

Guide to Macroinvertebrate Taxa Groups and Aquatic Pollution Tolerance

Group 1 : SENSITIVE ORGANISMS

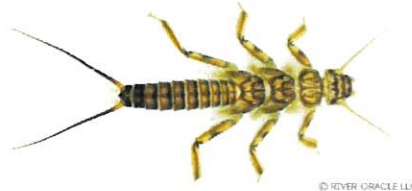
POLLUTION-SENSITIVE OR INTOLERANT ORGANISMS, Their dominance indicates Good Water Quality



Mayfly (nymph)

Insecta: Ephemeroptera

plate-like or feathery gills on sides of lower body; three (sometimes 2) long, hair-like tails



Stonefly (nymph)

Insecta: Plecoptera

two hair-like tails; six jointed legs with two hooked tips each; big antennae; no gills on lower half of body



Caddisfly:

Insecta: Trichoptera

six jointed, hooked legs just behind head; 2 hooks at back end; may be in a case made of stones, leaves or sticks; non-net-spinning caddisflies have no bushy gills along bottom



Freshwater Mussels (adult)

Molluska: Bivalvia

two hinged, calcareous shells



Water Penny (larva)

Insecta: Coleoptera

shaped like a tiny, grey, oblong frisbee; 6 tiny legs on bottom; slow crawler



Fishfly (larvae)

Insecta: Megaloptera

resemble Hellgrammites, but are smaller and have no gill tufts



Dobsonfly larva (aka Hellgrammite)

Insecta: Megaloptera

dark body; six jointed legs; large, pinching jaws; many pointed feelers along edge of body; two small hooks at back end; feathery tufts of gills along side of body



Gilled Snail (adult)

Molluska: Gastropoda

shell opens on the right and is covered by a hard shield-like operculum



Riffle Beetle (adult)

Insecta: Coleoptera

oval body covered in tiny hairs, does not swim or surface

Group 2 : MODERATELY-SENSITIVE ORGANISMS

MODERATELY POLLUTION TOLERANT ORGANISMS, found in wide range of water quality conditions



CraneFly (larvae)
Insecta: Diptera
 4 finger-like lobes at back end; milky green to light brown; caterpillar-like segmented body



Damselfly (nymph)
Insecta: Odonata
 body ending in 3 oblong fan-like plates (tracheal gills); 6 thin, hooked legs; smooth tapered sides of body



Dragonfly: Order *Odonata*
Insecta: Odonata
 large eyes; wide oval to round abdomen; 6 hooked legs



Scud (adult)
Crustacea: Amphipoda
 body higher than wide; shrimp-like appearance; white to gray in color; swims laying on its side; more than 6 legs



Crayfish (adult)
Crustacea: Decapoda
 lobster-like; 8 walking legs and 2 pinching claws



Water Beetle larvae
Insecta: Coleoptera
 light-colored; 6 legs on upper 1/2 of body; strong jaws; short antennae; body smooth or with hair-like projections or knobs



Sowbug (adult)
Crustacea: Isopoda
 oblong body, wider than high; gray in color; more than 6 legs; long antennae



Fingernail Clam (adult)
Molluska: Bivalvia
 2 hinged, CaCO₃ shells that are thin & fragile; adults 2.5 cm or smaller; hinge near middle



Whirligig Beetle (adult)
Insecta: Coleoptera
 short, fan-shaped middle and hind legs; frong legs long & slender; floats on surface



Water Strider (adult)
Insecta: Hemiptera
 slender, long-legged bug; surface film dweller



Water Scorpion (adult)
Insecta: Hemiptera
 slender, long-legged bug; 2 long grooved filaments for breathing underwater

Group 3 : TOLERANT ORGANISMS

HIGHLY POLLUTION TOLERANT ORGANISMS, can be found in any quality of water, their dominance usually indicated poor water quality



Midge fly (larva)
Insecta: Diptera
dark head; worm-like segmented body; 2 tiny legs on each side



Black fly (larva)
Insecta: Diptera
one end of body wider; black head; suction pad on end



Horse fly (larva)
Insecta: Diptera
robust and worm-like; 1" in length or longer; tapered at both ends



Drone fly (larva) (aka rat-tailed maggot)
Insecta: Diptera
distinctive tube at end through which it breathes; tube up to 1" long



Pouch Snail (adult)
Mollusca: Gastropoda
no operculum; breathes air; shell typically opens to left, but some species open to right



Leech (adult)
Annelida: Hirudinea
brown, grey or patterned body; body ends with suction pad; flattened, segmented worm; carnivores or parasites; moves like inch worm by contracting/extending body



Oligochaete worms
Annelida: Oligochaeta
segmented body with thin bristles (setae); round cross-section, like thin earth worms; red-pink to dark color; moves by contracting/extending or by wriggling; burrowing scavengers; tubifex common genus; head in mud, tail waving



Roundworms
Nematoda: Nematodes
slender, pale color; pointed at both ends, moves by wriggling (doesn't contract); no segments or bristles; scavengers or parasites; most less than 1 cm



Flatworms
Platyhelminthes: Turbellaria
flat body, blunt head; no segments or bristles; gray-brown to pale color; glides smoothly (does not wriggle); carnivores or scavengers