

Aquatic Ecology: Pond Study

Name(s): _____ Date: _____

1. Abiotic: Dissolved Oxygen Dissolved Carbon Dioxide Conductivity
 Healthy Range = _____ Healthy Range = _____ Healthy Range = _____

2. Biotic: Circle the organisms you find. Total Biodiversity Beakes Biotic Index Score:

Annelida

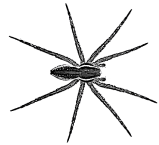


1 - 30 cm
Leech



Aquatic worm

Arachnida



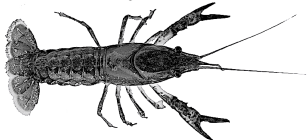
Fisher spider



Water mite

Crustacea

1 - 14 cm



Crayfish



Scud

Insecta



Bloodworm



Midge larva



Mosquito larva



Crawling diving beetle



Spotted diving beetle



Predaceous diving beetle



Water boatman



Pygmy backswimmer



Water strider



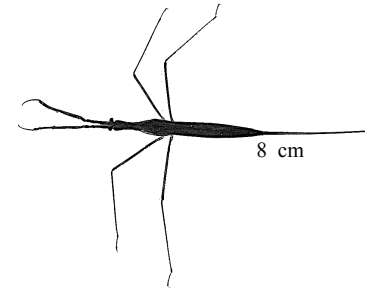
Water scavenger beetle



Whirligig beetle



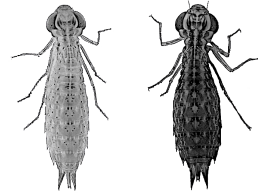
Tiger of the Pond



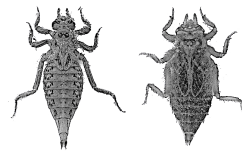
Water scorpion



Backswimmer



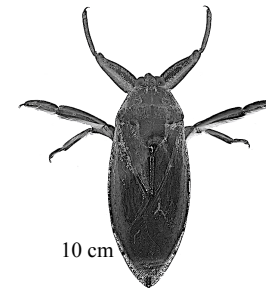
Damer Dragonfly nymph



Gomphus Dragonfly nymph



Hellgrammite



10 cm

Giant water bug



3 cm

Lesser water bug

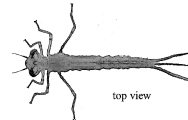


1 - 4 cm

Caddisfly larva



Skimmer dragonfly nymph



top view



side view

Damselfly nymph



Mayfly nymph

Molluska



Orb snail



Spiral pond snail



Pill clam



3. Take pictures of what you find and share them using twitter or instagram (@wrigleycorners).

Quantifying organic pollution using the presence or absence of invertebrate species

Organisms	Score
Group 1 – Animals sensitive to pollution - Dragonfly - Damselfly - Dobson fly, fishfly, hellgrammite - Mayfly - Stonefly - Caddisfly	Score: 1 point if one order (kind) is found, 2 points if two are found, 3 points if three or more are found Points:
Group 2 – Animals able to survive in low levels of pollution - Scud (side swimmer) - Aquatic sow bug - Snails - Clams - Crayfish - Crane fly larva - Water striders - Diving beetles	Score: 1 point if one to two orders are found, 2 points if three or more orders are found Points:
Group 3 – Pollution tolerant animals - Leeches - Midge larva (Blood and Phantom) - Tubifex (aquatic) worms - Mosquito larva - Blackfly larva - Water mite - Water bugs (crawling and Giant) - Water Scorpion	Score: 1 point if one or more orders are found Points:

$$\text{Score: } \frac{\quad}{\text{Group 1}} + \frac{\quad}{\text{Group 2}} + \frac{\quad}{\text{Group 3}} = \text{Result}$$

Results:

- 6 (Unpolluted)** – All types of animals (sensitive to tolerant) can live here.
- 4-5 (slight pollution)** – Sensitive species reduced in numbers or absent, group 2 species well developed and increasing in numbers.
- 3 (Moderate pollution)** – All sensitive species absent
- 2 (Moderate to heavy pollution)** – Group 2 species reduced, only species insensitive to low oxygen present in large numbers.
- 1 (Heavy pollution)** – only most tolerant species present (Tubifex and air breathers)
- 0 (Severe pollution, usually toxic)** – No macro invertebrates present.

Is this a healthy ecosystem? Why or why not?