

# Coal Seam Gas and Coal Mining Water Knowledge Program

South Australia is improving our understanding of water resources and water-dependent ecosystems in areas where there is potential for coal seam gas and coal mining development.

## Objective

Increase the available science for assessing water-related impacts of future coal seam gas and coal mining proposals, and increase decision-making transparency.

## National context

The *National Partnership Agreement on Coal Seam Gas and Large Coal Mining Developments* (NPA) requires South Australia to seek and heed advice from the *Independent Expert Scientific Committee* (IESC) on coal seam gas and coal mining projects which could significantly impact water resources.

The IESC also provides advice to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) on projects needing approval under the EPBC Act 'water trigger'.

To inform its advice, the IESC is directing a national research agenda on the potential water impacts of these developments. The IESC is supported by the Office of Water Science in SEWPaC.

The national research agenda includes the Bioregional Assessment Program, which is delivering landscape-scale baseline assessments of the ecology, hydrology and geology of key areas.

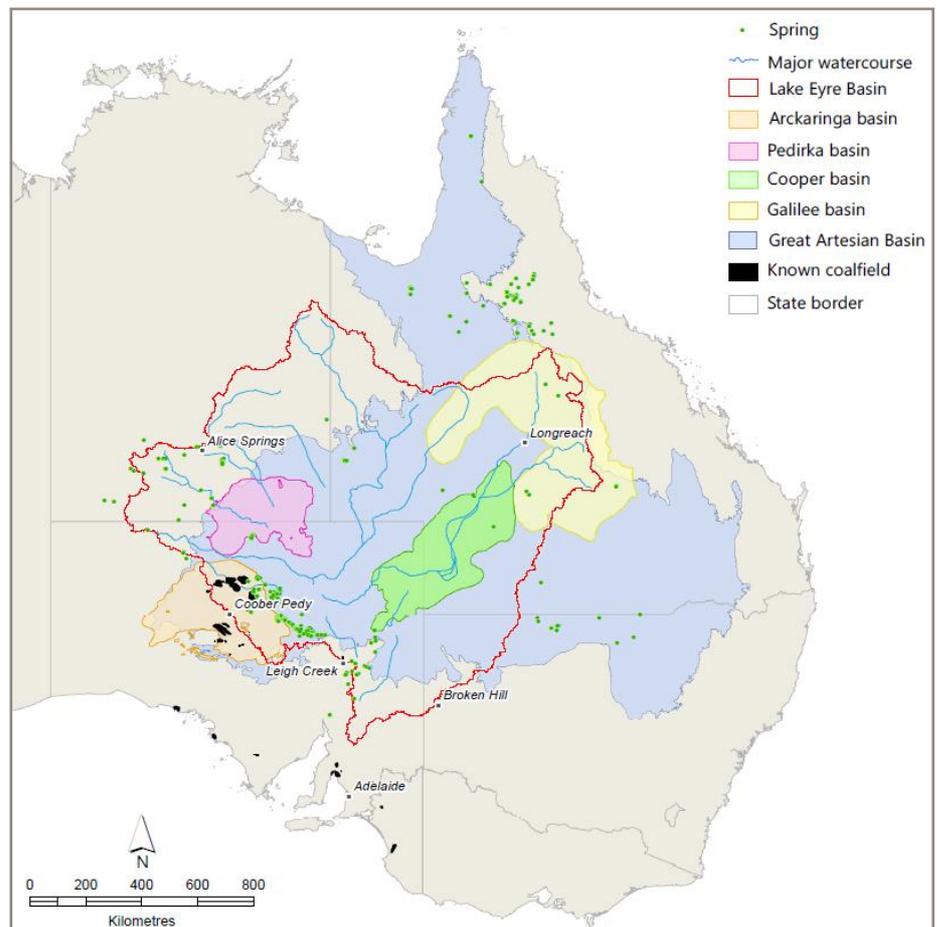
The SA Coal Seam Gas and Coal Mining Water Knowledge Program is laying the foundations of the Lake Eyre Basin Bioregional Assessment and IESC advice on projects in South Australia, Queensland and the Northern Territory.

## Components

- Advice from the Independent Expert Scientific Committee
- Risk and vulnerability assessment framework
- NRM water asset database
- Groundwater assessments of the Arckaringa and Pedirka Basins
- Rivers and springs assessments in the Lake Eyre Basin

## Delivered by DEWNR in partnership with

AW, EP, N&Y, SAAL, SAMDB & SE NRM Boards, DMITRE, DPC, the Northern Territory and Queensland Governments, Goyder Institute, Lake Eyre Basin Rivers Assessment (LEBRA), Desert Channels Group (Qld), Southern Gulf Catchments (Qld) and South West NRM (Qld).



# Coal Seam Gas and Coal Mining Water Knowledge Program Components

## Independent Advice

The *South Australian Protocol for the Referral of Project Applications to the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Developments* has been published and implemented to provide for transparent decision-making based on the best available science.

When a proposed development reaches the environmental assessment stage, the South Australian Government uses the Protocol to determine if the proposal is likely to have a significant impact on water resources. If impacts are likely, the IESC will provide expert scientific advice to inform the State's decision on whether the development should be approved, and under what conditions.

## Risk Assessment

The risk and vulnerability assessment framework will provide the tools to ensure that regulation of coal seam gas and coal mining development is science based, consistent, transparent and relevant to community concerns. The framework will be based on the AS/NZS ISO 31000:2009 risk management guidelines.

Application of the risk and vulnerability framework guides sustainable development decisions that consider the priorities of stakeholders and the wider community.

## Water Asset Database

This project will collate and ground-truth existing data on water resources in the Alinytjara Wilurara, Eyre Peninsula, Northern & Yorke, SA Arid Lands, SA Murray-Darling Basin and South East NRM regions.

Regional data has been combined into a spatial database which consistently characterises water assets and identifies vulnerabilities of those assets to potential coal seam gas and coal mining developments.

## Arckaringa and Pedirka

The Arckaringa and Pedirka geological basins are identified as having high coal development potential, but there is limited understanding about their hydrogeological characteristics.

This project has collated and reviewed existing hydrogeological data and will further identify and address key knowledge gaps through on-ground investigations.

Outcomes will include:

- Key contributions to Bioregional Assessment baseline data, modelling and risk analysis.
- Basin architecture to map the geometry and extent of basin units.
- Groundwater numerical modelling.
- Hydro-chemical sampling and targeted well drilling to establish baseline conditions and better understand hydrological processes.

## Lake Eyre Basin

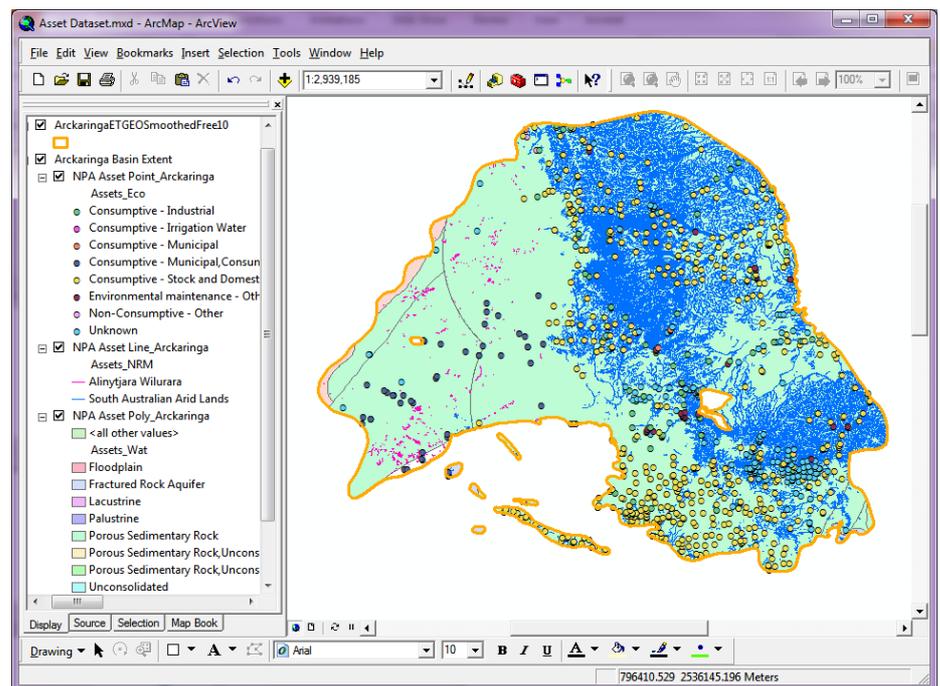
The LEB Rivers Monitoring and Springs Assessment projects are being delivered across the entire Lake Eyre drainage basin, covering parts of South Australia, the Northern Territory and Queensland.

The focus is on areas that overlie the coal-bearing Arckaringa, Pedirka, Cooper and Galilee Basins.

The projects are collating and reviewing hydrological and ecological data to inform the Bioregional Assessment.

Outcomes will include:

- Key contributions to Bioregional Assessment baseline data, modelling and risk analysis.
- Hydrological modelling.
- Ecological modelling.
- Fluvial geomorphological analysis.
- Further characterisation of water assets including springs, waterholes and floodplains.



Data on water assets is now more consistent, easily searchable, and spatially available.

## Further Information

Email: [DEWNR.science@sa.gov.au](mailto:DEWNR.science@sa.gov.au)  
Website: [www.waterconnect.sa.gov.au](http://www.waterconnect.sa.gov.au)

The Coal Seam Gas and Coal Mining Water Knowledge Program is funded by the Australian and South Australian Governments. The Alinytjara Wilurara, Eyre Peninsula, Northern & Yorke, SA Arid Lands, SA Murray-Darling Basin and South East NRM Boards collaborated to create the water asset database project with funding from the Australian Government.

