



# IZAAK WALTON LEAGUE OF AMERICA

## Physical Monitoring Data Form for Stream Monitors

Name of Stream: Little Harpeth River River or Lake Basin: \_\_\_\_\_

County: Davidson School Name: \_\_\_\_\_

Survey Date: October 2020 Start Time: 10:00am End Time: 11:00am

| <b>VISUAL OBSERVATIONS</b>  |   |   |  |      |        |     |       |                          |                          |                          |        |                          |                          |                          |       |                          |                          |                          |           |                          |                          |                          |       |                          |                          |                          |             |                          |                          |                          |   |
|---|---|---|--|------|--------|-----|-------|--------------------------|--------------------------|--------------------------|--------|--------------------------|--------------------------|--------------------------|-------|--------------------------|--------------------------|--------------------------|-----------|--------------------------|--------------------------|--------------------------|-------|--------------------------|--------------------------|--------------------------|-------------|--------------------------|--------------------------|--------------------------|---|
| <b>Water Appearance</b><br><input type="checkbox"/> Clear<br><input type="checkbox"/> Brownish<br><input type="checkbox"/> Blackish<br><input type="checkbox"/> Foamy<br><input type="checkbox"/> Oily<br><input type="checkbox"/> Milky<br><input type="checkbox"/> Muddy<br><input type="checkbox"/> Scummy<br><input type="checkbox"/> Other _____ | <b>Stream Bottom Appearance</b><br><input type="checkbox"/> Grey<br><input type="checkbox"/> Orange/red<br><input type="checkbox"/> Yellow<br><input type="checkbox"/> Black<br><input type="checkbox"/> Brown<br><input type="checkbox"/> Other _____  | <b>Riffle composition (=100%)</b><br>_____ % silt (mud)<br>_____ % sand (1/16" – 1/4" grains)<br>_____ % gravel (1/4" – 2" stones)<br>_____ % cobbles (2" – 10" stones)<br>_____ % boulders ( > 10" stones) | <b>Stream Channel Shade (estimate)</b><br><input type="checkbox"/> >80% (excellent)<br><input type="checkbox"/> 50%-80% (high)<br><input type="checkbox"/> 20%-49% (moderate)<br><input type="checkbox"/> <20% (almost none) |      |        |     |       |                          |                          |                          |        |                          |                          |                          |       |                          |                          |                          |           |                          |                          |                          |       |                          |                          |                          |             |                          |                          |                          |   |
| <b>Fish Populations:</b><br><input type="checkbox"/> scattered individuals<br><input type="checkbox"/> scattered schools<br><input type="checkbox"/> trout<br><input type="checkbox"/> bass<br><input type="checkbox"/> catfish<br><input type="checkbox"/> carp<br><input type="checkbox"/> other  | <b>Stream Bank Composition</b><br><table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 10%; text-align: center;">High</th> <th style="width: 10%; text-align: center;">Medium</th> <th style="width: 10%; text-align: center;">Low</th> </tr> </thead> <tbody> <tr> <td>Trees</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Shrubs</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Grass</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Bare soil</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Rocks</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Other _____</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </tbody> </table> |   |  | High | Medium | Low | Trees | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Shrubs | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Grass | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Bare soil | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Rocks | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Other _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <b>Stream Bank Erosion (estimate)</b><br><input type="checkbox"/> >80% (severe)<br><input type="checkbox"/> 50%-80% (high)<br><input type="checkbox"/> 20%-49% (moderate)<br><input type="checkbox"/> <20% (slight) |
|   | High  | Medium  | Low  |      |        |     |       |                          |                          |                          |        |                          |                          |                          |       |                          |                          |                          |           |                          |                          |                          |       |                          |                          |                          |             |                          |                          |                          |   |
| Trees   | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>   |      |        |     |       |                          |                          |                          |        |                          |                          |                          |       |                          |                          |                          |           |                          |                          |                          |       |                          |                          |                          |             |                          |                          |                          |   |
| Shrubs  | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>   |      |        |     |       |                          |                          |                          |        |                          |                          |                          |       |                          |                          |                          |           |                          |                          |                          |       |                          |                          |                          |             |                          |                          |                          |   |
| Grass   | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>   |      |        |     |       |                          |                          |                          |        |                          |                          |                          |       |                          |                          |                          |           |                          |                          |                          |       |                          |                          |                          |             |                          |                          |                          |   |
| Bare soil   | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>   |      |        |     |       |                          |                          |                          |        |                          |                          |                          |       |                          |                          |                          |           |                          |                          |                          |       |                          |                          |                          |             |                          |                          |                          |   |
| Rocks   | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>   |      |        |     |       |                          |                          |                          |        |                          |                          |                          |       |                          |                          |                          |           |                          |                          |                          |       |                          |                          |                          |             |                          |                          |                          |   |
| Other _____   | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>   |      |        |     |       |                          |                          |                          |        |                          |                          |                          |       |                          |                          |                          |           |                          |                          |                          |       |                          |                          |                          |             |                          |                          |                          |   |
| <b>Barriers to fish movement:</b><br><input type="checkbox"/> beaver dams<br><input type="checkbox"/> man-made dams<br><input type="checkbox"/> waterfalls (> 1 ft.)<br><input type="checkbox"/> other<br><input type="checkbox"/> none   | <b>Algae color:</b><br><input type="checkbox"/> light green<br><input type="checkbox"/> dark green<br><input type="checkbox"/> brown coated<br><input type="checkbox"/> matted on stream bed<br><input type="checkbox"/> hairy  | <b>Algae located:</b><br><input type="checkbox"/> everywhere<br><input type="checkbox"/> in spots<br>_____ % of bed covered   |  |      |        |     |       |                          |                          |                          |        |                          |                          |                          |       |                          |                          |                          |           |                          |                          |                          |       |                          |                          |                          |             |                          |                          |                          |   |



# IZAAK WALTON LEAGUE OF AMERICA

## Chemical Monitoring Data Form for Stream Monitors

Complete the highlighted sections. Use the Water Quality Summation table to interpret the results.

Date October 2020

Site Name \_\_\_\_\_

### WEATHER CONDITIONS

Check all that apply:

Day of Video  Sunny  Overcast  Intermittent Rain  Steady Rain  Heavy Rain  Snow

### STUDENT-COLLECTED DATA

Water Temperature \_\_\_\_\_ °C? °F?

Turbidity \_\_\_\_\_ JTU

Dissolved Oxygen \_\_\_\_\_ mg/L \_\_\_\_\_ % saturation

pH \_\_\_\_\_ pH units

Nitrate \_\_\_\_\_ ppm

Phosphate \_\_\_\_\_ ppm

Other Stream Assessment Observations and Notes \_\_\_\_\_

| Water Quality Summation for Chemical Tests |           |                    |                    |              |
|--|-----------|--------------------|--------------------|--------------|
|  | Excellent | Good               | Fair               | Poor         |
| Dissolved Oxygen<br>(% Saturation)         | 91-110    | 71-90              | 51-70              | <50          |
| pH (units)                                 | 7.0-7.5   | 6.5-7.0<br>7.5-8.5 | 5.5-6.5<br>8.5-9.0 | <5.0<br>>9.0 |
| Phosphate                                  | 0-1 ppm   | 2 ppm              | 4 ppm              |              |
| Nitrate                                    | 0-3 ppm   | 3-5 ppm            | 5-10 ppm           | >10 ppm      |
| Turbidity                                  | 0 JTU     | >0 to 40 JTU       | >40 to 100 JTU     | > 100 JTU    |

Source: Izaak Walton League's Project Watershed CNY/SOS, 1999; Mitchell and Stapp, 1997; <http://watermonitoring.uwex.edu/pdf/level1/datasheets/data-DOTempTrans2010.pdf>

IZAAK WALTON LEAGUE OF AMERICA

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# THE IZAAK WALTON LEAGUE OF AMERICA

## Save Our Streams

### Stream Quality Survey

Date \_\_\_\_\_

Time \_\_\_\_\_

Name \_\_\_\_\_

Please refer to the Izaak Walton League's volunteer stream monitoring protocol and identification guides to learn how to complete this form. Please use the League's *Field Guide to Aquatic Macroinvertebrates* to complete portions of this stream quality survey form. For assistance, please call (800) BUG-IWLA or send an e-mail to [sos@iwla.org](mailto:sos@iwla.org).

Stream \_\_\_\_\_ Station # \_\_\_\_\_ County/City \_\_\_\_\_

Location \_\_\_\_\_

Weather Conditions (last 72 hours) \_\_\_\_\_

Water temperature \_\_\_\_\_ F°? C°? Avg. stream width \_\_\_\_\_ ft. Avg. stream depth \_\_\_\_\_ ft. Flow rate \_\_\_\_\_  
(above or below average)

#### Rocky Bottom Sampling

Before sampling, record riffle composition on the back of this form. Take 3 samples in the same riffle area, fill out this form, and keep the highest scoring sample for your records. To help track the number of samples you have collected, check one of the boxes below:

- Sample 1     Sample 2     Sample 3     Is this your highest score sample?

#### Muddy Bottom Sampling

Record the total number scoops taken from each habitat type and provide details to best describe the specific habitat on the lines below.

- Steep bank/vegetated margin \_\_\_\_\_  
 Woody debris with organic matter \_\_\_\_\_  
 Rock/gravel/sand substrate \_\_\_\_\_  
 Silty bottom with organic matter \_\_\_\_\_

#### Macroinvertebrate Count

Indicate if the macroinvertebrate species listed was in the video. Total the number of species in each category and multiply according to the correct category. For example, if you identified 3 species in the Less Sensitive category, multiply by 2. Then add together the three totals from each column for your stream's index value. Determine the overall water quality of the stream sample site based on your Total index value. E.g., if your Total index value is 13, the Water Quality Rating is Fair.

| SENSITIVE   | LESS SENSITIVE  | TOLERANT   |
|---|---|--|
| <input type="checkbox"/> Caddisflies (except net spinners)<br><input type="checkbox"/> Mayflies<br><input type="checkbox"/> Stoneflies<br><input type="checkbox"/> Water snipe flies<br><input type="checkbox"/> Riffle beetles<br><input type="checkbox"/> Water pennies<br><input type="checkbox"/> Gilled snails | <input type="checkbox"/> Dobsonflies <input type="checkbox"/> Alderflies<br><input type="checkbox"/> Fishflies <input type="checkbox"/> Crayfish<br><input type="checkbox"/> Common <input type="checkbox"/> Scuds<br><input type="checkbox"/> net spinning <input type="checkbox"/> Aquatic<br><input type="checkbox"/> Caddisflies <input type="checkbox"/> sowbugs<br><input type="checkbox"/> Crane flies <input type="checkbox"/> Clams<br><input type="checkbox"/> Damselflies <input type="checkbox"/> Mussels<br><input type="checkbox"/> Dragonflies | <input type="checkbox"/> Aquatic worms<br><input type="checkbox"/> Black flies<br><input type="checkbox"/> Midge flies<br><input type="checkbox"/> Leeches<br><input type="checkbox"/> Lunged snails |
| <input type="checkbox"/> # of letters multiplied by 3 = _____   | <input type="checkbox"/> # of letters multiplied by 2 = _____   | <input type="checkbox"/> # of letters multiplied by 1 = _____  |
| Now add the three totals from each column for your stream's index value. Total index value = _____  |   |  |

Compare the final index value to the following ranges of numbers to determine the water quality of the stream sample site.

#### Water Quality Rating

- \_\_\_\_\_ Excellent (> 22)      \_\_\_\_\_ Good (17-22)      \_\_\_\_\_ Fair (11-16)      \_\_\_\_\_ Poor (< 11)