

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER QUALITY
ASSESSMENT BRANCH
SUMMARY OF PROTOCOLS:
PROBABILITY BASED SITE ASSESSMENT**

The purpose of this document is to provide a quick reference guide to field crews while sampling probabilistic sites. This document includes the essential details for individual sampling regimes without the burden of numerous manuals and documents. The procedures outlined herein have been extracted from the most current Standard Operating Procedures, Current Operating Procedures, Office memorandums, and best professional judgement of the Assessment Branch.

The following format has been modeled exclusively from the summary of protocols provided in Environmental Monitoring and Assessment Program, Surface Waters and Region 3 regional Environmental Monitoring and Assessment Program, 1994 Pilot Field Operations and Methods Manual for Streams, edited by Donald J. Klemm and James M. Lazorchak, Environmental Monitoring Systems Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Region 3, EPA/620/R-94/004, March 1994.

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1.0 SITE RECONNAISSANCE/LANDOWNER CONTACT

- 1.1 Using a GPS unit, road atlas, county road gazetteer, United States Geological Survey (USGS) topographic maps, and the generated map depicting the "X-point" navigate as closely as possible to the intended site. If possible, mark the "X-point" with pink flagging tape for future sampling purposes (be sure to tell the landowner you will be flagging the sampling point and removing the flag after the last visit in October).
- 1.2 The following information regarding stream access was taken from the Natural Resources Commission webpage <http://www.state.in.us/nrc/policy/navigati.html> and an article titled "Not all waterways can be accessed by public" written by Don Mulligan in the Indianapolis Star, page C9 Sunday June 29, 2003. From the Natural Resources Commission webpage "In the absence of a contrary state boundary, the appropriate line of demarcation for a navigable waterway is the ordinary high watermark. If not navigable, title to the bed of the river passes to the adjacent property owner or owners." According to the Natural Resources Commission (NRC), if a waterway is declared navigable (check the website <http://www.state.in.us/nrc/policy/III.html>) anyone can use any part of the stream up to the natural high water mark; however, you must check with the county local sheriff or conservation officer to see if navigable waterways can be accessed by bridges. If the stream site is navigable, accessible by a bridge or public access site, and will be sampled without walking on private property, check the box "Road/Public Access Possible" on the site reconnaissance field data sheet (Appendix A). For those streams that are non-navigable, not listed on the website, or state/federal properties, an attempt must be made to seek permission from a landowner/property manager to walk on the streambed and in the floodplain to access the site (note, the site will be landowner denial if permission is not obtained). Information for landowners may be obtained by visiting the property residence, neighboring houses, or the county assessor's office, platroom, or GIS office. You can find the landowner's phone # by looking on the web MSN white pages or swithcboard.com. When calling, write on the outside of the recon folder who you called, date, spoke with (name) or message left, and your initials. By recording all of this information, someone can keep track of who called and when. When you think you have found the landowner information, write the information on the inside of the folder itself until you are positive and ready to accept the site (then you will enter into landowner/contact information on recon sheet).
- 1.3 Complete the site reconnaissance field data sheet (Appendix A) with:
 - Stream: Stream name as it appears on the 7.5 topographic map
 - Location description: list long site description (i.e. approximately 200m upstream of CR 800 S) and circle short site description (i.e. CR 800 S). Both need to be entered into AIMS for museum labels and Stream Sampling Field Data Sheet.
 - Recon date: date that STREAM was visited and measurements recorded!
 - Crew members: initials of those individuals who visited the stream and recorded the measurements and site ratings
 - Avg. Width: record in meters the average wetted width of the stream
 - Avg. Depth: record in meters the average depth of the stream reach. "Stream reach" is 15x the average wetted width of the stream.

- Maximum depth: record in meters the maximum depth that may be encountered in the stream reach
- Nearest town: the town closest to the “X” point on the Gazetteer
- Check all boxes that apply to the sampling site....
 - ✓ Water present, site wadeable (can use chest or hip waders to sample), riffle/run present, road/public access possible, site impacted by livestock (livestock have access to the stream), collect sediment (only used if sediment is collected at site), gauge present (USGS gauging station at site)
- Landowner/contact information: List the owner of “X” here, if multiple landowner permission is needed, list other addresses in the comments. Get zip code from internet if missing. Be sure to include area code! If pamphlet distributed to landowner, please indicate the date mailed. If the landowner is hesitant about giving permission to access site, ask if they would like us to call in advance or want the results.
- Site rating by category...
 - Access Route: path to “X”
 - Safety Factor: Stress or hazards to staff
 - Sampling Effort: difficulty in the actual collection of the biological or chemical sample
- For the recon decision (T = target site, NT = non-target site, LD = landowner denial, OT = target site not sampled for other reasons, NN = not needed, PB = physically inaccessible):
 1. Pre-Recon: site was part of overdraw and was never looked at for approval or collection of any other data. (NN)
 2. Recon in progress: **do not use** for probabilistic sampling
 3. Approved Site: site is a target site and landowner has given approval if needed. (T)
 4. No, landowner denied access: this can be used if we don’t get landowner approval by the recon deadline date established. (LD)
 5. No, dry: For the biological teams, this is a site where greater than 50% of the reach (15 x wetted width of stream) is dry. (NT)
 6. No, stream channel missing: tiled or underground, mapping error, or modified to non-representative stream channel. (NT)
 7. No, physical barriers: physically blocked or inaccessible, physically unable to safely reach the X point, or unable to launch equipment safely for the collection of a representative sample. (PB)
 8. No, impounded stream: lake, reservoir, sand pits, etc. (NT)
 9. No, marsh/wetland: no definable stream channel, oxbow totally isolated from main channel with no flow. (NT)
 10. No, bridge gone or not accessible: not used as rejection for watershed purposes! Use rejection code 7.
 11. No, unsafe due to traffic or location: heavy construction, etc. (T)
 12. No, site impacted by backwater: not representative of stream due to influences of backwater. (NT)
 13. No, other: explain in comment section. (OT but not sampled due to field season deadline, site not needed, etc.)
- Equipment Selected: **Equipment needed to take biological samples.** ONLY, one of three equipment types (Backpack, Boat, or Scanoe) needs to be circled.
- Comments: only enter landowner instructions/concerns about the site and why landowner

denied (i.e. unable to contact thus denial). **Do not enter unnecessary notes because all of this needs to be entered into AIMS!**

- Sketch of Stream & Access Route: indicate flow, which direction is north, obstacles, land use, get key, launch at SR ..., fence, cattle in stream, gates, etc. You can also use back of page or write comment like see topo. **Multiple access routes may be necessary for chemical and biological sampling needs depending on the type of equipment used to sample the site.**

- 1.4 Enter recon data field sheet into the AIMS Project Folder following the QA/QC Routing Slip for the Site Reconnaissance Form (Appendix B). Be sure to use the AIMS database formatting document (Appendix B) to enter the abbreviations, etc.
- 1.5 After the recon data has been certified from the data entry process (#5 on routing slip), generate Stream Sampling Field Data Sheets (Appendix A) by scheduling the project and place them in the respective folder for that site. Also generate more files if necessary (i.e. no simultaneous sampling planned) and generate labels for the files with EPA identifier number (INRB04-601), Stream Name, Short Site Description, County, L-site, and 14-digit HUC.

2.0 INITIAL SITE PROTOCOLS

- 2.1 Contact the IDEM Regional Office Director or Deputy Director at the beginning of the field season if the area of study is located within a regional office territory. For biological community assessment teams, contact the appropriate Indiana Department of Natural Resources (IDNR) Conservation Law Enforcement District Office for the area in which you will be sampling (Appendix C) before leaving the office. Tell them of your planned activities for the week. Appendix C also contains contacts for the IDNR Fisheries Biologist, list of Wastewater Inspectors, Wetland Permitting Staff (401), Agricultural and Solid Waste Compliance Staff, Indiana Sheriffs, and Indiana State Police District Posts.
- 2.2 If requested, contact the landowner in advance and notify them of the intended sampling date and time.
- 2.3 Find the stream location in the field corresponding to the "X-point" marked on a 7.5 minute topographic map. Crews should use all available means to insure that they are at the correct site including use of 1:24,000 USGS map, magnetic compass, land orienteering, topographic landmarks, county roads, and global positioning system (GPS), if available, for site latitude and longitude verification.
- 2.4 Collect samples from sites in accordance with appropriate protocols outlined herein for samples to be collected. If the site is turbid and/or the flow is dangerous, save the site for another day when conditions are acceptable to collect a representative fish community or water chemistry sample.
- 2.5 If the stream is not to be sampled (due to dry conditions, end of field season, etc.), at the very minimum fill out the following fields on the Stream Sampling Field Data Sheet: Survey crew

chief and sample collectors, date sampled, and sample taken. If you checked “no, other” provide comments in special notes. If the stream is too turbid or dangerous for biological sampling, leave the data sheet blank and return to the site when conditions are acceptable for sampling.

- 2.6 The priority of site activities is as follows: in-situ Hydrolab™ reading, surface water sample, stream width and reach measurements, fish community sampling, macroinvertebrate sampling, site photo, habitat assessment, and sample preservation.

3.0 IN-SITU WATER CHEMISTRY AND SAMPLE COLLECTION

3.1 In-Situ Water Chemistry Analysis

- 3.1.1 Place the Hydrolab™ sonde in the stream at the "X-point" (insure the turbidity sensor is not facing the stream bottom) and record on the Stream Sampling Field Data Sheet (Appendix A): Hydrolab™ number, water flow type (where the instrument is placed), water appearance, field data readings. If the turbidity sensor renders an unstable or questionable reading, it may be necessary to place the Hydrolab™ and water sample from the stream in a PVC container to obtain a stable reading. Also complete the weather codes with the field data. Remember that wind direction is the direction the wind is coming **from**.
- 3.1.2 Sites with dissolved oxygen readings of 5.00mg/L or less will have a Winkler test performed to corroborate the low reading. Directions for performing the test are laminated in the Winkler kit.

3.2 Water Sample Collection

- 3.2.1 For water chemistry sampling purposes, a site will be considered dry if more than 50% of the reach is dry according to biological protocols set forth in section 4.2.
- 3.2.2 Sample bottles should be labeled with a waterproof marker at the site. New, non-talc surgical latex gloves will be used each time sample bottles are handled. Care should be taken to ensure sufficient quantities of gloves are taken on sampling routes.
- 3.2.3 Sample bottles should be transported to and from the sampling site “X” in a small backpack along with sample preservatives.
- 3.2.4 Fill bottles with sample water from the center of the stream flow, at the “X-point,” while facing upstream. Bottles should be filled in the following order: metals, nutrients, cyanide, and general chemistry. In the case of duplicate samples, be sure to collect each parameter simultaneously. Samples should either be preserved at the sampling site or immediately upon arriving back at the transport vehicle.
- 3.2.5 Samples should be preserved as soon as possible, avoiding any avenues of sample contamination. Until the samples are turned over to the laboratory, bottles should be

transported in a small cooler with adequate quantities of ice to preserve the samples. Sample preservatives should also be secured and transported in original containers.

3.3 Physical Description

- 3.3.1 A physical description form (Appendix A) characterizing upstream land usage and stream features should be filled in during the initial water chemistry sampling event at each site. Updates to this form should be made during each subsequent sampling event conducted during the field season.

For details on collecting surface water samples and in-situ Hydrolab™ readings, follow the “Surveys Section Field Procedure Manual” Revised April 2002 by Timothy Beckman.

4.0 LAYING OUT THE REACH FOR BIOLOGICAL SAMPLING

- 4.1 Measure the **average wetted stream width** (not the channel) at a “typical” area near the X-point. Record **width to nearest tenth of a meter** on fish community (Appendix A) and QHEI field data sheets (Appendix A). Layout sample reach with a length of 15 times (**15x**) the **stream width (rounded to nearest whole meter)**. Example: 11.4m (avg. wetted width), $15 \times 11 = 165\text{m}$. If the stream width ends in 0.5, round up to the next whole number (i.e. 11.5m avg. wetted width, $15 \times 12 = 180\text{m}$).
- 4.2 Probabilistic site reach: minimum 50 meters and maximum 500 meters. If wetted width is **3 meters wide or less**, use the 50 meter minimum as the sample reach length. If the width is **greater than or equal to 34 meters**, a maximum of 500 meters along both banks.
- 4.3 Do a reconnaissance of the sample reach to identify obstacles, hazards, or nonwadeable pools necessitating the need to “slide” the sampling reach, or use of a scanoe or boat.
- 4.4 Proceed downstream half the required 15x reach length, measure the distance with a tape measure or hip chain along the stream bank.
- 4.5 Find the closest habitat break (i.e. riffle, run or pool) to the downstream reach, mark it as the reach starting point. If no habitat break is present within **3-4 channel widths** of the starting point (e.g. 100% glide in ditch), mark the starting point at end of the 15x distance.
- 4.6 Repeat steps 4.4 & 4.5 for the upstream portion for the reach end point using the same stream bank.
- 4.7 If there is a dam, impoundment, physical barrier, or a stream order change along the survey reach, end the sample reach at the feature. Make up the loss of stream length by adding length to the other end of the reach by “sliding” the reach. **Do not** slide the reach to avoid bridges, rip-rap, small flow control structures, culverts and the like. The X-point can serve as the starting point or end point of the reach to be electrofished, but “X” must remain in the reach.

5.0 FISH COMMUNITY ASSESSMENT

5.1 Backpack Electrofishing

- 5.1.1 If depth, turbidity, weather conditions, low conductivity (<10 μ Seimen), or any other factor makes it **unsafe** to electrofish, the crew **should not** sample until a later date. High flow conditions will also impair sampling efficiency/representation, thus sampling must be performed later when water clarity and flow conditions are normal.
- 5.1.2 In case of emergency, determine the location of means for easy egress from stream.
- 5.1.3 Select initial voltage setting, start generator, reset timer, and “operator” depress anode switch to begin fishing. See Table 1 in Appendix A for characteristics of electrofishing sampling methods.
- 5.1.4 Begin at lower end of reach and fish in an upstream direction, parallel to the current. Adjust voltage and waveform output according to sampling effectiveness and manufacturer’s recommendations.
- 5.1.5 With switch depressed, operator sweeps electrode from side to side in the water. Sample available cut-bank and snag habitat as well as riffles and pools.
- 5.1.6 Netters follow the operator and net fish. Deposit fish in buckets or chest coolers. Continue upstream for the designated 15x channel width, ensuring an equal and representative coverage of both stream banks and all unique habitats within the reach.
- 5.1.7 On the Fish Community Data field sheet (Appendix A), record Event ID and Sample number (YY and last 3 digits of the EPA site identifier number [i.e. 02401] /AA#), equipment type, volts, seconds fished, distance fished, max. depth, avg. depth, bridge in reach?, and is reach representative?.
- 5.1.8 Place 1-2 adults, juveniles, or young of the year (YOY) per species/per site as well as any unidentified fish specimens in a 2000ml Nalgene® polypropylene wide-mouth bottle. Place a waterproof label (Appendix A) into the jar identifying the sample number (event ID, 04601). Identify this jar by recording the “**Event ID**” (**04601**) on white write-on-label-tape and placing tape on the jar lid.
- 5.1.9 Once all of the fish have been sorted by species, determine number of individuals for each species, weigh as a “batch” per species, measure the largest and smallest individuals greater than 20mm (TL), and record external anomalies (Appendix D explains how to fill out the Fish Community Data field sheet).

5.2 Long Line Electrofishing

- 5.2.1 If depth, turbidity, weather conditions, low conductivity ($<10 \mu\text{Seimen}$), or any other factor makes it **unsafe** to electrofish, the crew **should not** sample until a later date. High flow conditions will also impair sampling efficiency/representation, thus sampling must be performed later when water clarity and flow conditions are normal.
- 5.2.2 In case of emergency, determine the location of means for easy egress from stream.
- 5.2.3 Place generator along side of road as close to stream as safely possible.
- 5.2.4 Mark off work area with safety cones allowing sufficient area for safe work area and place strategically to maximum visibility to oncoming traffic.
- 5.2.5 Crew members who remain on shore to operate the generator or feed the long line into the stream will wear orange safety vest at all times.
- 5.2.6 Attach anode to long line and spool out enough line to place anode in the stream.
- 5.2.7 Select initial voltage setting, start generator, reset timer, and “operator” depress anode switch to begin fishing. See Table 1 in Appendix A for characteristics of electrofishing sampling methods.
- 5.2.4 Begin at lower end of reach and fish in an upstream direction, parallel to the current. Adjust voltage and waveform output according to sampling effectiveness and manufacturer’s recommendations.
- 5.2.5 With switch depressed, operator sweeps electrode from side to side in the water. Sample available cut-bank and snag habitat as well as riffles and pools.
- 5.2.6 Netters follow the operator and net fish. Deposit fish in buckets or chest cooler. Continue upstream for the designated 15x channel width (50 meter minimum, 150 meter maximum), ensuring an equal and representative coverage of both stream banks and all unique habitats within the reach.
- 5.2.7 On the Fish Community Data field sheet (Appendix A), record Event ID and Sample number (YY and last 3 digits of the EPA site identifier number [i.e. 02401] /AA#), equipment type, volts, seconds fished, distance fished, max. depth, avg. depth, bridge in reach?, and is reach representative?.
- 5.2.8 Place 1-2 adults, juveniles, or young of the year (YOY) per species/per site as well as any unidentified fish specimens in a 2000ml Nalgene® polypropylene wide-mouth bottle. Place a waterproof label (Appendix A) into the jar identifying the sample number (event ID, 04601). Identify this jar by recording the “**Event ID**” (**04601**) on white write-on-label-tape and placing tape on the jar lid.

- 5.2.9 Once all of the fish have been sorted by species, determine number of individuals for each species, weigh as a "batch" per species, measure the largest and smallest individuals greater than 20mm (TL), and record external anomalies (Appendix D explains how to fill out the Fish Community Data field sheet).

5.3 Scanoe Electrofishing

- 5.3.1 If depth, turbidity, weather conditions, low conductivity (<10 μ Seimen), or any other factor makes it **unsafe** to electrofish, the crew **should not** sample until a later date. High flow conditions will also impair sampling efficiency/representation, thus sampling must be performed later when water clarity and flow conditions are normal.
- 5.3.2 In case of emergency, determine the location of means for easy egress from stream.
- 5.3.3 Select initial voltage setting, start generator, reset timer, and "operator" depress anode switch to begin fishing. See Table 1 in Appendix A for characteristics of electrofishing sampling methods.
- 5.3.4 Begin at lower end of reach and fish in an upstream direction, parallel to the current. Adjust voltage and waveform output according to sampling effectiveness and manufacturer's recommendations.
- 5.3.5 With switch depressed, operator sweeps electrode from side to side in the water. Sample available cut-bank and snag habitat as well as riffles and pools.
- 5.3.6 Netters follow the operator and net fish. Deposit fish in buckets or chest cooler. Continue upstream for the designated 15x channel width, ensuring an equal and representative coverage of both stream banks and all unique habitats within the reach.
- 5.3.7 On the Fish Community Data field sheet (Appendix A), record Event ID and Sample number (YY and last 3 digits of the EPA site identifier number [i.e. 02401] /AA#), equipment type, volts, seconds fished, distance fished, max. depth, avg. depth, bridge in reach?, and is reach representative?.
- 5.3.8 Place 1-2 adults, juveniles, or young of the year (YOY) per species/per site as well as any unidentified fish specimens in a 2000ml Nalgene® polypropylene wide-mouth bottle. Place a waterproof label (Appendix A) into the jar identifying the sample number (event ID, 04601). Identify this jar by recording the "**Event ID**" (**04601**) on white write-on-label-tape and placing tape on the jar lid.
- 5.3.9 Once all of the fish have been sorted by species, determine number of individuals for each species, weigh as a "batch" per species, measure the largest and smallest individuals greater than 20mm (TL), and record external anomalies (Appendix D explains how to fill out the Fish Community Data field sheet).

5.4 Boat Electrofishing

- 5.4.1 If turbidity, weather conditions, low conductivity ($<10 \mu\text{Seimen}$), or any other factor makes it **unsafe** to electrofish, the crew **should not** sample until a later date. High flow conditions will also impair sampling efficiency/representation, thus sampling must be performed later when water clarity and flow conditions are normal.
- 5.4.2 In case of emergency, determine the location of means for easy egress from river.
- 5.4.3 Select initial voltage setting, start generator, reset timer, and the two netters on the bow of the boat press foot pedals to activate anode and begin fishing. See Table 1 in Appendix A for characteristics of electrofishing sampling methods.
- 5.4.4 Begin at lower end of reach and fish in an upstream direction, parallel to the current, and along the shoreline. Adjust voltage and waveform output according to sampling effectiveness and manufacturer's recommendations.
- 5.4.5 With pedals depressed, operator sweeps boom electrode along one bank, occasionally circling around to pick up fish behind the boat. Sample available cut-bank and snag habitat as well as riffles and pools.
- 5.4.6 The two people netting in the front of the boat with 1/8 inch nets put all fish (except carp and other large suckers) in the livewell. The driver also has a net handy in case a fish floats by. Continue upstream for the designated 15x channel width, ensuring an equal and representative coverage of the stream bank and all unique habitats, then go back to the start and fish upstream on the other bank.
- 5.4.7 On the Fish Community Data field sheet (Appendix A), record Event ID and Sample number (YY and last 3 digits of the EPA site identifier number [i.e. 02401] /AA#), equipment type, volts, seconds fished, distance fished, max. depth, avg. depth, bridge in reach?, and is reach representative?.
- 5.4.8 Place 1-2 adults, juveniles, or young of the year (YOY) per species/per site as well as any unidentified fish specimens in a 2000ml Nalgene® polypropylene wide-mouth bottle. Place a waterproof label (Appendix A) into the jar identifying the sample number (event ID, 04601). Identify this jar by recording the "**Event ID**" (**04601**) on white write-on-label-tape and placing tape on the jar lid.
- 5.4.9 Once all of the fish have been sorted by species, determine number of individuals for each species, weigh as a "batch" per species, measure the largest and smallest individuals greater than 20mm (TL), and record external anomalies (Appendix D explains how to fill out the Fish Community Data field sheet).

5.5 External Anomalies

Code	Categories	Description
D	Deformities	Skeletal anomalies of the head, spine, and body shape.
E	Eroded Fins	Reductions of fin surface area or hemorrhage of fin rays.
L	Lesions	Open sores or exposed tissue.
T	Tumors	Irregular cell growth which are firm and not easily broken.
M	Multiple	More than one DELT anomaly on one fish.
O	Other	Additional anomalies (A -anchor worm, C -leeches, F -fungus, P -parasites, S -emaciated, W -swirl scale, Y -Popeye disease)
H	Heavy	Indicates a heavy infestation/body coverage.
L	Light	Indicates a light infestation/body coverage.

5.6 Listed/protected species

Listed/protected species in Indiana, as per the IDNR web site, April 16, 2002. Process and release, as quickly as possible, live specimens and salvage 1-2 dead specimens as vouchers. Contact the IDNR within five (5) working days of the capture at **317-232-4080**, and Brant Fisher, IDNR, at **812-526-2051**.

Endangered

bluebreast darter	<i>Etheostoma camurum</i>
gilt darter	<i>Percina evides</i>
harlequin darter	<i>Etheostoma histrio</i>
spottail darter	<i>Etheostoma squamiceps</i>
spotted darter	<i>Etheostoma maculatum</i>
Tippecanoe darter	<i>Etheostoma tippecanoe</i>
variegate darter	<i>Etheostoma variatum</i>
greater redhorse	<i>Moxostoma valenciennesi</i>
lake sturgeon	<i>Acipenser fulvescens</i>
northern cavefish	<i>Amblyopsis spelaea</i>
southern cavefish	<i>Typhlichthys subterraneus</i>
redside dace	<i>Clinostomus elongatus</i>

Special Concern

crystal darter	<i>Crystallaria asprella</i>
eastern sand darter	<i>Ammocrypta pellucida</i>
bantam sunfish	<i>Lepomis symmetricus</i>
blue sucker	<i>Cycleptus elongatus</i>
river redhorse	<i>Moxostoma carinatum</i>
northern studfish	<i>Fundulus catenatus</i>
cisco (lake herring)	<i>Coregonus artedi</i>
Ohio river muskellunge	<i>Esox masquinongy ohioensis</i>

6.0 MACROINVERTEBRATE SAMPLE COLLECTIONS

7.0 PHYSICAL HABITAT AND STREAM MORPHOLOGY ASSESSMENT

7.1 Photograph

7.1.1 Photograph the site while facing **upstream and downstream** from the X-point. Photo should include as much of the stream and riparian areas as possible. Record the photo number and description on the camera log sheet (Appendix A).

7.2 Habitat Assessment

- 7.2.1 On the day of fish community and/or macroinvertebrate sampling, a stream habitat assessment will be performed using the IDEM Qualitative Habitat Evaluation Index (QHEI) data sheet (Appendix A), created using the Ohio EPA QHEI 1995 R-EMAP edition.

7.3 Riparian Canopy

- 7.3.1 Canopy cover will be determined using a spherical crown densiometer (convex or concave), in accordance with instructions provided on the lid of the densiometer.
- 7.3.2 Readings will be made facing upstream, downstream, left bank and right bank from the "most typical" canopy area representing the sampling reach. Record the percent of canopy open on the back of the QHEI form. On the stream sampling field data sheet, estimate the percent of canopy closed where the Hydrolab™ readings were taken.
- 7.3.3 Streams with an average width of **10.0 meters or less** will have a single set of readings from mid-channel. Streams with a width **greater than 10 meters** will have three sets of readings taken at mid-channel, left bank, and right bank of the stream.

8.0 RETURNING TO THE VEHICLE

- 8.1 Preserve the macroinvertebrate sample by adding a sufficient volume of 99 percent isopropyl alcohol to inundate all sample material in the jar, and add 1 milliliter of formaldehyde (full strength) to every 10 milliliters of isopropyl alcohol in the sample jar.
- 8.2 Preserve the fish community samples by adding recycled formalin solution or 1 milliliter of 37% formaldehyde solution to every 10 milliliters (ml) of water in the 2000ml-sample jar. For example, if the jar is half full of water (1000 ml), add 100ml of formaldehyde solution to the jar.
- 8.3 Record all site information in the team's field notebook to include sample numbers, waterbody, location, county, date, crew initials, total time at site, Hydrolab #, sample number (AA#), Event ID and number of 2000ml jars, macro sample # KICK, electrofishing equipment, length of reach, and comments. A designated format is provided inside the cover of the field notebook.
- 8.4 Complete the Field Chain of Custody form (Appendix A).
- 8.5 Check that the following sheets are complete: stream sampling field data sheet (circle only those media collected), fish community data sheet, macroinvertebrate data sheet, and QHEI data sheet.

9.0 SAFETY & HAZARD COMMUNICATION

- 9.1 If it does not feel safe –don't do it! Every crew member has the right and obligation to call a

“safety time-out.”

- 9.2 Electrofishing is to be conducted with a minimum number of three crew members, all wearing chest waders, rubber gloves, and , when appropriate, an approved personal flotation device (PFD) with a high frequency whistle. The crew must also be certified in Red Cross CPR. The crew leader should have successfully completed the Principles and Techniques of Electrofishing correspondence course provided by the U.S. Fish & Wildlife Service, National Conservation Training Center. When sampling in inter-jurisdictional waters, a SOLAS™ certified (74/83) strobe light will be worn by team members. Electrofishing should not be performed in heavy rain or thunderstorms, when the water is too turbid to see possible underwater hazards, in excessively swift currents, or if any other factors threaten the safety of the crew.
- 9.3 Dispensing of isopropyl alcohol and formaldehyde solutions into sample jars must be performed down wind of the crew. While dispensing these fluids a face shield with non-vented goggles and gloves should be worn, and emergency eyewash kit easily accessible from vehicle. When adding preservatives to sample jars with fish specimens, the sample jar lid should be replaced immediately after addition of fluids to avoid splashing out of the jar by the fish.
- 9.4 If any injury occurs (even poison ivy, cuts, or scrapes that may become infected), the employee who sustained the injury must complete and submit State Form 34401 “Indiana Worker’s Compensation First Report of Employee Injury, Illness” (Appendix A) to the section safety officer. If an injury occurs resulting in the loss of bodily fluids or amputation, all crew members assisting the injured party or involved in the clean-up should wear the latex gloves found in the vehicle first aid kit or individual safety bags. Waste materials contaminated with blood or bodily fluids will be placed into an orange “BioHazard” bag found near the vehicle first aid kit for disposal.
- 9.5 If breakage of formaldehyde containing solution occurs, the crew chief must immediately contact the IDEM Office of Emergency Response (phone **1-888-233-7745**). All team members will remain up-wind and insure passers-by avoid the area.

10.0 QUALITY ASSURANCE/QUALITY CONTROL

- 10.1 If the crew leader suspects equipment failure thus producing a questionable fish community sample, the site will be sampled again by another crew with different equipment of the same type.
- 10.2 A ten percent replication of sites will be performed for fish and macroinvertebrate community sampling to verify methods and techniques. Fish community replicate sites will be drawn from the initial sample sites using a random number table and sampled at least two weeks after the initial sampling. Macroinvertebrate replicate sampling will be performed at every tenth site concurrent with initial sampling.

- 10.3 Replicate site assessment will include the following: if possible a different crew will electrofish the same reach length as previously sampled with different equipment of the same type, **macroinvertebrate kick sample at the same riffle area**, habitat assessment using the Ohio QHEI completed by a different crew member than previously performed, Hydrolab™ readings, and photos of the site.
- 10.4 Hydrolab™ will be calibrated weekly, prior to movement to the field, or sooner if errors or discrepancies are encountered. All calibration and cross-checking with other methods and equipment (Winkler kit, thermometers, etc.) will be recorded in the Hydrolab™ notebook.
- 10.5 Water chemistry duplicates and matrix spikes/matrix spike duplicates (MS/MSD) samples will be collected at a rate of 10% of total water samples collected. Additionally, blank samples will be taken at a rate of one set per sampling crew for each week of sampling activity.

11.0 ACCOUNT NUMBERS, RETURN TO OFFICE, MISC.

11.1 Accounts

- 11.1.1 Water column sample bottles are contracted through National Environmental Technologies, NET, of Indianapolis, Indiana.

11.2 Return to the Office

- 11.2.1 Store fish and macroinvertebrate community samples in room 122, flammable liquid storage room, and log the samples in with the lab custodian using the Field Chain of Custody form.
- 11.2.2 Photocopy the field notebook for that week's activities and give the copies to the program managers as well as placing a copy in section chief's "in-box."
- 11.2.3 Water samples will be delivered to the NET laboratory upon arrival to the Indianapolis area. Properly filled out chain of custody and water sample analysis request forms should accompany the sample delivery.

11.3 Miscellaneous

- 11.3.1 **In the event of an environmental emergency, spill, or fish kill contact IDEM-Emergency Response at (317) 233-7745 or toll free in Indiana 1-888-233-7745.**
- 11.3.2 Rule 5 violations, Stormwater Controls, are coordinated by the OWQ-Wet Weather Section. The contact phone number is (317) 233-1864.
- 11.3.3 On issues concerning the news media or public relations contact the Office of Media and Communication Services (MACS) 800-451-6027 or 232-8596 (Bonnie Nash).

- 11.3.4 If you think you have collected a listed species (dead or alive) contact the Endangered Species Coordinator at 317-232-4080 and Brant Fisher at 812-526-5816 ASAP. If you have other questions, you may wish to contact the U.S. Fish and Wildlife Service office in Bloomington, Indiana at 812-334-4261. Dr. Tom Simon's extension is 213.

Appendix A: Blank Field Sheets

DRAFT



Site Reconnaissance Form

Rank

Recon #:
Site Number: Stream: County: Location Description: Reconnaissance Data CollectedRecon Date Crew Members Avg. Width (m) Avg. Depth (m) Max. Depth (m) Nearest Town

Water Present?	Site Wadeable?	Riffle/Run Present?	Road/Public Access Possible?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Site Impacted by Livestock?	Collect Sediment?	Gauge Present?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Landowner/Contact InformationFirst Name Last Name Street Address City State Zip Telephone E-Mail Address Pamphlet Distributed? ☐ Please Call In Advance? ☐ Results Requested? ☐Rating, Results, Comments, and PlanningSite Rating By Category
(1=easy, 10=difficult)Access Route Safety Factor Sampling Effort Circle Reconnaissance Decision

Pre-Recon
Recon in process
Approved Site
No, Landowner denied access
No, Dry
No, Stream channel missing
No, Physical barriers
No, Impounded stream
No, Marsh/Wetland
No, Bridge gone or not accessible
No, Unsafe due to traffic or location
No, Site impacted by backwater
No, Other

Equipment Selected

Circle Equipment Needed

Backpack
Boat
Trotline
Longline
Scaev
Seine
Weighed Handline
Waders
Gill Net

Comments

Sketch of Stream & Access Route - Indicate Flow, Direction, Obstacles, & Land Use (Use back of page, if necessary)



Stream Sampling Field Data Sheet

Analysis Set#	EPA Site ID	Rank

Sample #	Site #	Sample Medium	Sample Type	Duplicate Sample #									
Stream Name:		River Mile:	County:										
Site Description:													
Survey Crew Chief	Sample Collectors				Sample Collected		HydroLab #	Water Depth/ Gage Ht (ft)	Water Flow (cfs/sec)	Flow Estimated?	Algae?	Aquatic Life?	
	1	2	3	4	Date	Time				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sample Taken?		Aliquots				Water Flow Type			Water Appearance			Canopy Closed %	
<input type="checkbox"/> Yes <input type="checkbox"/> No; From <input type="checkbox"/> No; Stream Dry <input type="checkbox"/> No; Other <input type="checkbox"/> No; Owner Refused Access		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 6 <input type="checkbox"/> 8 <input type="checkbox"/> 12 <input type="checkbox"/> 24 <input type="checkbox"/> 48 <input type="checkbox"/> 72 <input type="checkbox"/> AS-Flow				<input type="checkbox"/> Riffle <input type="checkbox"/> Dey <input type="checkbox"/> Stagnant <input type="checkbox"/> Pool <input type="checkbox"/> Run <input type="checkbox"/> Flood <input type="checkbox"/> Glide <input type="checkbox"/> Eddy <input type="checkbox"/> Other			<input type="checkbox"/> Clear <input type="checkbox"/> Green <input type="checkbox"/> Shown <input type="checkbox"/> Murky <input type="checkbox"/> Black <input type="checkbox"/> Other <input type="checkbox"/> Brown <input type="checkbox"/> Grey (Sewer/Sewage)			<input type="checkbox"/> 0-20% <input type="checkbox"/> 60-80% <input type="checkbox"/> 20-40% <input type="checkbox"/> 80-100% <input type="checkbox"/> 40-60%	
Special Notes:													

Field Data:

Date (m/d/yy)	24-hr Time (hh:mm)	D. O. (mg/l)	pH	Water Temp (°C)	Spec Cond (µS/cm)	Turbidity (NTU)	% Sat.	Chlorine (mg/l)	Chloride (mg/l)	Chlorophyll (µg/l)	Weather Codes			
											SC	WD	WS	AT
Comments:														
Comments:														
Comments:														
Comments:														
Comments:														
Comments:														

Measurement Flags	
<	Min. Meter Measurement
>	Max. Meter Measurement
E	Estimated (See Comments)
R	Rejected (See Comments)

Weather Code Definitions

SC Sky Conditions		WD Wind Direction		WS Wind Strength		AT Air Temp
1	Clear	8	Run	0	Calm	1 < 32
2	Scattered	9	Snow	1	Light	2 33-45
3	Partly	10	Start	18	Mod/Light	3 46-60
4	Cloudy			27	Moderate	4 61-75
5	Mist			4	Mod/Strong	5 76-85
6	Fog			5	Strong	6 > 86
7	Showers			6	Gale	

Field Calibrations:

Date (m/d/yy)	Time (hh:mm)	Calibrator Initials	Calibration			
			Type	Meter #	Value	Units

Calibration Type	pH DO Turbidity

Preservatives/Bottle Lots:

Group/Preservative	Preservative Lot #	Bottle Type	Bottle Lot #

Groups/Preservatives		Bottle Types	
GC	General Chemistry: Ice	500P	2000mL Plastic, Narrow Mouth
Nx	Nutrients: H2SO4	1000P	1000mL Plastic, Narrow Mouth
Metals	Metals: HNO3	500P	500mL Plastic, Narrow Mouth
CN	Cyanide: NaOH	250P	250mL Plastic, Narrow Mouth
Oil & Grease	Oil & Grease: H2SO4	1000G	1000mL Glass, Narrow Mouth
Toxics	Toxics: Ice	500G	500mL Glass, Wide Mouth
Bio	Bacteriology: Ice	250G	250mL Glass, Wide Mouth
VOA	Volatile Organics: HCl & Thionitrate	125G	125mL Glass, Wide Mouth
Pest	Pesticides: Ice	40GV	40mL Glass Vial
Phen	Phenols: H2SO4	120PB	120mL Plastic (Bacteria Only)
Sed	Sediment: Ice	1000P	1000mL Plastic, Corning Filter
Gly	Glyphosate: Thionitrate	500P	500mL Plastic, Corning Filter
Hg	Mercury(1631): HCl	60P	60mL Plastic
Cr6	Chromium(VI)(1636): NaOH	250T	250mL Teflon

Watershed Program Physical Description of Stream Site

Stream Name: _____ Corvallis #: _____ Site Name: _____

General Stream Description:

Date: _____ Time: _____ Crew Chief: _____ Crew: _____

Characteristics at station and immediately upstream (check ALL that apply).

Flow characteristics above sampling site.

- ☐ Riffle
☐ Pool
☐ Eddy
☐ Run
☐ Glide
☐ Other _____

Flow characteristics at sampling site.

- ☐ Riffle
☐ Pool
☐ Eddy
☐ Run
☐ Glide
☐ Other _____

Outer Riparian Zone

L R

- ☐ ☐ Agricultural Rowcrop
☐ ☐ Agricultural Pasture
☐ ☐ Devoid of Vegetation
☐ ☐ Fallow
☐ ☐ Forested
☐ ☐ Residential
☐ ☐ Commercial/Industrial
☐ ☐ Weeds and Scrub
☐ ☐ Other _____

Inner Riparian Zone

L R

- ☐ ☐ Agricultural Rowcrop _____
☐ ☐ Agricultural Pasture _____
☐ ☐ Devoid of Vegetation _____
☐ ☐ Fallow _____
☐ ☐ Forest _____
☐ ☐ Residential _____
☐ ☐ Commercial/Industrial _____
☐ ☐ Treeline _____
☐ ☐ Other _____

Inner Riparian Estimate
L.Width(m) R.Width(m)

Water Description

- ☐ Clear
☐ Grey (Septic)
☐ Murky
☐ Black
☐ Brown
☐ Green
☐ Other _____

Substrate (if visible)

- ☐ Cobble
☐ Boulder
☐ Sand
☐ Muck
☐ Silt
☐ Gravel
☐ Bedrock
☐ Other _____

Sinuosity of Channel

- ☐ High
☐ Moderate
☐ Low
☐ Channelized

☐ Discharge Pipe Present ☐ Effluent Flowing Description of Effluent _____

Continued on Back

Revised 5/02/01

Slope of Functional Stream Bank

L R

☐ ☐ 0-30°

☐ ☐ 31-50°

☐ ☐ 51-70°

☐ ☐ 71-90°

Percent Closed: _____

Stream Stage 1-5 (Low-High): _____

Velocity of Stream 1-5 (Slow-Fast): _____

Visible Stream Degradation? ☐ Yes ☐ No

Description: _____

Aquatic Life Observed? ☐ Yes ☐ No

Description: _____

Algae Observed? ☐ Yes ☐ No

Description: _____

Rooted Macrophytes Observed? ☐ Yes ☐ No

Description: _____

Additional Comments:

Follow Up Date: _____ Time: _____ Crew Chief: _____ Crew: _____

Follow Up Date: _____ Time: _____ Crew Chief: _____ Crew: _____

Photography Notes:



OWQ Assessment Branch
Biological Studies Section: Fish Collection Data Sheet

Analysis Set# Rank

Sample #: Stream Name: EPA Site ID:
 Site #: Site Description:

EventID	Circle Equipment Used			Voltage	Time At Site (hh:mm)	Time Fished (sec)	Distance Fished (m)	Water Depth (m)		Museum Data	
								Max.	Avg.		
Avg. Stream Width (m)	Voucher Jars	Unknown Jars	Bridge In Reach?	Is Reach Representative?	Why is Reach Not Representative?		Special Comments		Jar Count	Fish Total	

Species		Physical Characteristics				Summary by Species				Anomalies							
FishDetail#:		Weight (g)								D E L T M AW LE							
		Total	Min	Max	Mean												
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly		
		Min	Max	Mean	Min	Max					Name Count						
FishDetail#:		Weight (g)								D E L T M AW LE							
		Total	Min	Max	Mean												
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly		
		Min	Max	Mean	Min	Max					Name Count						
FishDetail#:		Weight (g)								D E L T M AW LE							
		Total	Min	Max	Mean												
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly		
		Min	Max	Mean	Min	Max					Name Count						
FishDetail#:		Weight (g)								D E L T M AW LE							
		Total	Min	Max	Mean												
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly		
		Min	Max	Mean	Min	Max					Name Count						
FishDetail#:		Weight (g)								D E L T M AW LE							
		Total	Min	Max	Mean												
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly		
		Min	Max	Mean	Min	Max					Name Count						
FishDetail#:		Weight (g)								D E L T M AW LE							
		Total	Min	Max	Mean												
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly		
		Min	Max	Mean	Min	Max					Name Count						
FishDetail#:		Weight (g)								D E L T M AW LE							
		Total	Min	Max	Mean												
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly		
		Min	Max	Mean	Min	Max					Name Count						
FishDetail#:		Weight (g)								D E L T M AW LE							
		Total	Min	Max	Mean												
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly		
		Min	Max	Mean	Min	Max					Name Count						
FishDetail#:		Weight (g)								D E L T M AW LE							
		Total	Min	Max	Mean												
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly		
		Min	Max	Mean	Min	Max					Name Count						
FishDetail#:		Weight (g)								D E L T M AW LE							
		Total	Min	Max	Mean												
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly		
		Min	Max	Mean	Min	Max					Name Count						

Special Comments:

Species		Physical Characteristics				Summary by Species				Anomalies						
FishDetail#:		Weight (g)								D	E	L	T	M	AW	LE
		Total	Min	Max	Mean											
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly	
		Min	Max	Mean	Min	Max									Name	Count
FishDetail#:		Weight (g)								D	E	L	T	M	AW	LE
		Total	Min	Max	Mean											
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly	
		Min	Max	Mean	Min	Max									Name	Count
FishDetail#:		Weight (g)								D	E	L	T	M	AW	LE
		Total	Min	Max	Mean											
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly	
		Min	Max	Mean	Min	Max									Name	Count
FishDetail#:		Weight (g)								D	E	L	T	M	AW	LE
		Total	Min	Max	Mean											
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly	
		Min	Max	Mean	Min	Max									Name	Count
FishDetail#:		Weight (g)								D	E	L	T	M	AW	LE
		Total	Min	Max	Mean											
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly	
		Min	Max	Mean	Min	Max									Name	Count
FishDetail#:		Weight (g)								D	E	L	T	M	AW	LE
		Total	Min	Max	Mean											
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly	
		Min	Max	Mean	Min	Max									Name	Count
FishDetail#:		Weight (g)								D	E	L	T	M	AW	LE
		Total	Min	Max	Mean											
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly	
		Min	Max	Mean	Min	Max									Name	Count
FishDetail#:		Weight (g)								D	E	L	T	M	AW	LE
		Total	Min	Max	Mean											
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly	
		Min	Max	Mean	Min	Max									Name	Count
FishDetail#:		Weight (g)								D	E	L	T	M	AW	LE
		Total	Min	Max	Mean											
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly	
		Min	Max	Mean	Min	Max									Name	Count
FishDetail#:		Weight (g)								D	E	L	T	M	AW	LE
		Total	Min	Max	Mean											
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly	
		Min	Max	Mean	Min	Max									Name	Count
FishDetail#:		Weight (g)								D	E	L	T	M	AW	LE
		Total	Min	Max	Mean											
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly	
		Min	Max	Mean	Min	Max									Name	Count
FishDetail#:		Weight (g)								D	E	L	T	M	AW	LE
		Total	Min	Max	Mean											
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly	
		Min	Max	Mean	Min	Max									Name	Count
FishDetail#:		Weight (g)								D	E	L	T	M	AW	LE
		Total	Min	Max	Mean											
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly	
		Min	Max	Mean	Min	Max									Name	Count
FishDetail#:		Weight (g)								D	E	L	T	M	AW	LE
		Total	Min	Max	Mean											
Museum Total	Total Fish	Length (mm)		Age (yrs)						SS	PO	EM	FU	PA	Other Anomaly	
		Min	Max	Mean	Min	Max									Name	Count

Table 1. Characteristics of Electrofishing sampling methods employed by the Indiana Department of Environmental Management/ Office of Water Quality/ Biological Studies Section from 1996 to present to collect a representative fish community sample for IBI analysis with Probabilistic Sampling and Stressor Identification Projects.

<u>Sampler Type</u>			
	A, B, C	D, E, F	G, H
Gear Used:	A: 17' boat B: 16' boat C: 15' boat	C: 16' Scanoes w/ rattail cathode D: Smith Root Tote Barge System w/ cathode plate E: Longline (150m extension cord)	G: Smith-Root backpack with a gas powered generator H: Smith-Root backpack with battery power
Power Source:	A: EG 5000 X Honda Generator with a Coffelt VVP-15 (17' boat) B: EG 5000 X Honda Generator with a Coffelt VVP-2E (16' boat) C: Briggs & Stratton 5 HP Generator, Smith Root GPP 2.5 portable electrofisher (RCB-6B Junction Box) in 15' boat	C, D, and E: Briggs & Stratton 5 HP Generator, Smith Root GPP 2.5 portable electrofisher (RCB- 6B Junction Box)	G: Smith-Root Model 15-D Honda Electrofisher with a Honda model EX350 gas powered generator H: Smith-Root Model LR-24 Electrofisher with battery power
Current Type:	Pulsed DC	Pulsed DC	Pulsed DC
Wattage: (AC Power Source)	A,B: 5000 (17' or 16' boat) C: 2500 (15' boat)	2500	300
Volts: (DC Output)	A,B: 0-1020, (suggest 340) C: 50-1000 (suggest 300)	50-1000 (suggest 300)	100-1100 (usually 300)
Amperage: (Output)	A,B: 3-6 C: 2	2	No meter reading available
Anode Location:	Electrosphere on boom	Netted teardrop or ring anode	Netted teardrop or ring anode
Number of Netters & Net Mesh Size:	2 people netting in the front of the boat with 1/8 inch nets	1-2 people netting near anode with 1/8 inch nets	1 person netting near anode with 1/8 inch net
Distance Sampled: (meters)	15 times the width up to a maximum of 500 m (both banks)	15 times the width, maximum 500 m (150 m with Longline system) minimum 50 m	15 times the width, maximum 500 m minimum 50 m
Sampling Direction:	Upstream and circling around to net fish behind boat	Upstream zigzag to collect from all habitats possible	Upstream zigzag to collect from all habitats possible
Stream Size:	A,B: large/great rivers C: Non-wadeable streams	Wadeable streams to headwater tributaries	Headwater tributaries
Sampling Period:	Sept.15-Oct. 15, daytime	June-Oct. 15, daytime	June-Oct.15, daytime

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT BIOLOGICAL SAMPLE

TYPE OF SAMPLE 04609SAMPLE LOG NUMBER 04609STREAM/LAKE NAME 04609 COUNTY 04609 IN 04609DATE 04609 AIR TEMP 04609 WATER TEMP 04609LOCATION 04609COLLECTORS 04609SITE DESCRIPTION/NOTES 0460904609

+

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT BIOLOGICAL SAMPLE

TYPE OF SAMPLE 04T05.5SAMPLE LOG NUMBER 04T05.5STREAM/LAKE NAME 04T05.5 COUNTY 04T05.5 IN 04T05.5DATE 04T05.5 AIR TEMP 04T05.5 WATER TEMP 04T05.5LOCATION 04T05.5COLLECTORS 04T05.5SITE DESCRIPTION/NOTES 04T05.504T05.5

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INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT BIOLOGICAL SAMPLE

TYPE OF SAMPLE 041BC120SAMPLE LOG NUMBER 041BC120STREAM/LAKE NAME 041BC120 COUNTY 041BC120 IN 041BC120DATE 041BC120 AIR TEMP 041BC120 WATER TEMP 041BC120LOCATION 041BC120COLLECTORS 041BC120SITE DESCRIPTION/NOTES 041BC120041BC120

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT BIOLOGICAL SAMPLE

TYPE OF SAMPLE 041BC120SAMPLE LOG NUMBER 041BC120STREAM/LAKE NAME 041BC120 COUNTY 041BC120 IN 041BC120DATE 041BC120 AIR TEMP 041BC120 WATER TEMP 041BC120LOCATION 041BC120COLLECTORS 041BC120SITE DESCRIPTION/NOTES 041BC120



OWQ Biological Studies: Macroinvertebrate Header

Sample#	Macro#	Macro Sample Type	#Containers	Notes
		<input type="checkbox"/> Black Light <input type="checkbox"/> Kick <input type="checkbox"/> Qualitative <input type="checkbox"/> CPOM <input type="checkbox"/> Hester-Dandy		
Stream Name / Location		County	Sample Date	<input type="checkbox"/> Habitat Complete <input type="checkbox"/> Sample Quality Rejected

Riparian Zone/Instream Features

Watershed		Stream Depth		Distances		Predominant Surrounding Land Use	
Erosion	NPS Pollution	Riffle	Run	Pool	Riffle-Riffle	Bend-Bend	<input type="checkbox"/> Forest <input type="checkbox"/> Residential <input type="checkbox"/> Field/Pasture <input type="checkbox"/> Commercial <input type="checkbox"/> Agricultural <input type="checkbox"/> Industrial
<input type="checkbox"/> None <input type="checkbox"/> Moderate <input type="checkbox"/> Heavy	<input type="checkbox"/> No Evidence <input type="checkbox"/> Some Potential Sources <input type="checkbox"/> Obvious Sources						Other <input type="text"/>
Stream Width		High Water Mark	Velocity	Canopy Cover (% Open)			

Sediment

Sediment Odors: ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

Sediment Deposits: ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☐ Sand ☐ Relic Shells Other

Sediment Oils: ☐ Absent ☐ Moderate ☐ Slight ☐ Profuse ☐ Are the undersides of stones, which are not deeply embedded, black?

Substrate Components

(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)

Inorganic Substrate Components (% Diameter)						Organic Substrate Components (% Type)				
Bedrock	Boulder (>10in)	Cobble (2.5-10in)	Gravel (0.1-2.5in)	Sand (gritty)	Silt	Clay (slick)	Detritus (sticks, wood)	Detritus (CPOM)	Muck/Mud (black, fine FPOM)	Marl (gray w/shell fragments)

Water Quality

Water Odors			Water Surface Oils		Stream Type	Barometer	Turbidity (Estimated)		Salinity	ORP
<input type="checkbox"/> Normal <input type="checkbox"/> Sewage Other <input type="text"/>	<input type="checkbox"/> Petroleum <input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Slick <input type="checkbox"/> Sheen <input type="checkbox"/> Glob	<input type="checkbox"/> Flocks <input type="checkbox"/> None	<input type="checkbox"/> Warm <input type="checkbox"/> Cold		<input type="checkbox"/> Clear <input type="checkbox"/> Slightly Turbid	<input type="checkbox"/> Turbid <input type="checkbox"/> Opaque		
Instruments Used for:										
Water Temp		DO		pH		Specific Conductivity				

Camera Log

IDEM-OWQ-Assessment Branch-Biological Studies Section

Team_____ **Camera**_____ **Begin & End Date**_____/____/_____

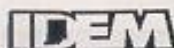
assigned by camera

Site# followed by U=
upstream, D=downstream
And then _MMDDYY

Photo Description

File Name

[illegible]



OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
Surveyor	Sample Date	County	Macro SampleType
			Habitat Complete
			QHEI Score: <input type="text"/>

1-Substrate (20 points maximum)

Substrate Score:

Check 1 Predominant Pool & 1 Predominant Riffle

Check all that are present

P=Pool, R=Riffle

Predominant	Present	Predominant	Present
P R	P R	P R	P R
<input type="checkbox"/> Bldrs/Slabs(10)	<input type="checkbox"/>	<input type="checkbox"/> Hardpan(4)	<input type="checkbox"/>
<input type="checkbox"/> Boulders(9)	<input type="checkbox"/>	<input type="checkbox"/> Detritus(3)	<input type="checkbox"/>
<input type="checkbox"/> Cobble(8)	<input type="checkbox"/>	<input type="checkbox"/> Muck(2)	<input type="checkbox"/>
<input type="checkbox"/> Gravel(7)	<input type="checkbox"/>	<input type="checkbox"/> Silt(2)	<input type="checkbox"/>
<input type="checkbox"/> Sand(6)	<input type="checkbox"/>	<input type="checkbox"/> Sludge(1)	<input type="checkbox"/>
<input type="checkbox"/> Bedrock(5)	<input type="checkbox"/>	<input type="checkbox"/> Artificial(0)	<input type="checkbox"/>

Substrate Quality (check only 1, or check 2 and AVERAGE)

Substrate Origin	
<input type="checkbox"/> Limestone(1)	<input type="checkbox"/> Hardpan(0)
<input type="checkbox"/> Tills(1)	<input type="checkbox"/> Sandstone(0)
<input type="checkbox"/> Wetlands(0)	<input type="checkbox"/> Rip/Rap(0)
<input type="checkbox"/> Lacustrine(0)	<input type="checkbox"/> Shale(-1)
<input type="checkbox"/> Coal fines(-2)	

Silt Cover	Embeddedness
<input type="checkbox"/> Silt heavy(-2)	<input type="checkbox"/> Extensive(-2)
<input type="checkbox"/> Silt moderate(-1)	<input type="checkbox"/> Moderate(-1)
<input type="checkbox"/> Silt normal(0)	<input type="checkbox"/> Low/Normal(0)
<input type="checkbox"/> Silt free(1)	<input type="checkbox"/> None(1)

NOTE: ignore sludge originating from point sources; score based on natural substrates

☐ >4 substrates present(2)Comments:

2-Instream Cover (20 points maximum)

Instream Cover Score:

Type (check ALL that apply)

<input type="checkbox"/> Undercut banks(1)	<input type="checkbox"/> Deep pools(2)	<input type="checkbox"/> Oxbows(1)
<input type="checkbox"/> Overhanging vegetation(1)	<input type="checkbox"/> Rootwads(1)	<input type="checkbox"/> Aquatic macrophytes(1)
<input type="checkbox"/> Shallows(in slow water)(1)	<input type="checkbox"/> Boulders(1)	<input type="checkbox"/> Logs and woody debris(1)
<input type="checkbox"/> Rootmats(1)		

Comments:

Amount (check only 1, or 2 and AVERAGE)

<input type="checkbox"/> Extensive >75% (11)
<input type="checkbox"/> Moderate 25-75% (7)
<input type="checkbox"/> Sparse 5-25% (3)
<input type="checkbox"/> Nearly absent <5% (1)

3-Channel Morphology (20) (check only one per category, OR two and AVERAGE)

Channel Score:

Sinuosity	Development	Channelization	Stability	Modifications/Other
<input type="checkbox"/> High (4)	<input type="checkbox"/> Excellent (7)	<input type="checkbox"/> None (6)	<input type="checkbox"/> High (3)	<input type="checkbox"/> Snagging
<input type="checkbox"/> Moderate (3)	<input type="checkbox"/> Good (5)	<input type="checkbox"/> Recovered (4)	<input type="checkbox"/> Moderate (2)	<input type="checkbox"/> Relocation
<input type="checkbox"/> Low (2)	<input type="checkbox"/> Fair (3)	<input type="checkbox"/> Recovering (3)	<input type="checkbox"/> Low (1)	<input type="checkbox"/> Canopy Removal
<input type="checkbox"/> None (1)	<input type="checkbox"/> Poor (1)	<input type="checkbox"/> Recent or no recovery (1)		<input type="checkbox"/> Dredging

Comments: ☐ One side channel modifications

4-Riparian Zone & Bank Erosion (10 points maximum)

Riparian Score:

Left/Right banks looking downstream (For each category, check only one per bank, OR two per bank and AVERAGE)

Riparian width	Erosion/Runoff-Floodplain quality (past 100 ft Riparian)	Bank Erosion
<input type="checkbox"/> L R (per bank)	<input type="checkbox"/> L R (most predominant per bank)	<input type="checkbox"/> L R (per bank)
<input type="checkbox"/> Wide >50m (4)	<input type="checkbox"/> Forest, Swamp (3)	<input type="checkbox"/> Conservation Tillage (1)
<input type="checkbox"/> Moderate 10-50m (3)	<input type="checkbox"/> Shrub or Old field (2)	<input type="checkbox"/> Urban or Industrial (0)
<input type="checkbox"/> Narrow 5-10m (2)	<input type="checkbox"/> Residential, Park, New field (1)	<input type="checkbox"/> Mining, Construction (0)
<input type="checkbox"/> Very narrow <5m (1)	<input type="checkbox"/> Fenced pasture (1)	<input type="checkbox"/> Open Pasture/Rowcrop (0)
<input type="checkbox"/> None (0)		

Comments:

5a-Pool/Glide Quality (12 points maximum)

Pool/Glide Score:

Max pool depth (check one)

<input type="checkbox"/> >1m (6)
<input type="checkbox"/> 0.7-1m (4)
<input type="checkbox"/> 0.4-0.7m (2)
<input type="checkbox"/> 0.2-0.4m (1)
<input type="checkbox"/> <0.2m (pool=0)

Morphology (check only one, OR check two and AVERAGE)

<input type="checkbox"/> Pool width > riffle width (2)
<input type="checkbox"/> Pool width = riffle width (1)
<input type="checkbox"/> Pool width < riffle width (0)

Comments:

Pool/Run/Riffle current velocity (check all that apply)

<input type="checkbox"/> Eddies (1)	<input type="checkbox"/> Torrential (-1)
<input type="checkbox"/> Fast (1)	<input type="checkbox"/> Interstitial (-1)
<input type="checkbox"/> Moderate (1)	<input type="checkbox"/> Intermittent (-2)
<input type="checkbox"/> Slow (1)	<input type="checkbox"/> No pool (0)

5b-Riffle/Run Quality (8) (check only one per category, OR two and AVERAGE)

Riffle/Run Score:

Riffle/run depth (check one)

<input type="checkbox"/> Generally >10cm, Max >50cm (4)
<input type="checkbox"/> Generally >10cm, Max <50cm (3)
<input type="checkbox"/> Generally 5-10cm (1)
<input type="checkbox"/> Generally <5cm (riffle=0)

Riffle/run substrate

<input type="checkbox"/> Stable-e.g. cobble, boulder (2)
<input type="checkbox"/> Mod. stable-e.g. pea gravel (1)
<input type="checkbox"/> Unstable-e.g. sand, gravel (0)

Comments:

Riffle/run embeddedness

<input type="checkbox"/> Extensive (-1)	<input type="checkbox"/> Normal/Low (1)
<input type="checkbox"/> Moderate (0)	<input type="checkbox"/> None (2)
	<input type="checkbox"/> No riffle (0)

6-Gradient (10 points maximum)

Gradient Score: Average width: Gradient: (ft/mile)Drainage Area: (square miles)Comments:

**OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)**

Sample #	bioSample #	Stream Name	Location
Surveyor	Sample Date	County	Macro SampleType
			<input type="checkbox"/> Habitat Complete
			QHEI Score: <input type="text"/>

Impacts/Miscellaneous**Major Suspected Impacts (Check all that apply)**

- | | |
|---------------------------------------|---|
| <input type="checkbox"/> None | <input type="checkbox"/> Suburban |
| <input type="checkbox"/> Industrial | <input type="checkbox"/> Channelization |
| <input type="checkbox"/> WWTP | <input type="checkbox"/> Riparian Removal |
| <input type="checkbox"/> Agricultural | <input type="checkbox"/> Flow Alteration |
| <input type="checkbox"/> Livestock | <input type="checkbox"/> CSOs |
| <input type="checkbox"/> Silviculture | <input type="checkbox"/> Mining |
| <input type="checkbox"/> Construction | <input type="checkbox"/> Landfills |
| <input type="checkbox"/> Urban Runoff | <input type="checkbox"/> Natural |

Pollution Impact Comments:

Miscellaneous QHEI Information

Subjective rating (1-10): <input type="text"/>	% Riffle: <input type="text"/>	Is reach representative of stream? <input type="text"/>
Aesthetic rating (1-10): <input type="text"/>	% Run: <input type="text"/>	
Canopy Cover (% Open): <input type="text"/>	% Pool: <input type="text"/>	

General QHEI Notes:



INDIANA DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT

☐

OWQ

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OLQ

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OAQ

FIELD CHAIN OF CUSTODY

I Certify that the sample(s) listed below was/were collected by me or in my presence.

Date: ____/____/____ P.O. #: _____ N/A

Signature: _____

Section: Biological Studies Section

EVENT ID	IDEM SAMPLE NUMBER	CONSISTING OF THE INDICATED NUMBER OF BOTTLES							
		2000mL Wide Mouth Jar	DATE AND TIME COLLECTED			DATE AND TIME PLACED IN ROOM 121			Place a check next to the line for sample present and accounted for!
				:	AM/PM		:	AM/PM	
				:	AM/PM		:	AM/PM	
				:	AM/PM		:	AM/PM	
				:	AM/PM		:	AM/PM	
				:	AM/PM		:	AM/PM	
				:	AM/PM		:	AM/PM	
				:	AM/PM		:	AM/PM	
				:	AM/PM		:	AM/PM	
				:	AM/PM		:	AM/PM	
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				:	AM/PM		:	AM/PM	
				:	AM/PM		:	AM/PM	

SIGNATURE		DATE AND TIME	Comments:
RELINQUISHED BY:		/ /	
RECEIVED BY:		:	

Lab Custodian

I certify that I received the above sample(s) and is/are recorded in the official record book. The same samples will be in custody of competent laboratory personnel at all times or locked in a secure area.

Signature: _____ Date: ____/____/____ Time: ____:____ AM/PM

Lab: Indiana Department of Environmental Management

Address: 2525 N. Shadeland Ave. Laboratory Room 121, Indianapolis, IN 46219



INDIANA WORKER'S COMPENSATION FIRST REPORT OF EMPLOYEE INJURY, ILLNESS

State Form 34401 (R10 / 1-02)

FOR WORKER'S COMPENSATION BOARD USE ONLY		
Jurisdiction	Jurisdiction claim number	Process date

Please return completed form electronically by an approved EDI process.

PLEASE TYPE or PRINT IN INK

NOTE: Your Social Security number is being requested by this state agency in order to pursue its statutory responsibilities. Disclosure is voluntary and you will not be penalized for refusal.

EMPLOYEE INFORMATION									
Social Security number	Date of birth	Sex <input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Unknown	Occupation / Job title				NCCI class code		
Name (last, first, middle)		Marital status <input type="checkbox"/> Unmarried <input type="checkbox"/> Married <input type="checkbox"/> Separated <input type="checkbox"/> Unknown		Date hired	State of hire	Employee status			
Address (number and street, city, state, ZIP code)			Hrs / Day		Days / Wk	Avg Wg / Wk	<input type="checkbox"/> Paid Day of Injury <input type="checkbox"/> Salary Continued		
Telephone number (include area)		Number of dependents		Wage Per \$		<input type="checkbox"/> Hour <input type="checkbox"/> Day <input type="checkbox"/> Week <input type="checkbox"/> Month <input type="checkbox"/> Year <input type="checkbox"/> Other			
EMPLOYER INFORMATION									
Name of employer		Employer ID#		SIC code		Insured report number			
Address of employer (number and street, city, state, ZIP code)		Location number		Employer's location address (if different)					
		Telephone number							
		Carrier / Administrator claim number		OSHA log number		Report purpose code			
Actual location of accident / exposure (if not on employer's premises)									
CARRIER / CLAIMS ADMINISTRATOR INFORMATION									
Name of claims administrator		Carrier federal ID number		Check if appropriate <input type="checkbox"/> Self Insurance					
Address of claims administrator (number and street, city, state, ZIP code)		<input type="checkbox"/> Insurance Carrier <input type="checkbox"/> Third Party Admin.		Policy / Self-insured number					
Telephone number				Policy period From To					
Name of agent		Code number							
OCCURRENCE / TREATMENT INFORMATION									
Date of Inj / Exp.	Time of occurrence <input type="checkbox"/> AM <input type="checkbox"/> PM <input type="checkbox"/> Cannot be determined		Date employer notified		Type of injury / exposure			Type code	
Last work date	Time workday began		Date disability began		Part of body			Part code	
RTW date	Date of death		Injury / Exposure occurred on employer's premises? <input type="checkbox"/> Yes <input type="checkbox"/> No		Name of contact			Telephone number	
Department or location where accident / exposure occurred				All equipment, materials, or chemicals involved in accident					
Specific activity engaged in during accident / exposure				Work process employee engaged in during accident / exposure					
How injury / exposure occurred. Describe the sequence of events and include any relevant objects or substances.									
								Cause of injury code	
Name of physician / health care provider									
Hospital or offsite treatment (name and address)								INITIAL TREATMENT <input type="checkbox"/> No Medical Treatment <input type="checkbox"/> Minor: By Employer <input type="checkbox"/> Minor: Clinic / Hospital <input type="checkbox"/> Emergency Care <input type="checkbox"/> Hospitalized > 24 Hours <input type="checkbox"/> Future Major Medical / Lost Time Anticipated	
Name of witness		Telephone number		Date administrator notified					
Date prepared	Name of preparer		Title		Telephone number				

An employer's failure to report an occupational injury or illness may result in a \$50 fine (IC 22-3-4-13).

INSTRUCTIONS

General Instructions:

1. Please enter information into all of the areas of the First Report form, except the boxes at the top right corner of the form which is for office use only.
2. Enter all dates in MM/DD/YY format.
3. Please return completed form electronically by an approved EDI process.
4. For answers to questions, please call (317) 232-3808.

Definitions:

AGENT NAME AND CODE NUMBER: Enter the name of your insurance agent and his / her code number if known. This information can be found on your insurance policy.

ALL EQUIPMENT, MATERIALS OR CHEMICALS EMPLOYEE WAS USING WHEN ACCIDENT OR EXPOSURE OCCURRED: List anything the employee was using, applying, handling or operating when the injury or exposure occurred. If the injury involves a fall, indicate any surfaces and / or objects the claimant fell on and where they fell from. Enter "NA" if no equipment, materials or chemicals were being used (e.g. *Acetylene cutting torch, metal plate, etc.*).

AVG WG/WK: Claimant's average weekly wage, calculated by totaling the latest 52 weeks of wages (*including overtime, tips, etc.*) and dividing by 52.

CLAIMS ADMINISTRATOR: Enter the name of the carrier, third-party administrator, state fund, or self-insured responsible for administering the claim.

CONTACT NAME / TELEPHONE NUMBER: Enter the name of the individual at the employer's premises to be contacted for additional information (*i.e. Supervisor, HR Person, Nurse, etc.*)

DATE DISABILITY BEGAN: The first day on which the claimant originally lost time from work due to the occupational injury or disease or as otherwise deemed by statute.

DEPARTMENT OR LOCATION WHERE ACCIDENT OR EXPOSURE OCCURRED: If the accident or exposure did not occur on the employer's premises, enter address or location. Be specific (*e.g. Maintenance, Client's Office, Cafeteria, etc.*).

EMPLOYEE STATUS: Indicate the employee's work status from the following choices: Full-time, Part-time, Apprentice Full-time, Apprentice Part-time, Volunteer, Seasonal Worker, Piece Worker, On-Strike, Disabled, Retired, Not Employed or Unknown (you may also abbreviate the above as: *FT, PT, AFT, APT, VO, SW, PW, OS, DI, RE, NE, or UK*).

HOW INJURY / ILLNESS OCCURRED: Describe the sequence of events leading to the injury or exposure (*e.g. Worker stepped back to inspect work and slipped on some scrap metal. As worker fell, he brushed against the hot metal; Worker stepped to the edge of the scaffolding, lost balance and fell six feet to the concrete floor. The worker's right wrist was broken in the fall*).

NCCI CLASS CODE: A four-digit code classifying the occupation of the claimant.

OCCUPATION / JOB TITLE: Enter the primary occupation of the claimant at the time of the accident or exposure.

PART OF BODY AFFECTED: Indicate the part of body affected by the injury / illness (*e.g. Right forearm, Low Back, etc.*)

REPORT PURPOSE CODE: 00 = Original First Report of Injury; 02 = Updated or Amended First Report.

RTW DATE (Return to Work Date): Enter the date following the most recent disability period on which the employee returned to work.

SIC CODE: This is the code which represents the nature of the employer's business which is contained in the Standard Industrial Classification Manual published by the Federal Office of Management and Budget.

SPECIFIC ACTIVITY EMPLOYEE ENGAGED IN DURING ACCIDENT / EXPOSURE: Describe the specific activity the employee was engaged in during the accident or exposure (*e.g. Cutting metal plate for flooring, sanding ceiling woodwork in preparation for painting*).

TYPE OF INJURY / ILLNESS: Briefly describe the nature of the injury or illness (*e.g. Contusion, Laceration, Fracture, etc.*)

WORK PROCESS THE EMPLOYEE WAS ENGAGED IN DURING ACCIDENT / EXPOSURE: Enter "NA" if employee was not engaged in a work process, such as if walking down the hallway (*e.g. Building maintenance*).

Appendix B: Quality Assurance/Quality Control Routing Slips

DRAFT

Generation of Project in Arcview

- Start Arcview and create a new project with a new view, Select Ok.
- It will ask if you would like to add new data to view? Yes
- From your C: drive select huc08.shp (This will create a map of all 8 digit HUCs in Indiana. Note: You must have this file on your hard drive to decrease the loading time. You can get this file at S:\WSP\OWM\GIS.
- Make the theme active by clicking (put a check) in the theme Huc08.shp under View 1. This may take time to load since it has all 8 digit HUCs for Indiana.
- Go to View, Add Theme, rf3state.shp, OK. Again, place a check in the box for Rf3state.shp. (This will show all streams in Indiana.
- Close the View
- Click on Tables, Add, dbf file with site information (must have Northing and Easting in dbf file to map sites), OK, Close Table
- Go back to View 1, Open (This will take time to load all of Indiana streams and HUCs, but we will eliminate those streams and HUCs that we don't need for drainage area and gradient calculations in the next step).
- Go to View, Add Event Theme...
- Select the dbf table with site Northing and Easting (the X field is Easting and Y field : Northing) OK
- Place a check in Theme box and your sites show up on the map!
- Make the Huc08.shp theme active by clicking on the file name (an active theme will look like a raised button).
- Go to theme, Select by Theme, Select features of active themes that completely contain the selected features of site dbf. Click New set.
- Then go to Theme, Convert to Shapefile, save as _____.shp Yes
- Add to View? Yes
- Now you can delete the other theme with all 8 digit HUCs in Indiana. Highlight Huc08.shp and go to Edit, Delete Theme, Yes.
- Move your new theme with only the 8 digit HUCs you want to the bottom of the view so that points on top, lines next (streams), and polygons on bottom (8 digit HUCs). To do this simply click and drag the theme.
- Now we want to get rid of all the streams not in the 8 digit HUCs we are looking at. Make Rf3state.shp your active theme. Go to Theme, Select by Theme, Intersect, Upwabash08.shp, New Set. (This will highlight all of those streams in our 8 digit HUCs.) Then go to Theme, convert to shapefile upperwabashstreams.shp, Add shapefile as theme to view, and Delete the Rf3state.shp theme.
- View, add theme, huc14.shp. Select only those 14 digit hucs needed by going to Theme, select by theme, intersect, upwabash08.shp, New Set, then go to theme, convert to shapefile, upwabash14.shp. Add to view and delete huc14.shp
- Change the properties for each theme so you can distinguish them clearly (i.e. points red, rivers blue, 14 digit huc clear with black line borders). Turn off the 8-digit huc theme by removing the check in the box. Go to View, Full Extent. You should see all of your sites and the basin on your screen. Now you are ready to calculate drainage area and gradient. First you must have raster maps generated to import into Arcview.

Generation of Raster Maps for Import into Arcview

- Start with sheet of site #'s and lat-long, have individual files available with printed maps that have sites located on them
- Pick a site off the list and pick an appropriate raster map e.g. site located in Kosciusko county one would want to choose North raster map. When raster map is opened, go to File and choose Load Map (this box will appear in the middle of the screen). Enter appropriate latitude and longitude coordinates and press OK. Map will appear and site will be located approximately in the middle of the screen. Check this with the map located in the site folder.
- Locate approximate location of site and choose three contour lines that intersect stream. Try to find two upstream and one downstream. If not locate one upstream and two downstream. Find the contour interval for the particular map you are selecting. Example – find contour line of 850 and if one right beside it is 855, your contour interval is 5 ft. Make a note of this. Left click mouse to draw a box around the area that includes the three contour lines. Select file, export map. Save this to an appropriate folder.

Gradient Calculations

- Go back to Arcview and Add Theme, Data Source Type: Image not feature (Note: maps for probabilistic sites are usually saved to S:\WSP\OWM\Random\Corvallis2003\tif), select the site for which you want to calculate gradient, OK, make your tif image active, then go to View, Zoom to Theme.
- Click View, Properties, Map Units: meters and the Distance Units: miles.
- Use the magnifying glass with the plus sign located on the toolbar to zoom into map and find contour lines (two upstream and one downstream if possible). Scale 1:11,500 looks good but you may have to go to Topo maps if it is too hard to see contour lines crossing the stream. Go to the toolbar and place dots on contour lines for easy viewing.
- Click view- new theme, feature type: line.
- Once the theme is active with dashed box around check, go to the bottom of the toolbar and make sure the line tool is selected. (It will be selected since you chose line feature but make note of this if you save your work and come back to it later. Also if you save your work and come back to it, you have to select theme and start editing to make it active.)
- Click on the active theme and go to the color palette (paintbrush) and pen palette (pencil) to make the line a bright color you can recognize and make the font about 2.
- Start tracing the stream between the three points you placed on the contour lines crossing the stream. Once you start tracing double click to stop the line. If you have to move the screen, choose the hand icon on the toolbar. Start tracing again where you left off. Once you have completed this you may have multiple features.
- Select all of the line features by clicking on each line while holding down the shift key. Once all features are selected go to edit, select union features.
- The result of the length of the line segment you created will be on the lower left-hand corner (i.e. 7.65 mi). You want length not segment length = 0.01 mi. Look at the map to determine how many feet between intervals (i.e. 5, 10, etc.) in the example we used the distance between 3 points or two 10 ft. contour intervals thus $20 \text{ ft.} / 7.65 \text{ mi} = 2.61 \text{ ft/mi}$ for gradient.

Drainage Area Calculations

- With the line tool “Z” under the graphic point tool dropdown, draw a multi-jointed line along the path you think would best represent the land draining to your site (draw line from site away to boundary of 14 digit huc and repeat for other side of stream).
- Zoom in and use the Vertex Edit tool to fine tune the line you just drew to best represent the new drainage area boundary.
- To make this a new polygon, make sure the huc 14 layer is active. Under the Theme menu option, click start editing. Under the graphic point tool dropdown, select the polygon splitting tool. With the huc 14 zoomed out to the extent that you can see both ends of the line you just drew, start outside of the polygon on one side and trace the drawn line through the point and to the other side. After you pass the other side, double click to stop the cut.
- After a few moments, the two new polygons created from your original one will be selected in the table. Go to theme, stop editing, and save edits.
- With the 14 digit huc theme active, select the hucs (polygons) upstream along with the new polygon for drainage area using the select button on the toolbar and the Shift key.
- Go to Theme, Table, Table, Promote (this will bring up all polygons selected in view) and convert sq. meters to sq. miles [Area] x (0.0000003861). You can create a new field to do this rather easily.
- Table, Start Editing, Edit, Add Field
- Highlight your new field, then go to Field, Calculate, double click [Area] * 0.0000003861 to convert sq. meters to sq. miles or [Hu_acres]*0.0015625 to convert acres to sq. miles.
- Your highlighted records will then show a calculated sq. miles value. Add the values together to get drainage area for the site.

Repeat these steps for each site until you are done calculating gradient and drainage area for each site.

QA/QC ROUTING SLIP FOR Site Reconnaissance Form

Project Name: _____
(Please initial and date in the line provided)

1. Check that the site reconnaissance form is completed with the following:
 - Stream name and location description completed following the AIMS database formatting document
 - Abbreviated or short description circled for data entry
 - Recon date and crew members
 - Avg. width (m) and depth (m), max. depth (m), and nearest town
 - Check boxes are completed if applicable
 - Landowner/Contact information complete if road/public access possible check box is blank
 - Site rating by category for access route, safety factor, and sampling effort
 - Reconnaissance decision has been circled and comments provided if no, other was circled
 - Equipment needed circled for biological samples
 - Sketch of stream or description of access route
2. Enter the information into AIMS
 - Select Site information tab, Select L-site (WSU010-0010)
 - Check that stream name is correct. Make changes if necessary!
 - Enter short site description following abbreviation document for AIMS (CR 600 S)
 - Enter detailed site description (CR 600 S East of CR 400 N approx. 500 meters)
*Short site description must be filled in for label generation AND detailed site description must be filled in for the stream sampling field data sheet.
 - Click Save on bottom of form and then click view recon form (**If recon was performed in a previous year, do not override this info instead go to the project schedule and click on the site, then view recon form and enter recon info in the project window. This will create two records of recon for the site!**)
 - Enter all applicable information in form by tabbing through fields and click Save Record
 - Close Form and select next site
 - Repeat #2 until all approved sites are entered
 - At the bottom of each recon sheet initial and date
3. Make sure that BSS folder has a copy (front and back) of recon sheet. Also check the topographic and aerial maps for descriptive information needed on the BSS maps. Copy any important notes or drawings placed in or written on the folder. Update the list of accepted sites. If the site was rejected, pull the next file for recon and give to recon crew chief.
4. Once all approved sites for the week have been entered into AIMS and the BSS folders updated, give approved site folders to Survey's Section contact for *E.coli* and USGS copies. The contact will make 2 copies of the recon sheet (one for USGS and one for *E.coli*), update *E.coli* maps, and remove the topographic and aerial maps for the USGS folders. Once the contact is done with the recon folders, the contact will place the original recon folder in the accepted and copied for *E.coli*, BSS, and USGS expandable folder or the denial expanded folder if rejected.
5. Data Certified for Analysis (All approved and rejected sites entered and completed for printing of Stream Sampling Field Data Sheets)
6. Calculations of Drainage Area and Gradient Completed

Comments:

Aims Database Formatting

The following pages contain a list of abbreviations and formatting standards that are being implemented Branch wide. These are specific only to the AIMS database and should not affect how you store your data prior to its transfer into AIMS. However, you should recognize that changes will be made and subsequently will require an additional round of QC on your part if your formats are updated to reflect AIMS standards.

There are two main fields that we all share that are of specific concern, the Waterbody Name and Site Location /Description fields. Additional fields that are specific to a certain group or project should be formatted according to that group's needs, using this as a guide. However, any formatting should conform to the basic layout of AIMS, i.e. first letter of each word capitalized etc. Any deviations from this standard should be put in writing so it may be added to an overall AIMS formatting guide, an in-house SOP for our use.

This project was undertaken with the intent of creating as few abbreviations and rules for data formatting as possible. Thus, if you find that many previously abbreviated words have been left off the list then we have decided no abbreviation was necessary, or readily available, and that word should be spelled out completely. With AIMS, we have EDIT access to a database that includes a multitude of records from our various projects. Thus, it is imperative that we are all on the same page when it comes to how our data is presented. The ultimate goal is to give the public access to this database, thereby cutting down on the number of information requests we receive for our data. We want to present a professional, scientific, and accurate set of data to the public. A major part of that is consistency in data formatting.

Stream Name

The stream name field is limited to 30 characters in AIMS. As a result, abbreviations become necessary in order to avoid truncation of the full name. The following rules are proposed.

1. All words will be written with the first letter capitalized and the following letters in the lowercase. Exceptions to this would be specific abbreviations listed in the table and words that have a capitalized prefix followed by a capitalized root word. Example: MacDonald Lake, Van Bibber Ditch.
2. All cardinal directions and combinations thereof (NW, SW etc.) will be abbreviated and in the uppercase. Example: Northwest = NW North = N
3. All proper names of waterbodies will be spelled out in their entirety. Proper names may include cardinal directions or other words usually abbreviated. Example: North River, in this case the direction is acting as a proper name and should not be abbreviated.
4. Modifiers of the proper stream name that are either before or after the proper name are defined in the attached table as either being spelled out completely or abbreviated. There are no exceptions to this list.

Site Location/Description

Space limitations are not a concern in this field. However, formatting and abbreviations standards are proposed.

1. All words will be written with the first letter capitalized and the following letters in the lowercase. Exceptions to this would be specific abbreviations listed in the table and monosyllabic conjunctions and prepositions. Example: the, and, of etc.
2. All county road listings will adhere to this format; CR 900 S note the space between each group. If there is no directional designation the format remains the same as that for State Roads and US Routes.; Ex. SR 16, CR 16, US 52.
3. All numeric street names will be written as found on the map or sign. If the street name is a numeral and is spelled out with letters, it should be entered into the database in exactly the same way. If the numeral is not spelled out it should be formatted as follows: 1st / 2nd / 3rd / 4th , all lowercase with no punctuation.

Abbreviation Table

The following table contains abbreviations that are used for AIMS. This list is not exhaustive and is open for additions only. There are no changes allowed to the present forms on the list. If abbreviations for words are not easily recognizable, they are to be spelled out completely. These words were left in the table, denoted by a "NONE" listing under the abbreviation column, to avoid confusion and thoughts that we perhaps forgot to include them. No abbreviations are to be followed by a period.

TERM	ABBREVIATION
Apartment	Apt
Avenue	Ave
Boulevard	Blvd
Branch	Br
Bridge	NONE
Building	Bldg
Canal	NONE
Center	NONE
Combined Sewer Overflow	CSO
Company	NONE
Confluence	Conf
County	Co
County Road	CR
Court	Ct
Creek	Cr
Department	Dept
District	Dist
Ditch	NONE
Division	Div
Downstream	D/S
Drain	NONE
Drive	Dr
Duplicate	Dup
East	E
Elementary	Elem
Estates	NONE
Expressway	Expwy
Fork	Fk
Golf Course	GC
High School	HS
Highway	Hwy
Incorporated	Inc
International	Intl
Interstate	I-##
Junction	Jct

TERM	ABBREVIATION
Lake	NONE
Lane	Ln
Little	NONE
Middle	NONE
Mobile	NONE
Mobile Home Park	MHP
Mount	Mt
National	Ntl
North	N
Outfall	NONE
Park	Pk
Parkway	Pkwy
Point	Pt
Public Owned Treatment Works	POTW
Railroad	RR
River	NONE
Road	Rd
Run	NONE
Rural Sanitary District	RSD
Saint	ST
Sanitary Sewer Overflow	SSO
Sediment	NONE
South	S
State	NONE
State Road	SR
Station	NONE
Street	St
Subdivision	Sub
Township	Twp
Tributary	Trib
United States	US
Unnamed	NONE
Upstream	U/S
Utilities	Utl
Wastewater Treatment Plant	WWTP
West	W

Appendix C: List of Contacts

DRAFT

Indiana's Fisheries Biologists

District 1

Bob Robertson
Kankakee FWA
4320 W. Toto Road
PO Box 77
North Judson, IN 46366
(574) 896-3673

District 2

Neil Ledet
Fawn River State Fish
Hatchery
6889 N. SR 327
Orland, IN 46776
(260) 829-6241

District 3

Jed Pearson
Tri-Lakes Fisheries Station
5570 N. Fish Hatchery Rd.
Columbia City, IN 46725
(260) 691-3181

District 4

Ed Braun
Tri-Lakes Fisheries Station
5570 N. Fish Hatchery Rd.
Columbia City, IN 46725
(260) 691-3181

District 5

Doug Keller
Cikana State Fish Hatchery
2650 SR 44
Martinsville, IN 46151
(765) 342-5527

District 6

Brian Schoenung
Avoca State Fish Hatchery
PO Box 16
Avoca, IN 47420
(812) 279-1215

District 7

Dan Carnahan
Sugar Ridge FWA
2310 E. SR 364
Winslow, IN 47598
(812) 789-2724

District 8

Larry L. Lehman
Driftwood State Fish
Hatchery
4931 S. CR 250 W.
Vallonia, IN 47281
(812) 358-4110

Lake Michigan Office

Brian Breidert
Lake Michigan Research
100 W. Water Street
Michigan City, IN 46360
(219) 874-6824

Big Rivers Fisheries Program

Tom Stefanavage
Sugar Ridge FWA
2310 E. SR 364
Winslow, IN 47598
(812) 789-2724

Nongame Fisheries Program

Brant Fisher
Atterbury FWA
7970 South Rowe Street
PO Box 3000
Edinburgh, IN 46124
(812) 526-5816



DNR Law Enforcement Districts

District 1 Headquarters
9822 N. Turkey Creek Rd.
Syracuse, IN 46567
(574) 457-8092

District 2 Headquarters
1903 St. Mary's Ave.
Ft. Wayne, IN 46808
(260) 426-0807

District 3 Headquarters
5921 SR 43 N.
West Lafayette, IN 47906
(765) 567-2080

District 4 Headquarters
3734 Mounds Rd.
Anderson, IN 46017
(765) 649-1062

District 5 Headquarters
1317 W. Lieber Rd. Suite 2
Cloverdale, IN 46120
(765) 795-3534

District 6 Headquarters
P.O. Box 266
Nashville, IN 47448
(812) 988-9761

District 7 Headquarters
2310 E. SR 364
Winslow, IN 47598
(812) 789-9538

District 8 Headquarters
Patoka Lake
3084 N. Dillard Rd.
Birdseye, IN 47513
(812) 685-3498

District 9 Headquarters
11050 Keeler Rd.
Brookville, IN 47012
(765) 647-5835

District 10 Headquarters
100 West Water St.
Michigan City, IN 46360
(219) 879-5710

North Region Headquarters
1124 N. Mexico Rd.
Peru, IN 46970
(765) 473-9722

South Region Headquarters
4850 S. SR 446
Bloomington, IN 47401
(812) 837-9536



**Law Enforcement
Division Headquarters**
402 W. Washington St.
W255 D
Indianapolis, IN 46204
(317) 232-4010

















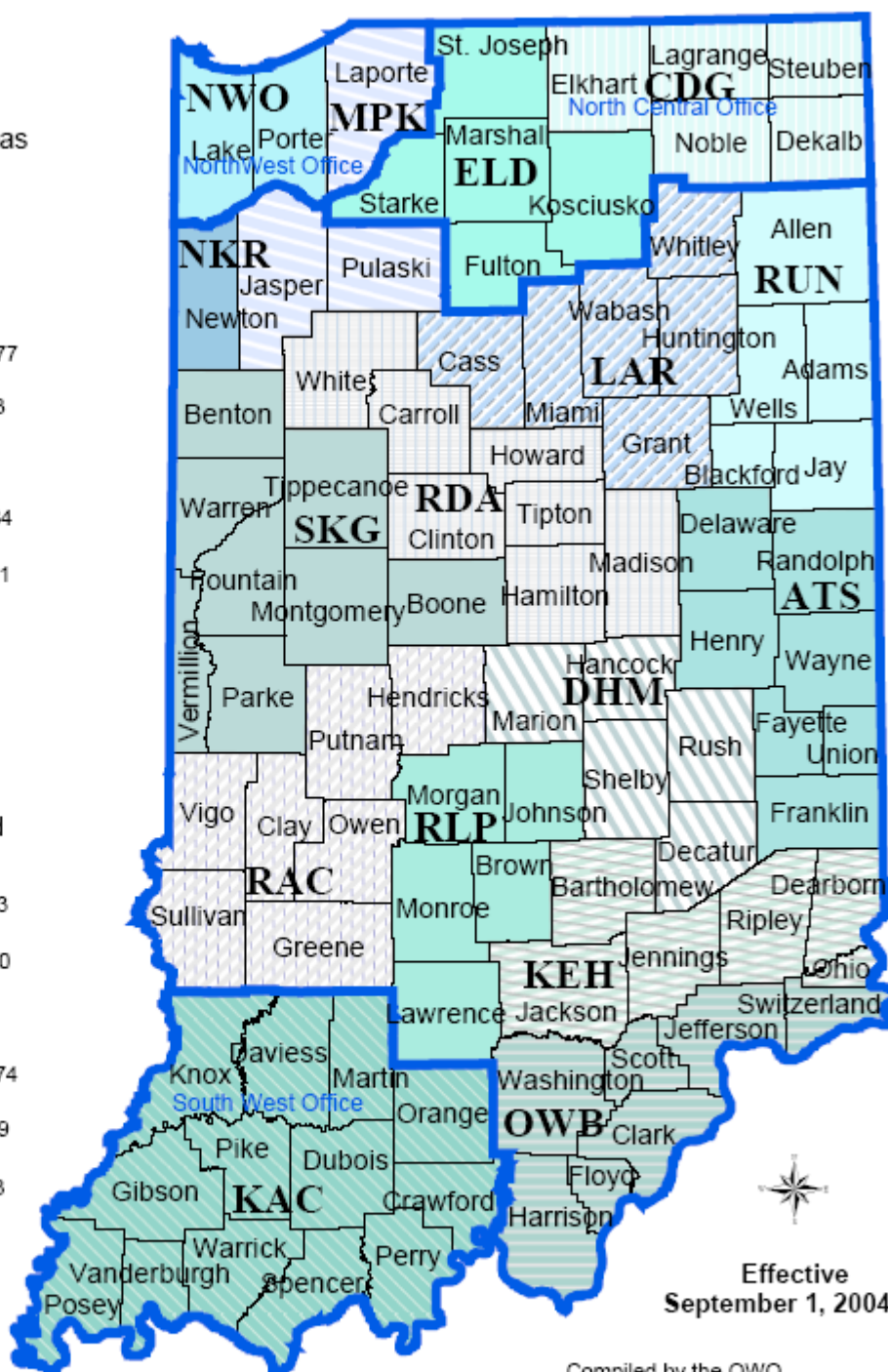
OWQ Wastewater Inspection Areas - 2004-2005

Map Legend

-  Regional Office Areas
-  County Boundaries

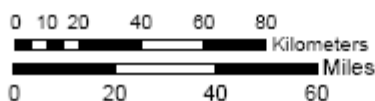
Inspectors

-  Andy Schmidt
aschmidt - (317) 233-2477
-  Cyndi Galvan
cgalvan - (574) 245-4883
-  Dan Miller
dmiller - (317) 233-2488
-  Eddie Depositar
edeposit - (574) 245-4884
-  Keith Condra
kcondra - (812) 380-2311
-  Kevin Hotz
khotz - (317) 232-8624
-  Lynn Raisor
lraisor - (317) 233-2488
-  Mike Kuss
mkuss - (219) 757-0289
-  Nick Ream
nream - (219) 757-0284
-  NWO - Mike - Mjr Ind
Nick - Everything Else
-  Oscar Barker
obarker - (317) 233-0183
-  Rex Counterman
rcounter - (317) 233-2480
-  Doug Alley
ralley - (317) 233-2489
-  Ron Pearson
rpearson - (317) 233-9874
-  Robin Nessel
rnessel - (317) 233-2489
-  Subhen Ghosh
sghosh - (317) 233-0183



Effective
September 1, 2004

Section Chief:
Rick Roudebush
rroudebu - (317) 234-2579



Compiled by the OWQ
Data & Information Services Section - JAE
County information from the 1995 Tiger Census Data





Project Manager Regions

State Regulated Wetlands
and Section 401 Water
Quality Certification Programs

Project Managers

Jason Randolph

317-233-0467

Marty Maupin

317-233-2471

Ryan Cassidy

317-234-1221

Liz Elverson

317-233-2482

Wetland Mitigation Coordinator

James Robb

317-233-8802

Section Chief

Andrew Pelloso

317-233-2481



James Robb, IDEM
06/10/2004

**Agricultural & Solid Waste
Compliance Staff
November 2004**

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Anne Weinkauf
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aweinkau@dem.state.in.us

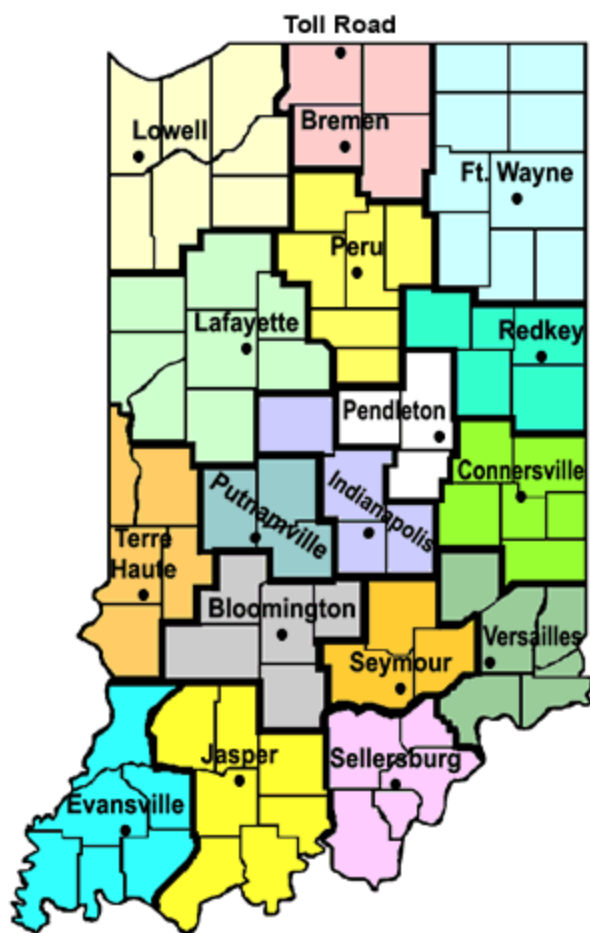


IDEM-012
Applied Science Technologies (P)

Indiana Sheriff's Association:
Indiana County List 12/20/2004

County	Sheriff	Phone	Fax
Adams	Padgett, Charles E. Jr.	260-724-7141	260-724-8505
Allen	Herman, James A.	260-449-7535	260-449-7915
Bartholomew	Whipker, Kenneth	812-379-1740	812-379-1739
Benton	Winchester, Ernest	765-884-0080	765-884-2022
Blackford	Mahan, Kevin A.	765-348-0930	765-348-7208
Boone	Brannon, Dennis M.	765-482-1412	765-483-3370
Brown	Stogsdill, Robert "Buck"	812-988-6655	812-988-8859
Carroll	Randle, Dennis J.	765-564-2413	765-564-2418
Cass	Isaacs, Eugene L.	574-753-7802	574-753-7816
Clark	Becher, Michael L.	812-283-4471	812-280-5608
Clay	Carter, Robert E. Jr.	812-446-2535	812-446-0941
Clinton	Mitchell, Mark A.	765-654-5563	765-659-6361
Crawford	Scott, Richard	812-338-2802	812-338-2507
Daviess	Harbstreit, Jerry	812-254-1060	812-254-9469
Dearborn	Lusby, David W.	812-537-3431	812-537-3629
Decatur	Templeton, Daryl G.	812-663-8125	812-663-6887
DeKalb	Dennis, John W.	260-925-3365	260-925-2661
Delaware	Sheridan, George E. Jr.	765-747-7885	765-741-3391
Dubois	Breeding, Jerry L.	812-482-3522	812-482-9434
Elkhart	Books, Michael	574-533-8644	574-533-3547
Fayette	Jackson, Frank	765-825-1110	765-827-6423
Floyd	Hubbard, Randy D.	812-948-5400	812-948-5405
Fountain	Bass, Robert D.	765-793-3545	765-793-5007
Franklin	Maxie, Dale	765-647-4138	765-647-6991
Fulton	Calvert, Roy D.	574-223-2819	574-223-8990
Gibson	Harmon, R. Allen	812-385-3496	812-386-7274
Grant	Archev, Oatess E.	765-668-8168	765-668-6538
Greene	Allen, Wm. Leon	812-384-4411	812-384-4411
Hamilton	Carter, Douglas G.	317-773-1872	765-776-9800
Hancock	Gulling, Nicholas	317-477-1144	317-477-1703
Harrison	Deatrick, George (Mike)	812-738-2195	812-738-7120
Hendricks	Quearry, M. James	317-745-6269	317-745-9276
Henry	Cronk, Kim L.	765-521-7041	765-521-3745
Howard	Talbert, Marshall D.	765-456-2020	765-456-2145
Huntington	Farthing, Kent R.	260-356-8316	260-358-4877
Jackson	Hounshel, Jerry	812-358-2141	812-358-4675
Jasper	Perry, Orville J.	219-866-7334	219-866-4949
Jay	Penrod, Todd A.	260-726-8188	260-726-8103
Jefferson	Andrews, Charles W.	812-265-2648	812-265-3190
Jennings	Taggart, Earl	812-346-8642	812-346-5122
Johnson	McLaughlin, Terry M.	317-736-9155	317-736-2200
Knox	Luce, Stephen P.	812-882-7660	812-882-5261
Kosciusko	Rovenstine, C. Aaron	574-267-5667	574-269-6195
LaGrange	Dhaene, Greg	260-463-7491	260-463-8130
Lake	Dominguez, Rogeilo	219-755-3400	219-755-3371
LaPorte	Arnold, James R.	219-326-7700	219-324-6355
Lawrence	Hawkins, Kent	812-275-3316	812-277-2007
Madison	Richwine, Terry	765-642-0221	765-646-9296
Marion	Anderson, Frank J.	317-231-8201	317-231-8596
Marshall	Ruff, Robert	574-936-3187	574-936-3264
Martin	Dant, Anthony J.	812-247-3726	812-247-2226
Miami	Roland, Kenneth F.	765-472-1322	765-472-7520
Monroe	Sharp, Stephen E.	812-349-2534	812-349-2828

Montgomery	Rice, Dennis L.	765-362-3740	765-362-1587
Morgan	Garner, Robert W.	765-342-5544	765-349-5058
Newton	Sutton, Myron M.	219-474-5661	219-474-5666
Noble	Leatherman, Gary D.	260-636-2182	260-636-3923
Ohio	Colen, Francis Swede	812-438-3636	812-438-4848
Orange	Cornwell, Doyle M.	812-723-2417	812-723-2407
Owen	Melton, Harley E.	812-829-4874	812-829-4412
Parke	Bollinger, Charles	765-569-5151	765-569-6869
Perry	Glenn, L. Robert	812-547-2441	812-547-0410
Pike	Meadors, G. Todd	812-354-6024	812-354-6037
Porter	Reynolds, David M.	219-465-1515	219-465-0721
Posey	Folz, James E.	812-838-1320	812-838-0382
Pulaski	Grandstaff, Paul D.	574-946-3341	574-946-3907
Putnam	Frisbie, Mark T.	765-653-3211	765-653-9337
Randolph	Harris, Jay S.	765-584-7331	765-584-5592
Ripley	Davison, William L.	812-689-5555	812-689-5418
Rush	Owens, James W.	765-932-2931	765-938-4498
Scott	Lizenby, John C.	812-752-8400	812-752-5751
Shelby	Debaun, Thomas K.	317-392-6345	317-392-6403
Spencer	Tharp, Sheldon R.	812-649-2286	812-649-6489
St. Joseph	Canarecci, Frank	574-245-6540	574-245-6574
Starke	Sims, Robert A.	574-772-3771	574-772-7641
Steuben	Lewis, Richard L.	260-668-1000	260-665-9476
Sullivan	Waterman, John M. II	812-268-4308	812-268-0339
Switzerland	Hughes, Nathan E.	812-427-3636	812-427-3244
Tippecanoe	Anderson, Wm. Smokey	765-423-9388	765-423-4155
Tipton	Henderson, Craig R.	765-675-2111	765-675-6374
Union	Leverton, Steve	765-458-5194	765-458-5903
Vanderburgh	Ellsworth, Brad	812-435-5307	812-435-5323
Vermillion	Hawkins, Kim H.	765-492-3737	765-492-5012
Vigo	Marvel, Jon R.	812-462-3226	812-235-7558
Wabash	Striker, Leroy W.	260-563-8891	260-563-4441
Warren	Miller, William H.	765-764-4367	765-762-0315
Warrick	Heilman, Marvin D.	812-897-6180	812-897-6186
Washington	Lyles, Roger W.	812-883-3580	812-883-8615
Wayne	Strittmatter, P. Matt	765-973-9393	765-973-9449
Wells	Story, Barry J.	260-824-3426	260-824-6424
White	Roberts, John I.	574-583-2251	574-583-6457
Whitley	Schrader, Michael D.	260-244-6410	219-625-1063



INDIANA STATE POLICE DISTRICT POSTS AS OF 2/14/2005

LOWELL DISTRICT 13

1550 East 181st Avenue
Lowell, IN 46356
(219) 696-6242
800-552-8917

BREMEN DISTRICT 24

1425 Miami Trail
Bremen, IN 46506
(574) 546-4900
800-552-2959

FORT WAYNE DISTRICT 22

5811 Ellison Road
Ft. Wayne, IN 46804
(260) 432-8661
800-552-0976

LAFAYETTE DISTRICT 14

5921 SR 43 North
West Lafayette, IN 47906
(765) 567-2125
800-382-7537

PERU DISTRICT 16

1451 N. Eel River Cemetery Road.
Peru, IN 46970
(765) 473-6666
800-382-0689

REDKEY DISTRICT 25

8922 W.SR 67
Redkey, IN 47373
(765) 369-2561
800-761-2985

TERRE HAUTE DISTRICT 54

7751 South US Highway 41
Terre Haute, IN 47802
(812) 299-1151
800-742-0717

PUTNAMVILLE DISTRICT 53

1927 West US 40
Greencastle, IN 46135
(765) 653-4114
800-225-8576

INDIANAPOLIS DISTRICT 52

8500 E. 21st Street
Indianapolis, IN 46219
(317) 899-8577
800-582-8440

PENDLETON DISTRICT 51

9022 South SR 67
Pendleton, IN 46064
(765) 778-2121
800-527-4752

CONNERSVILLE DISTRICT 55

540 South Vine Street
Connorsville, IN 47331
(765) 825-2115
800-437-7159

BLOOMINGTON DISTRICT 33

2135 North Fee Lane
Bloomington, IN 47408
(812) 332-4411
800-423-1286

SEYMOUR DISTRICT 43

721 East Tipton Street
Seymour, IN 47274
(812) 522-1441
800-658-8328

VERSAILLES DISTRICT 42

902 South Adams Street
Versailles, IN 47042
(812) 689-5000
800-566-6704

EVANSVILLE DISTRICT 35

19411 Highway 41 North
Evansville, IN 47725
(812) 867-2079
800-852-3970

JASPER DISTRICT 34

2209 Newton Street
Jasper, IN 47546
(812) 482-1441
800-742-7475

SELLERSBURG DISTRICT 45

8014 Highway 311
Sellersburg, IN 47172
(812) 246-5424
800-872-6743

TOLL ROAD DISTRICT 11

Responsible for patrolling the Indiana Toll Road.
5301 F.J. Nimitz Parkway
South Bend, IN 46628
(574) 234-4157
800-421-4912

Appendix D: Procedure for Fish Community Field Data Sheet

The purpose of this data sheet is to record information pertaining to the fish community sampling efforts. If the site was dry or a reasonable sampling attempt could not be made, a data sheet must be placed in the file folder with some notation in the comments section explaining why an assessment was not performed.

Header Information

Event ID: each sampling event will receive a sample number and an event ID. The sample number will be generated prior to sampling using the AIMS scheduling process. Event ID is the last two digits of the calendar year and a three digit site number generated by either USEPA, Corvallis, Oregon (probabilistic sites), or assigned by IDEM for targeted sites (fixed stations). Quality Assurance replicate sites will have a “.5” suffix attached to the Event ID number. The sample number is the unique identifier for the particular sample as well as the link to other data collected at this same location. The Event ID must be placed at the top-left of each page with data, and the sample number should be noted next to the Event ID in the fish community header.

Number of Voucher Jars: Place a zero in the blank since voucher specimens will be placed in the same jar as unknown specimens.

Number of Unknown Jars: Record the total number of sample jars that contain fish specimens. If no jars, then place a zero in the blank.

Page of : place the sequential page number on each page containing data. The total number of pages will be completed in the laboratory/office after all unknown specimens have been identified, or in the field if there are no unknown specimens.

Equipment Type: this refers to the type of sampling gear you are using to collect fish (tote barge, longline, backpack, boat, etc.).

Volts: this refers to the voltage output used when using electrofishing gear (usually this is 300 volts DC).

Seconds Fished: this refers to the amount time spent “shocking”. This amount of time is recorded directly from the electrofisher box.

Distance Fished: in meters, record the length of the sampling reach. This distance is based on the average wetted width multiplied by fifteen. If you were unable to sample the entire reach (i.e. only 75 of the initial 100 meters were sampled) please note this in the comments section with a brief explanation.

Max. Depth (m): in meters, record the depth of the deepest portion of the sampling reach found.

Average Depth (m): in meters, record the average depth of the reach with pool, riffle, and run depths, or glide/pool depths combined.

Average Width (m): use the average wetted width of the channel (not the channel itself) used to determine the sampling reach length.

Bridge in Reach: record “Y” (yes) if a bridge occurs in your sampling reach, or “N” (no) if it does not.

Is Reach Representative: again use “Y” or “N” to answer the question.

If No, Why: if the answer to the above question was no, please briefly explain (i.e. site was too deep to wade, modifications to stream in reach only, etc.).

Total Time at Site: time begins when you arrive at the site and will end when you return to the vehicle. Therefore, this time will account for the time hiking/wading to the site, setting up equipment, sampling, processing and returning from the site.

Comments: any additional information about the site, sampling efforts, samples, biotic community, land use, etc.

Detailed Fish Information

Species code: (also referred to as the Taxon ID or Voucher Code) Each fish species has a unique identification code. A list of fish species and their codes are attached to the fish community clipboards (for use in the field and arranged alphabetically by common name). All fish species are entered into the data base by their voucher code so **DO NOT** leave this box empty. Write the common name of the fish species in the large area provided underneath.

Total # of Fish: This will be the total number of fish per species, per site. Therefore, **this box will remain blank until all fish, including those processed in the laboratory, have been accounted for.** Adding laboratory fish and field fish data together for the final count is the responsibility of the person that processed the lab fish for that sample.

Weight (g): The “mass weight” box (double lined) will contain the weight of all the fish (per species). **This box also needs to remain blank until laboratory processing is complete**, and again is the responsibility of the person completing the laboratory processing. The other weight boxes (single lined boxes) are where you will record the individual length/weight measurements or batch (more than one fish of the same species count/weight measurements). Always record the length in **millimeters** and weight in **grams**. If you use a pound scale take the time to convert the weight to grams **prior** to writing it on the data sheet. A conversion chart from pounds to grams is attached to the clipboard for conversion in the field. If a tare is utilized, write weight (g)- “t” and then in the same box put t = tare weight (g).

Single fish example: Record individual fish length (mm) over the weight (grams) of the fish

	122mm/15g
36mm/13g	

Batch fishes example: Circle the number of fish in batch and record weight of the batch in grams

	⑩ 248
17 ③	

Length Range (mm): There are two boxes for this category, a minimum and a maximum length. These boxes are used when recording information on “batches” of fish. If a single fish of a species is captured its length will be transferred to the **min. and max. length** box during the “data reduction phase” in the lab. Remember, if recording fish singly their length was accounted for in the weight boxes to the left. If a minimum or maximum length changes during lab processing draw a line through the original length and record the new length next to it as follows:

Example: For single fish:

Min length 30
Max length 30

For multiple fish:

Min length 28 30
Max length 151

Anomalies: All fish need to be examined for external anomalies and, if present, recorded in the appropriate category. “DELT” anomalies account for fish with deformities, erosion, lesions and tumors. Fish that have two or more different types of DELT anomalies are recorded in the “Multiple” category. Fish with anchor worm, swirl scale, emaciation, etc. are recorded in the “Other” category. Anomalies listed in the “other” category are explained under the fish community header. Refer to section 5.2 of this document.

DELT anomalies are recorded as follows:

Two fish with deformity,
and three with lesion

ANOMALIES					
D	E	L	T	M	O
II		III			

Multiple DELT anomalies are recorded as follows:

Three fish with multiple DELT anomalies

ANOMALIES					
D	E	L	T	M	O
				III	

Other anomalies are recorded as follows:

Three fish with anchor worm and two with leeches

ANOMALIES					
D	E	L	T	M	O
					A-III
					C-II

Note: After lab processing is complete, anomalies recorded for field and lab processed fish will be totaled and recorded in the (small) box at the bottom of each category.

For example:

ANOMALIES					
D	E	L	T	M	O
II		III		III	A-III
					C-II
2		3		3	5

“V” and “P”: This is where you will record information about voucher specimens and/or photographs that were taken for voucher purposes. Record the number of fish kept as voucher specimens next to the **V**, and the number(s) of the photograph that was taken next to the **P**. For easy identification of photos place sample jar lid with label next to specimens while they are being photographed, and record on “Camera Log Sheet.”

Example:

V		2	P	
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Number of voucher specimens

V		P		14
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Photo number

Note: Collect voucher specimens that are small enough to fit into and be easily removed from sample jar without severely altering appearance or damaging important identification features such as fins or mouth. If the fish is larger than 4 inches an incision needs to be made on the right side along the abdomen for proper preservation.

HAPPY FISHING!