Benthic Macroinvertebrate Sampling Certification

- Complete spring training
- Pass written exam at the end of spring training (new or renewing applicants only)
- Acquire all necessary equipment and supplies
- Complete field audit (March 1 – April 30); payment due
- Submit sample for DNR lab analysis
- Your name and affiliation posted on MBSS Registry

Benthic Macroinvertebrate Sampling

"…provide a representative sample of the community composition and relative abundance of benthic macroinvertebrates in *favorable* habitats (habitats supporting the greatest benthic diversity)"

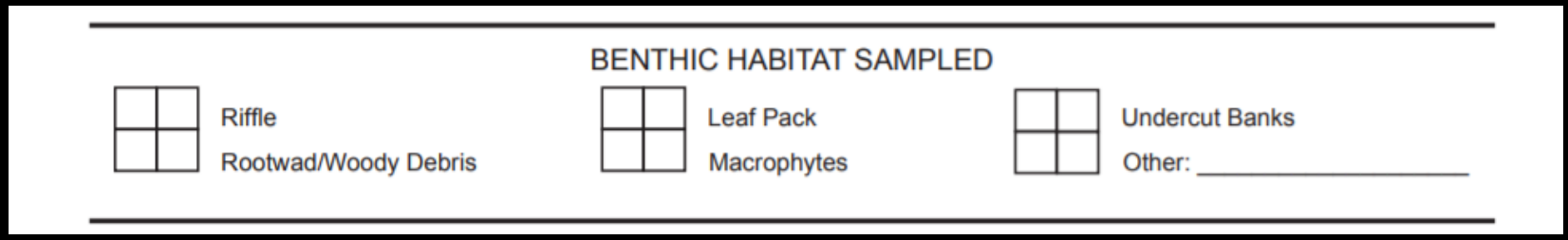
MBSS Sampling Manual 2017; Section 5.13.1

Benthic Macroinvertebrate Sampling

- March 1 – April 30 Index Period
- Same 75 m as summer
- D net (500 or 540 micron)
- 20 square feet of *BEST AVAILABLE* habitat (pooled into one container)
- Sample water first

MBSS Sampling Manual 2017, Section 5.13.1

Focus on:
Habitats with good *FLOW*
Habitats that are *STABLE*



MBSS Sampling Manual 2017; Section 5.13.1, #2

Avoid

Shifting sand in runs

Silt in pools

Determine Sampleability

Too deep
High flow
Can’t see habitats
Dry stream
Marsh
Impoundment
Tidal
No permission

MBSS Sampling Manual 2017; Section 5.13.1, #1

Equipment Checklist

D-net and spare

Sieve Bucket

Sample buckets and labels

95% Ethanol (2 L/site)

Waders (no felt soles)

Sampling Manual

Data Sheets

Pencils

First Aid Kit

Flagging/Paint

100 m measuring tape

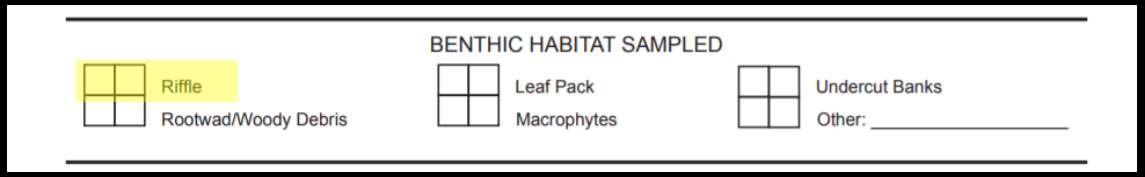
MBSS Sampling Manual 2017; Appendix C


Lower Case D

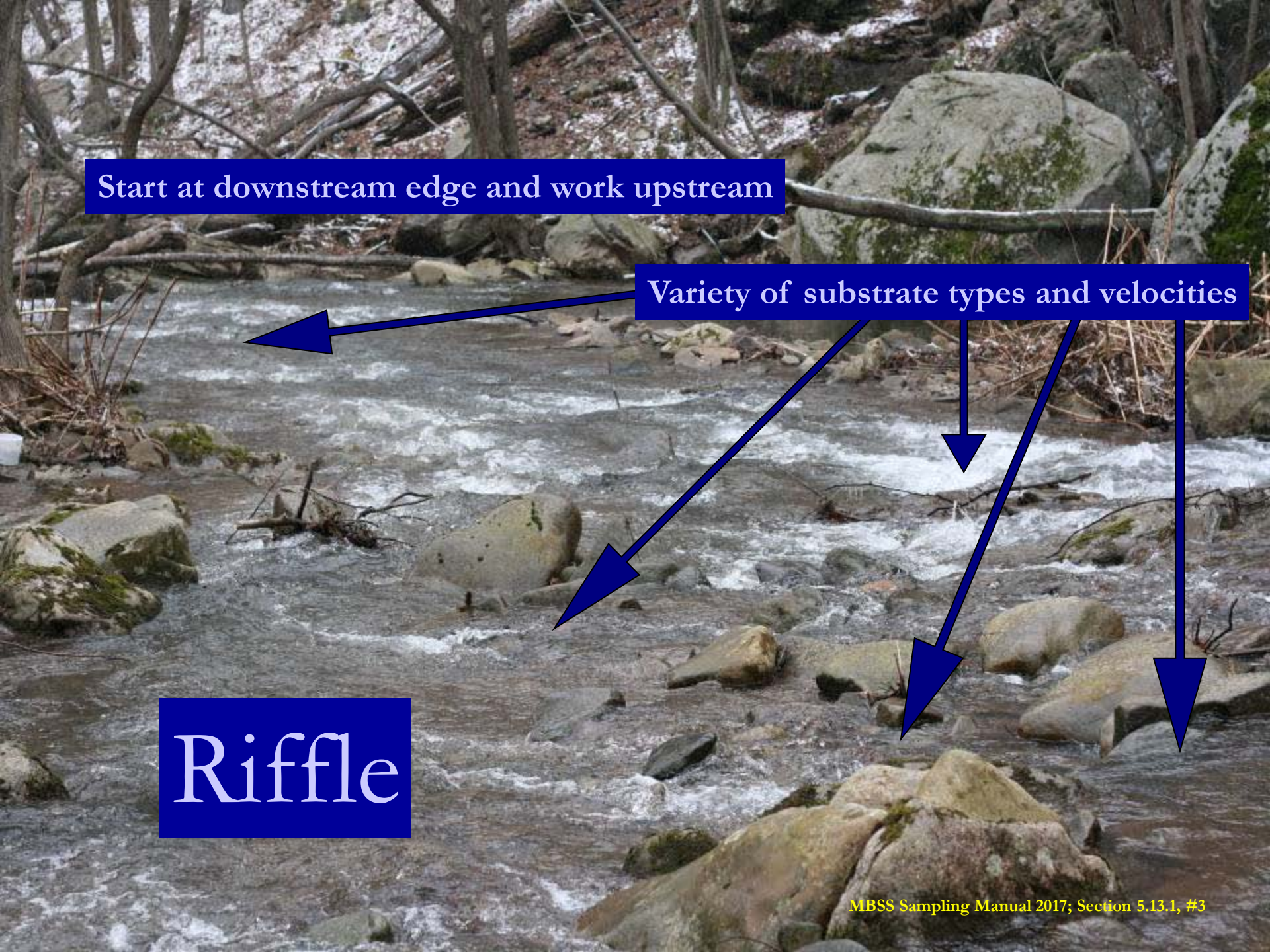

Upper Case D

Habitats to Sample

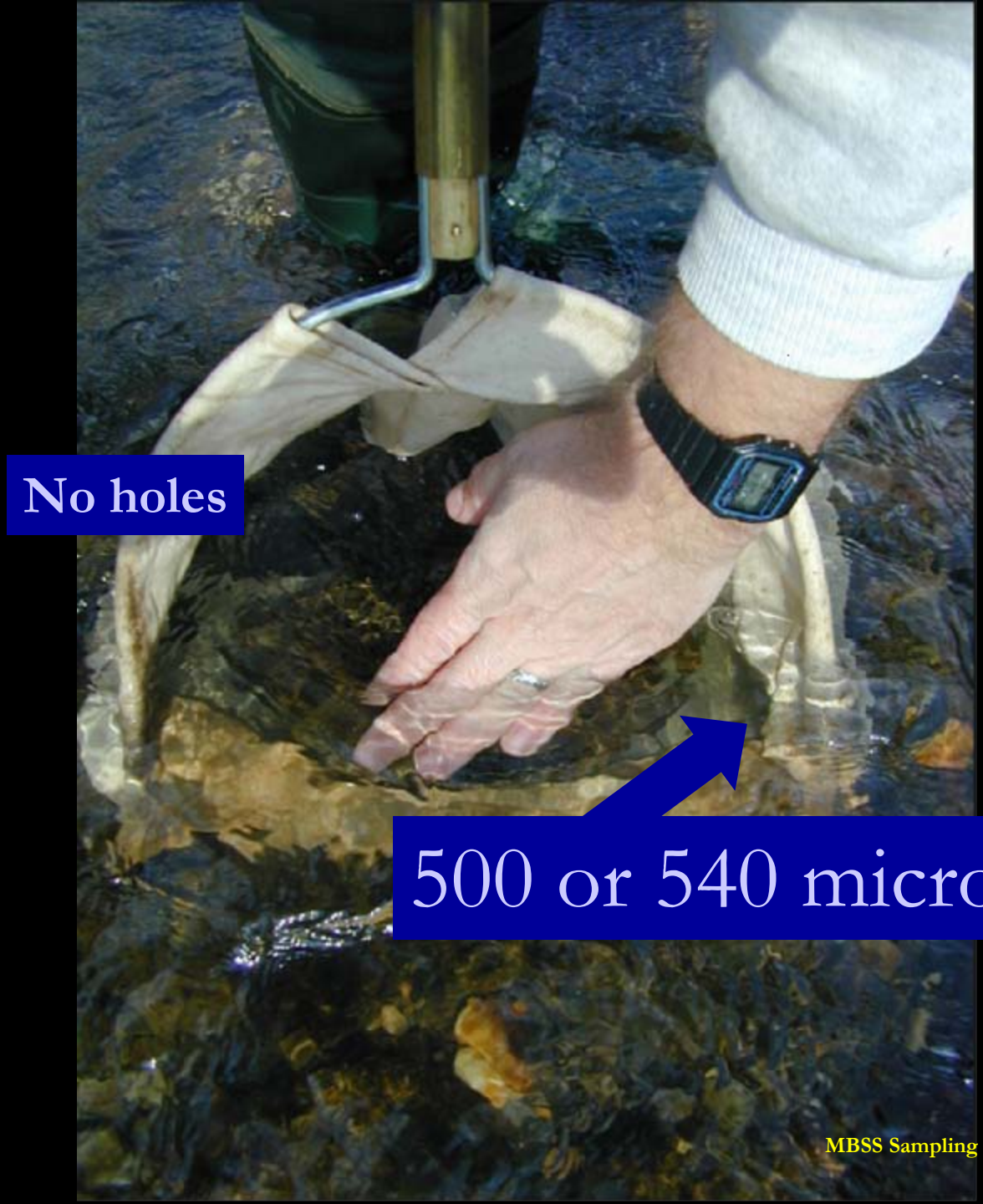
- Riffles



MBSS Sampling Manual 2017; Section 5.13.1, #3


Start at downstream edge and work upstream
Variety of substrate types and velocities
Riffle
MBSS Sampling Manual 2017; Section 5.13.1, #3


MBSS Sampling Manual 2017; Section 5.13.1, #3



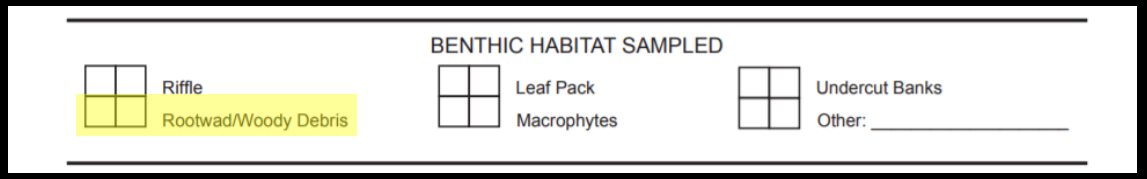
MBSS Sampling Manual 2017; Section 5.13.1

Disturb habitat 5-8 cm below substrate surface

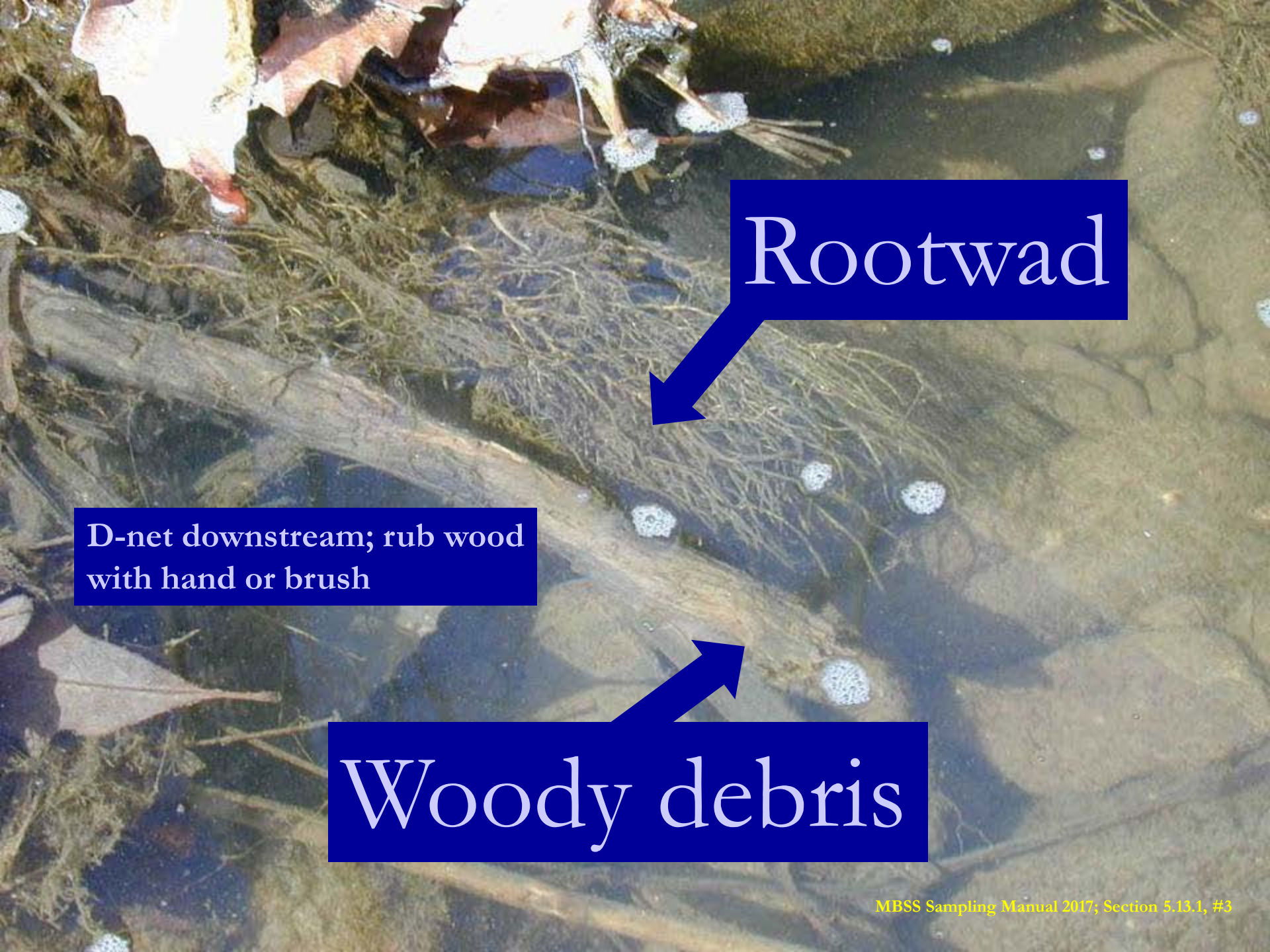
MBSS Sampling Manual 2017; Section 5.13.1, #3

Habitats to Sample

- **Riffles**
- **Rootwad/Woody debris**

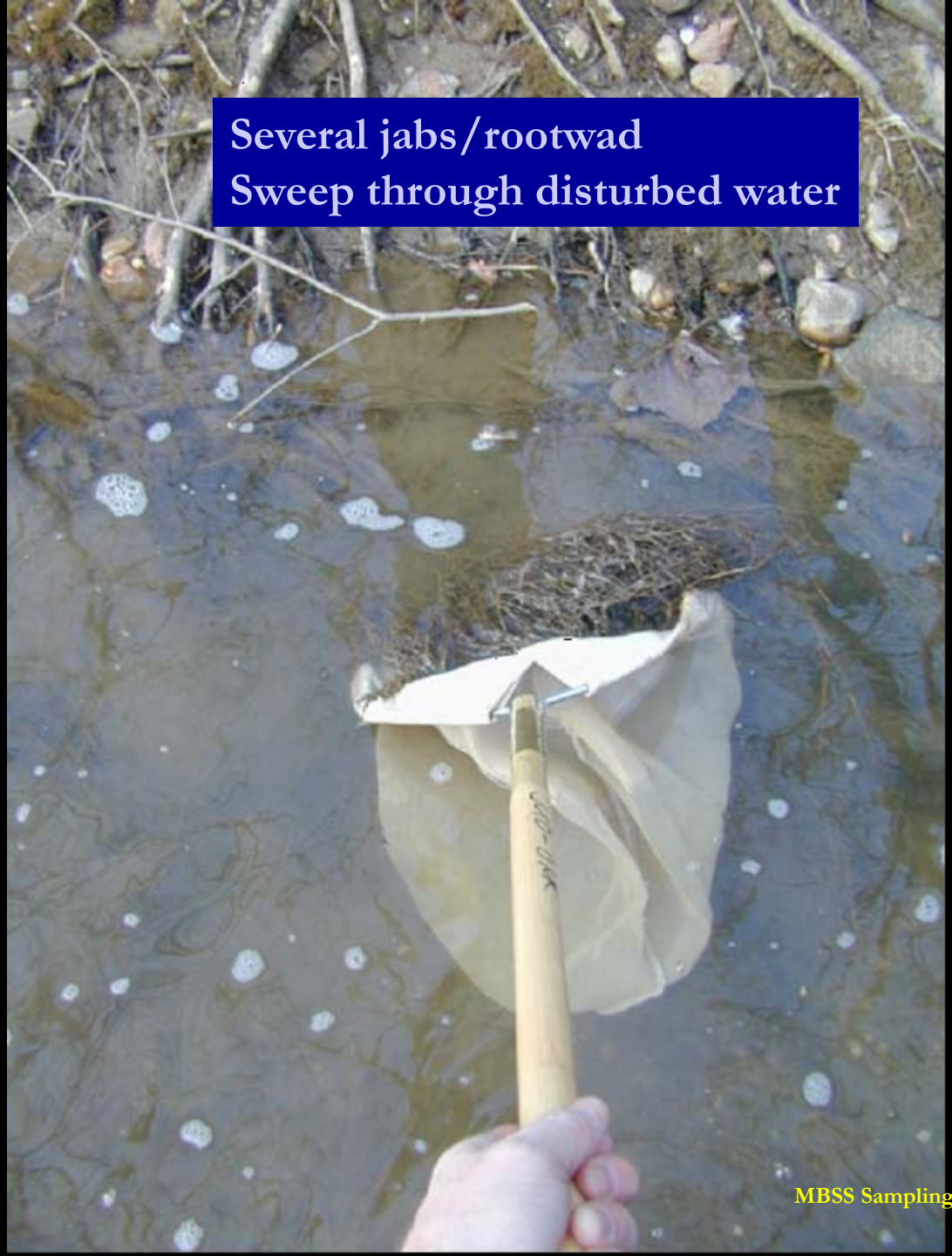


MBSS Sampling Manual 2017; Section 5.13.1, #2



MBSS Sampling Manual 2017; Section 5.13.1, #3

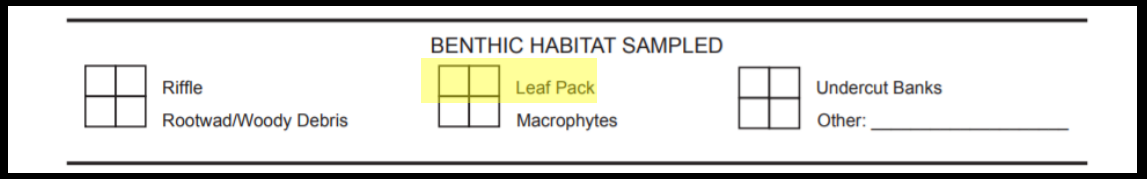
MBSS Sampling Manual 2017; Section 5.13.1, #3



MBSS Sampling Manual 2017; Section 5.13.1, #3

Habitats to Sample

- Riffles
- Rootwad/Woody debris
- Leaf pack



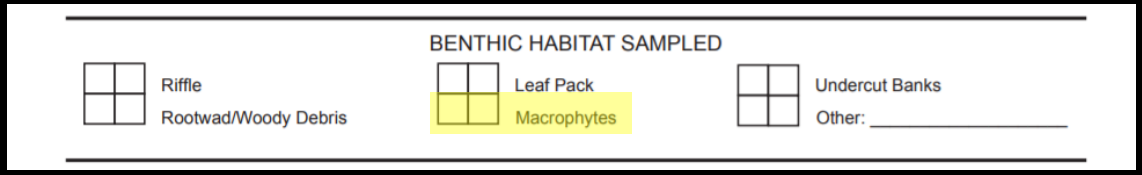
MBSS Sampling Manual 2017; Section 5.13.1, #2

MBSS Sampling Manual 2017; Section 5.13.1, #3

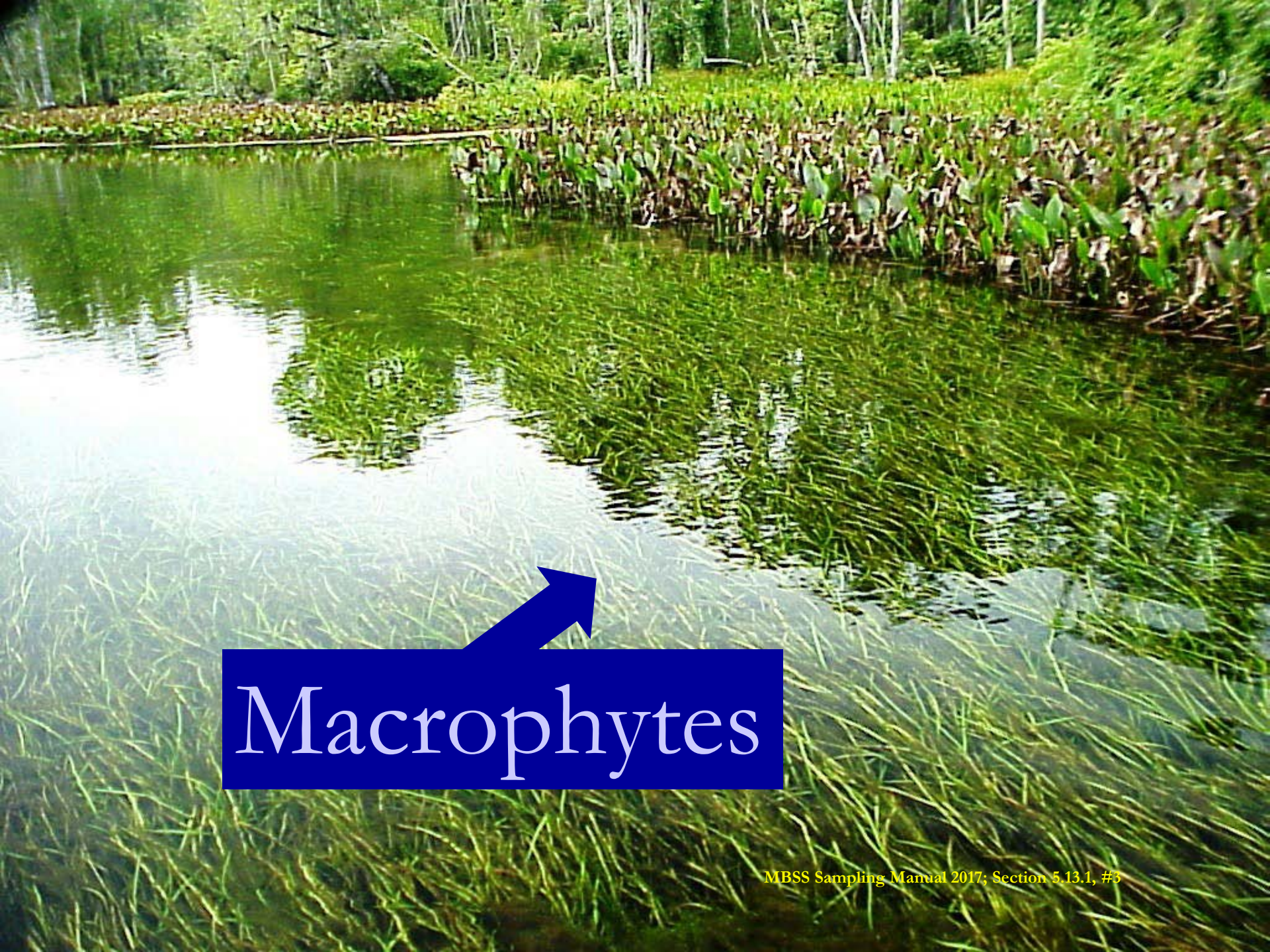
MBSS Sampling Manual 2017; Section 5.13.1, #3

Habitats to Sample

- Riffles
- Rootwad/Woody debris
- Leaf pack
- Macrophytes



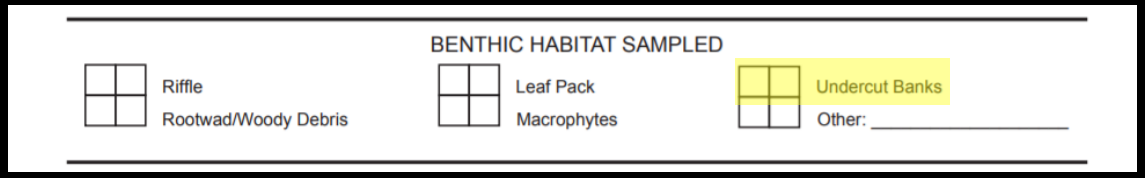
MBSS Sampling Manual 2017; Section 5.13.1, #2



MBSS Sampling Manual 2017; Section 5.13.1, #3

Habitats to Sample

- Riffles
- Rootwad/woody debris
- Leaf pack
- Macrophytes
- Undercut banks

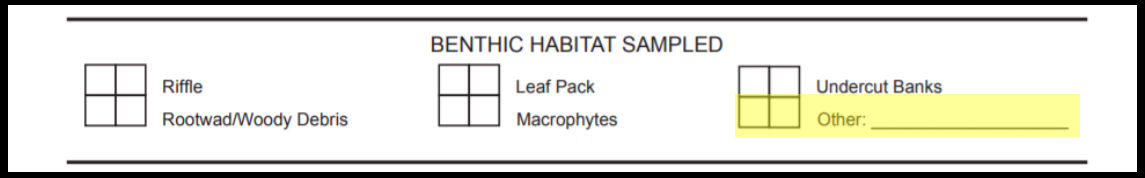


MBSS Sampling Manual 2017; Section 5.13.1, #2

MBSS Sampling Manual 2017, Section 5.13.1, #3

Habitats to Sample

- Riffles
- Rootwad/woody debris
- Leaf pack
- Macrophytes
- Undercut banks
- Gravel/peat/clay/detritus/sand/silt/stable refuse (only when necessary)



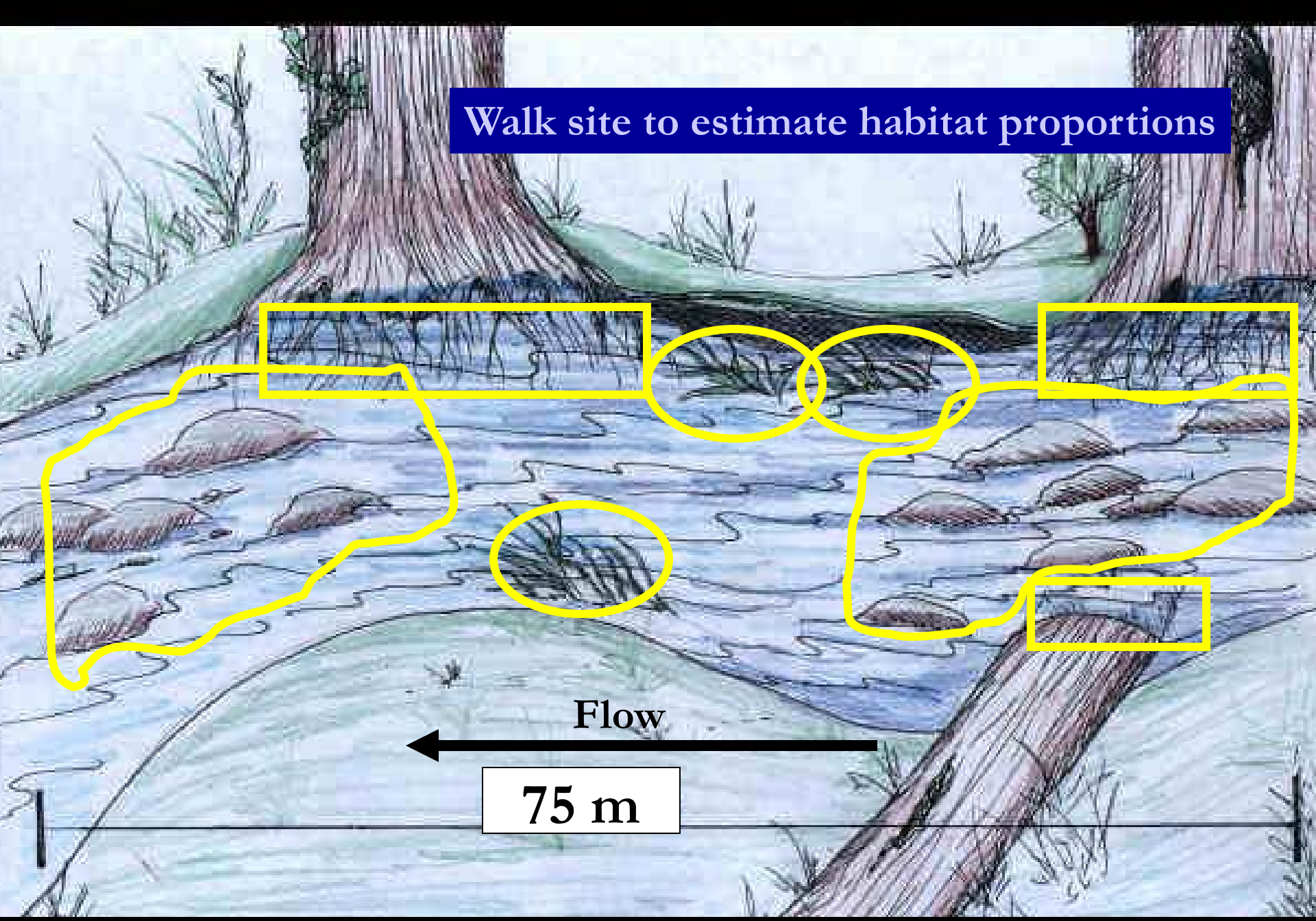
MBSS Sampling Manual 2017; Section 5.13.1, # 2

Total must be 20 sq. ft.

BENTHIC HABITAT SAMPLED

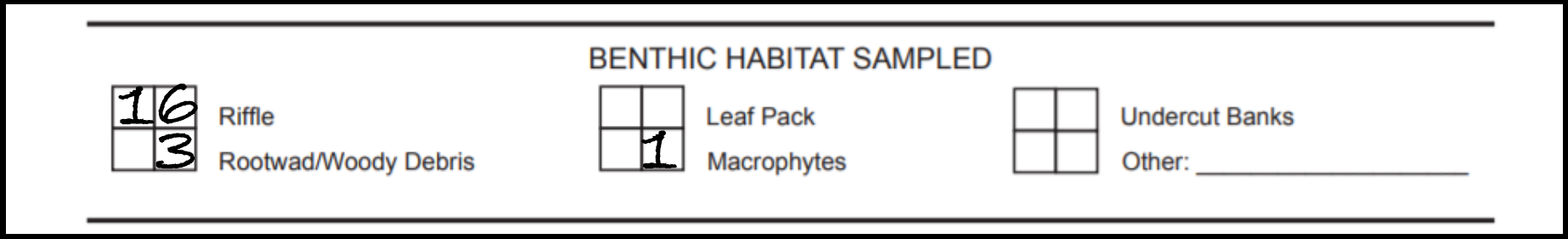
☐ Riffle	☐ Leaf Pack	☐ Undercut Banks
☐ Rootwad/Woody Debris	☐ Macrophytes	Other: Tire, engine block, Shopping cart

MBSS Sampling Manual 2017; Section 5.13.1, #3

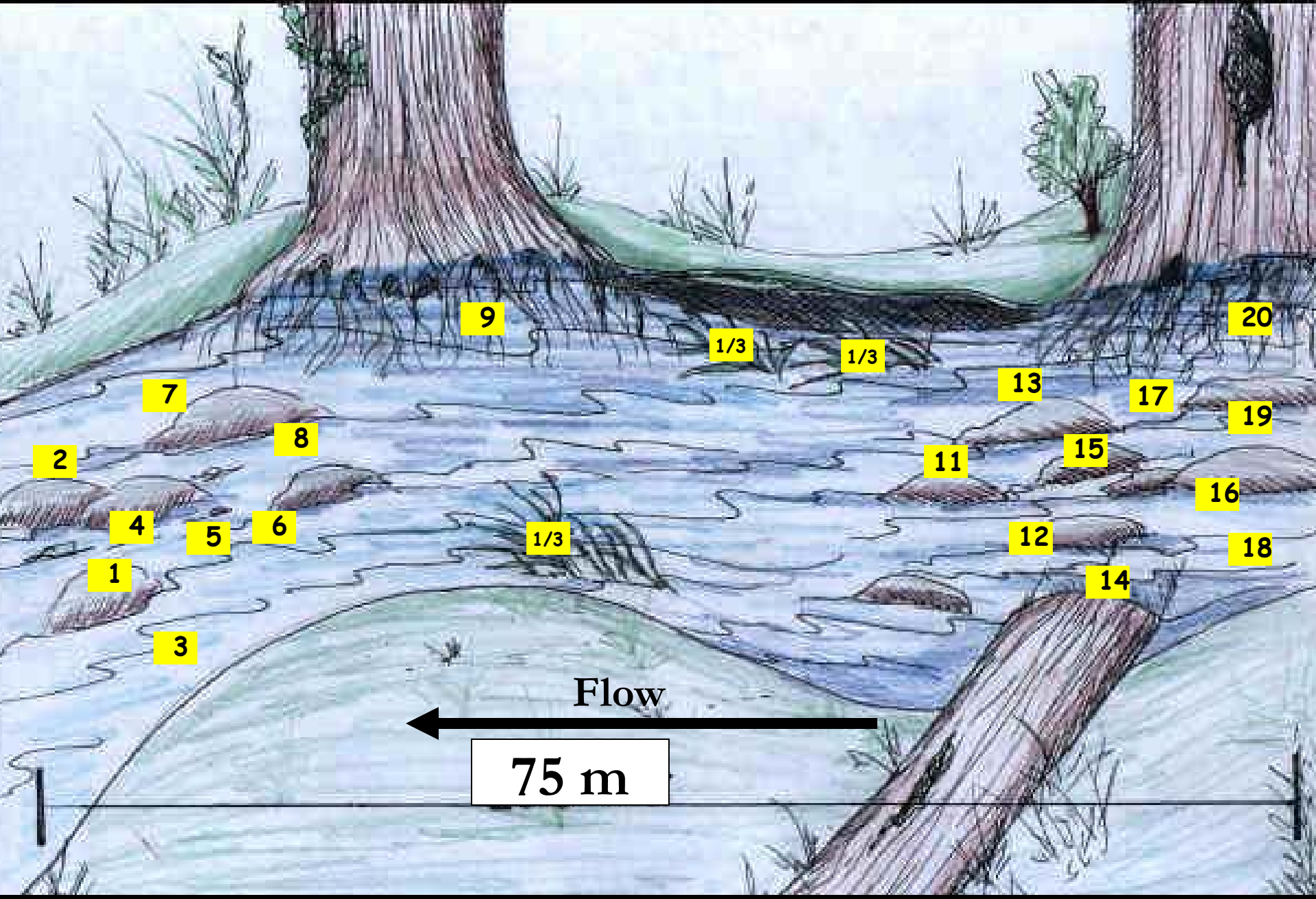


MBSS Sampling Manual 2017; Section 5.13.1, #3

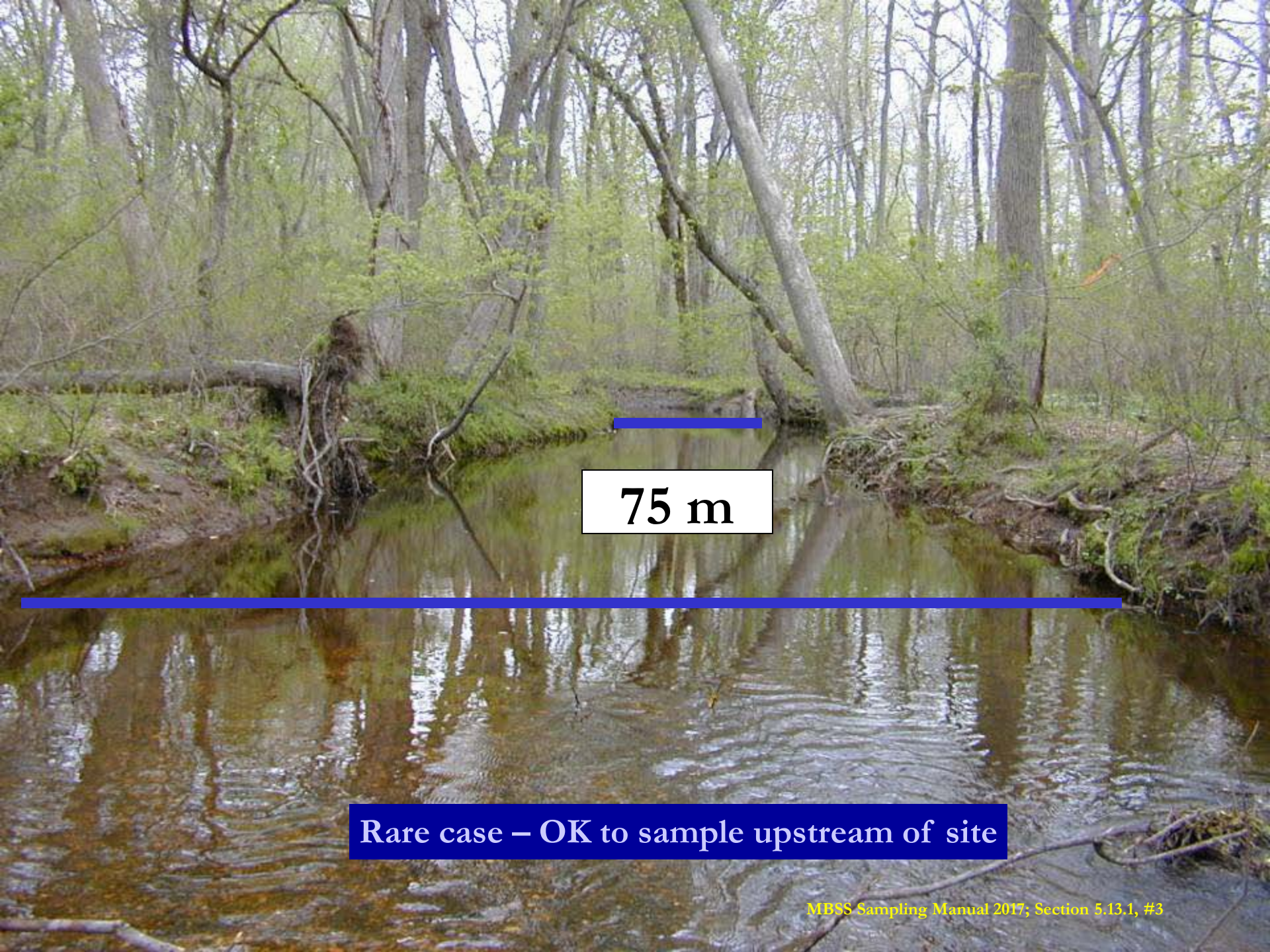
Total must be 20 sq. ft.



MBSS Sampling Manual 2017; Section 5.13.1, #3



MBSS Sampling Manual 2017; Section 5.13.1, #3



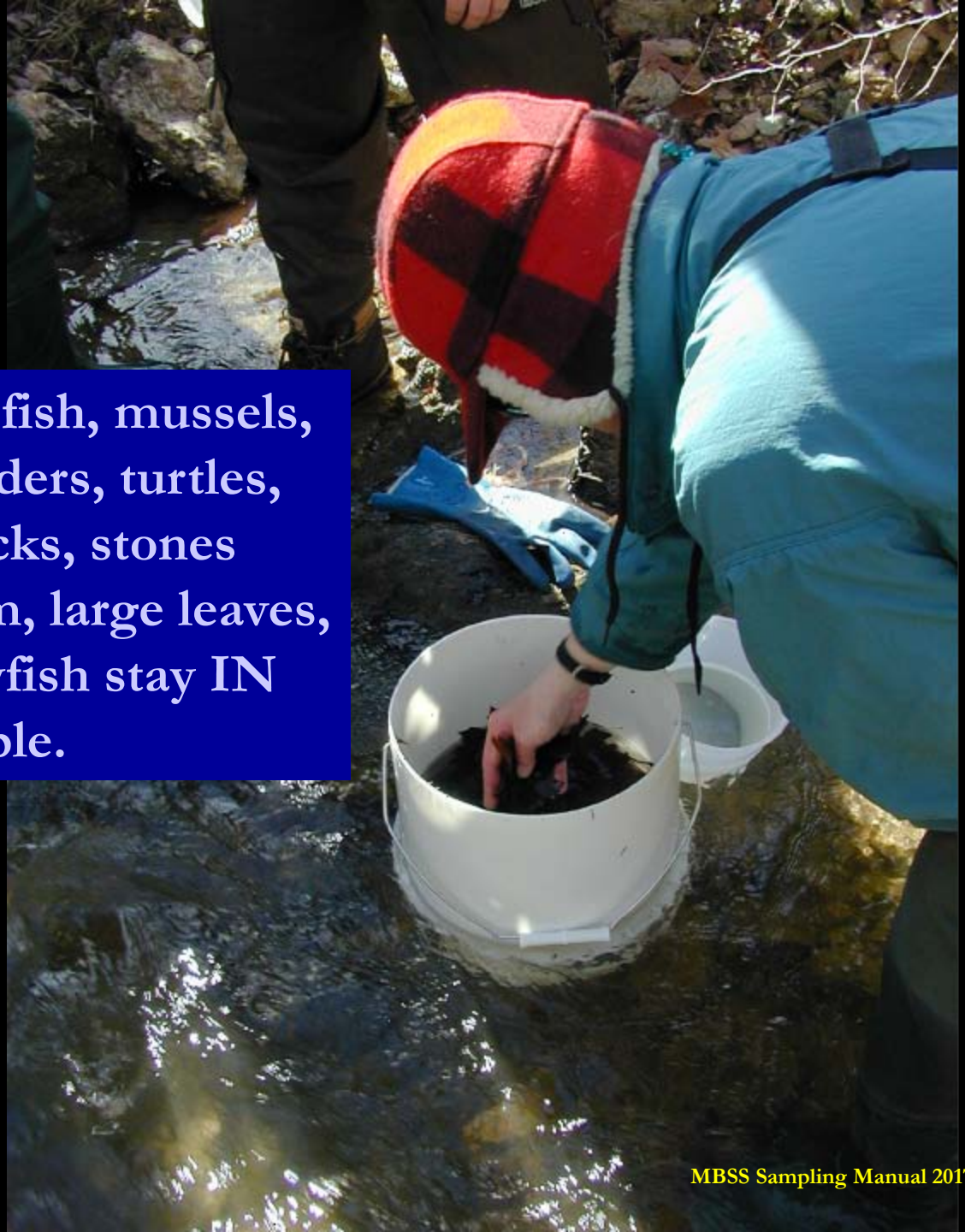
MBSS Sampling Manual 2017; Section 5.13.1, #3

Partially submerge sieve bucket

MBSS Sampling Manual 2017; Section 5.13.1, #3

Rinse/use forceps to clean D Net

MBSS Sampling Manual 2017; Section 5.13.1, #3



Remove fish, mussels, salamanders, turtles, large sticks, stones over 3 cm, large leaves, etc. Crayfish stay IN the sample.

MBSS Sampling Manual 2017; Section 5.13.1, #3

MBSS Sampling Manual 2017; Section 5.13.1, #3

MBSS Sampling Manual 2017; Section 5.13.1, #3

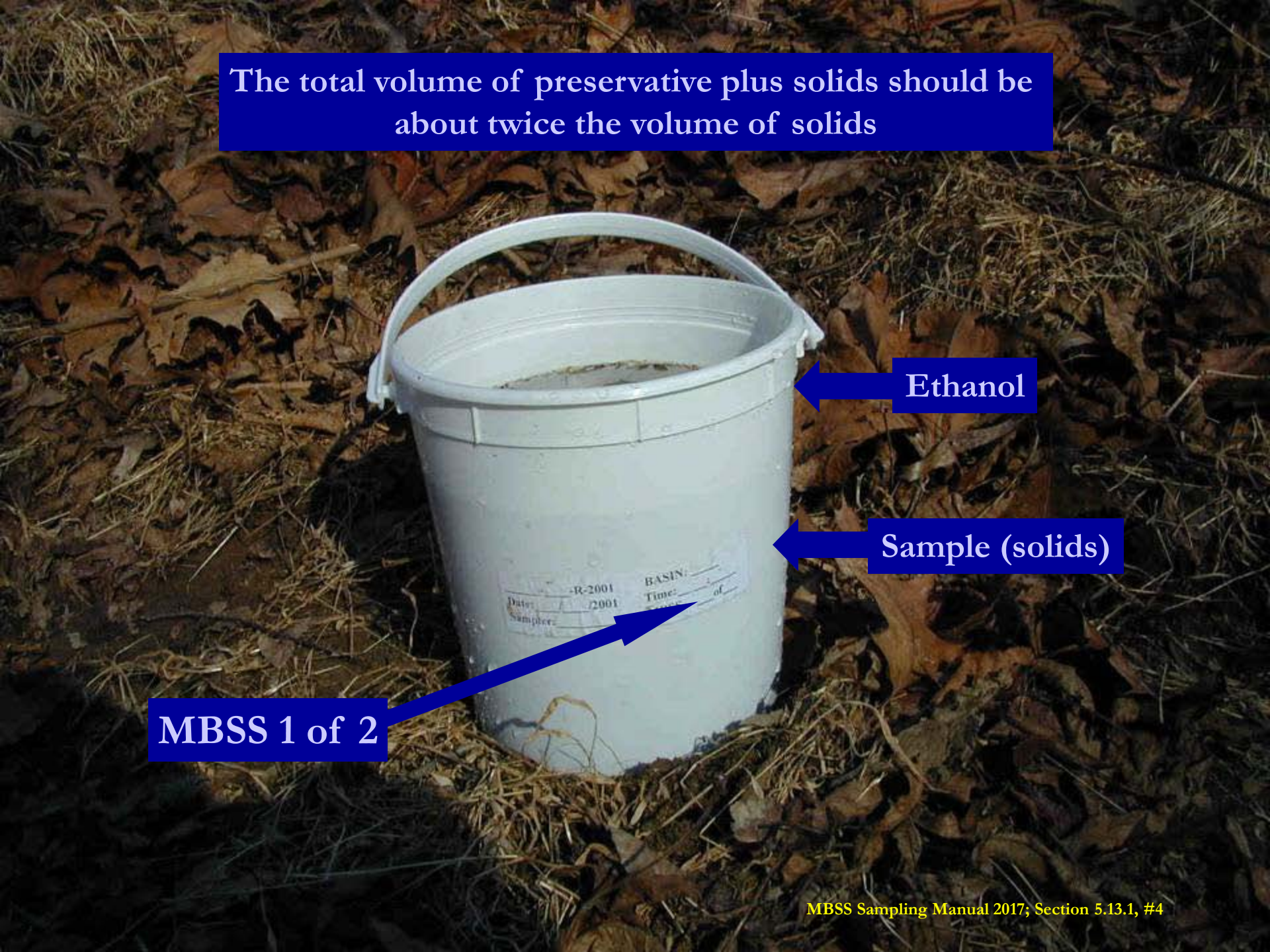
MBSS Sampling Manual 2017; Section 5.13.1, #3

MBSS Sampling Manual 2017; Section 5.13.1, #3

MBSS Sampling Manual 2017; Section 5.13.1, #3

MBSS Sampling Manual 2017; Section 5.13.1, #3

MBSS Sampling Manual 2017; Section 5.13.1, #4



MBSS Sampling Manual 2017; Section 5.13.1, #4

MBSS Sampling Manual 2017; Section 5.13.1, #4

MBSS Benthic Macroinvertebrate Sample Chain-of-Custody Sheet

Site ID	Number of Buckets	Collector (print)	Collection Date (DD/MM/YY)	Date Delivered to Field Office (DD/MM/YY)	Relinquished by (print)	Received by (print)	Field Office Log Number

Comments _____

_____

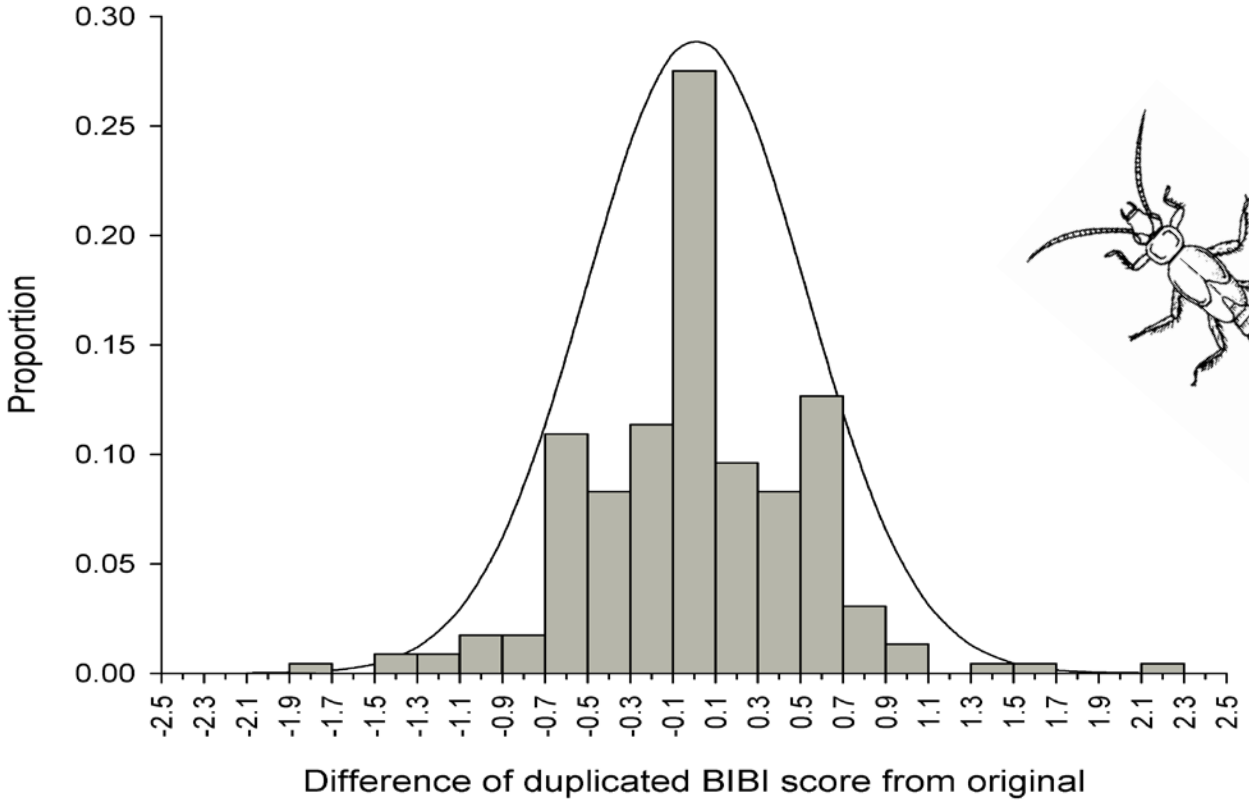
_____

MBSS Sampling Manual 2017; Section 5.13.1, #5 and Appendix G

Benthic Duplicate Analysis

214 MBSS sites had duplicate benthic field samples (2000-2016)

The IBI ranges from 1 to 5

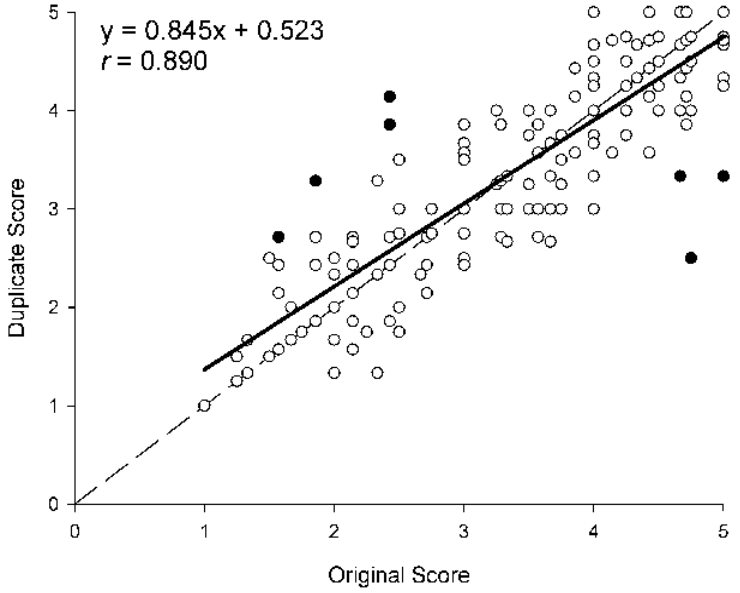


96% of sites had a difference in BIBI scores ≤1.0

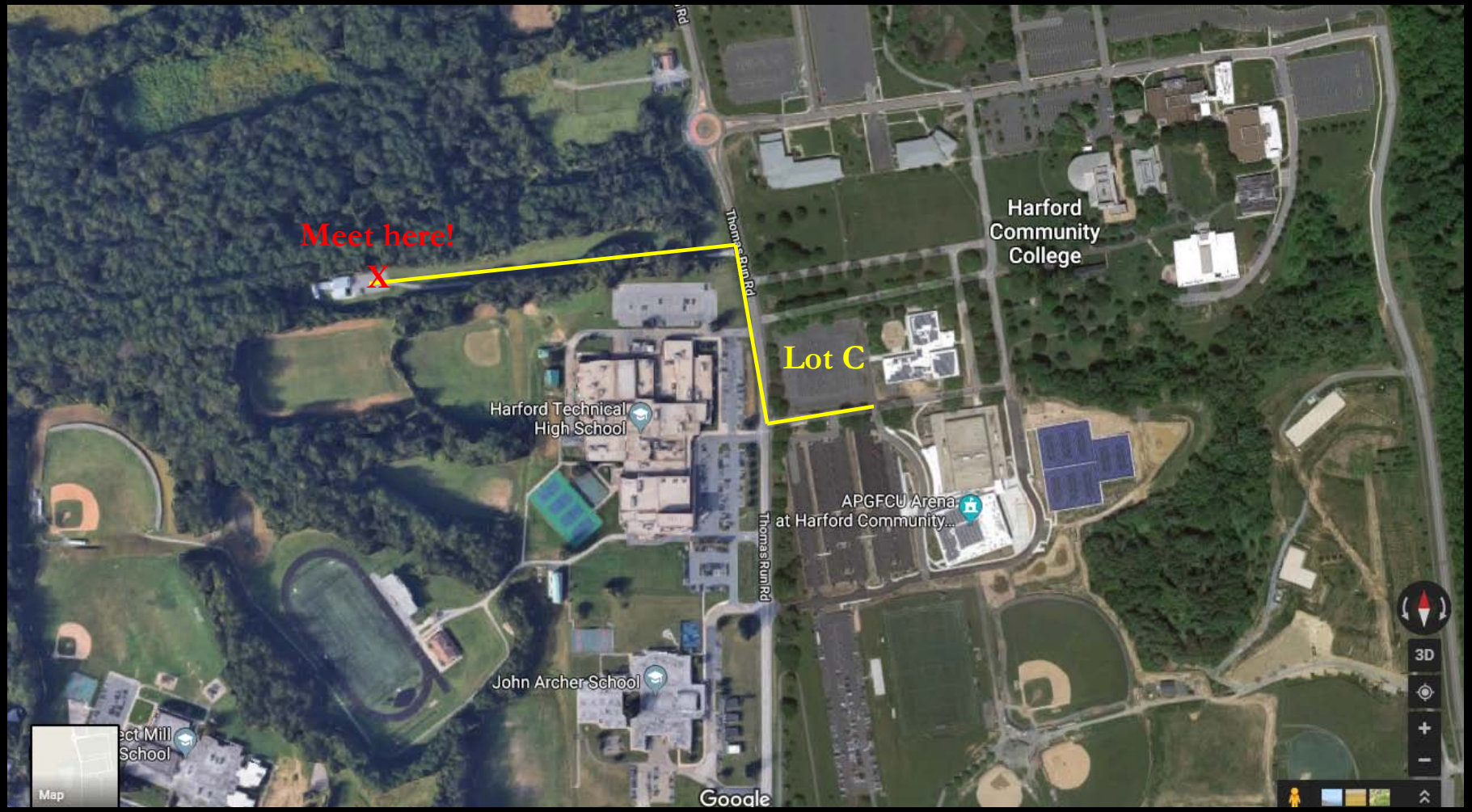
Benthic Duplicate Analysis

- Mean difference in duplicate MBSS BIBI scores = 0.37

- Max difference in duplicate BIBI scores = 2.25



For MBSS certification the difference in BIBI scores between your sample and MBSS should be ≤1.0


Meet here!
X
Lot C
Harford Community College
Harford Technical High School
APGFCU Arena at Harford Community...
John Archer School
Thomas Run Rd
Thomas Run Rd
3D
Map
Google


Jacob's Well
Assisted Living
Medical Hall Rd W
Lundys Ln
Thomas Run Rd
Northeastern
University in
tern Maryland
Meet here!
X
Lot A
Harford
Community
College
Thomas Run Rd
Lot C
Harford Technical
High School