

Lake Baroon Catchment Bulletin

Lake Baroon is the primary drinking water source for the entire Sunshine Coast region. It is vital that we maintain a healthy catchment in order to reduce treatment costs and provide a safe, reliable product for communities.

The Lake Baroon Catchment

The Lake Baroon (Baroon Pocket Dam) catchment is located at the headwaters of the Obi Obi Creek, which is a significant tributary of the iconic Mary River. The entire catchment area encompasses 7,430 hectares (74.3 km²) of urban, rural residential, and valuable agricultural land. Land use is rapidly changing with a dramatic increase in urban and peri-urban (outsirt) development and population growth providing new challenges in the catchment.

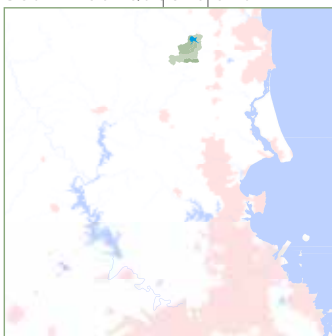
The Lake Baroon catchment has three major sub-catchments:

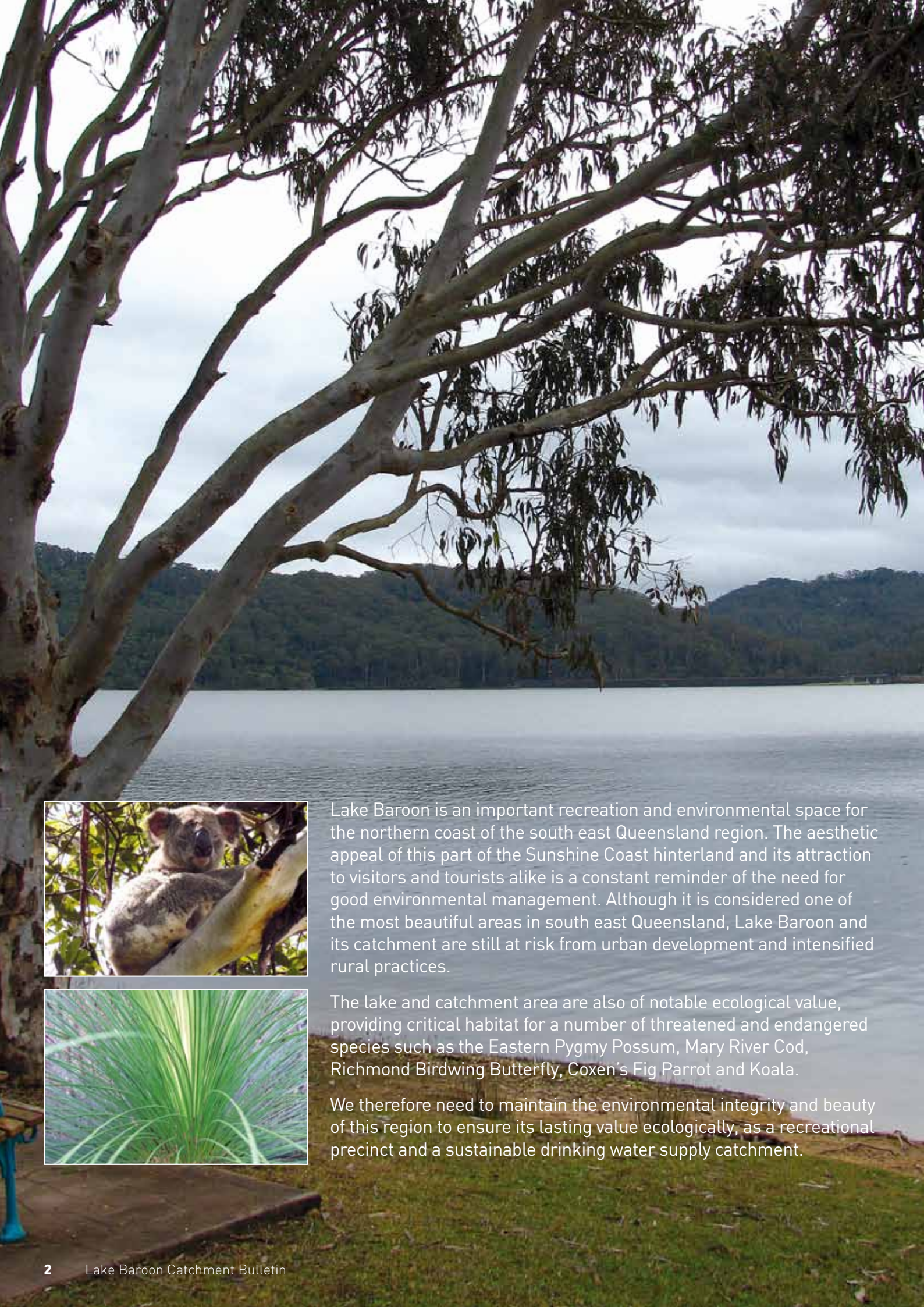
- ◆ Obi Obi Creek is characterised by bank instability from riparian clearing, resulting in significant sedimentation of the waterway. Untreated stormwater from urban Maleny enters the creek in large volumes impacting on water quality. The lower reaches of Obi Obi Creek have greater riparian vegetation, although this is degraded by environmental weeds.

- ◆ Bridge Creek is characterised by steep slopes that lack soil-binding vegetation. The soils of the sub-catchment lack the ability to absorb nutrients and rainfall, resulting in minimal filtering of run-off. Although most of the waterways have good riparian vegetation, the sub-catchment contributes high levels of nutrients to Lake Baroon.
- ◆ Walkers Creek is densely populated, with the majority of riparian land cleared to the waterway's edge. Significant issues include leaking on-site wastewater treatment systems and uncontrolled livestock access to waterways. Mary Cairncross Park, a valuable rainforest remnant, is situated in the sub-catchment.

Many landholders in the catchment are proactively working in partnership with community organisations and Government to improve water quality, the environment and farm sustainability. This bulletin provides information on how we can all help to keep Lake Baroon's catchment healthy for future generations.

South East Queensland





Lake Baroon is an important recreation and environmental space for the northern coast of the south east Queensland region. The aesthetic appeal of this part of the Sunshine Coast hinterland and its attraction to visitors and tourists alike is a constant reminder of the need for good environmental management. Although it is considered one of the most beautiful areas in south east Queensland, Lake Baroon and its catchment are still at risk from urban development and intensified rural practices.



The lake and catchment area are also of notable ecological value, providing critical habitat for a number of threatened and endangered species such as the Eastern Pygmy Possum, Mary River Cod, Richmond Birdwing Butterfly, Coxen's Fig Parrot and Koala.

We therefore need to maintain the environmental integrity and beauty of this region to ensure its lasting value ecologically, as a recreational precinct and a sustainable drinking water supply catchment.

Identified **Water Quality Issues**

The quality of water in Lake Baroon is a direct result of climatic conditions and land use in the catchment. Three major risk areas can be identified.



1 Pathogens & Nutrients

If not managed properly, contamination can occur from:

- ◆ Domestic on-site wastewater (sewage) treatment systems
- ◆ Dairy farming
- ◆ Cattle grazing
- ◆ Intensive animal husbandry
- ◆ Horticulture

2 Sediments

Sedimentation can result from:

- ◆ Steep and unstable slopes
- ◆ Bushfires
- ◆ Loss of vegetation
- ◆ Heavy rainfall events and stormwater runoff
- ◆ Construction and development sites
- ◆ Overgrazed pastures

3 Chemicals & Toxins

Chemical contaminants can originate from:

- ◆ Roads and dangerous goods transport (petrochemicals and spills)
- ◆ Horticulture, farming and livestock management (herbicides and pesticides)
- ◆ Urban development
- ◆ Urban stormwater
- ◆ Business and industrial uses (Eg. Service stations and waste producing activities)

The community needs good water quality

Heavy rainfall events on the Maleny plateau result in high sediment and nutrient inputs into the catchment's creeks and ultimately Lake Baroon. This can diminish water quality and contribute to blue-green algal blooms in the lake, in turn leading to limited recreational access, increased water treatment costs and fish kills.

Some species of blue-green algae are capable of producing toxins, large concentrations of which commonly result in taste and odour compounds requiring treatment at the water treatment plant.

Sediments and nutrients that contribute to this occurring are directly linked to land use and the condition of land in the Lake Baroon catchment.



A blue-green algal bloom in Lake Baroon: This bloom was due to seasonal temperature variations and high rainfall in the catchment which resulted in a temporary swimming and recreation ban on the lake.

Care for your Creek or Gully Bank

We need healthy stream banks to maintain ecosystems and limit erosion within Lake Baroon's catchment.

By maintaining healthy creeks, we protect our supply of water and support our quality of life.

The condition of creek and gully banks (riparian areas) is key to keeping Lake Baroon and its tributaries healthy. Excess sediment and nutrients from erosion become pollutants that degrade aquatic ecosystems and necessitate additional treatment at the water treatment plant.

Vegetation plays an essential role in riparian management by stabilising soils, beneficially shading water bodies, limiting algae growth, absorbing nutrients, filtering sediment and providing habitat.

Steep and unstable slopes within the catchment are a major source of sediment delivered to Lake Baroon. Most sediment delivery occurs during heavy rainfall events.

Sloping and eroded banks are a major issue, but can be effectively managed.

If you have a creek or gully on or adjoining your property, you can help!



A healthy creek, with well-established native riparian vegetation.

Land Use and Management Recommendations

- ◆ **Maintain groundcover** and good pasture coverage to minimise erosion and aid filtration
- ◆ **Plant and maintain grass filter strips** as a simple and effective way to filter sediments and nutrients from stormwater flow paths and paddocks
- ◆ **Fence riparian areas** to manage intermittent grazing, for grass and weed management. Establish off-stream watering points for livestock
- ◆ **Harden livestock traffic areas** to minimise erosion and nutrient transport
- ◆ **Develop a Property Management Plan** that takes into account all aspects of the property, including environmental assets
- ◆ **Install stabilised, contained stream crossings** where cattle must cross a waterway, to minimise erosion and limit turbidity



A stock crossing constructed over Arley Creek. This structure will prevent bank damage by livestock thereby minimising erosion and sedimentation of the creek.

Sustainable land use and water quality: How You Can Help

The challenge of achieving sustainable land use in Lake Baroon's catchment requires the involvement of many people and organisations. You can help maintain the catchment's health in the following ways:

- ◆ **Being aware of your catchment** – what you place in stormwater drains or on land can reach local waterways and eventually the water supply in Lake Baroon.
- ◆ **Using toxic chemicals with care** (such as pesticides, oil and fuels) – these can easily be washed into the lake.
- ◆ **Caring for riparian areas on your property** – preserving vegetation on sloping land and alongside creeks and gullies is essential to Lake Baroon's health.
- ◆ **Undertaking agricultural pursuits according to best practice principles** – Lake Baroon Catchment Care Group can provide practical information and support to landholders (see www.lbccg.org.au).
- ◆ **Maintaining your on-site wastewater treatment system** – check for signs of failure and ensure regular inspections are performed by a qualified professional.

Achieving Results

Working with the Community

The Lake Baroon Catchment Care Group (LBCCG) is a local community group working to improve the water quality and health of the Obi Obi Creek and Lake Baroon.

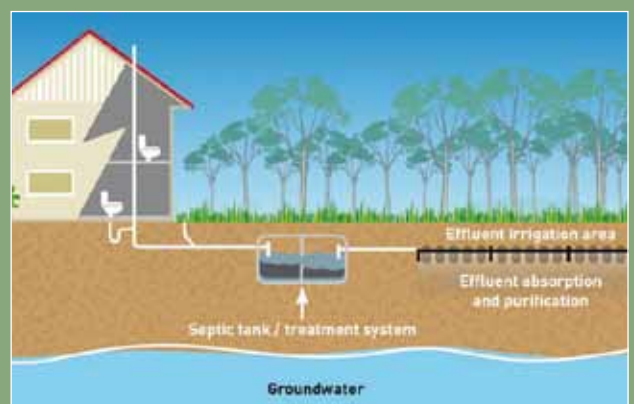
The group works in partnership with Seqwater and other funding bodies to develop and implement on-ground projects and awareness programs. Some of the current and recent projects assisting landholders and general catchment care include:

- ◆ Bridge Creek Rehabilitation Program
- ◆ Walker's Creek Restoration at Maleny Dairies

- ◆ Nature Refuge Assistance Program
- ◆ Mistflower Biological Control Research Collaboration
- ◆ Bushland regeneration and indigenous bush uses revegetation at Bunya Dreaming site, Lake Baroon

In the 2009-2010 financial year, LBCCG carried out priority weed management works on 5000m² of land, hardened 875m of new dairy laneways, erected over 2,300m of fencing and planted over 7,500 plants!

For more information, visit www.lbccg.org.au.



Watch for signs of a failing on-site wastewater treatment system – bright green grass, soggy ground or unusual smells could indicate that a system is causing harm to the environment and contaminating drinking water supplies.

Keep toxic chemicals away from Lake Baroon

Toxic chemicals can cause significant problems when they reach aquatic ecosystems and water supplies. We all have a responsibility to use and store toxic chemicals responsibly – to protect the lake and our quality of life.

Harmful chemicals from a range of toxic products used and disposed of in everyday life can make their way into waterways.

Examples include:

- ◆ Chemical spills on sites or transport routes
- ◆ Disposing of toxic chemicals down stormwater drains or to the sewer system
- ◆ Inadequate storage
- ◆ Inappropriate use of pesticides, weed killers and fertilisers
- ◆ Leaking fuel storages
- ◆ Inappropriate disposal of waste sump oil

Be aware that a small spill or tipping chemicals down a stormwater drain can have major impacts on Lake Baroon and our water supply.

Correct STORAGE of chemicals

Fuel, oil or chemical storages should be constructed to capture any liquids that may leak or spill (see Standards Australia – Australian Standard 1940-Handling and Storage of Dangerous Goods - www.standards.org.au)

How to DISPOSE of unwanted chemical containers or drums:

- ◆ Do not dispose of chemical containers on your property – this is not appropriate in a drinking water catchment.
- ◆ Contact your local Council or waste disposal / transfer facility for advice on the best way to dispose of empty chemical containers and old unused chemicals.
- ◆ DrumMUSTER is a National program to encourage appropriate disposal of used chemical containers. Refer to the “Collection Locations” link at www.drummuster.com.au for details about disposal locations.
- ◆ Licensed drum recycling or regulated waste recycling facilities can accept some types of drums and wastes – look in the Yellow Pages under “waste management”.

What you can do...

- ◆ Minimise your use of pesticides and weed killers.
- ◆ Use toxic chemicals according to the label instructions and Material Safety Data Sheets.
- ◆ Dispose of chemicals properly, don't pour them down a stormwater drain or sewer.
- ◆ Waste chemicals or spent absorbents should be taken to appropriate waste facilities - contact your Local Council.
- ◆ For reporting pollution incidents or fish kills: contact the EPA Pollution Hotline on 1300 130 372.



Cabomba

What is it and how can it be stopped?



Cabomba was originally introduced to Australia as an aquarium plant, but quickly became a Weed of National Significance. Only the tiniest fragment of a stem section is required for this weed to sprout and rapidly take over a water body. It is a fast-growing (up to an inch per day), submerged aquatic weed and has consequently been debilitating to waterways, natural lakes and drinking water storages. Not only does it smother native species, but it significantly changes the ecological balance of an aquatic system, leading to reduced biodiversity and poor water quality.

Don't introduce or release organisms that aren't native to Lake Baroon (e.g. aquarium fish or plants) into local waterways – they can become noxious pests.

Importantly, it also reduces the aesthetic appeal of a lake. Already, a number of lakes in the surrounding region are battling cabomba problems, including lakes Macdonald, Ewen Maddock and Cooloolabin. Remember, once cabomba has entered the lake, it is almost impossible to eradicate! It is therefore extremely important that preventative action is taken to avoid cabomba entering Lake Baroon. To prevent the spread, landowners, residents and businesses in the catchment can:

Although infesting several large drinking water storages in south east Queensland, cabomba has fortunately not yet entered Lake Baroon. Risks posed by this nationally declared aquatic weed include:

- ◆ Discolouration of the water and increased treatment costs
- ◆ Clogging of water supply intakes and pumping equipment
- ◆ Reduced storage capacity of drinking water lakes
- ◆ Depleted oxygen and light levels, which threatens the lake's ecosystem
- ◆ Interference with recreation activities such as swimming, fishing and canoeing
- ◆ Severe drowning risk
- ◆ Protect and revegetate riparian barriers alongside creeks and waterways on your property
- ◆ Check any dams, ponds or creeks on your property for signs of cabomba
- ◆ Practice good wash-down procedures at signed, designated facilities when using watercraft on other lakes
- ◆ Query the origin of plants provided by pet shops and nurseries
- ◆ Dispose of aquarium plants responsibly
- ◆ Ask an expert – if in doubt or to report a suspected cabomba sighting, contact LBCCG or Seqwater.



To prevent the introduction of Cabomba to Lake Baroon, it needs to be controlled in small dams and local tributaries such as Bridge, Small and Obi Obi Creeks. This is where individual landholders can have an impact!

Photos on this page courtesy of Philip Moran, Noosa & District Landcare Group.

Named Creeks in Lake Baroon's Catchment



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Lake Baroon Key Facts

Lake Baroon is the primary drinking water storage for the Sunshine Coast region. Below are some interesting facts about the lake.

Name Baroon Pocket Dam / Lake Baroon	Full Supply Capacity 61,000 ML
Major Tributary Water Course Obi Obi Creek	Year Complete 1989
Catchment Area 74km ²	Type of Construction Earth and rock-fill embankment with a central clay core
Lake Surface Area 380 ha at 100% capacity	Length of Dam Wall 370m

Get out and about – see beautiful Lake Baroon! There is a 2.4km walking circuit leading from the car park below the spillway into the Obi Obi Gorge, along a rainforest trail.

Swimming, fishing, sailing, electric boating and canoeing are all allowed on the lake. The lakeside picnic area has barbecues, toilets and a playground. There are also viewing platforms, barbecues and toilets near the spillway.