

# Guide to Habitat Assessment: Step by Step

Prepared by Eric Godfrey, WAV volunteer, 8/7/18

## A. What You Need (will take 2 people to do in the field, allow 1 hour)

### Equipment:

1. Tape measure on reel (with your WAV equipment)
2. D-net with depth marked off on handle (with your WAV equipment)
3. Optional but highly desirable: 11 marking stakes, prefer colored for visibility (e.g., garden stakes)
4. Clipboard, pen/pencil

### Paper Forms (download from the WAV website):

1. Wadable Stream Qualitative Fish Habitat Rating for Streams <10m (<33') Wide (DNR form, 2 sides)
2. Habitat Assessment Transect Worksheet (1 page)

## B. What You Do in the Field

### Step 1: Pick the station.

**Goal:** Select your "station length" and location (the part of the stream you are going to gather habitat information). This is called the '**HAS**' (**Habitat Assessment Station**) in this Guide.

**What You Do:** Start with the stream width from where you measure flow rate every month (see past WAV data sheets). Multiply that by '35'. That is the length of stream you'll be rating. **Note:** If the stream width you use every month is not typical of the stream width through your HAS, measure the width at 10 points along the proposed HAS, and use that average width to set the length of your HAS.

**Where to do it?** Pick a continuous stretch that includes the part where you measure stream flow. If there is a human-made obstruction on the stream nearby (e.g., a highway culvert), do not include it: start just beyond it, and run your habitat assessment station away from it (upstream or downstream).

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### Step 2: Mark off where you'll measure.

**Goal:** Mark off your habitat assessment station (HAS) over its full length.

**What You Do:** Divide the total length of the HAS by 10. Take measurements at 10 equal points within it (plus the start, so total of 11 data points). On the Habitat Assessment Transect Worksheet, column '0' is for your starting point, followed by the 10 equal measurement sites in the HAS.

**Example:** your stream width is 8 feet. So you need an HAS of 280 feet (8' x 35). You will gather your data at the start, then every 28 feet as you walk through the HAS, and at the end.

**Now you can start!** Start at one end with the tape measure, and measure off the HAS. Place a marker stake at the start, the end, and as you walk the stream at every measurement point as you go (in the above example, every 28'). If you don't have enough stakes, make sure you mark the start, finish, and at least the 1st intermediate measurement point (you can move this marker as you go in Step 4).

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### Step 3: Prepare your data sheets.

**Goal:** Get your data collection sheets ready so they will be handy in the field.

**What You Do:** Put the blank Habitat Assessment Transect Worksheet on your clipboard (that's where you'll record all the data), and underneath it page 2 of the DNR Fish Habitat Rating sheet (the side listing the rating items and score); the latter tells you what specific criteria to use.

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#### **Step 4: Collect the data!**

**Goal:** Collect data on all rating items.

**What You Do:** Go back to the start of your HAS, clipboard in hand. Walk the entire HAS, stopping at each measurement point to measure or rate all 7 items except #5 (Riffle:Riffle or Bend:Bend ratio). This latter has to be done separately, since it measures distances between bends or riffles, which may not occur at a measurement point. In the field, only fill in the Habitat Assessment Transect Worksheet with your ratings; do the computations and enter the data on the Fish Habitat Rating sheet later. Refer to the latter for the exact criteria you use to rate each item. It speeds things up if one person measures (when needed) and the other person records the data. For Rating Items #1 (Riparian Buffer Width) & #2 (Bank Erosion), use the average of what you see or measure on both the left and right banks.

**Riffles or Bends - which do you do?** Choose one or the other (not both), whichever there are more of. For riffles, (moving upstream) measure from the start ("tail") of one riffle to the start of the next riffle, or from the end ("head") of one riffle to the end of the next riffle. For bends, measure from the middle of a bend to the middle of the next bend. [procedure provided by David Bolha, DNR Water Resources biologist]

**Riffles/Bends:** When you're done with the other criteria, walk the stream HAS one more time to measure the distance between consecutive riffles or bends, record them in sequence on the appropriate line on the Habitat Assessment Transect Worksheet. You can pick up the stakes as you go. You're now done in the field!

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#### **Step 5: Compute the scores.**

**Goal:** Calculate average scores for each Rating Item so you can enter them on Page 2 of the Fish Habitat Rating sheet. Save your paper data sheets; we'll collect them in the fall.

**What You Do:** For each Rating Item on the Habitat Assessment Transect Worksheet, compute the average (add up the scores, divide by 11, since you have 11 observation points). Then assign the score for each Rating Item that is closest to your average (you must use one of the four scores provided).  
**Example:** Your average score on Riparian Buffer Width is 6.5. Record a score of '5' on your Habitat Rating form, since of the 4 scores to choose from for that Rating Item, '5' is closest to the score you got.  
**Special case #1:** For Rating Item #4 (Width:Depth Ratio), divide the average stream width by the average stream depth, then record the appropriate rating score.  
**Special case #2:** For Rating Item #5 (Riffle:Riffle or Bend:Bend Ratio), divide the total distance over your HAS by average stream width, then assign the appropriate score.

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#### **Step 6: Enter the data into SWIMS.**

**Goal:** Final step – enter the data into the SWIMS database.

**What You Do:** If you collected the Habitat Assessment data on a separate date, log into SWIMS and enter the habitat data as a separate monitoring date, as follows. Otherwise, enter it with your regular monthly WAV observations. If you are entering only habitat data, do the following.  
**1st SWIMS data page:** under "Comments" note that this field day was just for habitat assessment (if you didn't collect it on your regular monthly WAV day).  
**2nd SWIMS data page:** enter only the weather (current day and 2 previous days) and stream condition. If you collected habitat data when you planned to do it, record it as the "Primary" date (otherwise "Safety").  
Then skip to the SWIMS page for recording habitat assessment for streams under 10m, and enter your score on each of the 7 Rating Items. Click "Save and Return to List" and you're done.

**Note:** There is no place for you to enter the stream width and station length, or any of the data on the Habitat Assessment Transect Worksheet; the Worksheet is to assist you in collecting accurate data for each of the 7 Rating Items for your HAS.

**Habitat Assessment Transect Worksheet:** To assist WAV volunteers in the habitat assessment.

Companion to WDNR form 3600-532A, Wadable Stream Qualitative Fish Habitat Rating for Streams < or = to 33 ft wide

**SWIMS Station, Location, and Date:**

Measurements in **Feet** or **Meters** (circle one)

RATING ITEM	STARTING POINT	TRANSECTS										TOTAL	AVERAGE	
	0	1	2	3	4	5	6	7	8	9	10			
(1) *Riparian Buffer Width (width of undisturbed land)														
(2) *Bank Erosion (width bare soil on bank)														
(3) Pool Area (% of stream length in pools)														
(4) Stream Width														
Stream Depth (thalweg)														
(5) Distance Between Riffles or Bends														
(6) Fine Sediments (% of stream that is "fines" sand, silt or clay)														
(7) Cover for Fish (% cover in at least 8" water depth)														
*Average both banks for Rating Items #1 and #2.														

*This worksheet is based on a form created by DNR Water Quality Biologist, Jean Unmuth, which she used in completing habitat assessments, with additions and edits by Peggy Compton, WAV Baseline Monitoring and Outreach Coordinator and Eric Godfrey, WAV Volunteer and Local Coordinator with Central Wisconsin Trout Unlimited. The data collected on this sheet are NOT reported directly into SWIMS, but rather used to inform your assessment/official Habitat Assessment form and SWIMS entry.*