

Macroinvertebrates

Collection of macroinvertebrates are planned out before every fiscal year. The UWSP bug lab has an annual capacity of ~500 samples. The streams team and biologists organize and prioritize the yearly sampling. Samples are typically collected in the late fall. UWSP lab enters data about the status of samples into SWIMS when they receive the samples, when they start the samples, and when they complete the samples so that we can closely track the status. UWSP sends an email to a DNR programmer (Jim Hudson) and data managers and then the data is loaded into SWIMS usually within one business day. From collection to finish, samples typically take 10 -12 months to get into SWIMS.

A smaller set of samples is sometimes analyzed by UW-Superior Lab. Getting these samples into SWIMS is a longer process as the data needs to be formatted and checked for completeness. The sample analysis can be shorter than 10 months but these samples can also take up to a week to get into SWIMS because of the formatting that needs to be done.

Labslips for Macroinvertebrate sampling are generated in SWIMS. There are two kinds of labslips for this kind of work :

Macroinvertebrate Field Data Report (3200-081) is used for wadeable streams and rivers.
Non-wadeable Macroinvertebrate Field Data Report (3200-136) is used for larger rivers and lakes.
Make sure to fill out the correct one.

Labslips can be generated from either:

- My Projects Tab in the Tasks menu, click on Generate Labslips
- Submit Data Tab, click on Generate Labslip

Filling out the labslip:

Home -> Pre-print Sampling Form
Fields denoted with an asterisk (*) are REQUIRED.

Form * Macroinvertebrate Field Data Report (3200-081)
Project * Impaired Waters (303d, TMDL) Projects
Data Collectors MOLLI MACDONALD
Station * 10031186, Lake Wisconsin - SW of Weigands Bay Show Map
Start Date Select Date
Time :
End Date Select Date
Time
Account Code
Program Code WT
Report To Name MOLLI MACDONALD
Report To Address 101 S WEBSTER
Report To City/State/Zip MADISON, WI 53703
Sample Point Desc./Device
Field Sample ID 20130915-12-01
Multiple-labslip series options Generate a total of 1 labslip(s), adding 1 Day(s)
for column (e.g. sediment core) samples: Select Depths for Labslips
Save and Print Select Labslip Parameters

Macroinvertebrates don't enter Date, they enter the date as part of the Field Sample ID below

Fill out in field Kick net, riffle, snag, etc
Fill out in field (Date, county code, rep)

Choose the form (labslip type) from drop down menu:

Inorganic Test Request (4800-015)
Inorganic Test Request (4800-015)
Inorganic Test Request Citizen Lake Monitoring (4800-014)
Organic Test Request (4800-016)
Microbiology Test Request (4800-019)
Macroinvertebrate Field Data Report (3200-081)
Non-wadeable Macroinvertebrate Field Data Report (3200-136)

Macroinvertebrate Field Data Report = wadeable sites

Non-wadeable Macroinvertebrate Field Data Report = non-wadeable, larger river sites

Choose correct project using drop down menu

Choose data collectors using drop down menu

Choose station using drop down menu

Leave times and dates blank. Write in these fields when data is collected. This gives the labslip more flexibility for when it can be used.

Report to Name will default to whoever is logged into SWIMS

Fill out Sample Point Description/Device in field

Fill out Field Sample ID in field. Typical coding is date, county code and rep # (20110913-12-01). This code incorporates the date the sample was collected. There is no other place on the labslip for the date. Should we add a separate spot for the date?

Skip 'Multiple Labslip Series Options' and 'Select Depths for Labslips' for this kind of labslip.

Click on Select Labslip Parameters

Save and Print Select Labslip Parameters

Home -> Pre-print Sampling Form -> Check Items

Sampling Device

- Kick Net
- Ponar
- Surber Sampler
- Artificial Substrate
- Eckman
- Hess Sampler

Reason For Sampling

- Least Impacted Reference
- Control Site
- Baseline
- Trend
- Impact / Treatment Site

Latitude/Longitude

- Use Location Data from Station

Save and Return

Save and Print

Select Labslip Parameters

You will see a print preview of your labslip with top half of labslip filled out. Print the labslip.

Wadeable Labslip generated from SWIMS: (Wait on inserting screenshot as macro labslip is being redone in Winter 2013/2014.)

State of Wisconsin		Macroinvertebrate Field Data Report					
		Form 3200-081 (R 9/00)		Page 1 of 2			
Instructions: Bold fields must be completed.							
Station Summary							
Waterbody Name PEBBLE BROOK			Waterbody ID Code 769500		Sample ID (YYYYMMDD-CY-SP) 20131108-68-01		
Sampling Location Fill out in field			Tow nship 6N	Range 19E	Section 27	1/4 - 1/4 NW SW	
SWIMS Station ID 683232	SWIMS Station Name PEBBLE BROOK AT GLENDALE RD (BI)			Database Key 85652207			
Latitude 42.9484734	Longitude -88.2456981						
Basin (WMU) FOX (IL)		Watershed Name MIDDLE FOX RIVER - ILLINOIS		County WAUKESHA			
Sample and Site Descriptors							
Sample Collector (Last Name, First) RACHEL GALL			Project Name SER NC STREAM STRATIFIED SITES 2013				
Sampling Device							
<input checked="" type="checkbox"/> Kick Net <input type="checkbox"/> Surber Sampler <input type="checkbox"/> Eckman <input type="checkbox"/> Ponar <input type="checkbox"/> Artificial Substrate <input type="checkbox"/> Hess Sampler <input type="checkbox"/> Other: _____							
Habitat Sampled							
<input type="checkbox"/> Riffle <input type="checkbox"/> Run <input type="checkbox"/> Pool <input type="checkbox"/> Microhabitat <input type="checkbox"/> Shoreline Composite <input type="checkbox"/> Proportionally-Sampled Habitat <input type="checkbox"/> Littoral Zone <input type="checkbox"/> Profundal Zone <input type="checkbox"/> Wetland							
Total Sampling Time (min)	Estimated Area Sampled (m ²)	Number of Samples in Composite		Replicate No. _____ of _____			
Reason For Sampling							
<input type="checkbox"/> Least Impacted Reference <input type="checkbox"/> Baseline <input type="checkbox"/> Impact / Treatment Site <input type="checkbox"/> Control Site <input type="checkbox"/> Trend <input type="checkbox"/> Other: _____							
Water Color <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Stained		Water Temp. (C)	D.O. (mg/l)	D.O. (% sat.)	pH (su)	Turbidity (NTUs)	TDS (mg/l)
Conductivity (umhos/cm)	Stream Order	Stream Gradient (m/km)	Estimated Stream Velocity (m/s) <input type="checkbox"/> Slow (< 0.15 m/s) <input type="checkbox"/> Moderate (0.15 m/s - 0.5 m/s) <input type="checkbox"/> Fast (> 0.5 m/s)				
Measured Velocity (mps)	Average Stream Depth (m)		Average Stream Width (m)				
Composition of Substrate Sampled (Percent):							
Bedrock: _____	Boulders (261 mm - 4.1 m dia.): _____	Rubble (65 - 280 mm dia.): _____	Gravel (2 - 64 mm dia.): _____				
Sand: _____	Clay: _____	Silt: _____	Muck: _____	Overhanging Vegetation: _____			
Aquatic Macrophytes: _____	Leaf Snags: _____	Course Woody Debris: _____	Other (_____): _____				
Embeddedness of Substrate at Sample Site (%)			Canopy Cover at Sample Site (%)				

Fill out in field.
Date is incorporated into Sample ID

Fill out in field

Macroinvertebrate Field Data Report
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Fill out in field. This info is useful for determining questionable metrics once the counts are completed.

Stream and Watershed Descriptors					
N = Not a problem U = Present, but uncertain as to degree of impact			P = Present, and probably creating a problem Blank = Uncertain		
Factors that may be influencing Water Resource Integrity	Local	Water-shed	Factors that may be influencing Water Resource Integrity	Local	Water-shed
Biological			Chemical		
Macrophytes			Chlorine		
Filamentous Algae			Organic Toxics		
Planktonic Algae			Inorganic Toxics		
Diatoms / Periphyton			Nutrients		
Slimes			Dissolved Oxygen		
Iron Bacteria			Other - Specify:		
Exotics - Specify:			Sources of Stream Impacts		
Other - Specify:			Urban NPS		
Physical			Construction Erosion		
Sludge			Point Source - Specify:		
Thermal			Cropland Erosion		
Turbidity			Pasturing		
Sedimentation / Channel Aggradation			Bank Erosion		
Hydraulic Scour / Channel Incision			Barnyard Run-Off		
Bank Erosion			Tile Drainage - Organic Soils		
Upstream Channelization			Tile Drainage - Mineral Soils		
Local Channelization			Septic Systems		
Low Flow			Tributary(s)		
Upstream Impoundment			Springs		
Downstream Impoundment			Wetland Drainage		
Other - Specify:			Other - Specify:		
Comments					
Special Instructions for Laboratory					

For Lab Use Only		
Sample Sorter	Taxonomist	Estimated Percent of Sample Sorted
Date Processed	Specimens Saved	

Non-wadeable labslip:

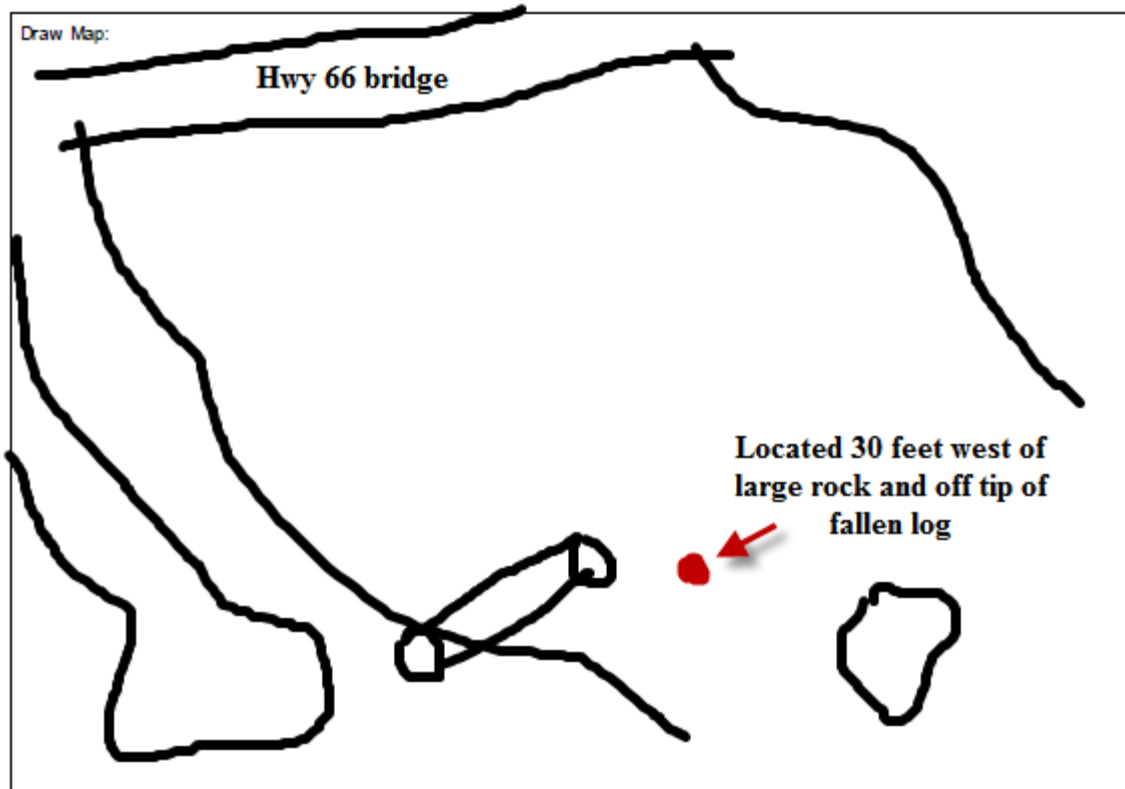
State of Wisconsin		Non-Wadeable Macroinvertebrate Field Data Report	
		Form 3200-136 (R 10/11)	Page 1 of 2
Station Summary			
Waterbody Name BLACK RIVER		WBIC 1676700	Field Seq no. generated by SWIMS 64111789
SWIMS Station ID 10033693	SWIMS Station Name BLACK RIVER AT PALMER CORNER		
Field Sample ID (retrieval date)	<div style="border: 1px solid red; padding: 2px; display: inline-block;"> Example: 20110913-12-01 (date, county code, rep) </div>		
	BLACK RIVER	HALLS CREEK	JACKSON
Project Name LARGE RIVER MACROINVERTEBRATE SAMPLING			
Latitude 44.39506	Longitude -90.74542	Determination Method	Datum Used
Site Access Details: _____			
Sample and Site Descriptors			
Sampling Device			
<input checked="" type="checkbox"/> Standard Non-wadeable Hester Dendy		Hester Dendy Area Calculation = Plate Size (cm) _____	
		Number of Plates _____	
<input type="checkbox"/> Other Device: _____		Device Area Calculation = Plate Size (cm) _____	
Habitat Sampled			
<input type="checkbox"/> Suspended		<input checked="" type="checkbox"/> River Bed	
Snags (no./100m) _____	Avg. size (dbh) _____	Coniferous and/or Deciduous (circle)	
Riparian Land Use, Vegetation, and Condition: _____			
Substrate Composition			
Bedrock _____ %	Boulder _____ %	Cobble _____ %	Gravel _____ %
Sand _____ %	Silt _____ %	Clay _____ %	Muck _____ %
Aquatic Macrophytes _____ % CWD _____ %		Other (_____): _____ %	
Field Measurements			
	Deployment	Retrieval	Total Colonization Time (Days)
Date:			
Time:			
Personnel:			
Water Depth at Location (m):			
Sampler Height Above Substrate (m):			
Bank Placement: R L			
Distance From Bank:			
Water Temp (C):			
Water Color (clear, turbid, stained):			
D.O. (mg/L):			
pH:			
Conductivity:			
Transparency Tube (cm):			
Turbidity (NTUs):			
Water Velocity (m/s):			

Non-Wadeable Macroinvertebrate Field Data Report

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Draw Map:



Ethanol replaced the second day? Yes No
Label on inside of jar? Yes No
Label on outside of jar? Yes No

Additional Notes:

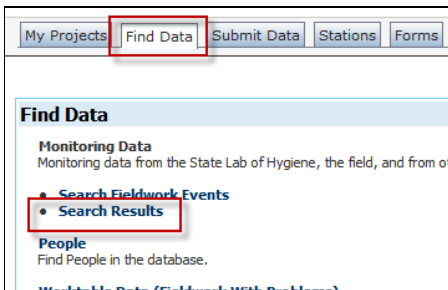
For Lab Use Only		
Sample Sorter	Taxonomist	Estimated Percent of Sample Sorted
Date Processed	Specimens Saved	

Downloading Bug Data:

In SWIMS, you are able to download just the Bug Metrics for your projects or sites.

Go to the Find Data tab, Search Results, and choose Common Bug Metrics from the drop down menu under Parameter Group. Common bug metrics include the following:

- Shannon's Diversity Index
- FBI
- IBI
- HBI
- SWIMS HBI Max 10
- Species Richness
- Genera Richness
- Percent EPT Genera
- Percent EPT Individuals
- Percent Scrapers
- Percent Filterers
- Percent Shredders
- Percent Gatherers
- Percent Chironomids



A screenshot of the 'Query Sample Results' form. The form includes various search criteria fields: 'DNR Parameter', 'Parameter Type', 'Parameter Group' (set to 'Common Bug Metrics'), 'Result Date' (with 'From' and 'To' date pickers), 'Station ID', 'Primary Station Name', 'Station WBIC', 'Station Waterbody Name', 'County', 'Region', 'Watershed', 'WMU', 'HUC', 'Eco Region', 'Stream Order', 'Field #', 'Primary Lab ID', 'Sample/Labslip ID', 'Collector (Labslip)', 'Lab Account Code', and 'Project'. There are 'Submit' and 'Reset' buttons at the top and bottom. A 'Search for Parameter' button is next to the 'DNR Parameter' field. A 'Search Projects' button is next to the 'Project' field. Two red arrows point from a text box to the 'County' and 'Watershed' dropdown menus. Another red arrow points from a text box to the 'Search Projects' button.

Home -> Query Sample Results

Submit Reset

DNR Parameter Search for Parameter

Parameter Type

Parameter Group Common Bug Metrics

Result Date --- From: Select Date To: Select Date

Station ID

Primary Station Name

Station WBIC

Station Waterbody Name

County

Region

Watershed

WMU

HUC

Eco Region

Stream Order

Field #

Primary Lab ID

Sample/Labslip ID

Collector (Labslip)

Lab Account Code

Project Search Projects

Submit Reset

You can also narrow the data any other way you wish - by waterbody, county, watershed, etc.

To choose data for a particular project, click on Search Projects, type in a partial name and click on the black arrow to backfill it into