



# Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

**QHEI Score:** 62

**Stream & Location:** Cuyahoga River (Upstream of SRB2) **RM:** 20.15 **Date:** 08/02/17

Brauer

**Scorer's Full Name & Affiliation:** Northeast Ohio Regional Sewer District

**River Code:** - **STORET #:** - **Lat./ Long.:** 41.3207181.5815 (NAD 83 - decimal) **Office verified location**

### 1) SUBSTRATE

Check **ONLY** Two substrate **TYPE BOXES**; estimate % or note every type present

<b>BEST TYPES</b>		<b>OTHER TYPES</b>		<b>ORIGIN</b>		<b>QUALITY</b>		<b>Substrate</b> <span style="border: 1px solid black; border-radius: 50%; padding: 5px; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">11</span> Maximum 20
<input type="checkbox"/> BLDR /SLABS [10]	<input type="checkbox"/> POOL RIFFLE	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> POOL RIFFLE	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/> SILT	<input type="checkbox"/> HEAVY [-2]	<input type="checkbox"/> MODERATE [-1]	
<input type="checkbox"/> BOULDER [9]	<input checked="" type="checkbox"/>	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/>	<input checked="" type="checkbox"/> TILLS [1]	<input type="checkbox"/>	<input checked="" type="checkbox"/> NORMAL [0]	<input type="checkbox"/> FREE [1]	
<input type="checkbox"/> COBBLE [8]	<input checked="" type="checkbox"/>	<input type="checkbox"/> MUCK [2]	<input type="checkbox"/>	<input type="checkbox"/> WETLANDS [0]	<input type="checkbox"/>	<input type="checkbox"/> EXTENSIVE [-2]	<input type="checkbox"/> MODERATE [-1]	
<input type="checkbox"/> GRAVEL [7]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> SILT [2]	<input checked="" type="checkbox"/>	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/>	<input type="checkbox"/> MODERATE [-1]	<input checked="" type="checkbox"/> NORMAL [0]	
<input checked="" type="checkbox"/> SAND [6]	<input checked="" type="checkbox"/>	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/>	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/>	<input type="checkbox"/> MODERATE [-1]	<input type="checkbox"/> NONE [1]	
<input type="checkbox"/> BEDROCK [5]	<input type="checkbox"/>	<small>(Score natural substrates; ignore sludge from point-sources)</small>		<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>NUMBER OF BEST TYPES:</b> <input checked="" type="checkbox"/> 4 or more [2] <input type="checkbox"/> 3 or less [0]				<input type="checkbox"/> LACUSTURINE [0]	<input type="checkbox"/>			
<b>Comments</b>				<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/>			
				<input type="checkbox"/> COAL FINES [-2]	<input type="checkbox"/>			

### 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.

<u>2</u> UNDERCUT BANKS [1]	<u>2</u> POOLS > 70cm [2]	<u>0</u> OXBOWS, BACKWATERS [1]	<b>AMOUNT</b> Check ONE (Or 2 & average)	
<u>1</u> OVERHANGING VEGETATION [1]	<u>1</u> ROOTWADS [1]	<u>0</u> AQUATIC MACROPHYTES [1]	<input type="checkbox"/> EXTENSIVE >75% [11]	<input checked="" type="checkbox"/> MODERATE 25-75% [7]
<u>1</u> SHALLOWS (IN SLOW WATER) [1]	<u>1</u> BOULDERS [1]	<u>1</u> LOGS OR WOODY DEBRIS [1]	<input checked="" type="checkbox"/> SPARSE 5-<25% [3]	<input type="checkbox"/> NEARLY ABSENT <5% [1]
<u>1</u> ROOTMATS [1]			<b>Channel</b> Maximum 20	
<b>Comments</b>			<span style="border: 1px solid black; border-radius: 50%; padding: 5px; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">16</span>	

### 3) CHANNEL MORPHOLOGY

Check ONE in each category (Or 2 & average)

<b>SINUOSITY</b>	<b>DEVELOPMENT</b>	<b>CHANNELIZATION</b>	<b>STABILITY</b>	<b>Channel</b> Maximum 20
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input checked="" type="checkbox"/> HIGH [3]	
<input type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input checked="" type="checkbox"/> RECOVERED [4]	<input type="checkbox"/> MODERATE [2]	<span style="border: 1px solid black; border-radius: 50%; padding: 5px; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">10</span>
<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 checked="" type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]		
<b>Comments</b>				

### 4) BANK EROSION AND RIPARIAN ZONE

Check ONE in each category for EACH BANK (Or 2 per bank & average)

<b>EROSION</b>		<b>RIPARIAN WIDTH</b>		<b>FLOOD PLAIN QUALITY</b>		<b>Riparian</b> Maximum 10
<input checked="" type="checkbox"/> NONE / LITTLE [3]	<input checked="" type="checkbox"/> MODERATE 10-50m [3]	<input checked="" type="checkbox"/> WIDE > 50m [4]	<input checked="" type="checkbox"/> MODERATE 10-50m [3]	<input checked="" type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> CONSERVATION TILLAGE [1]	
<input type="checkbox"/> MODERATE [2]	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> MINING / CONSTRUCTION [0]	
	<input type="checkbox"/> NONE [0]	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> NONE [0]	<input type="checkbox"/> FENCED PASTURE [1]	<small>Indicate predominant land use(s) past 100m riparian.</small>	
<b>Comments</b>		3.5		2.5		<span style="border: 1px solid black; border-radius: 50%; padding: 5px; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">9</span>

### 5) POOL / GLIDE AND RIFFLE / RUN QUALITY

<b>MAXIMUM DEPTH</b> Check ONE (ONLY)	<b>CHANNEL WIDTH</b> Check ONE (Or 2 & average)	<b>CURRENT VELOCITY</b> Check ALL that apply	<b>Recreation Potential</b> <b>Primary Contact</b> <b>Secondary Contact</b> <small>(circle one and comment on back)</small>
<input checked="" 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]	<b>Pool / Current</b> Maximum 12
<input type="checkbox"/> 0.4-<0.7m [2]	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input type="checkbox"/> VERY FAST [1]	
<input type="checkbox"/> 0.2-<0.4m [1]		<input type="checkbox"/> FAST [1]	<span style="border: 1px solid black; border-radius: 50%; padding: 5px; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">8</span>
<input type="checkbox"/> < 0.2m [0]		<input type="checkbox"/> MODERATE [1]	
<b>Comments</b>			

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:  NO RIFFLE [metric=0]

<b>RIFFLE DEPTH</b>	<b>RUN DEPTH</b>	<b>RIFFLE / RUN SUBSTRATE</b>	<b>RIFFLE / RUN EMBEDDEDNESS</b>
<input type="checkbox"/> BEST AREAS > 10cm [2]	<input 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 type="checkbox"/> MODERATE [0]
<b>Comments</b>			<b>Riffle / Run</b> Maximum 8
			<span style="border: 1px solid black; border-radius: 50%; padding: 5px; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">0</span>

<b>6) GRADIENT</b> (3.34 ft/mi)	<input type="checkbox"/> VERY LOW - LOW [2-4]	<b>% POOL:</b> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">  </span>	<b>% GLIDE:</b> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">  </span>	<b>Gradient</b> Maximum 10
<b>DRAINAGE AREA</b> (583.00 mi <sup>2</sup> )	<input checked="" type="checkbox"/> MODERATE [6-10]	<b>% RUN:</b> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">  </span>	<b>% RIFFLE:</b> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">  </span>	
	<input type="checkbox"/> HIGH - VERY HIGH [10-6]			

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**

- < 20 cm
- 20-40 cm
- 40-70 cm
- > 70 cm/ CTB
- SECCHI DEPTH

0.55 meters

**CANOPY**

- > 85% - OPEN
- 56%-86%
- 30%-55%
- 10%-30%
- <10% - CLOSED

**BJ AESTHETICS**

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

**CJ RECREATION**

- POOL:  >100ft<sup>2</sup>  >3ft

**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 H<sub>2</sub>O / TILE / H<sub>2</sub>O 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:**

