

State-wide risk assessment of water resource pressure – overview

Background

In response to national media coverage of water management and compliance in the Murray-Darling Basin in 2017, several Basin states initiated a review of water management and compliance in their own jurisdictions. This included the Queensland Independent Audit of non-urban water measurement and compliance (August 2017) and the Murray–Darling Basin Water Compliance Review (November 2017).

In response to recommendations from these reviews, the Queensland Government, through the Department of Regional Development, Manufacturing and Water (the Department), committed to undertake a state-wide risk assessment of its water measurement (including metering) and monitoring activities by October 2018, based on the pressure on the water resource in each catchment.

Purpose

The purpose of this assessment was to provide a picture of the level of risk posed by water resource pressure in each catchment across the state. This assessment, along with more detailed work at the sub-catchment level, will guide decision making on water monitoring and measurement priorities for the Department.

Approach

The risk assessment was conducted using relevant data, information and expert knowledge of officers across the Department. The approach is consistent with the International Standards Organisation (ISO) 31000:2018 Risk Management Guideline.

Water resource pressure was ranked as (i) Low, (ii) Medium, (iii) High or (iv) Very High. The four categories of risk are based on an assessment of the water resource pressure risk rating of the catchment overall, noting that some localised higher risk hotspots may exist within a catchment. Risk hotspots (areas of higher risk) in each catchment were mapped separately.

The following were used as indicators of water resource pressure to classify the risk ratings:

- percentage of water use relative to the volume allocated for use under entitlements
- end of system (EOS) flow – percentage of water reaching an estuary or end of a river system stated in a water plan
- level of demonstrated competition for existing, unallocated and new water
- complexity of water management issues
- compliance data.

Results

Based on the assessment, water resource pressure risk ratings have been assigned to each catchment in the state (Table 1 & 2). Note these ratings represent a point in time assessment as at 31 August 2018. As the level of risk may change over time and new risks may emerge, the Department intends to repeat this risk assessment every five years.

Use of risk assessment information to support the measurement program

The Queensland Government has also committed to strengthening water measurement in Queensland and has developed a policy stating how it intends to strengthen the way non-urban water take is measured, metered and reported across the state.

The Department is using its catchment-based risk assessment to guide policy implementation to ensure strengthened measurement requirements are implemented as a priority in catchments where the risk to the water resource is highest and where it is important to understand how much water is being used.

Consequently, new measurement requirements will be implemented first in areas where the resource is at highest risk, for example, in the Queensland Murray-Darling Basin. Catchments in these areas will also be subject to stricter requirements to ensure measurement practices suit the level of risk. If changes to risks are identified during periodic reviews, the Department will adjust its strategy to ensure implementation activities continue to focus on water catchment areas of highest risk.

Use of risk assessment information to support water planning, compliance and monitoring

In addition to informing the measurement program, the risk assessment of water resource pressure also being used by the Department to inform:

- water compliance planning
- water planning activities
- prioritisation of aquatic ecosystem monitoring for water plans across the state; and
- review of surface water and groundwater monitoring networks.

The statewide risk assessment of water resource pressure was completed in 2018. It is important to note that this is a point in time assessment and as such risks may change over time. The risk assessment will be reviewed and updated in 2023.

Table 1: Risk assessment of water resource pressure for surface water in catchments across the state (2018)

Water plan / Catchment	Risk ranking	Water plan/catchment	Risk ranking
Border Rivers and Moonie	Very high	Don*	Low
Condamine and Balonne	Very high	K'gari (Fraser Island)*	Low
Black*	High	Moreton Islands*	Low
Ross*	High	Minjerrabah (Stradbroke Island)*	Low
Barron	High	Proserpine*	Low
Fitzroy Basin	High	Shoalwater*	Low
Gold Coast	High	Styx*	Low
Moreton	High	Baffle Creek Basin	Low
Pioneer Valley	High	Calliope River Basin	Low
O'Connell*	Medium	Cape York	Low
Plane*	Medium	Cooper Creek	Low
Waterpark*	Medium	Georgina and Diamantina	Low
Burdekin Basin	Medium	Gulf	Low
Burnett Basin	Medium	Mitchell	Low
Logan Basin	Medium	Warrego, Paroo, Bulloo and Nebine	Low
Mary Basin	Medium	Boyne River Basin	Low
Whitsunday	Medium	Wet Tropics	Low

Note: * Indicates catchment is outside a Water plan area and water is managed via the *Water Act 2000*.

Table 2: Risk assessment of water resource pressure for groundwater units managed under the *Great Artesian Basin and Other Regional Aquifers (GABORA) Water Plan 2017*

Groundwater unit / Sub-area	Risk ranking	Groundwater unit / Sub-area	Risk ranking
Eastern Downs Marburg	Very high	Eromanga Hutton	Low
Surat Hutton	Very high	Eromanga Hooray	Low
Cape Gilbert River Aquifer	Medium	Eromanga Precipice	Low
Gatton Esk Road Woogaroo	Medium	Eromanga Wallumbilla	Low
Eastern Downs Precipice	Medium	Winton Mackunda	Low
Eastern Downs Springbok Walloon	Medium	Betts Creek beds	Low
Mulgildie South Precipice	Medium	Galilee Clematis	Low
Gubberamunda	Medium	Bulimba Formation	Low
Mooga	Medium	Wyaaba beds	Low
Surat Precipice	Medium	Laura Gilbert River equivalents	Low
Surat Springbok Walloon	Medium	Laura Rolling Downs	Low

Groundwater unit / Sub-area	Risk ranking	Groundwater unit / Sub-area	Risk ranking
Bowen Clematis	Low	Mulgildie North Hutton	Low
Cape Rolling Downs	Low	Mulgildie North Precipice	Low
Carpentaria South Gilbert River Aquifer	Low	Bungil	Low
Carpentaria South Wallumbilla	Low	Eromanga Cadnaowie	Low
Gulf Gilbert River Aquifer	Low	Crows Nest Marburg	Low
Gulf Rolling Downs	Low	Murphys Creek Marburg	Low
Normanton	Low	Gatton Esk Road Marburg	Low
Clarence-Moreton Marburg	Low	Murphys Creek Woogaroo	Low
Clarence-Moreton Woogaroo	Low	Redbank Creek Woogaroo	Low
Southern Clarence Moreton Walloon	Low	Surat Wallumbilla	Low
Adori Injune Creek	Low		