



- + Acoustics and noise
- + Air quality
- + Water quality



Trinity
Consultants
Australia




Comprehensive and customised environmental assessment

Trinity Consultants Australia (Trinity) is a leading environmental consultancy, providing services in three key areas: acoustics and noise, air quality, water quality.

The Trinity team has been delivering specialist expertise since 1993, and consists of the former ASK Acoustics and Air Quality, Air Noise Environment, and Vision Environment teams.

Servicing clients throughout Australia and New Zealand, we have offices in Brisbane, Gladstone, Sydney and Christchurch. Trinity has the resources, depth and breadth of experience to deliver expert, customised environmental monitoring, investigation, modelling and management services that suit your needs.

Core competencies



Acoustics, noise and vibration

Lighting


Noise expert witness



Air quality, odour and greenhouse gases

Stack testing

Air expert witnesses



Water quality

Marine and freshwater ecology

Environmental investigations and management

Key industries and sectors

- Mining and resources
- Power and energy
- Ports
- Manufacturing
- Architecture and building
- Infrastructure
- Development
- Entertainment
- Retail
- Education
- Health and hospitals
- Transport
- Defence
- Government departments
- Local councils



How we help our clients

Integrated services – consolidate your environmental monitoring programs

Innovative solutions – be seen as an industry leader

Knowledge and experience – benefit from decades in the field and highly qualified scientists, researchers and engineers

Specialist equipment – deploy fully equipped teams using the latest technology

Sophisticated software and dashboards – view your data in real-time, and access our state-of-the-art computational modelling

Certifications and permits – we meet and aim to exceed all relevant Australian and international standards and regulations

Contact us	brisbane@trinityconsultants.com	+61 7 3255 3355
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Air quality



Trinity Consultants Australia (Trinity) offers a comprehensive range of air quality services, in addition to water and noise.

Our team of scientists and engineers provide innovative, cost-effective solutions to achieve air quality compliance. We understand industrial processes and atmospheric science, but we also speak the language of regulators and policy stakeholders. We have developed new techniques for the sophisticated use of computer models to estimate the emission and dispersion of air pollutants.



Core competencies

Air quality management:

- Concept design of emission control measures including dust control, carbon filters, vegetation screens and more
- Development of innovative management strategies to comply with ambient air quality goals
- Air quality management plans and compliance monitoring programs
- Management planning including consent conditions, environmental management plans and programs, occupational exposure assessment and control
- Investigations including health risk assessment and accidental release investigation

Air quality modelling:

- Emission inventories for air, land and water releases, including sophisticated National Pollutant Inventory (NPI) reporting spreadsheets, greenhouse inventories and more

- Meteorological modelling including assimilation of modelling data and observational data into format for dispersion modelling
- Air dispersion modelling, simple and complex, using a variety of domestic and international models such as CALPUFF, AERMOD and GRAL

Air quality monitoring:

- Ambient air monitoring including dust deposition, particulates, common gases, odour
- Indoor air and occupational monitoring including particulates, odours, mould and more
- Source emission sampling including stack testing, fugitive and area sources, velocity and gases, odour and arranging lab analysis

Expert witness services:

- In the Planning and Environment Court and/or the Land Court
- Addressing air quality issues including odour and dust

Three reasons to choose us

1

Knowledge and experience

Most of our senior staff have been consulting to industry for a minimum of two decades, refining their skills across diverse projects and sectors.

2

Computational modelling

We use the advanced Graz Lagrangian Model (GRAL) system, which incorporates computational fluid dynamics (CFD) into a user-friendly air dispersion model. We have also developed proprietary in-house emission models.

3

Local and international

Our local staff are leaders in their fields. Many have held senior roles in Australian industry peak bodies and on evaluation boards. We have staff who are certified air quality professionals (CAQP). We are also fully integrated with the worldwide company of Trinity Consultants.

Featured projects & clients

Stack emission testing

Chemical manufacturing site

2016 - 2021

Performed annual environmental licence compliance testing at a large remote chemical manufacturing site. Annual testing has included sulphur dioxide, nitrous oxide's, particulates, PM₁₀, Hydrogen fluoride and ammonia. Additional testing has been conducted during specific sampling campaigns to help the site refine process conditions.

Construction air monitoring

Scentre Group Shopping Centre projects

2010 - 2017

Undertook construction air (and noise) monitoring for major Scentre Group projects in Brisbane (Westfield Chermside, Carindale and Garden City) and the Gold Coast (Pacific Fair). Monitoring of PM₁₀ and deposited dust was undertaken, with provision monthly compliance reports.

Air modelling and assessment

Jemena Northern Gas pipeline project

2016

Modelling and assessment of air (and noise) impacts for a pipeline spanning 600 km from Queensland to Northern Territory. Modelling of impacts was undertaken for construction and operational phases.

Transport Infrastructure EIS

Cairns Shipping Development 2016 – 2017

Modelling and assessment of emissions from deepening of the channel, placement of dredged material, more frequent and larger vessel access, and infrastructure changes. Recommendations included use of marine diesel rather than fuel oil, SCR controls on plant, and long-term air monitoring in the vicinity of the wharf.

Mixed development assessment

Queens Wharf Brisbane 2018 – 2021

Provided modelling and advice on constraints associated with the development including detailed modelling of dispersion of emissions from traffic, power generators and carpark exhausts.

International mining assessments

Lihir Island (PNG) gold mine

2013

Conducted monitoring of concentrations of toxic gases as well as samples of dust deposition and tank water for analysis of heavy metals. Provided an expert witness report to a local community group describing potential health risks and presented results to the PNG Department of Environment.



Certifications, permits & insurances

- JAS/ANZ 3rd Party Certified by SCI Qual International (certification number 4277) for our Quality Management System, which is in conformance with ISO 9001:2015
- Level 3 Prequalification status with Queensland Government, PQC Registration Certificate Number 4663A
- Source emission testing is certified by the Australian National Association of Testing Authorities (NATA)
- Appropriate insurances including Professional Indemnity Insurance cover of \$10 million, Public Liability Insurance cover of \$20 million, and Work Cover as per Qld statutory requirements

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Acoustics, noise, vibration & lighting



Trinity Consultants Australia (Trinity) offers a comprehensive range of acoustics, noise assessment, vibration and lighting services, in addition to water and air quality.

Our team of scientists and engineers have decades of experience in monitoring and designing mitigation strategies for environmental and industrial noise, construction noise, transportation noise, architectural acoustics, vibration and lighting impact.



Core competencies

Environmental, mining and industrial noise and vibration:

- Noise measurements, using attended noise monitors, noise loggers and vibration loggers
- Noise modelling, using PEN, CadnaA and SoundPLAN computer modelling packages
- Noise assessment for diverse projects
- Design of noise mitigation measures
- Reporting: Environmental Impact Statement, Review of Environment Factors, Impact Management Plan, Material Change of Use

Architectural acoustics:

- Determining appropriate design criteria
- Detailed design of acoustically sensitive spaces
- Design of room finishes to achieve acceptable internal acoustics
- Design of building envelopes and internal partitioning using tools, such as Insul, to achieve desired vertical and horizontal privacy
- Review of mechanical plant noise and design of noise control measures
- Green Star design and as-built acoustic certification
- Capability to undertake 3D modelling using ODEON

Transportation noise assessments:

- Road, rail and aircraft
- Noise modelling using PEN, CadnaA and SoundPLAN computer modelling packages
- Design of noise mitigation measures, including barrier design

Entertainment noise:

- Compliance noise monitoring during concert events
- Event noise modelling assessments and management plans
- Liquor licence noise assessments

Occupational noise:

- Monitoring of noise exposure
- Detailed noise mapping exercises across small or large sites or within buildings
- Design of noise mitigation measures

Expert witness services:

- In the Planning and Environment Court and/or the Land Court
- Addressing noise and lighting issues

Lighting impact assessments:

- Diverse lighting scenarios from sporting venues to mines, to shopping centres to billboards

Three reasons to choose us

1

Knowledge and experience

Most of our senior staff have been consulting to industry for a minimum of two decades, refining their skills across a wide variety of projects and sectors.

2

Innovative solutions

Our engineers and scientists have been delivering innovative design solutions for more than 20 years. Standout projects include transparent motorway noise barriers and improved sound privacy in quiet buildings.

3

Local and international

Our local staff are leaders in their fields. Many have held senior roles in Australian industry peak bodies and on evaluation boards. We have multiple registered engineers (RPEQ). We are also fully integrated with the worldwide company of Trinity Consultants.

Featured projects & clients

Entertainment noise

North Byron Parklands

2014 – 2021

Development and implementation of noise management plan for North Byron Parklands in conjunction with the NSW Department of Planning, Industry and Environment including noise monitoring and management during major music festivals Splendour in the Grass and the Falls Festival.

Noise analysis & predictive modelling

Mackenzie North coal mine

2010 – 2021

Measurements were undertaken at similar operational mobile equipment and fixed plant, as well as nearby residential properties. A noise prediction model was provided and the results verified. Recommendations provided for noise attenuation treatment. Further monitoring was undertaken more recently during operation.

Noise measurement & modelling

Queensland Magnesia magnesium oxide production

2011 – 2020

Noise sources included the stacks via a boom lift, a crusher, rotary kiln, ball mills, bagging plant,

surge bins and conveyors. Modelling was calibrated based on measurements in residential areas, allowing for environmental variance.

Transport noise

Department of Transport and Main Roads (Qld)

2013

Road traffic noise assessments, including noise monitoring, verification noise modelling and future predictions to identify noise mitigation strategies along three sections of state-controlled roads in Calamvale, Algester and Greenslopes.

Architectural acoustics

Lady Cilento Children's Hospital

2009 – 2013

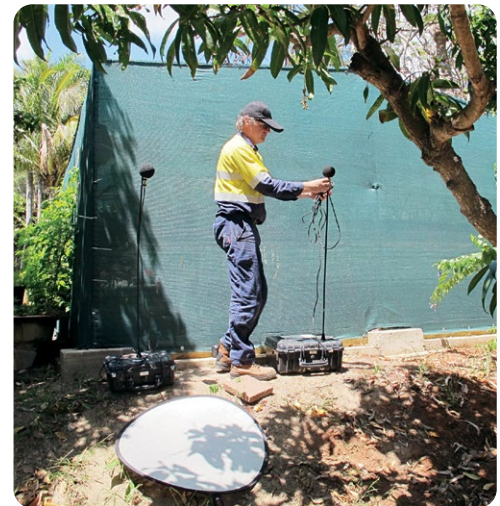
Acoustic design catering for operating theatres, mental health clinic, sleep medicine, helicopter pad and transport noise, mechanical plant, carer accommodation, children's play and recreation spaces.

Noise assessment

Fitzroy Terminal

2011 – 2012

Undertook comprehensive noise assessment in preparation for construction of Fitzroy Terminal Project, coal export facility.



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Water quality and marine ecology monitoring



Trinity Consultants Australia (Trinity) provides specialist water quality and marine ecology monitoring services from its Gladstone office, where the Vision Environment business is based. Vision Environment also has a field office in Christchurch, New Zealand.

Established in 2008, Vision Environment comprises a highly qualified team of full-time research staff, readily mobilised field technical teams, dedicated laboratory facilities, specialised field equipment and commercial vessels.



Core competencies

Real-time, autonomous and manual water quality monitoring and sampling

Design and implementation of environmental plans:

- Water quality monitoring plans (WQMP)
- Receiving environment and compliance monitoring programs (REMP) including dredge monitoring and assessment
- Environmental management plans (EMP)

Use of specialist equipment and technology:

- Telemetered water quality monitoring stations with individual client cloud-based websites
- Multiparameter water quality sondes
- PAR loggers, ADCP and wave droids
- Scientific dive equipment
- Underwater drone/ROV
- Underwater still and video cameras
- Benthic multiplatform sled tow
- Fish survey tools including baited remote underwater video stations (BRUVs)
- Sedimentation loggers
- Stainless steel benthic grab samplers
- Side scan sonar

Ecological surveys and mapping:

- Seagrass
- Sediments
- Macrobenthic
- Fish
- Coral

Land-based ecological surveys:

- Freshwater ecosystems
- Mangroves
- Saltmarsh
- Other estuarine and coastal communities

Design, audit and review of operational plans and manuals:

- Site-based management plans
- Operations manuals
- Groundwater management plans
- Irrigation management plans

Review of licence conditions and negotiation with regulators to assist with approvals process

Introduced marine pest surveys

Collection and analysis of groundwater, soil and sediment samples. Interpretation of resulting analytical data

Three reasons to choose us

1

Qualifications and experience

All of our research staff have postgraduate qualifications and/or have undertaken rigorous further training. Our scientific dive team has comprehensive coral, fish, invertebrate and seagrass survey experience.

2

Expertise and equipment

In addition to our in-house research team, we operate our own commercial in-survey vessels and have experienced coxswains on-staff. This means we can easily mobilise for ad hoc and event monitoring surveys as required.

3

Dashboards and technology

Real-time data is transferred directly to a cloud database and automatically de-confounded. Our manual validated data recovery rate has been greater than 98%. We also offer live data display via custom dashboards for 24/7 project management.

Featured projects & clients

Calibration, maintenance and management of water quality data and instruments

Queensland Alumina

2015 – 2023

Six telemetered monitoring stations onsite and five telemetered monitoring stations in the receiving environment send recorded sensor data to the Vision Environment cloud for real-time viewing. Regular water quality sampling and marine and coastal ecology assessments.

Monitoring for capital and maintenance dredge programs

Gladstone Ports Corporation

2008 – 2021

Long-term partner of choice, undertaking water quality monitoring, marine ecology surveys and annual maintenance dredge compliance monitoring for more than a decade. Projects include Clinton Vessel Interaction Project, Western Basin Dredge and Channel Duplication.

Water quality and environmental compliance

Lyttelton Port of Christchurch, New Zealand

2016 – 2021

Monitoring and environmental compliance for New Zealand's largest ever dredge project, in addition to annual maintenance dredge monitoring.

Groundwater, sediment and soil

Gladstone Regional Council

2008 – 2021

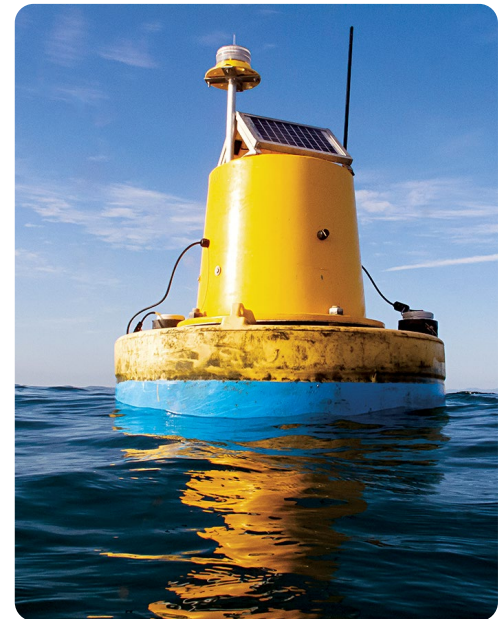
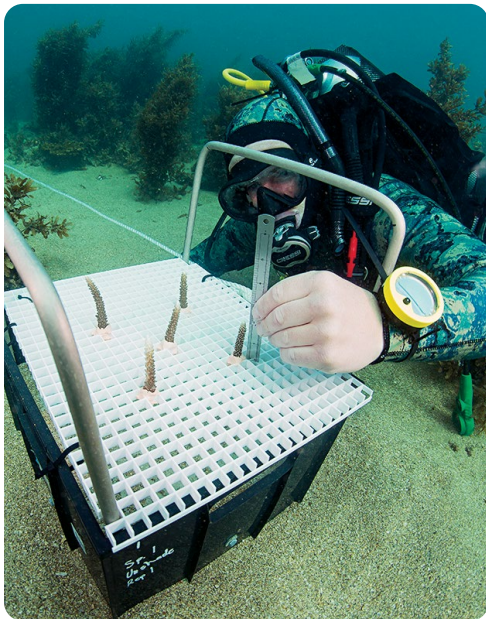
Preferred supplier, undertaking development of environmental management plans, as well implementation of marine, freshwater, groundwater, sediment and soil compliance monitoring at various sites throughout the Gladstone region.

Mangrove surveys

Papua New Guinea LNG Joint Downstream Development Project

2011 – 2019

Assessment of mangrove health and mapping of mangrove habitats in PNG over three surveys. Deliverables included comprehensive report, photographic images and detailed GIS maps upon completion of surveys.



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