



western australian
marine science institution

WAMSI Node 3 - Managing and conserving the marine state: *best practice management and underpinning science*

Presentation to WAMSI Governors

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Program Leader
Marine Science Program, DEC

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Department of
Environment
and Conservation

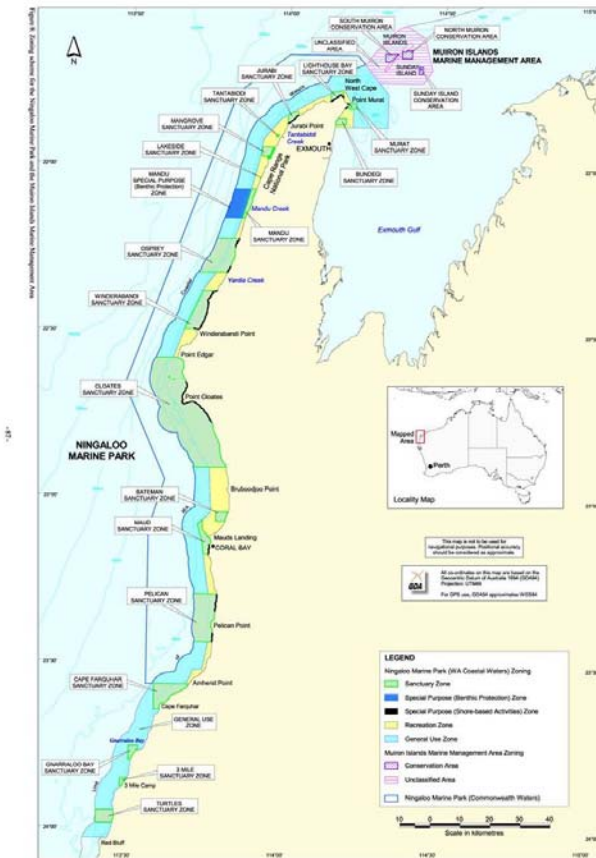
Purpose

- What research is being done in NMP?
- Why it is being done?
- Where we are headed from here?

OUTLINE

- History of Node 3
- Current Research in Ningaloo Marine Park
- Node 3 Science Plan
- Key Node 3 Projects
- Capacity building, Integration, communication and knowledge transfer
- Questions

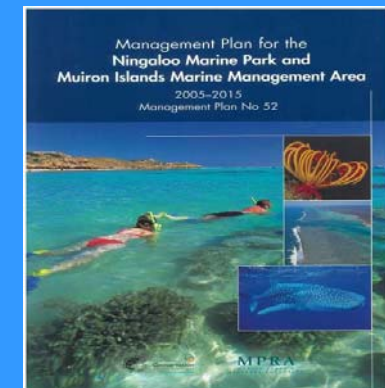
Node 3 Science Plan



- Premier releases draft NMP management plan in 2004 and provides \$5 million for research into NMP

- Improve the scientific underpinning for the conservation and management of Ningaloo Marine Park - **Ningaloo Research Program**

- NRP incorporated into WAMSI Node 3 in 2006





\$30 Million Funding for Research at Ningaloo over 4 years

- \$5M for WAMSI Node 3 (NRP)
- ~ \$10M co-investment in Node 3 by AIMS, CSIRO, State Govt and universities
- ~ \$12M for Wealth From Oceans Flagship: Ningaloo Cluster by CSIRO
- \$1M p.a. for AIMS core research
- \$1M of industry-funded research (to AIMS)
- \$1.5 M for CoML project (AIMS)
- IMOS Acoustic curtain + Others?

NODE 3 SCIENCE PLAN- Major projects

Deep water biodiversity, monitoring protocols etc (35%)

AIMS

Biodiversity, human use and management strategy evaluation (32%)

CSIRO

Water and sediment quality

Murdoch

Geomorphology, sedimentology and habitats

Curtin

Oceanographic processes

UWA

Groundwater link to NMP

Curtin

Large marine fauna

DEC

Northwest marine research inventory

DEC/CSIRO

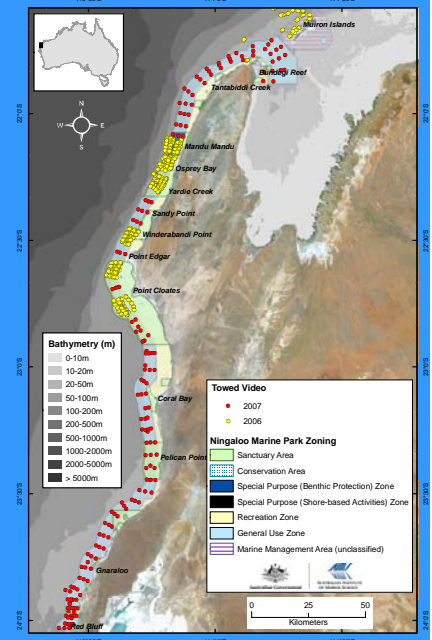
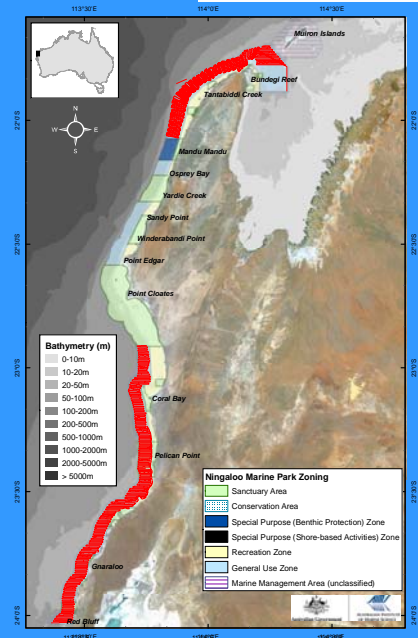


*Node 3: 20 Projects/sub-projects,
~100 scientists working in NMP*

Deep water biodiversity

Dr Andrew Heyward, AIMS

- Characterisation of benthic habitats and associated data collection complete
- Broadscale bathymetry CMST single beam – complete
- Significant macrobenthos dominated by sponge and filter feeding communities in deeper (> 30 m) waters
- Next step - Fine scale descriptive and process related studies

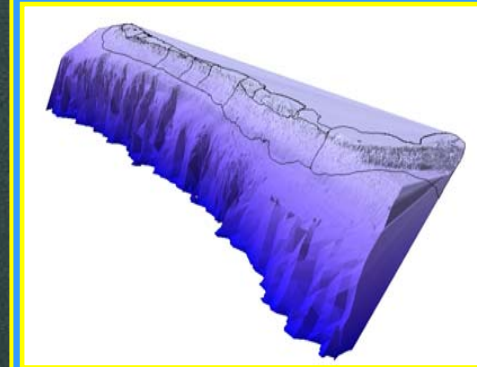


Biodiversity and Human Use

The distribution and biodiversity of benthic fishes in the Ningaloo Marine Park



Fish assemblages and ecosystem effects of fishing

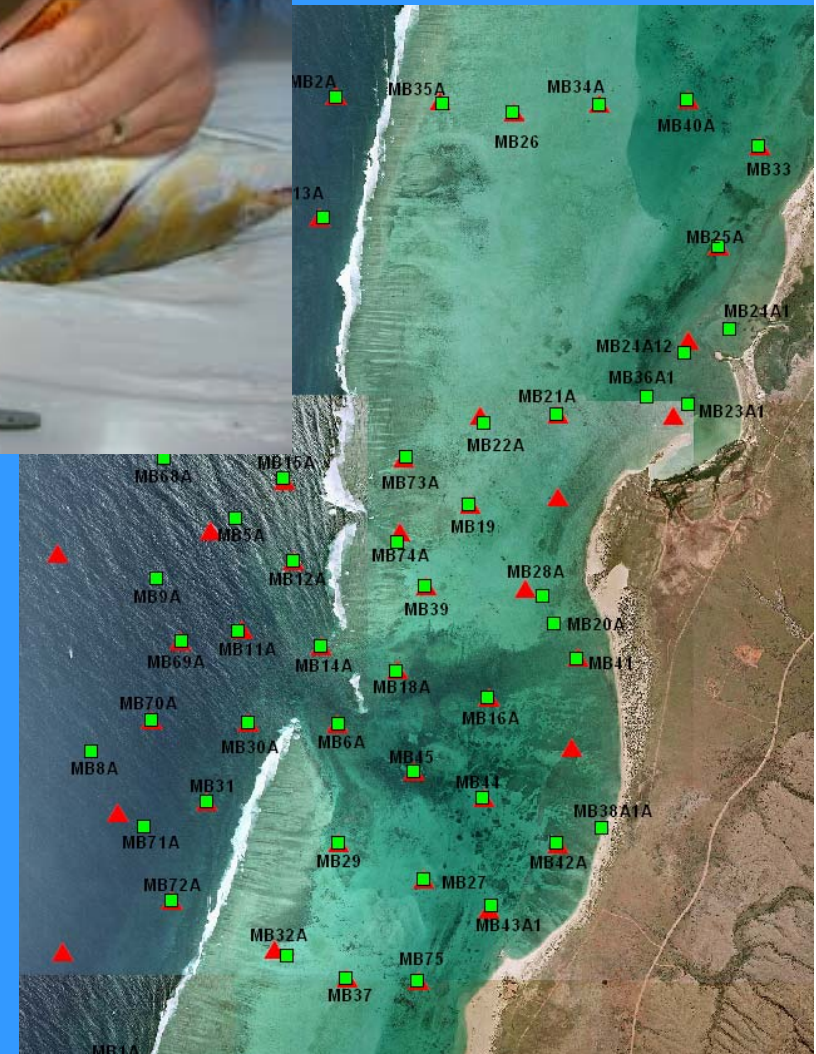


Ben Fitzpatrick, Dr Euan Harvey, Dr Andrew Heyward

Acoustic Tracking Array

Dr Russ Babcock (CSIRO)

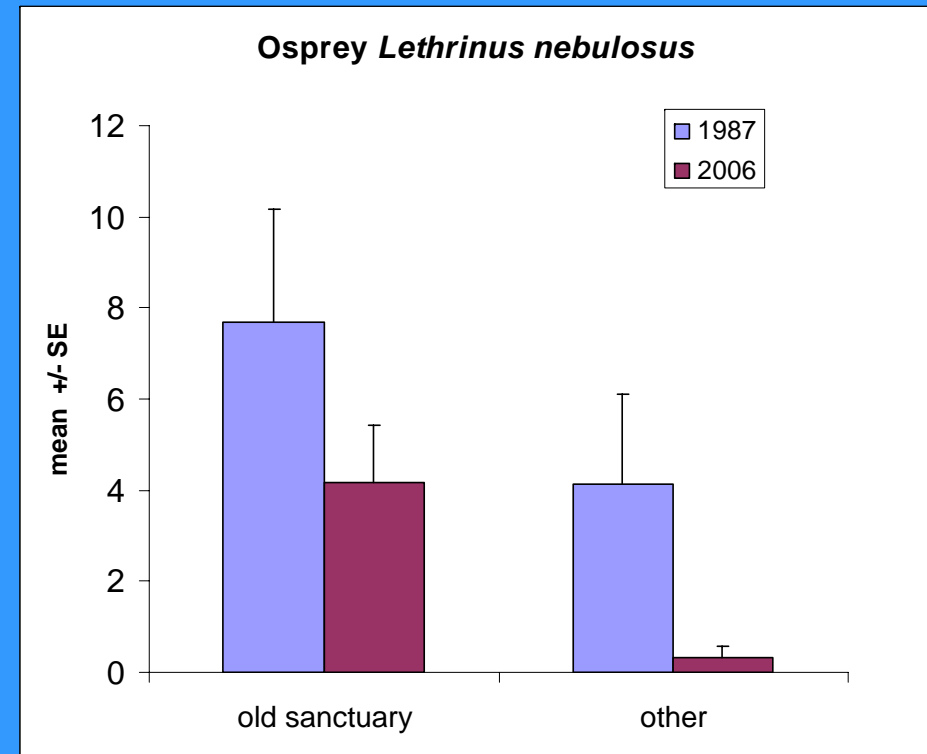
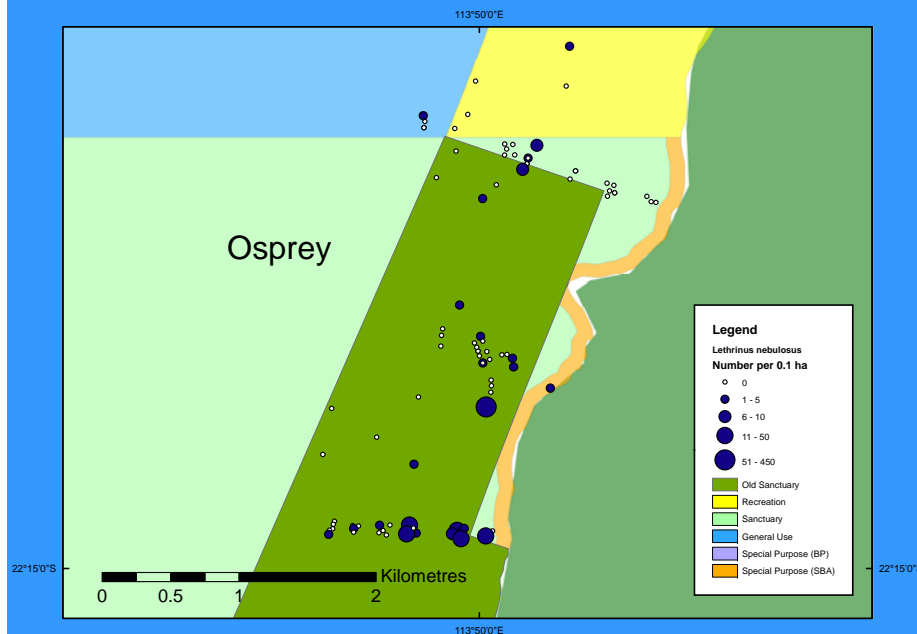
- Able to quantify movement at a range of spatial scales
- First three months of data indicate some *L. nebulosus* resident and highly site-attached, others move over several km



Mangrove Bay Array

Biodiversity and Human use

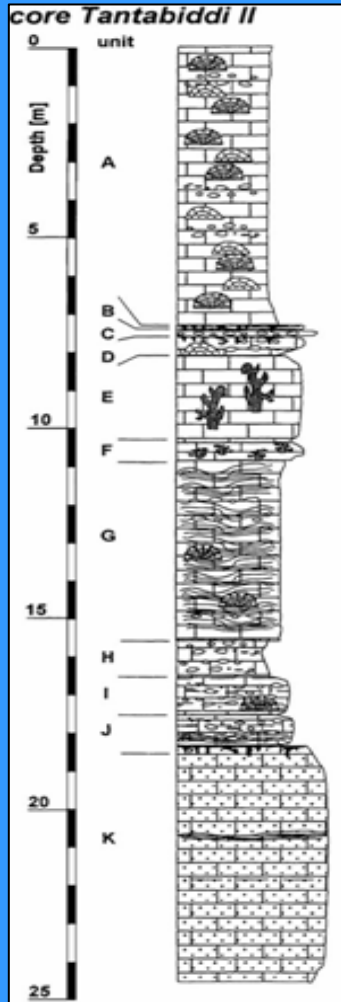
Dr Russ Babcock, CSIRO



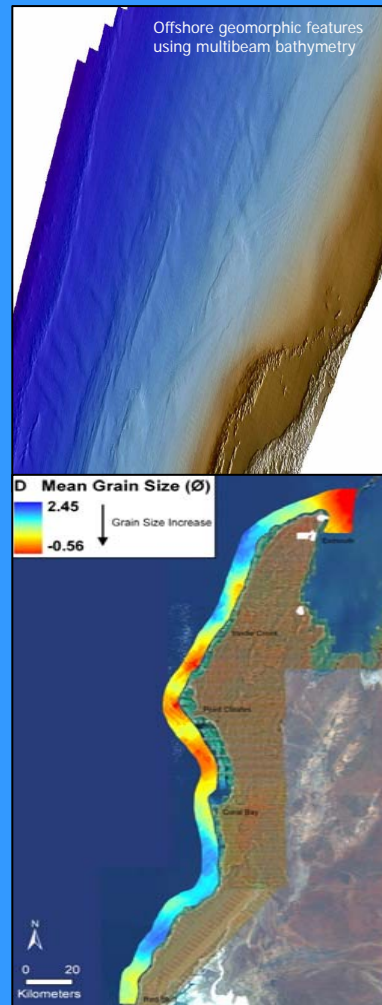
- Half as many *Lethrinus nebulosus* inside the old sanctuary zone
- One order of magnitude fewer outside

Geomorphology, Surficial Sediments and Habitats of the Ningaloo Marine Park

Lindsay Collins Emily Twiggs
(Curtin)



Growth history and
ancestral morphology

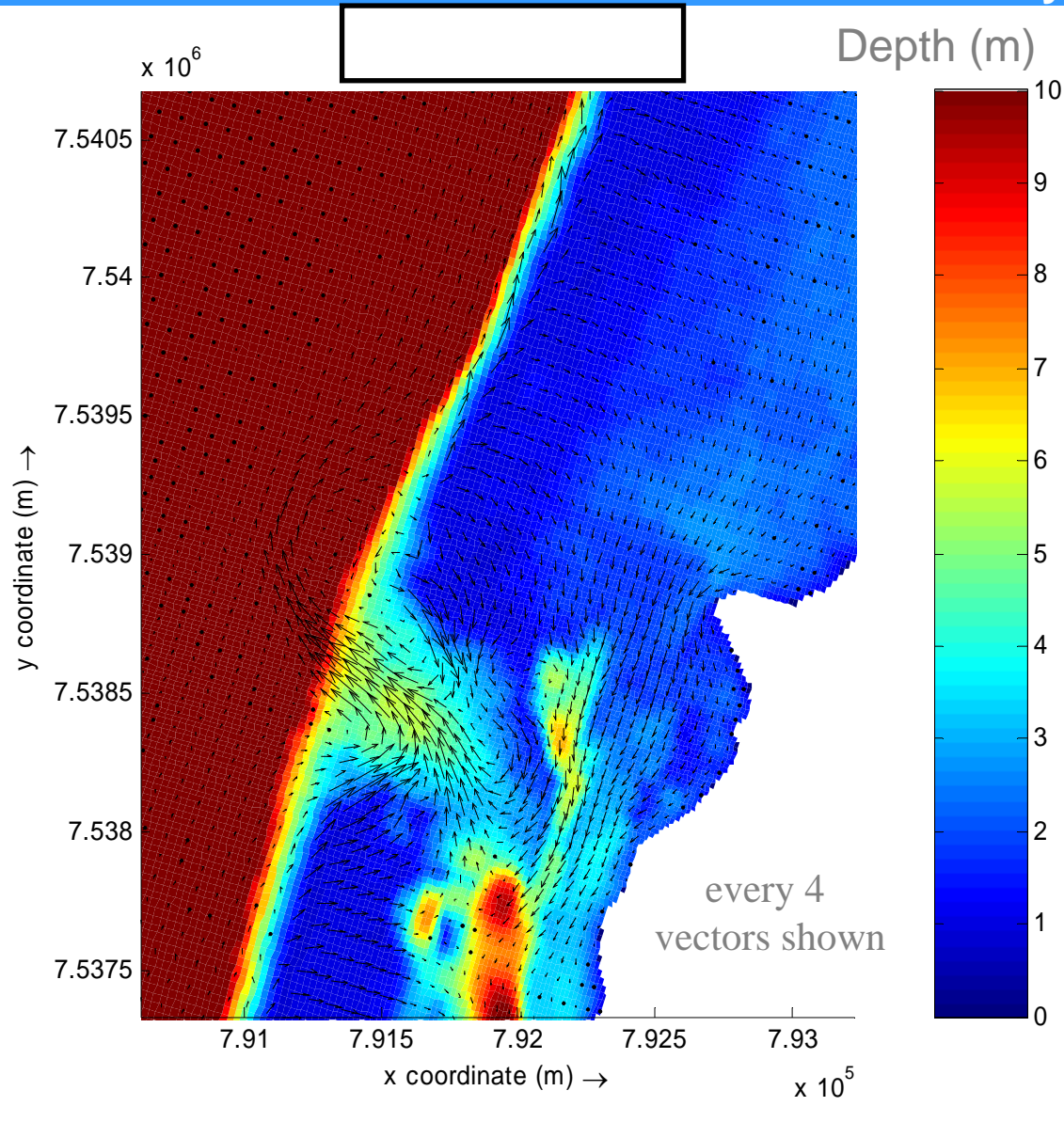


Contemporary geomorphology
and sedimentology



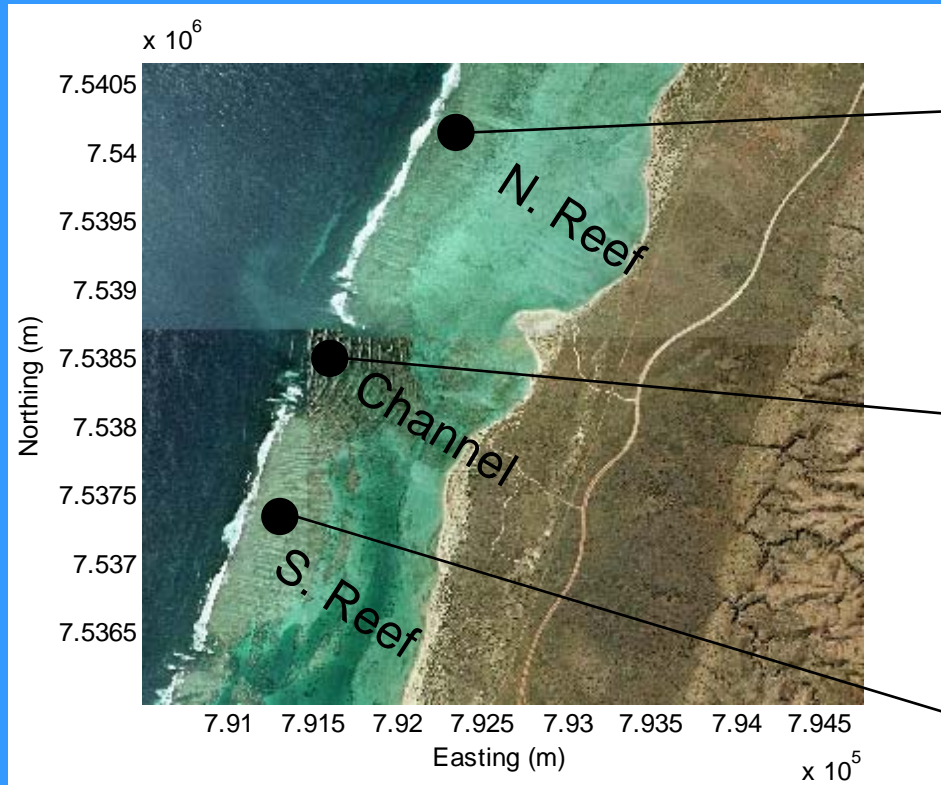
Oceanographic Processes

Prof Chari Pattiaratchi and Dr Ryan Lowe (UWA)

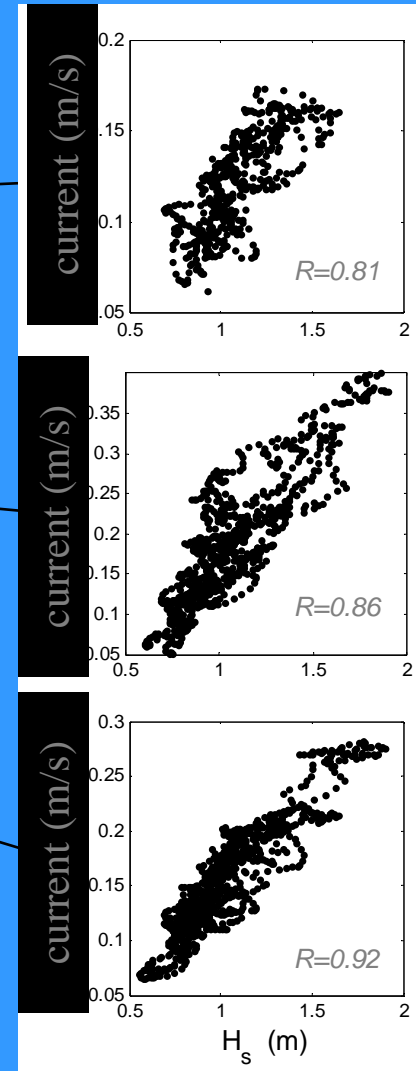


GPS drifter tracks

Oceanographic Processes



Current speed in lagoon related mainly to offshore wave height



North reef

Channel

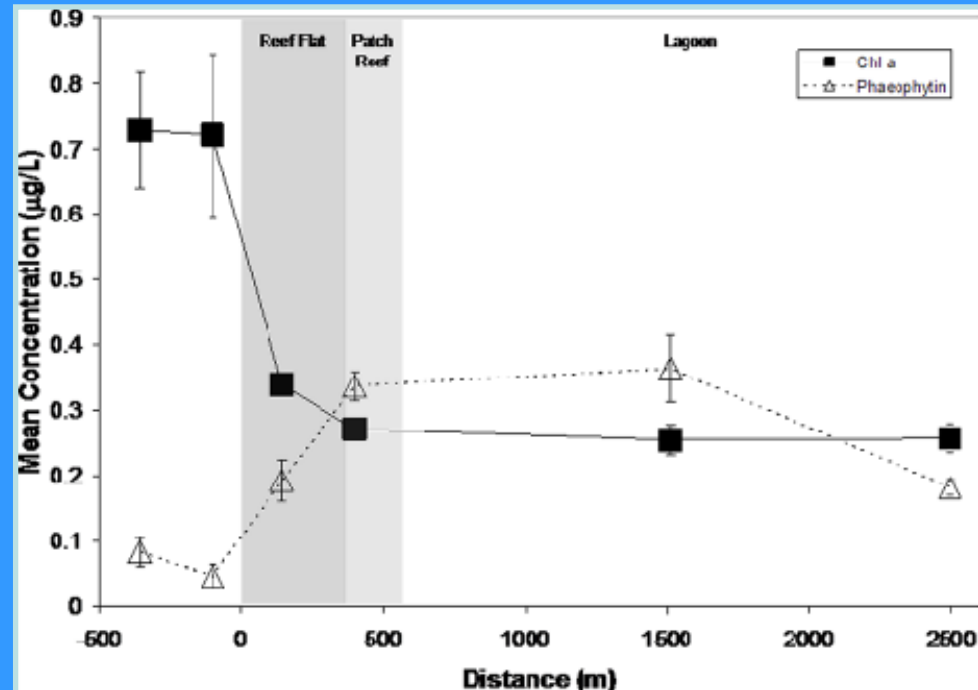
South reef

offshore wave height

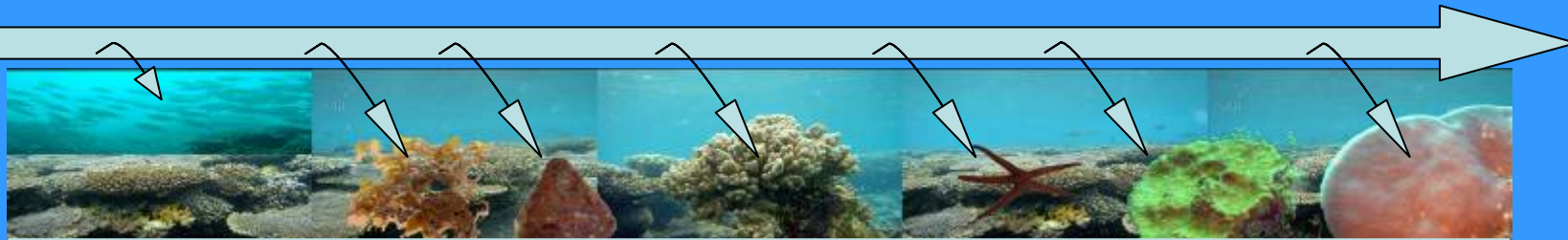
Oceanographic Processes

Trophic Ecology of Ningaloo Reef

Linking biogeochemistry and biodiversity



Oceanic particles
($\delta^{13}\text{C}$)
($\delta^{15}\text{N}$)



Building Marine Science Capacity in WA

1. STUDENTS

- Scholarships to 7 PhD and 1 Masters students at WA Universities
- Additional 2 full scholarships for NRP research provided by BHB Billiton
- Scholarship for a PhD student through an ARC Linkage grant to continue research in NMP

2. BETTER INTEGRATION, SCIENCE COMMUNICATION AND KNOWLEDGE TRANSFER

3. IMPROVED DATA MANAGEMENT



Science Integration and Knowledge Transfer

- *Linkages and integration between ALL Ningaloo research projects (Ningaloo Research Coordinating Committee) and other Nodes*
- *Interface between science and policy, planning and operational management*
- *Data management*
- *Science communication*



Science Communication

- Ningaloo Research Database
- Annual Ningaloo Symposium and
- Ningaloo Session at ACRS Scientific Meeting in Perth
- Regular WAMSI HQ and Node 3 PI meetings
- Regional visits and presentations
- Briefings to WAMSI Governors and Board
- Ningaloo Research Program Progress Report (October 2008)
- Ningaloo Marine Science Communication Plan



Summary

- \$5M of state investment has resulted in ~\$30M program of research into NMP
- Currently largest integrated coral reef study in the Indian Ocean
- Node 3 projects are progressing well and 'on-track'
- Knowledge is transferable to management of NMP and other coral reefs in WA (and elsewhere)
- Communication is a key issue
- Node 3 focus is on making a difference!



Acknowledgements

Scientists working in NMP
Kelly Waples

Questions?