

Capability Statement

Main Business Activities and Industries Served

Catchment Analytics provides advanced image data solutions that streamline the collection, processing, analysis and interpretation of large, in-field image datasets collected via remote cameras and/or drones.

Our automated and ‘intelligent’ systems have been tailored to support the management of recreational activities in public open spaces – with a focus on drinking water supply reservoirs and surrounding catchment areas.

We utilise specialised image recognition software, in conjunction with 4G telecommunications, image file database management and metadata protocols, and decision support functionality to identify and report on patterns of behaviors, anomalies and risks – in near real time.

Our image recognition software scans incoming digital images to identify key ‘target objects’ and catalogue these in the database. The software has been ‘trained’ on over 300,000 photographs to date, giving it the capacity to recognise some 80 unique ‘target objects’ (including people, bikes, boats, kayaks ...even dogs).

Services

Key Services		
Public Open Space Management	<ul style="list-style-type: none"> Design (purpose / information needs / feasibility / options) of in-field remote camera network 	<ul style="list-style-type: none"> Well-designed, purposeful information
Field Technology Deployment	<ul style="list-style-type: none"> Remote camera and related equipment acquisition, installation and configuration 	<ul style="list-style-type: none"> Image stream capture and transfer
Secure Cloud-Based Storage	<ul style="list-style-type: none"> Design, configure and manage secure cloud-based storage to receive and store large volume image data 	<ul style="list-style-type: none"> Secure storage
Image Analysis & Interpretation	<ul style="list-style-type: none"> Automated data stream analysis and interpretation using image recognition software, compliance evaluation and risk assessment protocols 	<ul style="list-style-type: none"> Continuously analyse and evaluate incoming data
Provide Timely Operational Notifications	<ul style="list-style-type: none"> Decision support systems, that provides non-compliance / risk notifications to management and operational staff - in near real time 	<ul style="list-style-type: none"> Near real-time email, SMS notifications to the right people
Periodic Reporting to Management	<ul style="list-style-type: none"> Convenient client access portal that provides relevant and concise reports on activity trends and anomalies – and ready access for managers to the underpinning raw data 	<ul style="list-style-type: none"> Timely and well-designed standard reports - convenient data access

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Catchment Analytics Approach

At Catchment Analytics' we pride ourselves on our ability to work closely with our clients to offer advanced, cost effective, quality field data analysis and interpretation that provides critical information to underpin the ongoing management of public open spaces.

We draw upon many years of expertise across our team in

- Drinking water supply catchment management and risk analysis.
- The management of activities in public open space - including catchments, State Forests and National Parks.
- Analytical software applications to analyse and report on large data streams.
- The set up and operation of remote field observation technology (including cameras).

We offer tailored solutions to meet the needs of our clients to gather and efficiently analyse their continuous image data stream to provide practical information to support planning and operational decision making.

Typical Applications

There are various potential applications of *Catchment Analytics'* services, with tailoring to clients' needs a specific strength.

- Remote camera monitoring of key access/entrance points (including carparks, gates, trailheads, boat ramps, etc) can determine the number of people accessing the site and the activities they are undertaking (e.g. walking, biking, kayaking), as well as patterns of entry over the course of a day, week, season, or years.
- Over-water view cameras - or a drone fly-over of a reservoir water body at the end of the day - can identify for example if all watercraft are off the water. Operational staff can be contacted via their mobile phone with information on the presence and location of any watercraft before closing the reservoir reserve and can meet with non-complying visitors to reinforce the conditions of entry.
- A motion activated camera - triggered by a person entering a 'non-permitted area' - can initiate a notification to the nearest operational staff via mobile phone, regarding the incident (its location and an identifying image of the person(s) of interest). These incidents can also be compiled into activity pattern reports to inform evolving management strategies, including facility design and information services.



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Team Specialisation

Catchment Analytics has specialist skills across the multidisciplinary areas of:

- Recreational Management – 19 years experience, managing public open space
- Source Water Protection – 20 years experience, across Australia
- Analytical Software Applications – 20 years experience in IT and data stream analysis.
- Automated Remote Surveillance Imagery – 3 years experience, across multiple sites

This unique combination of skills provides our point of differentiation that benefits our clients.

Ethical application

Catchment Analytics applies the principles within the draft *'Ethical Framework for A.I. in Australia'* (CSIRO Land and Water, 2019) to its observational operations, data stream management and reporting services.

Key People at Catchment Analytics

Role	Contact Person	Email
Principle Consultant	Karla Billington	karla@naturallogic.org
Manager, Operations & Projects	Darren Willis	darren@naturallogic.org
IT and Data Stream Management	Andrew Billington	it@naturallogic.org
Field Services	Michael Boslooper	fieldsupport@naturallogic.org

To see more go to <http://naturallogic.org/catchment-analytics/>