

Amie Leggett B.Sc. M.Sc.
Senior Environmental Scientist
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Overview

Amie is an experienced Environmental Scientist specialising in aquatic sciences. Amie has 14 years' experience across both the public and the private sector managing and conducting environmental studies and is well versed in the review and application of legislative and government guidance requirements for environmental management. Amie has worked on a diverse range of projects spanning water and sediment chemistry, aquatic ecology, and impact/risk assessment in fresh waters, marine and groundwaters. These experiences have taken Amie to a wide variety of locations; Brazil, Indonesia, Papua New Guinea and the Republic of Congo as well as some of the remote and unique regions of Australia. They have provided Amie with a broad range of skills and knowledge applicable across environments and sectors and given her a keen appreciation of environmental and social interlinkages.

Most recently, Amie has been working in the Northern Territory focussing on the successful closure of the Ranger Uranium Mine in the world heritage listed, Kakadu National Park. Her role supported the mine closure process through stakeholder engagement, expert technical assessment of closure proposals and the application of the complex regulatory framework which surrounds Ranger mine. During this time Amie was also involved in the development of an integrated research and monitoring program including surface water, groundwater, aquatic biota and ecosystem restoration using cutting edge technologies.

Amie also has a keen interest in the development and implementation of remote sensing and spatial analysis methods to enhance environmental decision making in an era of increasingly accessible and abundant data capture.

Qualifications

2018 M.Sc. Environmental Science
Murdoch University, Perth WA

Thesis: *Detecting terrestrial groundwater dependent ecosystems in the wet-dry tropics using time series Landsat data and vegetation dynamics.*

2015 Post-graduate Diploma in Environmental Assessment and Management
Murdoch University, Perth WA

2007 B.Sc. Environmental Science / Sustainable Development
Murdoch University, Perth WA

Employment history

August 2021 – present
Senior Environmental Scientist: Innovative Groundwater Solutions Pty Ltd.

April 2017 – August 2021
Director Supervision and Monitoring / Assistant Director Monitoring: Supervising Scientist, Darwin

September 2010 – April 2017
Project Manager: Hydrobiology, Perth

July 2008 – September 2010
Natural Resource Management Officer: Department of Water, Perth

Competencies

Mar 2021: General Radiation Safety Officer, ANSTO
Nov 2020: Standard Mental Health First Aider, Mental Health First Aid Australia
Dec 2019: Perform complex 4x4 operations (FWPFGM3215), Train Safe NT
Jul 2018: Provide First Aid (HLTAID001, HLTAID002, HLTAID003 and HLTAID005), St John
Aug 2017: Operate as part of emergency control organization (PUAWER005B and PUAWER008B), Fire and Safety Australia

Selected Project Experience

2017 – 2021: Ranger Uranium Mine Closure Oversight, Kakadu, Northern Territory

Development and implementation of strategies to shape the environmental research and monitoring needs associated with the closure and rehabilitation of Ranger Uranium mine. Stakeholder engagement and technical assessment of mine site proposals under a unique regulatory framework. Development and implementation of indigenous two-way knowledge sharing strategy to facilitate decision-making and future land management outcomes that are consistent with the desires of the indigenous landowners.

2020: West Arnhem Land Exploration Site Audits

Inspection and audit of mining exploration sites in West Arnhem Land with a focus on compliance against NT Mining Act provisions, safety and environmental risk.

2018 - 2021: South Alligator Valley Legacy Mines Assessment, Northern Territory

Field audit, monitoring and risk assessment of legacy uranium mines in the south of Kakadu National Park. Development of final rehabilitation outcomes in consultation with Traditional Owners.

2018 – 2021: Ranger Uranium Mine Surface water and Groundwater investigations, Kakadu, Northern Territory

Site-specific surface water and groundwater investigations to inform closure modelling. Assessment of key closure models across the groundwater and surface water domains with a key focus on surface water groundwater interactions.

2017 - 2021: Ranger Mine Long-term Environmental Monitoring Programme, Kakadu, Northern Territory

Oversight and management of integrated monitoring program for Ranger Mine including surface water, aquatic biota and ecosystem restoration. On-going development of program with a key focus on remote sensing technologies for impact detection incorporating wireless monitoring networks, satellite and drone-based measurements.

2020 - 2021: Kakadu North: Emerging Contaminants Assessment, Kakadu, Northern Territory

Design and implementation of environmental study to determine baseline presence of emerging contaminants across the northern region of Kakadu National Park. Development of on-going monitoring plan and training of indigenous Rangers for future monitoring needs.

2019: Baralil Creek Impact Assessment, Jabiru, Northern Territory

Design and implementation of environmental study to determine impacts on receiving ecosystem from Jabiru township in Kakadu National Park. Development of on-going monitoring plan and training of indigenous Rangers for future monitoring needs.

2019 - 2021: Drone-based flow monitoring: USGS collaboration, Darwin, Northern Territory

Implementation of field-based trials for using a drone-based doppler radar for the measurement of stream discharge. Comparison to traditional gauging techniques.

2018 - 2021: Surface Water Monitoring of legacy mine site, Nabarlek, Northern Territory

Development and implementation of surface water investigation at a legacy mine site focussing on groundwater inputs to receiving surface water environment.

2015 - 2017: Samarco Tailings Dam Breach, Rio Doce, Brazil

On-site technical advice to BHP management regarding impact assessment and rehabilitation activities. Geochemical and water quality studies to assess tailings toxicity, provide advice on QAQC procedures

for environmental monitoring and database management. Auditing of environmental monitoring activities.

2015 - 2016: Water Treatment Impact Assessment, Denmark, Western Australia

Design and implementation of a monitoring program consistent with ANZECC guidelines to assess impact of flow regime change and RO brine discharge. Aquatic ecology monitoring including fish, macroinvertebrates and crustacea. Impact assessment and management response.

2014 - 2015: WWTP Impact Assessment, Wagin, Western Australia

Design and implementation of a monitoring program consistent with ANZECC guidelines to assess impact of TWW discharge to receiving salt lakes. Installation of groundwater monitoring bores and routine sampling. Intensive aquatic ecology monitoring including benthic algae, macroinvertebrates and zooplankton. Impact assessment and management response.

2013: Gosowong Environmental Assessment, Halmahera, Indonesia

Logistics, field planning and sampling design for a comprehensive environmental assessment of an existing gold mine. Freshwater aquatic ecology assessment using a range of techniques; electro fisher, nets, traps. Macro invertebrate sampling, sweep nets, grabs, riffles sampling. Riverine habitat assessment and sediment fingerprinting study. Fresh and marine water and sediment quality assessment. Laboratory liaison, data collation and analysis, GIS, mapping and project reporting.

2012 - 2017: Rio Tinto Cape Lambert Operations MEQMP, Pilbara, Western Australia

Logistics, field planning and sampling design to meet compliance conditions set out in the Cape Lambert MEQMP. Water and sediment quality monitoring, coral distribution and change analysis, bio-monitoring, mangrove distribution and change analysis. Laboratory liaison, data collation and analysis. GIS, mapping and project reporting.

2013 – 2017: BCIron – Aquatic Ecology Assessment

Freshwater aquatic ecology assessment of ephemeral and intermittent Pilbara streams and permanent pools to provide baseline data for environmental management. Aquatic ecology sampling using nets and traps. GIS, mapping and project reporting.

2010 – 2011: Woodlark Mining Limited Freshwater and Sediment Quality Monitoring, Woodlark Island PNG

Water and sediment quality monitoring for environmental impact assessment prior to mine development. Aquatic ecology assessment, macroinvertebrate sampling. Data collation and analysis, GIS, mapping and project reporting.

2009 – 2010: Environmental Water Requirements, Perth, Western Australia

Development and implementation of a Monitoring, Sampling and Analysis Plan for environmental water releases in the Canning River and Wungong Brook. Management of environmental release valves in accordance with the Draft Lower Canning Environmental Water Requirements. Point of contact for community and local government queries and concerns.

Publications

Leggett, A. (2018). Detecting terrestrial groundwater dependent ecosystems in the wet-dry tropics using time series Landsat data and vegetation dynamics. Master thesis. Murdoch University 2018.

Whittle, P., Leggett, A. (2016). Establishing closure targets for discharge to temporary waters – a review. Mine Closure 2016: Proceedings of the 11th International Conference on Mine Closure. Annual Conference 2016. Perth, Western Australia.

Whittle, P., Leggett, A. (2012). The Implications of redox conditions for the perpetual management of mine pit lakes. Paper presented at the International Mine Water Association (IMWA) Annual Conference 2012. Bunbury, Western Australia