NORTH WEST SHOALS TO SHORE RESEARCH PROGRAM

THEME 2 - Seabed habitats and biodiversity

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Acknowledgements

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Seabed Habitats and Biodiversity

CONTEXT:

- Knowledge of distribution and status of marine communities underpins informed management on NW Shelf
- Baseline data to assess effects of natural and anthropogenic events
- Many areas on the NW Shelf that are poorly understood

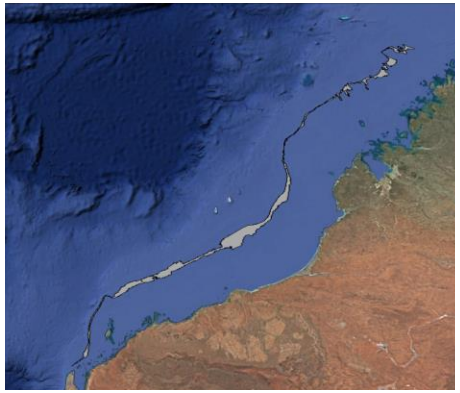
OBJECTIVE: Provide empirical data on benthic and demersal diversity and ecological processes to underpin resource management.

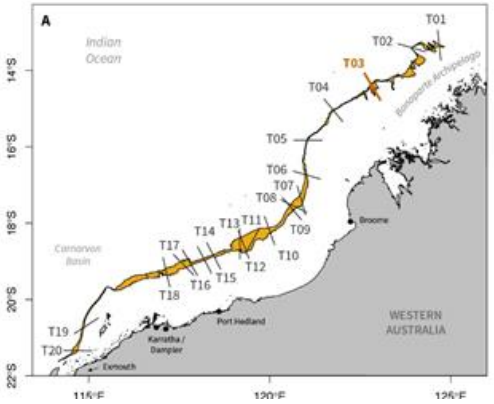
The Ancient Coastline Key Ecological Feature (KEF)

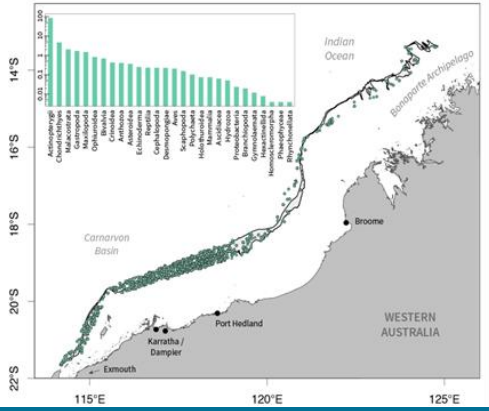
OBJECTIVE:

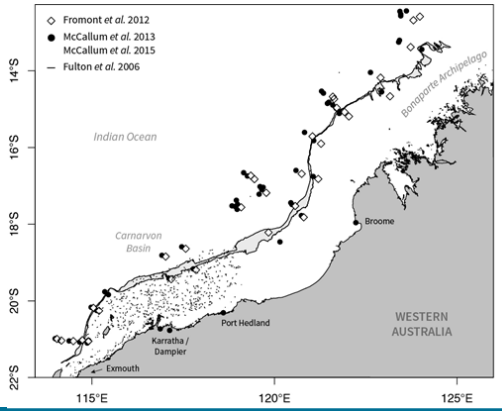
Building a knowledge base of habitats and biodiversity of the ancient coastline at 125m depth contour Key Ecological Feature (KEF)

- Baseline surveys
  - Multibeam mapping
  - BRUVS & Towed video surveys of biota
- Predictive modelling of benthic habitats and demersal fish
- Regional comparisons





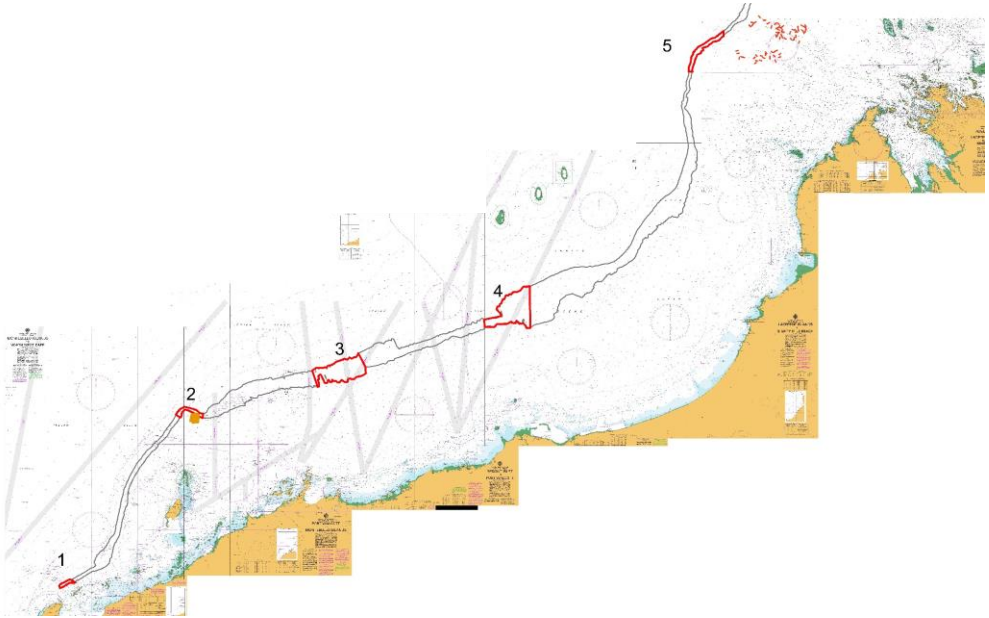




The Ancient Coastline Key Ecological Feature (KEF)

PROGRESS:

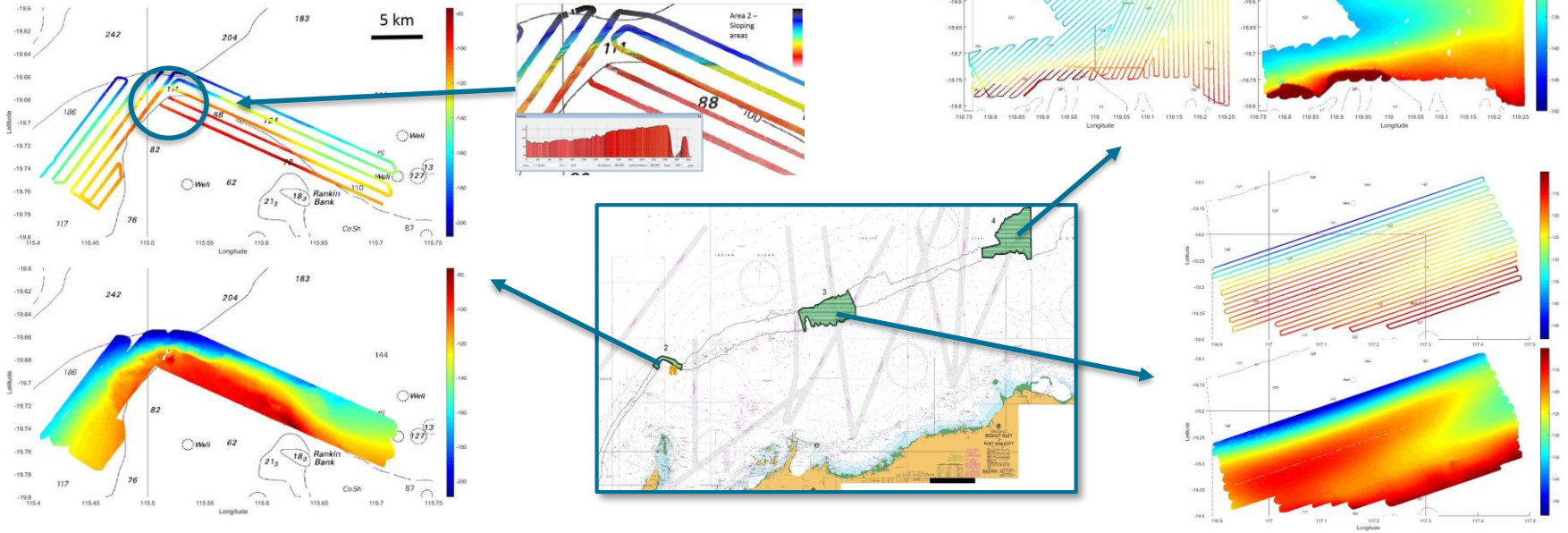
- Assessing existing knowledge and data
- Sample planning for three voyages
- Voyage 1 completed
  - Broad-scale multibeam
  - Deployed new deep water towvid technology
  - Optimising BRUVS lighting for 150m



The Ancient Coastline Key Ecological Feature (KEF)

Multibeam mapping

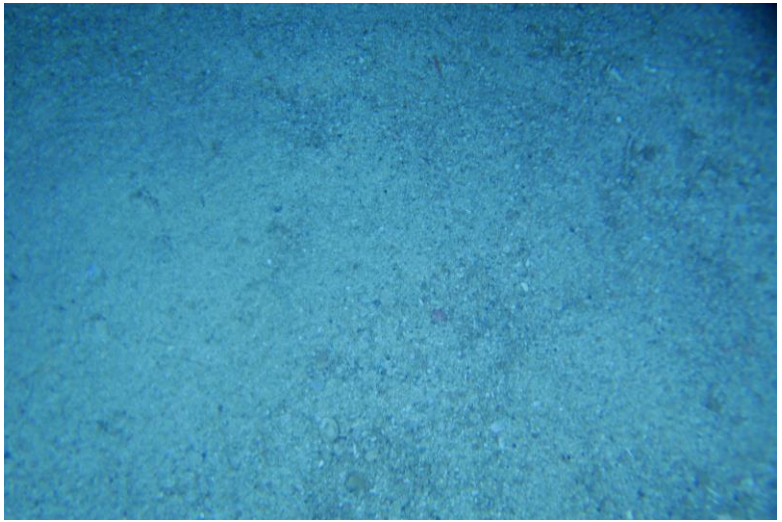
- Large, gently sloping expanses
- Some small features and “drop-offs”

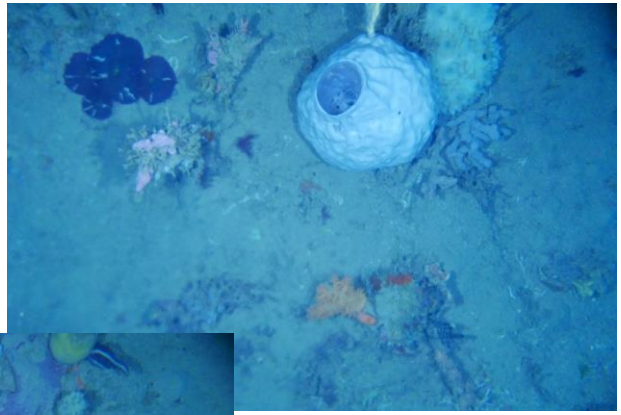


The Ancient Coastline Key Ecological Feature (KEF)

Benthos

- Dominated by sandy habitats
- Some areas of hard substrate with filter feeder communities typical of NW shelf

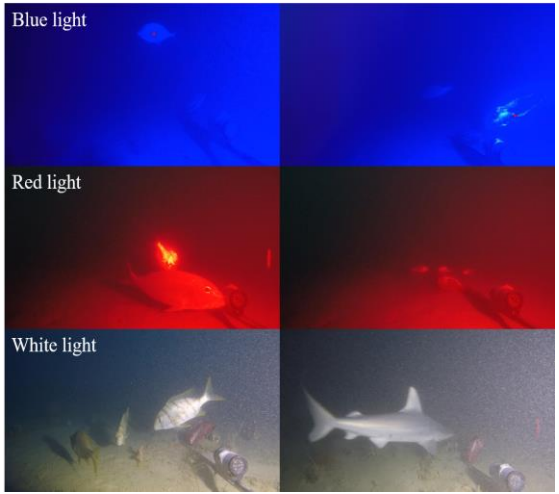


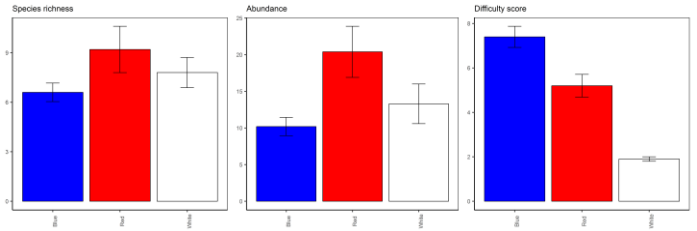


The Ancient Coastline Key Ecological Feature (KEF)

Fish

- Diverse fish populations on sandy substrates
- White light appears best for deep water BRUVs





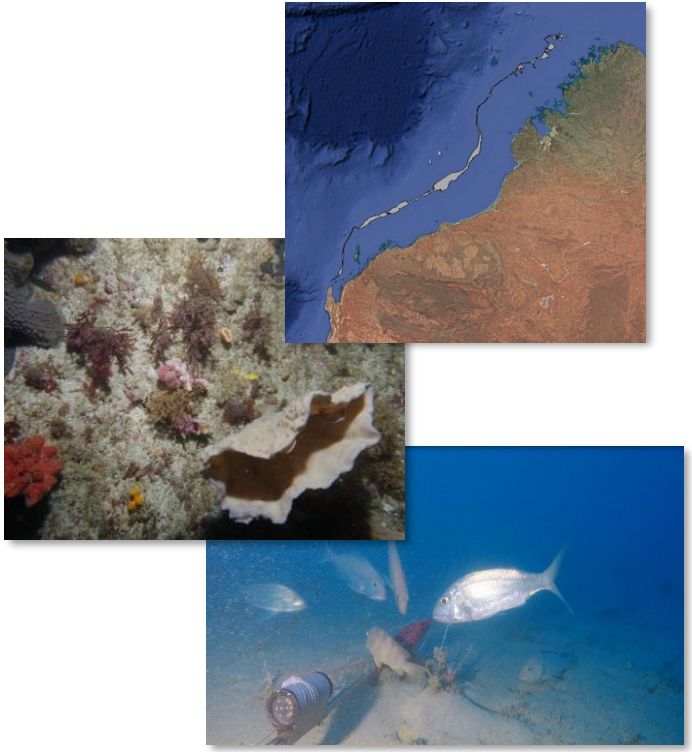
The Ancient Coastline Key Ecological Feature (KEF)

What next?

- First data used to guide further sampling
- Two more voyages (April, June)

Outcomes

- Knowledge of benthic diversity, distribution and abundance across study areas
- Predictive habitat models of benthic species/communities along the length of the AC KEF
- Understanding of the regional context of the biological values of the AC KEF



Pearl Oyster Habitat offshore from Eighty Mile Beach

OBJECTIVE:

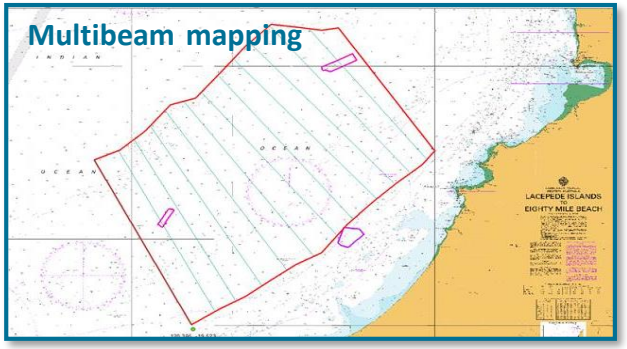
Map the distribution of pearl oyster habitat offshore from Eighty Mile Beach and examine the role of deep populations as brood stock for shallow water fished populations.

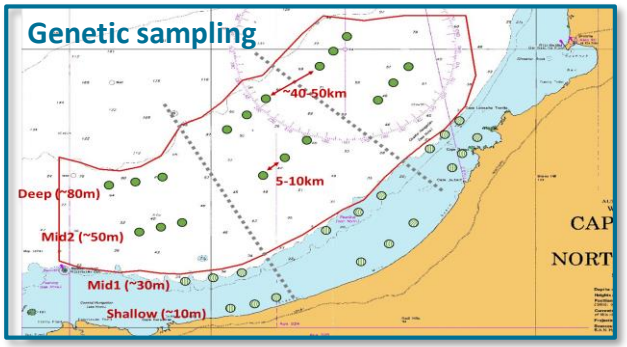
- Baseline surveys
  - Multibeam mapping
  - Towed video surveys of benthos/pearl oysters
- Predictive modelling of oyster habitat
- Population genetics for connectivity (SNPs)

Pearl Oyster Habitat offshore from Eighty Mile Beach

PROGRESS:

- Assessing existing knowledge and data
- Sample planning for three voyages
- Voyage 1 completed
- Collection of shallow genetic samples

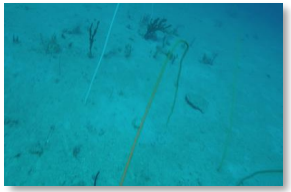


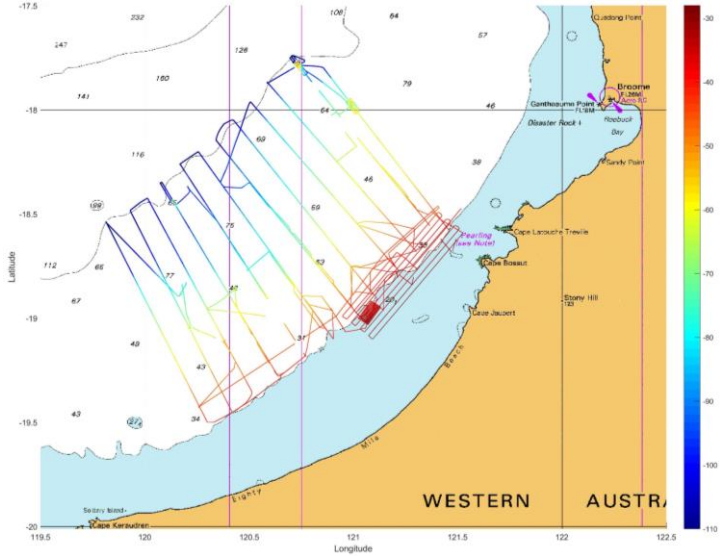


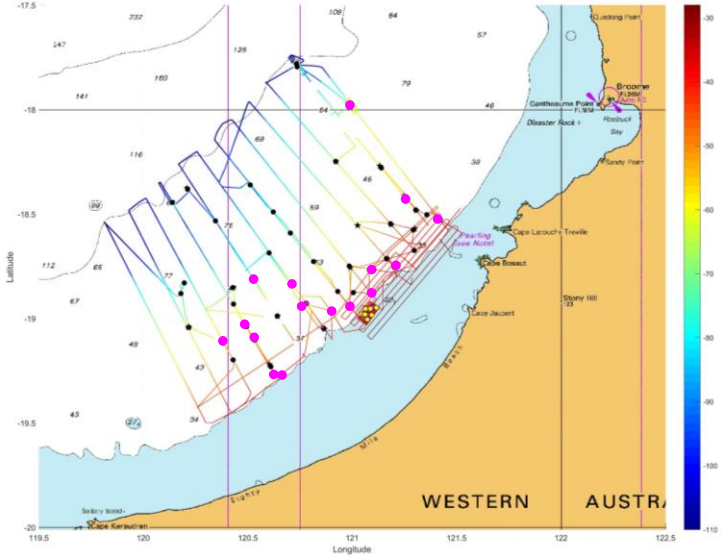
Pearl Oyster Habitat offshore from Eighty Mile Beach

Mapping pearl oysters habitats

- PRELIMINARY results - survey range 28-120m, oyster range to 70m, most common <40m



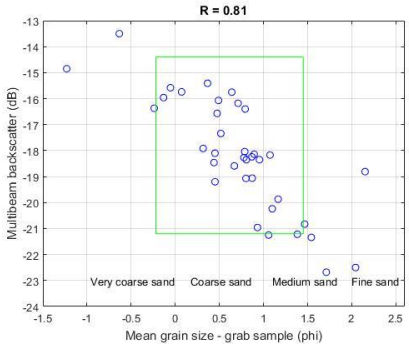


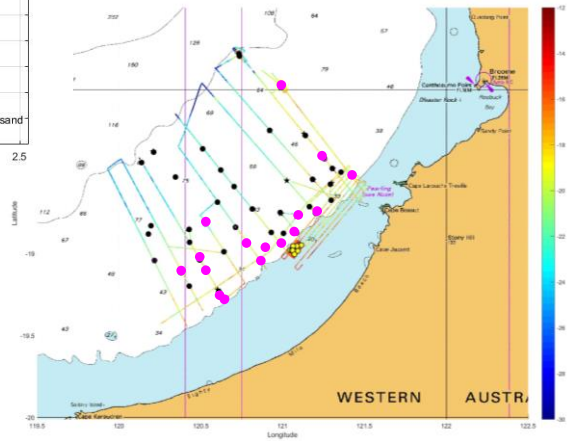


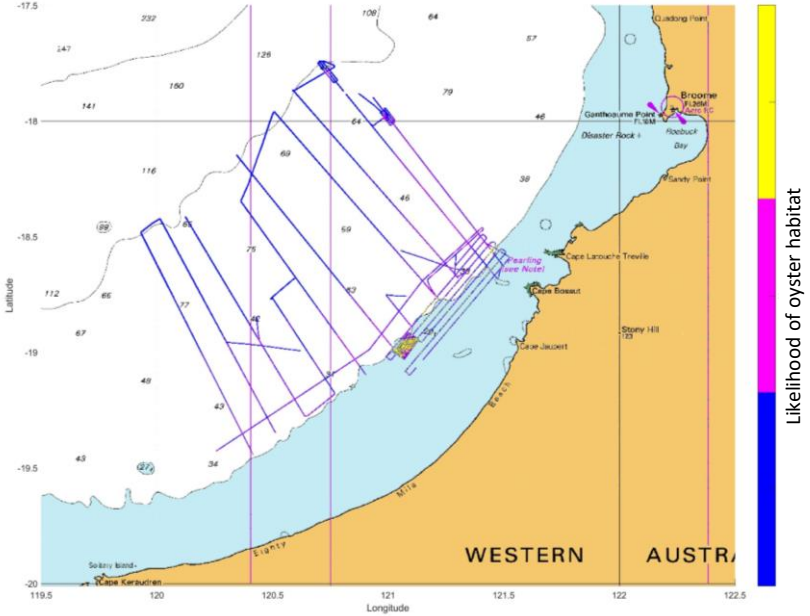
Pearl Oyster Habitat offshore from Eighty Mile Beach

Predicting pearl oysters habitats

- PRELIMINARY results suggest relationship between multibeam backscatter, depth, slope, sediments and oysters
- Ultimately can be used to predict areas of oyster habitat



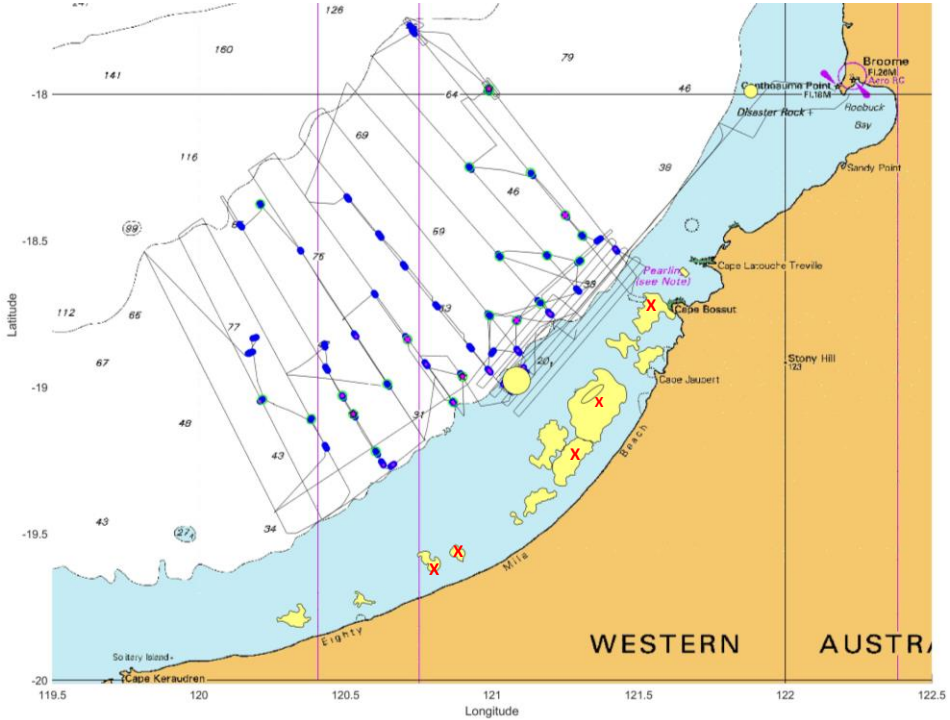




Pearl Oyster Habitat offshore from Eighty Mile Beach

Pearl oyster connectivity

- 507 tissue samples from 23 sites in fishing grounds
- Currently being genotyped (SNPs)
- More offshore samples still to be collected



Pearl Oyster Habitat offshore from Eighty Mile Beach

What next?

- First data used to guide further sampling
- Two more voyages (March, May)

Outcomes

- Knowledge of the nature of pearl oyster habitats
- Predictive habitat models of pearl oyster habitat offshore of Eighty Mile Beach
- Understanding of the connectivity between inshore and offshore oyster populations

Questions?