

Fracking: Friend or Foe?

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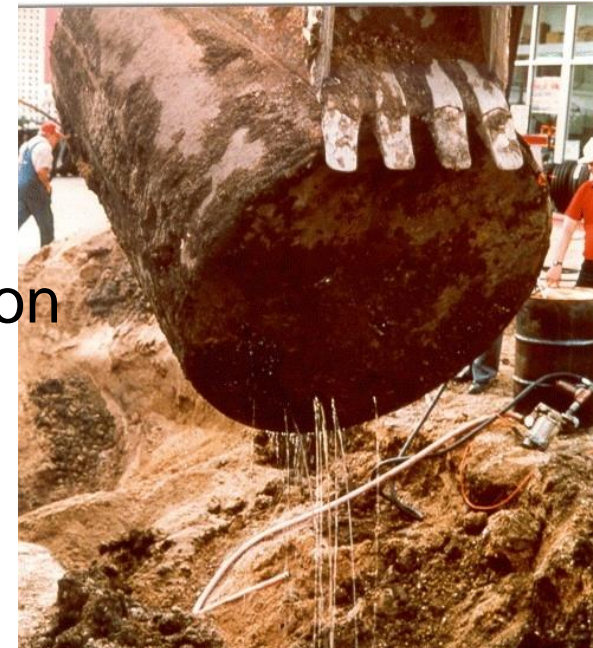
When do I have to deal with EPA?

- Contamination/pollution incidents
- General env duty, env. nuisance, env. harm
- Project proposals, e.g. EIS, DA, SEO, EIR
- Waste levy
- Anything uranium!
- License for prescribed activities:
 - Chemical works
 - Petroleum Production, Storage or Processing Works or Facilities
 - Activities producing listed wastes
 - Oil refineries
 - Earthworks drainage
 - Discharges to marine or inland waters
 - Fuel burning



The EPA and Groundwater

- Total of 4 Hydrogeologists at EPA!!!!
- 2 in Site Contamination ('dirty') & 2 in **Water Quality** ('clean')
- Site Contamination:
 - Notification of groundwater contamination
 - Site contamination audits
 - Assessment areas, e.g. Clovelly Park, Hendon
- Water Quality:
 - Mining / Oil & Gas assessments
 - Managed Aquifer Recharge (MAR)
 - State Groundwater Quality Monitoring, Evaluation & Reporting Program (SGWQMERP)



EPA & GW in Mining / O&G

Mining/oil & gas proposals:

- *EP Act 1993* does not apply to ‘petroleum exploration activity’
 - DSD referral process under MOU/MOAA
- In cooperation with DSD & DEWNR
- Recommend proponents liaise early and often – ID any ‘showstoppers’ or areas of concern
- Provide technical expertise
- Risk-based advice/regulation
- Advise proponents on ‘what has & hasn’t worked at other sites’
- Advise the collection of ambient GW quality & hydraulic data ASAP

Potential UCG groundwater impacts

- Release of fracking fluids to groundwater due to inadequate well construction or operations
- Movement of fracking fluids from target formation to groundwater aquifers through local features (e.g. abandoned wells, existing active faults)
- Mobilisation during fracking of natural substances found in groundwater, such as metals & radionuclides, into aquifers
- Baseline groundwater quality (and quantity) data essential to determine impacts of any development

SGWQMERP

- State Groundwater Quality Monitoring, Evaluation and Reporting Program
- Based on AECRs for Lakes, Creeks, Rivers & Marine

Tod River, Koppio

2010

→ Condition overview



→ About the location

Tod River is the major surface water supply catchment in Eyre Peninsula. It rises north of Yallunda Flat and flows in a southerly direction before discharging into Spencer Gulf at the southern end of Louth Bay. The major land uses are cattle grazing and cropping, with minor areas of native vegetation and urban settlement.

The Tod Reservoir, located downstream from Koppio, is a large off-stream dam that receives water via concrete aqueducts from Pillaworta Creek and the Tod River. The reservoir has not been used to supply water to the region for over a decade due to the high salinity of water in the river and reservoir.

The monitoring site was located at the Calderwoods Road ford on the northern edge of Koppio.

[Eyre Peninsula NRM Regional Summary 2010](#)

• [In summary](#)

• [Findings](#)

• [Special environmental features](#)

• [Pressures and management responses](#)

• [Further information](#)

• [Go back to WaterConnect map](#)

• [Go back to EPA listing](#)

Image gallery



Area map



Key points:

- Permanently wet, saline, flowing stream in autumn and spring.
- Sparse [macroinvertebrate](#) community with no rare or sensitive species.
- Obvious signs of moderate [nutrient enrichment](#).
- [Riparian](#) vegetation included native and introduced species that were still in the process of regenerating following the 2005 bushfire.
- Ash from the 2005 bushfire was still present in the creek.

South East GWQMERP Process

Tier 1:

Conceptual model + ID hazards + ID EVs + GW data + Assess expected condition + Assess priority + Review current monitoring

Tier 2:

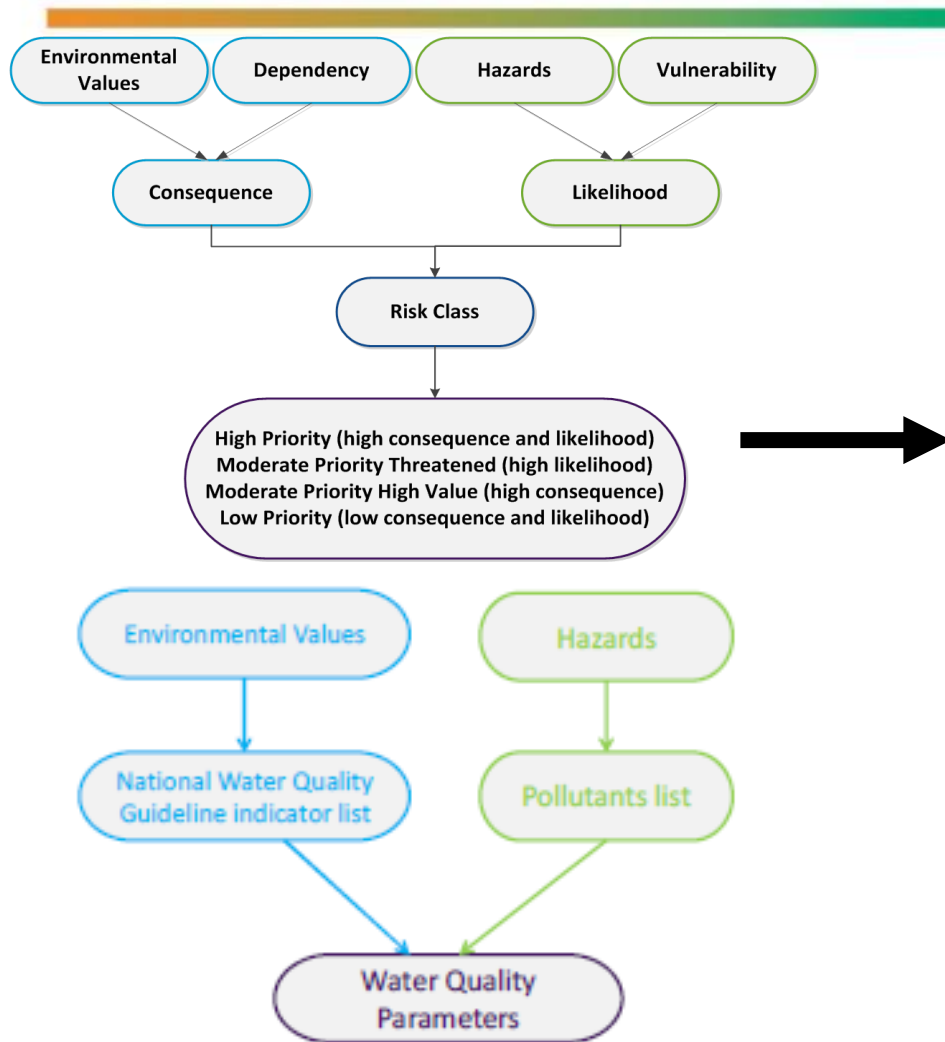
ID monitoring zones & rationale + ID locations + Sample timing & frequency + ID of WQ parameters + Feasibility assessment

- Expert stakeholder (DEWNR, Drainage Board, NRM, SA Water, DSD, EPA) consultation, including ID of key community issues (e.g. UCG, BLCZ)
- Lot of existing GW data available → supports baseline & expected condition

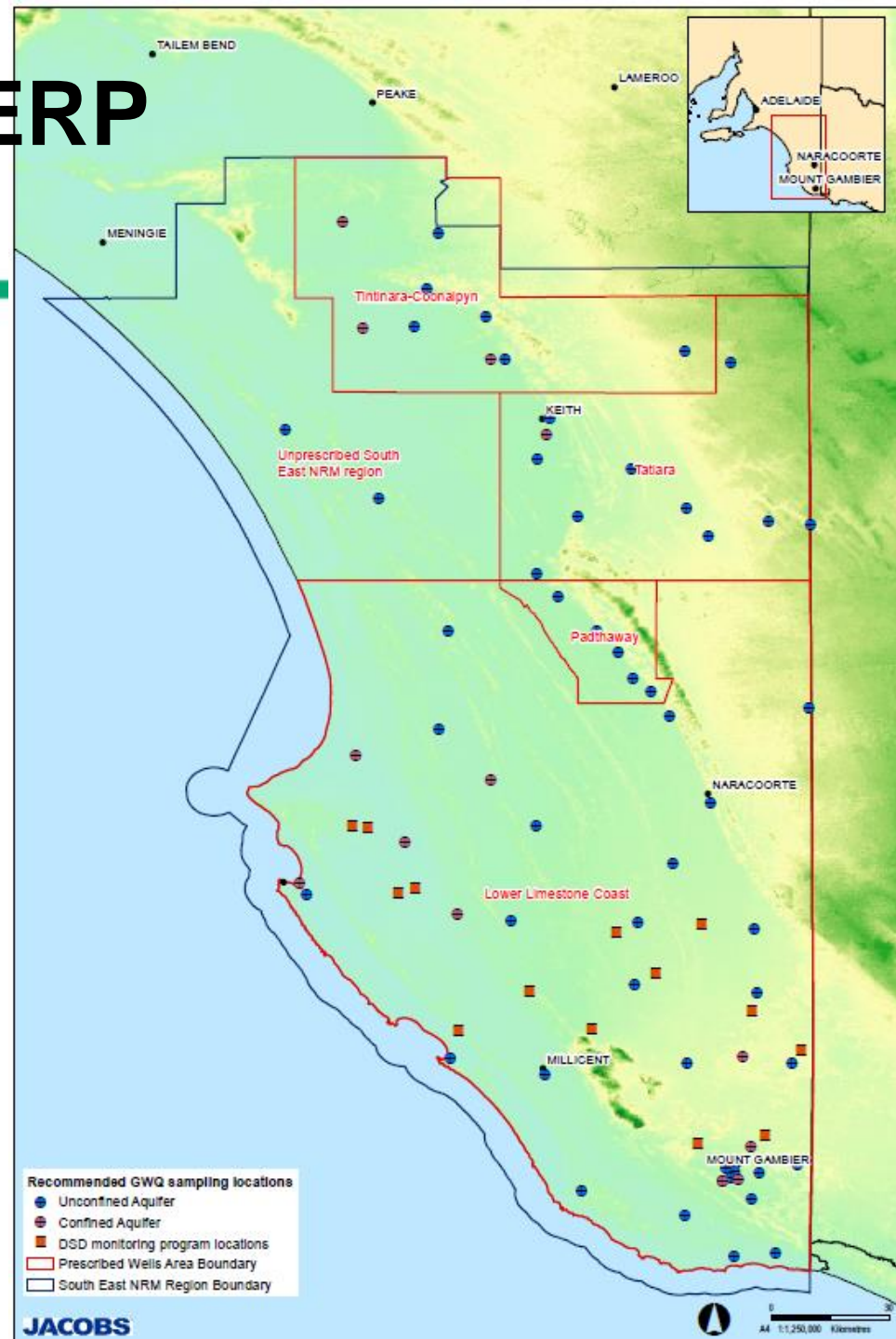
SE Potential Hazards to GW Quality

- Irrigated agriculture
- Plantation forestry
- Seawater intrusion
- Dairies
- Viticulture
- Petroleum and gas exploration and production
- Intensive uses (Mt Gambier)
- Dryland agriculture
- Centre pivot irrigation
- Piggeries
- Dairy
- Septic tanks
- Drainage wells
- Timber mills
- Intensive animal keeping

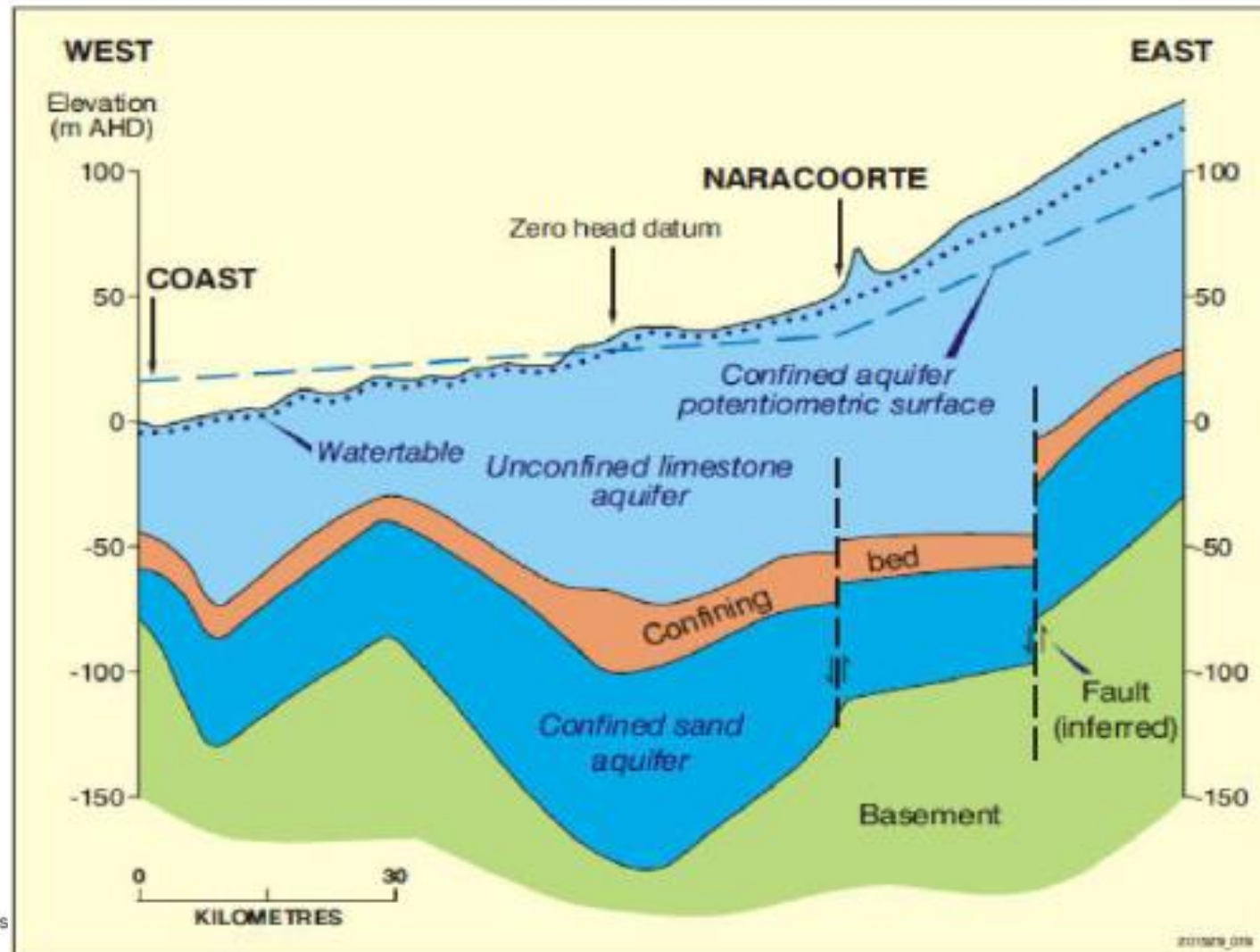
SGWQMERP → GWQMERP



South Australia's Environment Protection Authority

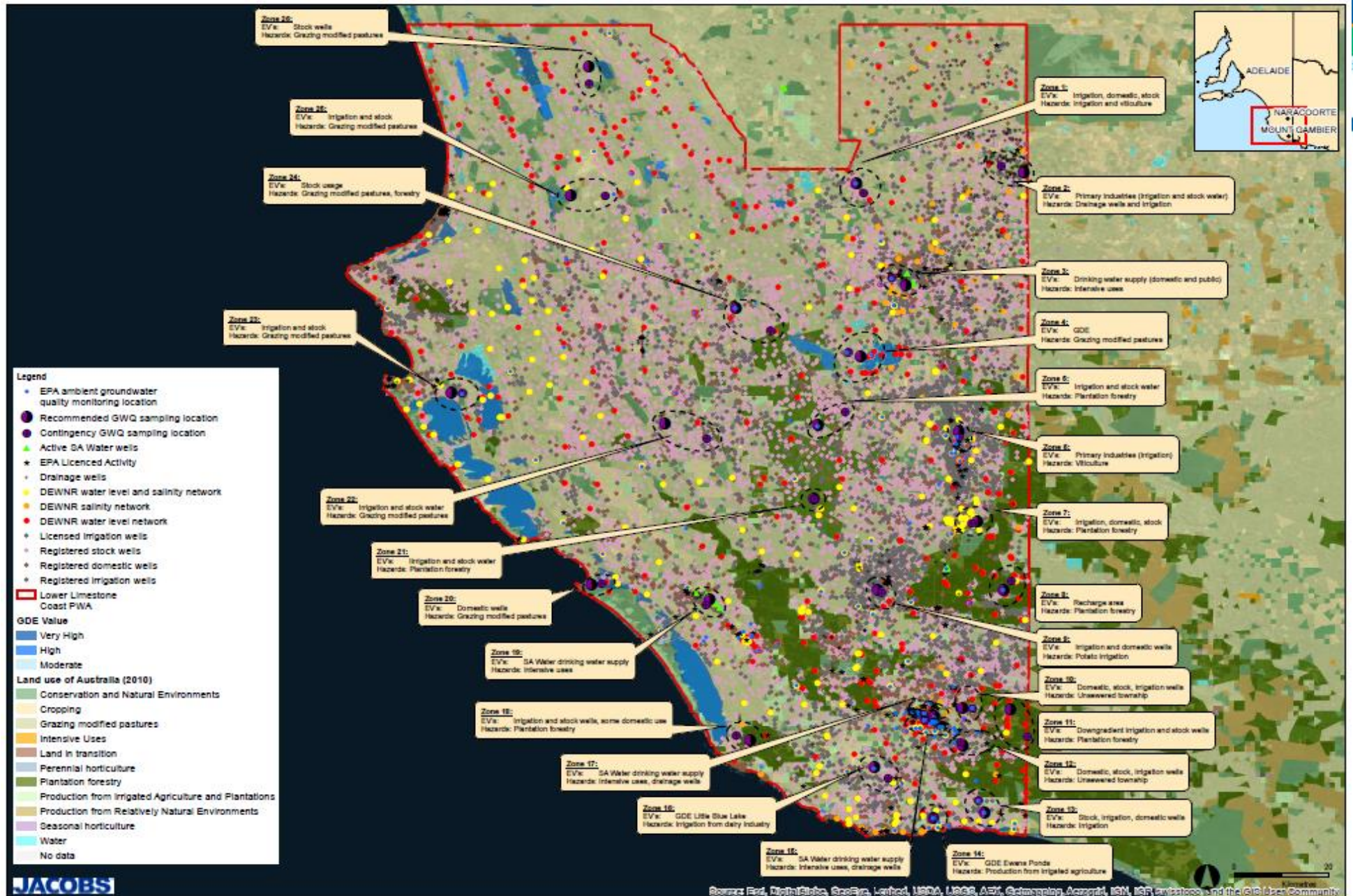


Conceptual Model



Existing Wells

EPA

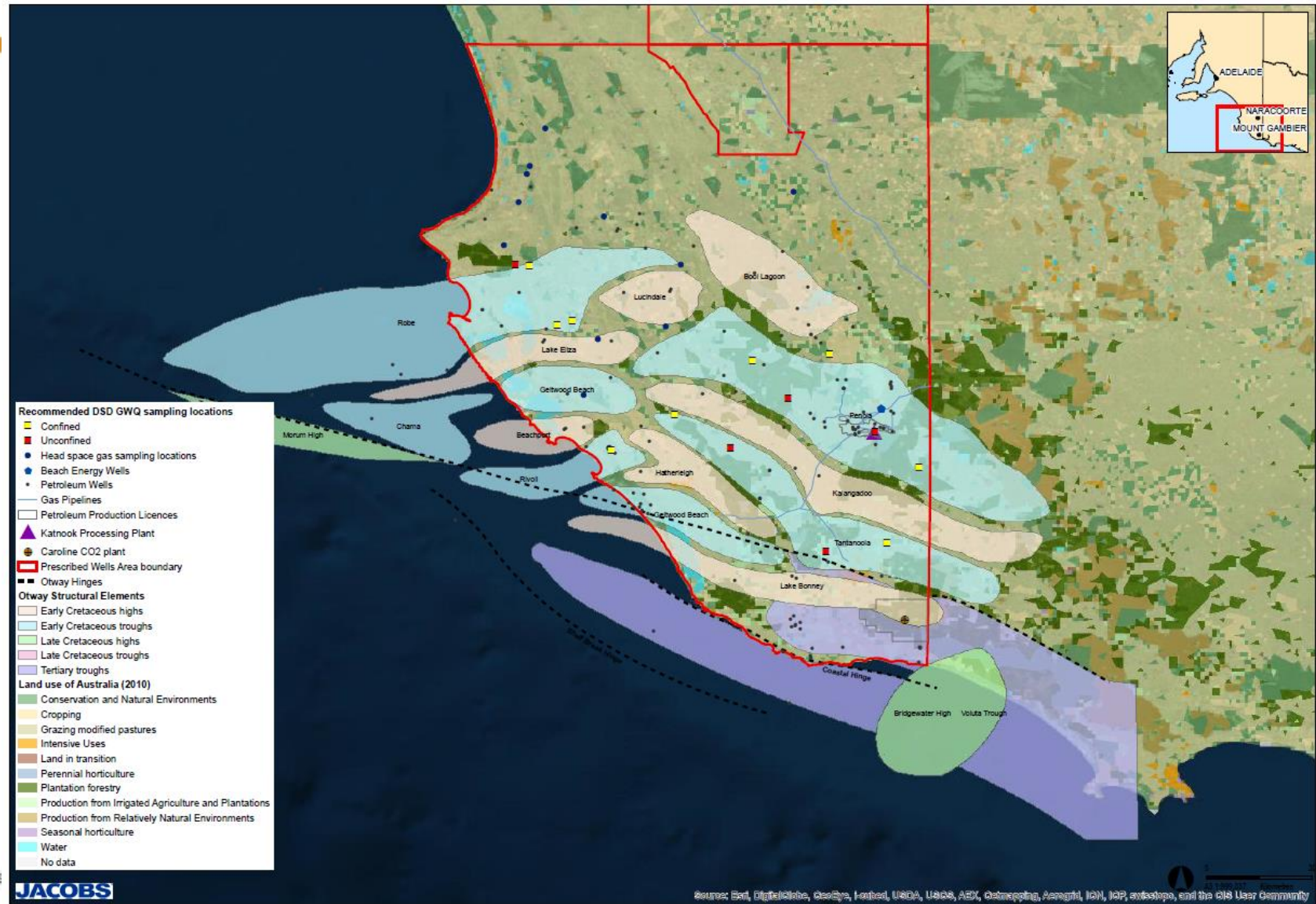




Proposed DSD Monitoring Program

- Monitoring locations aligning with areas of current & potential future petroleum exploration & development
- Within boundaries of prospective Early Cretaceous Troughs
- Intent to collect baseline data to assess any impacts of future exploration & development
- 1995 gas sampling from wells completed in Tertiary Dilwyn Formation confined aquifer reported (natural) flammable gas
- 14 specific proposed monitoring locations (unconfined & confined aquifer)
- Monitoring proposed to commence in 2015

Proposed DSD Monitoring Locations



Thanks for your time!

Questions?



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