GWMWater

Lake Lonsdale Management Plan

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1. Foreword

Lake Lonsdale remains an important part of the GWMWater supply system. Lake Lonsdale contributes to meeting environmental watering needs, and enabling other reservoirs in the system to meet the range of water demands.

In September 2008, GWMWater confirmed the preferred future operating scenarios for 32 of these assets. The preferred scenarios, which were endorsed by a specially convened Reservoirs Review Stakeholder Working Group, followed consideration of well over 100 written submissions received in response to discussion papers released for community comment.

GWMWater has now moved into the second stage of the process which is the development of Implementation Plans for identified assets in consultation with key stakeholders.

While the levels in Lake Lonsdale will fluctuate and there will be times when there is no water in the lake, it still has great value as a recreational facility. This plan recognises the recreational value and makes recommendations as to what actions are required to ensure that the community receives the maximum benefit from the facility.

Mark Williams
Managing Director

2. Introduction

Lake Lonsdale is located 15 km west of Stawell, between Mt Dryden and Mt Drummond, in close proximity to the Grampians National Park in western Victoria.

The lake was constructed as a water storage in 1903. Refer to Appendix 10.1 for a more detailed history of Lake Lonsdale. The water is impounded with a 2.4 km long earthen embankment across the Mt William Creek.

While Lake Lonsdale is no longer required for water supply for consumptive purposes, it is a key source of environmental water for the region and this is its primary role.

Lake Lonsdale continues to be highly valued for recreational use and this is its secondary purpose.

Camping and a range of water-based recreational pursuits including yabbying, fishing, swimming, powered and non powered boating are enjoyed by locals and people from across Victoria.

Water will not always be available to allow a full range of recreational pursuits. The Lake Lonsdale reserve area is vested in GWMWater. GWMWater currently manages the Lake Lonsdale foreshore areas and there are several grazing licences/permits for areas which are not used for recreation. Refer to Appendix 10.6 for details existing legislation relevant to the management of Lake Lonsdale.

A management plan for the northern part of the lake was developed in 1996, with a focus on managing recreational use and protecting the significant cultural heritage values of this area.

2.1 Water Levels in Lake Lonsdale

Based on historical data, inflows to the lake and storage management rules, Lake Lonsdale will be suitable for recreation (water level of at least 1.5 metres) only around 70% of the time.

For 20 % of the time the Lake will experience levels which are marginal for recreation and in approximately 10% of the time Lake Lonsdale will be empty. The actual duration of any particular water level scenario is highly variable and the Lake may be empty for several years, as was the case prior to 2010.

Refer to Appendix 10.7 for details.

2.2 Summary of Recreational Activities

The following popular recreational activities are permitted at Lake Lonsdale.

Activity	Y/N
Picnicking	Y
Walking	Y
Camping	Y
Firewood collection	N
Fishing	Y
Canoeing	Y
Swimming	Y
Boating, skiing, sailing	Y

View from Lake Lonsdale Northern Boat ramp towards the Grampians National Park (photo B.Dunn)

3. Purpose of Plan

3.1 Future Use of Reservoirs Review

The development of the Lake Lonsdale Management Plan is a key recommendation of the Future Use of Reservoirs Review (FURR), which reviewed the operation of the reservoirs in the Wimmera-Mallee area in 2006-08 to determine the future operating arrangements for the GWMWater system.

The preferred scenarios (or preferred operating regime) for the 32 bulk water reservoirs and associated infrastructure were developed in consultation with the Reservoirs Review Stakeholder Working Group. The process included consideration of feedback from six community information sessions and 165 written submissions received in response to discussion papers released for community comment in July 2007.

A key outcome of the review was the development of implementation plans for each asset in consultation with key stakeholders. The management plan for Lake Lonsdale is the third of these implementation plans.

The FURR will be revisited after five years (i.e. 2013) to assess initial experiences with operation of the Wimmera Mallee Pipeline.

3.2 Management Plan Aims

The aims of the Lake Lonsdale management plan are to:

1. Maximise recreational opportunities to meet current and future user needs with consideration of :
   (a) public safety
   (b) flood management issues
   (c) user issues including camping, leaseholder grazing management and timber production
   (d) water quality management issues
   (e) protection of cultural heritage values
   (f) biodiversity issues
   (g) climate change impacts
   (h) links to other regional recreational initiatives e.g. existing and proposed walking trails
   (i) economic and social values.
2. Review reservoir operations within the constraints of the Wimmera Glenelg Bulk Entitlement including:
   (a) environmental flow release requirements
   (b) future lower lake operating level impacts at dam wall and at foreshore on visitor facilities
3. Advise on the future management responsibilities for the facilities, including:
   (a) future governance arrangements
   (b) foreshore management uses
   (c) short and long term maintenance and development plans.

3.3 Lake Fyans and Lake Lonsdale Management Plan Working Group

A Management Plan Working Group has been formed to provide advice to GWMWater on the development of the Management Plan for Lake Lonsdale based on detailed water supply operational rules previously developed.

Working group participants are:

- Tony Dark - Northern Grampians Shire Council (Group Chair)
- Allan Ralph - Grampians Field and Game
- Geoffrey Swanton - Marine Safety Victoria
- Cr Andrea Cooper - Northern Grampians Shire Council
- Gary Hargreaves - Lake Fyans Committee of Management
- Jim Leeke - Lake Fyans Committee of Management
- Brian Myles - Lake Fyans Committee of Management
- Rob Loats - VR Fish
- Leigh Edwards - Stawell Yacht Club
- Andrew Pearce - Stawell Yacht Club
- Craig Murdoch - Department of Primary Industries
- Tony Baker - Wimmera Catchment Management Authority
- Ararat Rural City Council
- Aaron McGifford - AAV
- John Maddocks
- Sharon Douglas
- Steven Tyzzer
- Matthew Kindred
- Ross Hatton
- Denis McCann
- Terry Monaghan

4. Strategic Directions

4.1 Lake Lonsdale Vision

A future visitor to Lake Lonsdale will find a well managed day visitor and bush camping facility that caters for both intensive and passive recreational pursuits including boating, fishing, yabbying, swimming, water skiing, bird watching, hunting and camping.

4.2 Objectives

To:

(a) manage the northern camping areas and designated day visitor areas to provide a safe and enjoyable experience
(b) protect and enhance the natural environment and manage vehicle access and stock access to these areas
(c) protect cultural heritage values
(d) communicate the values of Lake Lonsdale and the by-laws to visitors
(e) provide a safe boat launching and retrieval location at the northern boat ramp, particularly with south and south westerly winds
(f) develop the southern boat ramp area
(g) review boating safety rules and implement recommendations
(h) develop linkage tracks to Lake Fyans, Stawell and Halls Gap
(i) manage visitor use to achieve these stated objectives

4.3 Guiding Principles

The Management Plan for Lake Lonsdale is based upon the following guiding principles:

1. The lake's primary role is environmental water supply and recreation is a secondary role
2. Water quality in Lake Lonsdale will be protected
3. Lake Fyans and Lake Lonsdale complement each other by providing different recreational experiences, particularly for overnight visitors, where Lake Fyans provides a resort caravan park experience and Lake Lonsdale provides a more bush camping experience
4. Public access only to designated and managed areas
5. Manage recreational use to maximise compatibility between user groups.

4.4 Recreational/Tourism values

Lake Lonsdale attracts local, regional and interstate visitors. Lake Lonsdale is one of the premier yabbying and redfin fisheries in western Victoria. The Lake is popular with water skiers and non powered boat users, visitors enjoying passive recreational pursuits and hunters. Sandy beaches and shallow water make the lake a suitable lake for swimming. The bush camping experience is enjoyed by thousands of people each year from across Victoria. Northern Grampians Shire Council estimates the contribution of Lake Lonsdlae to the local and regional economy to be in order of $1.58 million/annum in direct and indirect benefits based on indicative visitor numbers.

5. Future Water Supply Management

5.1 Operating Rules

The Reservoir Operating Rules for Lake Lonsdale are outlined below and more detail is included in Appendix 10.4. The Operating Rules can be summarised as follows:

Operating Rules

- To operate to a maximum level 0.5 m below the spillway throughout the year.
- To provide environmental passing flows between the months of June and November inclusive.
- To operate the reservoir with consideration to its recreation potential.
- To operate the reservoir with due consideration to water quality, water supply and harvesting imperatives to Taylors Lake.

Taking into account the operating rules, environmental release requirements and historical data, Lake Lonsdale will be suitable for recreation (water level of at least 1.5 metres) around 70% of the time.

For approximately 10% of the time Lake Lonsdale will be empty. The actual duration of the period when Lake Lonsdale is empty could be from as short as a few months to as long as several years. Refer to Appendix 10.5 for details on the probabilities.

5.2 Environmental water delivery

Environmental water is delivered in two ways:

- According to passing flow rules which occur between June and November and releases water only when inflows are occurring.
- Regulated releases from the reservoir which are made according to seasonal plans and may occur at any time of year.

GWMWater is obliged to release water to the environment at the request of the Victorian Environmental Entitlement Holder/Wimmera CMA.

There are rules in place which guide GWMWater where this water should come from in order to protect all entitlement holders. GWMWater has very little discretion to move water around in the system purely for meeting recreational needs. Rather GWMWater works within the existing rules to maximise recreational opportunities.

5.3 Management and Operation of Existing Water Supply Infrastructure

An engineering risk assessment has identified a number of areas where further work is required at Lake Lonsdale to meet current dam safety standards. The likelihood of this failure is relatively low, and hence there is some flexibility in the timing of these works while other works of higher risk to GWMWater are undertaken. Areas of work proposed for the future include:

- A pressure relief system at the downstream toe

- Upgrade of the primary spillway abutment wall
- Upgrade of the secondary spillway
- Raising the clay core and place filters in the embankment.

The method of construction of these works may lead to some short-term requirements for lowering of the level of the reservoir. These details, and the timing of the works, have yet to be confirmed.

5.4 Water Quality Issues and Management

GWMWater regularly monitors the water quality at Lake Lonsdale. Historically, Blue Green Algae (BGA) blooms have occurred in the lake. In the event of a bloom, GWMWater advises lake users of the risks as per the frame work set out in the Department of Sustainability and Environment (DSE) publication of the Blue Green Algae Circular.

This can lead to the issuing of warnings stating that all primary contact with lake water should be avoided and the taking of fish or other aquatic animals could cause adverse health impacts and should be avoided.

Advice of this is provided in the following means by the erection of signs around the lake perimeter and by placing media releases in local papers.

5.5 Management of Flooding Impacts

The January 2011 flood event provided an insight into the role and behaviour of Lake Lonsdale in a flood. Rain over a five-day period saw a total of about 267 mm fall across the upper Mt William Creek catchment. Immediately prior to the January 2011 flood the reservoir had 15,000 ML of spare capacity below the spillway level. Refer to Appendix 10.2 for catchment description details.

It is estimated that inflows received over several days totalled approximately 75,000 ML. This volume is enough to fill and spill the reservoir from empty. Lake Lonsdale absorbed the flood water to an extent where the peak spill was about 30,000 ML/day. All spilled water followed its natural flood path down the Mt William Creek to the Wimmera River.

After the flood event GWMWater commenced releasing water at a controlled rate to bring levels back down to the maximum operating level.

6. Recreational Uses and Facilities Development

This management plan will be holistic in terms of its implementation. The plan will be an important document to support expenditure of local monies and State and Federal grant applications for future facility developments.

6.1 Establishment of Lake Lonsdale Advisory Committee

A local advisory committee is to be appointed to provide advice to GWMWater and the Northern Grampians Shire Council (as the boating authority) on the implementation of the management plan and local management issues.

Action: Establish a Lake Lonsdale Advisory Committee to oversee the implementation of this management plan, annual reviews of the plan and communication on environmental releases.

6.2 Safe Boating

Lake Lonsdale is a popular powered and non-powered boating venue. The *Marine Safety Act 2010* provides the legislative framework for the efficient and safe operation of vessels on State waters.

Under the *Marine Safety Act, 2010* Northern Grampians Shire Council (NGSC) is the boating authority for Lake Lonsdale. For the NGSC to meet its obligations, an upgrade of the navigational aids is required under the Schedule for Lake Lonsdale under the *Marine Safety Act 2010*. An upgrade of signage at the lake is also required to ensure compliance with Marine Safety Victoria standards.

It is proposed that the lake will be declared a five knot zone when the water level drops below 1.5 metres in depth, within the unrestricted speed area bordered by five knot buoys. The end of the boat ramp is currently at 184.8 metres AHD (12,100 ML).

Action: Upgrade navigational aids under the Schedule for the waterway including an upgrade of the signage at the lake to comply with Victorian standards.

Action: Erect signs at boat ramp to declare Lake Lonsdale a five knot zone when the water level drops below 1.5 metres in depth within the unrestricted speed area bordered by the five knot buoys and monitor and adjust where needed.

6.3 Water Skiing

For the purpose of this plan water skiing includes the use of water skis, wakeboards and ski-tubes. Lake Lonsdale is currently used for all these activities.

Trends in water skiing include the popularity of wakeboarding and wake-board boats, which can create large wakes and hence increase bank erosion risks. This will need to be monitored in the future and appropriate action taken if required.

Water Skiing, Lake Lonsdale (photo – T.Monaghan)

6.4 Recreational Facilities Development and Management

Lake Lonsdale, including the foreshore area, is managed by GWMWater. The main recreation area is currently on the northern section of the lake with several camping and day visitor areas accessed from the Stawell-Ledcourt Road. Other recreation areas include the Green Hole, located west and immediately adjacent to the dam wall, and the southern boat ramp area.

The visitor management and future developments recommended in this plan focus on these areas. Further development beyond these areas to other areas of the lake perimeter is to be considered following the implementation of this management plan.

Areas of cultural heritage and conservation significance were fenced out to exclude or reduce public access following recommendations from the 1996 management plan. These include zones 4, 6, 8, 10 and 11 as indicated in Appendix 10.4.

Ongoing management and future developments must be undertaken to comply with Victorian Government Legislation, including cultural heritage and biodiversity acts and regulations. External grant assistance will be required to undertake visitor management developments.

6.5 Improved Visitor Management

Prior to 2010, Lake Lonsdale had been empty or near empty for about nine years with minimal visitor management activity. After filling during the 2010/11

summer, the area was very busy with many campers and day trippers visiting the lake.

Current GWMWater management of this area includes slashing camp areas, erecting visitor information and compliance signs, removing or upgrading of fencing, providing and maintaining toilets and monitoring visitor adherence to the regulations.

A ranger will be employed to monitor visitor adherence to the reserve regulations and advise GWMWater of maintenance works required at Lake Lonsdale. The ranger will also collect camp fees during the summer period. The camp fees will be used towards maintenance and improvements of facilities at Lake Lonsdale.

Action: Ranger to be employed for the summer period to monitor visitor adherence to the reserve regulations and advise GWMWater of maintenance works required.

6.6 Improving Visitor Amenities

The range of natural, cultural and recreational values and permitted and prohibited activities needs to be clearly communicated at Lake Lonsdale. Good signage and information needs to be erected at the main visitor areas.

6.7 Signs

Outdated signs remain and there is an ongoing problem with vandalism of new signs. The following action was implemented in late 2010 and requires review.

Action: Review adequacy of existing sign network and develop visitor interpretation signage including recreational, cultural heritage and conservation values.

An improved road network and attractive signage is required from all directions to Lake Lonsdale.

Action: Current Lake Lonsdale access and signage to be reviewed and implemented to improve the access network.

Lake Lonsdale Visitor Information at Northern boat Ramp toilet facility. (photo – C. Eagle)

6.8 Camping

Between 1996 to the early 2000s, Parks Victoria (and its predecessors) was contracted to clean toilets and collect camp fees. This arrangement ceased several years ago. Visitor use during periods when there is adequate water in the lake for recreational activities must be managed. During these periods visitor use can be high, with potentially thousands camping at the lake during Christmas holidays, as experienced during the 2010/11 summer.

There will need to be a level of patrol and enforcement of bylaws. If camping is free, patrols will still need to be undertaken. If camping fees are collected these can contribute to overall visitor management costs and future developments.

Camping will only be permitted in designated areas on the northern side of the lake. Camping will not be permitted on the southern side of the lake due to fire risks.

Action: Camping fees to be charged consistent with facilities provided at other similar camping areas in the region, e.g. Grampians National Park.

6.9 Future Developments

The current main boat ramp area has boat trailers parked wherever users can find space, with day visitors and campers using the same area. With the level of traffic the earthen base is prone to erosion as evidenced during 2010/11. Funding has been successfully sought from the Victorian Government to upgrade the car park facility and the southern boat ramp area.

Action: Upgrade northern and southern boat trailer parking areas.

The prevailing south and south westerly winds can make launching and retrieving boats from the northern boat ramp hazardous. Several options have been considered with the preferred approach being the construction of a rock wall to protect the jetty area from south and south westerly weather and improve boat user safety. The cost of this project may require it to be a staged process, subject to the availability of grant funding.

Action: Seek funding to construct rock wall to improve the safety of launching and retrieving vessels.

Lake Lonsdale northern boat ramp with strong south westerly winds. (Photo – B.Dunn)

With the level of boat launching traffic on busy days the single lane ramp can cause a degree of frustration to users. The construction of a two-lane boat ramp, extended to the level that allows boat launching to the minimum depth when the lake is declared a five-knot waterway, is proposed. Vandalism of the existing floating jetty continues to be an issue which requires ongoing management.

Action: Upgrade boat ramp to a two lane ramp to meet visitor needs.

As the water levels in Lake Lonsdale fluctuate, a safe boat launching facility at lower water levels is required. Several options were discussed during the

management plan development process and these are to be evaluated when lower lake levels occur and the most appropriate option implemented.

Action:	Investigate options and seek funding for a low water level boat launching facility.

The only operational toilets at the lake are at the northern boat ramp. These self composting toilets require monitoring and pumping out following periods of high visitor use.

The Adam & Eve toilets at the Sandbar are in poor operational condition. The building appears to be structurally sound, however all fittings and plumbing require replacement, including the water source pump to the cisterns and taps. The condition of the septic system is unknown. An alternative new toilet facility is being investigated.

There are no toilet facilities at the southern boat ramp area. During the 2010/11 summer periods some campers brought their own portable toilets. The alternative to not providing adequate toilet facilities is that people dig their own toilet which, with the level of visitor use, is not desirable for hygiene, cultural heritage and biodiversity reasons.

Sandbar area, Lake Lonsdale (Photo – C.Eagle)

Action: Provide a toilet facility at the Sandbar.

Action: Establish a toilet facility at the southern boat ramp area.

A walking and bike riding track around Lake Fyans has been discussed locally for many years. The walking and bike riding track along a disused railway line from Stawell to Halls Gap is 50% complete (2011). Links to Lake Lonsdale have been included in this discussion.

Action: Promote inclusion of links to Lake Lonsdale in proposed walking track.

6.10 Rubbish

Historically there has been the promotion of "take your rubbish home" with rubbish skips provided in peak holiday periods at the boat ramp, Flat Rock, Diggers Rest and southern beach area.

Action: Provide rubbish collection at nominated sites and monitor use.

6.11 Providing for a Safe Visitor Experience

Visitors and campers currently light fires around the lake foreshore. This can pose a risk to reserve land and neighbouring properties and can also impact on cultural heritage, given the majority of artefacts are found close to the soil surface. The *CFA Act* (1958) requires GWMWater 'to take all practicable steps (including burning) to prevent the occurrence of fires on, and minimise the danger of the spread of fires on and from any land vested in it or under its control or management'. To meet this responsibility fires are only to be permitted in designated camp fire areas.

Action: Develop and implement an operational fire plan for Lake Lonsdale, with input from The NGSC Municipal Fire Protection Officer

Action: Develop designated fire place areas to regulation standards and publicise and enforce regulations and restrictions on the use of fire within the area.

6.12 Swimming

There are many areas suitable for swimming at the lake due to the gentle grade. Popular areas are close to each of the camp grounds, day visitor facilities and areas where there is shade.

Native vegetation, including red gum and acacia species have regenerated below the water line. The recent flooding has resulted in water levels rising so quickly that the vegetation is now standing in water. This is causing a range of issues, including the vegetation below water level being dangerous for swimmers.

There will be no designated swimming areas. Appropriate signage should be erected to warn swimmers of hazards below water level at appropriate intervals.

Action: Selective removal of this vegetation below the waterline is required in priority areas including the area east of the northern boat ramp and at Diggers Rest, Sandbar, Flat Rock and Reppers camp areas.

Action: Future management at low water levels is required when regeneration occurs below waterline in nominated priority areas.

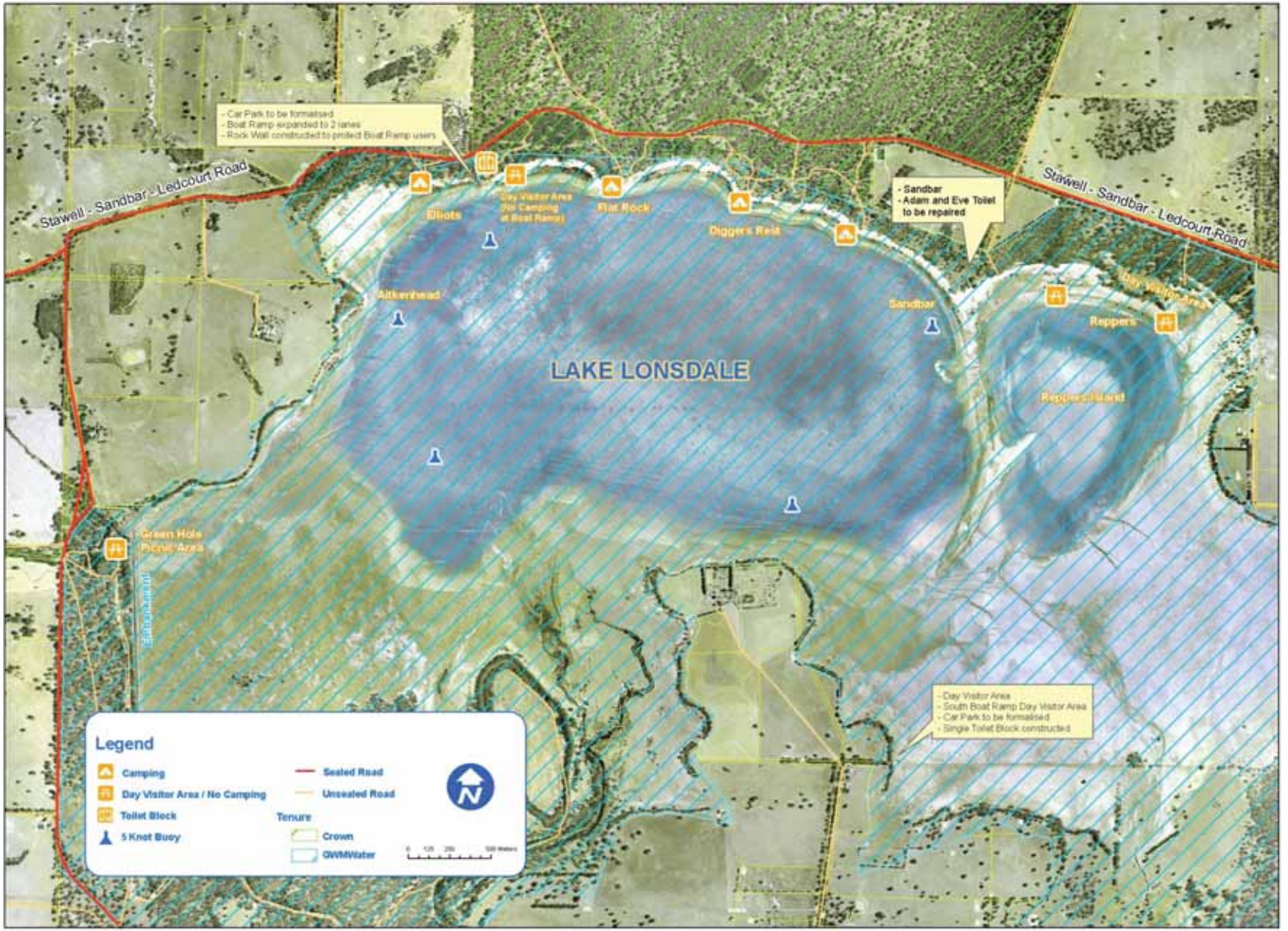
6.13 Duck shooting

Shooting of game birds is a permitted activity at Lake Lonsdale during the open season declared under the provisions of the *Wildlife Act 1975*.

6.14 Fishing

Lake Lonsdale is extremely popular for yabbying and both boat and bank fishing. Redfin breed in the lake and fluctuating lake levels and subsequent weed growth provides ideal habitat for redfin breeding.

Camping, Lake Lonsdale (Photo – K.Martin)


- Car Park to be formalised
- Boat Ramp expanded to 2 lanes
- Rock Wall constructed to protect Boat Ramp users
Stawell - Sandbar - Ledcourt Road
Elliots
Day Visitor Area (No Camping at Boat Ramp)
Flat Rock
Diggers Rest
- Sandbar
- Adam and Eve Toilet to be repaired
Stawell - Sandbar - Ledcourt Road
Day Visitor Area
Reppers
Reppers Island
Sandbar
Aitkenhead
LAKE LONSDALE
Green Hole Picnic Area
- Day Visitor Area
- South Boat Ramp Day Visitor Area
- Car Park to be formalised
- Single Toilet Block constructed
Legend
Camping
Day Visitor Area / No Camping
Toilet Block
5 Knot Buoy
Sealed Road
Unsealed Road
Tenure
Crown
GWMWater

7. Reserve Protection and Enhancement

7.1 Cultural Heritage Protection

The 1996 management plan for Lake Lonsdale identified zones 4, 6, 8, 10 and 11 (refer to Appendix 10.4) as areas of significant cultural heritage values that require a level of protection. This has previously been achieved through fencing to exclude camping and recreational vehicles. The largest known archaeological deposits occur across the north eastern part of the lake in the Sandbar area. They are prone to impacts when exposed during periods of lower water levels.

Action: Undertake a Cultural Heritage management plan for proposed works that are deemed as a high impact activity or within an area of cultural sensitivity.

7.2 Biodiversity Protection and Improvement

Lake Lonsdale is largely used for passive recreation. Although the lake surrounds have been disturbed by recreational activities, such as off road vehicles and firewood collectors it still contains significant environmental values.

The natural values from DSE Flora and Fauna databases are included in Appendix 10.3.

Action: Review grazing licences to ensure appropriate balance between fire protection and biodiversity protection.

7.3 Pest Plants and Animals

There are a number of introduced plants at the Lake Lonsdale reserve area. Introduced animals such as rabbits, hares, foxes and feral cats pose a threat to native plants and animals. GWMWater has responsibilities under the *Catchment and Land Protection (CALP) Act* 1994 to control and/or eradicate pest plant and animal species.

Action: Undertake pest plant and animal responsibilities as per *CALP Act, 1994.*

8. Monitoring and Evaluation

A review of the Management Plan will be undertaken in 2017. The implementation of this management plan will be reviewed annually by the Lake Lonsdale Advisory Committee.

9. Implementation Plan

The following priorities have been adopted:

1. Short term – year one – Public safety and basic amenities
2. Medium term –year two – Increasing visitor amenities
3. Longer term – Meeting users needs

No.	Action	Resp	Priority
1.	Establish a Lake Lonsdale Advisory Committee to oversee the implementation of this management plan, annual reviews of the plan and communication on environmental releases.	GWMWater	1
2.	Upgrade navigational aids under the Schedule for the waterway including an upgrade of signage at the lake to compliance with Marine Safety Victoria standards.	NGSC	1
3.	Erect signs at boat ramp to declare Lake Lonsdale a five knot zone when the water level drops below 1.5 metres in depth within the unrestricted speed area bordered by the five knot buoys. Monitor and adjust where needed.	NGSC	1
4.	Ranger to be employed for the summer period to monitor visitor adherence to the reserve regulations and advise GWMWater of maintenance works required	GWMWater	1
5.	Review adequacy of existing sign network and develop visitor interpretation signage including recreational, cultural heritage and conservation values.	GWMWater	3
6.	Current Lake Lonsdale access and signage to be reviewed and implemented to improve the access network.	NGSC	3
7.	Camping fees are to be charged consistent with facilities provided at other similar camping areas in the region – eg Grampians National Park.	GWMWater	1
8.	Upgrade northern and southern boat trailer parking areas.	GWMWater	1
9.	Seek funding to construct rock wall to improve the safety of launching and retrieving vessels.		1
10.	Upgrade boat ramp to a two lane ramp to meet visitor needs.		2
11.	Provide a toilet facility at the Sandbar.	GWMWater	2
12.	Establish a toilet facility at the southern boat ramp area.	GWMWater	2
13.	Promote inclusion of links to Lake Lonsdale in proposed walking track.	NGSC	3
14.	Provide rubbish collection at nominated sites and monitor use.	GWMWater	1
15.	Develop and implement an operational fire plan for Lake Lonsdale.	GWMWater	1
16.	Develop designated fire place areas to regulation standards and publicise and enforce regulations and	GWMWater	2

	restrictions on the use of fire within the area.		
17.	Selective removal of vegetation in low water areas is required in priority areas including the area east of the northern boat ramp and at Diggers Rest, Sandbar, Flat Rock and Reppers camp areas.		2-3
18.	Future management is required at low water levels is required when regeneration occurs below waterline in nominated priority areas.		2 and as required
19.	Undertake a Cultural Heritage management plan for proposed works that are deemed as a high impact activity or within an area of cultural sensitivity.	GWMWater	1
20.	Review grazing licences to ensure appropriate balance between fire protection and biodiversity protection.	GWMWater	2
21.	Undertake pest plant and animal responsibilities as per *CALP Act, 1994.*	GWMWater	1

10. Appendices

10.1 Lake Lonsdale History

Known aboriginal occupation in the region, based on dates of archaeological sites in the Grampians, has been recorded at around 5,000 years, but probably extends back much further. Lake Lonsdale is located within the northern section of country occupied by the Djab Wurrung Aboriginal people. The country to the north of the lake was occupied by the Jardwadjali people. The Djab Wurrung people are believed to have referred to the lake as Djakil, a generic term meaning "lake". Through the kinship affiliations and cultural similarities it is believed that the Djab Wurrung and the Jardwadjali clans formed a large "regional, cultural and economic bloc". Because of strong group affiliations, the lake area was a focal point for gatherings and ceremonies from other Djab Wurrung clan groups and other language groups. These came from as far away as Portland on the coast and from eastern Wergaia and the Murray River people to the north.

European history of Lake Lonsdale commenced in 1836 when it was named by Major Mitchell during his expedition through the Wimmera. He had sighted the water from the summit of Mt William and named it after the Commandant of Port Phillip at that time, Captain William Lonsdale.

The lake was originally a large shallow depression. The deepest area of the lake, referred to as "the lake itself" was located west of the sandbar. East of the sandbar was a shallow marshy area known as Carfraes Swamp. In 1840 the first of the early European settlers to make use of the Lake Lonsdale area was Captain Briggs and others followed. The discovery of gold in the 1850's brought thousands of people to the district and the demand for food was great. The area around the lake at this time was known as the Pleasant Creek Goldfields Common. It was controlled by a committee of management and used for stock grazing purposes, fattening cattle and sheep to supply butchers. Although Lake Lonsdale was only a shallow basin with a high evaporation rate that often went dry, it played a significant part in the early generations of settlers who were dependent on its water for stock, domestic and recreational use.

A petition in 1880's by miners to construct a weir across the western end of the lake for water conservation was sent to the Minister for Water Supply.

In 1897 surveys by government officers were conducted. Construction of the lake commenced in 1898 and was completed in 1903.

10.2 Catchment Description

The Lake Lonsdale (Mt William Creek) catchment is 101,500 ha in area.

Lake Lonsdale has a catchment area of 1015 square kilometres and is located to the east of, but partly including, the Grampians. The part of the catchment that is located in the Grampians has an area of about 260 square kilometres and is characterised by steep gradients, well defined streams and heavy eucalypt forest cover. Fyans Creek is the major tributary originating in the Grampians. The 740 square kilometres to the east contrasts strongly to this with generally flatter gradients and cleared undulating pasture predominating. This area is drained by Mt. William Creek. In its lower reaches, Mt. William Creek is poorly defined, braided in places, and heavily choked with Cumbungi reed and silt.

Clearing of the catchment has occurred since European settlement. The Horsham Flood Study (SR&WSC, 1982) reports that 87% of the catchment was forested in pre-European times whereas by 1964 the land use is summarised in Table 2-1.

There is evidence of dry-land salinity manifesting itself in the form of bare soil areas and eroding gullies.

Culture	Percentage of Catchment Area (%)
Cultivated land	15.9
Pasture	58.5
Forest	24.1
Lakes	1.5

Table 2-1. Land Use in Lake Lonsdale Catchment (1964)

Inflow to Lake Lonsdale averages 27,000 ML/year with much of the flow occurring during the period July to October.

The water quality in Lake Lonsdale ranges from recorded readings of 490 to 3800 EC with an average of 950 EC. Turbidity ranges from 5 to 150 NTU with an average of 28 NTU.

10.3 Existing Values

Lake Lonsdale has a range of natural, cultural, recreational and tourism values including:

Natural values
Department of Sustainability and Environment databases indicate that the following flora species have been recorded at Lake Lonsdale:

Flora species		**Victorian Listing**
Comosperma polygaloides	Small Milkwort	vulnerable
Thryptomene calycina	Grampians Thryptomene	rare
Quinetia urvellei	Quentia	rare

Department of Sustainability and Environment databases indicate that the following fauna species have been recorded at Lake Lonsdale:

Fauna species		**Victorian Listing**
Alcedo azurea	Azure Kingfisher	Near threatened
Anas rhynchotis	Australasian Shoveler	vulnerable
Ardea modesta	Eastern Great Egret	endangered
Aythya australis	Hardhead (Duck)	vulnerable
Biziura lobata	Musk Duck	vulnerable
Cercartetus nanus	Eastern Pygmy Possum	Near threatened
Climacteris picumnus victoriae	Brown Tree Creeper	Near threatened
Isoodon obesulus obesulus	Southern Brown Bandicoot	Near threatened
Ixobrychus minutus dubius	Little Bittern	endangered
Litoria raniformis	Growling Grass Frog	endangered
Petaurus norfolcensis	Squirrel Glider	endangered
Phalacrocorax varius	Pied Cormorant	Near threatened
Plegadis falcinellus	Glossy Ibis	Near threatened
Stictonetta naevosa	Freckled Duck	endangered
Varanus varius	Lace Monitor	

Cultural values

For many years, Lake Lonsdale has been known to have significant aboriginal artefacts and sites. In 1992, Brambruk contracted the Victorian Archaeological Society (now known as Aboriginal Affairs, Victoria or AAV) to undertake a survey of the foreshore area to determine its significance.

Victorian Archaeological Survey (VAS_ released its internal report to Brambruk in October, 1992. Its major findings are summarised as follows:

a) The survey located and recorded stone artefacts scatters, mounds, quarries, scarred trees and a possible ceremonial ring.
b) Previous research in the area had also located human burial sites.
c) The open stone scatter sites along the edge of the lake are comprised of a wide variety of raw material and artefact types.
d) The density of artefacts, including ochre and hearth materials was very high.
e) The artefacts are resting on the clay surface and are periodically covered by deposited sand.
f) Stone artefact scatters have been extensively collected over the years.
g) European heritage in the area dates back to the 1836 when Major Thomas Mitchell named Lonsdale after the first government administrator in the Port Phillip District.
h) In 1903 the Mt William Creek, then known as the Little Mt William Creek, was dammed and the lake size increased. A contour map from 1867 shows that the area west of the sand bar was the original lake, while the area east of the sandbar was a swamp. In the mid 1800s this swamp was known as Carfrae's swamp, after John Carfrae, the owner of the Ledcourt homestead from 1847 to 1888.

10.4 Future Lake Operating Scenarios

Lake Lonsdale is a large, shallow reservoir located on the Mt William Creek. It has a very large catchment area. The Mt William Creek catchment is not reliable during times of drought but can be a substantial producer of water during wetter years.

Lake Lonsdale was originally developed to supply the Wimmera-Mallee Stock and Domestic channel system; however, its role has changed considerably following completion of the Wimmera Mallee Pipeline. Lonsdale continues to play a significant role in the overall water supply system, is a key source of water for the environment, and is highly valued for its recreational use.

Because of its large surface area, Lake Lonsdale has very high evaporative losses. To assist in reducing evaporation losses, a Maximum Operating Level (MOL) has been introduced which is 0.50 m below the spillway level.

The principal operating objective for Lake Lonsdale is to fill the lake as close to the MOL as practicable throughout the year. When levels increase above MOL, water will be released and directed via the Mt William Creek to the Wimmera River, transferred to Taylors Lake or routed through Taylors Lake back to the Wimmera River if the water quality is suitable.

The outlet capacity of Lake Lonsdale is nominally 600 ML/day, but releases are generally limited to a maximum of 300 ML/day owing to the capacity of the channel and waterways downstream and to minimise inconvenience to downstream landowners.

The MOL at Lake Lonsdale introduces limited capacity to absorb flood flows compared to previous operating practices. Lake Lonsdale levels are not actively managed during times of flood, as the outlet does not provide any significant capacity to release water quickly. During a major flood, access to the manually-operated valves is not always possible, further limiting the ability to release water in response to inflows.

Mt William Creek is used to convey water downstream from Lake Lonsdale, delivering mostly environmental water.

With the completion of the WMP, Lake Lonsdale plays a key role in returning water to the environment by providing environmental passing flows. These rules are in place between the months of June to November inclusive and provide a release of up to 60 ML/day into the Mt William Creek as long as there are inflows occurring at the same time. This water is directed to the Wimmera River.

The operation of Lake Lonsdale needs to be coordinated with the water quality requirements of Taylors Lake. The Mt William Creek below Lake Lonsdale is known for its good water quality and is preferentially harvested into Taylors Lake. However, water held within Lake Lonsdale can often be of relatively poor quality

and so releases can interfere with Taylors Lake operations downstream. This needs to be carefully managed. Figure 2 shows the general layout of Lake Lonsdale in relation to nearby reservoirs.

Lake Lonsdale has a long history of providing recreation for the region. The operation of Lake Lonsdale will be managed to facilitate recreation as much as practicable. However, the role of Lake Lonsdale within the broader water supply system will always take precedence. At the time this document was prepared, GWMWater had formed a working group to prepare a management plan for Lake Lonsdale. This plan will assist with identifying how operations can be managed to maximise recreational activities in the future.

Table 3: Lonsdale Facts and Figures

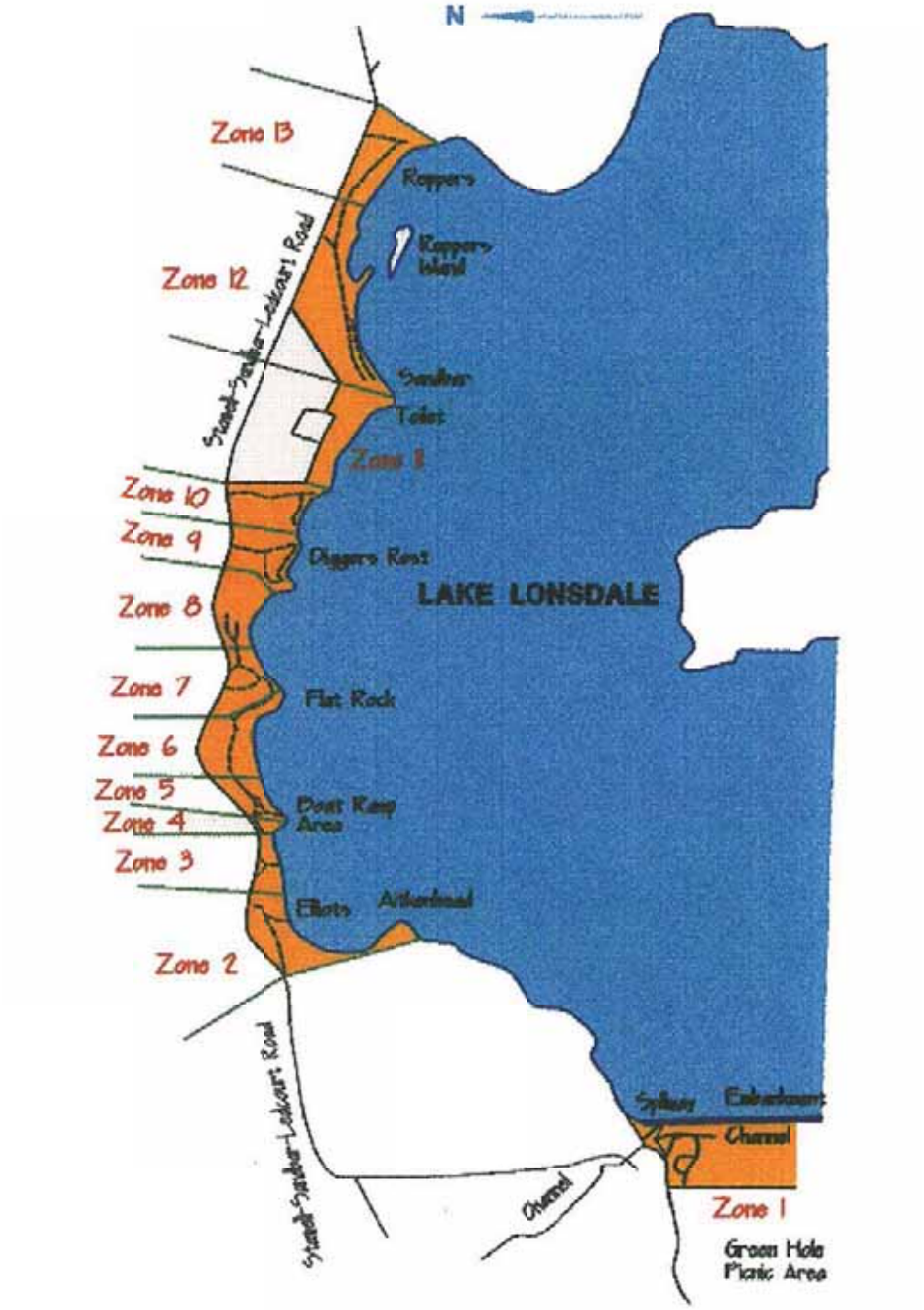
Full Supply Level (FSL)	187.62m AHD
Full Supply Volume	65,480 ML
Maximum Operating Level (MOL)	187.12m AHD
Maximum Operating Volume	53,300 ML
Primary Spillway Length	244m
Primary Spillway Capacity	88,130 ML/d
Secondary Spillway Length	440m
Secondary Spillway Capacity	149,470 ML/d
Outlet Capacity	600 ML/d
Catchment Area	1,015 km²
Surface Area when at FSL	26 km²
Major Tributaries	Mt William Creek and Fyans Creek

Operating Rules

- To operate to a MOL 0.50 m below the spillway throughout the year.
- To provide environmental passing flows between the months of June and November inclusive.
- To operate the reservoir with consideration to its recreation potential.
- To operate the reservoir with due consideration to the water quality, water supply and harvesting imperatives of Taylors Lake

10.5 Management Zones – Northern area of Lake Lonsdale – extract from 1996 Lake Lonsdale Management Plan

Figure 3 - MANAGEMENT ZONES



10.6 Existing Legislation and Guidelines

Water Act 1989
Lake Lonsdale is managed under the *Water Act 1989*, in accordance with the provisions of the Bulk Entitlements for the Wimmera Glenelg system.

Marine Act 1988
One of the main purposes of this Act is to provide for the efficient and safe operation of vessels on State waters. Northern Grampians Shire Council is the boating authority for Lake Lonsdale.

Planning and Environment Act 1987
The purpose of the Planning and Environment Act is to establish a framework for planning the use, development and protection of land in Victoria in the present and long-term interests of all Victorians. The State Planning Policy Framework provides for the Local Planning Policy Framework, which includes the Municipal Strategic Statement and local planning policies. At a municipal level, planning schemes include zones which determine both permitted and prohibited land uses.

Aboriginal Heritage Act
The aim of the Aboriginal Heritage Act is to provide for the protection of areas or items of cultural heritage significance within Victoria.

Aboriginal Affairs Victoria (AAV) is the primary agency that provides advice to the Victorian Government on Aboriginal issues and administers the legislation that protects Aboriginal cultural heritage. Martang is the Registered Aboriginal Party (RAP) applicants for the area containing Lake Lonsdale.

Lake Lonsdale and the surrounding reserve land is mapped as an area of Cultural Heritage Significance. AAV has provided information to GWMWater from their databases on known sites of Cultural Heritage and there are registered Aboriginal cultural heritage places including artefact scatters, earth features and scarred trees.

The implementation of the recommendations of this Management Plan will in some cases require actions to comply with the Act:

a) A Cultural Heritage Management Plan (CHMP) must be undertaken if proposed works or activity are a 'high impact activity' according to the Aboriginal Heritage Act Regulations, (i.e. road or bicycle track that extends for more than 500 metres, construction of three or more dwellings on a lot) and/or is within an 'area of cultural sensitivity', (i.e. lunette on eastern side of lake, 50 metres from registered cultural heritage place, 200 metres from waterway or prior waterway). Some activities are only high impact if they result in 'significant ground disturbance'.
b) If a CHMP is not required, depending upon the impact of the activities, the other courses of action include:
    i. a voluntary Cultural Heritage Plan,

ii. a basic agreement with the RAP on the management of Aboriginal Heritage Issues for the project may include actions such as a site monitor present during works.

Other Acts

a) *Environment Protection and Biodiversity Conservation (EPBC)* Act 1999 - This act requires that an action that is likely to have a significant impact on a matter of national environmental significance requires approval from the Federal Environment Minister.

b) *Flora and Fauna Guarantee (FFG) Act 1988* - This is the primary legislation for the protection of flora and fauna in Victoria. The purpose of the Act is to protect and conserve a wide range of species and communities, manage threatening processes, maintain genetic diversity and encourage cooperative management;

c) *Victorian River Health Strategy 2002* – This strategy provides an overview of government policy relating to the management of activities affecting river health, including environmental flows and water allocation;

d) *National Strategy for the Conservation of Australia's Biological Diversity 1998* – This strategy relates to the conservation of biodiversity, the sustainable use of its components and the equitable sharing of benefits arising out of the utilisation of natural resources;

e) *Victoria's Biodiversity Strategy 1997* – This strategy is essentially a state analogue of the commonwealth strategy, providing for the conservation of biodiversity in Victoria;

f) *Catchment and Land Protection Act 1994* - Aims to set up a framework for the integrated management and protection of catchments and set up a system for the control of noxious weeds and pest animals

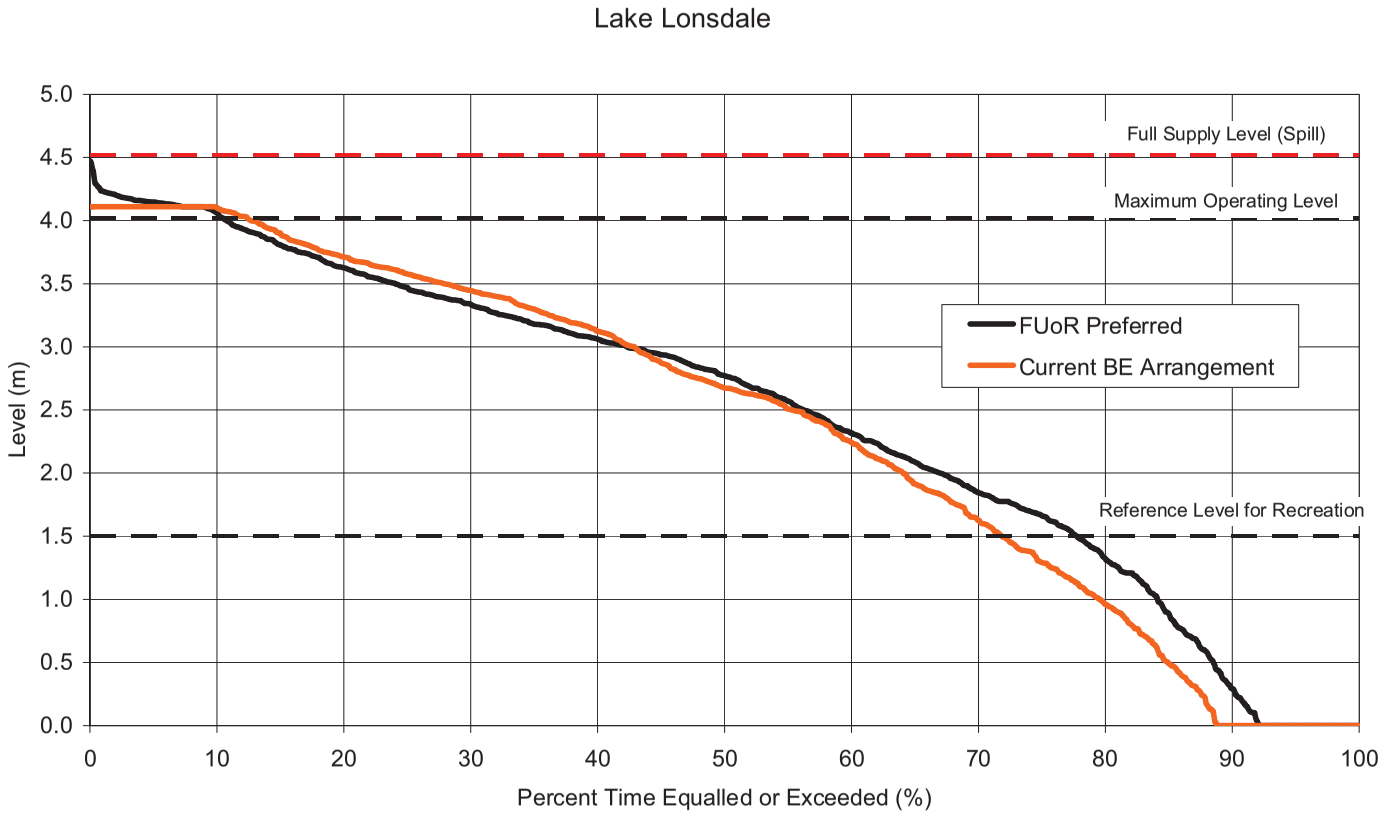
g) *Fisheries Act 1995* and *Wildlife Act 1975*

h) *Environment Protection Act 1970*

i) *Litter Act 1983*

j) *CFA Act 1958*

10.7 Lake Lonsdale Water Levels



Key Points that Modelling indicates:

- Lake Lonsdale will have a suitable water level for recreation (1.5 metres) around 70% of the time
- For around 20 % of the time it will be marginal for recreational boating
- Lake Lonsdale is expected to be empty around 10% of the time

- FUoR = Future Use of Reservoirs preferred operating rules (2007)
- Current BE arrangement = Wimmera Glenelg Bulk Entitlement (2010)
- This modeling includes all inflows and outflows to Lake Lonsdale including evaporation and demands (environmental).

References:

Russell, L (1992) An Archaeological Survey of Lake Lonsdale – A report to Brambuk Incorporated. Victorian Archaeological Survey.

Kelton, J (1995) An Archaeological Survey and Heritage Assessment: Lake Lonsdale Recreation Area, Near Stawell and Halls Gap, Western Victoria.