

WAMSI PROJECTS 2009-2010

NODE 1 – Strategic science underpinning key natural resource management and conservation decisions

No.	Project title	Project leader
1.1	South West Australian Coastal Biochemistry	John Keesing CSIRO Marine and Atmospheric Research Ph: +61 8 9333 6500 Email: john.keesing@csiro.au
1.1.1	Downscaled hydrodynamic models to explore influences on benthic habitat, and the cross-shore and longshore exchange of water, nutrients and particles between the lagoon and shelf regions	Peter Craig (CSIRO)
1.1.2	Coupled hydrodynamic and biogeochemical models and a quantitative nutrient budget for coastal waters at shelf and lagoon scales	Ming Feng (CSIRO)
1.1.3	Improved descriptions and conceptual biogeochemical models for shelf and lagoon waters incorporating seasonal and inter-annual variability and improved representation of benthic primary production and benthic-pelagic coupling	Graham Symonds (CSIRO)
1.1.4	Develop simple models for assessing and predicting impacts of physical forcing factors, primarily nutrients, on key benthic functional groups/habitats informed by experiments and observations conducted across a range of naturally varying and anthropogenically altered gradients related to nutrient enrichment	Marty Lourey (CSIRO)
1.2	Coastal ecosystem characterisation, benthic ecology, connectivity and client delivery modules	John Keesing CSIRO Marine and Atmospheric Research Ph: +61 8 9333 6500 Email: john.keesing@csiro.au
1.2.1	An assessment of the importance of physical forcing and ecological interactions among key functional groups in determining patterns of spatial mosaics in benthic habitats	Russ Babcock (CSIRO)
1.2.2	An assessment of key ecosystem processes with particular relevance to contrasting fished and non-fished areas	Mat Vanderklift (CSIRO)
1.2.3	An assessment of likely dispersal patterns for marine organisms based on hydrodynamic and population genetic models	Phillip England (CSIRO) Phillip.england@csiro.au
1.2.4	Electronic delivery of data and models to management agencies, building on the development of the Data Interrogation and Visualisation Environment (DIVE)	Gary Carroll (CSIRO)
1.3	Kimberley Hub Project	Gary Fry CSIRO Marine and Atmospheric Research Phone: 08 9333 6500 Email: gary.fry@csiro.au
and	Benthic habitat surveys of potential LNG hub locations in the Kimberley region	Andrew Heyward AIMS Phone: 08 6369 4038 Email: a.heyward@aims.gov.au
1.4	(CSIRO and AIMS)	

NODE 2 – Climate processes, predictability and impacts in a warming Indian Ocean

No.	Project title	Project leader
2.1	Dynamics and predictability of the Indo-Pacific Ocean as a global condition on marine climate impacts in WA	Harry Hendon Centre for Australian Weather and Climate Research Ph: +61 3 9669 4120 Email: h.hendon@bom.gov.au
2.1.1	Assessment of the skill of POAMA for prediction and simulation of large-scale variations of the Indian and Pacific oceans and their relationship with the Leeuwin Current	
2.1.2	Assessment and improved understanding of the limits of predictability of large-scale variations of the Indo-Pacific that drive variability of the WA marine environment	
2.1.3	Understanding the impact of an imperfect ocean observing system in the Indian Ocean basin for predictability and representation of the large-scale Indian Ocean circulation	
2.1.4	Understanding of the impact of the role of intra-seasonal variability for prediction and evolution of large-scale circulation in the Indian Ocean	
2.1.5	Delivery of experimental seasonal forecasting products tailored to the WA marine environment available on the web	

No.	Project title	Project leader
2.2	Dynamics and impacts of the Leeuwin Current on the marine environment of WA	Ming Feng CSIRO Marine and Atmospheric Research Ph: +61 8 9333 6512 Email: Ming.feng@csiro.au
2.2.1	An understanding of the mechanism of warming in the tropical eastern Indian Ocean	
2.2.2	An understanding of the multi-decadal trends in the Leeuwin Current	
2.2.3	An improved understanding of the response of the Leeuwin Current system to inter-annual climate variability by using BLUElink model simulations	
2.2.4	An understanding of the role of the Leeuwin Current eddies in cross-shelf transport	
2.2.5	Projected future changes in the Leeuwin Current system	
2.2.6	Model-data archive and report on downscaled, regional (10 km) climate change scenario of the marine environment	
2.3	Oceanic conditions at Ningaloo Reef – analysis of downscaling ocean climate into the Ningaloo Reef Tract	Richard Brinkman AIMS Ph: +61 7 4753 4374 Email: r.brinkman@aims.gov.au
2.3.1	A robust model of the circulation within the Ningaloo Marine Tract (NRT)	
2.3.2	Understanding of the interaction of the circulation in the NRT and the Leeuwin Current system under present and project future climate conditions	
2.3.3	Report on the impacts of projected climate change scenarios downscaled from ocean basin to spatial scales relevant to the Ningaloo Reef ecosystems	

NODE 3 – Managing and conserving the marine state

No.	Project title	Project leader
3.1	Biodiversity assessment and development of cost-effective monitoring protocols.	Andrew Heyward AIMS Ph: +61 8 6369 4038 Email: a.heyward@aims.gov.au
3.1.1	Deepwater communities at Ningaloo Reef <i>Deep water habitat types</i> <i>Fish biodiversity associated with habitat types</i> <i>High resolution data on cross shelf bathymetry and sediment facies</i> <i>Species inventory database for Ningaloo deep waters</i>	Andrew Heyward (AIMS) Euan Harvey, Ben Fitzpatrick (UWA) Rob McCauley, Emily Twiggs (Curtin) Jane Fromont (WA Museum)
3.1.2	Methods for monitoring the health of benthic communities	Martial Depczynski (AIMS)
3.1.3	Stock assessment of target invertebrates at Ningaloo Reef	Martial Depczynski (AIMS)
3.1.4	Local and regional migratory patterns of whale sharks	Mark Meekan (AIMS)
3.1.5	Habitat and biodiversity surveys in the deep waters of the Ningaloo Marine Park	Richard Brinkman (AIMS)
3.1.6	Physical oceanography of the Ningaloo Marine Park	Richard Brinkman (UWA)
3.2	Biodiversity assessment, ecosystem impacts of human usage and management strategy evaluation.	Russ Babcock CSIRO Ph: +61 8 9333 6535 or 0408 944 961 Email: russ.babcock@csiro.au
3.2.1	Diversity, abundance and habitat utilisation of sharks and rays	John Stevens (CSIRO)
3.2.2	Ecosystem impacts of human usage and the effectiveness of zoning for biodiversity conservation <i>Broad scale fish surveys</i> <i>Intertidal invertebrate species</i> <i>Assessment of trophic interactions</i> <i>Lagoon invertebrates (crayfish)</i> <i>Assessment of zone adequacy using fish tagging and tracking</i> <i>Finescale fish surveys – fish communities and habitats</i>	Russ Babcock (CSIRO) Russ Babcock (CSIRO) Glenn Hyndes (ECU) Russ Babcock (CSIRO) Russ Babcock (CSIRO) Ben Fitzpatrick (UWA) Rich Little (CSIRO)
3.2.3	Management Strategy Evaluation	
3.2.4	Impacts of human usage, oceanography and management strategy evaluation	
3.4	Characterisation of geomorphology and surficial sediments	Lindsay Collins Curtin Ph: +61 8 9266 7977 Email: l.collins@curtin.edu.au
3.5	Characterisation and modelling of oceanographic processes and biodiversity assessment	Charitha Pattiaratchi UWA Ph: +61 8 6488 3179 E-mail: chari.pattiaratchi@uwa.edu.au
3.5.1	Assessment of the dominant hydrodynamic processes in the reef lagoon system	Graham Symonds (CSIRO)
3.5.2	Numerical simulation of waves, currents, sediment transport and particle dispersion in a shallow complex reef environment	Ryan Lowe (UWA)
3.5.3	Assessment of the near-reef oceanic processes on organism-scale nutrient dynamics	Anya Waite (UWA)

NODE 3 – Managing and conserving the marine state (continued)

No.	Project title	Project leader
3.6	Science coordination: Administration, communication and data management	Chris Simpson DEC Ph: +61 8 9219 8761 or +61 8 9219 9796 Email: chris.simpson@dec.wa.gov.au
	3.6.1 Science coordination and administration	Kelly Waples (DEC)
	3.6.2 Communications program	Kelly Waples (DEC)
	3.6.3 Data management program	Kelly Waples (DEC)
3.7	SRFME Carryover projects – Jurien Bay	Chris Simpson DEC Ph: +61 8 9219 8761 or +61 8 9219 9796 Email: chris.simpson@dec.wa.gov.au
	3.7.1 Ecological interactions in coastal marine ecosystems: trophodynamics	Glenn Hyndes (ECU)
	3.7.2 Ecological interactions in coastal marine ecosystems: rock lobster	Glenn Hyndes (ECU)
	3.7.3 Ecophysiology of benthic primary producers	Paul Lavery (ECU)
	3.7.4 Biodiversity of marine fauna on the central west coast	Jane Fromont (WA Museum)
	3.7.5 Communities and main fish populations of the Jurien Bay marine park	David Fairclough (Murdoch)
	3.7.6 Consequences of reduced light availability in seagrass meadows	Paul Lavery (ECU)
	3.7.7 SRFME legacy project: data and document archiving and accessibility	John Keesing (CSIRO)
3.8	North West Marine Research Inventory	Chris Simpson DEC Ph: +61 8 9219 8761 or +61 8 9219 9796 Email: chris.simpson@dec.wa.gov.au
	Project funded by National Oceans Office, State departments and industry	Project team: Tim Skewes and Tom Taranto (CSIRO)
3.9	Post Graduate Seed Funding Program	Chris Simpson DEC Ph: +61 8 9219 8761 or +61 8 9219 9796 Email: chris.simpson@dec.wa.gov.au
	3.9.1 Deepwater communities at Ningaloo Marine Park and ecosystem impacts of human usage and the effectiveness of zoning for biodiversity conservation	Ben Fitzpatrick (UWA)
	3.9.2 Characterisation of geomorphology and surficial sediments	Emily Twiggs (Curtin)
	3.9.3 The policy relevance of choice modelling: an application to Ningaloo Marine Park	Abbie McCartney (UWA)
	3.9.4 Quantifying impacts of the Leeuwin current on the ecology and biogeochemistry of the Ningaloo Reef	Cecile Rousseaux (UWA)
	3.9.5 The population dynamics and habitat usage of <i>Sousa chinensis</i> and <i>Tursiops truncatus</i> in the Ningaloo Marine Park	Kristel Wenziker (Murdoch)
	3.9.6 Hydrodynamic processes in the Ningaloo reef system over a range of space and time scales	Soheila Taebi (UWA)
	3.9.7 the role of microbial communities in reef building corals along the Ningaloo Reef	Janja Ceh (Murdoch)
3.10	Biodiversity assessment of subterranean aquatic fauna and groundwater	Lindsay Collins Curtin Ph: +61 8 9266 7977 Email: l.collins@curtin.edu.au

NODE 4 – Sustainable ecosystems for sustainable fisheries

No.	Project title	Project leader
4.1	Applying the EBFM Framework	Dan Gaughan WA Department of Fisheries Ph: +61 8 9203 0156 Email: daniel.gaughan@fish.wa.gov.au
	4.1.1 Conceptual framework for Ecosystem Based Fisheries Management [EBFM]	Sarah Metcalfe (DoF/Murdoch)
	4.1.2 EBFM linkages	Jenny Shaw (DoF)
	4.1.3 Node Level Project Administration Activities	Norm Hall (Murdoch)
4.2	Assessment of community structure, biodiversity, habitat and climate change and the impact of anthropogenic influences	Euan Harvey UWA euanh@cyllene.uwa.edu.au
	4.2.1 Development of bioregional level assessments of the status of community structure based on fishery dependent and/or fishery independent data	
	4.2.2 Establishment of Indicator regions for long term monitoring and assessment	
	4.2.3 Establishment of fishery-dependent indicators of climate change	
	4.2.4. Cost effective ongoing, general biodiversity and habitat monitoring methods	

No.	Project title	Project leader
4.3	Trophic interactions and ecosystem modelling	Neil Loneragan Murdoch Ph: +61 8 9360 6453 Email: n.loneragan@murdoch.edu.au
	4.3.1 Trophic interactions	
	4.3.1a Lobster effects on shallow water ecosystems	Glenn Hyndes (ECU)
	4.3.2 Ecosystem modelling	Neil Loneragan (Murdoch)
4.4	Captured species assessments	Steve Newman WA Department of Fisheries Ph: +61 8 9203 0192 Email: Stephen.newman@fish.wa.gov.au
	4.4.1 Assessment and monitoring methods for by-catch species composition and abundance	
	4.4.2 Implications of mobility and stock structure of species for management approaches	
	4.4.3 Development of cost-effective methods for monitoring the catch of the non-commercial sector	
4.5	Socio-economic implications	Malcolm Tull Murdoch Ph: +61 8 9360 2481 Email: m.tull@murdoch.edu.au
	4.5.1 A review of the methods for completing social and economic assessments for use in EBFM	
	4.5.2 Modelling recreational fishing behaviour	
	4.5.3 Pilot study to develop a socio-economic assessment of fisheries (commercial and recreational) in the West Coast Bioregion	

NODE 5 – Marine biodiscovery, biotechnology and aquaculture: the blue farm

No.	Project title	Project leader
5.1	Marine biodiscovery and biotechnology – WA marine bioresources library	Libby Evans-Illidge AIMS e.evansillidge@aims.gov.au and Jane Fromont Western Australian Museum Ph: +61 8 9212 3745 jane.fromont@museum.wa.gov.au
	5.1.1 Marine bioresources policy advice	
	5.1.2 Marine bioresources library development	
5.2	Biomolecular diversity and partnered biodiscovery	Peter Leedman UWA Ph: +61 8 9224 0323 peter.leedman@uwa.edu.au
	5.2.1 Anti-tumour discovery WAIMR	
	5.2.2 <i>Biopharmica (NH & MRC) – no funding requested and not in Project Agreement</i>	
5.4	Quorum sensing	David Sutton UWA Ph: +61 8 9376 4873 Email: david.sutton@uwa.edu.au

NODE 6 – Ocean science for offshore and coastal engineering

No.	Project title	Project leader
6.1	Offshore and coastal engineering and the effects of climate change	Charitha Pattiaratchi UWA Ph +61 8 6488 3179 pattiar@sese.uwa.edu.au
6.2	Impact of internal waves on offshore engineering	Greg Ivey UWA Ph +61 8 6488 3528 ivey@sese.uwa.edu.au
	6.2.1 Understand the evolution of internal waves as they propagate from the Shelf Break to NRA	
	6.2.2 The dissipation of internal waves in shallow waters near NRA	
	6.2.3 The mechanism of internal wave generation at Shelf Break, North Rankin	
	6.2.4 The mechanism of internal wave generation in Browse Basin	
	6.2.5 Internal wave generation in Browse Basin	
	6.2.6 Internal wave dynamics and ocean climatology in Browse Basin	
6.3	Western Australian Integrated Marine Observation System	Charitha Pattiaratchi UWA Ph +61 8 6488 3179 pattiar@sese.uwa.edu.au