



Freshwater Ecology

Monitoring and managing our most precious resource



Ecosure has a highly experienced and motivated aquatic ecology team dedicated to providing robust scientific assessments across a range of freshwater scientific services.

We understand the importance of delivering safe, timely, cost-effective services to achieve project targets. Through our certified environment (ISO14001), quality (ISO 9001) and safety (AS/NZS 4801) systems, we have streamlined our business operations to lower our environmental impact, guarantee customer satisfaction and increase staff safety.

Here are just a few of the freshwater scientific services that Ecosure has to offer.

Aquatic fauna assessments

- Macroinvertebrate sampling
 - study design and sampling by AusRivAS accredited ecologists
 - identification to AusRivAS taxonomic level, both in-house and using third party taxonomists
- Fish surveys
 - backpack and boat-based electrofishing by Senior Operators
 - netting using active (seine netting) and passive techniques (fyke nets, bait traps and mesh nets)
- Turtle surveys
 - netting (fyke nets and cathedral traps)
 - snorkelling surveys
 - assessment of breeding areas
- Biota tissue sampling and analysis
- Targeted surveys for threatened species

Aquatic flora assessments

- Species identification and abundance measures of submerged, emergent, floating and bank vegetation
- Ground-truthing of riparian vegetation and Regional Ecosystems
- Aquatic weed inventories and management plans

Aquatic habitat data collection

- Tailored specialised aquatic habitat assessments
- Quantification of habitat structure at meso and micro scales
- AusRivAS and State of the Rivers style assessments
- Nutrient cycling and ecosystem functioning assessments using isotopic algae

Water and sediment quality sampling

- In-situ physico-chemical water quality measurements
- Diurnal data collection and analysis
- Collection and assessment of surface water and groundwater samples
- Collection and assessment of sediment samples by coring, grab or direct collection

Reporting

- Univariate and multivariate statistical analysis
- Development and implementation of monitoring programs including Receiving Environment Monitoring Programs
- Deriving local water quality guidelines
- Baseline data collection and reporting for REF, EIA and EIS studies
- Environmental impact investigations
- Environmental Management Plans
- Database construction



Our Experience

A sample of our recent projects

Aquatic Values Surveys and Management Plans

Ecosure was engaged to undertake desktop assessments and field surveys to establish the aquatic ecological values of waterways intersected by a number of our client's proposed gas pipelines. Field investigations included habitat assessment and collection of physico-chemical water quality data, fish survey (using backpack electrofishing techniques, seine nets, fyke nets and box traps), turtle survey (using cathedral traps and fyke nets), macroinvertebrate sampling (following AusRivAS protocols), botanical inventories and physical habitat assessment. Aquatic Values Management Plans were developed and provided site-specific impact mitigation measures to protect identified aquatic values at each proposed waterway crossing.

Targeted Fauna Survey

Ecosure was engaged to undertake a literature review, habitat assessment, platypus and turtle survey (including bank observation, snorkelling and overnight deployment of baited cathedral traps and fyke nets) to establish the potential for platypus (*Ornithorhynchus anatinus*), Fitzroy River turtle (*Rheodytes leukops*) and southern snapping turtle (*Elseya albagula*) to occur within riverine habitat in the vicinity of a proposed pipeline Right of Way. Potential habitat

was identified and actual use confirmed. Construction works were scheduled to avoid the breeding and nesting periods for confirmed target species, to minimise the risk of mortality to juveniles or destruction of active nests, and to help plan a suitable waterway crossing construction timetable.

State and Commonwealth Guidelines Compliance

Ecosure's client is a major energy provider and operator of key power stations in Queensland. They required a manual to be written that enabled the ongoing testing of water quality between contained and receiving environments. In addition, Ecosure was asked to submit a report to the regulators detailing the procedures for achieving compliance with water quality guidelines.

Following this work, the client asked Ecosure to conduct an ongoing quarterly and annual assessment of surface water and groundwater in the vicinity of the power station.



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