

MBSS Spring Sampling

Physical Habitat Assessment



03/11/2014

v. 2014

MBSS SPRING HABITAT DATA SHEET

Year 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

RIPARIAN VEGETATION
(facing upstream)

	LEFT BANK	RIGHT BANK
Width (50m max)	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Adj. Land Cover	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Veg. Type	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Buffer Breaks (Y/N)	<input type="checkbox"/>	<input type="checkbox"/>

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	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
2	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
3	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

BUFFER BREAKS

	LEFT BANK	RIGHT BANK
Storm Drain	<input type="checkbox"/>	<input type="checkbox"/>
Tile Drain	<input type="checkbox"/>	<input type="checkbox"/>
Imperv. Drainage	<input type="checkbox"/>	<input type="checkbox"/>
New Construction	<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"/>
Gully	<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)

CHANNELIZATION Evidence of Channel Straightening or Dredging (Y/N)

TYPE	EXTENT (m)		
	LEFT BANK	BOTTOM	RIGHT BANK
Concrete	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Gation	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Rip-Rap	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Earthen Berm	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Dredge Spoil Off Channel	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Pipe Culvert	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

Actual Site Midpoint Coordinates
(Taken at Time of Sampling)

Lat

Long

Stream Blockages

Stream Block Ht (m)

Stream Block Type

Lat

Long

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

Distance : Measure (or estimate if appropriate) distance from nearest road, parking lot, or other access point.

Trash Rating: Scored on scale from 0-20; based on criteria on Stream Habitat Assessment Guidance Sheet

Count ...trash, tires, railroad ties, and industrial refuse

Do Not Count...bare soil, AMD discoloration, iron bacteria, rip rap, gabion baskets, concrete trapezoid, etc.

Trash Rating



Habitat Parameter	Optimal 16-20	Sub-Optimal 11-15	Marginal 6-10	Poor 0-5
8. Trash Rating ^(h)	Little or no human refuse visible from stream channel or riparian zone	Refuse present in minor amounts	Refuse present in moderate amounts	Refuse abundant and unsightly

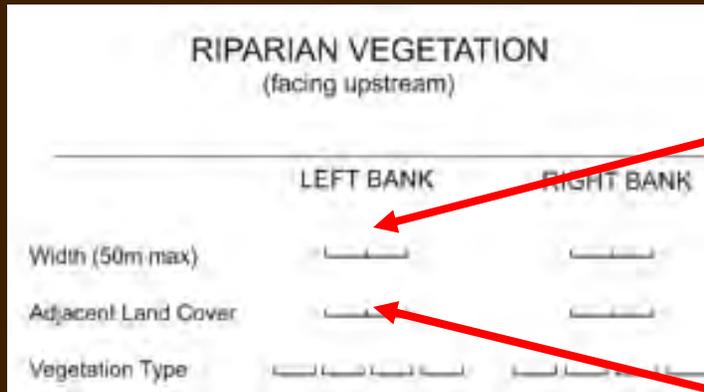
Surrounding Land Use

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

- Record any land use type that can be observed while in or alongside the site.

Riparian Vegetation Characterization



Measure 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.

Riparian Buffer vegetation

Adjacent land cover

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

Buffer Vegetation Type

RIPARIAN VEGETATION
(facing upstream)

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

Record the dominant vegetation in the buffer

List vegetation type in order of dominance

Dominance based on combination of stem density and canopy density.

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



03/07/2013

RIPARIAN VEGETATION
(facing upstream)

	LEFT BANK	RIGHT BANK
Width (50m max)	<u>50</u>	<u>50</u>
Adjacent Land Cover	<u>FR</u>	<u>FR</u>
Vegetation Type	<u>YRM</u>	<u>YMR</u>

03/07/2013



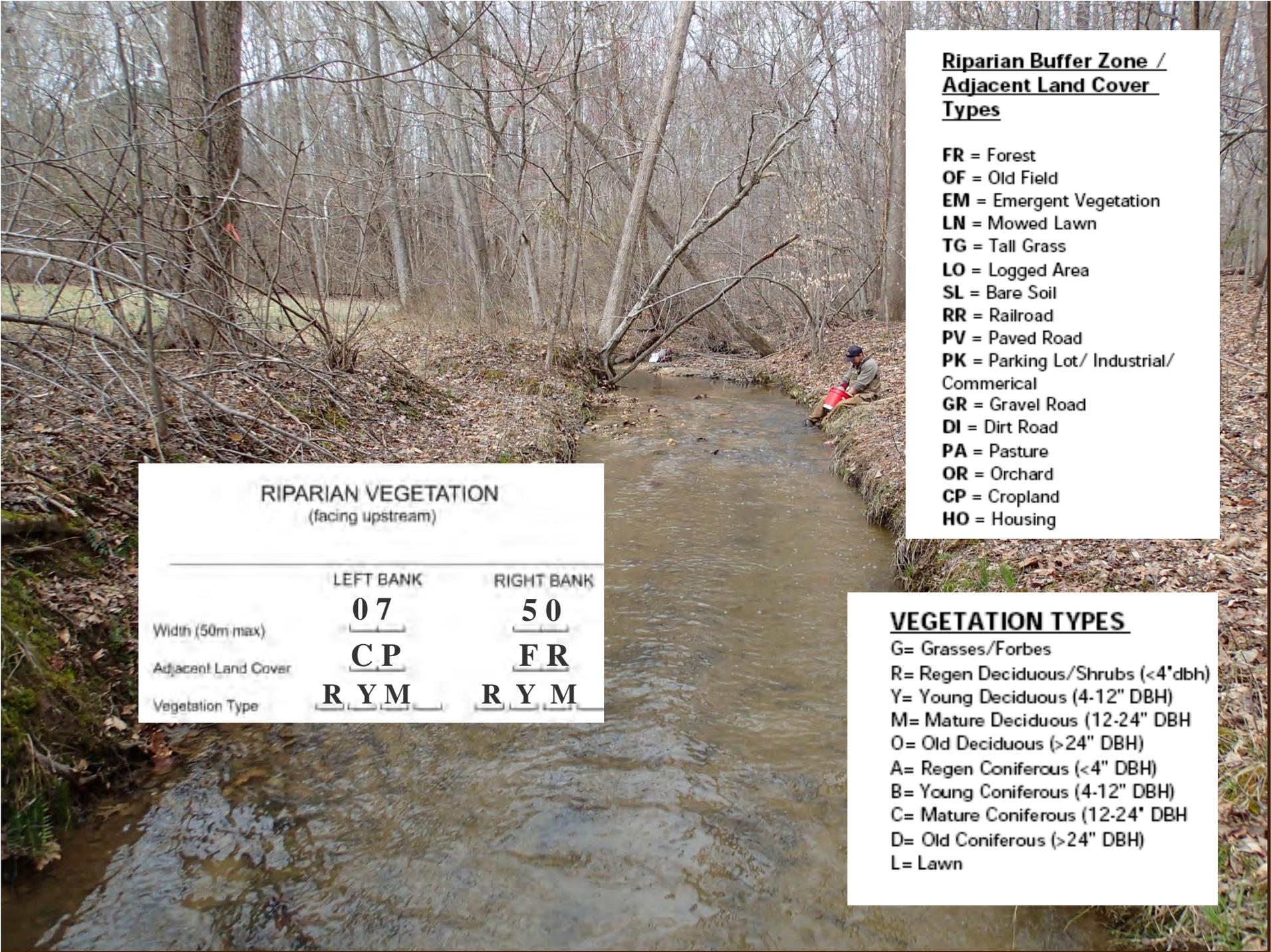


RIPARIAN VEGETATION
(facing upstream)

	LEFT BANK	RIGHT BANK
Width (50m max)	00	00
Adjacent Land Cover	PA	PA
Vegetation Type		



04/01/2014



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/ Commercial
- 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>07</u>	<u>50</u>
Adjacent Land Cover	<u>CP</u>	<u>FR</u>
Vegetation Type	<u>R Y M</u>	<u>R Y M</u>

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

Buffer Breaks

Buffer Breaks (Y/N)

LEFT BANK RIGHT BANK

Storm Drain		
Tile Drain		
Impervious Drainage		
Gully		
Orchard		
Crop		
Pasture		
New Construction		
Dirt Road		
Gravel Road		
Raw Sewage		
Railroad		

Buffer Break Types
(M = minor; S = severe)

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

Indicate the type and severity of break.



http://nc.water.usgs.gov/projects/surry/icons/Pauls_crossing_full.jpg





Stream Channelization

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.



Dredge Spoils



Concrete Channel



Gabion



Rip rap



Stone / Imbricated Wall



Culvert

Road Culvert

ROAD CULVERT

Present in Segment? (Y/N)

Sampleable? (Y/N)

Width of Culvert? (m)

Length of Culvert? (m)



If the road culvert is NOT sampleable,...

- 1) measure the linear length of culvert
- 2) add the measured distance to whichever end of the site is closer.



Sampleable



Not Sampleable



Stream Gradient

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

Purpose: To measure water surface slope between the 0 & 75 meter marks of the site

How: Record the gradient to the nearest centimeter
Measurements are taken at water's surface

Upstream

Downstream

STREAM GRADIENT

Location (m)	Height (m)
1	
2	
3	

Level line of sight

Surface of water

Surface of water

Modified from: <http://geography-site.co.uk/pages/skills/fieldwork/fluvial/grad.html>



<http://ig1ee.risply.blogspot.com/2009/04/easily-calculating-the-distance-with-a-theodolite.html>

Reasonable?

STREAM GRADIENT

	Location (m)	Height (m)
	0	1.50
1	7.5	1.40
2		
3		

Reasonable?

STREAM GRADIENT

	Location (m)	Height (m)
	0	1.25
1	7.5	1.50
2		
3		

Stream Blockages



- Note on the data sheet the lat/long of any man-made migration barrier near the site.
- Also note height and type of blockage (page 71).

Stream Block Ht. (m)	<input type="text"/>	<input type="text"/>				
Stream Block Type	<input type="text"/>	<input type="text"/>				
Lat	<input type="text"/>					
Lon	<input type="text"/>					

MBSS Round 4 Facies Mapping Protocols

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SITE Watershed Code Segment Type Year
 Reviewer: First / Second

DATE Year Month Day

	L	Center	R
75m	Dominant Substrate <input type="checkbox"/>	Dominant Substrate <input type="checkbox"/>	Dominant Substrate <input type="checkbox"/>
	Subdominant Substrate <input type="checkbox"/>	Subdominant Substrate <input type="checkbox"/>	Subdominant Substrate <input type="checkbox"/>
	Depth <input type="checkbox"/>	Depth <input type="checkbox"/>	Depth <input type="checkbox"/>
	Velocity <input type="checkbox"/>	Velocity <input type="checkbox"/>	Velocity <input type="checkbox"/>
50m	Dominant Substrate <input type="checkbox"/>	Dominant Substrate <input type="checkbox"/>	Dominant Substrate <input type="checkbox"/>
	Subdominant Substrate <input type="checkbox"/>	Subdominant Substrate <input type="checkbox"/>	Subdominant Substrate <input type="checkbox"/>
	Depth <input type="checkbox"/>	Depth <input type="checkbox"/>	Depth <input type="checkbox"/>
	Velocity <input type="checkbox"/>	Velocity <input type="checkbox"/>	Velocity <input type="checkbox"/>
25m	Dominant Substrate <input type="checkbox"/>	Dominant Substrate <input type="checkbox"/>	Dominant Substrate <input type="checkbox"/>
	Subdominant Substrate <input type="checkbox"/>	Subdominant Substrate <input type="checkbox"/>	Subdominant Substrate <input type="checkbox"/>
	Depth <input type="checkbox"/>	Depth <input type="checkbox"/>	Depth <input type="checkbox"/>
	Velocity <input type="checkbox"/>	Velocity <input type="checkbox"/>	Velocity <input type="checkbox"/>
0m			

Classifications for Dominant and Subdominant Substrate Categories
 Y = Silt/Clay (< .062mm) C = Cobble (64 - 256mm)
 S = Sand (.062 - 2mm) B = Boulder (256-4096mm)
 G = Gravel (2 - 64mm) K = Bedrock (> 4096mm)

Classifications for Average Stream Depth Categories
 1 = Shallow (< 0.5 m)
 2 = Moderately Deep (0.5 m - 1.0 m)
 3 = Deep (> 1.0 m)

Classifications for Average Stream Velocity Categories
 1 = Slow (0-0.3 m/s)
 2 = Fast (> 0.3 m/s)

COMMENTS

Facies Mapping

- Break segment into 6 bins
 - Record dominant (by area) and sub- dominant particle size in each bin
 - Silt, Sand, Gravel, Cobble, Boulder, Bedrock
 - Record the dominant velocity category
 - (slow, <0.3 m/s; fast, >0.3 m/s)
 - Record the depth category
 - (shallow, <0.5 m; moderately deep, 0.5 m – 1.0 m; deep, >1.0 m)



	L	Center	R
75m	Dominant Substrate <input type="checkbox"/>		Dominant Substrate <input type="checkbox"/>
	Subdominant Substrate <input type="checkbox"/>		Subdominant Substrate <input type="checkbox"/>
	Depth <input type="checkbox"/>		Depth <input type="checkbox"/>
	Velocity <input type="checkbox"/>		Velocity <input type="checkbox"/>
50m	Dominant Substrate <input type="checkbox"/>		Dominant Substrate <input type="checkbox"/>
	Subdominant Substrate <input type="checkbox"/>		Subdominant Substrate <input type="checkbox"/>
	Depth <input type="checkbox"/>		Depth <input type="checkbox"/>
	Velocity <input type="checkbox"/>		Velocity <input type="checkbox"/>
25m	Dominant Substrate <input type="checkbox"/>		Dominant Substrate <input type="checkbox"/>
	Subdominant Substrate <input type="checkbox"/>		Subdominant Substrate <input type="checkbox"/>
	Depth <input type="checkbox"/>		Depth <input type="checkbox"/>
	Velocity <input type="checkbox"/>		Velocity <input type="checkbox"/>
0m			

Classifications for Dominant and Subdominant Substrate Categories

- Y** = Silt/Clay (< .062mm) **C** = Cobble (64 - 256mm)
S = Sand (.062 - 2mm) **B** = Boulder (256-4096mm)
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Classifications for Average Stream Depth Categories

- 1** = Shallow (< 0.5 m)
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Classifications for Average Stream Velocity Categories

- 1** = Slow (0-0.3 m/s)
2 = Fast (> 0.3 m/s)

Artwork courtesy of Andy Becker





10/17/2013



03/11/2014

MBSS Spring Sampling

Physical Habitat Assessment



03/11/2014