

Quick Reference Guide to Aquatic Invertebrates

Stonefly Nymph Sensitive to pollution

My distinguishing characteristics

2 tails; 2 sets wing pads

How I get oxygen

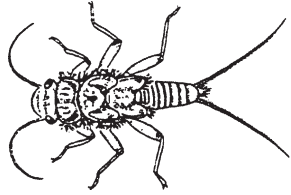
- Through body surface; some small gills; does "pushups" to increase oxygen flow over body

How I get food

- Predator or herbivore

Why I'm special

- Streamlined body for crawling on rocks; only tolerates high oxygen levels



Caddisfly Larva Sensitive to pollution

My distinguishing characteristics

- Most species build cases or nets; soft body

How I get oxygen

- Through body surface

How I get food

- Filter feeder, herbivore, or predator

Why I'm special

- Builds cases of heavy materials (rocks) to avoid being swept away by fast-flowing streams; in ponds, uses grass and plants to make cases



Mayfly Nymph Sensitive to pollution

My distinguishing characteristics

- 3 tails, sometimes 2; 1 set wing pads

How I get oxygen

- Through gills along abdomen

How I get food

- Herbivore or scavenger

Why I'm special

- Only tolerates high to medium oxygen levels



Predaceous Diving Beetle Larva (Water Tiger) Somewhat tolerant of pollution

My distinguishing characteristics

- Up to 6 cm long; robust jaws

How I get oxygen

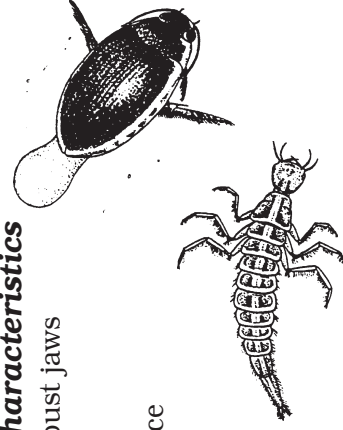
- Through body surface

How I get food

- Voracious predator

Why I'm special

- Special channels in jaws to suck body fluids of prey



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Whirligig Beetle (adult)

Somewhat tolerant of pollution

My distinguishing characteristics

- Black; congregates in schools

How I get oxygen

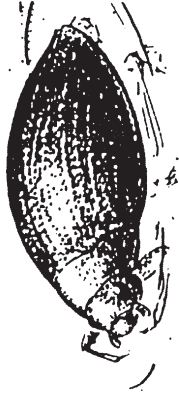
- From atmosphere

How I get food

- Predator or scavenger

Why I'm special

- Has two pairs of eyes to see above and below the water's surface; has a type of "radar" to locate objects in the water; secretes a white odorous substance to deter predators



Dragonfly Nymph

Somewhat tolerant of pollution

My distinguishing characteristics

- Stout body; grasping jaw

How I get oxygen

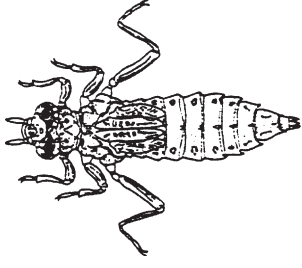
- Dissolved oxygen, through gills in internal body chamber

How I get food

- Active predator

Why I'm special

- Clings to vegetation or hides in clumps of dead leaves or sediment



Black Fly Larva

Somewhat tolerant of pollution

My distinguishing characteristics

- Small body; small hooks at end of abdomen attach to rocks

How I get oxygen

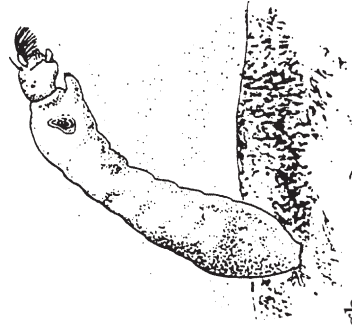
- Through body surface

How I get food

- Filter feeder

Why I'm special

- Anchors to rocks with silk; only tolerates medium to high oxygen levels



Damselfly Nymph

Somewhat tolerant of pollution

My distinguishing characteristics

- 3 leaflike gills at end of abdomen

How I get oxygen

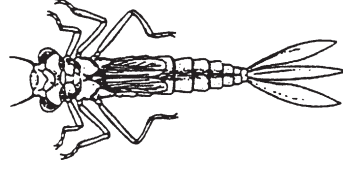
- Through gills at end of abdomen

How I get food

- Active predator

Why I'm special

- Clings to vegetation or hides in clumps of dead leaves or sediment



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Hellgram-mite (Dobson-fly), Alderfly, or Fishfly larva

Somewhat tolerant of pollution

My distinguishing characteristics

- Up to 9 cm long

How I get oxygen

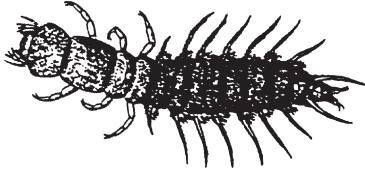
- Through gills along side of abdomen; some fishflies have breathing tubes

How I get food

- Active predator

Why I'm special

- Can swallow prey without chewing



Water Boatman (adult)

Somewhat tolerant of pollution

My distinguishing characteristics

- Long swimming hairs on legs

How I get oxygen

- From atmosphere, by carrying air bubble from water's surface on body

How I get food

- Omnivore, herbivore, or scavenger

Why I'm special

- Has swimming hairs on legs that act as oars



Water Strider (adult)

Somewhat tolerant of pollution

My distinguishing characteristics

- Skates on water's surface

How I get oxygen

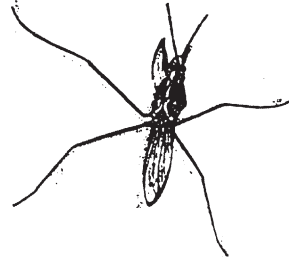
- From atmosphere

How I get food

- Active predator

Why I'm special

- Can stay on the water's surface because my feet have a small surface area and are water repellent



Backswimmer (adult)

Somewhat tolerant of pollution

My distinguishing characteristics

- Light-colored underside; swims on back

How I get oxygen

- From atmosphere, by carrying air bubble from water's surface on body

How I get food

- Predator

Why I'm special

- Swims on back; sleek body shape



Quick Reference Guide to Aquatic Invertebrates

Crane Fly Larva

Somewhat tolerant of pollution

My distinguishing characteristics

- Cylindrical body; often has lobes at hind end

How I get oxygen

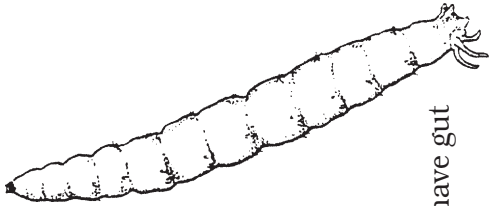
- From atmosphere through spiracles (openings) at hind end

How I get food

- Active predator, herbivore, or omnivore

Why I'm special

- Species that eat woody decaying matter have gut bacteria to digest cellulose.



Aquatic Sowbug

Somewhat tolerant of pollution

My distinguishing characteristics

- Flattened body, top to bottom; 7 pairs of legs

How I get oxygen

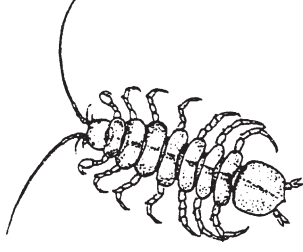
- Through body surface on legs

How I get food

- Scavenger (eats decaying matter) or omnivore

Why I'm special

- Male clasps female under it during mating; female sheds half of exoskeleton, which becomes a case into which fertilized eggs are placed for development



Mosquito Larva

Somewhat tolerant of pollution

My distinguishing characteristics

- Small body; floats on surface

How I get oxygen

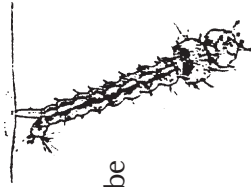
- From atmosphere through breathing tube

How I get food

- Scavenger—feeds on micro-organisms

Why I'm special

- Swims or dives when disturbed



Crayfish

Somewhat tolerant of pollution

My distinguishing characteristics

- 5 pairs of legs, first pair often robust; looks like a small lobster

How I get oxygen

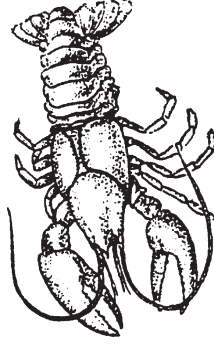
- Through gills under body

How I get food

- Scavenger or omnivore

Why I'm special

- Crawls backwards when disturbed; males display some courtship behavior to reduce female aggressiveness



Quick Reference Guide to Aquatic Invertebrates

Scud Somewhat tolerant of pollution

My distinguishing characteristics

- Flattened body, side to side; swims on side

How I get oxygen

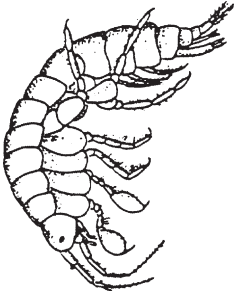
- Through gills under body

How I get food

- Scavenger or omnivore

Why I'm special

- Male carries female on its back during mating; female then sheds half of exoskeleton, which becomes a case into which fertilized eggs are placed for development



Rat-Tailed Maggot (larva)

Tolerant of pollution

My distinguishing characteristics

- Cylindrical body; tail-like breathing tube

How I get oxygen

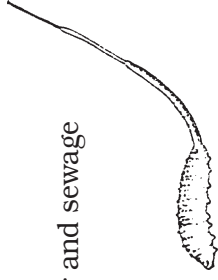
- From atmosphere through breathing tube

How I get food

- Scavenger—eat decaying matter and sewage

Why I'm special

- Can survive low oxygen levels fatal to most invertebrates



Midge Larva Tolerant of pollution

My distinguishing characteristics

- Small, cylindrical body; sometimes blood red

How I get oxygen

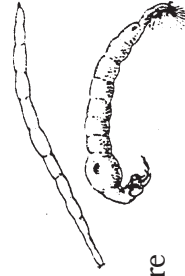
- Through body surface

How I get food

- Predator, herbivore, or omnivore

Why I'm special

- Some have a substance in blood to hold more oxygen in oxygen-poor environments.



Tubifex Worm Tolerant of pollution

My distinguishing characteristics

- Segmented body; builds a vertical tube from which one end protrudes

How I get oxygen

- Through body surface; but can tolerate water with no oxygen

How I get food

- Scavenger—eat decaying matter and sewage

Why I'm special

- Can survive low oxygen levels fatal to most invertebrates

