



Rocklands Reservoir Operating Rules

Rocklands Reservoir is the largest reservoir within GWMWater's water supply system and is located on the Glenelg River. Originally constructed to supply the Wimmera-Mallee Domestic and Stock channel system, water held by Rocklands Reservoir is now used for many different purposes. A unique feature of Rocklands is that all Entitlement Holders, including the environment, are able to be supplied with water from Rocklands Reservoir.

The range of users is as follows:

- > Coliban Water can be supplied from Rocklands, via Taylors Lake, through the Wimmera Mallee Pipeline.
- > Wannon Water uses its entitlement to supply the towns of Balmoral and Hamilton directly from Rocklands.
- > GWMWater supplies customers both directly from Rocklands (e.g. Iluka as an industrial customer) and via transfers to Taylors Lake for delivery through the Wimmera Mallee Pipeline and to Wimmera Irrigation Area customers.
- > Some water held within Rocklands is also available as 'growth water'. This is available both as a supply direct from Rocklands or for supply via the Wimmera Mallee Pipeline after transfer to Taylors Lake.
- > GWMWater is required to supply compensation flows and a share of the environment's regulated entitlement to the Glenelg River from Rocklands.
- > Environmental passing flows are required to be released from the reservoir.



This range of users means there are many diverse and some times competing needs in managing water quality and access to water, particularly at very low volumes.

Rocklands Reservoir can store up to 348,300 ML at the spillway crest level of 195.47 m AHD and is termed the Full Supply Level (FSL). On completion of the Wimmera Mallee Pipeline, Rocklands Reservoir will be operated to a Maximum Operating Level (MOL) of 194.10 m AHD or 261,500 ML. The MOL is possible because the Wimmera Mallee Pipeline has reduced the need to harvest and store as much water for consumptive use, and ensures the environment receives its share of the Wimmera-Mallee pipeline savings contracted by the State and Commonwealth Governments. This MOL also reduces the chance of uncontrolled spills and evaporation losses from the reservoir.

The fundamental operating rule for Rocklands Reservoir is to operate the reservoir up to its MOL throughout the year. With the advent of carryover under the Bulk Entitlement, the Storage Manager (GWMWater) may ask entitlement holders if they would like Rocklands to be held above the MOL for the purpose of storing carryover.

Rocklands Reservoir is also to be operated to a target minimum operating level of 189.06 m AHD or 69,600 ML. This lower target is aimed at facilitating suitable levels for recreation, with the additional benefit of assisting to manage water quality, particularly salinity levels, by buffering poor quality inflows during low inflow years.

Rocklands Reservoir has a nominal outlet capacity of 600 ML/day, although this is limited to about 400 ML/day by the operation of installed carp screens. Inflows to Rocklands can far exceed the capacity to release water (e.g. the January floods saw daily inflows of approximately 7,000 ML/day). As levels approach the MOL, water surplus to that required to meet entitlement holder demands is actively transferred to downstream reservoirs where space exists (i.e. Taylors Lake, Toolondo Reservoir and possibly Green Lake – pending finalisation of management rules). It is still possible for levels to rise above the MOL and when this happens plans will be developed to draw levels down to the MOL.

It is possible that downstream demands could be greater than the ability to deliver from Rocklands and there may be competing needs for channel capacity. When this occurs, deliveries to entitlement holders will take precedence over transfers to downstream reservoirs. Passing flows may also be altered in consultation with the environmental entitlement holder to free up channel capacity in the short term.

Environmental flows will primarily be delivered direct to the Glenelg River directly downstream of the dam wall. It is also possible, however, to deliver environmental flows from the 5 mile and 12 mile escapes on the Rocklands outlet channel. Figure 1 presents the general layout of Rocklands Reservoir. This may be done to spread larger flow rates across multiple delivery points to improve the efficiency of water delivery during dry years or to reduce the potential for flooding downstream of the wall during wet years.

Rocklands can also deliver environmental water to the Wimmera basin for the Wimmera River, lower MacKenzie River, Burnt Creek and Bungalally Creek. Environmental deliveries will be determined through environmental operating plans developed in consultation with the Victorian Environmental Entitlement Holder and the Wimmera and Glenelg-Hopkins Catchment Management Authorities.

Compensation flows are required to be delivered to the Glenelg River typically between November and May of each year. These flows will be planned to be complementary to environmental water releases. Glenelg-Hopkins CMA is required to develop flow plans for this entitlement on behalf of and in consultation with GMMWater.

If Rocklands is required to transfer water to downstream reservoirs, it is desirable for this to happen during the inflow season (May to November inclusive) to minimise transmission losses. However transfers during warmer summer months may also be required, for example, to support Taylors Lake in delivering irrigation water.

In balancing water resources across the water supply system, an objective will be for transfers to occur from Rocklands so that levels are not drawn down below its target minimum operating level. However, if the available water is low and Rocklands is at risk of dropping below this level, the balance of the resource will be utilised to ensure all basic supplies can be delivered to respective entitlement holders. Basic needs will always be prioritised above other possible uses for that water including, for example, transfers to Taylors Lake, Green Lake or Toolondo Reservoir.

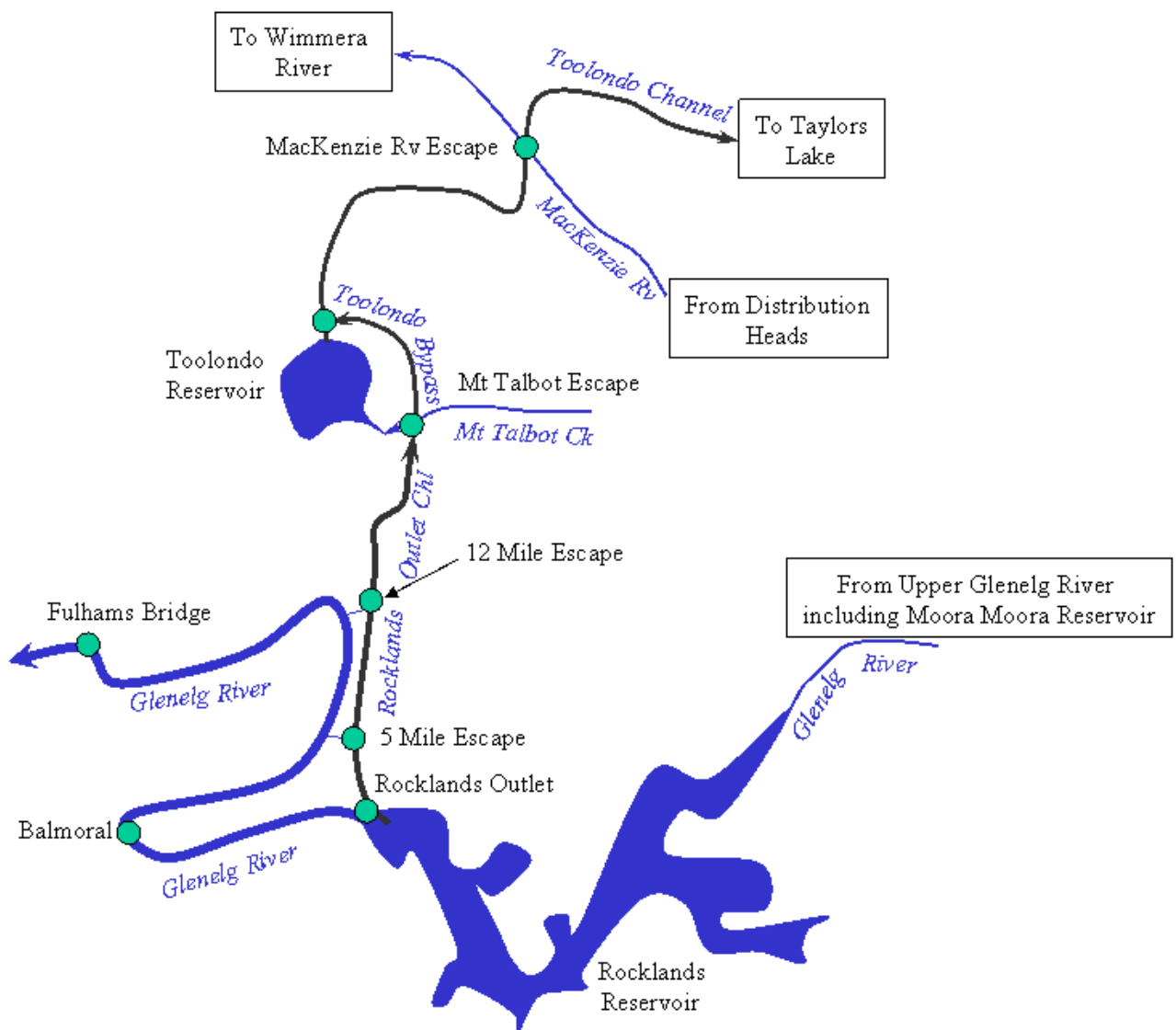


Figure 1: General layout of Rocklands Reservoir

Overview of January 2011 Flood Event

Rocklands Reservoir commenced the January flood event holding 84,200 ML. Within one week the volume held increased to over 110,000 ML with total inflows as a direct result of the January rain resulting in over 40,000 ML of inflows being received over the following days. Peak inflows reached about 7,000 ML/d. Rocklands Reservoir did not spill.

Rocklands Reservoir Facts and Figures	
Full Supply Level (FSL)	195.47 m AHD
Full Supply Volume (ML)	348,300 ML
Maximum operating level (MOL)	194.10 m AHD
Maximum operating Volume (ML)	261,500 ML
Dead Storage	3,000 ML
Spillway Length	154.53 m
Spillway Capacity	66,000 ML/d
Inlet Channel Capacity	none
Maximum Discharge	600 ML/d
Catchment Area	1,355 km ²
Surface Area when Full	6,750 ha
Major Tributary	Glenelg River
Average Annual Inflow	83,000 ML

Current Operating Rules

- > To operate up to the Maximum Operating Level as much as practicable.
- > To remain above the minimum operating level as much as practicable.

Proposed Operating Rules

- > To operate up to the Maximum Operating Level as much as practicable. *
- > To remain above the minimum operating level as much as practicable.
- > To consult with entitlement holders when approaching the prospect of exceeding these targets.

Glossary

AHD – Australian Height Datum, used for altitude measurement. Zero is the mean sea level for the period 1966-68.

Freeboard - Height between normal maximum operating level and the top of the bank or spillway.

Full Supply Level - The normal maximum operating level of a reservoir behind a dam.

* – these rules are not subject to negotiation as they are necessary for water supply purposes.

Reference: Grampians headworks system fact sheet

September 2011