



Water & Catchments

The Research Institute for the Environment and Livelihoods (RIEL) conducts internationally recognised research on tropical freshwater, estuarine and coastal habitats in northern Australia and globally. Indigenous partnerships are an intrinsic part of our water and catchment research approach.

PROJECTS & OPPORTUNITIES

RIEL strives to make a real-world impact. We collaborate and engage with a wide range of research and industry partners, ensuring that our research contributes to the sustainable management of aquatic ecosystems and resources.

Our research strengths include:

- > Analysing atmospheric moisture sources, rainfall patterns, groundwater origin and plant water usage;
- > Quantifying groundwater-surface water interactions, including rivers, wetlands and springs.
- > Using isotopes and water chemistry to study groundwater recharge, age, and flow rates.
- > Investigating stream chemistry, including salinity and carbon cycling
- > Using remote sensing to understand water fluxes and to identify groundwater recharge processes
- > Using environmental DNA to monitor terrestrial and aquatic species for strategic baseline assessment;
- > Assessing environmental water requirements for aquatic ecosystems and sustainable fisheries management;
- > Conducting the longest running survey of freshwater fish diversity and abundance in northern Australia;
- > Using new technologies and methodologies for monitoring fish movement;
- > Predicting impacts of climate change on aquatic food webs, ecosystems, carbon dynamics and nutrient cycling;
- > Conducting research on mangrove ecosystems, including restoration and carbon sequestration;
- > Informing conservation and management of threatened marine species;
- > Improving aquatic food safety, through microbial risk assessment, in Darwin Harbour;
- > Identifying key factors to improve pathogen and nutrient removal to optimise pond technology performance;
- > Source tracking and analysing the distribution of opportunistic pathogens in drinking and recreational waters.

RESEARCH

Using the latest technological advances, our research explores:

- > Hydrogeology, hydrology and water chemistry/quality
- > Aquatic ecology;
- > Microbiological characteristics;
- > Effect of human disturbance on aquatic ecosystems.
- > Drone and satellite-based remote sensing
- > Tree water use

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