

Effect of flow alteration on floodplains, rivers and estuaries of southern Gulf

Prof Michele Burford
Australian Rivers Institute
Griffith University





National Environmental Science Programme



National Environmental Science Programme



National Environmental Science Programme



National Environmental Science Programme



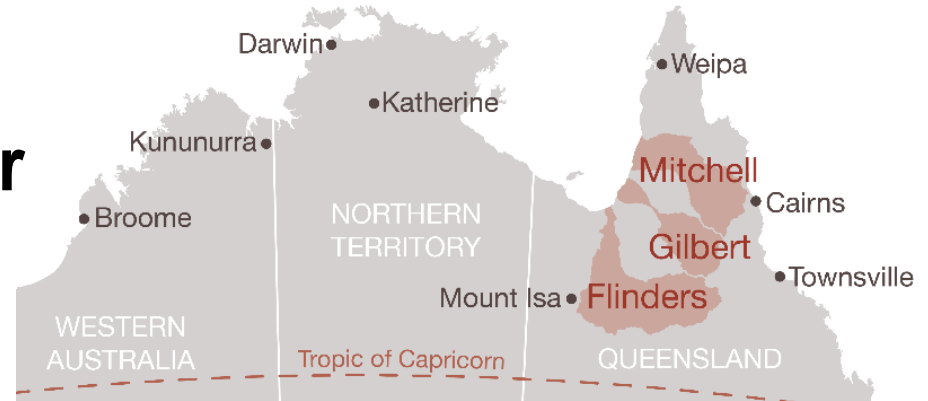
National Environmental Science Programme



National Environmental Science Programme

Northern NESP projects

Providing science to inform decisions on water use in the future



How much water can be extracted, where and when?

What are the downstream implications for communities, environment and economy?



Mitchell River



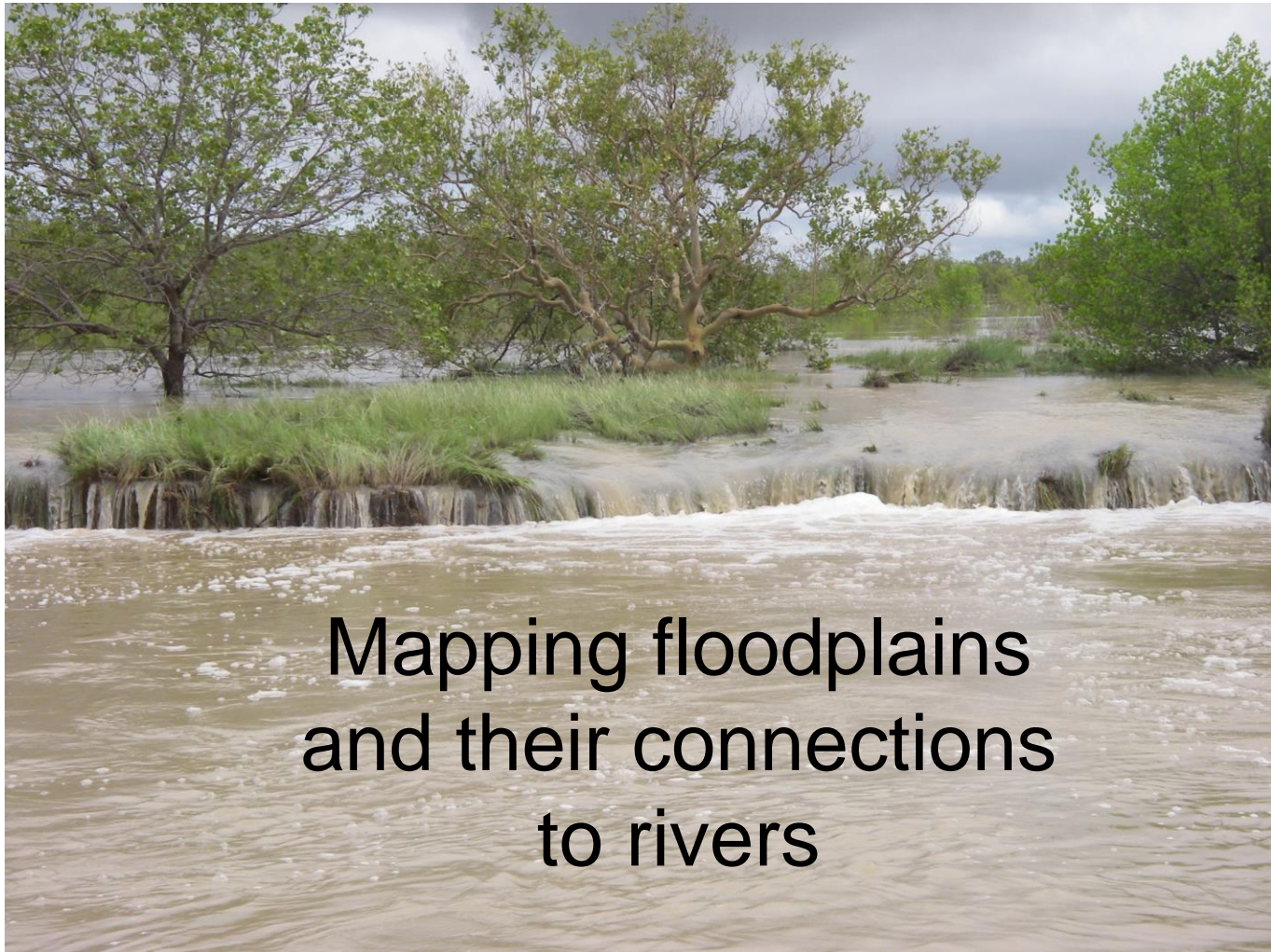
Gilbert River



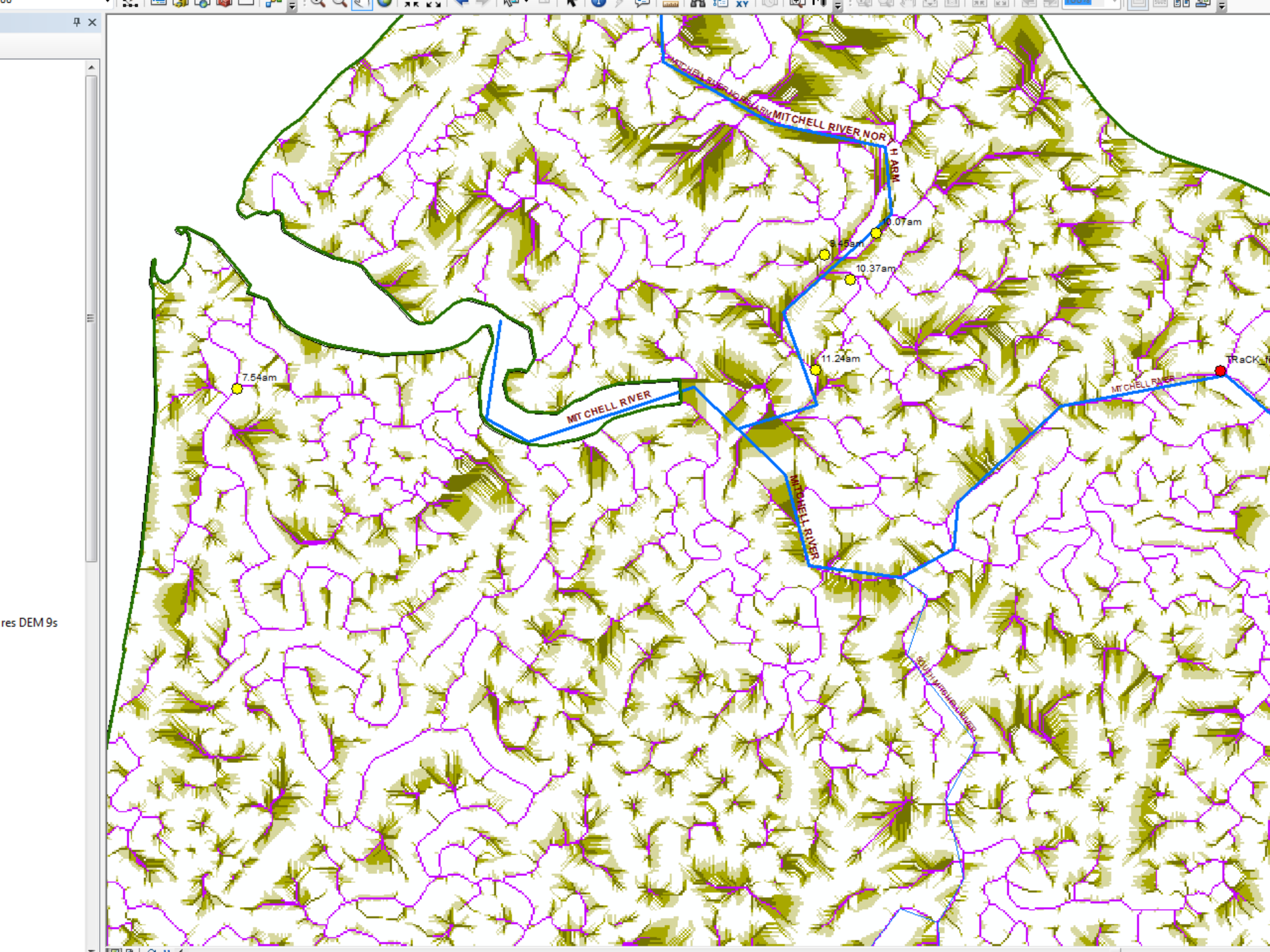
Flinders River



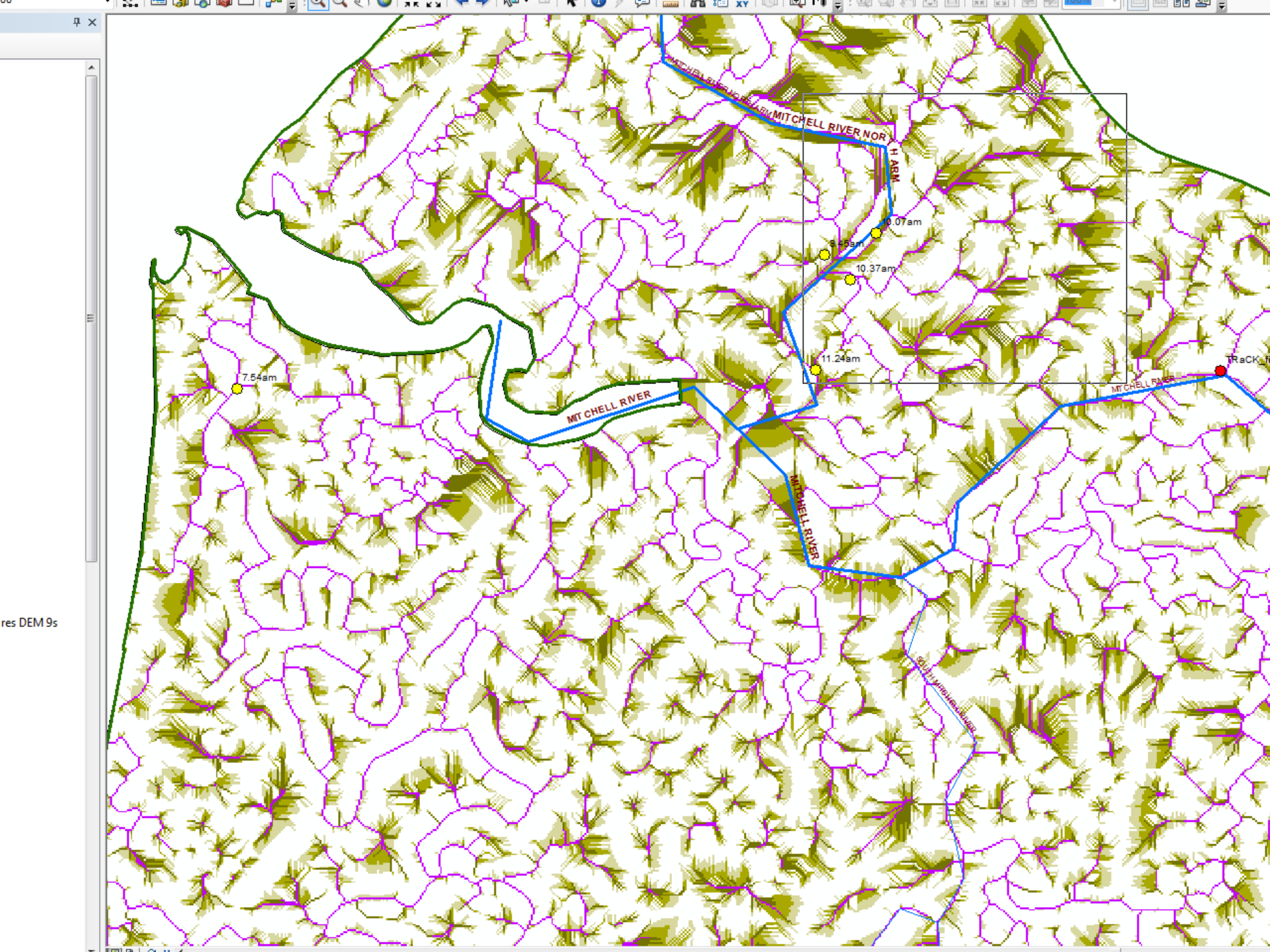
How do the southern Gulf Rivers work?

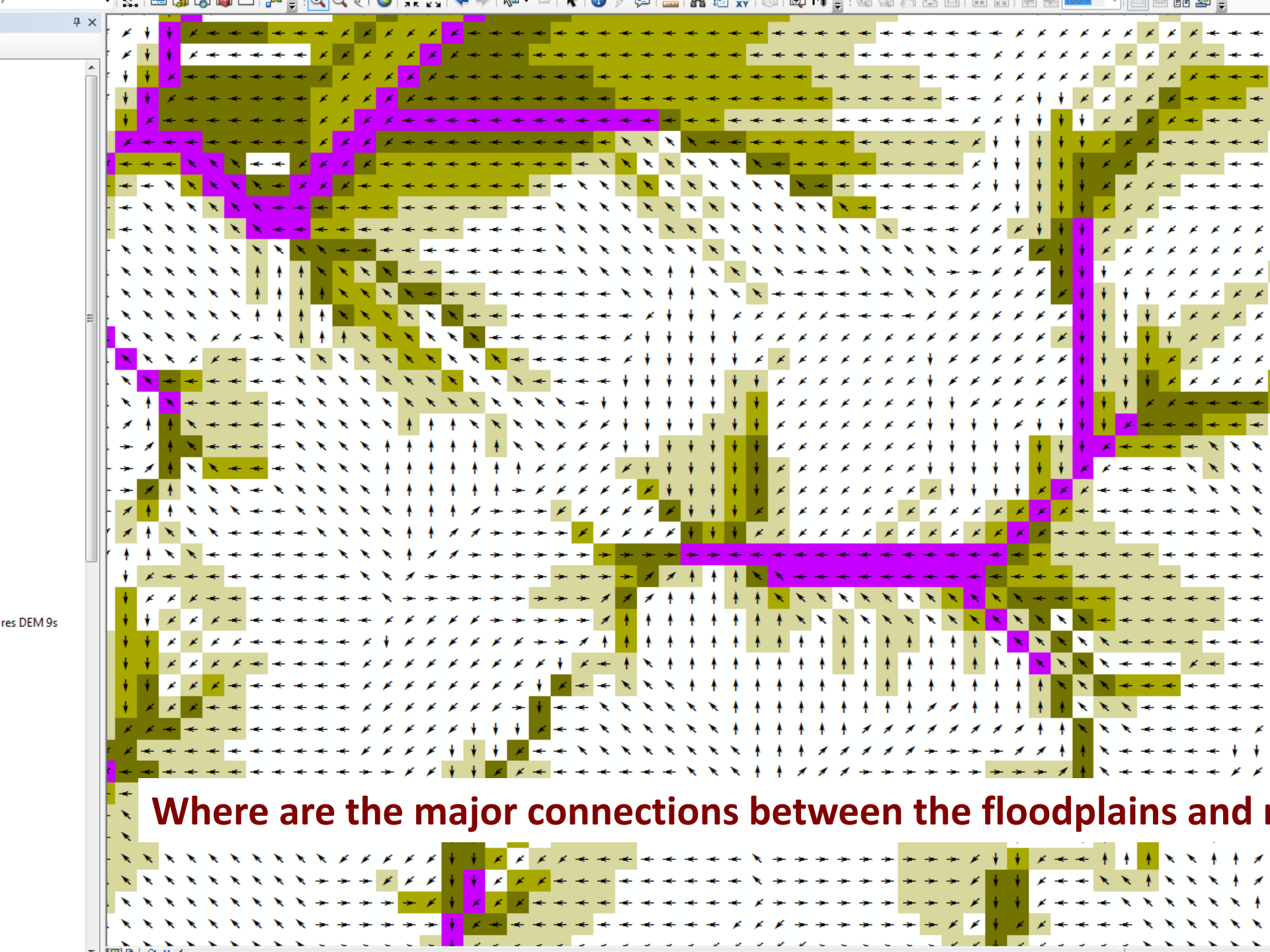


Mapping floodplains
and their connections
to rivers



res DEM 9s





res DEM 9s

Where are the major connections between the floodplains and

Which waterholes should be maintained in the dry season?



Mitchell R. Floodplains & waterholes

= identifying waterholes that are important to maintain

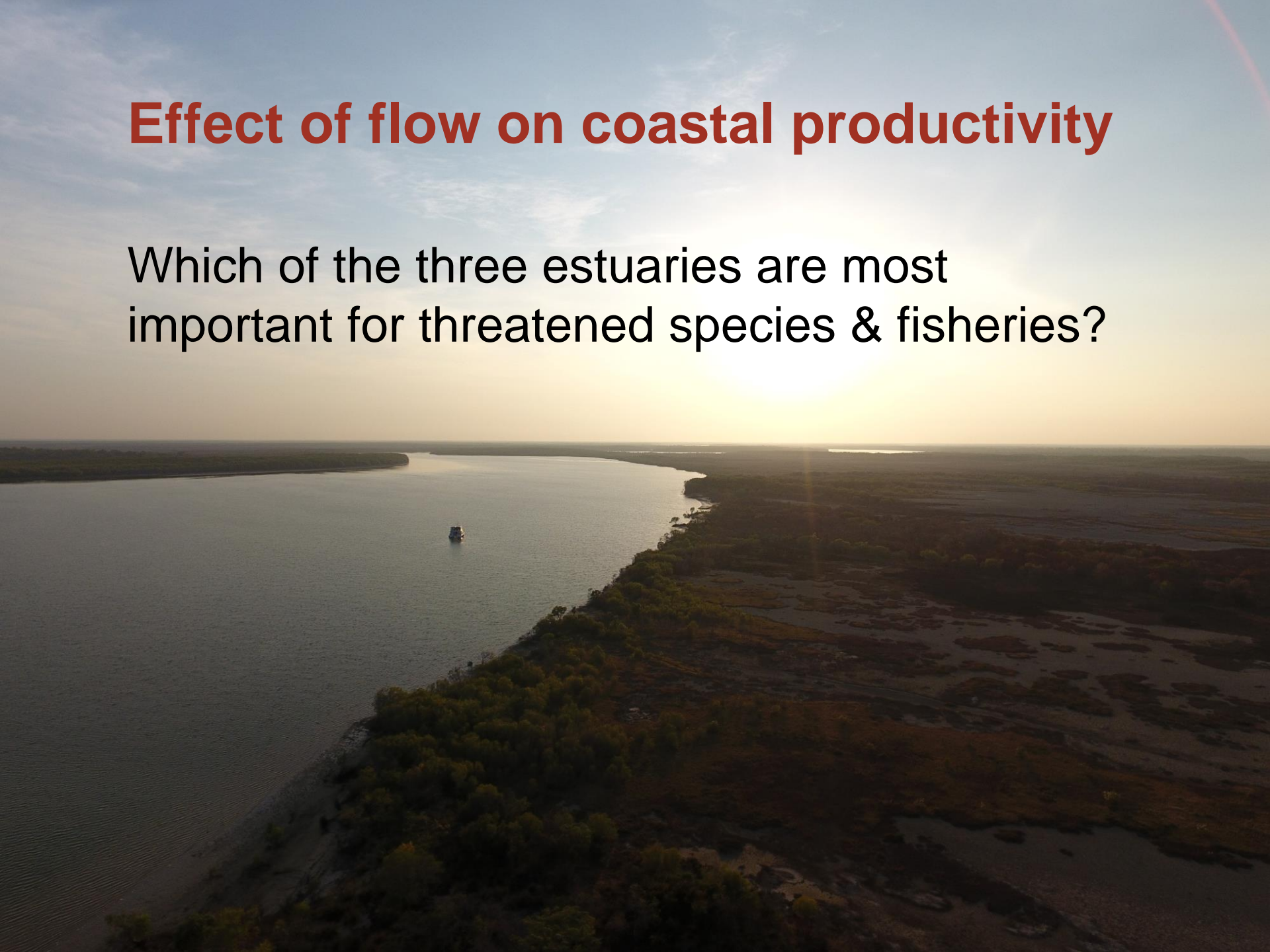


= determining the effects of reducing wet season flows on floodplains



Effect of flow on coastal productivity

Which of the three estuaries are most important for threatened species & fisheries?



Key species

Banana prawns



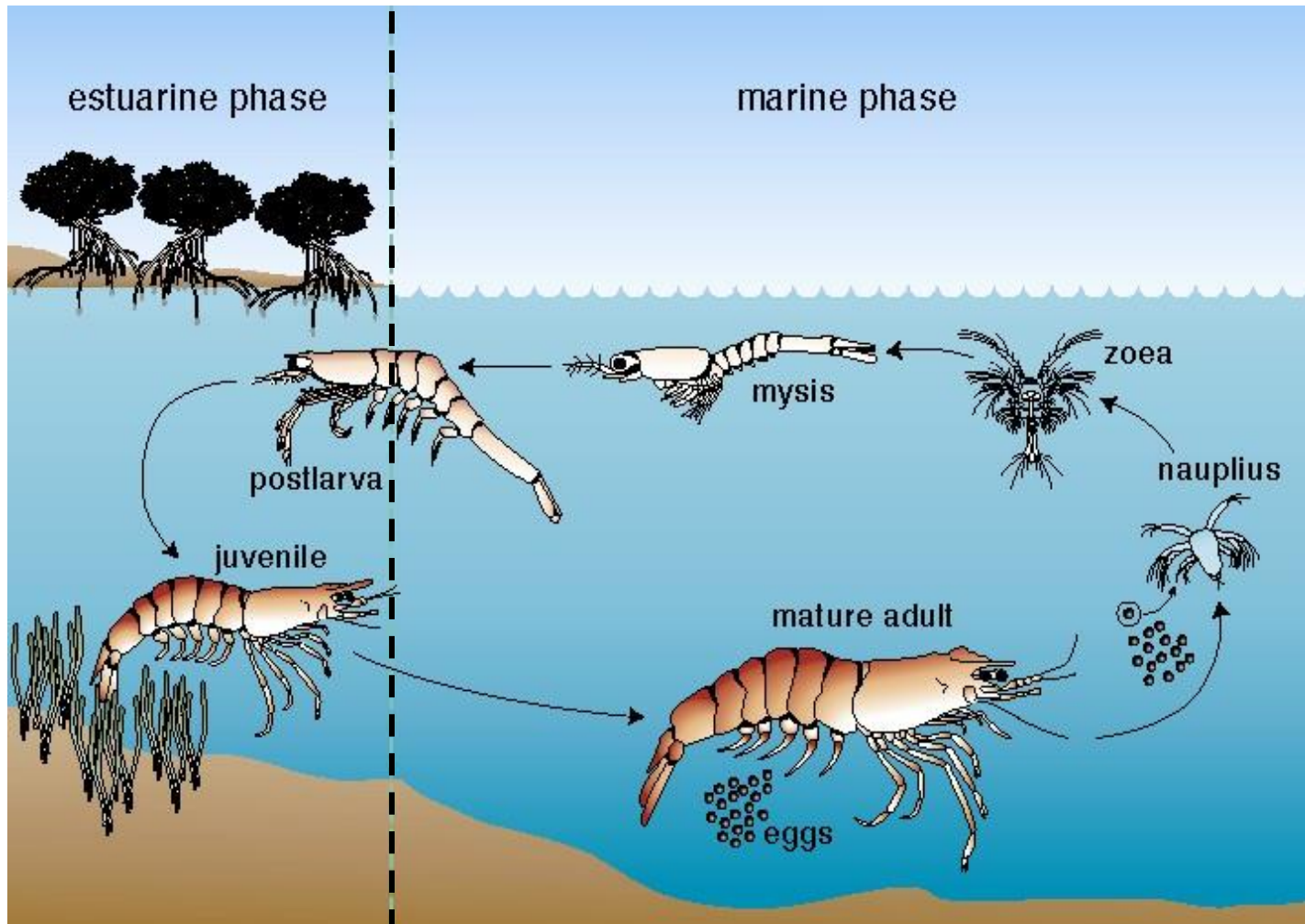
Barramundi



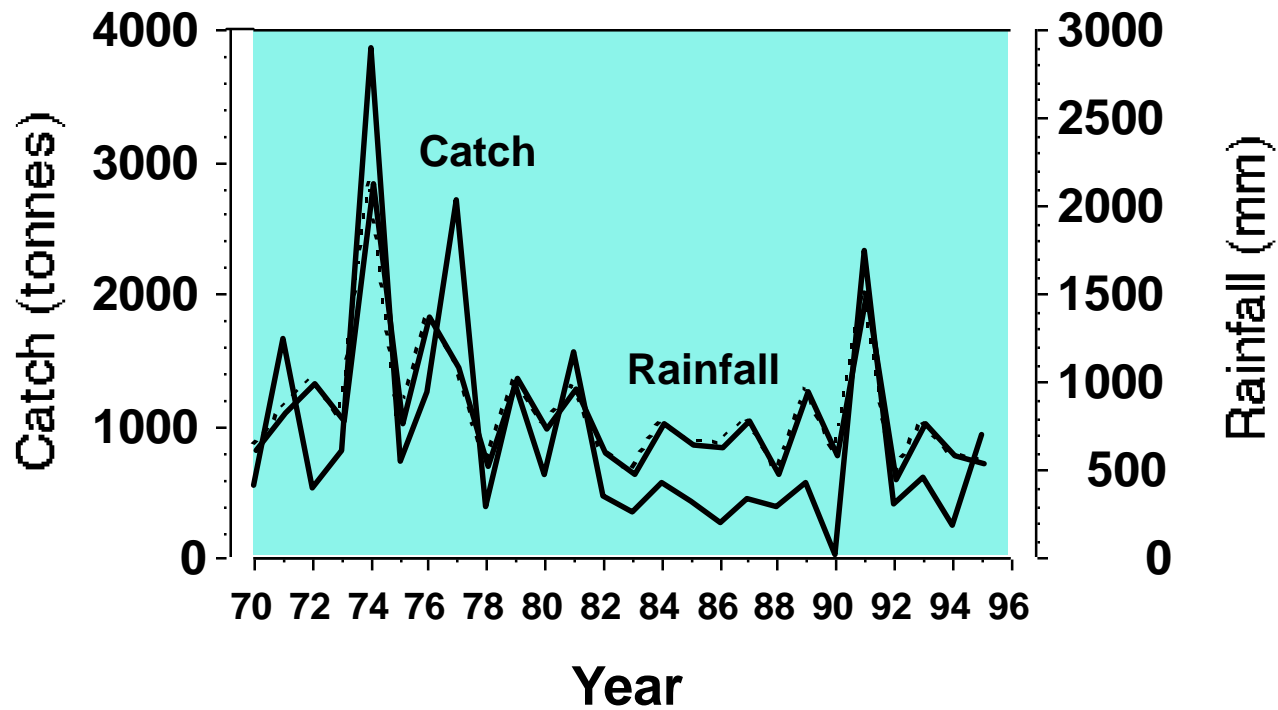
Migratory shorebirds



Banana prawn life cycle



Rainfall = Banana prawn catch



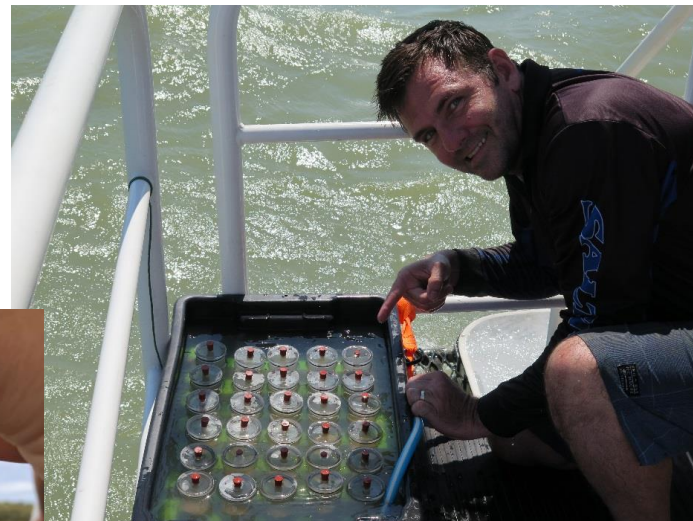
Vance et al. 1985, Staples et al. 1995

Importance of southern Gulf for shorebirds

2nd most important shorebird site of International importance in Australia

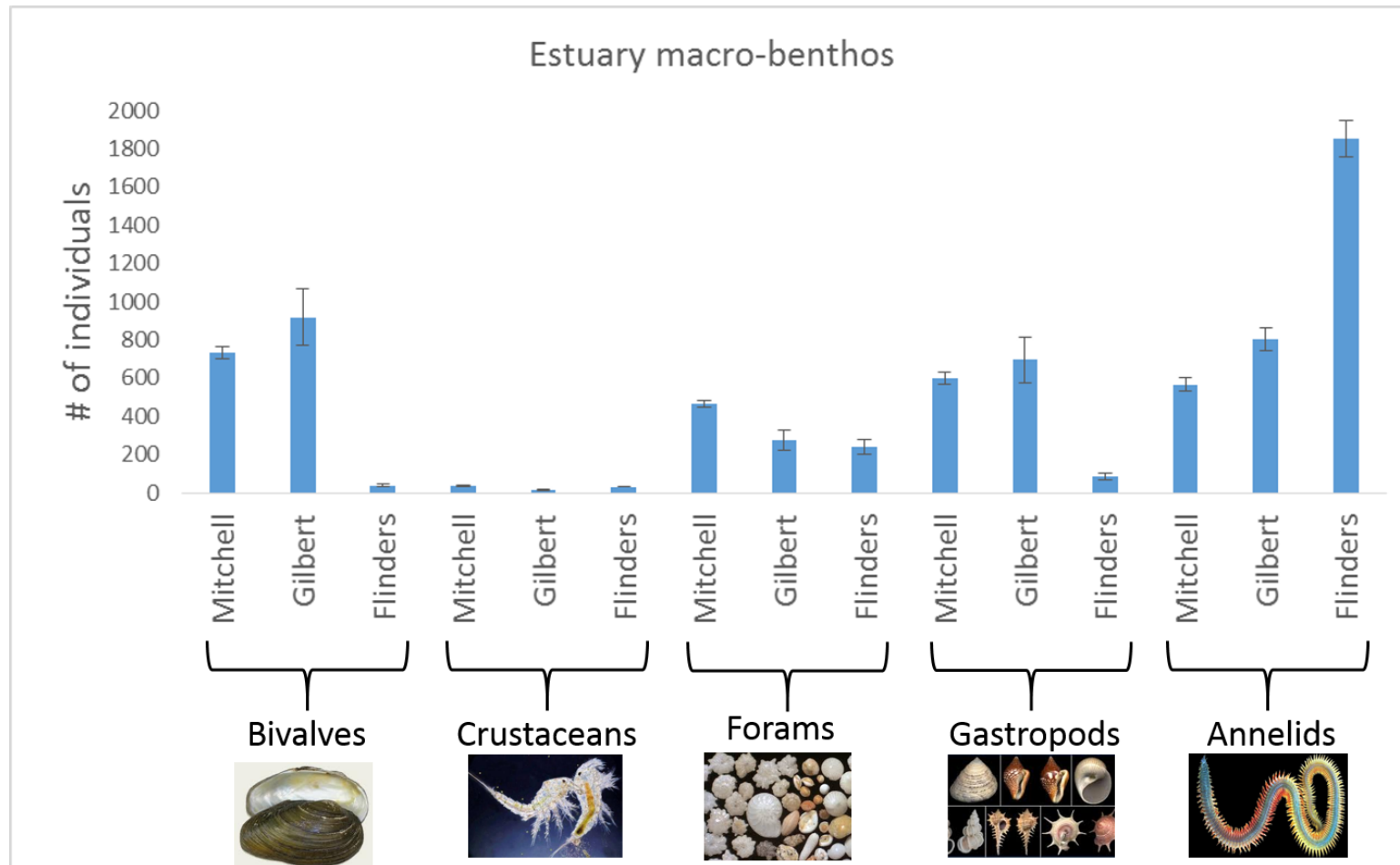
50% (ca. 2,000,000) use Gulf in summer





World-class research to support sustainable development in northern Australia

Estuaries vary in the types of food available for shorebirds



Looking at the tradeoffs for water development

How do changes in river flow affect economic, indigenous and environmental values?

Tradeoff analysis comparing 1. effects of irrigation volumes on agricultural profits with 2. river flows on fisheries profit



Outcomes

Mitchell River

Identify key areas on floodplain & in river system for fish and other species

Southern Gulf estuaries

Determine which estuaries are most important to maintain for fisheries & environmental values

Look at tradeoffs between agriculture and fisheries



