Macro-invertebrate laboratory sheet—Method 3

Sample date (dd/mm/yy)
☐☐/☐☐/☐☐ Monitor(s) .....

Site code ..... Tributary name .....

Sample ID by ..... Sample checked by .....

Data entry—Date ☐☐/☐☐/☐☐ By .....

Data entry checked—Date ☐☐/☐☐/☐☐ By .....

Note: PET families (Plecoptera-Ephemeroptera-Trichoptera) appear in bold

Common name	Scientific order, class or phylum	Scientific family	Pollution sensitivity (SIGNAL 2)	Tick if present at site	Sensitivity no.
Water mite	Acarina	Family-level identification not required	6		
Amphipod	Amphipoda	Ceinidae	2		
Amphipod	Amphipoda	Corophiidae	4		
Amphipod	Amphipoda	Eusiridae	7		
Amphipod	Amphipoda	Melitidae	7		
Amphipod	Amphipoda	Talitridae	3		
Fairy shrimp	Anostraca	Branchipodidae	1		
Clam shrimp	Conchostraca	Family-level identification not required	1		
Clam	Bivalvia	Corbiculidae	4		
Mussel	Bivalvia	Hyriidae	5		
Clam	Bivalvia	Sphaeriidae	5		
Weevil	Coleoptera	Brentidae	3		
Beetle	Coleoptera	Carabidae	3		
Beetle	Coleoptera	Chrysomelidae	2		
Weevil	Coleoptera	Curculionidae	2		
Diving beetle	Coleoptera	Dytiscidae	2		
Riffle beetle	Coleoptera	Elmidae	7		
Whirligig beetle	Coleoptera	Gyrinidae	4		
Crawling water beetle	Coleoptera	Haliplidae	2		
Variegated mud-loving beetle	Coleoptera	Heteroceridae	1		
Beetle	Coleoptera	Hydraenidae	3		
Water scavenger beetle	Coleoptera	Hydrochidae	4		
Water scavenger beetle	Coleoptera	Hydrophilidae	2		
Screech beetle	Coleoptera	Hygrobiidae	1		
Marsh beetle	Coleoptera	Limnichidae	4		
Beetle	Coleoptera	Microsporidae	7		

Macro-invertebrate laboratory sheet—Method 3 page 2

Common name	Scientific order, class or phylum	Scientific family	Pollution sensitivity (SIGNAL 2)	Tick if present at site	Sensitivity number
Burrowing water beetle	Coleoptera	Noteridae	4		
Water penny	Coleoptera	Psephenidae	6		
Beetle	Coleoptera	Ptiliidae	3		
Beetle	Coleoptera	Ptilodactylidae	10		
Marsh beetle	Coleoptera	Scirtidae	6		
Beetle	Coleoptera	Staphylinidae	3		
Spring tail	Collembola	Family-level identification not required	1		
Shrimp	Decapoda	Atyidae	3		
Crab	Decapoda	Grapsidae			
Prawn	Decapoda	Palaemonidae	4		
Crayfish	Decapoda	Parastacidae	4		
Crab	Decapoda	Sundatelphusidae	3		
Non-biting midge	Diptera	Aphroteniinae (subfamily)	8		
Fly	Diptera	Athericidae	8		
Net-winged midges	Diptera	Blephariceridae	10		
Fly	Diptera	Cecidomyidae	1		
Biting midges	Diptera	Ceratopogonidae	4		
Phantom midge	Diptera	Chaoboridae	2		
Non-biting midge	Diptera	Chironominae (subfamily)	3		
Wrigglers	Diptera	Culicidae	1		
Non-biting midge	Diptera	Diamesinae (subfamily)	6		
	Diptera	Dixidae	7		
Dolly	Diptera	Dolichopodidae	3		
Fly	Diptera	Empididae	5		
Ephydrid	Diptera	Ephydridae	2		
Muscid	Diptera	Muscidae	1		
Non-biting midge	Diptera	Orthocladiinae (subfamily)	4		
Non-biting midge	Diptera	Podonominae (subfamily)	6		
Moth fly	Diptera	Psychodidae	3		
Marsh fly	Diptera	Sciomyzidae	2		
Black fly	Diptera	Simuliidae	5		
Soldier fly	Diptera	Stratiomyidae	2		
Rat-tailed maggot	Diptera	Syrphidae	2		
March fly	Diptera	Tabanidae	3		
Wood-boring larva	Diptera	Tanyderidae	6		
Non-biting midge	Diptera	Tanypodinae (subfamily)	4		
Dipteran	Diptera	Thaumaleidae	7		
Crane fly	Diptera	Tipulidae	5		
Killer mayfly	**Ephemeroptera**	**Ameletopsidae**	7		

Macro-invertebrate laboratory sheet—Method 3 page 3

Common name	Scientific order, class or phylum	Scientific family	Pollution sensitivity (SIGNAL 2)	Tick if present at site	Sensitivity number
Baetid	**Ephemeroptera**	**Baetidae**	5		
Mayfly	**Ephemeroptera**	**Caenidae**	4		
Leptofleb	**Ephemeroptera**	**Leptophlebiidae**	8		
Mayfly	**Ephemeroptera**	**Prosopistomatidae**	4		
Mayfly	**Ephemeroptera**	**Teloganodidae**	9		
Limpet	Gastropoda	Anclyidae	4		
Snail	Gastropoda	Bithyniidae	3		
Snail	Gastropoda	Hydrobiidae	4		
Pond snail	Gastropoda	Lymnaeidae	1		
Snail	Gastropoda	Physidae	1		
Snail	Gastropoda	Planorbidae	2		
Sculptured snail	Gastropoda	Thiaridae	4		
Snail	Gastropoda	Viviparidae	4		
Giant water bug	Hemiptera	Belostomatidae	1		
Water boatman	Hemiptera	Corixidae	2		
Toad bug	Hemiptera	Gelastocoridae	5		
Water strider	Hemiptera	Gerridae	4		
Velvet water bug	Hemiptera	Hebridae	3		
Water measurer	Hemiptera	Hydrometridae	3		
Water treader	Hemiptera	Mesoveliidae	2		
Creeping water bug	Hemiptera	Naucoridae	2		
Water scorpion	Hemiptera	Nepidae	3		
Back swimmer	Hemiptera	Notonectidae	1		
Water bug	Hemiptera	Ochteridae	2		
Pygmy back swimmer	Hemiptera	Pleidae	2		
Water bug	Hemiptera	Saldidae	1		
Small water strider	Hemiptera	Veliidae	3		
Leech	Hirudinea	Erpobdellidae	1		
Leech	Hirudinea	Glossiphoniidae	1		
Leech	Hirudinea	Ornithobdellidae	1		
Leech	Hirudinea	Richardsonianidae	4		
Hydra	Hydrozoa	Clavidae	3		
Hydra	Hydrozoa	Hydridae	2		
Water slater	Isopoda	Cirolanidae	2		
Water Slater	Isopoda	Janiridae	3		
Water slater	Isopoda	Oniscidae	2		
Water slater	Isopoda	Sphaeromatidae	1		
Caterpillar	Lepidoptera	Pyralidae	3		
Scorpion fly larva	Mecoptera	Nannochoristidae	9		
Toebiter	Megaloptera	Corydalidae	7		
Toebiter	Megaloptera	Sialidae	5		

Macro-invertebrate laboratory sheet—Method 3 page 4

Common name	Scientific order, class or phylum	Scientific family	Pollution sensitivity (SIGNAL 2)	Tick if present at site	Sensitivity number
Nemertean	Nemertea	Tetrastemmatidae	7		
Lacewing larva	Neuroptera	Neurorthidae	9		
Spongefly larva	Neuroptera	Osmylidae	7		
Spongefly larva	Neuroptera	Sisyridae	3		
Nematode	Nematoda	Family-level identification not required	3		
Horsehair worm	Nematomorpha	Gordiidae	5		
Tadpole shrimp	Notostraca	Triopsidae	1		
Aeshnid-like dragonfly	Odonata	Aeshnidae	4		
Corduliid-like dragonfly	Odonata	Austrocorduliidae	10		
Damselfly	Odonata	Coenagrionidae	2		
Corduliid-like dragonfly	Odonata	Cordulephyidae	5		
Dragonfly	Odonata	Corduliidae	5		
Damselfly	Odonata	Diphlebiidae	6		
Dragonfly	Odonata	Gomphidae	5		
Libellulid-like dragonfly	Odonata	Hemicorduliidae	5		
Damselfly	Odonata	Hypolestidae	9		
Damselfly	Odonata	Isostictidae	3		
Damselfly	Odonata	Lestidae	1		
Libellulid-like dragonfly	Odonata	Libellulidae	4		
Dragonfly	Odonata	Lindeniidae	3		
Damselfly	Odonata	Macromiidae	8		
Damselfly	Odonata	Megapodagrionidae	5		
Damselfly	Odonata	Protoneuridae	4		
Damselfly	Odonata	Synlestidae	7		
Damselfly	Odonata	Synthemistidae	2		
Aeshnid-like dragonfly	Odonata	Telephlebiidae	9		
Libellulid-like dragonfly	Odonata	Urothemistidae	1		
Worm	Oligochaeta	Family-level identification not required	2		
Stonefly	**Plecoptera**	**Austroperlidae**	10		
Stonefly	**Plecoptera**	**Eustheniidae**	10		
Stonefly	**Plecoptera**	**Gripopterygidae**	8		
Stonefly	**Plecoptera**	**Notonemouridae**	6		
Sponge	Porifera	Spongillidae	3		
Caddisfly	**Trichoptera**	**Antipodeciidae**	8		
Vulture caddis	**Trichoptera**	**Atriplectididae**	7		
Sleeping bag caddis	**Trichoptera**	**Calamoceratidae**	7		

Macro-invertebrate laboratory sheet—Method 3 page 5

Common name	Scientific order, class or phylum	Scientific family	Pollution sensitivity (SIGNAL 2)	Tick if present at site	Sensitivity number
Caddisfly	**Trichoptera**	**Calocidae**	9		
Caddisfly	**Trichoptera**	**Conoesucidae**	7		
	Trichoptera	**Dipseudopsidae**	9		
Caddisfly	**Trichoptera**	**Ecnomidae**	4		
Glosso	**Trichoptera**	**Glossosomatidae**	9		
Caddisfly	**Trichoptera**	**Helicophidae**	10		
Snail-shelled caddis	**Trichoptera**	**Helicopsychidae**	8		
Caddisfly	**Trichoptera**	**Hydrobiosidae**	8		
Net-spinning caddis	**Trichoptera**	**Hydropsychidae**	6		
Micro caddis	**Trichoptera**	**Hydroptilidae**	4		
Stick caddis	**Trichoptera**	**Leptoceridae**	6		
Caddisfly	**Trichoptera**	**Odontoceridae**	7		
Caddisfly	**Trichoptera**	**Philopotamidae**	8		
Caddisfly	**Trichoptera**	**Philorheithridae**	8		
Caddisfly	**Trichoptera**	**Polycentropodidae**	7		
Caddisfly	**Trichoptera**	**Tasimiidae**	8		
Caddisfly	**Trichoptera**	**Dipseudopsidae**	9		
Flatworm	Turbellaria	Dugesiidae	2		
Flatworm	Turbellaria	Temnocephalidea	5		
Write the number of different taxa groups found at the site here →					

Write the sum of the sensitivity scores here ↑

10–29

Calculate the SIGNAL score for your site

SIGNAL 2 index score = sum of sensitivity scores ÷ number of different taxa groups

= ☐

Count the number of macro-invertebrate families at your site

The number of families (richness) for the site = ☐

Count the number of *Plecoptera, Ephemeroptera and Trichoptera* (PET) families

The PET (richness) for the site = ☐

(Note: All PET families in the table appear in bold)

Macro-invertebrate sensitivity scores adapted from:

Chessman B 2003, *SIGNAL 2—a scoring system for macro-invertebrate ('water bugs') in Australian rivers*, Monitoring River Health Initiative technical report No. 31, Department of Environment and Heritage, Canberra.