



Australian
**Water
Quality
Centre**

Ecological Assessment of Streams and Wetlands

Biomonitoring uses living organisms as indicators of environmental condition, both water quality and habitat quality.



Ecosystem health measures the functioning of natural processes in aquatic systems. The abundance and diversity of stream fauna (fish, invertebrates, waterbirds and frogs) is usually a focus of concern. Biomonitoring directly measures this diversity. The AWQC biomonitoring programs concentrate on macroinvertebrates and aquatic plants in a waterbody.

THE VALUE OF MACROINVERTEBRATES

Macroinvertebrates are animals without backbones that are visible to the naked eye. They include bugs, beetles, worms, snails, dragonfly and other insect larvae

Macroinvertebrates are an effective tool for monitoring as they:

- Are present in all aquatic ecosystems
- Form a very diverse group.

They differ in how they:

- Breathe
- Reproduce & Disperse
- Obtain food and shelter

Hence macroinvertebrates differ in their ability to tolerate physical and chemical changes.

Comparing the macroinvertebrate community composition of an undisturbed stream or waterbody with those from the monitored water gives a measure of ecosystem health.

Being living creatures, macroinvertebrates monitor changes within the last weeks and months. Chemical monitoring measures water quality over a much narrower time scale.

AUSTRALIAN WATER QUALITY CENTRE

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CERTIFIED QUALITY
MANAGEMENT SYSTEM
ISO 9001



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THE BIOMONITORING TEAM AT THE AWQC ARE SPECIALISTS IN:

- Biomonitoring
- Impact Assessment
- Whole Catchment Studies
- Environmental Flow Needs
- South Australian Aquatic Fauna
- Identification of Macroinvertebrates
- The Australian Rivers Assessment System (AusRivAS)

BIOMONITORING IS USED IN:

- Streams and Rivers
- Ephemeral wetlands
- Lakes, Reservoirs and Dams
- Effluent Treatment Lagoons

BIOMONITORING IS USEFUL FOR

- Point Source Pollution Studies
- Identifying Diffuse Runoff Impacts
- Ensuring Remediation Treatments are Effective

THE BIOMONITORING TEAM HAS EXPERTISE IN:

- Detection of algal, shellfish and fungal toxins
- Monitoring of water quality in reservoirs, rivers, creeks, farm dams, bores and coastal waters.
- Assistance to industry in wastewater management.
- Advice concerning the optimisation of treatment processes.
- Investigation of techniques for the management of taste and odour compounds, e.g MIB, Geosmin and TCA.
- Monitoring the quality of wastewaters, sediments and sludges.
- Advice on the reuse of effluent and sludge.
- Impact of waste discharges on the receiving environment.
- Biomonitoring and environmental flows studies

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