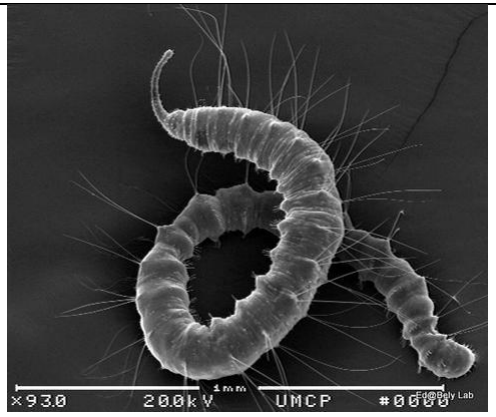
Guide to the Macroinvertebrates Collected in Strayer et al. (2003)

The "Role in Ecosystem" column below is based on the following classifications by feeding group:

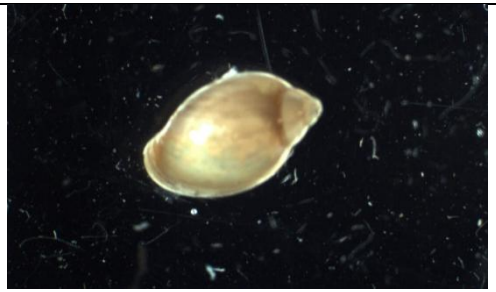
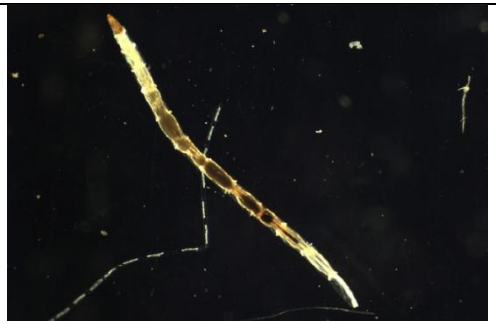
- **Herbivores:** Feed on live plant tissues.
- **Shredders:** These animals take detritus, such as leaves, and break it into smaller particles or "skeletonize" it. Microbes colonize the leaf litter first and begin to break it down, and are then followed by larger invertebrates like amphipods.
- **Collectors (both gathering and filtering):** Some organisms are filter-feeders and use tubes or nets to catch fine particles of detritus and algae. Others feed on detritus at the bottom of streams/ponds. Some scientists separate out the scavengers from this group, but we will include scavengers.
- **Scrapers:** Scrapers include animals that have mouthparts they can use to graze on hard surfaces such as rocks. They have to be strong to hold onto the surface while they feed on layers of bacteria and algae.
- **Predators:** These animals eat other smaller animals. Some scientists separate out parasites from this group, but we will include them here.

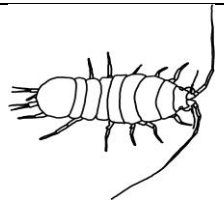
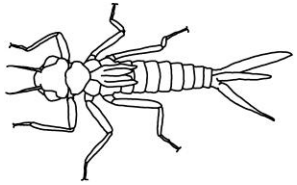
Name/Picture	Photo	Epiphytic or Benthic	Role in Ecosystem (Herbivore, Shredder, Collector Scraper, Predator,)	Oxygen requirements?
Chironomidae (non-biting midges)		Epiphytic/Benthic	All feeding types	Low for some species, but not all

Cladocera (Water Fleas)		Epiphytic (*also planktonic, which means that they drift or float through the water*)	Collectors that filter-feed on bacteria, plankton, protozoans, and detritus	Variable- some Cladocerans produce additional hemoglobin in low-oxygen environments, which makes their color darker.
Tubificidae (Tubificid segmented worms) *Related to earthworms*		Benthic	Collectors; they ingest sediments	Low; tubificids build tubes in the sediments and poke the back end of their body out. When oxygen is very low they wave their body around quickly to increase water circulation. Some make hemoglobin to adapt to low-oxygen conditions.
Naididae (Naidid segmented worms)		Epiphytic/Benthic	Collectors; they ingest sediments	Low

Nematoda (roundworms)		Epiphytic/Benthic	Varies by species; may be collectors, scrapers, shredders, predators	Low
Amphipoda (scuds)		Benthic and epiphytic	Shredders who eat mostly detritus, algae, bacteria, and decomposing organisms	Medium
Hydra		Epiphytic	Predator; uses stinging cells to paralyze prey	Medium

Pyrrhalta nymphaeae (water-lily leaf beetles)		Epiphytic/Benthic	Herbivores; these beetles can complete their life cycle on water chestnut and were once considered as a biocontrol for water chestnut plants	Medium to high; larvae and pupae can obtain oxygen by piercing plants and sucking the oxygen from the cells
Sphaeriidae (pea clams)		Benthic	Collectors; siphon water through long tubes and filter out phytoplankton, bacteria, and detritus	Low to Medium
Dreissena polymorpha (zebra mussels)		Benthic	Collectors that filter feed and live on phytoplankton, small zooplankton, and bacteria	Medium

Gastropoda (snails)		Epiphytic/Benthic	Scrapers (use tongue-like structure with tiny teeth to scrape algae etc. from hard surfaces)	High for gilled snails, low for lunged snails
Acari (water mites)		Epiphytic	Predators	Low
Ceratopogonidae (no-see-ums/biting midges)		Epiphytic/Benthic	Predators	Low to High (species-dependent)
Trichoptera (Caddisflies)		Epiphytic/Benthic	Many are collectors that live in a tube in the sediment and use a silken net to collect detritus. This is a diverse group that includes many feeding types.	Medium

Turbellaria (flatworms)		Benthic	Collectors, predators (use feeding tube to suck fluids from prey)	Low
Isopoda (sow bugs)		Benthic	Collectors; eat a variety of decaying organic matter	Medium
Odonates (damselflies and dragonflies)		Epiphytic/Benthic	Predators	Medium

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