

Dam Improvement Program

Lake Macdonald Dam Upgrade

February 2020



Lake Macdonald Dam (Six Mile Creek Dam) is scheduled to be upgraded as part of our Dam Improvement Program. It will be the first major upgrade for the dam since the wall was raised in 1980. The upgrade will involve building a new concrete spillway and reconstructing the embankments to better protect the structure against extreme events of nature.

Dam Safety

In Queensland, dam owners are responsible for the safety of their dams under the Water Supply (Safety and Reliability) Act 2008 (the Act). The Department of Natural Resources, Mines and Energy requires Seqwater to comply with the Queensland Dam Safety Management Guidelines under the Act. Like all dam operators across the country, we also seek to meet the national guidelines set by the Australian National Committee on Large Dams (ANCOLD). Most of the dams we manage were originally built in the 1960s and 1970s (some even earlier). Since then, there have been significant changes including:

- population growth downstream
- advances in dam design
- new ways of estimating extreme rainfall and flood events
- improved understanding of earthquake probabilities and loads.

In 2012-13 we commissioned an independent review which found improvements are needed at a number of our 26 regulated dams, including Lake Macdonald, to meet the dam safety guidelines and bring them in line with the latest engineering standards.

About the upgrade

Seqwater assessed a number of design options and determined that upgrading the existing dam is the most cost-effective solution to improving dam safety, while also maintaining water supply and flood mitigation benefits, and keeping the lake open to recreation in the future.

Seqwater selected a combined ogee (pronounced O.G.) and labyrinth spillway option. The unique spillway design was selected to ensure safe passage of fish and turtles downstream when the storage is full and also to efficiently control water flowing out of the dam.

The new spillway will be wider and will work in a similar way to the existing spillway. When water reaches the dam's full supply level, it will spill over the lower ogee spillway and into Six Mile Creek. In a large flood event, the upper labyrinth spillway will have the benefit of allowing additional outflow to protect the dam and prevent the water from flowing over the earth embankments.



Image: Concept design of the spillway to be constructed at Lake Macdonald

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Lake Lowering

To safely build the new dam we will first need to temporarily lower the water level in the lake to about 5 – 10 per cent of it's full supply level.

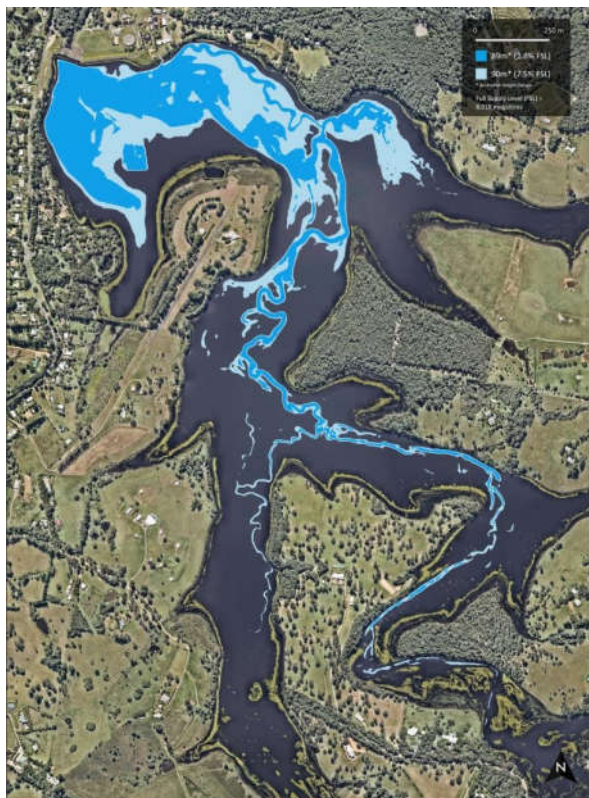


Image: Indication of temporary lake level

Lowering water levels is an industry accepted practice to manage dam safety and stability during upgrades.

Seqwater will be maximising production from the Noosa Water Treatment Plant ahead of any lowering, as well as making its required environmental releases into Six Mile Creek. The lake will return to the current Full Supply Level following completion of the construction work and adequate rainfall.

Timing

We will start a range of enabling construction activities for the project in 2020, including replacing the existing access road bridge to the Noosa Water Treatment Plant and relocating existing services and utilities.

We will also increase resilience in the SEQ Water Grid, so that we can continue to provide water to the Noosa region during the construction period. These activities will have the long-term benefit of permanently improving water supply security for Noosa and the Sunshine Coast.

The lake lowering is scheduled to take place in 2021, weather permitting. This will provide us time to finalise our aquatic management plan and to prepare for the relocation of aquatic life. The lake lowering and overall project timing will remain subject to further water supply security assessments which will be undertaken during 2020 and early 2021.

Living near our dams

Lake Macdonald Dam is an urban area, so it's important neighbours and people downstream know what to do in the unlikely event of an emergency. The dam has an Emergency Action Plan in place to enable us to respond in partnership with emergency services and local council.

Emergency services have a range of ways to warn the community about severe weather and other emergencies that require preparation and action at the household level. For help with preparing an emergency kit and evacuation plan, visit getready.qld.gov.au

Keeping you informed

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