

MACROINVERTEBRATES

Introduction

Macroinvertebrates are important to the functioning of the ecosystem in which they live for a number of reasons. They serve as food for fish, birds and amphibians and also assist in the breakdown of detritus and other organic material. Because of their relatively extended stay on the benthos, and their inability to move away from pollutants or disturbances in the waterbody in which they live, macroinvertebrates act as an indicator of the condition of the waterbody in which they live. They are also easy to collect and identify.

There are three general types of species when performing a bioassessment. Intolerant species are sensitive to pollution and include mayflies (*Ephemeroptera*), stoneflies (*Plecoptera*) and caddisflies (*Trichoptera*). Facultative species such as dragonflies (*Odonata*) and damselflies (*Odonata*) prefer clean waters but can survive in polluted waters. Species such as midges (*Diptera*) and leeches (*Hirudinea*) are considered tolerant because of their ability to survive in polluted waters.

When doing a bioassessment, groups such as the DEC use a diversity index, or proportion of tolerant to intolerant species to evaluate their sample (see page 5). A sample with high diversity and both pollution tolerant and intolerant species shows the researchers that the waterbody that they are evaluating is more stable and less polluted than one that shows only pollution tolerant species and low diversity.

Life Cycles of Insects

Insects go through either complete or incomplete metamorphosis.

Incomplete Metamorphosis

