Citizens Qualitative Habitat Evaluation Index (CQHEI)

Date: __/__/__ Volunteer ID: _____ Site ID: _____ Stream Length: _____

Stream Name: _____ Location Details: _____

CQHEI Total ☐

1. SUBSTRATE (bottom type) — Score ☐

b) Size

- ☐ ***(14 pts)* Mostly Large** (fist size or bigger)
- ☐ **(*10 pts)* Mostly Medium** (smaller than fist, larger than fingernail
- ☐ ***(6 pts)* Mostly Small** (smaller than fingernail, but course, or Bedrock)
- ☐ ***(0 pts)* Mostly Very Fine** (not course, sometimes greasy or mucky)

a) Smothering- Are fist sized and larger pieces smothered by sands/silts? *(Symptoms Hard to move pieces, often black on the bottom)*

- ☐ ***(5 pts)* No**
- ☐ **(*0 pts)* Yes**

c) Silting- Are silts and clays distributed throughout the stream? (symptoms- light kicking results in substantial clouding for more than a minute)

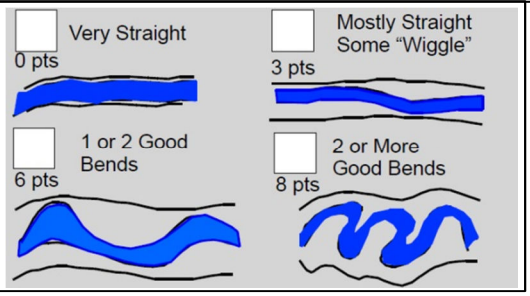
- ☐ ***(5 pts)* No**
- ☐ ***(0 pts)* Yes**

2. FISH COVER (hiding places) – ***Add 2 points for each one present*** — Score ☐

- ☐ Underwater tree roots (large)
- ☐ Underwater tree rootlets (small)
- ☐ Shrubs/small trees hang over the bank
- ☐ Downed trees, logs, or branches
- ☐ Backwater, oxbows, or side channels
- ☐ Shallow, slow areas for small fish
- ☐ Deep areas (chest deep)
- ☐ Water plants
- ☐ Undercut banks
- ☐ Boulders

3. STREAM SHAPE & HUMAN ALTERATIONS — Score ☐

a) Curviness or Sinuosity



b) How natural is the site?

- ☐ ***(12 pts)* Mostly Natural (12 pts)**
- ☐ **(*9 pts)* A few minor artificial changes** (eg. a bridge)
- ☐ ***(6 pts)* Many changes, but some natural conditions left** (eg. Trees, meanders)
- ☐ ***(0 pts)* Heavy changes** (eg. Leveed or channelized)

4. STREAM FORESTS & WETLANDS (Riparian Area) & EROSION — Score ☐

a) Riparian Width -mostly

- ☐ ***(8 pts)* Wide** -can't throw a rock through
- ☐ ***(5 pts)* Narrow** -can throw a rock through
- ☐ **(*0 pts)* None**

b) Land Use - mostly

- ☐ Forest/wetland
- ☐ Shrubs
- ☐ Overgrown fields
- ☐ Fenced pasture
- ☐ Park (grass)
- ☐ Conservation Tillage
- ☐ Suburban
- ☐ Row Crop
- ☐ Open Pasture
- ☐ Urban/Industrial

c) Bank Erosion

- ☐ ***(4 pts)*** Stable, hard, or well vegetated
- ☐ ***(2 pts)*** Combination of stable & eroding
- ☐ ***(0 pt)*** Raw collapsing banks

d) Stream Shading

- ☐ ***(3 pts)* Mostly**
- ☐ ***(2 pts)* Partly**
- ☐ ***(0 pts)* None**

5. DEPTH & VELOCITY — Score ☐

a) Deepest Pool is at Least:

- ☐ ***(8 pts)* Chest Deep**
- ☐ ***(6 pts)* Waist Deep**
- ☐ ***(4 pts)* Knee Deep**
- ☐ ***(0 pts)* Pools do not exist**

a) Check <u>all</u> flow types that exist:

- ☐ ***(2 pts)* Very fast,** hard to stand in current
- ☐ **(*3 pts)* Fast,** quickly takes objects downstream
- ☐ ***(1 pt)* Moderate,** slowly takes objects downstream
- ☐ ***(1 pt)* Slow,** flow nearly absent
- ☐ ***(0 pts)* None,** no flow

6. RIFFLES/RUNS (Areas where the water is fast/turbulent , surface may be broken) — Score ☐

a) Riffles/Runs are:

- ☐ ***(8 pts)* Knee Deep, or deeper** and **fast**
- ☐ ***(6 pts)* Ankle/Calf deep** and **fast**
- ☐ ***(4 pts)* Ankle deep or less** and **slow**
- ☐ **(*0 pts)* Do not Exist**

a) Riffles/Runs substrates (rocks on bottom) are:

- ☐ ***(7 pts)* Fist size or larger**
- ☐ ***(4 pts)* Smaller than fist size, but large than fingernail**
- ☐ ***(0 pts)* Smaller than fingernail or do not exist**

Return Forms to Butler County Stream Team at whitelr@butlercountyohio.org

Stream Site Map

What is cQHEI?

This index was developed by the Ohio Environmental Protection Agency as a "Citizens" companion to the Qualitative Habitat Evaluation Index (QHEI) used by the state's professional staff. The purpose of the index is to provide a measure of the stream habitat and riparian health that generally corresponds to physical factors affecting fish and other aquatic life (i.e. macroinvertebrates). The CQHEI produces a total score that can be used to compare changes at one site over time or compare two different sites. When completing the CQHEI, evaluate your entire stream site (200' section).

How to Score

In each category chose the most predominant answer. If sections of the stream or stream banks have completely different characteristics, you may check two boxes and average the points to obtain a score for the subsection (a), (b), or (c).

I. Substrate (Bottom Type) - Max 24 pts

II. Fish Cover (Hiding Places) - Max 20 pts Select all the cover types that you see. Add the points. (Note: "smothering" is the same as "embeddedness." Check "yes" for smothering, if the steam bottom is more than 50% embedded.)

III. Stream Shape and Human Alterations - Max 20 pts

IV. Stream Forests and Wetlands (Riparian Areas) & Erosion - Max 20 pts

a) Width of the Riparian Forest or Wetland - ***This is not the width of the stream***! Estimate the width of the area containing trees or wetlands on each side of the stream by answering: "Can you throw a rock to the other side?"

V. Depth & Velocity - Max 15 pts

a) Deepest Pool - If your stream is a consistent depth, select the maximum depth.

b) Select all the flow types that you see and add the points.

VI. Riffles/Runs (where the current is turbulent) - Max 15

What do the points mean?

MAXIMUM TOTAL POINTS FOR THE CQHEI IS 114.

0-49 Moderate to extensive man made modifications to stream. These water bodies would generally be classified as “Modified Warm Water Habitats.” Channelized, treeless ditches with little depth and poor flow rate could score as low as 30 or 40. Silt and muck included in the same stream could result in scores as low as 20.

50-60 Streams in this range generally can attain “Warm Water Habitat” (WWH) biological communities. Depending on which features (flow, depth) are lacking the biological communities may continue to fall short of the WWH classification.

61-69 Streams scoring at this range have enough positive habitat features available to attain “Warm Water Habitat” (WWH). This would include good depth, flow, substrate and forest canopy over stream.

70-100 Streams scoring in this range are capable of supporting “Exceptional Warm Water Habitat” biological communities. This would include variable depth, good flow, riffles and pools, good substrates, and good riparian quality.

Site Map

Drawing a map of your site location is an excellent first step in getting to know your 200-foot stream segment. Photographs help but don’t always capture all the details. Looking at an aerial image (eg. google maps) before or during your visit may also help with familiarization. Continuing this tradition on an annual basis may also alert you to changes at your site that may not have been obvious during regular sampling visits.