

**Submission
No 35**

INQUIRY INTO ADEQUACY OF WATER STORAGES IN NSW

Organisation: Tweed Shire Council

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Dear Sir

Submission to NSW Legislative Council Inquiry into the Adequacy of Water Storages in NSW

Please find following Council's submission to the Inquiry into the adequacy of water storages in NSW being carried out by the NSW Legislative Council Standing Committee on State Development.

The submission reports on the adequacy of water storages within the Tweed Shire local government area.

Relevance to Tweed

As a Local Water Utility (LWU) Tweed Shire Council is responsible for the supply of water to the urban and industrial population of the shire. Operation of Council's water supply systems also entails meeting the water needs of relevant environmental licensing requirements.

Since 2010, two preferred augmentation options have been either i) recommended by Council officers or ii) identified by Council, and both are water storages, namely:

- Increasing the capacity of the existing Clarrie Hall Dam at Doon Doon Creek
- Building a new water storage on Byrrill Creek

It is therefore considered relevant for Council to provide a submission to the inquiry.

Terms of Reference

a) The capacity of existing Tweed water storages to meet agricultural, urban, industrial and environmental needs

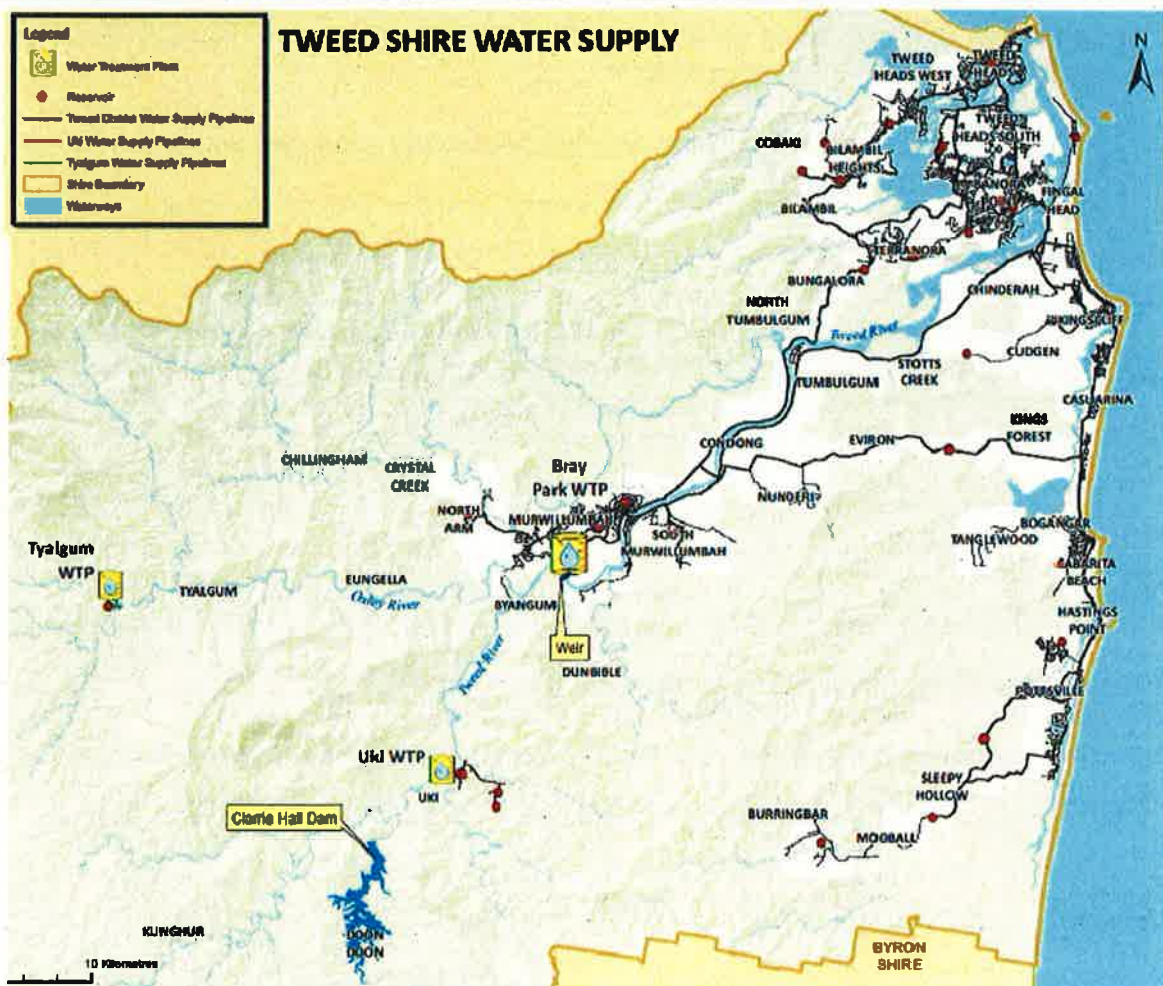
Background to the Tweed Water Supply System

There are three water supply networks in the Tweed Shire. Two small networks supply the rural villages of Tyalgum and Uki, while the major network supplies Tweed Heads and surrounds, the Tweed Coast and the Murwillumbah district.

Council operates three water storages, namely Clarrie Hall Dam, Bray Park Weir and Tyalgum Weir.

Water Storage	Useable Storage Volume (ML)
Clarrie Hall Dam	15,000
Bray Park Weir	640
Tyalgum Weir	7.5

The major network (Tweed District Water Supply - TDWS) draws its water from the Tweed River, upstream of the Bray Park weir. The weir acts as a tidal barrage, preventing salt water from the estuary entering the fresh water supply. Flows into the weir are supplemented by releases from Clarrie Hall Dam situated on Doon Creek - a tributary to the Tweed River.



It is important to note that Clarrie Hall Dam is only used to supplement the town water supply for urban and industrial needs. For much of the year it is natural flows in the Tweed River that supply our water. In general, water is only released from the dam when flows in the freshwater section of the Tweed River fall below 95percentile, usually during late winter and spring.

These releases contribute to environmental flows in the river during the drier months of the year, with the water flowing down Doon Doon Creek and into the Tweed River upstream of Uki village. It then flows down to Bray Park Weir, where it is extracted, treated and pumped via a network of over 700km of pipes to 41 reservoirs throughout the shire.

Capacity of existing Tweed District Water Supply (TDWS)

Despite significant ongoing reductions (of up to 40%) in per capita water use, Council's *Demand Management Strategy* (DMS) (2009) found the existing water supply capacity will be exceeded due to ongoing population growth.

The population of the Tweed is expected to double over the next 30-40 years. Despite a recent reduction in population growth rates, a significant future increase in population is still expected. This projection is based on the population supported by existing land zoned residential in the Local Environment Plan 2000 (LEP2000) and is in line with population growth projections in the NSW Dept of Planning's "Far North Coast Regional Strategy" (2006).

The secure yield of the existing TDWS is approximately 13,750ML/a, based on modelling outlined in (b) below. Current water demand for the TDWS is between approximately 9000 and 10,000ML/a.

Due to ongoing population growth current modelling suggests that the secure yield of the existing TDWS may be exceeded by approximately 2023.

Further risks to system capacity exist from climate change impacts. Changes to rainfall patterns and intensities potentially may adversely affect the yield of Clarrie Hall Dam and the Tweed River. Sea level rise potentially results in salt water ingress into Bray Park Weir which would need to be raised to avoid the entire TDWS becoming affected by salinity.

Additionally, during drier periods the rural community, approximately 10,000 extra persons, rely on the urban water system to top up their rain water tanks via water tankers.

b) Models for determining water requirements for the agricultural, urban, industrial and environmental sectors,

Until the major drought of 2002-03, the secure yield of the TDWS was estimated at 16,700ML/a. The inclusion of this one event into the dataset reduced the estimated secure yield to 13,750ML/a according to DEUS 5/10/20 guidelines.

Standardisation of the approach to determine "Yield" is required. This should include the acceptable degree of resource shortage risk faced by communities, and the allowances required for future climate uncertainty. This would enable water service providers to size water storages appropriately and better compare climate independent supply options.

The impact of environmental flows, climate change, adaptive management, and other similar issues are not modelled consistently and would be assisted by a standardised approach.

c) Storage management practices to optimise water supply to the urban, industrial and environmental sectors,

Council has adopted various storage management practices at Clarrie Hall Dam, Bray Park Weir and Tyalgum Weir.

As a LWU and a Local Planning Authority, Council has limited powers to restrict or regulate existing landuses within the water storage catchment area and riparian zones.

A risk assessment using the Australian Drinking Water Guidelines (ADWG) highlights the greatest risks to the quality of Council's water supply arise from poor riparian zone management, inappropriate landuses, poorly maintained septic systems, and limited powers and resources to manage and regulate the water storage catchment area.

The catchment for Clarrie Hall Dam is approximately 60km² and is mainly rural in nature with some National Park, environmental and timbered areas. The catchment for Bray Park Weir is approximately 565km² and includes significant rural and agricultural areas, two villages, rural residential development, environmental and timbered areas and National Parks.

d) Proposals for the construction and/or augmentation of water storages on the Tweed with regard to storage efficiency, engineering feasibility, safety, community support and cost benefit,

In October 2009, Council adopted a process to augment the water supply to meet projected demand. The phased approach reduces risks by ensuring the requirements of the previous phases have been met and will not impede subsequent phases. This approach provides both security and flexibility by:

1. Selecting a preferred option (based on the *Tweed District Water Supply Augmentation Options Study, 2010*).
2. Gaining development approval for that option in time to construct by 2023 (so that the Tweed has an augmentation option that can be brought online quickly when required).
3. Committing further resources to construct and operate the approved scheme when it is actually needed.

Council's *Tweed District Water Supply Augmentation Options Study - Fine Screen Assessment of Shortlisted Options* (September 2010) suggested that demand will exceed supply in approximately 2023, but noted the actual date this occurs will depend on the success of demand management actions and actual population growth rates. This study, together with the DMS, investigated more than a dozen options to augment the water supply and assessed each against cost, social, environmental and governance criteria. The option recommended by Council officers was to increase the capacity of the existing Clarrie Hall Dam at Doon Doon Creek.

Since 2010, the two augmentation options either i) recommended by Council officers or ii) identified by Council have been water storages, namely:

- Increasing the capacity of the existing Clarrie Hall Dam
- Building a new water storage on Byrrill Creek

Details of the assessment of these options are contained in the *Tweed Demand Management Strategy* and the *Tweed District Water Supply Augmentation Options Study - Fine Screen Assessment of Shortlisted Options*.

e) Water storages and management practices in other Australian and international jurisdictions,

No comment provided.

f) Any other matter relating to the adequacy of water storages in NSW.

Water Sharing Plan

The Water Sharing Plan for the Tweed River Unregulated and Alluvial Water Sources was gazetted on 17 December 2010 and contained Clause 48 (1) prohibiting construction of a dam at Byrrill Creek.

The proposal for a future dam at the site has been public knowledge since the mid 1980's and has been incorporated into Council's LEP since 1987 as a Potential Water Supply Catchment Area. During that time Council has purchased the majority of property likely to be inundated by a future dam.

Council has requested this decision be reconsidered. Council is not asking the government to support the proposed dam on Byrrill Creek. As with all new dams or dam raisings a robust and transparent environmental assessment process will be required to ensure the most appropriate decision is made. Council's concern is that Byrrill Creek was singled out from all other (third order or higher) streams within the Tweed River Area for prohibition of a water supply work approval in the Water Sharing Plan without any due and transparent assessment process.

Adaptive Management requirements under the Water Management Act (2000)

The use of adaptive management under the Water Management Act (WM Act) creates risks and uncertainty for the developers of water storages, including LWUs such as Tweed Shire Council.

Council and our community require certainty regarding the additional secure yield provided by the construction of a given water storage. Adaptive management under the WM Act allows the amount of water Council is permitted to extract to be changed over time. This significantly reduces certainty of the secure yield provided by the construction of a given water storage, effectively putting the community's investment in that infrastructure at risk.

Approval Processes under the Environmental Planning and Assessment Act (1979), Water Management Act (2000) and other Legislation

A whole of Government approach is required to refine the processes required to gain environmental, construction and operational approvals under the above Acts and other relevant legislation. Approvals gained under one Act are not binding under another and duplication of, conflicting and open-ended conditions and requirements can be applied. The very significant investment in trying to obtain these approvals and the very long period involved, places all projects of this nature at risk of never being realised.

Thank you for the opportunity to provide a submission on this significant issue. Please do not hesitate to contact Council's Water Manager (Anthony Burnham) on phone (02) 6670 2411 should you have any enquiries or require any assistance.

Yours faithfully

David Keenan
GENERAL MANAGER