Biodiversity Council

Submission to *Lake Eyre Basin Consultation Regulatory Impact Statement*

25 August 2023

Dr Emily Gregg, Biodiversity Council Analyst
Professor Richard Kingsford, University of NSW, Biodiversity Councillor
Professor Hugh Possingham, University of Queensland, Chief Biodiversity Councillor
James Trezise, Biodiversity Council Policy and Innovation Lead

About the Biodiversity Council

The Biodiversity Council brings together leading experts, including Indigenous knowledge holders, to promote evidence-based solutions to Australia's biodiversity crisis. The Council was founded by 11 universities with the support of Australian philanthropists.

1. Executive Summary

The Biodiversity Council welcomes the opportunity to provide a submission to the public consultation on the *Regulatory Impact Statement (RIS)* concerning protection options that will be applied to the rivers and floodplains that form the Queensland part of the *Lake Eyre Basin*.

The consultation aims to explore options on "how to best ensure Queensland's environmental protections can achieve a balance between ecological sustainability and future economic prosperity for the Queensland Lake Eyre Basin region". We believe these desired outcomes are self-supporting. However, in order to ensure an ecologically and economically sustainable future for the Lake Eyre Basin, the irreplaceable natural and cultural value and heritage of the Basin must be acknowledged and protected from damaging and irreversible impacts. This would appropriately recognise the global importance of this river system; it was the only river recognised with the International River Prize in 2015, largely because it was free-flowing.

We are a group of leading experts from the Biodiversity Council, including experts with specific professional interest and expertise in rivers and wetland systems, including the Lake Eyre Basin. We have experience in the ecology, management and policy of rivers and wetlands, and an established and respected track record in the research and management of river ecosystems and their biodiversity. This includes the completion of research and technical reports for government bodies, and advisory roles to State and Federal Governments, including on matters related to the policy and management of rivers.

The Lake Eyre Basin is a region of global natural and cultural significance. The braided channels formed by the region's rivers create a unique ecology feeding waterholes and wetlands across the Channel Country. The region provides critical feeding and breeding habitat for Australia's waterbirds, and periodic flooding in the region is the trigger for mass movements and seasonal breeding events for species throughout and beyond the Basin itself.

The Basin is also an historically and culturally significant site for First Nations people, referred to by archaeologists as 'Australia's Silk Road' due to the extensive trade routes utilised by First Nations people throughout its waterways.[1] Ongoing research has uncovered evidence of trading economies and settlements that provide crucial insights into Australia's cultural history and the history of humanity on a global scale.[2]

Given this significance, and its immense size and influence on the ecology of the Australian continent, the Lake Eyre Basin requires protection of its sensitive rivers and wetlands with clear and strong regulation to ensure that rivers and floodplain areas are preserved and the ecosystem function and cultural values of the region are effectively protected for the long-term. Crucially, many of the Lake Eyre Basin's environmental and cultural values depend on flows that originate in Queensland, hence the importance of this policy decision. Further, Queensland Governments have previously demonstrated significant policy commitments to protecting the rivers of the Lake Eyre Basin, including through the Lake Eyre Basin Agreement, revoked Wild Rivers legislation and water planning.

---

[1] https://www.abc.net.au/news/2022-04-04/-mithaka-cultural-landscape-silk-road/100959802

[2] Westaway, M., Williams, D., Lowe, K., Wright, N., Kerkhove, R., Silcock, J., . . . Collard, M. (2021). Hidden in plain sight: The archaeological landscape of Mithaka Country, south-west Queensland. *Antiquity*, 95(382), 1043-1060. https://doi.org/10.15184/aqy.2021.31

Below we outline our key recommendations based on the options provided by the *RIS*.

2. Summary of Key Recommendations

Recommendation 1 – Expand the regulatory boundaries to capture the most ecologically sensitive river and wetland areas for protection, and increase spatial coverage (Spatial Option 3)

Recommendation 2 – Strengthen regulatory protection, including prohibiting all future oil or gas activities within rivers and floodplains (Regulatory Option 4, combined with Spatial Option 3)

Recommendation 3 – Broaden the definitions of environmental attributes to protect key processes and functions fundamental to maintaining healthy ecosystems (Environmental Attributes Option 2)

Recommendation 4. Better acknowledge the national and global significance of the Lake Eyre Basin, including through investigating potential for listing of key ecologically and culturally significant areas as national heritage places and/or wetlands of international significance

Recommendation 5. Better recognise First Peoples' governance, values, priorities and culture within the Channel Country/Lake Eyre Basin, including:

a) supporting a broader understanding of First Nations Traditional Custodianship that goes beyond Native Title processes to ensure enhanced engagement and consultation in approvals processes and enhanced protection for and access to cultural heritage on Country

b) improving capacity for First Nations Communities to engage in decision making processes

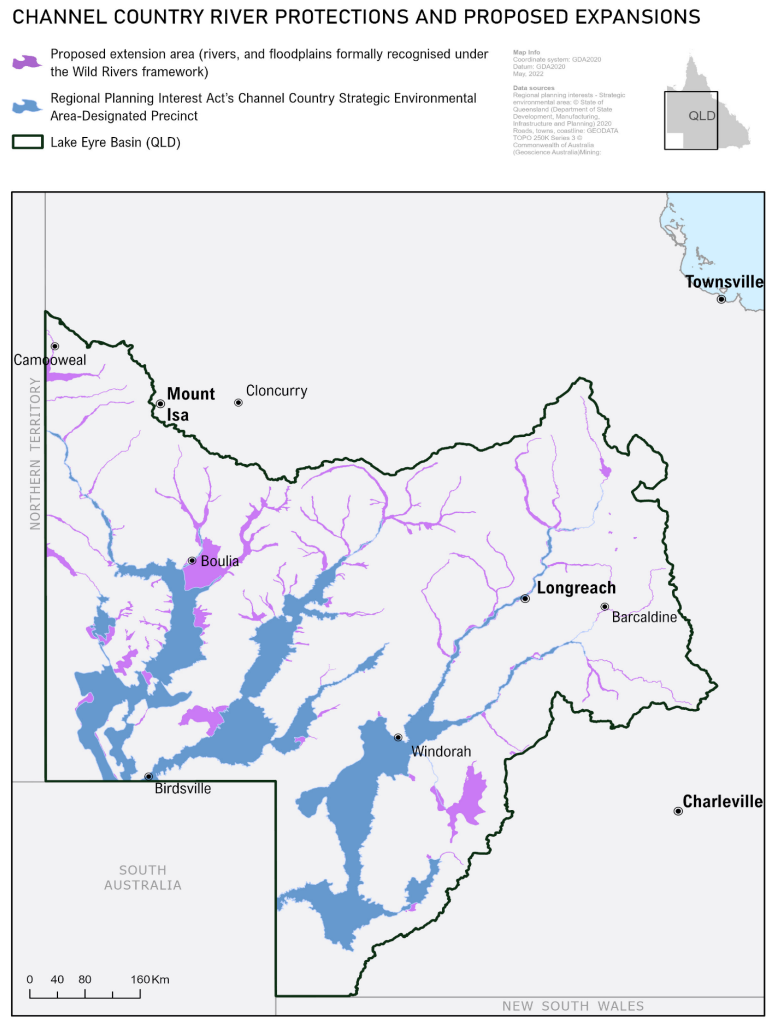
c) supporting sustainable First Nations led enterprises and increasing investment in First Nations rangers in the Lake Eyre Basin.

3. Ensure the most ecologically sensitive areas are recognised and protected

Given the immense natural and cultural significance of the Lake Eyre Basin, it is crucial that the rivers and their floodplains, including ecologically sensitive areas, are recognised and sufficiently protected. Protecting a river system of this level of global significance requires consistent protection of the waterways, wetlands, floodplains and springs across the region. The increasing prevalence and risk of new industries and threats from oil and gas extraction, including new and environmentally damaging methods of unconventional and tight gas extraction, can have long term and irreversible impacts on water dependent ecosystems. It is critical that important areas for biodiversity are protected, as well as the flows and flooding regimes which sustain flood dependent biodiversity.

Explicit spatial recognition of rivers and floodplains is vital for effective protection of the Lake Eyre Basin because this gives a firm basis for developing clear regulations which protect these important ecosystems. The free-flowing nature of the waterways within the Basin are a crucial element of the region's ecology. This lack of spatially explicit and comprehensive boundaries creates significant risk to the environment from inadequate protection and inappropriate development. Spatial option 3 (outlined in Figure 1 below) is the most ecologically sound approach for the rivers and floodplains of the Lake Eyre Basin in Queensland and provides the necessary coverage for long term asset protection.

Figure 1



(Source: Centre for Conservation Geography)

Increased protection will safeguard hydrological connectivity across the basin's floodplains and tributaries and will have direct and long-lasting benefits for ecological assets of national and international significance, including the Coongie Lakes Ramsar wetland and threatened species such as the Critically Endangered Curlew Sandpiper (*Calidris ferruginea*) and Endangered Elizabeth Springs Goby (*Chlamydogobius micropterus*).

Recommendation 1:

Expand the boundaries for regulation to capture the most ecologically sensitive areas for protection, and increase spatial recognition of rivers and floodplains (Spatial Option 3)

4. Strengthen regulatory protections

Mining activities, including oil and gas extraction and exploration, pose high risks within riverine areas, including disruption of flooding regimes, pollution (hazardous spills and greenhouse gas emissions), land clearing and fragmentation of natural systems, damage to cultural and natural heritage, and damage to drought refugia, pastures and aquatic ecosystems. Many of these threats have already had a detrimental effect on the Basin and its river and floodplain flows. The oil and gas industries have altered the hydrology of the system because they involve the construction of

substantial floodplain structures, affecting flow and flooding regimes. Pollution threats include fugitive emissions and local impacts of co-produced water from oil and gas exploration.[3]

Development threats to the Lake Eyre Basin are increasing, particularly around potential mining, oil and gas activities[4]. Much research has already been conducted on the risks associated with mining, oil and gas activities in the region, for example:

- In 2019, an independent Scientific Expert Panel determined that there were 'medium' to 'high' risks associated with conventional and unconventional petroleum and gas under the current regulatory framework and 'medium' to 'very high' risks associated with open-cut mining in permitted areas within the Lake Eyre Basin.[5] The panel recommended excluding petroleum and gas activities from river and floodplain areas and prohibiting open-cut mining within the Lake Eyre Basin.
- In 2022, an analysis report conducted by Professor Ian Lowe stated how "unconventional gas development in the Lake Eyre Basin would be totally incompatible with Queensland's stated 2030 emissions reduction target".[6]
- In 2023, research from our own councillors investigated current and future oil and gas production and exploration on the floodplains of the Lake Eyre Basin.[7] The study found there were 831 oil and gas wells across the Lake Eyre Basin, with the vast majority (98.6%) on Cooper Creek floodplains, and 296 wells in the Coongie Lakes Ramsar Site. In addition, despite potential impacts on Ramsar wetlands, only eight referrals under the *Environment Protection and Biodiversity Conservation Act 1999* occurred. The existing state and Commonwealth legislation was largely ineffective at controlling oil and gas development. Further, there was a prediction of the potential for another 1000-1500 more wells in the Cooper Geological Basin, overlaying the Cooper Creek floodplain (Channel Country) posing a significant future threat, without adequate protection.

Current regulation is clearly not sufficient to protect the Lake Eyre Basin or manage the substantial negative impacts on its natural and cultural values from existing and new extractive industries.

Regulatory protections must be strengthened to prevent unacceptable impacts on this vital and globally recognised natural system and preserve it into the future. Current regulations, including water management, environmental assessment and natural resources legislation, the Water Act, and water plans, "do not consider potential localised impacts on groundwater systems, groundwater-dependent ecosystems and cultural values, and do not include the impacts of climate change on water availability" (Sustainable Minerals Institute, Jan 2022). This context limits the effectiveness of rigorous risk assessments, particularly when assessing and regulating the impacts on water systems.

---

[3] Kingsford R. T., Walburn A. J. D. (2023) Oil and gas exploration and development in the Lake Eyre Basin: distribution and consequences for rivers and wetlands, including the Coongie Lakes Ramsar Site. *Marine and Freshwater Research* 74, 200-219. https://doi.org/10.1071/MF22063

[4] Mudd, G. M. (2017). Mining and the Lake Eyre Basin environment: past, present and possible futures. Lake Eyre Basin Rivers-environmental, social and economic importance. CSIRO, Melbourne, 173-191.

[5] Fielder, D., Grady, S., & Broadben, L. (2019). Assessing development risks to the ecological values of the free flowing rivers of the Kati Thanda–Lake Eyre Basin (Qld). An Independent Scientific Expert Panel Report

[6] Lowe, I., (2022) Emissions from potential gas development, Queensland Lake Eyre Basin. https://d3n8a8pro7vhmx.cloudfront.net/lockthegate/pages/2066/attachments/original/1641948889/LEB_report_(1).pdf?1641948889

[7] Kingsford & Walburn (2023)

The long term risks to surface and groundwater resources from mining, oil and gas development (including both conventional and unconventional gas) are well documented in the Independent Scientific Expert Panel Report[8], and include:

- Direct loss, degradation and fragmentation of habitats and impacts to threatened species that reside in permanent waterholes
- Declines in water pressure and changes to water quality, water level, temperature and ecosystem structure
- Impacts on either surface water and/or groundwater quality from leaks, leaching, acid mine drainage, well failure, reinjection, spills and CSG discharges.
- Impacts from overflows from tailings dams and open cut mines as a result from flooding
- Altered flow regimes and watercourse diversions
- Impacts arising from linear infrastructure
- Abandoned and legacy mines, including tailings ponds and water storages.
- Groundwater impacts through dewatering and associated impacts on ecological communities

The RIS acknowledges that the current regulatory framework is not effective at managing the full suite of risks to the basin, its ecosystem or communities.

Regulatory Option 4 (with Spatial Option 3), the prohibition of future oil and gas activities in the sensitive areas, is the most ecological sound, scientifically robust and administratively defensible approach. It rightly takes a precautionary approach to increased industrialisation in some of the most sensitive regions in the Lake Eyre Basin. As noted in the RIS, the advantages of Regulatory Option 4 are in its regulatory simplicity and its capacity to effectively deal with impacts on flow and flooding regimes affecting the rivers and floodplains of the Lake Eyre Basin in Queensland.

Although Regulatory Option 3 seems aimed at preventing the future extraction of unconventional oil and gas in the SEA-DP, the utilisation of the 'high-impact activities' approach will likely fail to achieve this objective. Also, conventional oil and gas extraction and exploration already has significant negative impacts and this option would not adequately protect important ecological systems.[9] This approach will create regulatory loopholes and confusion in relation to what is captured. Additionally the regulatory option will poorly account for the potential cumulative impacts of these activities on the rivers and floodplains of the Lake Eyre Basin.

The Biodiversity Council supports Regulatory Option 4, combined with Spatial Option 3, in order to strengthen protection for the basin and prohibit all future oil or gas activities within the region's rivers and floodplains.

We also support Environmental Attributes Option 2 to broaden the definitions of environmental attributes to include natural geomorphic processes, functioning riparian processes, and functioning wildlife corridors. Such a measure would ensure key processes and functions integral to the ecosystem are identified and accounted for in any assessment.

Recommendation 2:

Strengthen regulatory protection, including prohibiting all future oil or gas activities within rivers and floodplains (Regulatory Option 4), with Spatial Option 3.

[8] Fielder, D., et al (2019)
[9] Kingsford & Walburn (2023)

Recommendation 3:

Broaden the definitions of environmental attributes to protect key processes and functions fundamental to maintaining healthy ecosystems (Environmental Attributes Option 2)

5. Better recognise the natural and cultural significance of the Lake Eyre Basin

The Lake Eyre Basin is a region of great natural and cultural significance on a global scale. The variable flow patterns of the region's rivers create a unique ecology, with a system of braided channels feeding waterholes and wetlands across the Channel Country.[10] The Basin spans millions of hectares of lakes, billabongs, waterholes, swamps and channels, all of which provide crucial habitat for the high abundance and diversity of Australian waterbirds living in the Basin. The region houses one of the few remaining pristine river systems and some of the most extensive mound spring complexes on the planet.[11] This spectacular natural phenomenon covers around one-sixth of Australia, crossing the borders of three states and one territory. It is one of the world's last free-flowing desert river systems and the world's largest internally draining river system.

Natural significance: The rivers that feed the basin, the Diamantina, Georgina and Cooper, move from western Queensland down to South Australia weaving their way through deserts and feeding into floodplains, lakes and wetlands, including 33 wetlands of national importance. The basin also contains two wetlands of international significance Lake Pinaroo (NSW) and Coongie Lakes (SA). The periodic flooding in the Lake Eyre Basin is a trigger for mass migration of birdlife and seasonal breeding events that are essential for waterbird and terrestrial populations throughout and outside the Basin. The wetlands also provide migratory wading bird habitat for species that spend the winter on their breeding grounds in the Northern Hemisphere. The artesian springs within the basin harbours species found nowhere else in the world and are critical for waterbirds during drought. The Basin is also home to the Elizabeth Springs Conservation Park, which is listed on the Australian Natural Heritage List due to its unique role in the evolutionary history of a number of taxa arising from the springs' isolation.

The Channel Country region and its waterways and wetlands provide habitat that is considered critical to the safety of waterbird populations, including unique and threatened species such as the Australian Painted Snipe (*Rostratula australis*) and Bulloo Grey Grasswren (*Amytornis barbatus barbatus*). The wetlands in the area also provide critical habitat for migratory shorebirds, such as the Critically Endangered Curlew Sandpiper (*Calidris ferruginea*), without which the protection of these species would be severely undermined. Overall the basin is home to more than thirty nationally threatened species and eleven listed migratory bird species.

As noted by the Independent Scientific Expert Panel Report into the development risks to the Ecological Values of the Free Flowing Rivers of Kati Thanda-Lake Eyre Basin (Qld):

> 'Many aquatic systems within the LEB could be considered of World Heritage value with significant ecological assets, least of which is Kati Thanda-Lake Eyre itself. As a terminal lake, Kati Thanda-Lake Eyre, along with the many rivers and wetlands within the LEB (Qld) rely on

[10] Kingsford, R. (Ed.). (2017). Lake Eyre Basin rivers: environmental, social and economic importance. CSIRO PUBLISHING.

[11] Morton, Stephen R.; Doherty, M. D.; Barker, R. D. Natural Heritage Values of the Lake Eyre Basin in South Australia: World Heritage Assessment : Consultancy Report Prepared for the World Heritage Unit, Dept. of the Environment, Sport and Territories. Canberra: CSIRO Division of Wildlife and Ecology; 1995. http://hdl.handle.net/102.100.100/232915?index=1

floods to maintain their ecological functioning and processes that support biota across the basin, including migratory waterbird species of national and international conservation significance.'[12]

Cultural significance: The Basin also encompasses a rich cultural heritage, with the waterways forming a rich network of songlines of great importance to the Basin's First Nations people. Archaeologists have referred to the area as 'Australia's Silk Road' due to the extensive trade routes utilised by First Nations people throughout the region's waterways. Ongoing research in partnership with First Nations groups has uncovered evidence of trading economies and settlements that provide critical insights into the cultural history of Australia, as well as significant contributions to our understanding of humanity's history on a global scale. The region houses innumerable culturally significant sites, with many of the waterways, waterholes and mound springs being significant resting places, birthing places and places of ceremony. These sites are foundational for First Nations stories and histories that govern tradition, laws, relationships and ways of being.[13] Aboriginal communities have been actively engaged in the management of the Lake Eyre Basin, through the Lake Eyre Basin Community Advisory Committee. Through this process and under the Lake Eyre Basin Agreement, First Nations produced a map of stories, without state borders, the first for an extensive area of the continent.[14]

Despite this region including some of the most crucial habitats in Australia for waterbirds, and areas of great local and global cultural significance, these areas are relatively underprotected when compared to similar areas throughout Australia. Because of this, we discussed the necessity of strengthening regulatory protections above. However, to provide a clear foundation for policy design, it is important to acknowledge and recognise the immense natural and cultural significance of the region, so this value is sufficiently incorporated into decision-making around the future of the Lake Eyre Basin and its preservation into the future. We also support calls for greater leadership and increased resourcing and support to First Nations people to contest resource activity on their Country.

Recommendation 4:

Better acknowledge the national and global significance of the Lake Eyre Basin. including through investigating potential for listing key ecologically and culturally significant areas as national heritage places and/or wetlands of international significance.

Recommendation 5:

Better recognise First Peoples' governance, values, priorities and culture within the Channel Country/Lake Eyre Basin, including:

a) supporting a broader understanding of First Nations Traditional Custodianship that goes beyond Native Title processes to ensure enhanced engagement and consultation in approvals processes and enhanced protection for cultural heritage on Country
b) improving capacity for First Nations Communities to engage in decision making processes

[12] Fielder, D., Grady, S., & Broadben, L. (2019). Assessing development risks to the ecological values of the free flowing rivers of the Kati Thanda–Lake Eyre Basin (Qld). An Independent Scientific Expert Panel Report
[13] Franklin, N.R., Giorgi, M., Habgood, P.J., Wright, N., Gorringe, J., Gorringe, B., Gorringe, B. and Westaway, M.C. (2021), Gilparrka Almira, a rock art site in Mithaka Country, southwest Queensland: cultural connections, dreaming tracks and trade routes. *Archaeology in Oceania*, 56: 284-303. https://doi.org/10.1002/arco.5244
[14] See AITSIS (accessed 2023: https://shop.aiatsis.gov.au/products/map-a0-lake-eyre-basin-poster-large-flat

c) supporting sustainable First Nations led enterprises and increasing investment in First Nations rangers in the Lake Eyre Basin.

6. Support sustainable economic development that does not threaten natural and cultural assets

We support sustainable economic development where it does not threaten natural and cultural assets and therefore a sustainable and healthy future for local human communities and biodiversity. We do not believe sustainable economic development is inherently incompatible with ecological protections. However, there are clear lines and restrictions that must be drawn to prevent unacceptable and irreversible impacts on the ecological, cultural and economic values that the Lake Eyre Basin provides.

Mining activities simply are not compatible with a sustainable environment or economy in the Lake Eyre Basin and Channel Country moving forward. As discussed above, developments such as unconventional gas exploration and production cause damage to ecosystems and result in unacceptably high emissions, but they are also economically costly and unsustainable. Unconventional gas has become globally uncompetitive, with offsetting required to account for the high emissions, increasing the risk of large projects becoming stranded assets. This is demonstrated by Origin Energy recently withdrawing from its leases in the area.

7. Conclusion

The Lake Eyre Basin contains immense natural and cultural values, including its global and historical significance, and importance as a provider of crucial unique habitat for waterbirds across the continent. The health of this region is vital for the protection and wellbeing of local communities, First Nations people, and the endemic species that reside within it.

This significant natural and cultural asset must be protected for future generations. This protection requires recognition of the importance of the Lake Eyre Basin and Channel Country, and subsequent strengthening and broadening of regulation to ensure unacceptable impacts are prevented, including the prohibition of all future gas and oil activities.