

# Monitoring macroinvertebrates in the Coorong, Lower Lakes and Murray Mouth

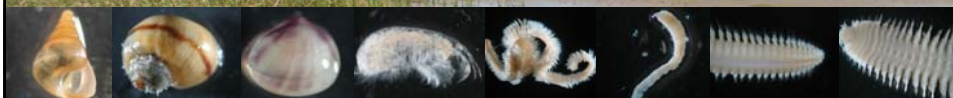
Sabine Dittmann

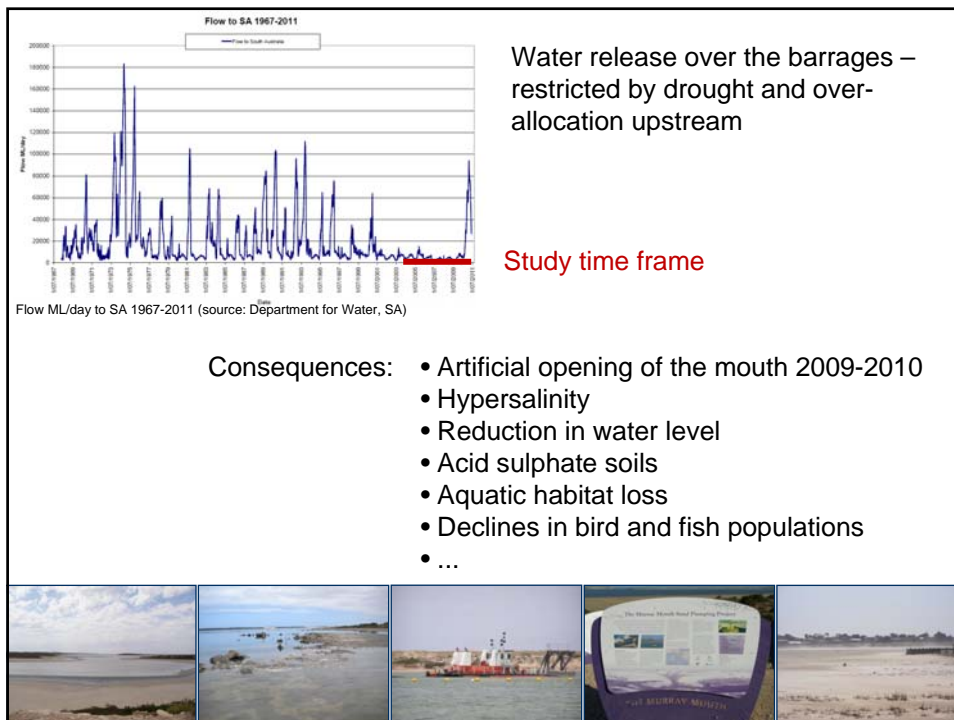
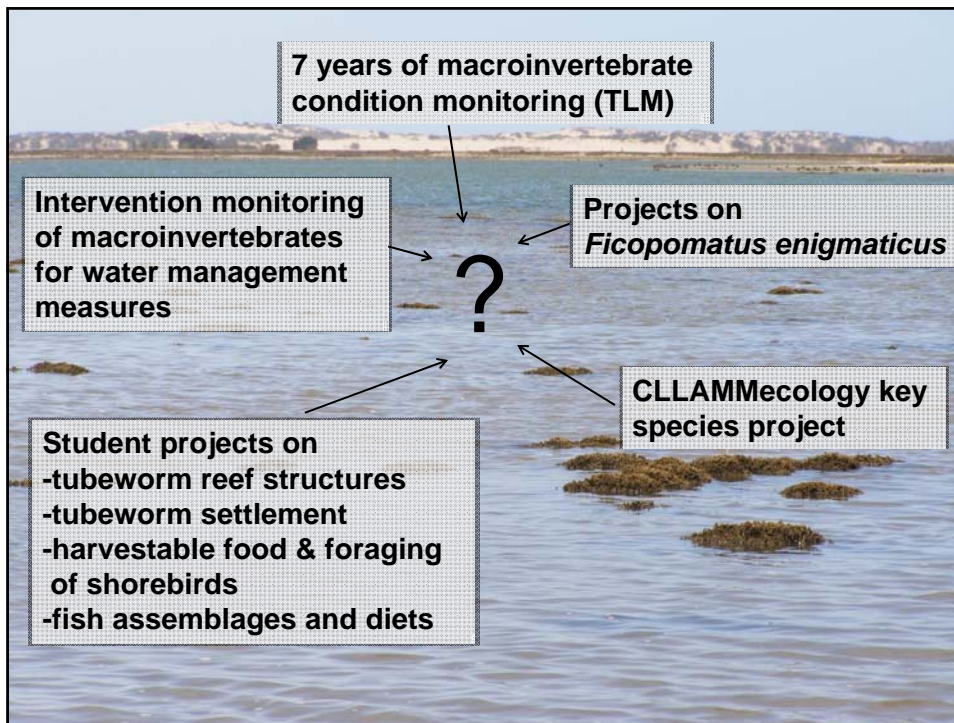


## Why macroinvertebrate monitoring?

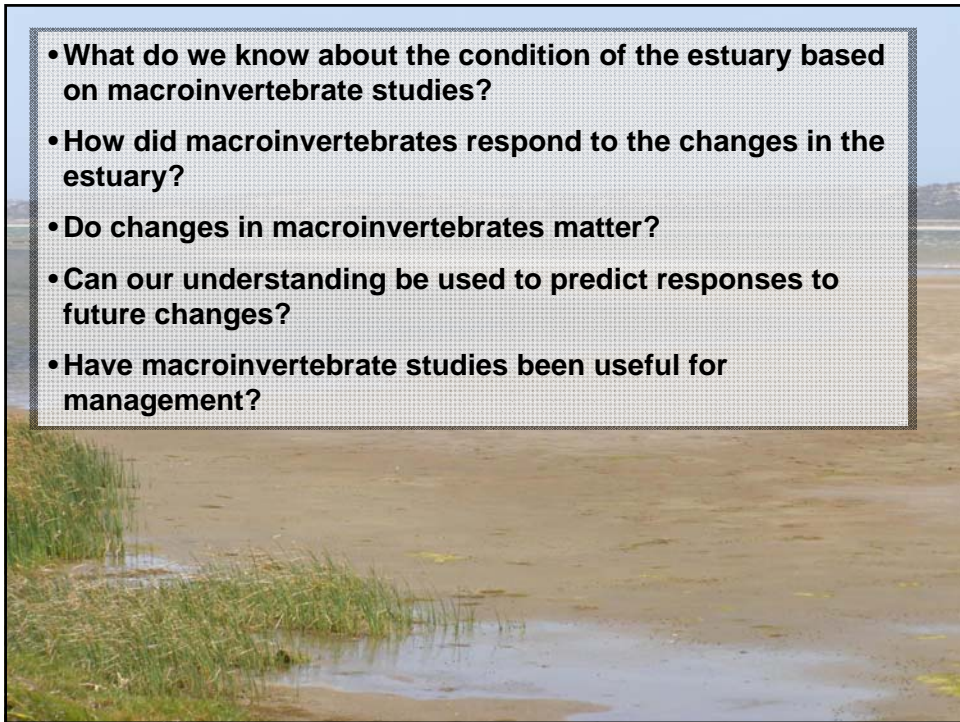
- Assess ecological condition of the 'estuary'
- Understand patterns & processes of ecosystem changes
- Analyse responses to (natural & man-made) environmental changes
- Explain variations in densities and distribution patterns of migratory shorebirds and fishes
- Evaluate recovery potential

Focus mainly on estuarine benthic macroinvertebrates



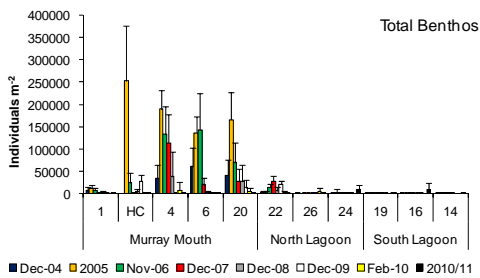
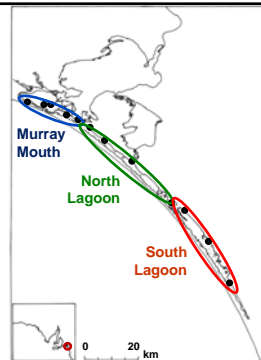
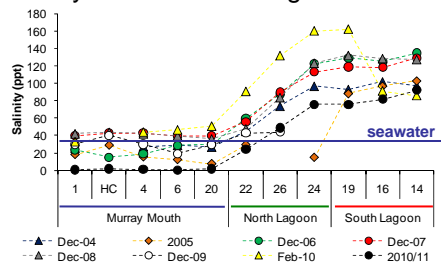


- What do we know about the condition of the estuary based on macroinvertebrate studies?
- How did macroinvertebrates respond to the changes in the estuary?
- Do changes in macroinvertebrates matter?
- Can our understanding be used to predict responses to future changes?
- Have macroinvertebrate studies been useful for management?



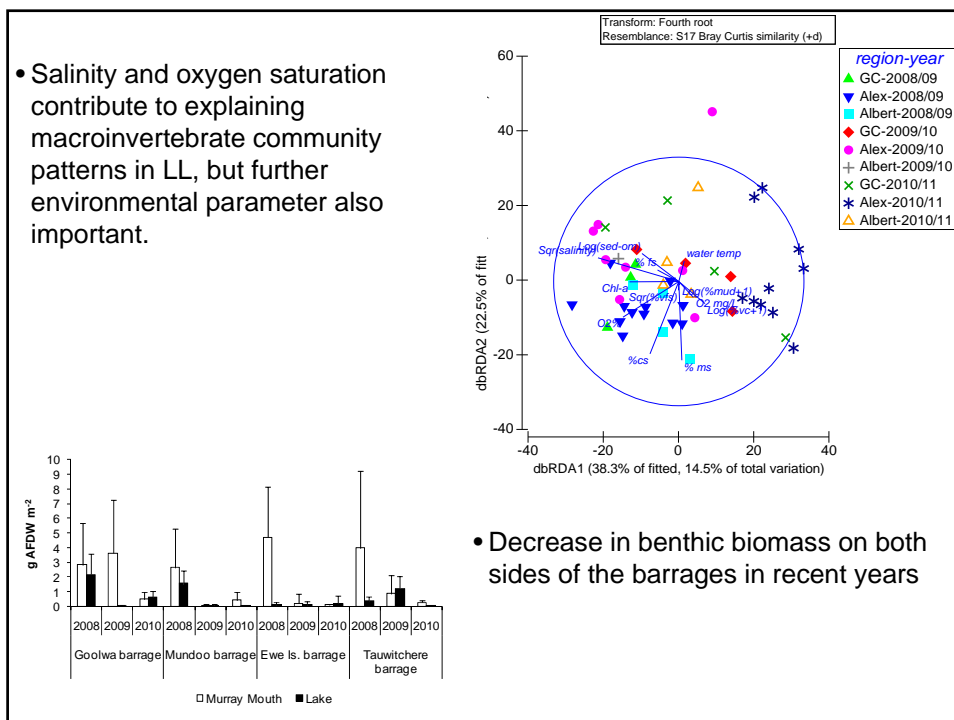
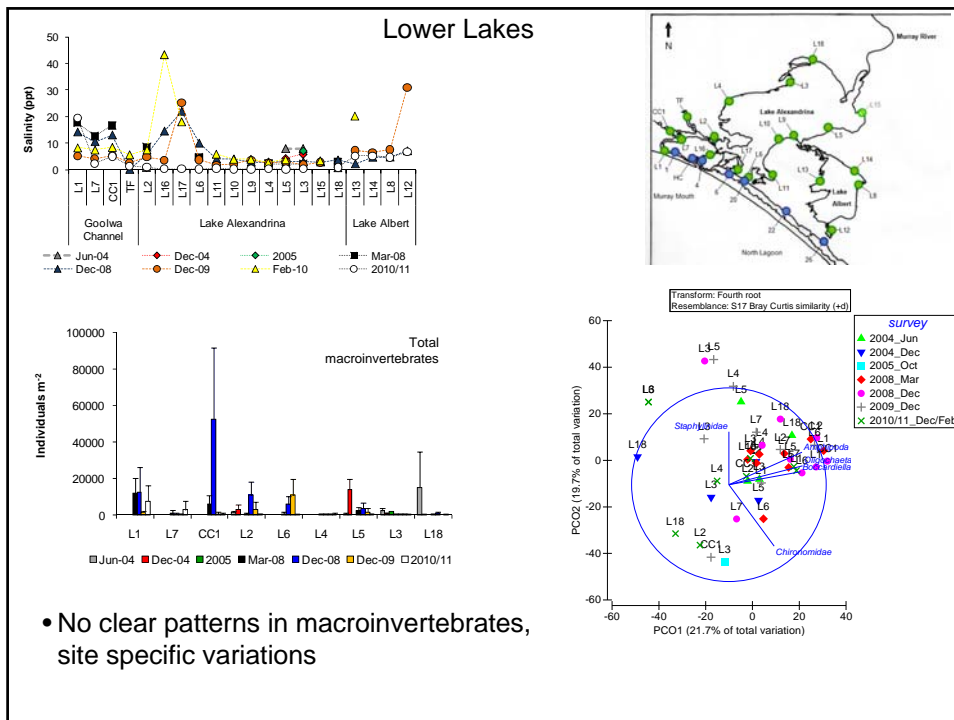
### Macroinvertebrate condition monitoring

#### Murray Mouth & Coorong

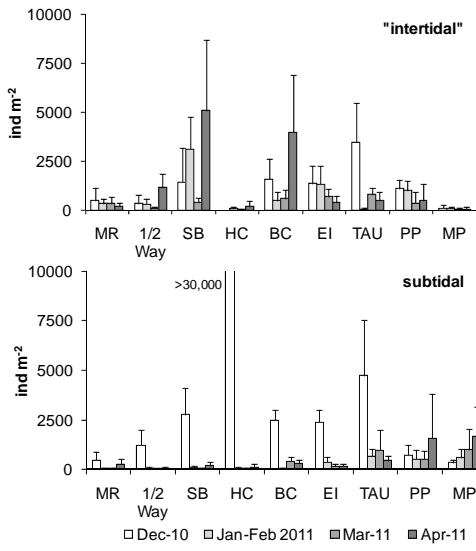
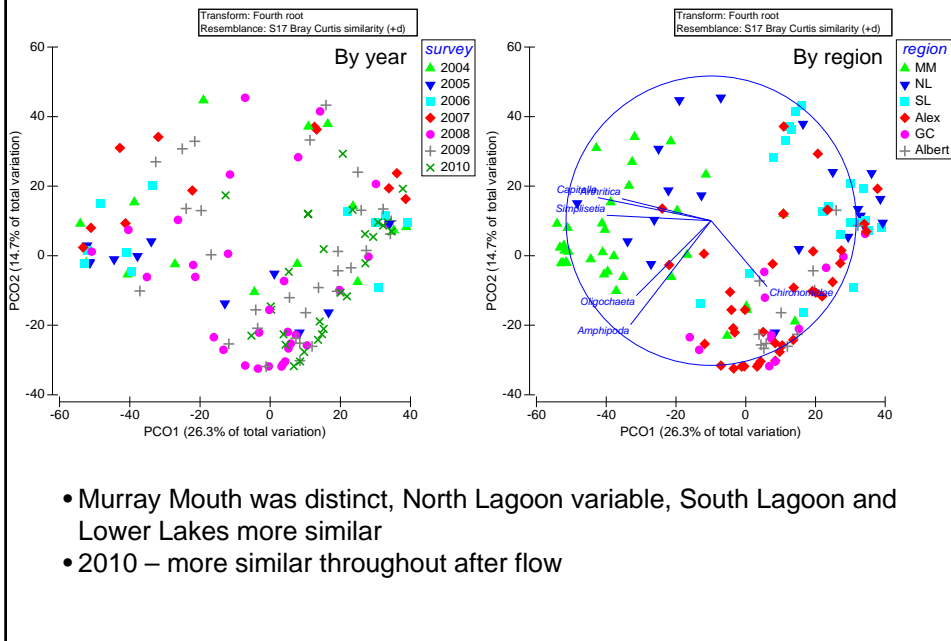


- Distribution follows salinity gradient
- Decrease in abundances and biomass over time
- Small water release in 2005 had positive effect





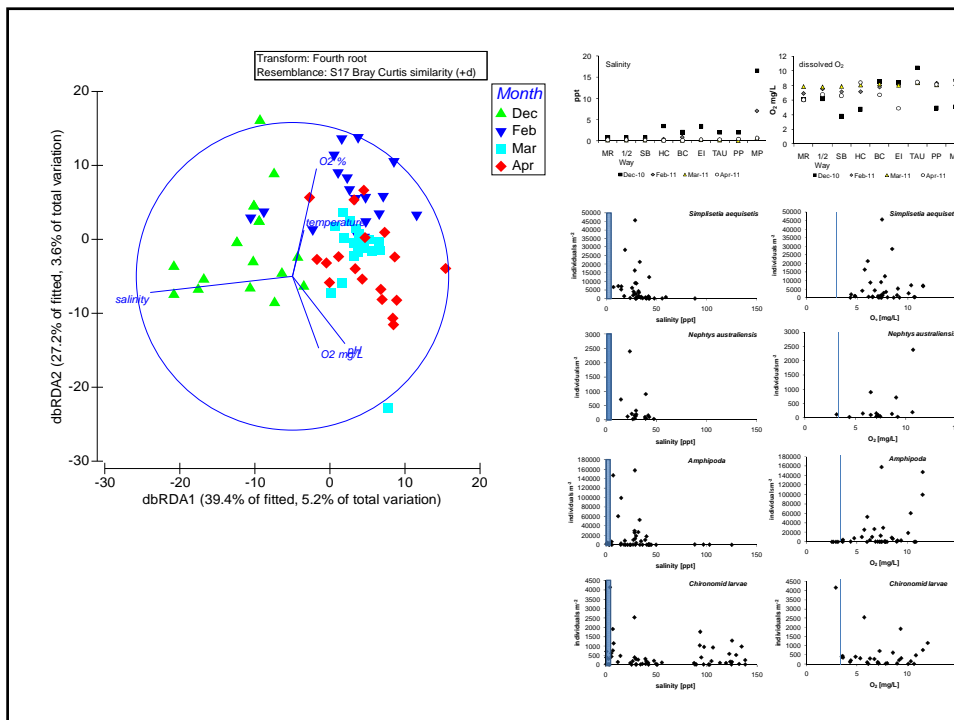
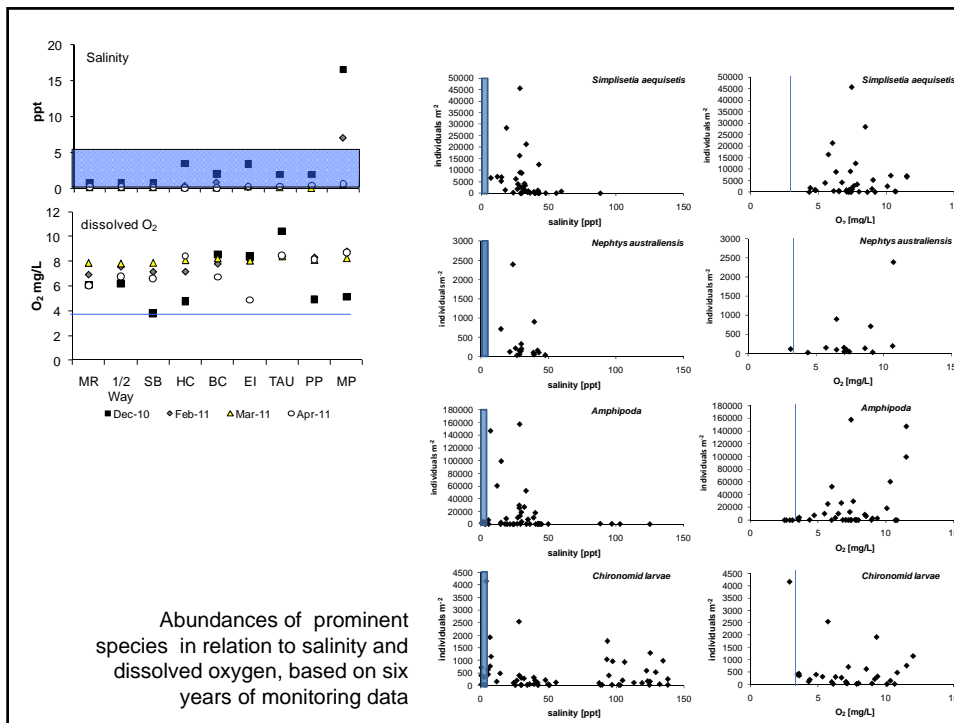
## Change in macroinvertebrate communities 2004 – 2010/11

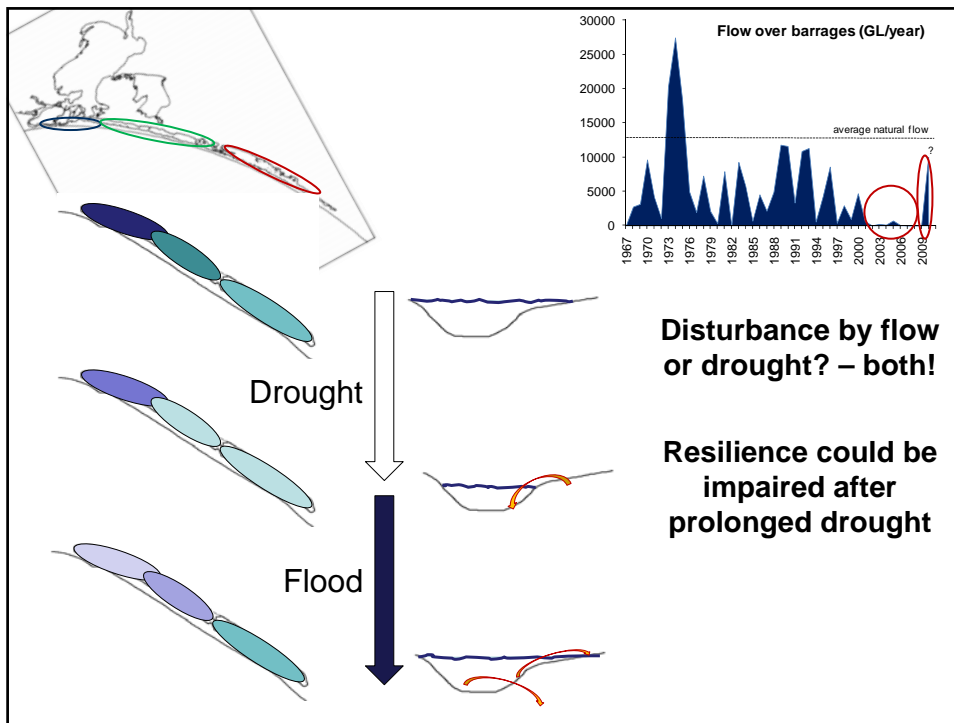


## Macroinvertebrate response to barrage releases

- Initial flow response increased abundances and presence of juveniles in subtidal sediments
- Previously dried out "mudflats" are getting slowly recolonised
- As freshwater conditions persist in the Murray Mouth, the North Lagoon becomes a refuge for estuarine macroinvertebrates
- Changes are driven mainly by salinity and diss. O<sub>2</sub>







**Thanks to the team & helping hands:**

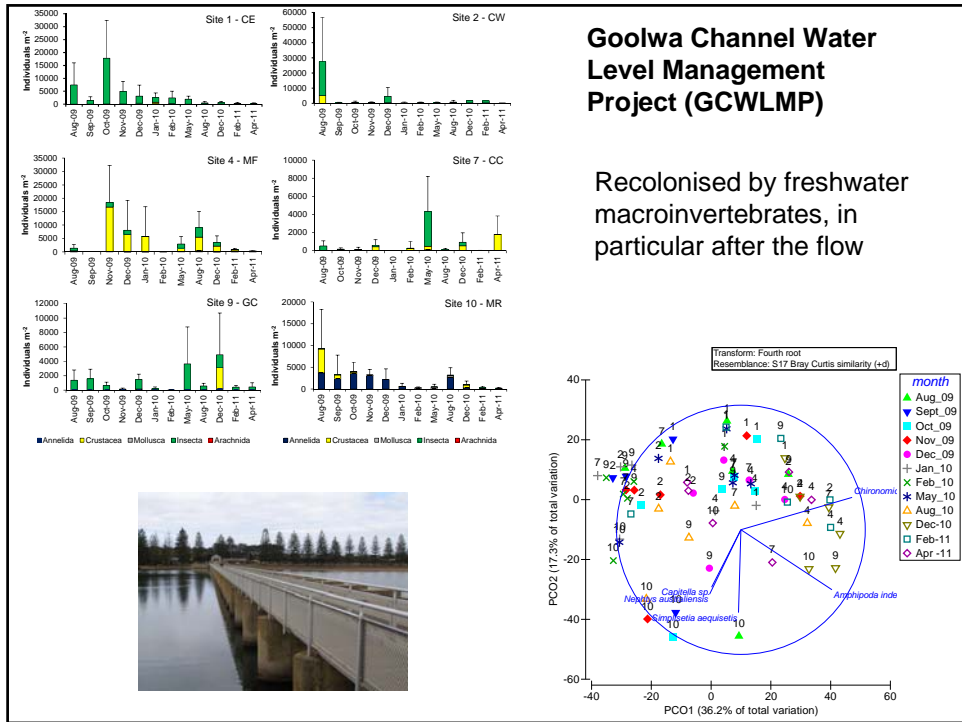
Ryan Baring, Agnes Cantin, Courtney Cummings, Michael Drew, Ruan Gannon, Angela Dutton, Jason Earl, Nathan Gloede, Melanie Goldschmidt, Nadine Hackett, Tim Hunt, Sarah Imgraben, Mark Langton, Bratt Lowe, Matt Nelson, Tanith Ramsdale, Alec Rolston, Warwick Noble, Jacqui Pocklington, Russell Seaman, Shaun Schroeder, Nick Souter, and many others...





# Goolwa Channel Water Level Management Project (GCWLMP)

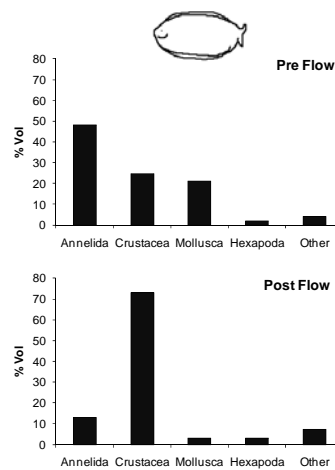
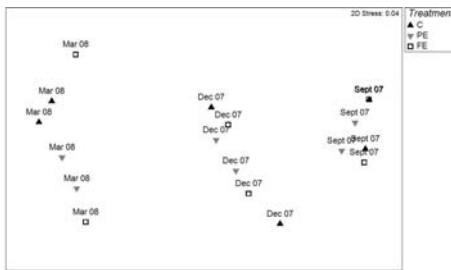
Recolonised by freshwater macroinvertebrates, in particular after the flow



## • Do changes in macroinvertebrates matter?

➤ Effects for higher trophic levels

2007/08 drought  
experimental exclusion of shorebirds  
had no effect on benthic assemblages



Opportunistic switch in diet of flounder

