

Water Management Review

South Esk – Great Lake Catchment



Key Issues

- Irrigation water availability
- Agricultural productivity

Related WMR Technical Studies

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Technical Study – Trevallyn Spill Assessment

The South Esk – Great Lake Water Management Review

The Trevallyn Spills Assessment is part of Hydro Tasmania's South Esk – Great Lake Water Management Review (SEGL WMR). The WMR program examines Hydro Tasmania's water management practices in each of its catchments. This assessment is one of 12 studies in the SEGL catchment. The studies were carried out following extensive identification of aquatic environment and water management issues, involving consultation with stakeholders throughout the catchment. The issues identified are documented in two reports: *Environmental Review: Great Lake – South Esk Catchment* and *Community Consultation Report: Great Lake – South Esk Water Management Review*. The outcomes from the technical studies will ultimately be incorporated into an Aquatic Environment Management Program for Hydro Tasmania.

Issues Investigated

The main issues identified during the SEGL WMR process were stakeholder concerns regarding the availability of water for irrigation purposes upstream of Trevallyn Dam, and Hydro Tasmania concern that water was being illegally taken during high flow periods when there was no spill at Trevallyn Dam.

Background and Information Gaps

The Trevallyn Dam is located on the lower South Esk River, near Launceston. The Trevallyn power scheme has a catchment area comprising the entire South Esk Basin (including the sub-catchments of the Meander, Macquarie and South Esk rivers) and includes the Great Lake diversion.

The South Esk Basin is primarily an agricultural region. Areas of the catchment are subject to low rainfall, and irrigation water availability is a big issue in the catchment. While Hydro Tasmania operations do not influence these specific issues, there is potential for floodwaters that would normally spill over Trevallyn Dam to be utilised by irrigators upstream of Trevallyn Dam, thus assisting with concerns about access to water.

Hydro Tasmania has legal rights to the water in the South Esk Basin upstream of Trevallyn Dam, excluding stock and domestic water, and an agreed quantity that is made available for irrigation allocations by DPIWE. Hydro Tasmania was concerned about the amount of water that might currently be taken illegally, and the Tasmanian Farmers and Graziers Association (TFGA) and DPIWE were seeking to increase the overall amount of water that could be allocated to irrigators in the catchment. Therefore developing rules for better management of extraction during periods of spill was desirable from all perspectives.

Technical Studies

Aims

Hydro Tasmania's objective in carrying out this assessment was to work with DPIWE and the TFGA to develop rules that would optimise the abstraction of water from tributaries in the South Esk Basin during floods. The intention of these rules was to increase the overall amount of water that is legally available to irrigators, thus reducing the amount of water being abstracted illegally during floods when Trevallyn Dam is not in spill.

Assessment of Issues

A hydrological analysis was carried out to determine a trigger level flow at which irrigators would be permitted to abstract water from the tributaries in the South Esk catchment for a given period of time after the flow is exceeded. There were two criteria that had to be met in setting the trigger flow. These were:

- the dam must be in spill so that water being abstracted would not result in lost generation costs to Hydro Tasmania; and
- the environment downstream of Trevallyn Dam must not be adversely affected.

To ensure that these criteria were met, it was determined that the dam should be spilling at a volume of approximately 20 cumecs. This means that the frequency of spills, and the volume of small spills under 20 cumecs are completely unaffected. For a spill of 20 cumecs to occur at the dam, there needs to be a total inflow to Lake Trevallyn of 110 cumecs.

Flows that would ensure the 110 cumec inflow target for Lake Trevallyn were calculated for upstream flow monitoring sites on the Meander, Macquarie and South Esk rivers. The flow from these three sites was then analysed to provide a total catchment trigger flow at which water could be abstracted. The hydrological review indicated that an inflow of more than 110 cumecs to Lake Trevallyn (resulting in a spill at the dam of 20 cumecs or more) typically occurs when the combined flow at the three monitoring sites is at least 70 cumecs.

Outcomes

Hydro Tasmania and DPIWE are developing a protocol that allows for temporary allocations under section 90 of the *Water Management Act 1999* to be granted to irrigators whenever combined flows at Macquarie River downstream of Elizabeth River, Meander River at Deloraine Bridge and South Esk River at Llewellyn exceeds 70 cumecs.

Temporary allocations under this system will have a term of five days; however, if at the end of the five-day term Trevallyn Dam is still spilling, then the period where water is taken will be extended until Trevallyn Dam stops spilling. In addition, any time Trevallyn is spilling, water may be taken.

This protocol increases the likelihood that the water abstracted during floods will be taken legally at times when Trevallyn dam is in spill. The trigger flow has been set at a level that ensures that the frequency of spills down the Cataract Gorge is not affected, and that small spills are not reduced in volume. No adverse environmental effects were identified as arising from the adoption of this protocol.

In summary, Hydro Tasmania commits to making the appropriate hydrological data available to DPIWE, in order to enable them to issue temporary water licences when the Trevallyn Dam is spilling.