



## Biology and Aquatic Ecology

A comprehensive biological service is offered by the AWQC from algal identification and enumeration to complete Aquatic Ecology studies to determine the health of ecosystems. A strong research arm supports the ongoing development of methods and skills.



### BIOLOGICAL EXAMINATION OF WATERS

The Australian Water Quality Centre provides comprehensive services in aquatic biology, in both freshwater and marine systems. Drawing on over 20 years experience, the services offered cover a range of areas of expertise including:

- Monitoring, assessment and management of nuisance growths of algae, cyanobacteria and other organisms in raw drinking water storages, recreational waters, farm dams and wastewaters
- Biomonitoring and ecological assessment of the health of rivers, streams, lakes and wetlands utilising a suite of indicator organisms and encompassing biodiversity assessments and environmental flow and taxonomic studies
- Monitoring and management of noxious marine phytoplankton, particularly dinoflagellates and assessment of the impact of pollutants on marine ecosystems, including coastal waters and estuaries.

### FRESHWATER ALGAE AND CYANOBACTERIA

Expertise is available in the microscopic identification and enumeration of noxious species such as toxic or odour producing cyanobacteria and dinoflagellates, and filter clogging species such as diatoms. Estimates of cell biovolume for algal samples can also be offered as a measure of species specific biomass, while total algal biomass can be analysed by spectrophotometric determination of chlorophyll pigments.

Advice can also be provided on specific algal toxins and/or odorous compounds produced by algae and cyanobacteria as well as the control of nuisance organisms in rivers, reservoirs and water treatment plants.

Consultancy services can be engaged for limnological surveys of specific water bodies that collate the biological data with other available water quality data to provide an overall environmental assessment and allow the development of appropriate and effective management plans.

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## LIMNOLOGICAL SERVICES

These services include the capacity to conduct surveys of:

- phytoplankton,
- benthic invertebrates,
- macrophytes.

The AWQC has particular expertise in the use of macroinvertebrates for assessing the water quality and environmental health of streams. Combined with the remaining analytical services the AWQC is in a position to provide a comprehensive assessment of the health of streams. The macroinvertebrate laboratory is equipped with modern microscopy facilities, a large literature collection and an extensive reference collection of Macroinvertebrate species. The AWQC maintains NATA accreditation for conducting limnological studies, and the collection, identification of and enumeration of macroinvertebrates.

## MARINE BIOLOGY SERVICES

Services include:

- benthic biota surveys (seagrass a speciality),
- phytoplankton (especially toxic dinoflagellates).

The AWQC has extensive experience in surveying and mapping benthic communities and in assessing the impacts of pollution on seagrasses and benthic algae. We have the ability to identify phytoplankton of concern to aquaculture such as toxic species of dinoflagellates and diatoms that can accumulate in shellfish and affect fin fish. Identification and measurement of the toxins produced by these organisms is also available.

The biological surveys can be combined with comprehensive water quality surveys to provide assessments of the environmental impacts of pollution.



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