

Stream & Location: Abram Creek upstream of confluence w/ Kelly Run RM: 0.04 Date: 09/24/12

Scott Hathorn Jon Brauer Scorers Full Name & Affiliation: Northeast Ohio Regional Sewer District

River Code: - STORET #: - Lat./ Long.: 41.417618 1.8668 Office verified location

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

<p>BEST TYPES</p> <input type="checkbox"/> BLDR /SLABS [10] <input type="checkbox"/> BOULDER [9] <input type="checkbox"/> COBBLE [8] <input checked="" type="checkbox"/> GRAVEL [7] <input type="checkbox"/> SAND [6] <input checked="" type="checkbox"/> BEDROCK [5]	<p>POOL RIFFLE</p> <table border="0"> <tr><td><u>X</u></td><td><u>X</u></td></tr> <tr><td><u>X</u></td><td><u>X</u></td></tr> <tr><td><u>X</u></td><td><u>X</u></td></tr> <tr><td><u>X</u></td><td><u>X</u></td></tr> </table>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<p>OTHER TYPES</p> <input type="checkbox"/> HARDPAN [4] <input type="checkbox"/> DETRITUS [3] <input type="checkbox"/> MUCK [2] <input type="checkbox"/> SILT [2] <input type="checkbox"/> ARTIFICIAL [0]	<p>POOL RIFFLE</p> <table border="0"> <tr><td><u>X</u></td><td><u>X</u></td></tr> <tr><td><u>X</u></td><td><u>X</u></td></tr> </table>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<p>ORIGIN</p> <input type="checkbox"/> LIMESTONE [1] <input checked="" type="checkbox"/> TILLS [1] <input type="checkbox"/> WETLANDS [0] <input type="checkbox"/> HARDPAN [0] <input type="checkbox"/> SANDSTONE [0] <input type="checkbox"/> RIP/RAP [0] <input type="checkbox"/> LACUSTURINE [0] <input type="checkbox"/> SHALE [-1] <input type="checkbox"/> COAL FINES [-2]	<p>QUALITY</p> <input type="checkbox"/> HEAVY [-2] <input type="checkbox"/> MODERATE [-1] <input checked="" type="checkbox"/> NORMAL [0] <input type="checkbox"/> FREE [1] <input type="checkbox"/> EXTENSIVE [-2] <input type="checkbox"/> MODERATE [-1] <input checked="" type="checkbox"/> NORMAL [0] <input type="checkbox"/> NONE [1]	<p>Substrate</p> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;"> 15 </div> <p>Maximum 20</p>
<u>X</u>	<u>X</u>																	
<u>X</u>	<u>X</u>																	
<u>X</u>	<u>X</u>																	
<u>X</u>	<u>X</u>																	
<u>X</u>	<u>X</u>																	
<u>X</u>	<u>X</u>																	

Check ONE (Or 2 & average)

NUMBER OF BEST TYPES: 4 or more [2] 3 or less [0] (Score natural substrates; ignore sludge from point-sources)

Comments

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

<p><u>0</u> UNDERCUT BANKS [1] <u>0</u> OVERHANGING VEGETATION [1] <u>1</u> SHALLOWS (IN SLOW WATER) [1] <u>1</u> ROOTMATS [1]</p>	<p><u>0</u> POOLS > 70cm [2] <u>1</u> ROOTWADS [1] <u>1</u> BOULDERS [1]</p>	<p><u>0</u> OXBOWS, BACKWATERS [1] <u>0</u> AQUATIC MACROPHYTES [1] <u>1</u> LOGS OR WOODY DEBRIS [1]</p>	<p>AMOUNT</p> <p>Check ONE (Or 2 & average)</p> <input type="checkbox"/> EXTENSIVE >75% [11] <input checked="" type="checkbox"/> MODERATE 25-75% [7] <input type="checkbox"/> SPARSE 5-<25% [3] <input type="checkbox"/> NEARLY ABSENT <5% [1]	<p>Cover</p> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;"> 13 </div> <p>Maximum 20</p>
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Comments

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

<p>SINUOSITY</p> <input type="checkbox"/> HIGH [4] <input type="checkbox"/> MODERATE [3] <input checked="" type="checkbox"/> LOW [2] <input type="checkbox"/> NONE [1]	<p>DEVELOPMENT</p> <input type="checkbox"/> EXCELLENT [7] <input type="checkbox"/> GOOD [5] <input type="checkbox"/> FAIR [3] <input checked="" type="checkbox"/> POOR [1]	<p>CHANNELIZATION</p> <input checked="" type="checkbox"/> NONE [6] <input type="checkbox"/> RECOVERED [4] <input type="checkbox"/> RECOVERING [3] <input type="checkbox"/> RECENT OR NO RECOVERY [1]	<p>STABILITY</p> <input type="checkbox"/> HIGH [3] <input checked="" type="checkbox"/> MODERATE [2] <input type="checkbox"/> LOW [1]	<p>Channel</p> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;"> 11 </div> <p>Maximum 20</p>
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Comments

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

<p>EROSION</p> <input type="checkbox"/> NONE / LITTLE [3] <input checked="" type="checkbox"/> MODERATE [2] <input type="checkbox"/> HEAVY / SEVERE [1]	<p>RIPARIAN WIDTH</p> <input checked="" type="checkbox"/> WIDE > 50m [4] <input type="checkbox"/> MODERATE 10-50m [3] <input type="checkbox"/> NARROW 5-10m [2] <input type="checkbox"/> VERY NARROW < 5m [1] <input type="checkbox"/> NONE [0]	<p>FLOOD PLAIN QUALITY</p> <input type="checkbox"/> FOREST, SWAMP [3] <input type="checkbox"/> SHRUB OR OLD FIELD [2] <input checked="" type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1] <input type="checkbox"/> FENCED PASTURE [1] <input type="checkbox"/> OPEN PASTURE, ROWCROP [0]	<p>CONSERVATION TILLAGE [1] <input type="checkbox"/> URBAN OR INDUSTRIAL [0] <input type="checkbox"/> MINING / CONSTRUCTION [0]</p>	<p>Riparian</p> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;"> 7 </div> <p>Maximum 10</p>
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Indicate predominant land use(s) past 100m riparian.

Comments

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

<p>MAXIMUM DEPTH</p> <p>Check ONE (ONLY!)</p> <input type="checkbox"/> > 1m [6] <input type="checkbox"/> 0.7-<1m [4] <input checked="" type="checkbox"/> 0.4-<0.7m [2] <input type="checkbox"/> 0.2-<0.4m [1] <input type="checkbox"/> < 0.2m [0]	<p>CHANNEL WIDTH</p> <p>Check ONE (Or 2 & average)</p> <input checked="" type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2] <input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1] <input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<p>CURRENT VELOCITY</p> <p>Check ALL that apply</p> <input type="checkbox"/> TORRENTIAL [-1] <input type="checkbox"/> VERY FAST [1] <input type="checkbox"/> FAST [1] <input checked="" type="checkbox"/> MODERATE [1] <input checked="" type="checkbox"/> SLOW [1] <input type="checkbox"/> INTERSTITIAL [-1] <input type="checkbox"/> INTERMITTENT [-2] <input type="checkbox"/> EDDIES [1]	<p>Recreation Potential</p> <p>Primary Contact</p> <p>Secondary Contact</p> <p>(circle one and comment on back)</p>	<p>Pool / Current</p> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;"> 6 </div> <p>Maximum 12</p>
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Indicate for reach - pools and riffles.

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average) NO RIFFLE [metric=0]

<p>RIFFLE DEPTH</p> <input checked="" type="checkbox"/> BEST AREAS > 10cm [2] <input type="checkbox"/> BEST AREAS 5-10cm [1] <input type="checkbox"/> BEST AREAS < 5cm [metric=0]	<p>RUN DEPTH</p> <input type="checkbox"/> MAXIMUM > 50cm [2] <input checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<p>RIFFLE / RUN SUBSTRATE</p> <input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2] <input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1] <input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<p>RIFFLE / RUN EMBEDDEDNESS</p> <input type="checkbox"/> NONE [2] <input checked="" type="checkbox"/> LOW [1] <input type="checkbox"/> MODERATE [0] <input type="checkbox"/> EXTENSIVE [-1]	<p>Riffle / Run</p> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;"> 5 </div> <p>Maximum 8</p>
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Comments

6) GRADIENT 31.25 ft/mi VERY LOW - LOW [2-4] MODERATE [6-10] HIGH - VERY HIGH [10-6]

DRAINAGE AREA 10.8 mi²

%POOL: %GLIDE:
 %RUN: %RIFFLE:

Gradient

6

Maximum 10

AJ SAMPLED REACH

Check ALL that apply

METHOD

- BOAT
- WADE
- L. LINE
- OTHER

STAGE

- 1st sample pass-- 2nd
- HIGH
- UP
- NORMAL
- LOW
- DRY

DISTANCE

- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER

CLARITY

- 1st --sample pass-- 2nd
- < 20 cm
- 20-40 cm
- 40-70 cm
- > 70 cm/ CTB
- SECCHI DEPTH

meters

CANOPY

- > 85%- OPEN
- 55%-<85%
- 30%-<55%
- 10%-<30%
- <10%- CLOSED

CJ RECREATION

- AREA DEPTH
- POOL: >100r2 >3ft

BJ AESTHETICS

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMoured / SLUMPS
- ISLANDS / SCoured
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

EJ ISSUES

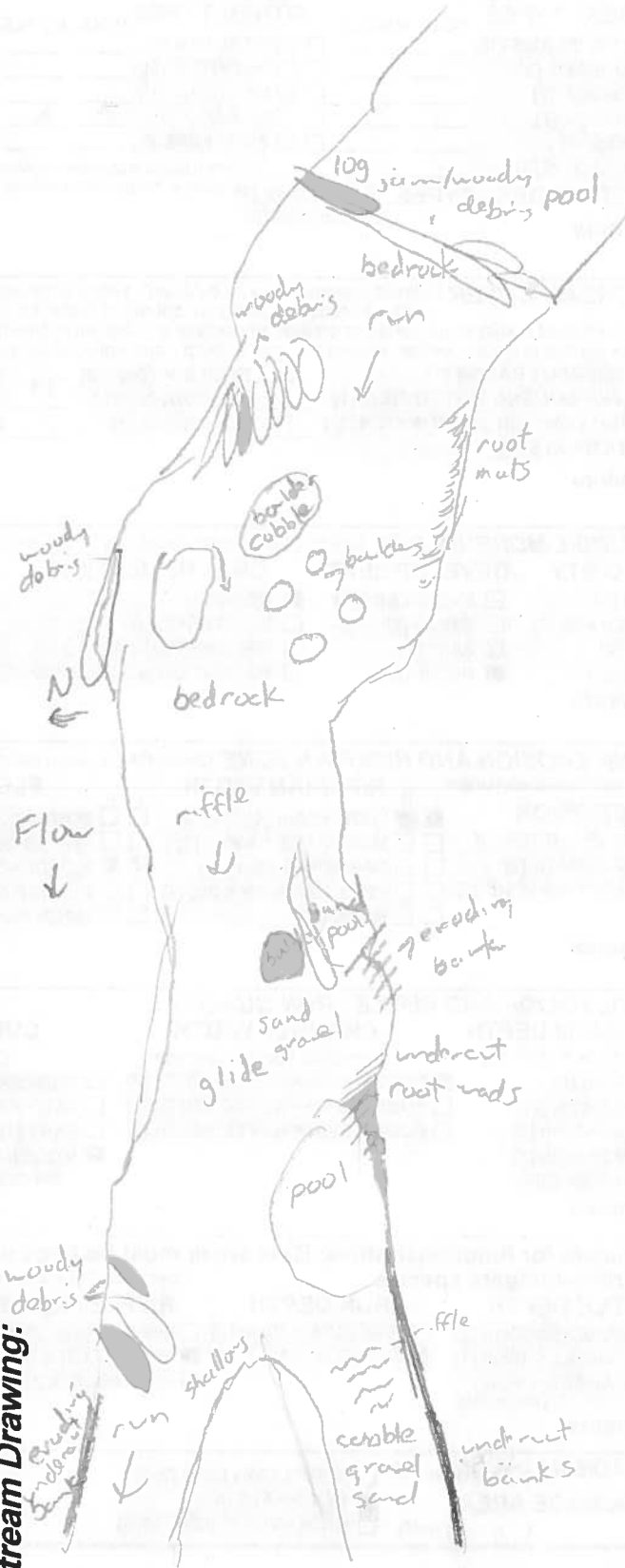
- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- \bar{x} width
- \bar{x} depth
- max. depth
- \bar{x} bankfull width
- bankfull \bar{x} depth
- W/D ratio
- bankfull max. depth
- floodprone \bar{x}^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



Comment RE: Reach consistency/ Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

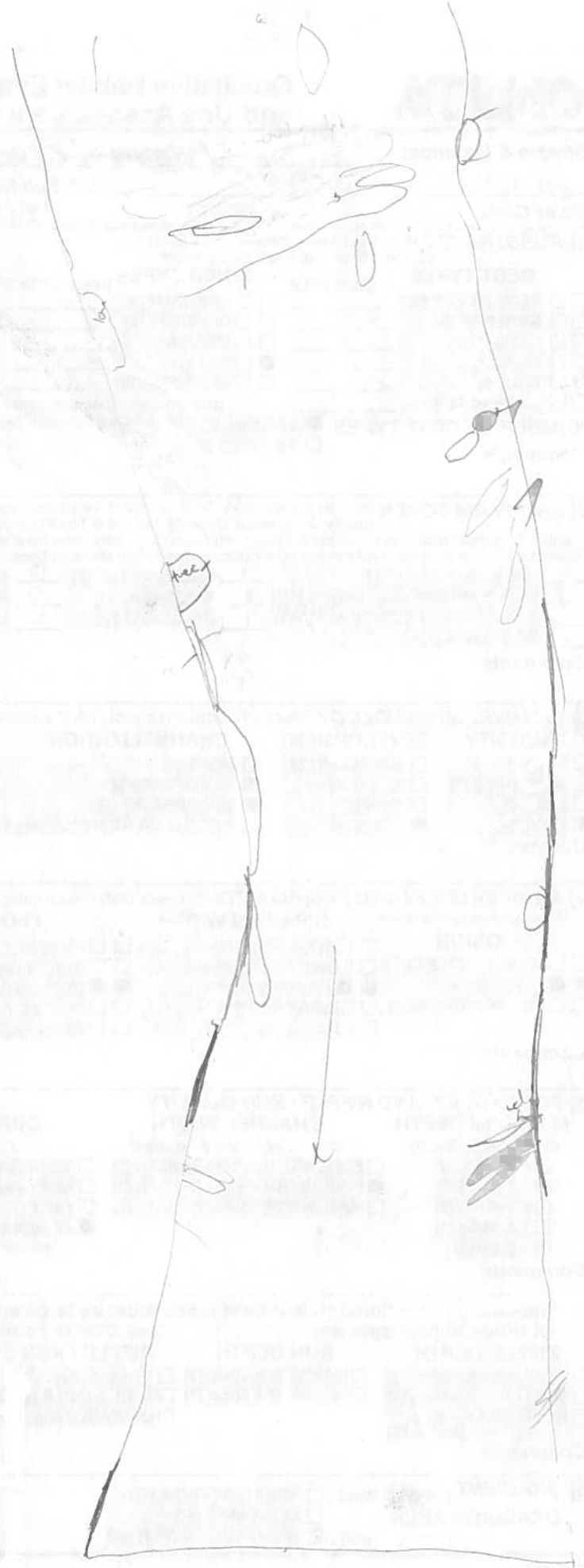
Place
UP
DOWN
Low
High

5.00 mm
10.00 mm
20.00 mm
50.00 mm
100.00 mm

5.00 mm
10.00 mm
20.00 mm
50.00 mm
100.00 mm

STANDARDIZATION
CALIBRATION
ACCURACY
PRECISION
REPRODUCIBILITY
REPEATABILITY
SAMPLING
STATISTICS
QUALITY CONTROL
QUALITY ASSURANCE
QUALITY MANAGEMENT

1. Volume
2. Depth
3. Area
4. Perimeter
5. Length
6. Mass
7. Density
8. Temperature
9. Humidity
10. Pressure
11. Time
12. Frequency
13. Power
14. Energy
15. Force
16. Torque
17. Moment
18. Acceleration
19. Velocity
20. Displacement



Stream & Location: Abram Creek Western Wildcat Road RM: 411 Date: 7/24/12

Jon Brauer Seth Hothorn Scorers Full Name & Affiliation: Northeast Ohio Regional Sewer District

River Code: STORET #: Lat./ Long.: 41.3920 81.8379 Office verified location

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. BEST TYPES: BLDR/SLABS [10], BOULDER [9], COBBLE [8], GRAVEL [7], SAND [6], BEDROCK [5]. OTHER TYPES: HARDPAN [4], DETRITUS [3], MUCK [2], SILT [2], ARTIFICIAL [0]. ORIGIN: LIMESTONE [1], TILLS [1], WETLANDS [0], HARDPAN [0], SANDSTONE [0], RIP/RAP [0], LACUSTURINE [0], SHALE [-1], COAL FINES [-2]. QUALITY: HEAVY [-2], MODERATE [-1], NORMAL [0], FREE [1], EXTENSIVE [-2], MODERATE [-1], NORMAL [0], NONE [1].

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts. UNDERCUT BANKS [1], OVERHANGING VEGETATION [1], SHALLOWS (IN SLOW WATER) [1], ROOTMATS [1]. POOLS > 70cm [2], ROOTWADS [1], BOULDERS [1]. OXBOWS, BACKWATERS [1], AQUATIC MACROPHYTES [1], LOGS OR WOODY DEBRIS [1]. AMOUNT: EXTENSIVE >75% [11], MODERATE 25-75% [7], SPARSE 5-<25% [3], NEARLY ABSENT <5% [1].

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). SINUOSITY: HIGH [4], MODERATE [3], LOW [2], NONE [1]. DEVELOPMENT: EXCELLENT [7], GOOD [5], FAIR [3], POOR [1]. CHANNELIZATION: NONE [6], RECOVERED [4], RECOVERING [3], RECENT OR NO RECOVERY [1]. STABILITY: HIGH [3], MODERATE [2], LOW [1].

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). RIVER RIGHT LOOKING DOWNSTREAM. EROSION: NONE/LITTLE [3], MODERATE [2], HEAVY/SEVERE [1]. RIPARIAN WIDTH: WIDE > 50m [4], MODERATE 10-50m [3], NARROW 5-10m [2], VERY NARROW < 5m [1], NONE [0]. FLOOD PLAIN QUALITY: FOREST, SWAMP [3], SHRUB OR OLD FIELD [2], RESIDENTIAL, PARK, NEW FIELD [1], FENCED PASTURE [1], OPEN PASTURE, ROWCROP [0]. CONSERVATION TILLAGE [1], URBAN OR INDUSTRIAL [0], MINING / CONSTRUCTION [0].

5) POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH: > 1m [6], 0.7-<1m [4], 0.4-<0.7m [2], 0.2-<0.4m [1], < 0.2m [0]. CHANNEL WIDTH: POOL WIDTH > RIFFLE WIDTH [2], POOL WIDTH = RIFFLE WIDTH [1], POOL WIDTH < RIFFLE WIDTH [0]. CURRENT VELOCITY: TORRENTIAL [-1], VERY FAST [1], FAST [1], MODERATE [1], SLOW [1], INTERSTITIAL [-1], INTERMITTENT [-2], EDDIES [1]. Recreation Potential: Primary Contact, Secondary Contact.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). NO RIFFLE [metric=0]. RIFFLE DEPTH: BEST AREAS > 10cm [2], BEST AREAS 5-10cm [1], BEST AREAS < 5cm [metric=0]. RUN DEPTH: MAXIMUM > 50cm [2], MAXIMUM < 50cm [1]. RIFFLE / RUN SUBSTRATE: STABLE (e.g., Cobble, Boulder) [2], MOD. STABLE (e.g., Large Gravel) [1], UNSTABLE (e.g., Fine Gravel, Sand) [0]. RIFFLE / RUN EMBEDDEDNESS: NONE [2], LOW [1], MODERATE [0], EXTENSIVE [-1].

6) GRADIENT (0.11 ft/mi) DRAINAGE AREA (4.44 mi²) VERY LOW - LOW [2-4], MODERATE [6-10], HIGH - VERY HIGH [10-6]. %POOL: %GLIDE: %RUN: %RIFFLE: Gradient Maximum 10.

Comment RE: Reach consistency/Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

AJ SAMPLED REACH

Check ALL that apply

METHOD

- BOAT
- WADE
- L. LINE
- OTHER

STAGE

- 1st -sample pass-- 2nd
- HIGH
 - UP
 - NORMAL
 - LOW
 - DRY

DISTANCE

- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER

CLARITY

- 1st 2nd
- < 20 cm
 - 20-40 cm
 - 40-70 cm
 - > 70 cm/ CTB
 - SECCHI DEPTH

meters

CANOPY

- > 85%- OPEN
- 55%-<85%
- 30%-<55%
- 10%-<30%
- <10%- CLOSED

CJ RECREATION

- AREA DEPTH
- POOL: >100R2 >3ft

BJ AESTHETICS

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOs/ISSOs/OUTFALLS

DJ MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMoured / SLUMPS
- ISLANDS / SCOURED
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

EJ ISSUES

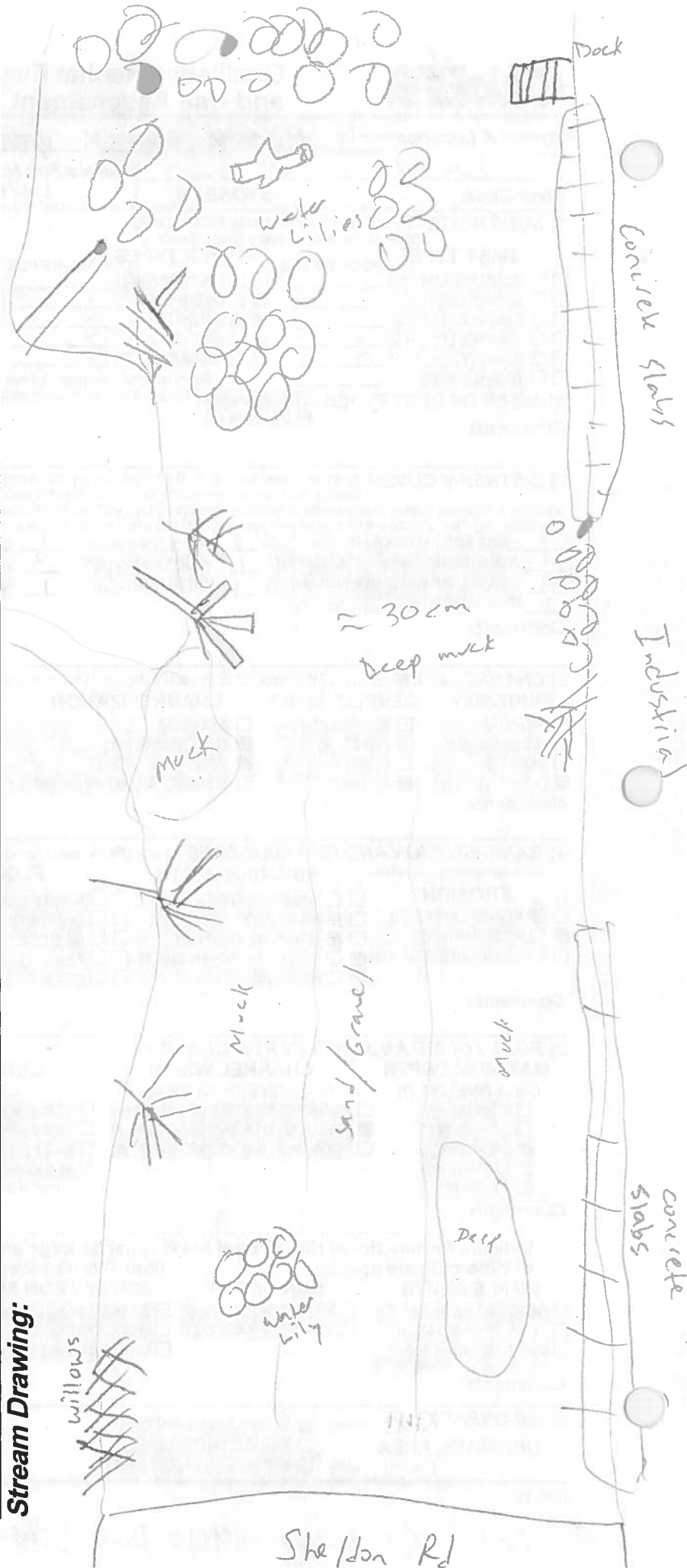
- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
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- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- \bar{x} width
- \bar{x} depth
- max. depth
- \bar{x} bankfull width
- bankfull \bar{x} depth
- W/D ratio
- bankfull max. depth
- floodprone \bar{x}^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:





Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 9.5

Stream & Location: Rocky River (Downstream of Mill Creek) **RM:** 10.20 **Date:** 09/25/12
 Inova & J. Bruller **Scorers Full Name & Affiliation:** Northeast Ohio Regional Sewer District
River Code: - - - **STORET #:** - - - **Lat./ Long.:** 41.4173181, -86.16 **Office verified location**

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY	
<input type="checkbox"/> BLDR /SLABS [10]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/>	<input type="checkbox"/> HEAVY [-2]	14
<input type="checkbox"/> BOULDER [9]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> TILLS [1]	<input type="checkbox"/> MODERATE [-1]	Substrate Maximum 20	
<input type="checkbox"/> COBBLE [8]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> MUCK [2]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> WETLANDS [0]	<input type="checkbox"/> NORMAL [0]		
<input type="checkbox"/> GRAVEL [7]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> SILT [2]	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/> FREE [1]		
<input type="checkbox"/> SAND [6]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> EXTENSIVE [-2]		
<input type="checkbox"/> BEDROCK [5]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(Score natural substrates; ignore sludge from point-sources)				<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/> MODERATE [-1]		

NUMBER OF BEST TYPES: 4 or more [2] 3 or less [0]

Comments

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

<input type="checkbox"/> UNDERCUT BANKS [1]	<input checked="" type="checkbox"/> POOLS > 70cm [2]	<input type="checkbox"/> OXBOWS, BACKWATERS [1]	14
<input type="checkbox"/> OVERHANGING VEGETATION [1]	<input type="checkbox"/> ROOTWADS [1]	<input type="checkbox"/> AQUATIC MACROPHYTES [1]	
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/> BOULDERS [1]	<input type="checkbox"/> LOGS OR WOODY DEBRIS [1]	
<input checked="" type="checkbox"/> ROOTMATS [1]			

Comments

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]
<input type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input type="checkbox"/> MODERATE [2]
<input checked="" type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]	

Comments

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
<input checked="" type="checkbox"/> NONE / LITTLE [3]	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/> FOREST, SWAMP [3]
<input type="checkbox"/> MODERATE [2]	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]
	<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> FENCED PASTURE [1]
	<input type="checkbox"/> NONE [0]	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]

Comments

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
Check ONE (ONLY!)	Check ONE (Or 2 & average)	Check ALL that apply	
<input type="checkbox"/> > 1m [6]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> TORRENTIAL [-1]	
<input type="checkbox"/> 0.7-<1m [4]	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input checked="" type="checkbox"/> SLOW [1]	

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
<input checked="" type="checkbox"/> BEST AREAS > 10cm [2]	<input checked="" type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input type="checkbox"/> MAXIMUM < 50cm [1]	<input type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input checked="" type="checkbox"/> MODERATE [0]

Comments

6] GRADIENT (6.62 ft/mi) VERY LOW - LOW [2-4] MODERATE [6-10] HIGH - VERY HIGH [10-6]

DRAINAGE AREA (280 mi²)

%POOL: **%GLIDE:**

%RUN: **%RIFFLE:**

Gradient Maximum 10

Stream & Location: Rocky River WESTERN OF ABRAM CREEK RM: 10.50 Date: 09/25/12
S. Novak J. Bauer Scorers Full Name & Affiliation: Northeast Ohio Regional Sewer District

River Code: STORET #: Lat./ Long.: 41.4183 181.8676 Office verified location

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. BEST TYPES, OTHER TYPES, POOL RIFFLE, ORIGIN, QUALITY. Includes checkboxes for Bldr/Slabs, Boulder, Cobble, Gravel, Sand, Bedrock, Hardpan, Detritus, Muck, Silts, Artificial, Limestone, Tills, Wetlands, Sandstone, Rip/Rap, Lacustrine, Shale, Coal Fines, Heavy, Moderate, Normal, Free, Extensive, None.

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts... UNDERCUT BANKS, OVERHANGING VEGETATION, SHALLOWS, ROOTMATS, POOLS > 70cm, ROOTWADS, BOULDERS, OXBOWS, BACKWATERS, AQUATIC MACROPHYTES, LOGS OR WOODY DEBRIS. Includes AMOUNT checkboxes for Extensive, Moderate, Sparse, Nearly Absent.

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). SINUOSITY, DEVELOPMENT, CHANNELIZATION, STABILITY. Includes checkboxes for High, Moderate, Low, None, Excellent, Good, Fair, Poor, Recovered, Regent or No Recovery.

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). EROSION, RIPARIAN WIDTH, FLOOD PLAIN QUALITY. Includes checkboxes for None/Little, Moderate, Heavy/Severe, Wide, Moderate, Narrow, Very Narrow, Forest, Shrub, Residential, Fenced Pasture, Open Pasture, Conservation Tillage, Urban/Industrial, Mining/Construction.

5] POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH, CHANNEL WIDTH, CURRENT VELOCITY, Recreation Potential. Includes checkboxes for depth, width, velocity, and recreation potential categories.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: RIFFLE DEPTH, RUN DEPTH, RIFFLE / RUN SUBSTRATE, RIFFLE / RUN EMBEDDEDNESS. Includes checkboxes for riffle/run characteristics.

6] GRADIENT (ft/ml) DRAINAGE AREA (mi^2) %POOL, %GLIDE, %RUN, %RIFFLE. Includes checkboxes for gradient and drainage area categories.

AJ SAMPLED REACH

Check ALL that apply

METHOD

- BOAT
- WADE
- L. LINE
- OTHER

STAGE

- 1st -sample pass- 2nd
- HIGH
- UP
- NORMAL
- LOW
- DRY

DISTANCE

- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER

CLARITY

- 1st --sample pass-- 2nd
- < 20 cm
- 20-40 cm
- 40-70 cm
- > 70 cm/ GTB
- SECCHI DEPTH

meters

CANOPY

- > 85%- OPEN
- 55%-85%
- 30%-55%
- 10%-30%
- <10%-CLOSED

CJ RECREATION

- AREA DEPTH
- POOL: >100R2 >3ft

BJ AESTHETICS

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM/ SCUM
- OIL SHEEN
- TRASH/ LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMoured / SLUMPS
- ISLANDS / SCOURED
- FLOOD CONTROL / DRAINAGE

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- \bar{x} width
- \bar{x} depth
- max. depth
- \bar{x} bankfull width
- bankfull \bar{x} depth
- W/D ratio
- bankfull max. depth
- floodprone \bar{x} width
- entrench. ratio

Legacy Tree:

Stream Drawing:



← FLOW

Abcam

