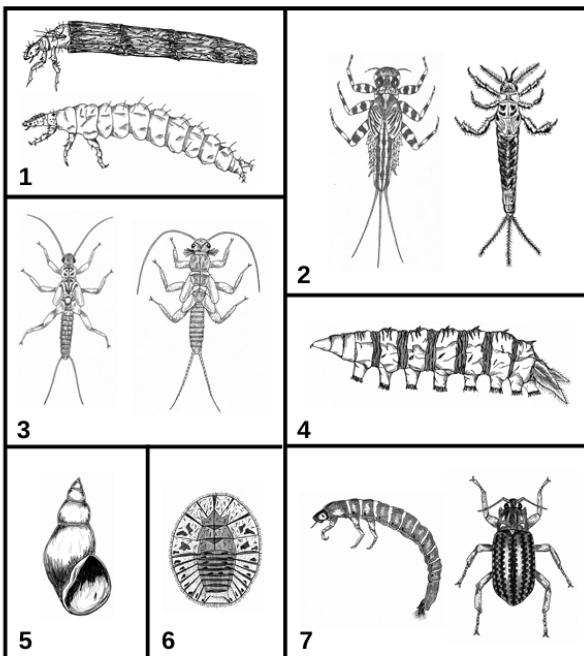


Aquatic Macroinvertebrate Identification & Pollution Sensitivities

Sensitive to Pollution

These organisms are sensitive to pollution and indicate good water quality.



1 Most Caddisflies: Order Trichoptera. Up to 1", 6 hooked legs on upper 1/3 of body, may be in stick, rock, or leaf case, no gill tufts on abdomen, intolerant of impairment.

2 Mayfly: Order Ephemeroptera. ¼" – 1", plate-like or feathery gills on abdomen, 6 hooked legs, 2 or 3 long hair-like tails, tails may be webbed together, very intolerant of impairment.

3 Stonefly: Order Plecoptera. ½" – 1 ½", 6 legs with hooked tips, antennae, 2 hair-like tails, no gills on abdomen, very intolerant of impairment.

4 Watersnipe Fly: Order Diptera. ¼" – 2", body plump and maggot-like, caterpillar-like "legs" along body, feathery "horns" on end, intolerant of impairment.

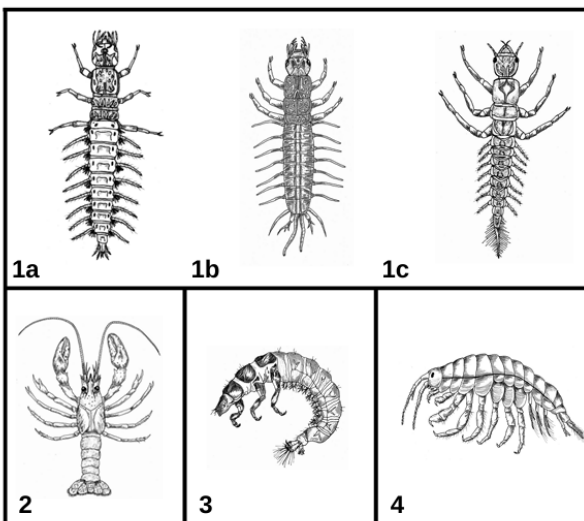
5 Gilled Snails: Class Gastropoda. Up to ¾", shell opening covered by a thin plate called an operculum, with helix pointed up shell opens to the right, intolerant of impairment.

6 Water Penny: Order Coleoptera. ¼" – 1", disk-like oval body with 6 small legs and gill tufts on underside, intolerant of impairment.

7 Riffle Beetle: Order Coleoptera. Small black beetle crawling on streambed OR comma-like brown "crunchy" body with 6 legs on upper 1/3 and possibly gill tuft on back end, intolerant of impairment.

Less Sensitive to Pollution

These organisms are somewhat sensitive to pollution and indicate fair water quality.

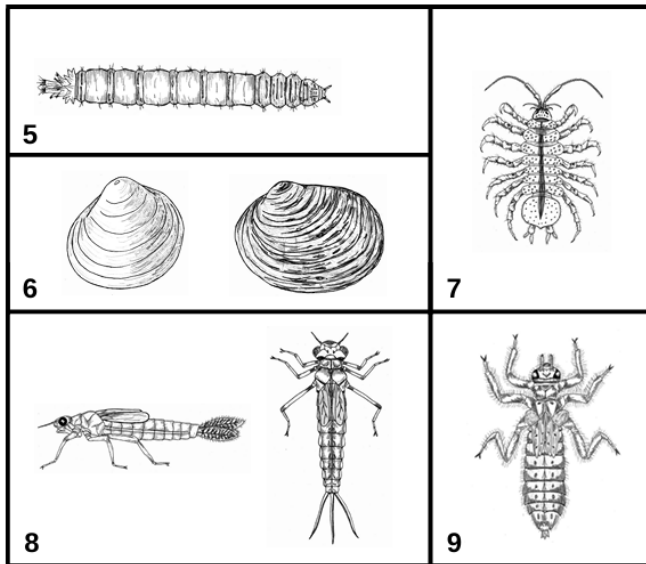


1 Hellgrammite, Fishfly, and Alderfly: Order Megaloptera. ¾" – 4", 6 legs, large pinching jaws. **a)** 8 pairs of fleshy appendages along abdomen with gill tufts, 2 hooks on tail end, **b)** 8 pairs of fleshy appendages along abdomen without gill tufts, 2 tube-like appendages on tail end, **c)** 7 pairs of fleshy appendages without gill tufts, 1 single spiky tail; somewhat tolerant of impairment.

2 Crayfish: Order Decapoda. Up to 6", 2 large claws, 8 legs, resembles a small lobster, somewhat tolerant of impairment.

3 Common Netspinners: Family Hydropsychidae. Up to ¾", 6 hooked legs on upper 1/3 of body, 2 hooks at back end, white gill tufts on underside of abdomen, somewhat tolerant of impairment.

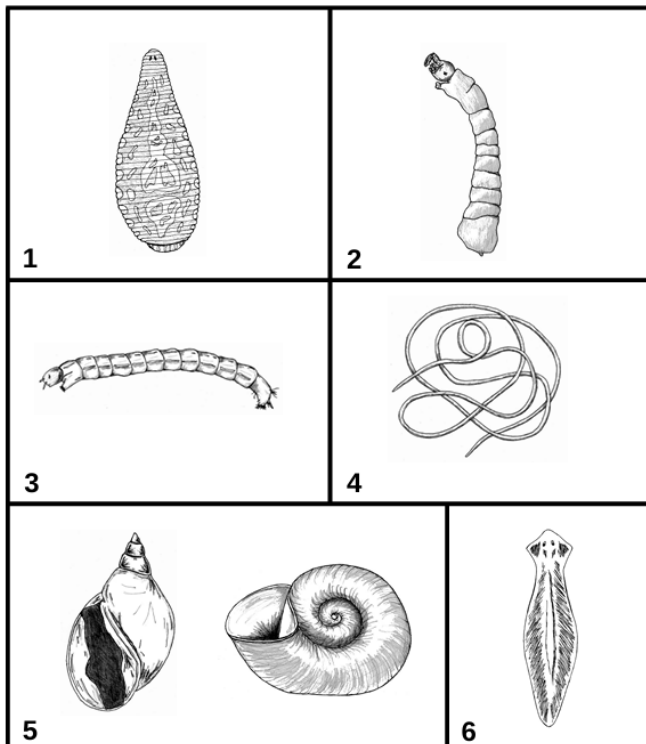
4 Scud: Order Amphipoda. ¼", white to gray, body higher than it is wide, swims sideways, more than 6 legs, resembles small shrimp, somewhat tolerant of impairment.



- 5 Crane Fly: Order Diptera.** $\frac{1}{4}$ " – 2", bodies plump and maggotlike, caterpillar like "legs" along body, four lobes one end, tolerant of impairment.
- 6 Clams and Mussels: Class Bivalvia.** Up to $\frac{3}{4}$ ", fleshy body enclosed between two clamped together shells (if clam is alive, shells cannot be pried apart without harming clam), somewhat tolerant of impairment.
- 7 Sowbug: Order Isopoda.** $\frac{1}{4}$ " – $\frac{3}{4}$ ", gray oblong body wider than it is high, more than 6 legs, long antennae, somewhat tolerant of impairment.
- 8 Damselfly: Order Odonata.** $\frac{1}{2}$ " – 2", large eyes, 6 hooked legs, large protruding lower jaw, 3 broad oar-shaped tails, somewhat tolerant of impairment.
- 9 Dragonfly: Order Odonata.** $\frac{1}{2}$ " – 2", large eyes, 6 hooked legs, large protruding lower jaw, wide oval to round abdomen, somewhat tolerant of impairment.

Pollution Tolerant

These organisms are tolerant to pollution and indicate poor water quality.



- 1 Leech: Order Hirudinea.** $\frac{1}{4}$ " – 2", segmented body, suction cups on both ends, tolerant of impairment.
- 2 Black Fly: Family Simuliidae.** Up to $\frac{1}{4}$ ", end of body wider (like bowling pin), distinctive head, sucker on end, tolerant of impairment.
- 3 Midges: Family Chironomidae.** Up to $\frac{1}{4}$ ", distinct head, worm-like segmented body, 2 leg-like projections on each side, often whitish to clear, occasionally bright red, tolerant of impairment.
- 4 Aquatic Worm: Class Oligochaeta.** $\frac{1}{4}$ " – 2", can be very tiny; thin, wormlike body, tolerant of impairment.
- 5 Lunged Snails: Class Gastropoda.** Up to $\frac{3}{4}$ ", no operculum, with helix pointed up shell opens to the left, tolerant of impairment.
- 6 Flat Worm: Family Planariidae.** Up to $\frac{1}{4}$ ", soft body, may have distinct head with eyespots, tolerant of impairment.