

Ward Conservation Lab

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Submission on the Consultation Draft – Fitzroy–Derby Water Resources Management Plan

Submitted to the Department of Water and Environmental Regulation (DWER)

Introduction

The Ward Conservation Lab at Griffith University works at the intersection of conservation biology, freshwater ecology, and threatened species management. We welcome the opportunity to comment on the Consultation Draft of the Fitzroy–Derby Water Resources Management Plan (the Plan). Our submission focuses on the ecological risks that the proposed groundwater allocation limits pose to the Martuwarra’s groundwater-dependent ecosystems and the threatened species that rely on them. We urge DWER to revise allocation limits downward and strengthen the ecological monitoring and adaptive management framework before the Plan is finalised.

1. The Martuwarra is a globally significant refuge for threatened species

The Fitzroy River catchment supports some of Australia’s most ecologically important freshwater biodiversity. Its significance for threatened species is unambiguous under Commonwealth and state law:

Catchment-wide species inventories underline the scale of this significance: the Fitzroy supports at least 58 bird species, 110 vertebrate species in total (including 9 fish, 10 invertebrate, 11 mammal, and 11 reptile species of conservation note), and 137 flora species recorded as threatened or of conservation significance (Department of Water and Environmental Regulation, 2023, “Environmental and Heritage Values and Importance of Water in the Fitzroy”). The catchment also supports a substantial number of threatened and priority ecological communities, including the Endangered Big Springs community, the Vulnerable North Kimberley Mounds community, eight Priority 3 communities, one Priority 2 community, and eleven Priority 1 communities.

- The Largetooth Sawfish (*Pristis pristis*), listed as Vulnerable under the EPBC Act, relies on the Fitzroy River as its most significant nursery habitat in Australia. Research spanning 17 years demonstrates that juvenile recruitment is tightly coupled to hydrological conditions — particularly wet season flood pulses and the persistence of deep, cool, groundwater-fed refugial pools through the dry season (Whitty et al., 2019, Scientific Reports). Estuarine crocodiles (*Crocodylus porosus*) and the Northern Long-necked Turtle (*Chelodina rugosa*) similarly depend on the persistence of dry-season refugial pools sustained by groundwater discharge.
- The Critically Endangered Northern River Shark (*Glyphis garricki*) and Vulnerable Dwarf Sawfish (*Pristis clavata*), assessed globally as Critically

Endangered on the IUCN Red List, also use the Fitzroy estuary and lower river as habitat.

- The Endangered Purple-crowned Fairy-wren (*Malurus coronatus*) depends on riparian Pandanus vegetation that is itself groundwater-dependent. Reduction in groundwater availability threatens both vegetation structure and this strict riparian specialist.
- Freshwater crocodiles, barramundi, cherabin, fork-tailed catfish and bony bream, all culturally and ecologically significant species, depend on groundwater-sustained dry-season refugia pools for survival between wet seasons, and these refugia also support the Freshwater Sawfish (*Pristis pristis*) population in the upper Fitzroy, assessed as Endangered on the IUCN Red List.

The lower Martuwarra and its floodplain are listed on the National Heritage Register in recognition of outstanding natural, Indigenous, and cultural values. Any water plan for this catchment must treat the protection of these values as a non-negotiable constraint, not a factor to be traded off against development.

2. The proposed groundwater allocation limits are ecologically unsound

The Plan proposes allocation limits of up to 40% of estimated average annual recharge for the Grant Poole and Wallal aquifers, the primary aquifers sustaining ecological function across the lower Fitzroy. From a conservation biology perspective, this is deeply concerning for several reasons.

- Scale of extraction versus current use: The proposed 22.8 GL/year from Grant Poole is more than triple current use. The proposed 33.2 GL/year from the Wallal aquifer is more than ten times current use. Dramatic step-changes in extraction from poorly understood systems are incompatible with a genuine precautionary approach.
- Drawdown impacts extend far beyond bore sites: CSIRO modelling shows that pumping just 5 GL/year from Grant Poole is likely to affect areas 20 km from the bore within 20 years, with a 20 GL/year scenario affecting areas up to 36 km away. Given that Grant Poole-dependent aquatic ecosystems cover thousands of hectares of wetlands and riverine habitat, there are very few locations in the lower Fitzroy where an industrial bore would not threaten these ecosystems. This risk is compounded by regional groundwater connectivity: flows from the Devonian Reef aquifer, which hosts a Priority 1 ecological community, appear to be strongly connected to both the Fitzroy and Margaret rivers, as well as to the Poole Sandstone, Grant Group, and alluvial aquifers, meaning drawdown effects are unlikely to remain confined to a single aquifer system.
- The aquifer system is poorly understood: Connectivity between aquifers, the locations of groundwater discharge to the river, and ecological water requirements for dependent ecosystems all remain substantially unknown. In conservation biology, absence of evidence is not evidence of absence, data scarcity is a reason for greater caution, not a justification for high allocation limits. The precautionary principle is critical in these sensitive ecosystems.

- The safe yield approach is inadequate: Fixing allocations as a percentage of average recharge ignores interannual rainfall variability (wet years can deliver three to four times more rain than dry years in the Kimberley), cumulative drawdown, existing bores, illegal extraction from rivers, and ecological water needs. In highly variable monsoonal systems, average-based limits can mask years of severe ecological stress.
- This plan does not align with EPBC Act: Many of these features and systems are classed as irreplaceable, and therefore must be protected under the EPBC Act's unacceptable impacts clause.

We note that the Pew Charitable Trusts' independent analysis (Purse, 2026) demonstrates that, when the Department's own 2011 groundwater risk-based allocation framework is applied correctly, with 'high' ecosystem risk and 'low' development risk (both of which are clearly appropriate here), the maximum allocation proportion is 5% of recharge, equivalent to approximately 4.1 GL/year for Grant Poole and 2.8 GL/year for Wallal. The Plan's proposed limits are five to twelve times higher than what the Department's own framework prescribes. This inconsistency requires clear justification or correction.

3. The ecological monitoring framework is insufficient to protect threatened species

Even a more conservative allocation limit is only as protective as the monitoring and adaptive management framework surrounding it. The Plan as drafted falls short of best practice in critical ways:

- No ecological thresholds or enforceable triggers: The Plan does not define specific groundwater depth thresholds for key ecosystems (e.g., minimum pool depth for sawfish refugia, maximum drawdown at mapped spring sites) or mandatory responses when thresholds are breached. Discretionary language ("may impose conditions") is inadequate for protecting species with limited tolerance for hydrological change.
- Monitoring is bore-focused, not ecosystem-focused: Monitoring centred on pumping sites will not detect regional drawdown effects on refugial pools, springs, and wetlands tens of kilometres away. Any meaningful ecological protection requires monitoring at the sensitive ecological assets themselves, key sawfish pools, mapped Grant Poole-dependent wetlands, and important spring complexes. Monitoring needs to be outcome based (i.e., abundance of species).
- No requirement for baseline data before licensing: Given the data-sparse nature of the system, industrial-scale licences should not be approved until pre-development ecological baselines for groundwater-dependent ecosystems are established. Without baselines, detecting impact is effectively impossible.
- Data transparency: All monitoring data should be made publicly available in near-real time to enable independent scientific scrutiny, consistent with the recommendations of the WA Auditor General's 2024 review of water licensing.

4. Recommendations

The Ward Conservation Lab recommends that DWER:

- Reduce allocation limits for the Grant Poole and Wallal aquifers to no more than current exempt use levels as a starting point, consistent with the Water Justice Hub's recommendation and with a genuinely precautionary approach, allowing incremental increases only as monitoring data justify them.
- Establish legally enforceable ecological thresholds and trigger-response protocols for threatened species habitat, particularly for sawfish refugial pool depth and connectivity, spring discharge rates, and riparian groundwater depth.
- Require pre-development ecological and hydrological baselines as a condition of any new industrial-scale groundwater licence in the Fitzroy subarea.
- Expand the monitoring network to include spatially representative sites at ecologically sensitive assets, with public data transparency.
- Ensure that Traditional Owners have genuine decision-making authority, not merely consultative roles, over groundwater planning and monitoring priorities, in recognition of their deep ecological knowledge and custodial responsibilities.

The Martuwarra–Fitzroy system is one of Australia's last largely unregulated river systems and the most important nursery for Largetooth Sawfish in the country. The decisions made in this Plan will shape the ecological integrity of the catchment for decades. We urge DWER to finalise a plan that puts the protection of irreplaceable ecological and cultural values first.

Submitted by the Ward Conservation Lab, Griffith University