

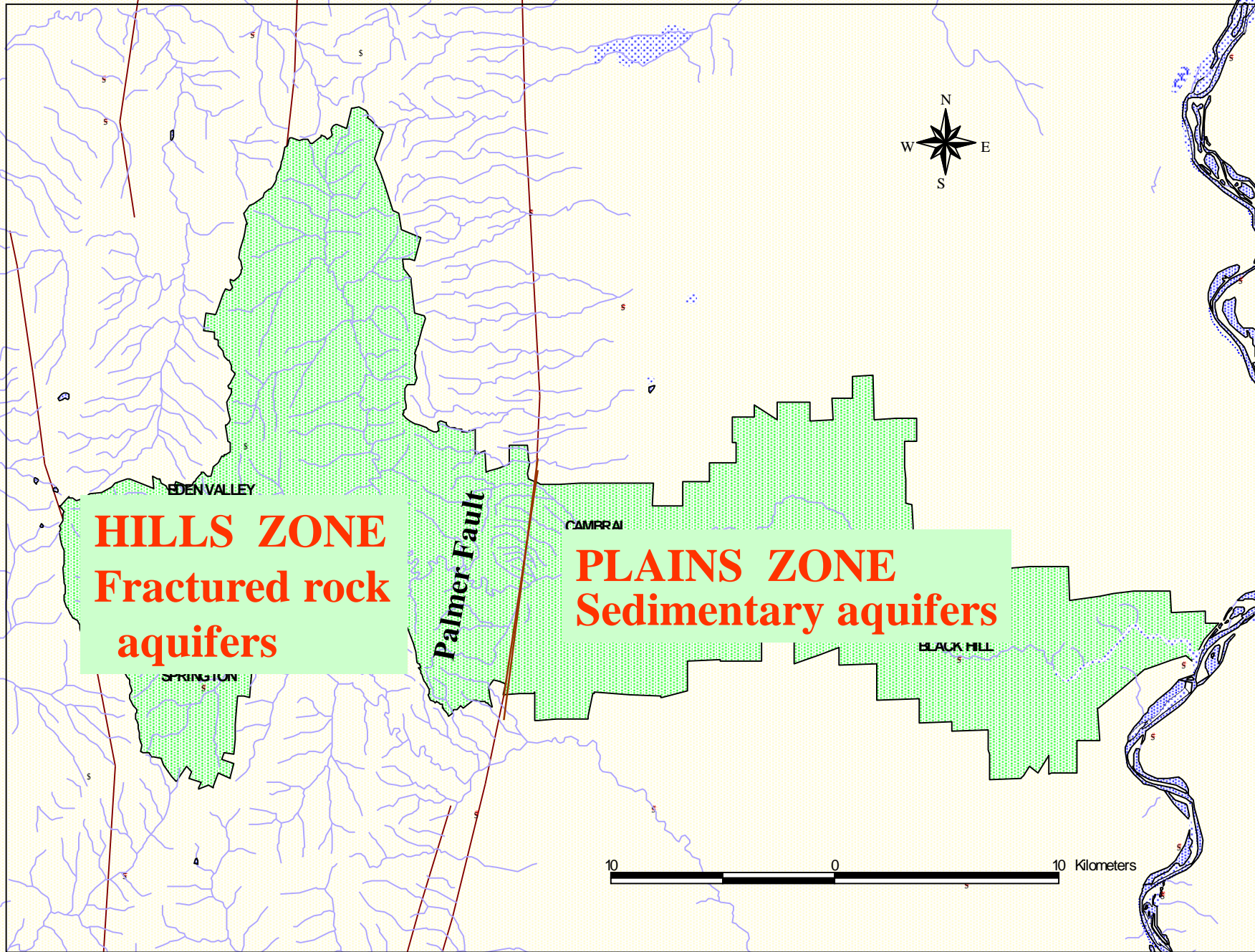
# Marne Saunders PWRA

## STATUS OF GROUNDWATER RESOURCES

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Water Science Unit



Government of South Australia  
Department for Environment  
and Water



**HILLS ZONE**  
Fractured rock  
aquifers

**PLAINS ZONE**  
Sedimentary aquifers

*Palmer Fault*

EDEN VALLEY

SPRINGTOWN

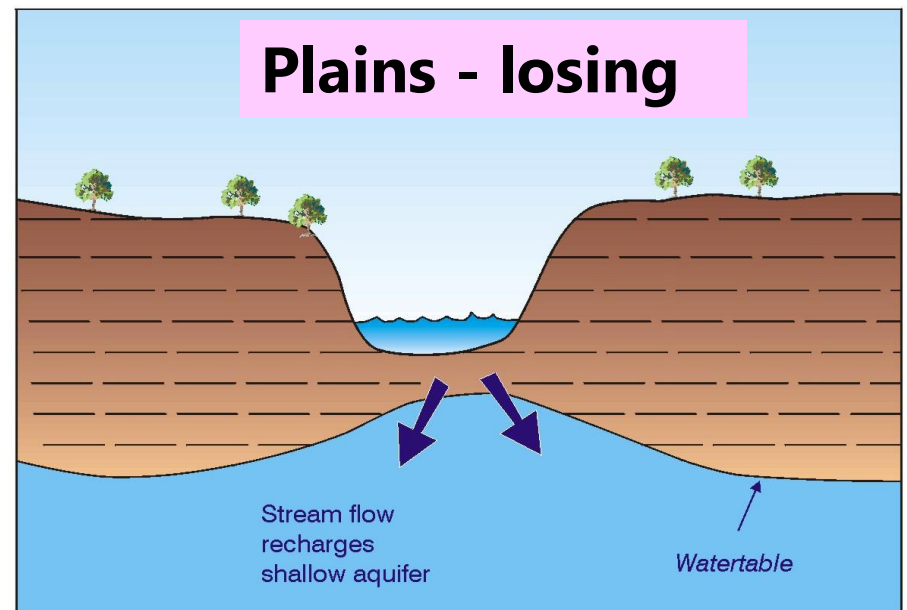
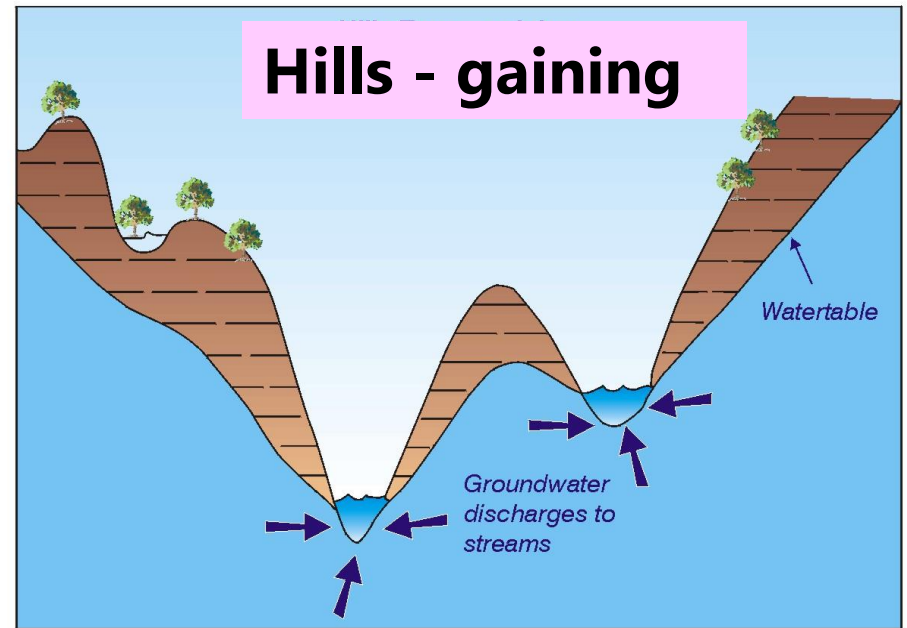
CAMPRAI

BLACK HILL



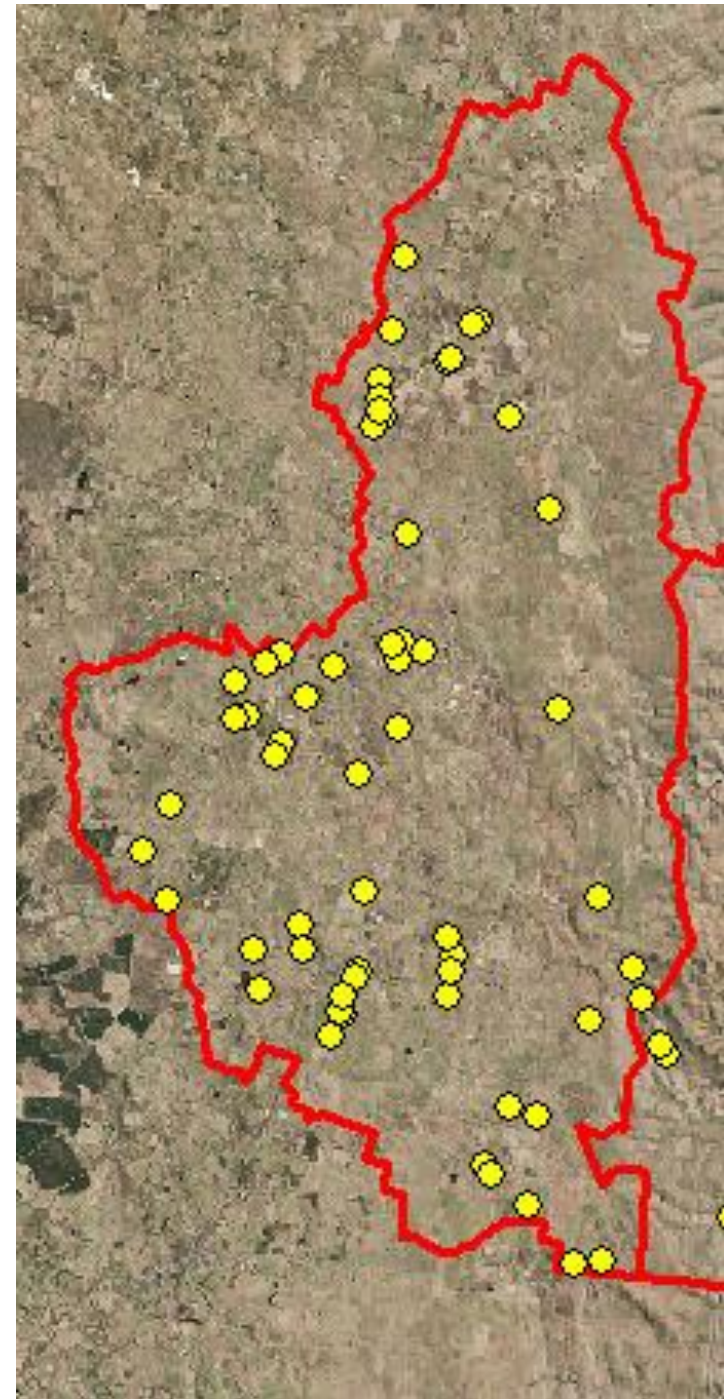
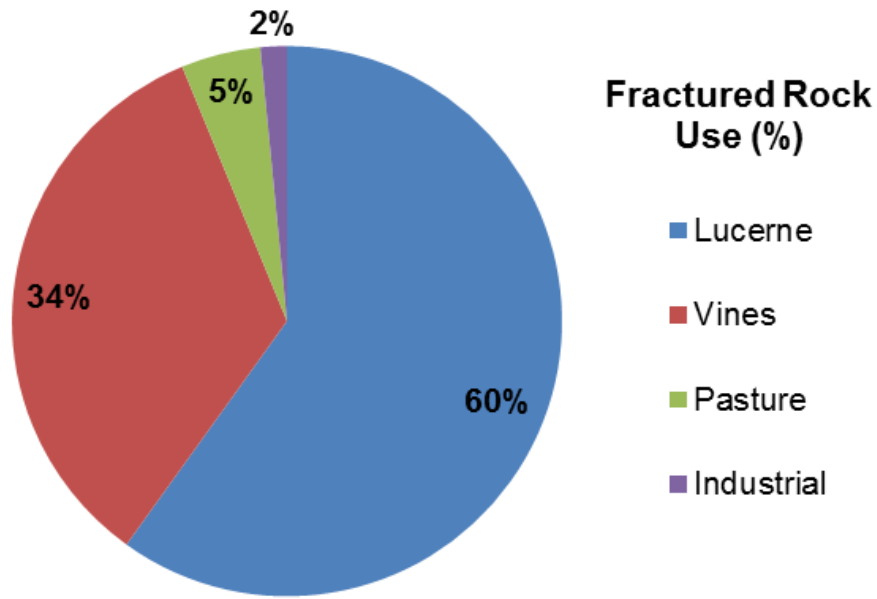
10 0 10 Kilometers

# Groundwater Stream interaction

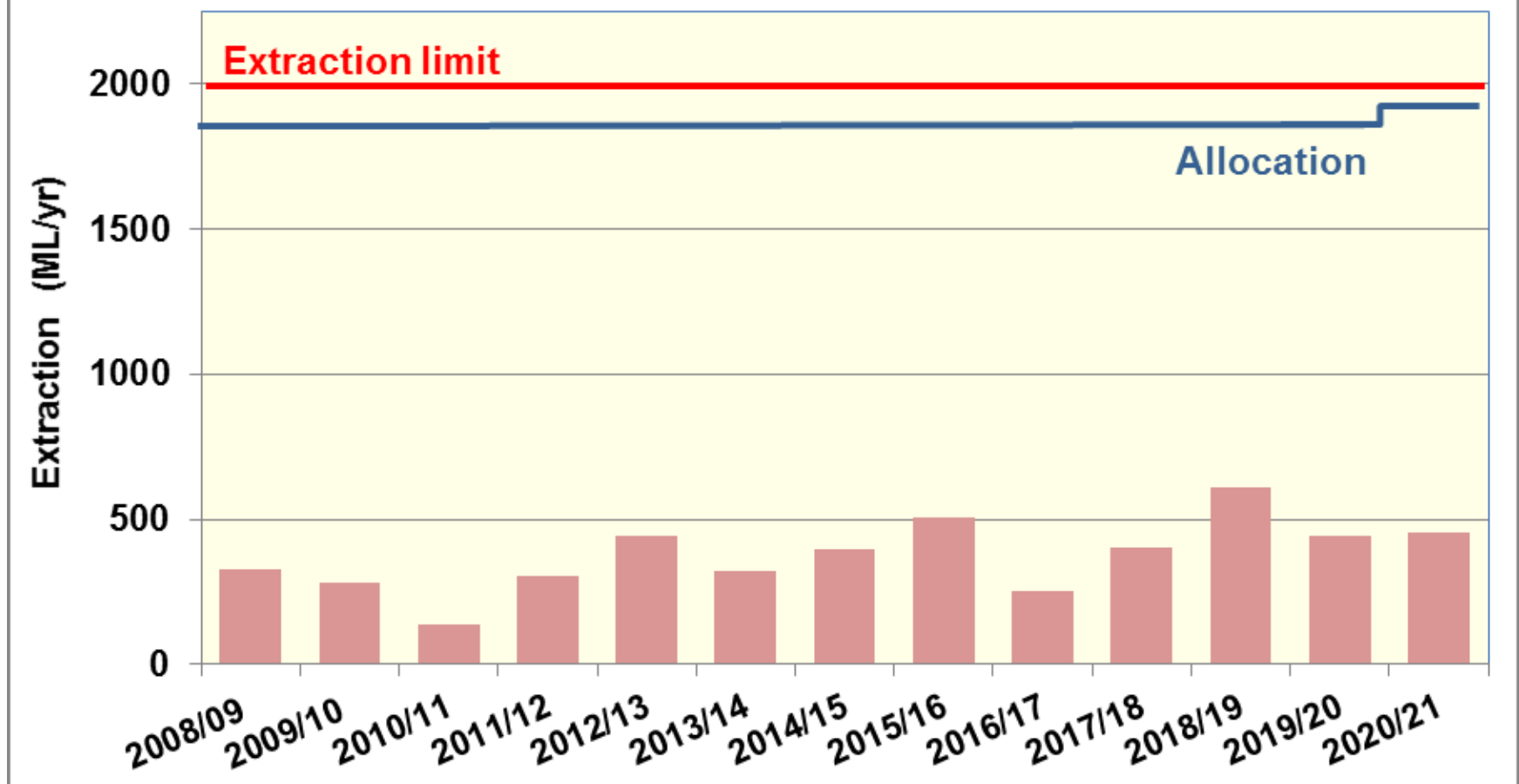


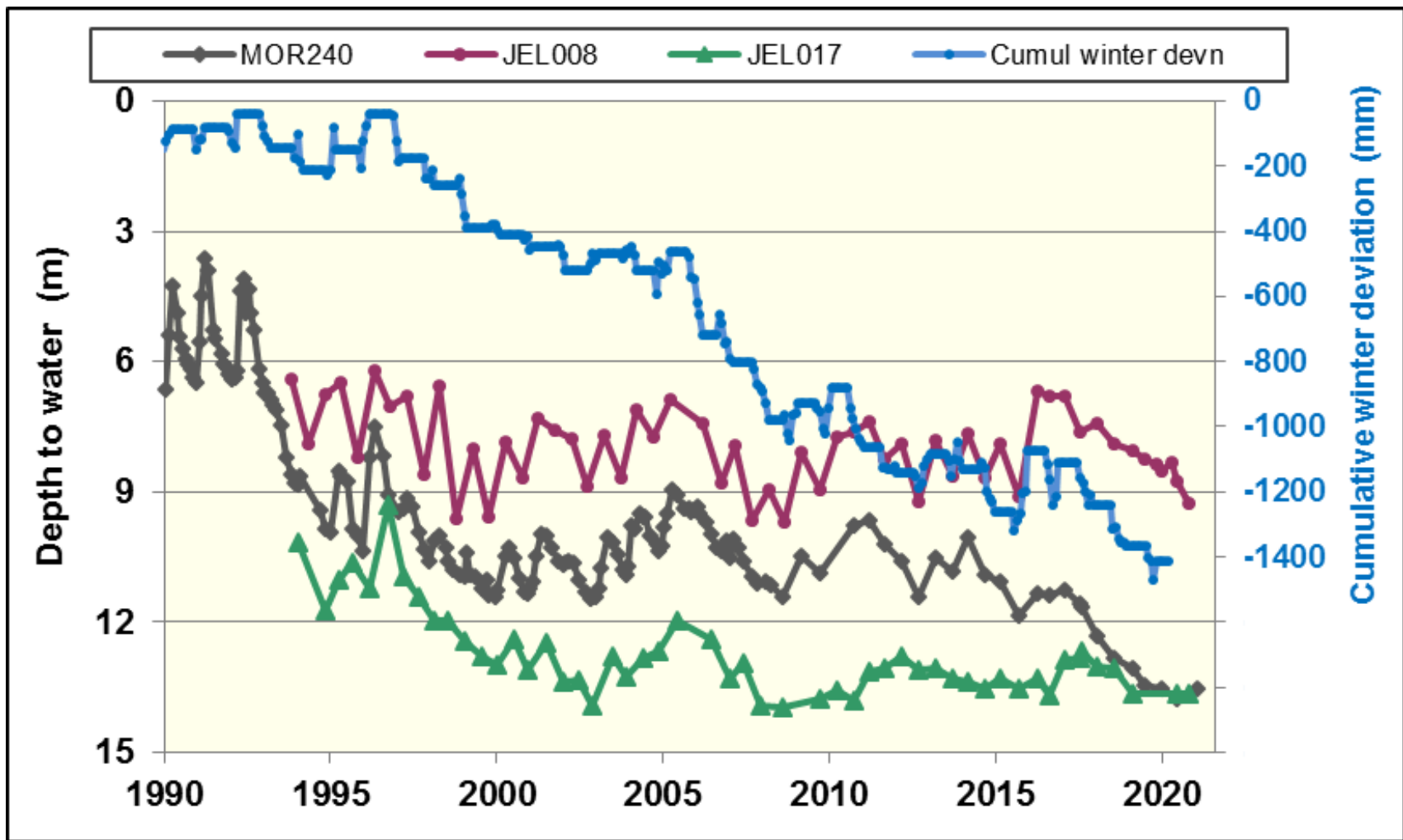
# HILLS ZONE

- Fractured rock aquifers
- Variable yields and salinities

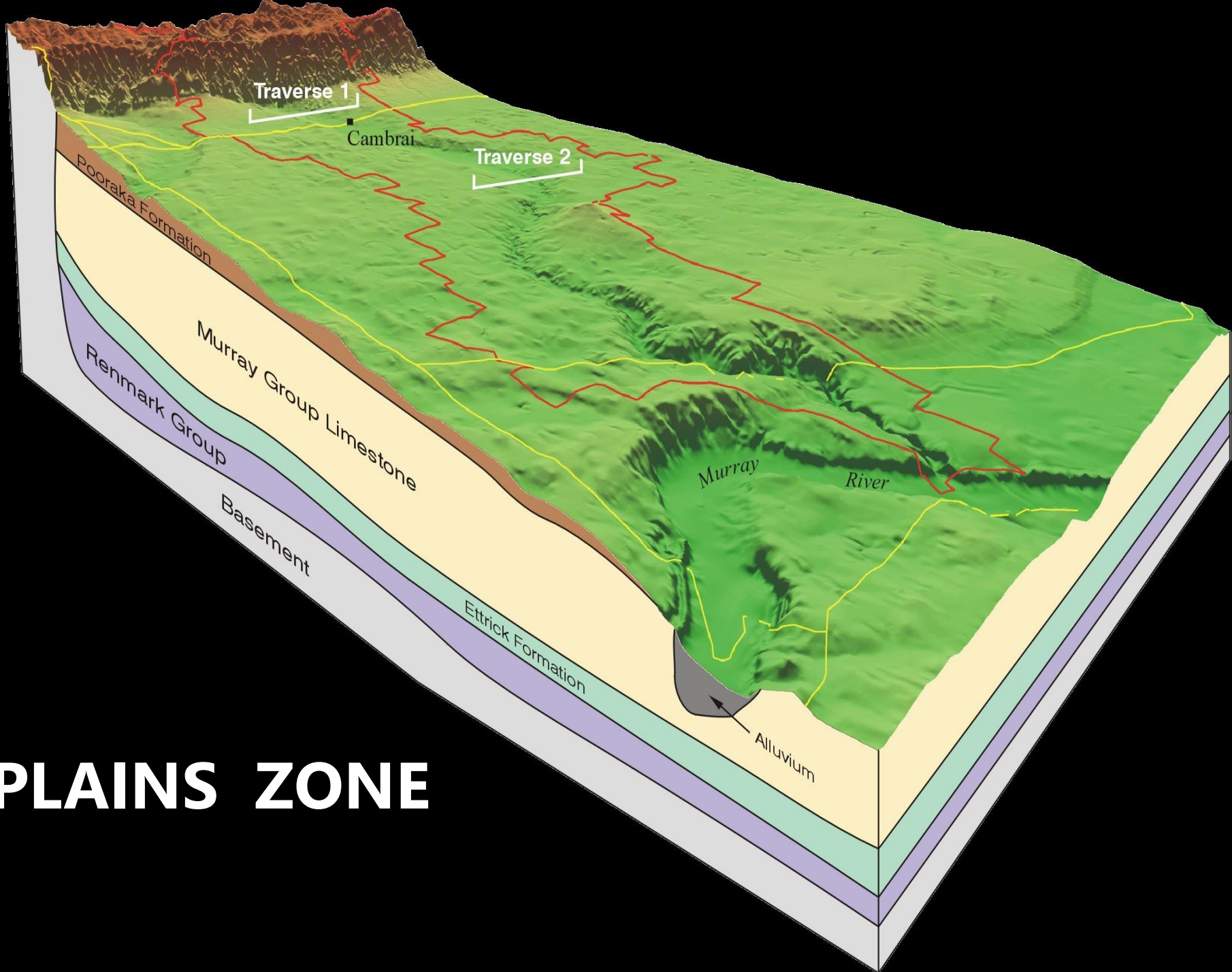


# FRA



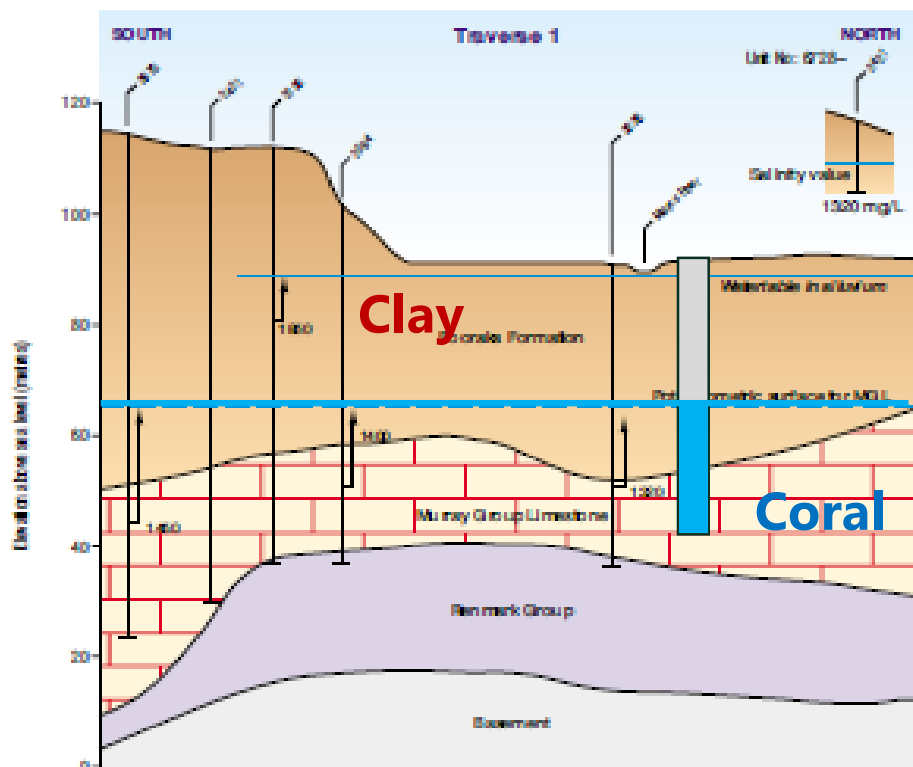




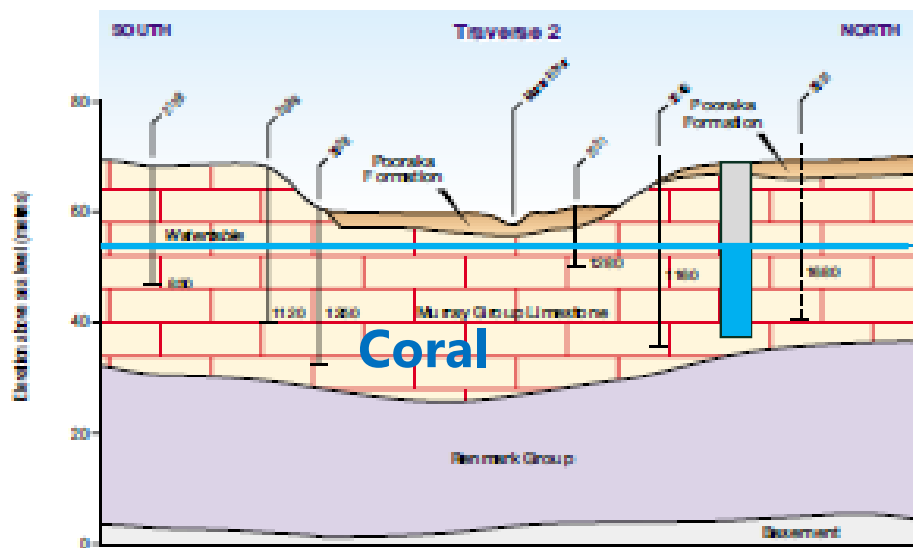


# PLAINS ZONE

**Confined –  
Upstream of main  
road**

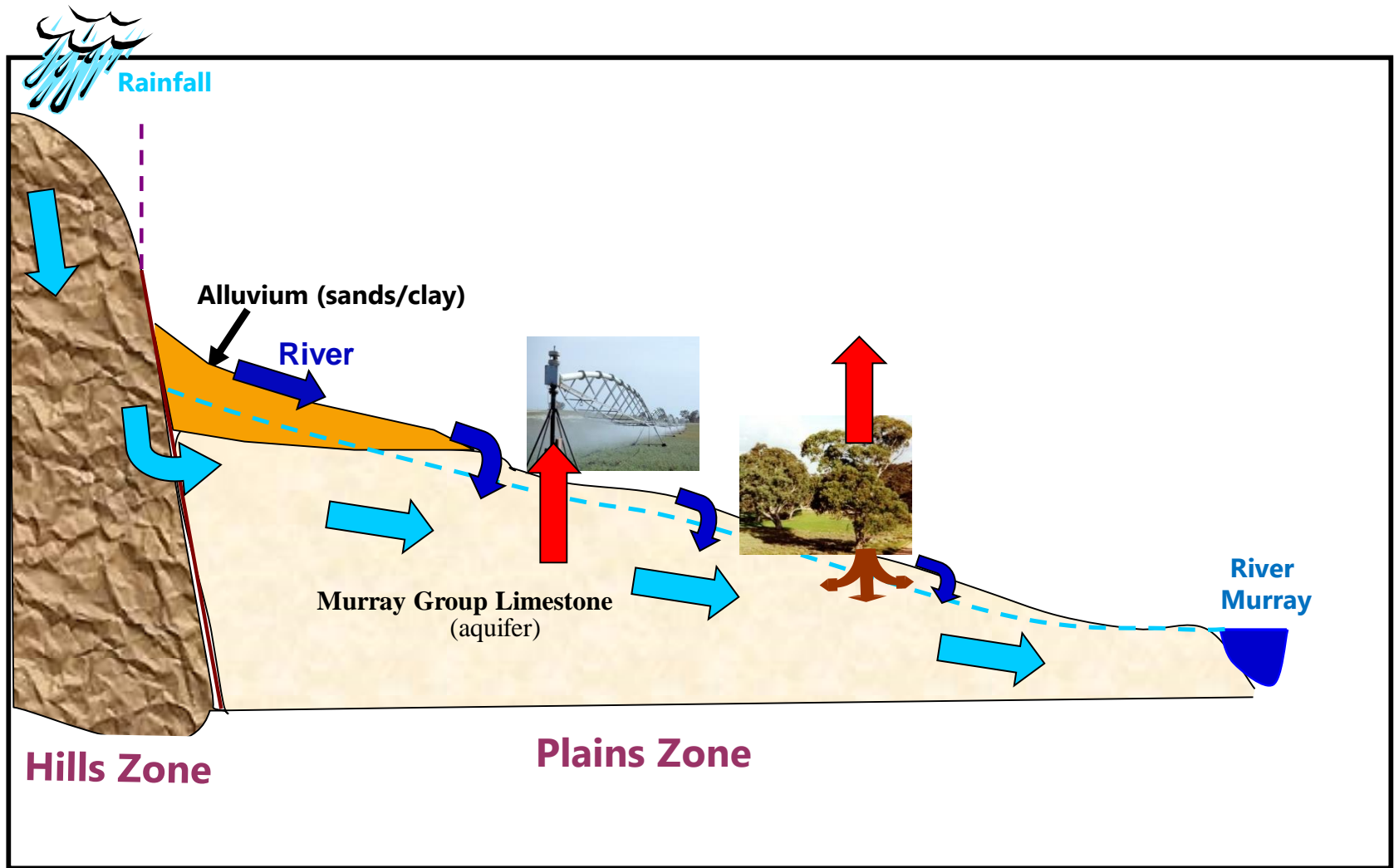


**Unconfined –  
Downstream of main  
road**

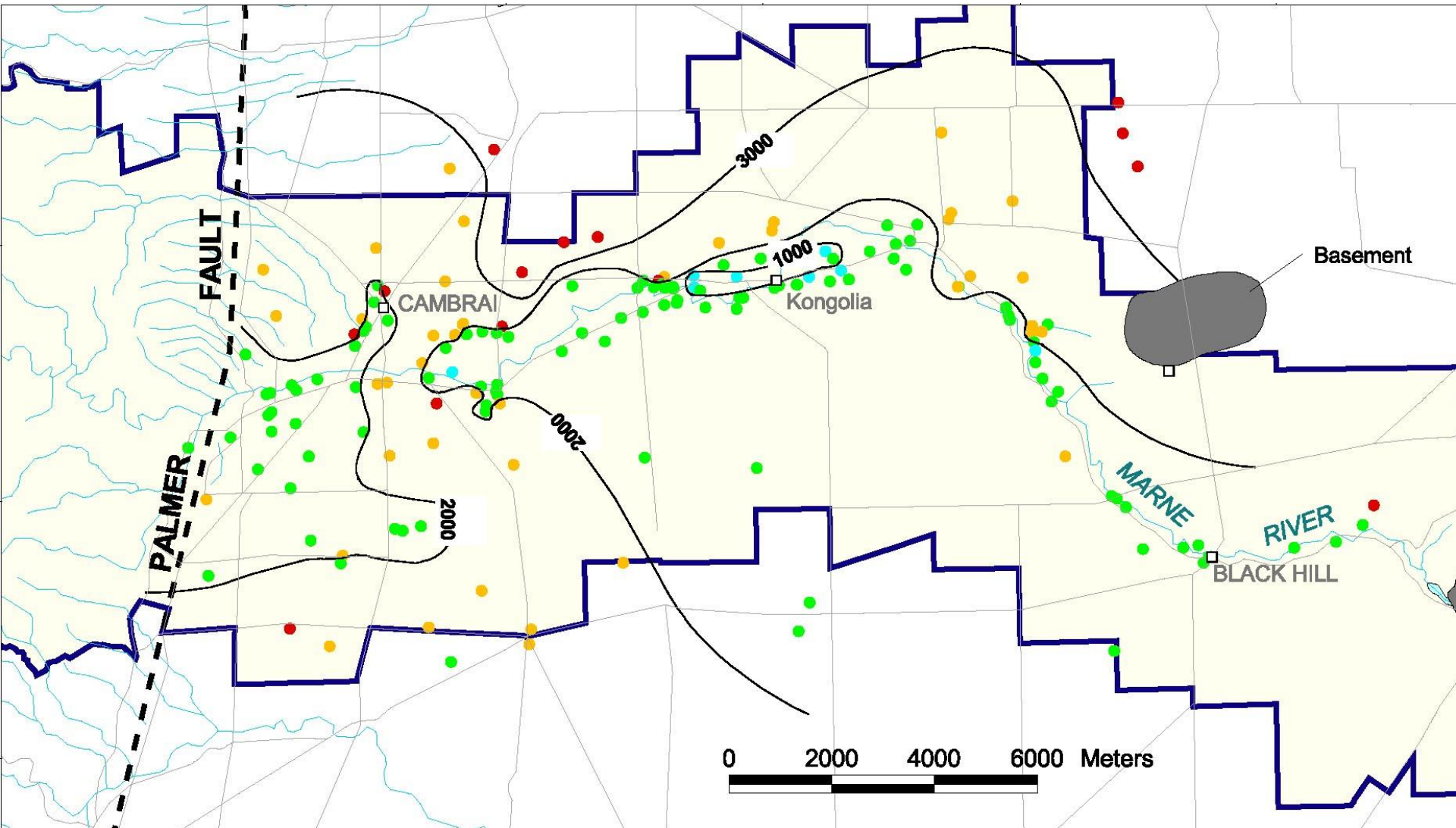


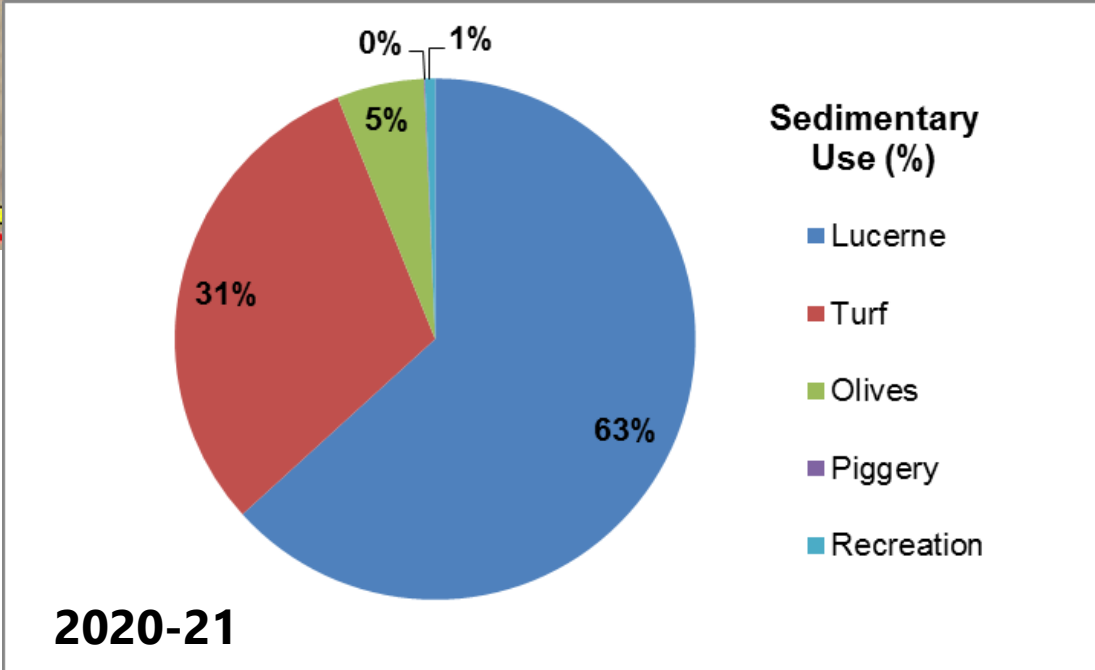
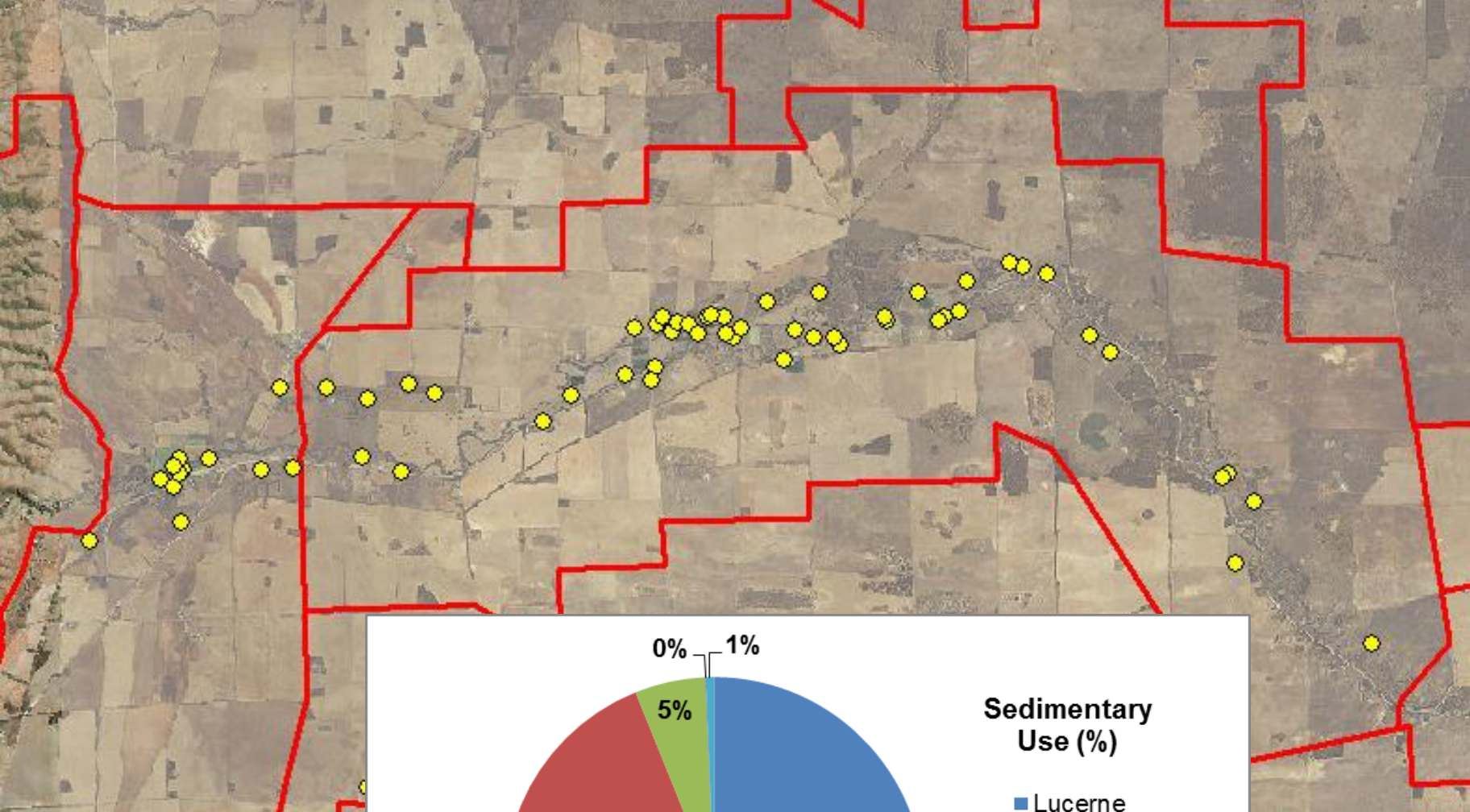


# Recharge and discharge mechanisms

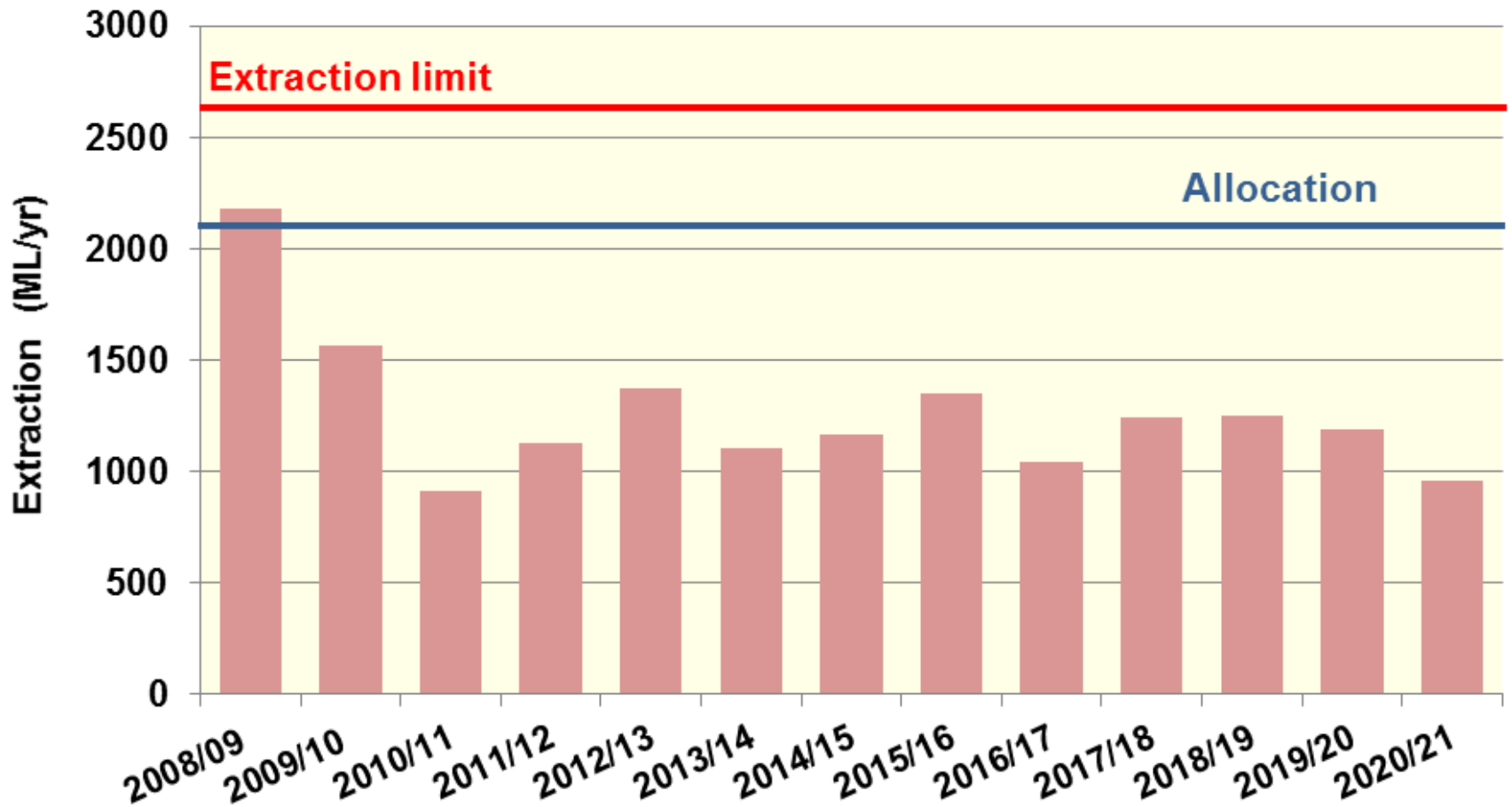


# Groundwater salinity

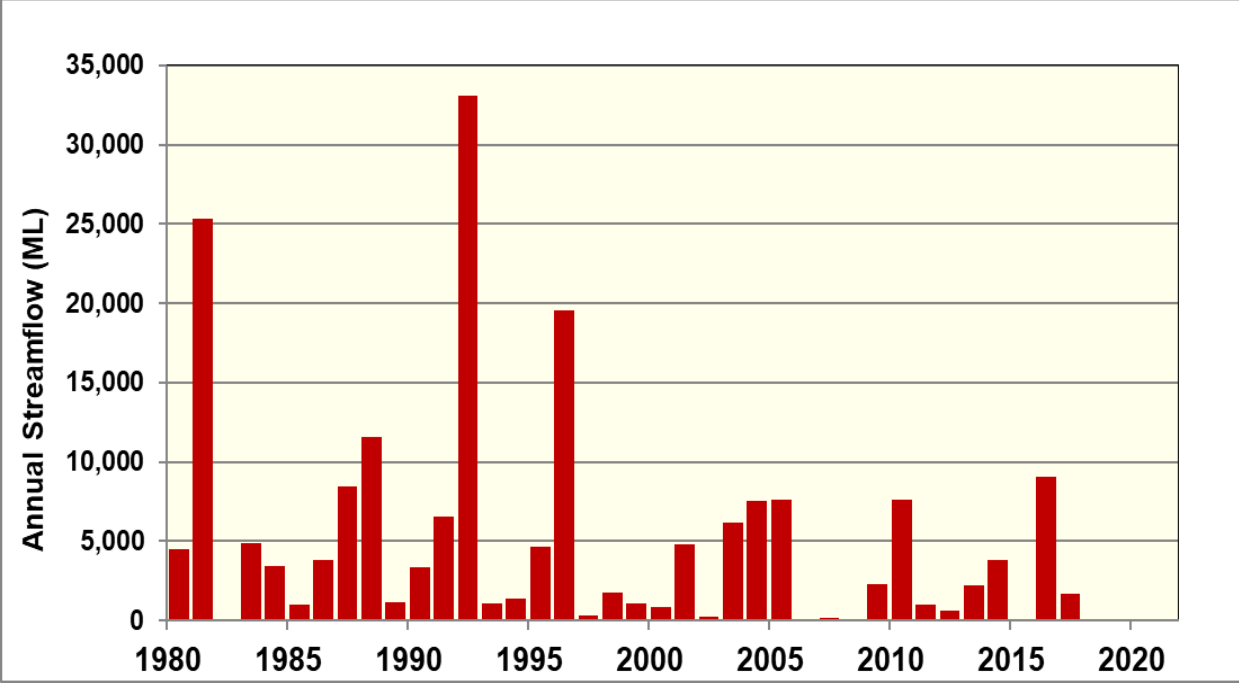
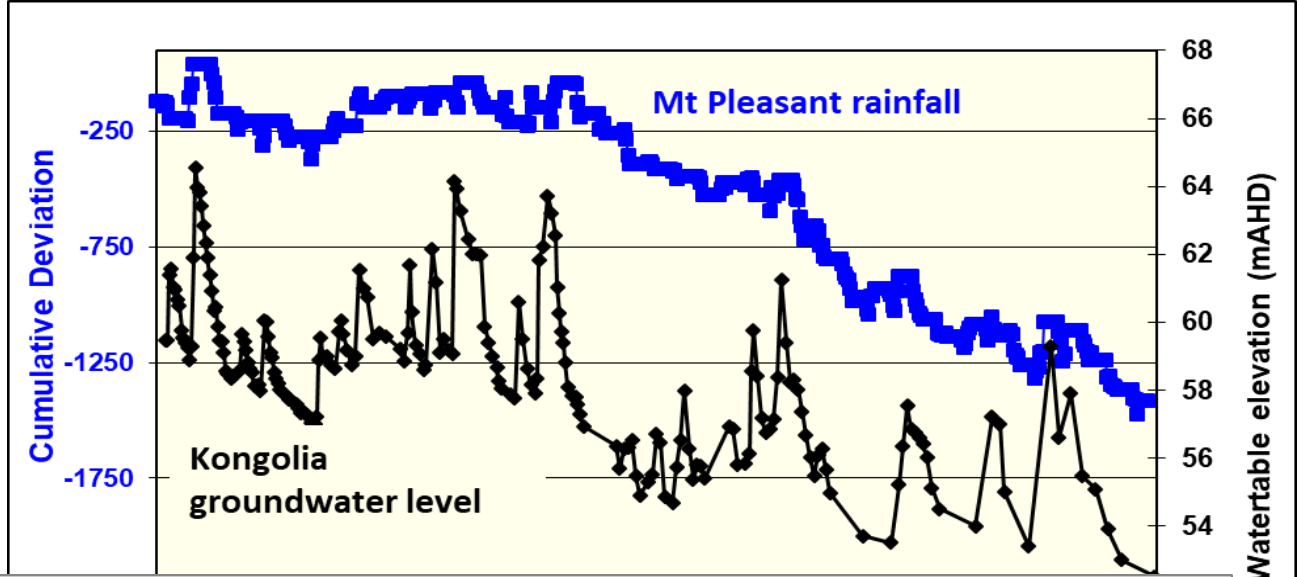




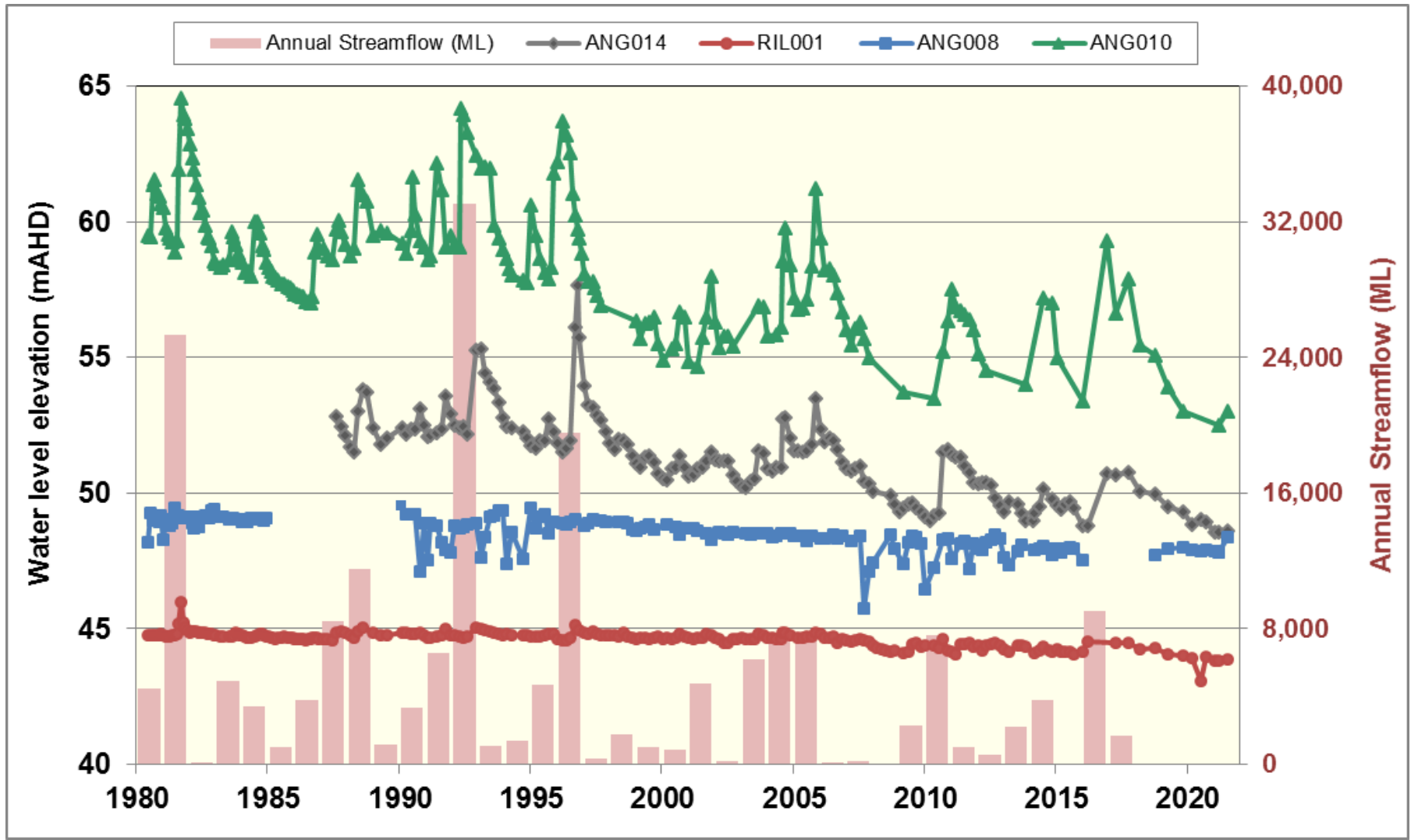
# MGL



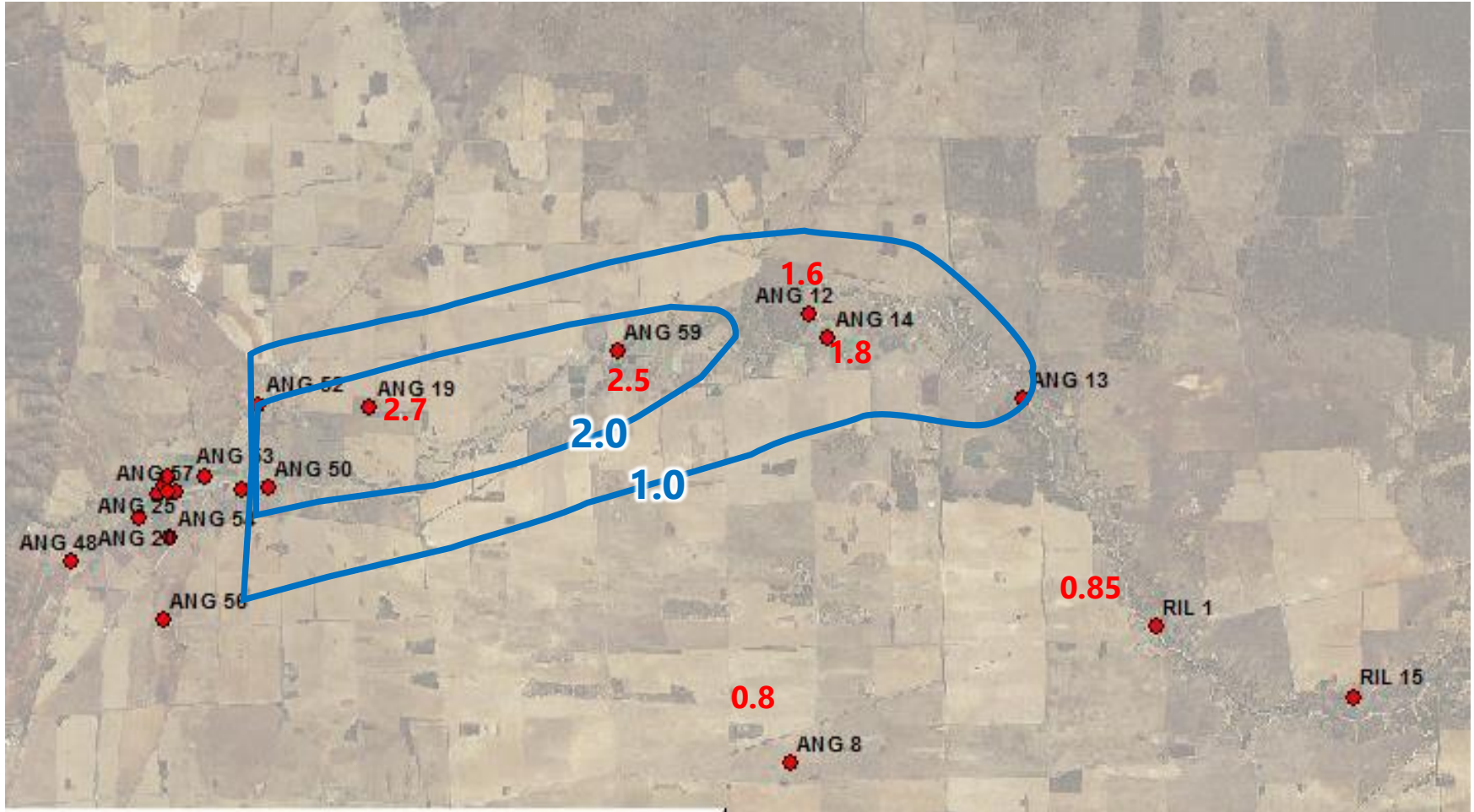
# Rainfall → Streamflow → GW level

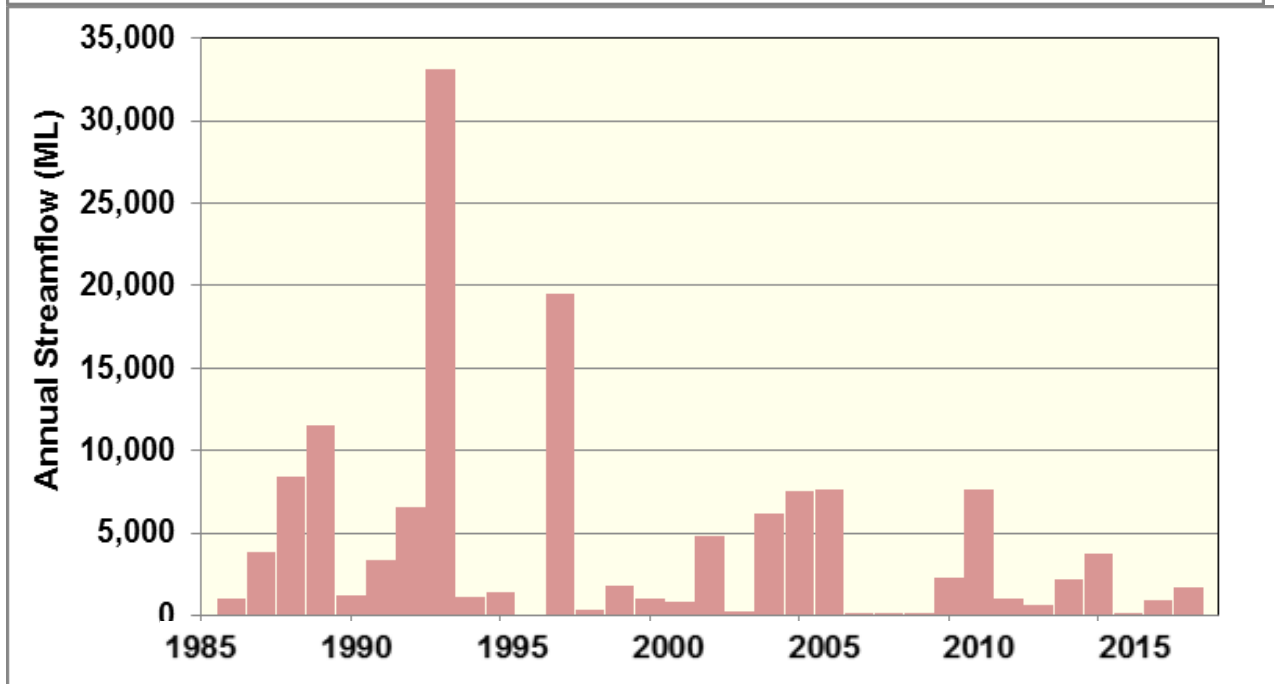
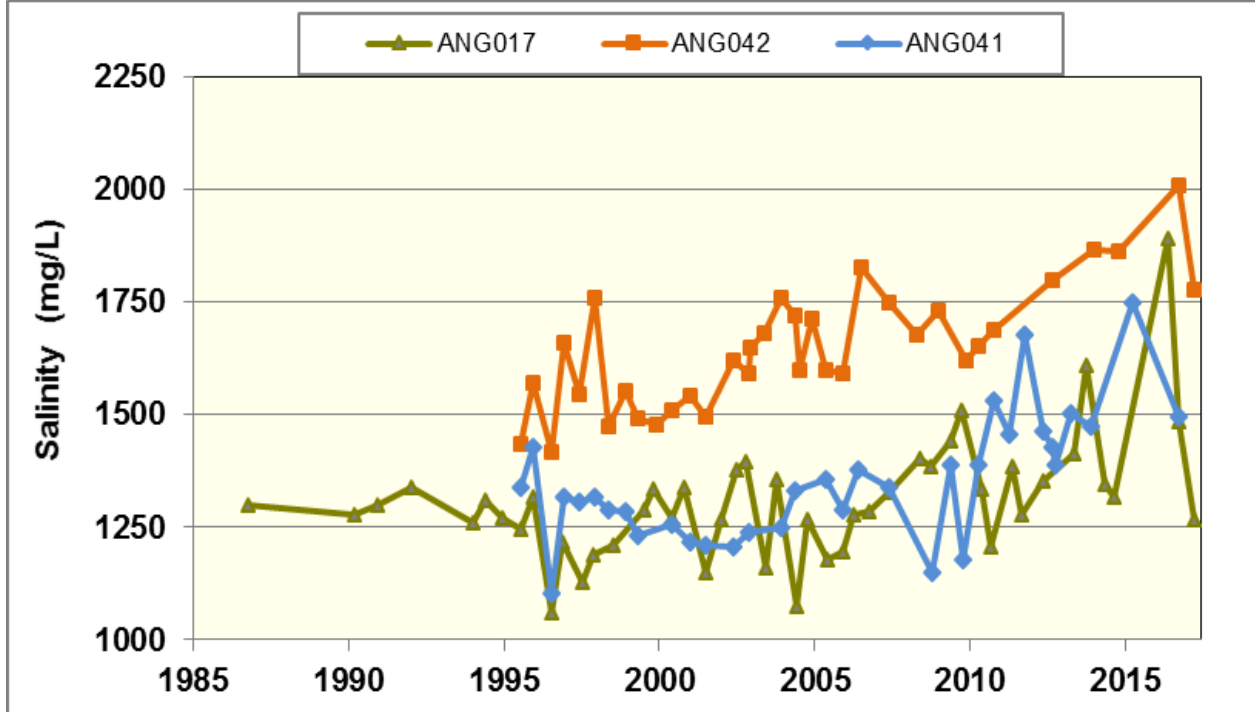






# Water level decline since 2000





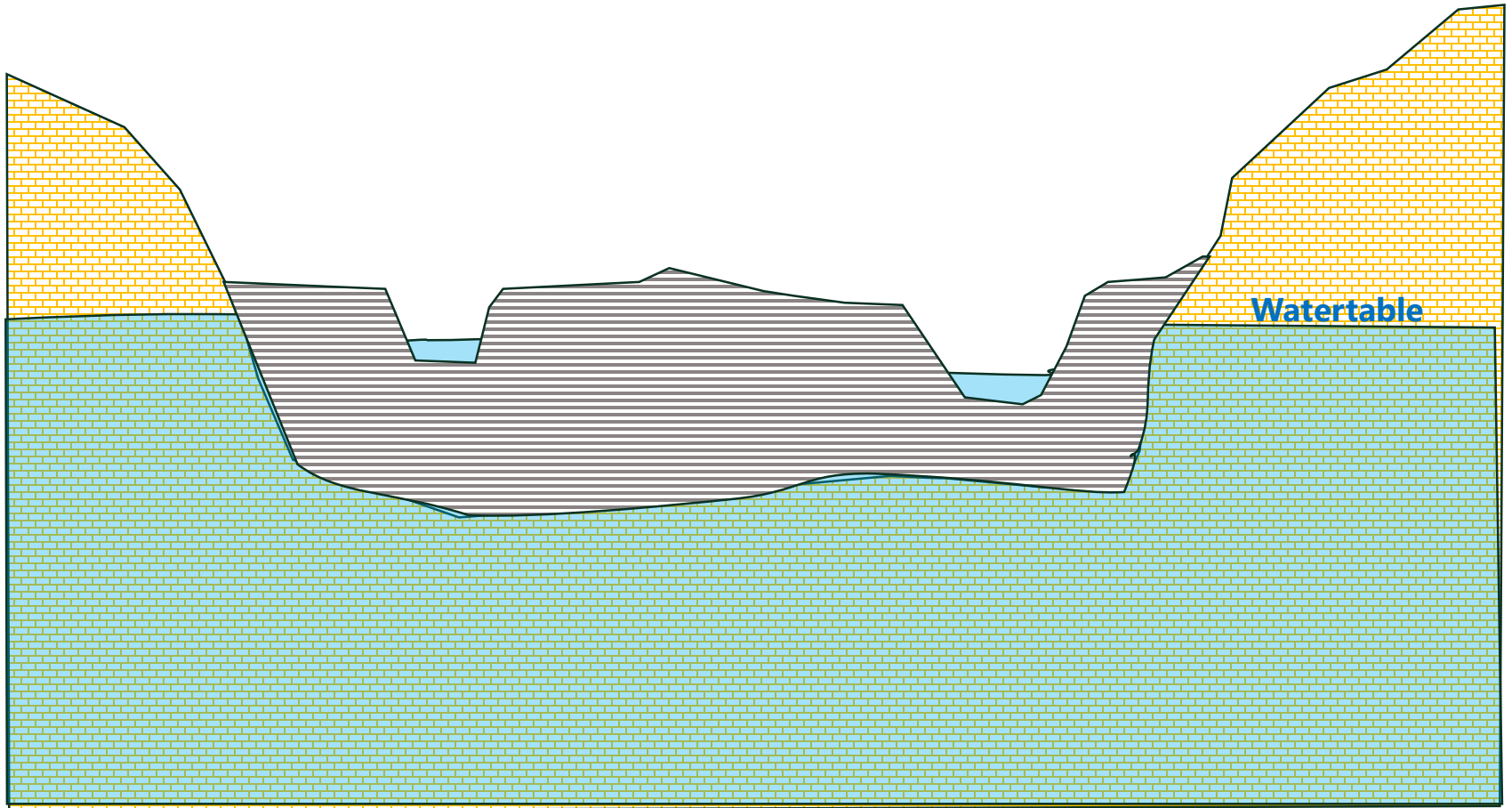
# Irrigation not the only extraction

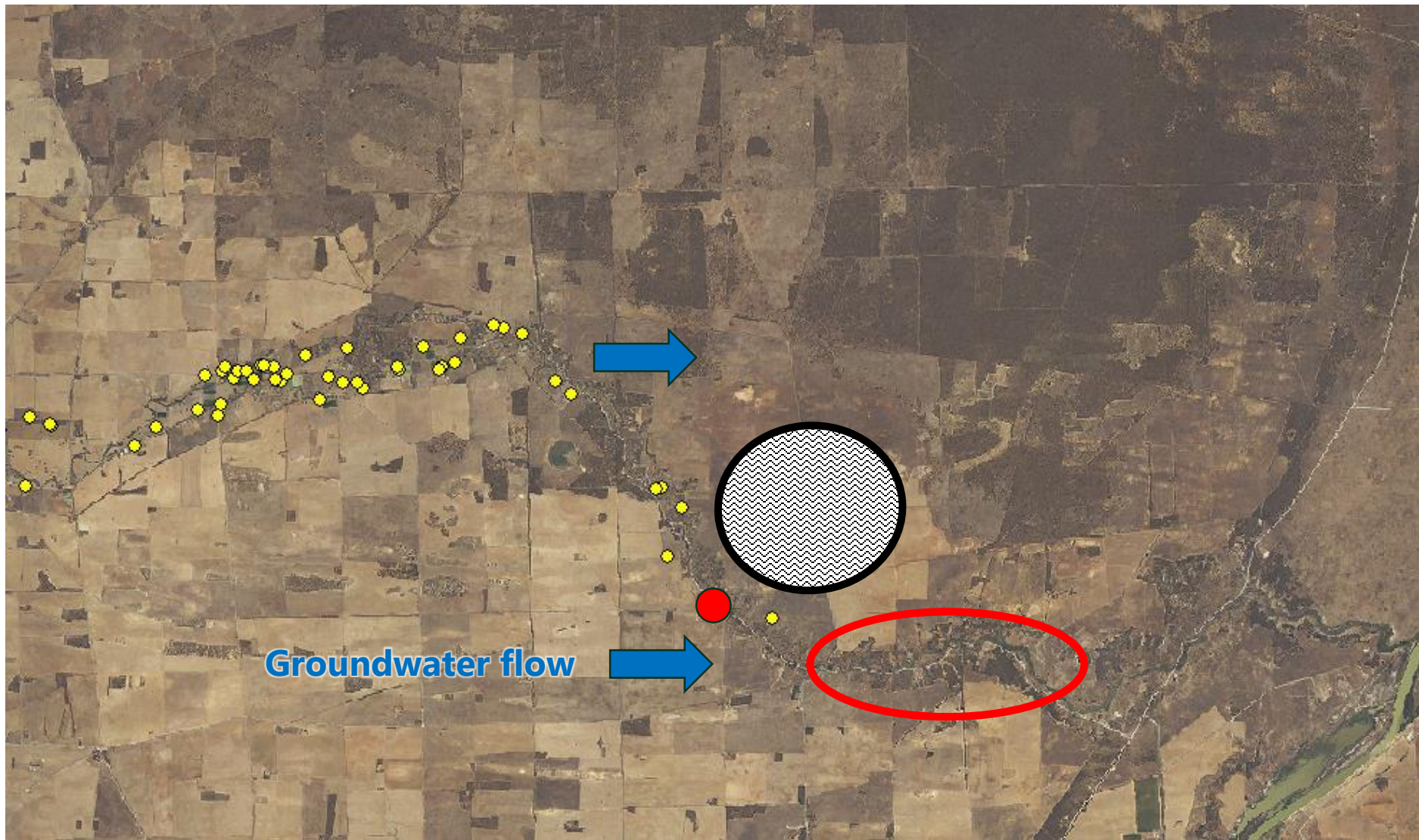
- Red gums transpire water from rainfall, streamflow and groundwater
- Sap flow measurements indicate EV up to 200 ML/yr from the floodplain (~1200 ML/yr pumped)

# Black Hill springs/waterholes

- Contained within black silty alluvium within the river valley
- Probably limited connection with regional limestone aquifer (waterholes have higher salinity than limestone aquifer)
- Limestone water levels declined by 0.85 m over 25 years
- Strongly reliant on surface water flows





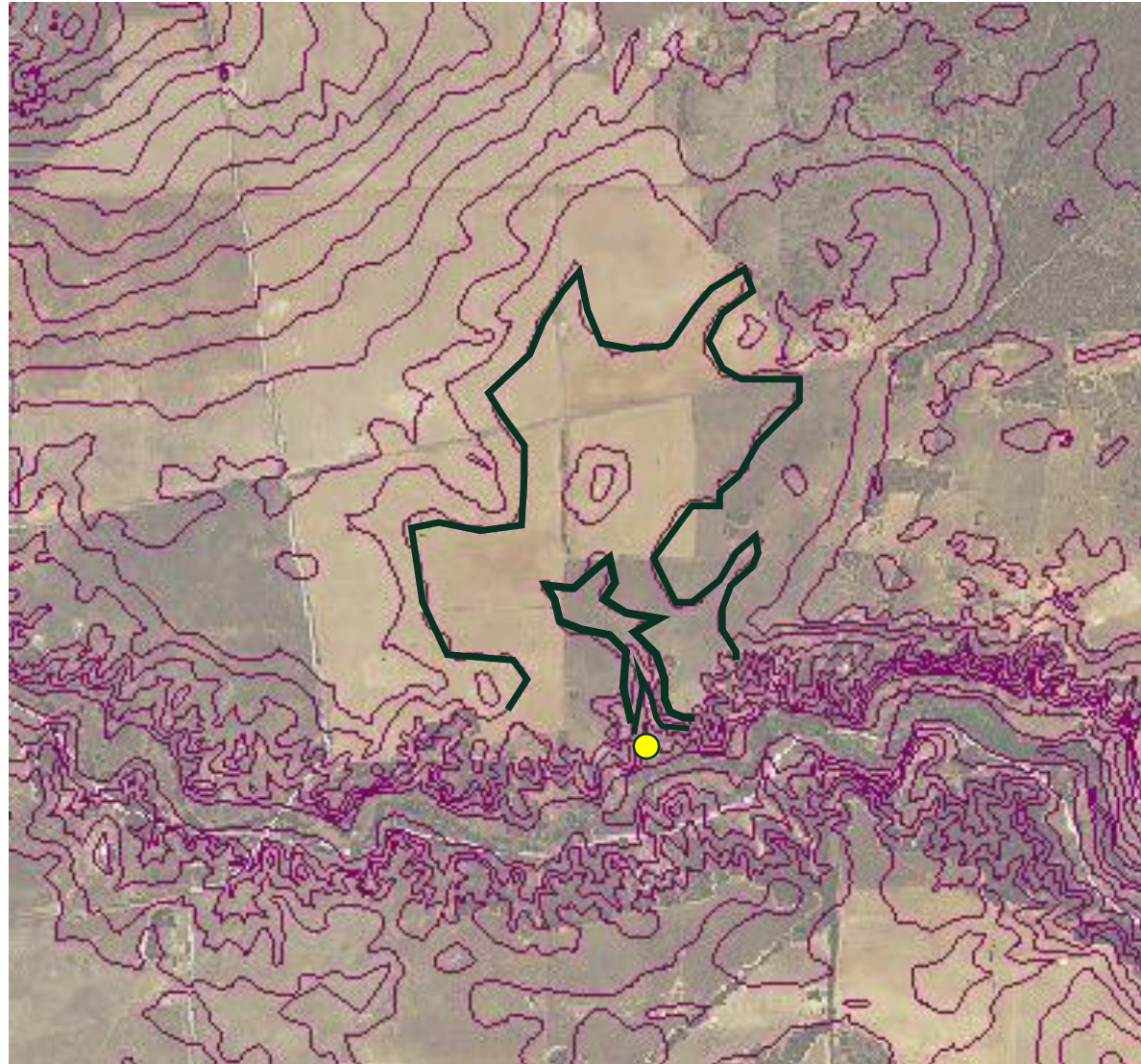


Irrigation is not impacting on the springs



# Black Hill springs Sec 324

**Fed by rainfall  
falling on  
catchment on  
side of Black Hill**



# Options for maintaining groundwater supplies

## Bore deepening

- About 14 licenced wells could be deepened by about 10m
- If enough interest, could negotiate a 'bulk' discount from driller

# Renmark Gp confined aquifer

- Deep and expensive drilling (sandscreen)
- Unpredictable, no guarantee of useful supply
- WAP has an allocation limit of 500 ML/yr with no current use





# Summary

- Recharge from streamflow is the main control on groundwater levels on the Plains
- Periods of below average rainfall will reduce streamflow and lead to a gradual decline in groundwater levels
- There is potential to deepen some bores
- Irrigation is not affecting the Black Hill springs



Government  
of South Australia

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Department for  
Environment and Water