

Understanding coral communities in the Dampier Archipelago: Past and present

Woodside Pluto Offset 'd'

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Parks and Wildlife

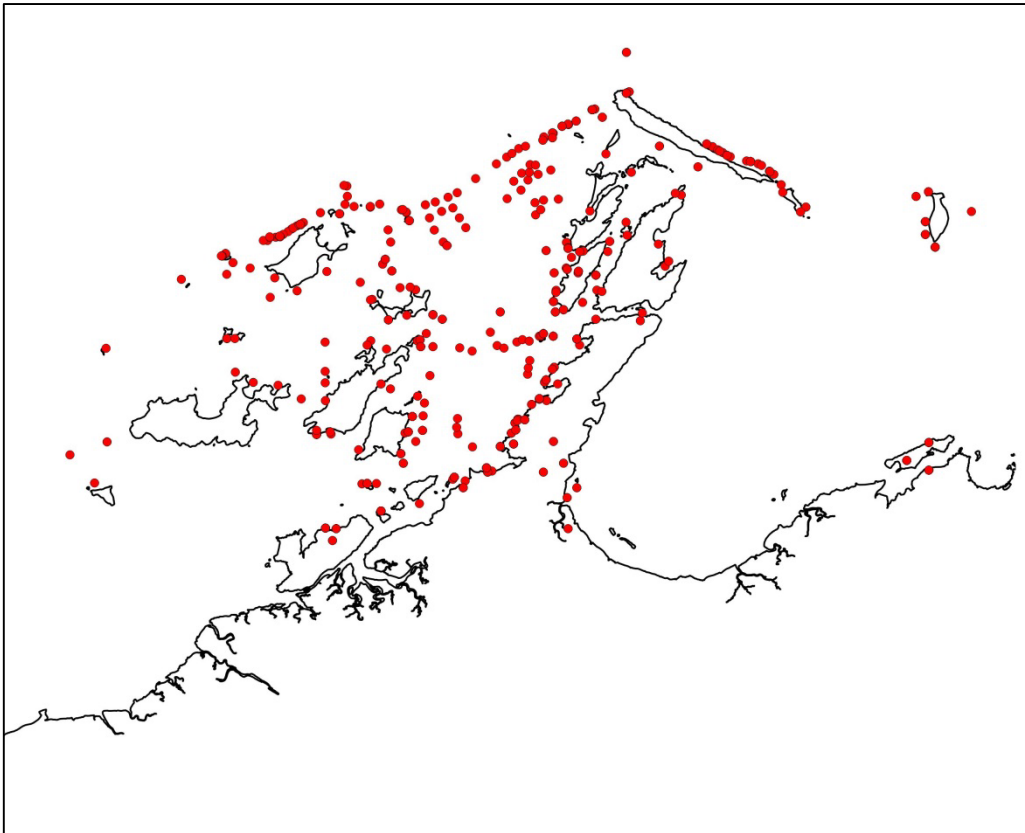


Project background

- The Dampier Archipelago -1650 km north of Perth
- Intensive human usage and increasing anthropogenic pressure
- Woodside Pluto Offset 'd' – Research and monitoring consistent with the Indicative Management Plan for the Dampier Archipelago Marine Park



Where have the studies been



Report for Pluto Offset 'D' Project 'i' – 'Learn from the past to manage the future'

Mohring, M. B., Nutt, C. D., Bancroft, K. P., Friedman, K. J.
Severin, C. R., Douglas, R. A. and Fetahovic, E.

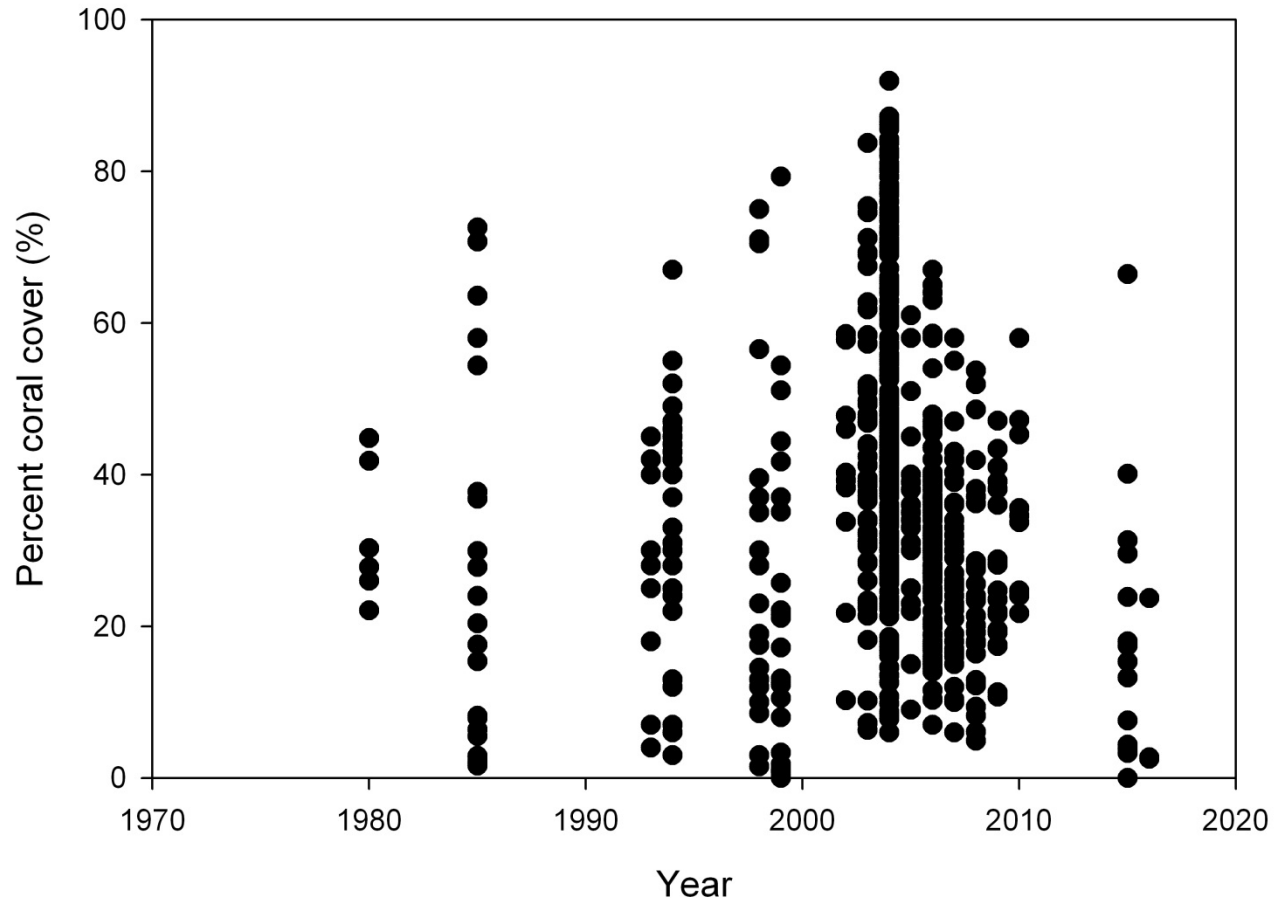
August 2015



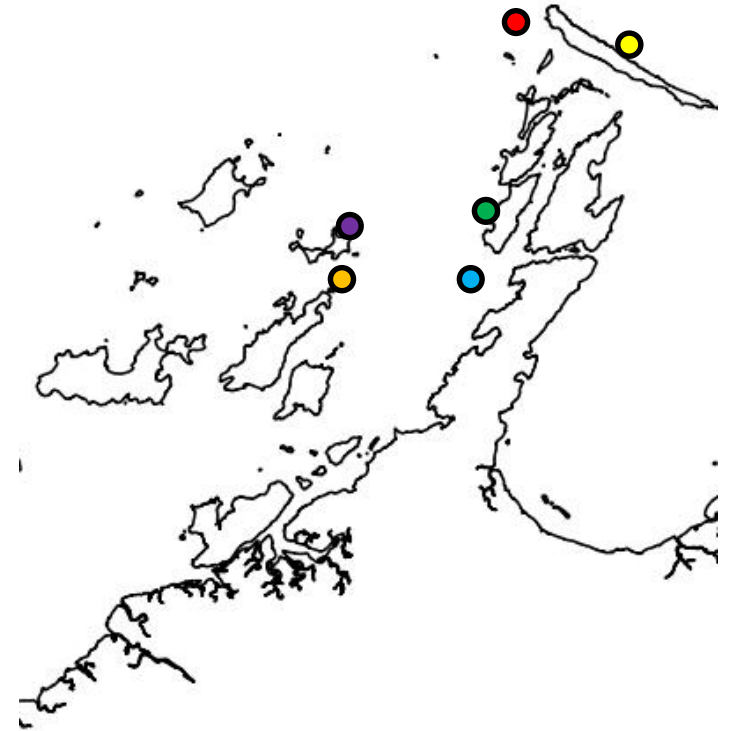
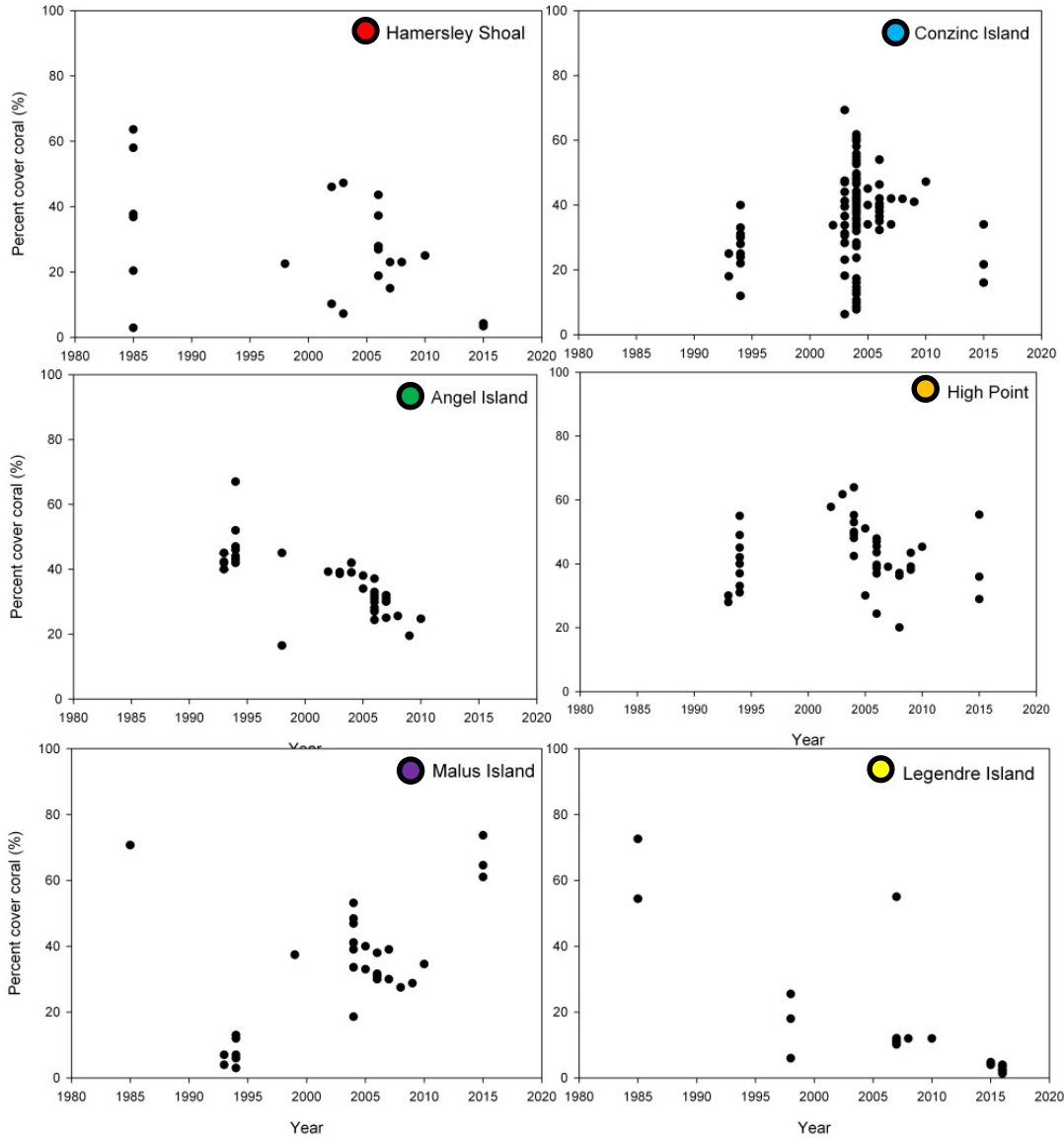
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Cover over time



Site with long time series



2007 DEC
Survey



Nelson Rocks

$20^{\circ}26'42.21''S$, $116^{\circ}40'27.45''E$



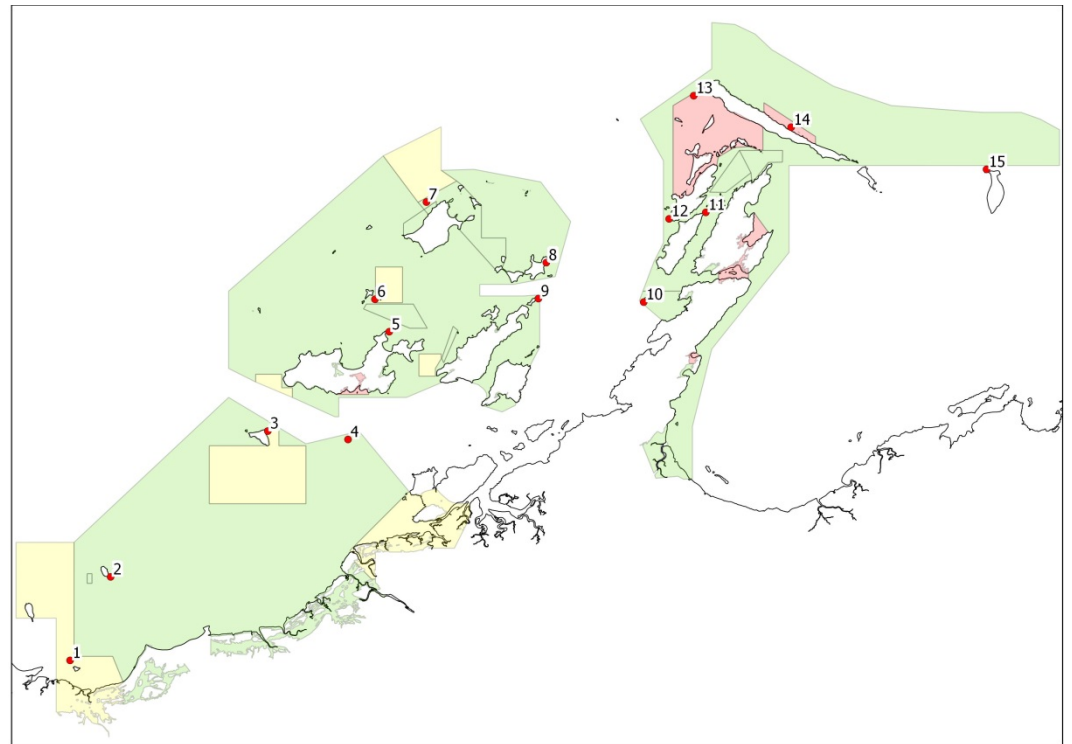
2014 DPaW
Survey



What's happening now?

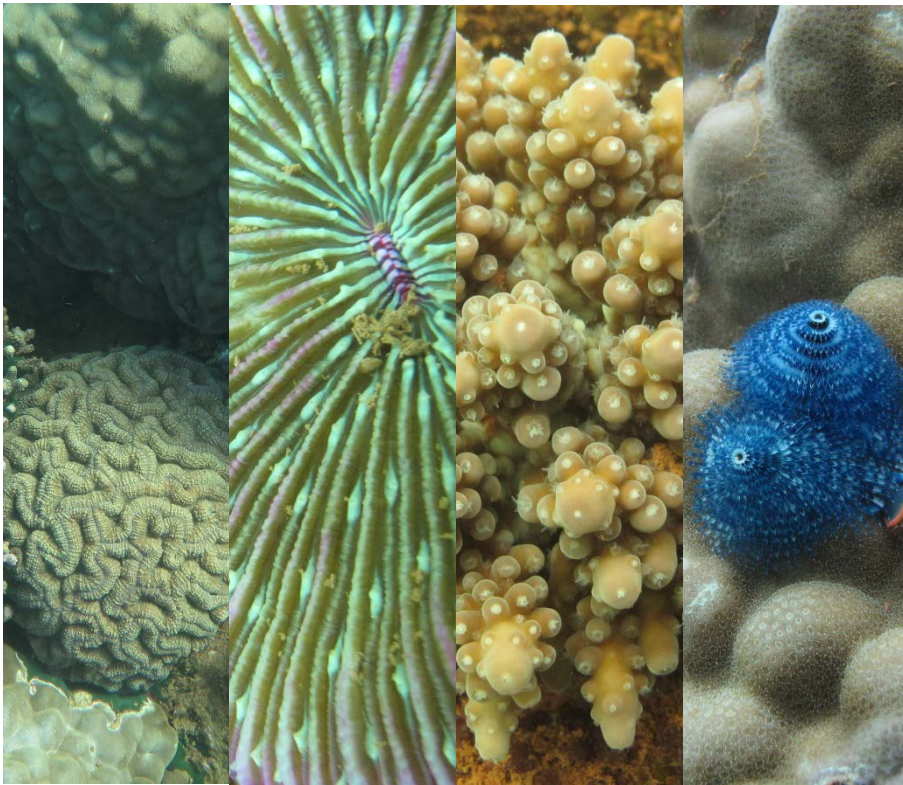


- Pluto Offset 'd' project 4
- 15 monitoring sites established around the proposed marine park in 2015



Corals in the Dampier

- Harsh, turbid environment
- Also found 37 genera including:



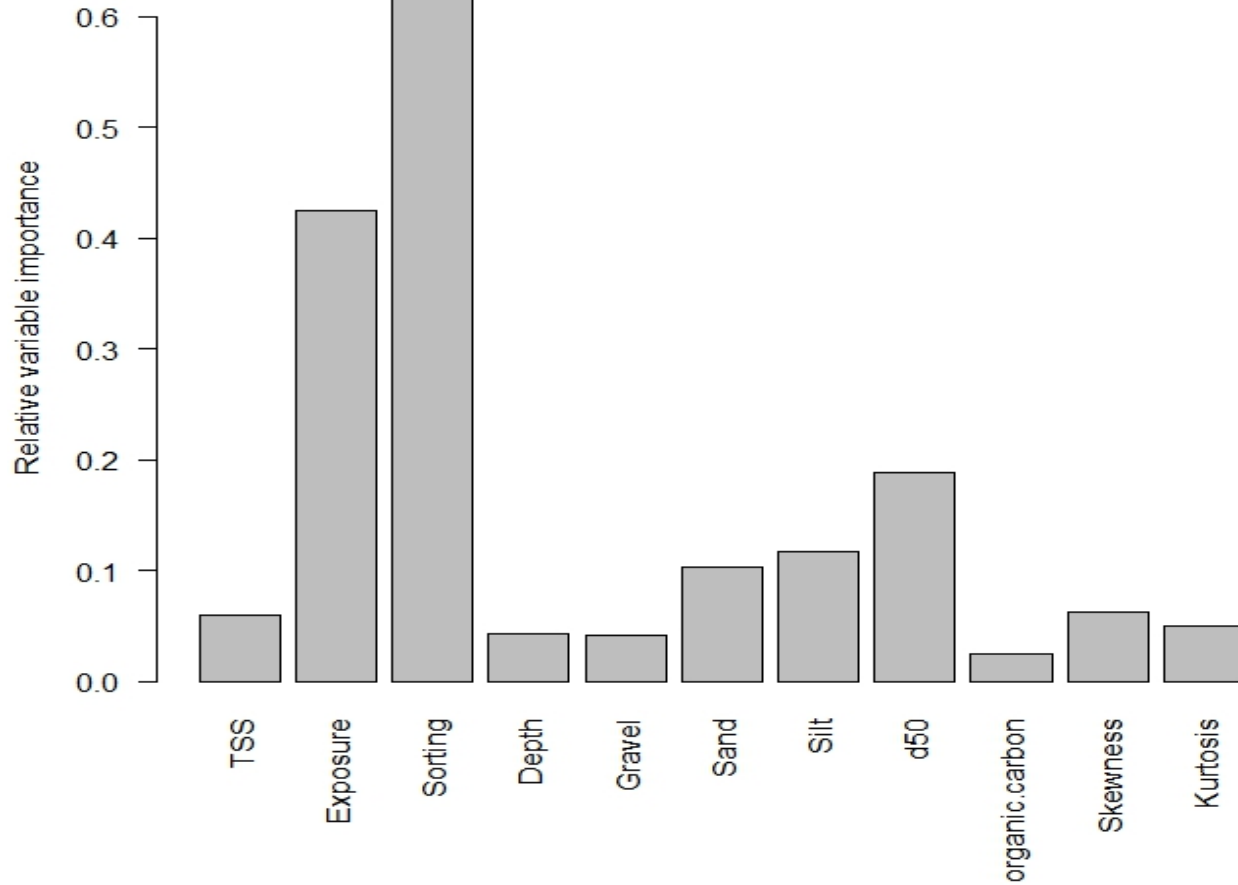
- Common
 - *Turbinaria*
 - *Porites*
 - *Pavona*
- Unusual
 - *Diploastrea*
 - *Moseleya*
 - *Podabacia*

Parameters

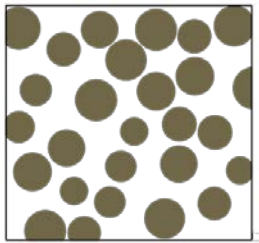
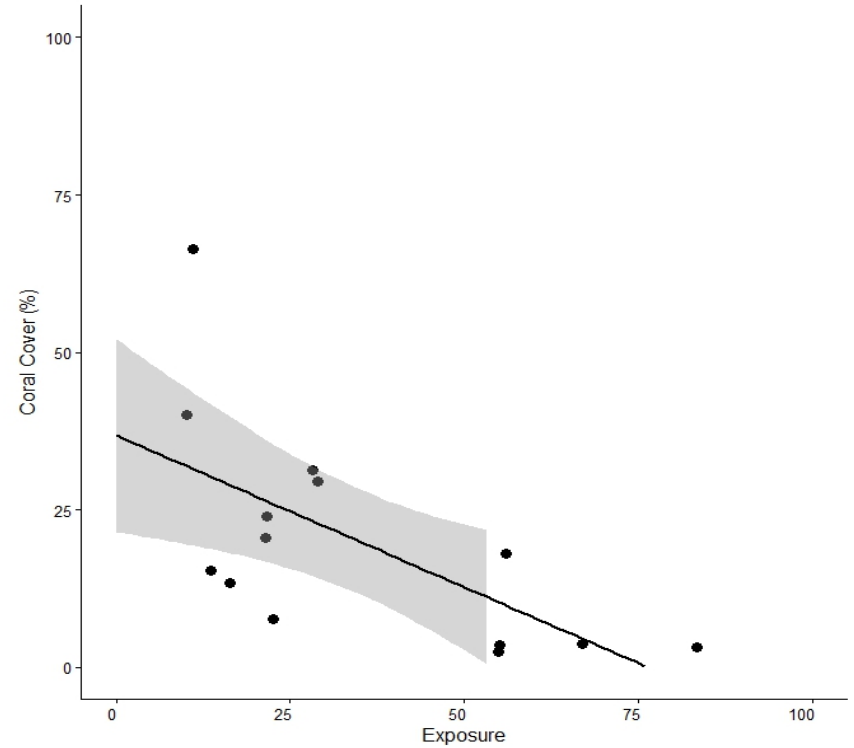
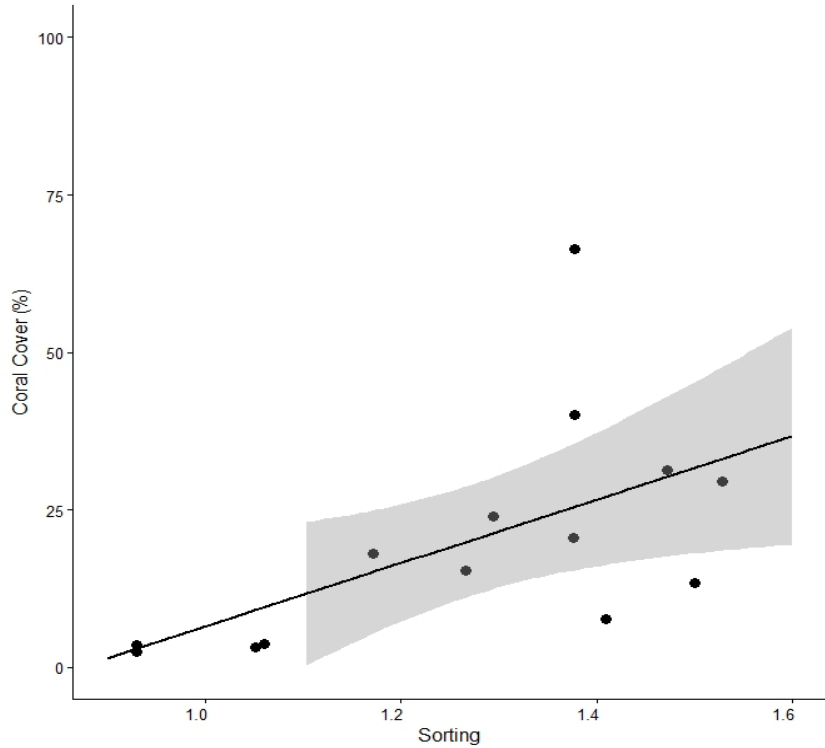
- Coral cover
- Recruitment (PMCP)
- Total Suspended Solids
- Sediment characteristics
(sorting, gravel, sand, silt, d50, Skewness, Kurtosis)
- Organic Carbon
- Depth
- Exposure
- BEST SUBSETS MODEL



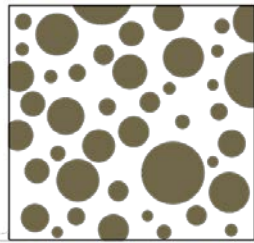
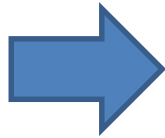
Predictors Coral Cover



Sorting and Exposure



Well sorted



Poorly sorted

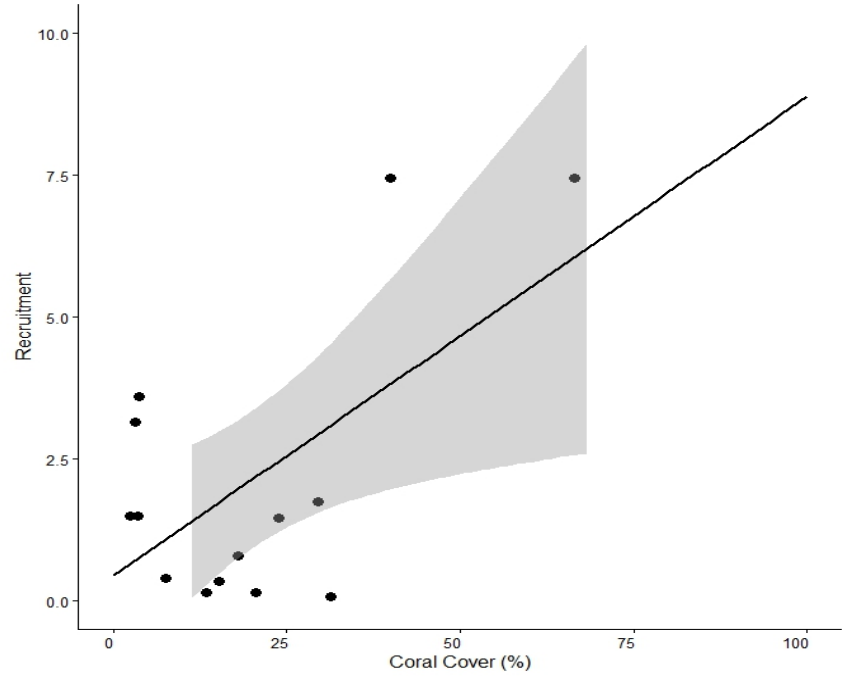
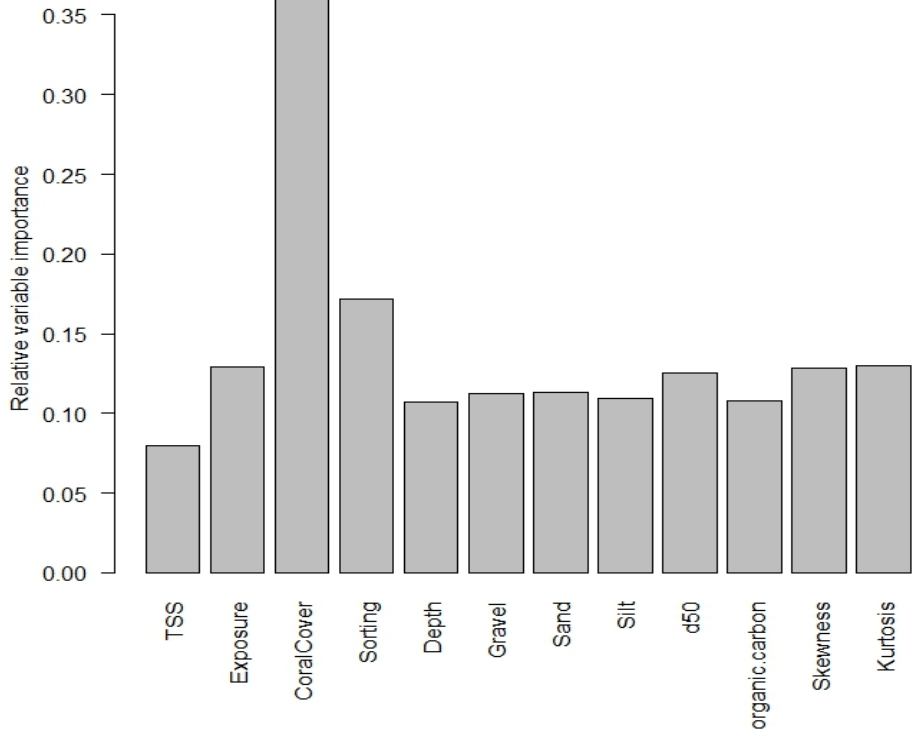
Coral reef derived sediment generally poorly sorted

Coral is adversely affected by increasing exposure

Particularly susceptible to storm impacts at exposed locations

Increasing exposure leads to poorly sorted sediment

Predictors of recruitment



Conclusions

- Observed declines in coral at many locations around Dampier
- Attributed to shifts in community composition
- Coral cover can be linked to exposure and sediment sorting
- Exposure drives breakdown of coral and this contributes to sediment profile
- Coral cover and recruitment are linked



Where to from now?



Department of
Parks and Wildlife



woodside

mScience
marine research



WESTERN AUSTRALIAN
museum

