Macro Invertebrate Survey

Pond Water Quality Investigation

Research Team Names: _____

The purpose of this form is to aid you in gathering and recording important data about the health of the pond. By keeping accurate and consistent records of your observations and data from your macro invertebrate count, you can notice and document changes in water quality.

NAME OF SITE: _____ Date: _____

LOCATION OF SAMPLING: _____

PROCEDURE: 1.) Collect macro invertebrates from your site for 15-20 minutes. Place all specimens into your collecting pan as you get them. 2.) Identify the macro invertebrates in the collection pan. 3.) Count the number of each species of macro invertebrate collected on the table below. Record number following each species using hashes to tally. 4.)On the blank provided, assign a water quality rating for each macro invertebrate:

Water Quality Rating: A= 1-9* B=10-99* C=100 or more*

*(total number located in survey)

5.) Compute the Water Quality Rating for your site.

SENSITIVE	SOMEWHAT SENSITIVE	TOLERANT
_____ Caddisfly Larva	_____ *Beetle Larvae*	_____ Aquatic Worm (nematode)
_____ Hellgrammite	_____ *Water Tiger*	_____ Blackfly Larva
_____ Mayfly Nymph	_____ *Clams*	_____ Pouch Snail (pond snail)
_____ Gilled Snails (Wheel)	_____ *Crane Fly Larva*	_____ Midge Larva
_____ Riffle Beetle (adult)	_____ *Crayfish*	_____ Leech
_____ Stonefly Nymph	_____ *Damselfly Nymph*	_____ Flatworm
_____ Water Penny Larva	_____ *Dragonfly Nymph*	_____ Water Scorpion
	_____ *Scuds (fairy shrimp)*	_____ Red Water Mite
	_____ *Sowbugs*	
	_____ *Fishfly Larva*	
	_____ *Alderfly Larva*	
	_____ *Water Boatman*	
	_____ *Backswimmers*	
	_____ *Whirligig Beetles*	
	_____ *Giant Waterbug*	
_____ (total # of letters recorded)	_____ (total # of letters recorded)	_____ (total # of letters recorded)
x 3 = _____ = Index Value I	x 3 = _____ = Index Value II	x 3 = _____ = Index Value III

6) Add the three Index Values together:

_____ Index Value I + _____ Index Value II + _____ Index Value III = _____ Total Index Value

7) Rate water quality using the scale below and the TOTAL INDEX VALUE. Record on blank provided under weather.

Water Quality Rating: *(Check the correct one and record above)*

_____ **EXCELLENT** (Total Index > 22), _____ **FAIR (Total Index 11-16)**

_____ **GOOD (Total Index 17-22)** _____ **POOR (Total Index <11)**

Macro Invertebrate: Identification & Habitat Study

Date: _____

School: _____ Name: _____

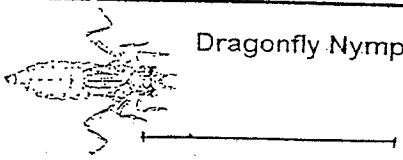
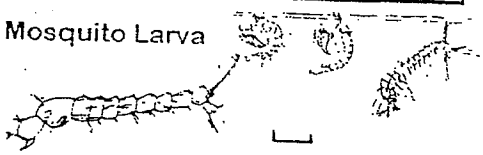
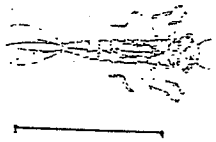
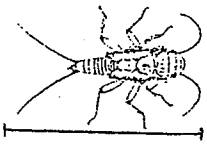
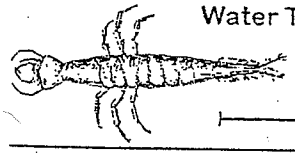
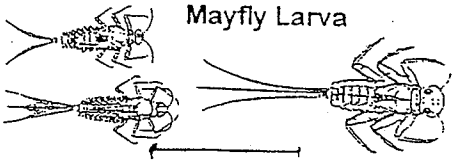
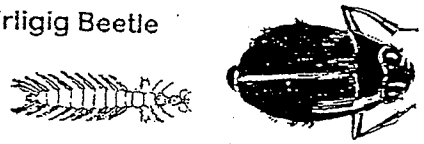
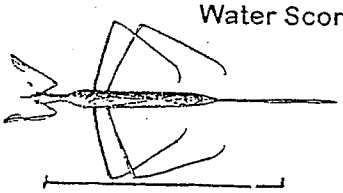
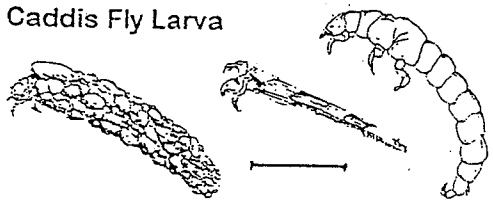
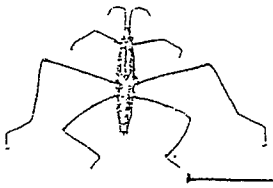
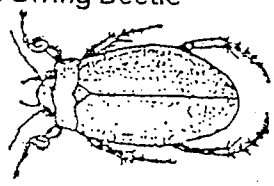
Weather: Cloud Cover
___None (clear & sunny)
___Partial
___Cloudy (dull)

Humidity: [ ]

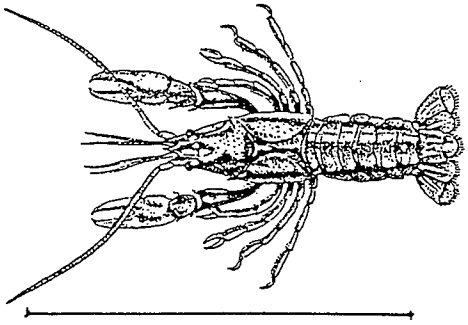
Barometric Pressure:
___ Stable
___ Increasing
___ Decreasing

Temperature:
Air: ____
Water: ____

Habitat: (Select one of the following to describe habitat where Macro Invertebrate was found)
Open Water, Pond Scum, Cattails, Shore Line, Bottom Soil, Pond Weeds

Dragonfly Nymph 	Number found: Habitat:	Number found: Habitat:	Mosquito Larva 
Damselfly Nymph 	Number found: Habitat:	Number found: Habitat:	Midge 
Stonefly Larva 	Number found: Habitat:	Number found: Habitat:	Back Swimmer 
Water Tiger 	Number found: Habitat:	Number found: Habitat:	Water Boatman 
Mayfly Larva 	Number found: Habitat:	Number found: Habitat:	Whirligig Beetle 
Water Scorpion 	Number found: Habitat:	Number found: Habitat:	Caddis Fly Larva 
Water Strider 	Number found: Habitat:	Number found: Habitat:	Predacious Diving Beetle 

Crayfish



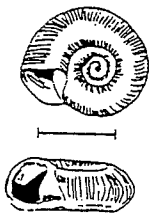
Habitat:

Number found:

Habitat:

Number found:

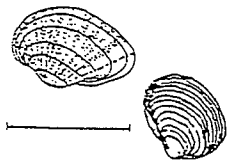
Wheel Snail



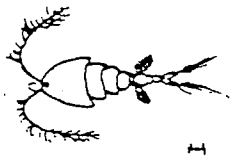
Habitat:

Number founnd:

Clams



Cyclops



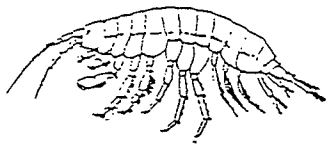
Habitat:

Number found:

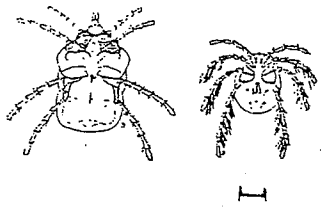
Habitat:

Number found:

Scud (Fairy Shrimp)



Red Water Mite



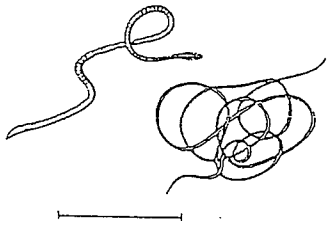
Habitat:

Number found:

Habitat:

Number found:

Nematode (Aquatic Worms)



Pond Snail (Pouch)

Habitat:

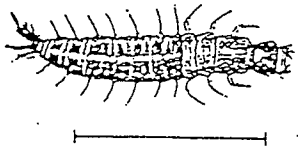
Number found:

Habitat:

Number Found:

Water Flea (Daphnia)

Fish Fly Larva



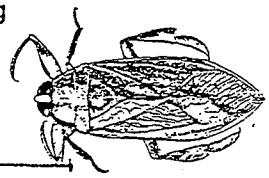
Habitat:

Number found:

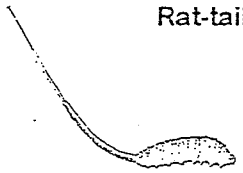
Habitat:

Number found:

Giant Water Bug



Rat-tailed Magot



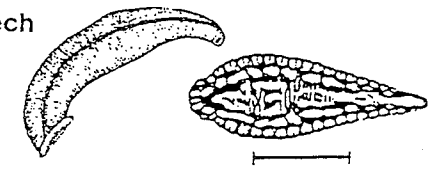
Habitat:

Number found:

Habitat:

Number found:

Leech



Sow Bug

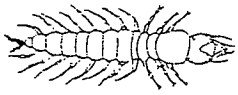
Habitat:

Number found:

Habitat:

Number found:

Hellgramite



Invertebrate Sample Collection and Preservation

Purpose

A well labeled collection and complete data collection sheets will help you track trends over time in your study area. If a shift in species is noticed over time please contact the Department of Environmental Quality-Surface Water Quality Division.

Equipment

- sampling net (Carolina Biological or Wildco Supply-in Bay City or make your own)
- 13x9 white trays(or larger)
- 70% alcohol as preservative (rubbing alcohol works)
- glycerin (keeps specimens pliable)
- forceps
- eye droppers (widen end)
- small jars or vials

Label Examples

Prepare date and collection site labels using laser printer, pencil, or carbon pen. **ALWAYS LABEL!** You cannot track trends overtime without good labels.

Date: Time: Location: Collected by:

Be as specific as possible:

- Latitude X Longitude if you have access to a GPS unit
- Township, Range and Section from County Map Book
- Direction from nearest crossroads and other descriptors

Family: Genus: Species:

These should be placed in after identification. Keep in mind that some species are more difficult than others. Use a dissecting scope when possible, although good magnifying glasses can usually get you there.