



# Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION \_\_\_\_\_  
 \_\_\_\_\_ SITE NUMBER \_\_\_\_\_ RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. \_\_\_\_\_ LONG. \_\_\_\_\_ RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE \_\_\_\_\_ SCORER \_\_\_\_\_ COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	_____
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	_____
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	_____

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock \_\_\_\_\_

(A)

Substrate Percentage Check

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

**HHEI Metric Points**

Substrate Max = 40

A + B

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

Pool Depth Max = 30

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters):

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull Width Max=30

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters):

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(Per Bank)	L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

- WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_
- CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_
- EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: \_\_\_\_\_ NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_

County: \_\_\_\_\_ Township / City: \_\_\_\_\_

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): \_\_\_\_\_ Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N): \_\_\_\_\_ Canopy (% open): \_\_\_\_\_

Were samples collected for water chemistry? (Y/N): \_\_\_\_\_ (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_

Field Measures: Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (S.U.) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_

Is the sampling reach representative of the stream (Y/N) \_\_\_\_\_ If not, please explain: \_\_\_\_\_

\_\_\_\_\_

Additional comments/description of pollution impacts: \_\_\_\_\_

\_\_\_\_\_

**BIOTIC EVALUATION**

Performed? (Y/N): \_\_\_\_\_ (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

Frogs or Tadpoles Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

Comments Regarding Biology: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

**STREAM DRAWING ON ORIGINAL FIELD DATA SHEETS STORED AT LAKE SWCD OFFICE.**

**FLOW** 

**PHWH STREAM BIOLOGICAL CHARACTERISTICS FIELD SHEET:**

**1. Fish:**                      Voucher Specimens Retained? (select)                      Time Spent (minutes): \_\_\_\_\_  
 Sample Method \_\_\_\_\_                      Stream Length Assessed (meters) \_\_\_\_\_

Species	Number Caught	Notes

**2. Salamanders:**                      Voucher Specimens Retained? (circle) Y / N                      Time Spent (minutes): \_\_\_\_\_  
 Sample Method \_\_\_\_\_                      Stream Length Assessed (meters) \_\_\_\_\_

Species ( <i>Genus</i> )	# Larvae	# Juveniles/Adults	Total Number
<b>Mountain Dusky</b> ( <i>Desmognathus ochrophaeus</i> )			
<b>Northern Dusky</b> ( <i>Desmognathus fuscus</i> )			
<b>Two-lined</b> ( <i>Eurycea bislineata</i> )			
<b>Long-tailed</b> ( <i>Eurycea longicauda</i> )			
<b>Cave</b> ( <i>Eurycea lucifuga</i> )			
<b>Red</b> ( <i>Pseudotriton ruber</i> )			
<b>Mud</b> ( <i>Pseudotriton montanus</i> )			
<b>Spring</b> ( <i>Gyrinophilus porphyriticus</i> )			
<b>Mole spp.</b> ( <i>Ambystoma spp.</i> )			
<b>Four-toed</b> ( <i>Hemidactylum scutatum</i> )			
<b>Other (name)</b>			
<b>Total</b>			

Notes on Vertebrates: \_\_\_\_\_

### 3. Macroinvertebrate Scoring Sheet:

#### THE HEADWATER MACROINVERTEBRATE FIELD EVALUATION INDEX (HMFEI) SCORING SHEET

Indicate Abundance of Each Taxa Above each White Box.

Record HMFEI Scoring Value Points Within each Box.

For EPT taxa, also indicate the different taxa present.

**Key:** **V** = Very Abundant (> 50); **A** = Abundant (10 -50); **C** = Common (3 -9); **R** = Rare (< 3)

Sessile Animals ( <b>Porifera</b> , <b>Cnidaria</b> , <b>Bryozoa</b> ) (HMFEI pts = 1)	<input type="text"/>	Crayfish ( <b>Decapoda</b> ) (HMFEI pts = 2)	<input type="text"/>	Fishfly Larvae ( <b>Corydalidae</b> ) (HMFEI pts = 3)	<input type="text"/>
Aquatic Worms ( <b>Turbellaria</b> , <b>Hirudinea</b> , <b>Oligochaeta</b> ) (HMFEI pts = 1)	<input type="text"/>	Dragonfly Nymphs ( <b>Anisoptera</b> ) (HMFEI pts = 2)	<input type="text"/>	Water Penny Beetles ( <b>Psephenidae</b> ) (HMFEI pts = 3)	<input type="text"/>
Sow Bugs ( <b>Isopoda</b> ) (HMFEI pts = 1)	<input type="text"/>	Riffle Beetles ( <b>Dryopidae</b> , <b>Elmidae</b> , <b>Ptilodactylidae</b> ) (HMFEI pts = 2)	<input type="text"/>	Crane-fly Larvae ( <b>Tipulidae</b> ) (HMFEI pts = 3)	<input type="text"/>
Scuds ( <b>Amphipoda</b> ) (HMFEI pts = 1)	<input type="text"/>	Larvae of other Flies (enter name in comments) ( <b>Diptera</b> ): (HMFEI pts = 1)	<input type="text"/>	<b>EPT TAXA*</b>	
Water Mites ( <b>Hydracarina</b> ) (HMFEI pts = 1)	<input type="text"/>	Midges ( <b>Chironomidae</b> ) (HMFEI pts = 1)	<input type="text"/>	Total No. EPT Taxa = _____	
Damselfly Nymphs ( <b>Zygoptera</b> ) (HMFEI pts = 1)	<input type="text"/>	Snails ( <b>Gastropoda</b> ) (HMFEI pts = 1)	<input type="text"/>	Mayfly Nymphs ( <b>Ephemeroptera</b> ) Taxa Present: HMFEI pts = _____	<input type="text"/>
Alderfly Larvae ( <b>Sialidae</b> ) (HMFEI pts = 1)	<input type="text"/>	Clams ( <b>Bivalvia</b> ) (HMFEI pts = 1)	<input type="text"/>	No. Taxa (x) 3] _____	
Other Beetles ( <b>Coleoptera</b> ) (HMFEI pts = 1)	<input type="text"/>	Other Taxa :		Stonefly Nymphs ( <b>Plecoptera</b> ) Taxa Present: HMFEI pts = _____	<input type="text"/>
Other Taxa:		Other Taxa:		No. Taxa (x) 3] _____	
Other Taxa:		Other Taxa:		Caddisfly Larvae ( <b>Trichoptera</b> ) Taxa Present: HMFEI pts = _____	<input type="text"/>
Other Taxa:		Other Taxa:		No. Taxa (x) 3] _____	

\*Note: EPT identification based upon Family or Genus level of taxonomy

Voucher Sample ID \_\_\_\_\_

Time Spent (minutes): \_\_\_\_\_

Notes on Macroinvertebrates: (Predominant Organisms; Other Common Organisms; Diversity Estimate)

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Final HMFEI Calculated Score (Sum of All White Box Scores) =

IF Final HMFEI Score is > 19, Then CLASS III PWHH STREAM  
 IF Final HMFEI Score is 7 to 19, Then CLASS II PWHH STREAM  
 IF Final HMFEI Score is < 7, Then CLASS I PWHH STREAM