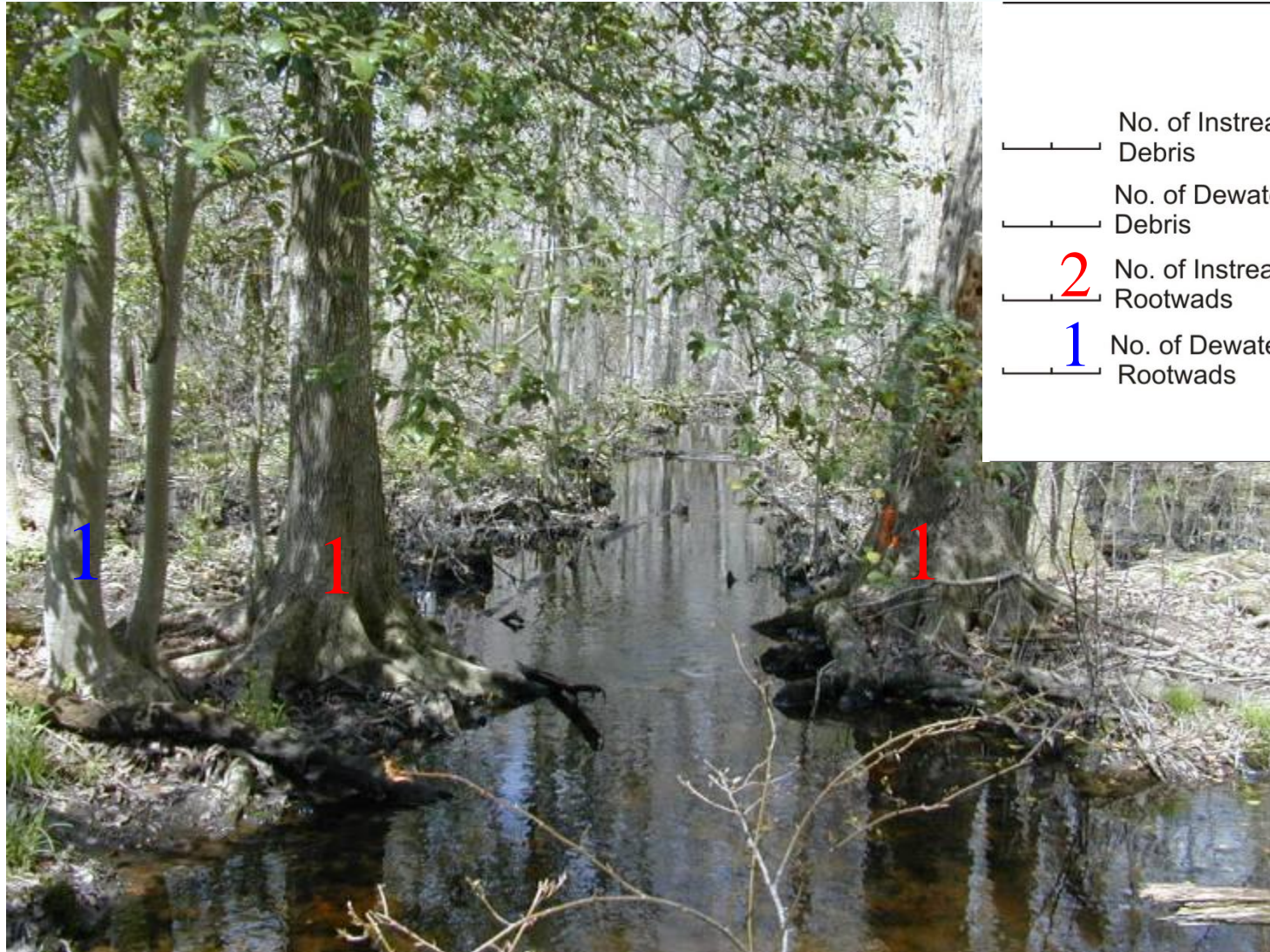
- Potential to enter stream





# MBSS Summer Habitat



- 2** No. of Instream Woody Debris
- 1** No. of Dewatered Woody Debris
- No. of Instream Rootwads
- No. of Dewatered Rootwads

# MBSS Summer Habitat



-  No. of Instream Woody Debris
-  No. of Dewatered Woody Debris
-  **2** No. of Instream Rootwads
-  **1** No. of Dewatered Rootwads

# MBSS Summer Habitat

## MBSS Habitat Certification Data Sheet

APPLICANT: \_\_\_\_\_ ORGANIZATION: \_\_\_\_\_ DATE: \_\_\_\_\_

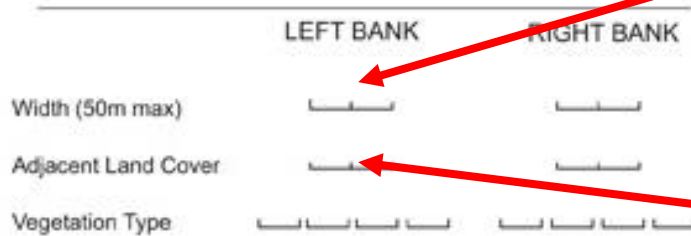
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## MBSS Summer Habitat Data Sheet

- Bank Erosion
- Bar Formation
- Habitat Assessment
- Stream Character
- Woody Debris
- **Riparian Vegetation**
- Channelization

# MBSS Summer Habitat

**RIPARIAN VEGETATION**  
(facing upstream)



Measure the average width of vegetated riparian buffer on each side of stream.  
(Max width = 50m)

No vegetation = No Buffer

Record the dominant type of land cover directly adjacent to the riparian buffer.

If a non-buffer landcover is encountered within 50m of the stream/site, the buffer ends: record average buffer width to that location and adjacent land cover as the appropriate type encountered

Riparian Buffer Zone /  
Adjacent Land Cover  
Types

Riparian Buffer vegetation

Adjacent land cover

- FR = Forest
- OF = Old Field
- EM = Emergent Vegetation
- LN = Mowed Lawn
- TG = Tall Grass
- LO = Logged Area
- SL = Bare Soil
- RR = Railroad
- PV = Paved Road
- PK = Parking Lot/ Industrial/ Commercial
- GR = Gravel Road
- DI = Dirt Road
- PA = Pasture
- OR = Orchard
- CP = Cropland
- HO = Housing

# MBSS Summer Habitat

## RIPARIAN VEGETATION (facing upstream)

	LEFT BANK	RIGHT BANK
Width (50m max)	_____	_____
Adjacent Land Cover	_____	_____
Vegetation Type	_____	_____

### VEGETATION TYPES

- G= Grasses/Forbes
- R= Regen Deciduous/Shrubs (<4" dbh)
- Y= Young Deciduous (4-12" DBH)
- M= Mature Deciduous (12-24" DBH)
- O= Old Deciduous (>24" DBH)
- A= Regen Coniferous (<4" DBH)
- B= Young Coniferous (4-12" DBH)
- C= Mature Coniferous (12-24" DBH)
- D= Old Coniferous (>24" DBH)
- L= Lawn

Record the dominant vegetation in the buffer

List vegetation type in order of dominance

**Dominance based on combination of stem density and canopy density.**





03/12/2019



**Riparian Buffer Zone /  
Adjacent Land Cover  
Types**

- FR = Forest
- OF = Old Field
- EM = Emergent Vegetation
- LN = Mowed Lawn
- TG = Tall Grass
- LO = Logged Area
- SL = Bare Soil
- RR = Railroad
- PV = Paved Road
- PK = Parking Lot/ Industrial/  
Commerical
- GR = Gravel Road
- DI = Dirt Road
- PA = Pasture
- OR = Orchard
- CP = Cropland
- HO = Housing

**RIPARIAN VEGETATION**  
(facing upstream)

	LEFT BANK	RIGHT BANK
Width (50m max)	<u>5 0</u>	<u>5 0</u>
Adjacent Land Cover	<u>FR</u>	<u>FR</u>
Vegetation Type	<u>Y M R</u>	<u>Y M R</u>

**VEGETATION TYPES**

- G= Grasses/Forbes
- R= Regen Deciduous/Shrubs (<4" dbh)
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07/29/2015



**Riparian Buffer Zone /  
Adjacent Land Cover  
Types**

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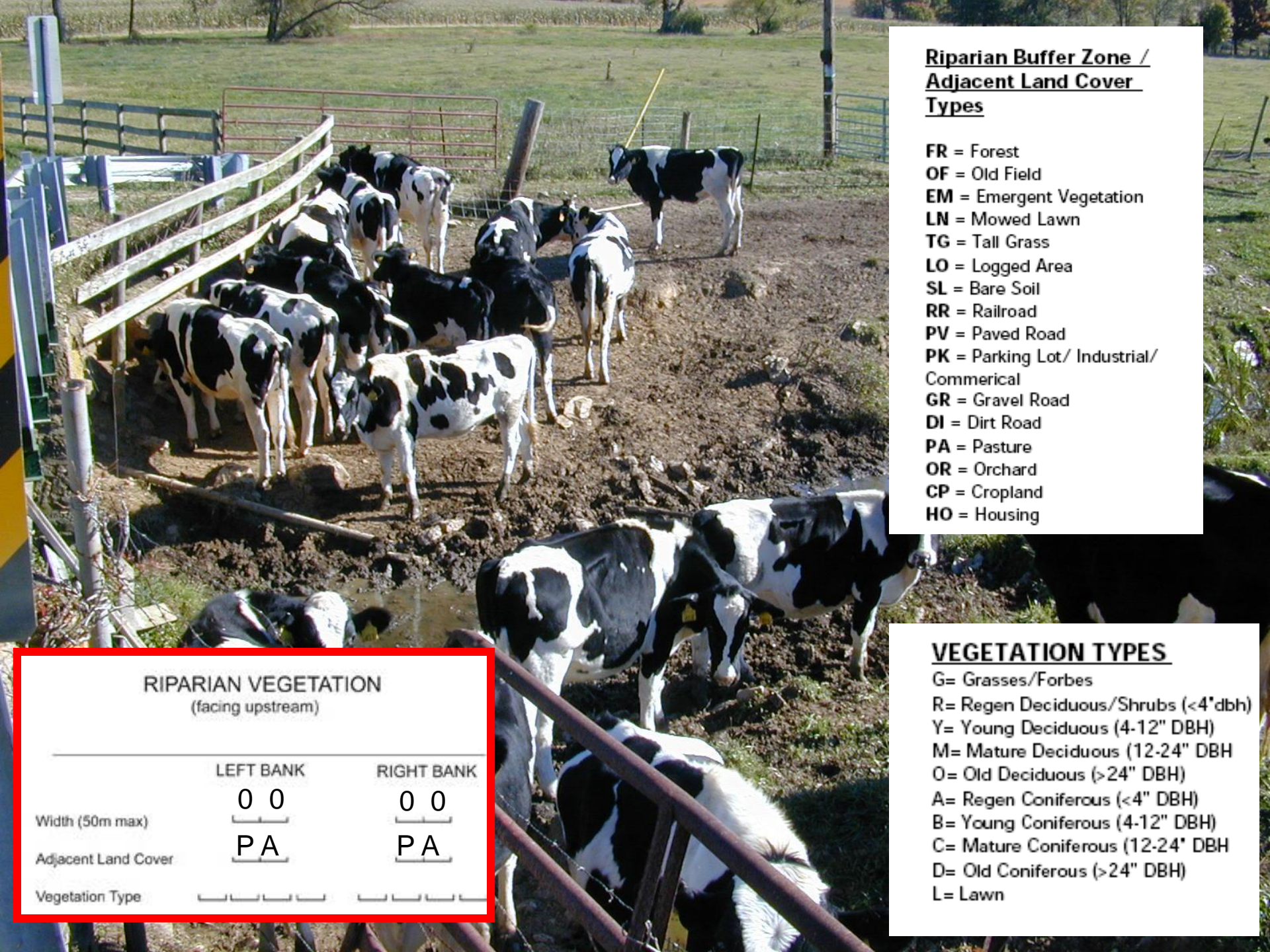
**RIPARIAN VEGETATION**  
(facing upstream)

	LEFT BANK	RIGHT BANK
Width (50m max)	<u>50</u>	<u>37</u>
Adjacent Land Cover	<u>LN</u>	<u>HO</u>
Vegetation Type	_ _ _ _	_ _ _ _

**VEGETATION TYPES**

- G= Grasses/Forbes
- R= Regen Deciduous/Shrubs (<4" dbh)
- Y= Young Deciduous (4-12" DBH)
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**Riparian Buffer Zone /  
Adjacent Land Cover  
Types**

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Commerical
- GR = Gravel Road
- DI = Dirt Road
- PA = Pasture
- OR = Orchard
- CP = Cropland
- HO = Housing

**RIPARIAN VEGETATION**  
(facing upstream)

	LEFT BANK	RIGHT BANK
Width (50m max)	0 0	0 0
Adjacent Land Cover	PA	PA
Vegetation Type		

**VEGETATION TYPES**

- G= Grasses/Forbes
- R= Regen Deciduous/Shrubs (<4" dbh)
- Y= Young Deciduous (4-12" DBH)
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- D= Old Coniferous (>24" DBH)
- L= Lawn

# MBSS Summer Habitat

RIPARIAN VEGETATION (facing upstream)				
	LEFT BANK		RIGHT BANK	
Width (50m max)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adjacent Land Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vegetation Type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Buffer Breaks (Y/N)	<input type="checkbox"/>		<input type="checkbox"/>	
	LEFT BANK		RIGHT BANK	
Storm Drain	<input type="checkbox"/>	-----	<input type="checkbox"/>	
Tile Drain	<input type="checkbox"/>	-----	<input type="checkbox"/>	
Impervious Drainage	<input type="checkbox"/>	-----	<input type="checkbox"/>	
Gully	<input type="checkbox"/>	-----	<input type="checkbox"/>	
Orchard	<input type="checkbox"/>	-----	<input type="checkbox"/>	
Crop	<input type="checkbox"/>	-----	<input type="checkbox"/>	
Pasture	<input type="checkbox"/>	-----	<input type="checkbox"/>	
New Construction	<input type="checkbox"/>	-----	<input type="checkbox"/>	
Dirt Road	<input type="checkbox"/>	-----	<input type="checkbox"/>	
Gravel Road	<input type="checkbox"/>	-----	<input type="checkbox"/>	
Raw Sewage	<input type="checkbox"/>	-----	<input type="checkbox"/>	
Railroad	<input type="checkbox"/>	-----	<input type="checkbox"/>	
	Buffer Break Types (M = minor; S = severe)			

## Buffer Breaks

Note any functional breaks in the riparian buffer on each side of the stream.

Indicate the type and severity of break.

**Buffer Break = anything that conveys runoff to effectively bypass an intact riparian buffer**



04/24/2019







# MBSS Summer Habitat

## MBSS Habitat Certification Data Sheet

APPLICANT: \_\_\_\_\_ ORGANIZATION: \_\_\_\_\_ DATE: \_\_\_\_\_

<b>BANK EROSION</b> Left Bank Right Bank Extent (m) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Severity 0 = none 1 = min 2 = mod 3 = severe Average Height (m) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<b>HABITAT ASSESSMENT</b> 1. Instream Habitat (0-20)..... <input type="checkbox"/> <input type="checkbox"/> 2. Epifaunal Substrate (0-20)..... <input type="checkbox"/> <input type="checkbox"/> 3. Velocity/Depth Diversity (0-20)..... <input type="checkbox"/> <input type="checkbox"/> 4. Pool/Glide/Eddy Quality (0-20)..... <input type="checkbox"/> <input type="checkbox"/> Extent (m)..... <input type="checkbox"/> <input type="checkbox"/> 5. Riffle/Run Quality (0-20)..... <input type="checkbox"/> <input type="checkbox"/> Extent (m)..... <input type="checkbox"/> <input type="checkbox"/> 6. Embeddedness (%)..... <input type="checkbox"/> <input type="checkbox"/> 7. Shading (%)..... <input type="checkbox"/> <input type="checkbox"/>		<b>RIPARIAN VEGETATION</b> (facing upstream) LEFT BANK RIGHT BANK Width (50m max) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Adjacent Land Cover <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Vegetation Type <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Buffer Breaks (Y/N) <input type="checkbox"/> <input type="checkbox"/>																														
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## MBSS Summer Habitat Data Sheet

- Bank Erosion
- Bar Formation
- Habitat Assessment
- Stream Character
- Woody Debris
- Riparian Vegetation
- **Channelization**

# MBSS Summer Habitat

## CHANNELIZATION

Evidence of Channel Straightening or Dredging (Y/N)

TYPE	EXTENT (m)		
	LEFT BANK	BOTTOM	RIGHT BANK
Concrete	_____	_____	_____
Gabion	_____	_____	_____
Rip-Rap	_____	_____	_____
Earthen Berm	_____	N/A	_____
Dredge Spoil Off Channel	_____	N/A	_____
Pipe Culvert	_____	_____	_____

- Survey site for evidence of channel dredging or straightening and
- Indicate presence (Y) or absence (N).
- Indicate the type and linear extent in meters for each bank and for the stream bottom.

# MBSS Summer Habitat



Dredge Spoils



Concrete Channel

# MBSS Summer Habitat



Gabion



Rip rap

# MBSS Summer Habitat



Stone / Imbricated Wall



Culvert

# MBSS Summer Habitat

## MBSS Habitat Certification Data Sheet

APPLICANT: \_\_\_\_\_ ORGANIZATION: \_\_\_\_\_ DATE: \_\_\_\_\_

<p><b>BANK EROSION</b></p> <p>Left Bank Right Bank</p> <p>Extent (m) <input type="text"/> <input type="text"/> <input type="text"/></p> <p>Severity <input type="checkbox"/> none <input type="checkbox"/> min <input type="checkbox"/> mod <input type="checkbox"/> severe</p> <p>Average Height (m) <input type="text"/> <input type="text"/> <input type="text"/></p>	<p><b>HABITAT ASSESSMENT</b></p> <p>1. Instream Habitat (0-20)..... <input type="checkbox"/> <input type="checkbox"/></p> <p>2. Epifaunal Substrate (0-20)..... <input type="checkbox"/> <input type="checkbox"/></p> <p>3. Velocity/Depth Diversity (0-20)..... <input type="checkbox"/> <input type="checkbox"/></p> <p>4. Pool/Glide/Eddy Quality (0-20)..... <input type="checkbox"/> <input type="checkbox"/></p> <p>Extent (m) <input type="text"/> <input type="text"/> <input type="text"/></p> <p>5. Riffle/Run Quality (0-20)..... <input type="checkbox"/> <input type="checkbox"/></p> <p>Extent (m) <input type="text"/> <input type="text"/> <input type="text"/></p> <p>6. Embeddedness (%)..... <input type="text"/> <input type="text"/> <input type="text"/></p> <p>7. Shading (%)..... <input type="text"/> <input type="text"/> <input type="text"/></p>	<p><b>RIPARIAN VEGETATION</b> (facing upstream)</p> <p>LEFT BANK RIGHT BANK</p> <p>Width (50m max) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>Adjacent Land Cover <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>Vegetation Type <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>Buffer Breaks (Y/N) <input type="checkbox"/> <input type="checkbox"/></p> <p>LEFT BANK RIGHT BANK</p> <p>Storm Drain <input type="checkbox"/> <input type="checkbox"/></p> <p>Tile Drain <input type="checkbox"/> <input type="checkbox"/></p> <p>Impervious Drainage <input type="checkbox"/> <input type="checkbox"/></p> <p>Gully <input type="checkbox"/> <input type="checkbox"/></p> <p>Orchard <input type="checkbox"/> <input type="checkbox"/></p> <p>Crop <input type="checkbox"/> <input type="checkbox"/></p> <p>Pasture <input type="checkbox"/> <input type="checkbox"/></p> <p>New Construction <input type="checkbox"/> <input type="checkbox"/></p> <p>Dirt Road <input type="checkbox"/> <input type="checkbox"/></p> <p>Gravel Road <input type="checkbox"/> <input type="checkbox"/></p> <p>Raw Sewage <input type="checkbox"/> <input type="checkbox"/></p> <p>Railroad <input type="checkbox"/> <input type="checkbox"/></p> <p>Buffer Break Types (M = minor; S = severe)</p>																															
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erosion

R	P
15	15
14	12
12	14
<hr/>	
41	41

L/R

L	R
0	0
6	14
18	15
<hr/>	
24	29

Channelization

L	B	R
0	0	0
24	14	15
16	2	11
<hr/>		
40	16	26

S wood :. (3)

D wood ☒ (11)

S root . (1)

D root ☒ (9)

Max  
42



# MBSS Summer Habitat

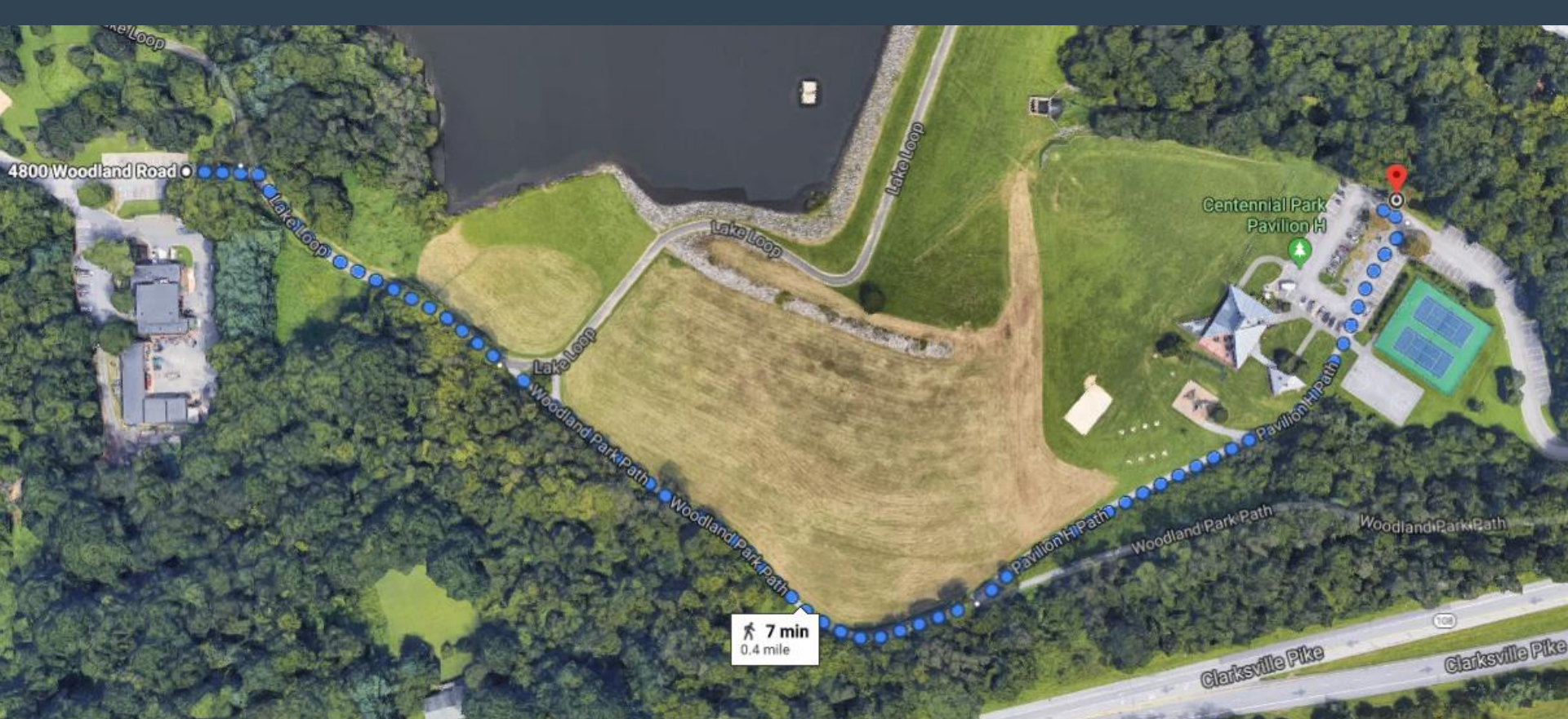
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## Make Comments!

- Any impacts associated with habitat conditions at a site should be documented in the comments section
- Subjective nature of habitat data makes comments valuable



**Email with link to directions  
will be sent to the entire  
MBSS training group later  
this morning**



Midpoint of audit site from left bank – Howard Co. park land

\*Private property on RB beyond sewer line ROW

– Please do not venture beyond sewer line ROW on RB



Question 4



Question 17