Summary of proposed Environmental Protection (Water and Wetland Biodiversity) Policy 2019 amendment – South East Queensland groundwaters

South East Queensland region groundwaters environmental values and water quality objectives

Background

The Department of Environment and Science (department) is seeking submissions on the consultation materials for the South East Queensland region groundwaters environmental values and water quality objectives.

This document summarises the context of the consultation process and the consultation materials.

The consultation materials are:

1) **SEQ Groundwater Report**. Draft Regional groundwater chemistry zones, South East Queensland Region. Summary and results. Draft for consultation October 2023,
2) **Draft Schedule 1 Document**. Environmental Protection (Water and Wetland Biodiversity) Policy 2019: Draft Schedule 1 Document. South East Queensland groundwaters. Environmental Values and Water Quality Objectives, October 2023, and
3) **Draft environmental values plans**. Environmental Protection (Water and Wetland Biodiversity) Policy 2019: Draft groundwater and environmental values plans for South East Queensland, October 2023.

The consultation materials are available at:
https://environment.des.qld.gov.au/management/water/policy/consultations

Environmental Protection (Water and Wetland Biodiversity) Policy 2019

The Environmental Protection (Water and Wetland Biodiversity Policy 2019 (Water Policy) is subordinate legislation to the *Environmental Protection Act 1994* (EP Act). The purpose of the Water Policy is to achieve the object of the EP Act in relation to waters and wetlands.

The purpose is achieved by:

- identifying environmental values for waters and wetlands to be enhanced or protected, and
- identifying management goals for waters, and
- stating water quality guidelines and water quality objectives for enhancing or protecting the environmental values of waters, and
- providing a framework for making consistent, equitable and informed decisions about waters; and monitoring and reporting on the condition of waters.

Regional groundwater chemistry

The SEQ groundwater region is relatively small but very complex from a groundwater perspective, with a variety of distinct aquifer systems.

The spatial extent of the waters considered in the technical report are the groundwaters of the SEQ region including the groundwaters underlying the Noosa River, Maroochy River, Pine Rivers, Brisbane River, Stradbroke Island, Logan-Albert Rivers, and South Coast rivers basins.

From an economic and environmental usage perspective, the most important aquifer systems are the:

- alluvial floodplains of the Lockyer Valley,

- alluvial floodplains of the Bremer and Logan-Albert Rivers,
- sandstone aquifers of the Lower and Basal GAB, and
- permeable basalts capping upland areas, the sand dunes of the barrier islands, Stradbroke, and Moreton, and onshore sand deposits.

Each of these major systems has characteristic groundwater chemistry patterns and management issues. There are also scattered local aquifer systems comprising small stretches of alluvium or fractured rock, which may provide domestic and stock water supplies for individual properties.

The most unique groundwaters in the SEQ region are found in the sand dunes of the wallum country on the coast and barrier islands. They are similar to the surface water of the region in being very fresh and acidic, dominated by sodium chloride, and with pH levels of less than 6. These sand aquifers are dependent on the underlying coastal processes and are particularly vulnerable to climate change.

There are several other potential water quality types which cannot be assessed at present because of limited data. For example, the estuarine and deltaic areas along the coast have been mapped as containing quite extensive areas of acid sulphate soils. Although very high levels of salinity were encountered in some estuarine groundwaters, no saltwater intrusion was detected.

SEQ Groundwater Report

The SEQ Groundwater Report was prepared by the department to inform the development of groundwater environmental values and water quality objectives for the South East Queensland (SEQ) region; pursuant to the Water Policy.

Groundwater chemistry data was extracted from the Queensland Department of Regional Development, Manufacturing and Water groundwater database, supplemented by data from the Office of Groundwater Impact Assessment and comprises a combined total of 11,951 samples. The groundwater chemistry analysis was based on data collected between the 1940s and 2023, representing a comprehensive dataset although there are spatial and temporal variations in coverage.

The SEQ Groundwater Report identifies the following major aquifer classes: Alluvial, Fractured rock, Sediments overlaying the Great Artesian Basin (GAB), Lower Great Artesian Basin, Basal Great Artesian Basin and Earlier basins partially underlying the Great Artesian Basin.

Groundwater chemistry zones may extend under surface water basin boundaries. A total of 23 alluvial zones were defined, 16 fractured rock zones covering mainly basalts, granites, and trap rocks; 10 zones in Cainozoic deposits, 9 zones in the Lower GAB (excluding upper and mid GAB layers which do not extend into the project area), 16 Basal GAB zones, and 4 zones underlying the GAB.

Each aquifer class is divided into multiple groundwater chemistry zones that represent reasonably consistent baseline water chemistry. The Queensland Government's Water Entitlement Register Database was used to determine the environmental values (EVs) for each aquifer class. All chemistry zones list aquatic ecosystem protection EVs, and cultural, spiritual, and ceremonial values EVs.

EVs for irrigation, farm water supply and use, stock watering, aquaculture, human consumers of aquatic foods, primary recreation, secondary recreation, visual recreation, drinking water supply, and industrial use, were determined according to entries in the Water Entitlement Register Database and the Queensland Land Use Mapping Program.

The water quality percentiles for the key water quality indicators, shown for each chemistry zone, inform the derivation of aquatic ecosystem water quality objectives (WQOs). The water quality percentiles for the key water quality indicators are shown in the Seq Groundwater Report for each chemistry zone. The water quality percentiles will inform the derivation of aquatic ecosystem water quality objectives (WQOs).

The human use WQOs typically refer to national guidelines, e.g., the Australia and New Zealand Guidelines 2018 and the National Health and Medical Research Council guidelines.

The groundwater chemistry zones, and the environmental values and water quality objectives for each chemistry zone are included in the SEQ Groundwater Report, mapped on the plans published within the SEQ groundwater report, and included in the consultation materials.

The EVs for each groundwater chemistry zone will be made available as a downloadable dataset in the Queensland Government's QSpatial database, subject to Queensland Government approval.

Establishing environmental values and water quality objectives for SEQ groundwaters under the Water Policy

In order to establish EVs and WQOs for a particular water under the Water Policy, there must be a Schedule 1 document and plans that contain the detailed information.

The **Draft Schedule 1 Document**. Environmental Protection (Water and Wetland Biodiversity) Policy 2019: Draft Schedule 1 Document. South East Queensland groundwaters. Environmental Values and Water Quality Objectives, October 2023, containing the SEQ groundwater EVs and WQOs is included in the consultation materials.

EVs and WQOs for groundwaters in the Water Policy will inform statutory decision-making under Queensland's environmental protection legislation, including:

- under the Environmental Protection Regulation 2019, section 35 *Matters to be complied with for environmental management decisions*.

  'The administering authority must, for making an environmental management decision relating to an environmentally relevant activity (ERA), other than a prescribed ERA:
  (d) consider each of the following under any relevant environmental protection policies:
    - the management hierarchy,
    - environmental values,
    - water quality objectives,
    - the management intent, and' *continues*

- under the EP Act, section 126A, *Requirements for site-specific applications—resource projects involving the exercise of underground water rights*.

  'Applications must state:
  c) for each aquifer affected, or likely to be affected, by the exercise of underground water rights,
    - a description of the aquifer, and
    - a description of the area of the aquifer where the water level is predicted to decline because of the exercise of underground water rights, and

  (d) the environmental values that will, or may, be affected by the exercise of underground water rights and the nature and extent of the impacts on the environmental values, and

  (e) any impacts on the quality of groundwater that will, or may, happen because of the exercise of underground water rights during or after the period in which resource activities are carried out,' *continues*.

Following consultation, and consideration of submissions, an amendment to the Water Policy will be recommended that, if approved, will have the effect of establishing the EVs and WQOs for the groundwaters of SEQ under Schedule 1 of the Water Policy.

How to make a submission

Please use the submission form with the consultation materials.

The consultation materials are available through the department's website, at:
https://environment.des.qld.gov.au/management/water/policy/consultations

Written submissions on the consultation materials are invited during the consultation period from 9:00 am on **Monday 30 October 2023** to 5:00 pm on **Friday 24 November 2023.**

Submissions should be lodged by email: evinfo@des.qld.gov.au, or mail to Department of Environment and Science, Healthy Waters and Wetlands Team, GPO Box 2454 Brisbane Qld 4001.

Please note that all submissions received by the Department of Environment and Science are public information, unless it is requested that they remain confidential.

Next steps

At the completion of consultation and after consideration of all submissions; environmental values, water quality

objectives and aquifer mapping will be recommended for inclusion under Schedule 1 of the Water Policy, where, if approved, they will inform statutory and non-statutory water quality groundwater management planning and decision-making.

Further information

Please email all enquiries to evinfo@des.qld.gov.au.