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# BETTER SCIENCE BETTER DECISIONS

## **Western Australian Marine Science Institution (WAMSI)**

A guide to how your organisation can partner with and benefit from Western Australia's first major research facility dedicated to further understand the state's marine and coastal environments and resources.

WAMSI is a 'Major Research Initiative' of the WA State Government with additional support from Federal Government, industry, academia and NGO's.



western australian  
marine science institution





## WESTERN AUSTRALIA: A TRULY REMARKABLE STATE

Western Australia's marine environment offers a wealth of biodiversity, unique marine habitats, abundant resources and social values.

WAMSI 1 which ran from 2006-2011 was deemed highly successful. As a result a new WAMSI 2 Venture is being established commencing in January 2012. This document outlines the aspirations of WAMSI 2 moving forward.

## WA: THE MARINE STATE

The WA mainland coast is more than 13,500 kilometres long with more than 12.6 million hectares of waters under State jurisdiction alone.



Its coral reefs are ranked second in the world for the number of endemic species they harbour, and occur at higher latitudes than anywhere else on the planet because of the southerly flow of the warm Leeuwin Current.

The West coast of WA has been dubbed the "Humpback Superhighway" as approximately 27,000 whales migrate up and down annually. Its coastal waters are among the most unspoiled in the world and Shark Bay is one of very few areas inscribed on the World Heritage list for all four criteria for outstanding natural values.

WA has everything when it comes to the marine and coastal environments, ranging from the oceanic shoals of the North West, the mangrove-fringed coast of the Kimberley, the coral reefs off Dampier and Ningaloo, the high-energy metropolitan coast off Perth, the remarkable Capes region, to the temperate surf coast of the south.



The marine nature-based tourism industry is worth billions of dollars a year to the Australian economy. The economic impact of the Ningaloo Reef and Cape Range National Park to the Gascoyne community alone is estimated at around \$140 million per annum.

The western rock lobster fishery is the most valuable single species fishery in Australia, typically earning more than \$250 million a year in export revenue and part of a WA industry with a collective value of more than \$400 million a year.

These attributes combined present compelling reasons to ensure that the State's marine environment and resources are carefully managed, conserved, enjoyed and developed in a sustainable way.



## THE WAMSI APPROACH

Underlying all of WAMSI's research programs are three integrating science themes:

- ocean systems forecasting;
- biodiversity conservation; and
- natural resource management.

The role of WAMSI is to deliver high quality applied science through its partners. Multi-disciplinary, independent, public-good marine science on a regional scale delivered through *best-practice* governance arrangements, are the WAMSI trademarks.



WAMSI was established in 2006 to combine the intellectual strength of 16 marine science providers in WA including State and Federal government agencies, academia, and industry organisations, all brought together to deliver independent Quality Assured information to decision makers.

Two hundred and fifty qualified marine scientists from CSIRO's Wealth from Oceans Flagship, the Australian Institute of Marine Science, WA's four public universities, the Bureau of Meteorology, WA's ChemCentre, the WA Museum, Office of the EPA, Woodside Energy Ltd, the Department of Environment and Conservation and the Department of Fisheries provided the intellectual capacity and expertise to deliver holistic, regional-scale marine research outcomes beyond the capacity of any single organisation. The focus of effort to-date has been primarily in the region from Exmouth to the Perth Metro region.

The collaboration has been an unprecedented success with reports published on the likely effects of climate change on WA's coastal and marine life, the fundamental distribution of marine fauna and flora, the development of ecosystem-based fisheries management principles, quantifying large scale ocean warming trends over the last 30 years, understanding the diet and ecosystem interactions of rock lobsters, physical oceanographic impacts on offshore and coastal structures, modelling larval distribution hot-spots, advances in marine biotechnology, and highly applied science to inform the ongoing management of the Ningaloo Marine Park, to name a few of the 85 projects undertaken in WAMSI 1 (2006 – 2011).

In a period of five years, the scope of WAMSI's researcher achievement has been breathtaking and a quantum leap in capability, knowledge and capacity has been delivered.

WAMSI's strategic objective is to strengthen the coordination and capacity of marine research in WA and to enhance the transfer of research outputs into outcomes that deliver economic, environmental and social benefits to Western Australia.



WAMSI also provides an independent advisory, administrative and coordination function. Its role is to bring together a critical mass of marine research scientists from various disciplines and backgrounds, facilitating collaborative partnerships.

WAMSI predominantly scopes, develops and undertakes big strategic projects – projects that require multi-disciplinary teams and the sharing of vital information and resources among the participating partners.

Individually WAMSI's member organisations are gatherers and custodians of valuable marine and coastal data. WAMSI has facilitated the development of partnerships and protocols for cross-organisational data management, collaboration and sharing.

Better coordination in marine and coastal data management enables better decision-making and avoids duplication in data gathering. WAMSI helps to improve information access and the optimisation of the application of marine science data Australia-wide, for the scientific sector, industry and the community at large.



## WAMSI'S OBJECTIVES ARE TO:

- support the conservation, sustainable management and utilisation of WA's unique marine endowment;
- enhance the contribution of strategic scientific and technological research and innovation to Australia's sustainable environmental, social and economic development;
- enhance the transfer of the research outputs into outcomes of economic, environmental and social benefit to WA;
- enhance collaboration among and between researchers and industry, and improve efficiency in the use of intellectual and other research resources;
- enhance the opportunities for marine graduate researchers in WA.



## OVERVIEW OF ACHIEVEMENTS IN THE PERIOD 2006 - 2011

WAMSI achievements in the period 2006 to 2011 can be summarised as follows:

- More than 250 scientists worked on 85 WAMSI projects;
- Management and scientists from 16 academic, government and private industry organisations that made up WAMSI 1, worked together to achieve integrated, holistic research;
- Scientists published over 200 formal peer-reviewed research documents and counting resulting from WAMSI work;
- \$96 million in establishment, matching and in-kind contributions were provided by the WA State Government and WAMSI partners;
- Ongoing communication to the public, stakeholders and decision makers with media releases, over 35 symposia and conferences and engagement with stakeholders;
- WAMSI retained and established partnerships with organisations outside the initial membership. These included the National Oceans Office, Australian National

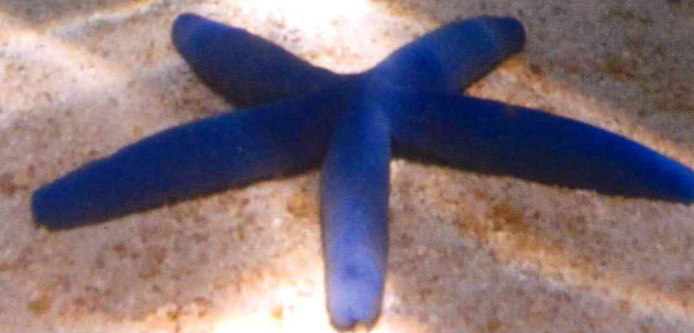
University, Geoscience Australia, the Western Australian Energy Research Alliance, the Western Australian Institute for Medical Research, the WA Department of Planning and Infrastructure, the Australian Meteorological and Oceanographic Society, RPS Engineers, Western Australian Land Information System, the Australian Ocean Data Network, Integrated Marine Observing System, Kimberley Society, Port Hedland Port Authority and the Royal Society of WA;

- Closer links were established with the oil and gas sector. Woodside, Apache, INPEX and Chevron sponsored projects while BHP Billiton funded two WAMSI scholarship students. Woodside and BHP Billiton were WAMSI Industry Foundation Partners;
- Links with Federal and State Ministers for Science, Environment, Fisheries, Mines and Petroleum, the WA Chief Scientist and industry representatives were established.



## WAMSI: OFFERING A RANGE OF SERVICES

- Delivery of marine science projects;
- Scoping and initiating new programs of research;
- Establishing well-qualified scientific teams;
- Developing science cases, business cases and project plans;
- Full project management;
- End to end project communications;
- Data and information management; and
- Building new project proposals around new investment.



## WAMSI 2 MOVING FORWARD: 2012 AND BEYOND

WAMSI 2 is an unincorporated joint venture established to undertake collaborative marine research involving academia, State Government, Federal Government and private industry, joining together shared capabilities to create one of Australia's strongest marine research organisations.

The Chairman and CEO of WAMSI invite expressions of interest from organisations with an interest in either commissioning research, participating in the joint venture or providing additional research capacity.

Priorities for moving forward include:

1. Kimberley Browse Marine Region.
2. Dredging Science.
3. Pilbara coast and the North West Shelf.
4. Shark Bay.
5. West Coast Bioregion.
6. Climate change science.
7. South Coast.

The member parties contribute to the development and implementation of rigorous science, project planning and legal and governance structures to support the independent management of projects.

Interest from potential new parties is welcomed. Some of the current parties include:



## VITAL PARTNERSHIP OPPORTUNITIES

As WAMSI's activities gain momentum, there is ever-increasing scope for other organisations and individuals to work with the Institution in order to advance knowledge and gain understanding to assist in better decision-making. In a complex world, no single organisation tends to have all the expertise or capacity required for working off the remote WA coast.

Around Western Australia's coastline, numerous port and marine infrastructure developments are proposed or are at various stages of planning. These, often large and ambitious projects, are thoroughly scrutinised for their potential impacts on the marine and coastal environment and overall biodiversity.

WAMSI is a single port of call for project proponents needing to commission independent scientific studies that involve strategic marine research and the larger geographic regional contextualisation. The Institution adopts an unbiased and totally science-based position, conducting independent, peer-reviewed research that will help inform the process of balancing development goals with conservation imperatives. This enables proponents, regulators and decision-makers to arrive at the best decision with the optimum balance of economic, environmental and social benefits and trade-offs.

## REGIONAL UNDERSTANDING

WAMSI has the capacity to develop research programs that increase the scientific understanding of remote broad geographic regions, such as the Kimberley or Pilbara offshore area.

Throughout the State, as the multiple-use regional marine planning process extends to the various unique and environmentally sensitive marine and coastal bioregions, co-operation amongst jurisdictions, industry, user groups and the marine science sector will be required and will involve shared the collection of fundamental marine datasets.

WAMSI brings together the diverse expertise and combined resources of its member organisations to contribute to such a regional understanding and multiple-use marine planning. Backed by the strength of its partners, WAMSI is able to independently tackle the 'hard questions' in remote locations along the State's extensive coastline.



## A FORMIDABLE COMBINED STRENGTH

The combined strength and expertise of WAMSI's partner organisations is formidable and possibly unequalled anywhere in the world. WAMSI is leading the emergence of the 'virtual organisation'. It is the facilitator, co-ordinator and scientific 'match-maker' currently involving 16 world-class research organisations.

For this reason, WAMSI is uniquely positioned to harness and focus this expertise in order to provide decision-makers with the best science to make informed decisions, with the ultimate aim of ensuring that Western Australia's precious marine heritage is safeguarded for the future and the necessary understandings are put in place to mitigate risk in utilising WA's marine estate.

## ADDRESSING UNPRECEDENTED CHALLENGES

Western Australia's marine environment and resources are facing unprecedented challenges brought about by increasing climate variability, global warming, human population growth and growing prosperity with associated societal expectations and infrastructure development.

It is the recognition that the impacts of these pressures must be better understood and addressed, that led to the establishment of WAMSI with its focus on underpinning scientific research.

The path forward for WAMSI is open-ended and to a large extent will be directed by, not only the member partners, but also external organisations, potential clients, partners and collaborators from industry, government, oil and gas companies, recreational and commercial representative fisheries bodies, Port Authorities, resource developers and ecotourism operators - to name just a few.

WAMSI brings together multi-disciplinary teams to suit the specific requirements of each project undertaken. The Institution endeavours to build *fit-for-purpose* information that will best inform policy and day-to-day marine management.

## EDUCATION PROGRAMS

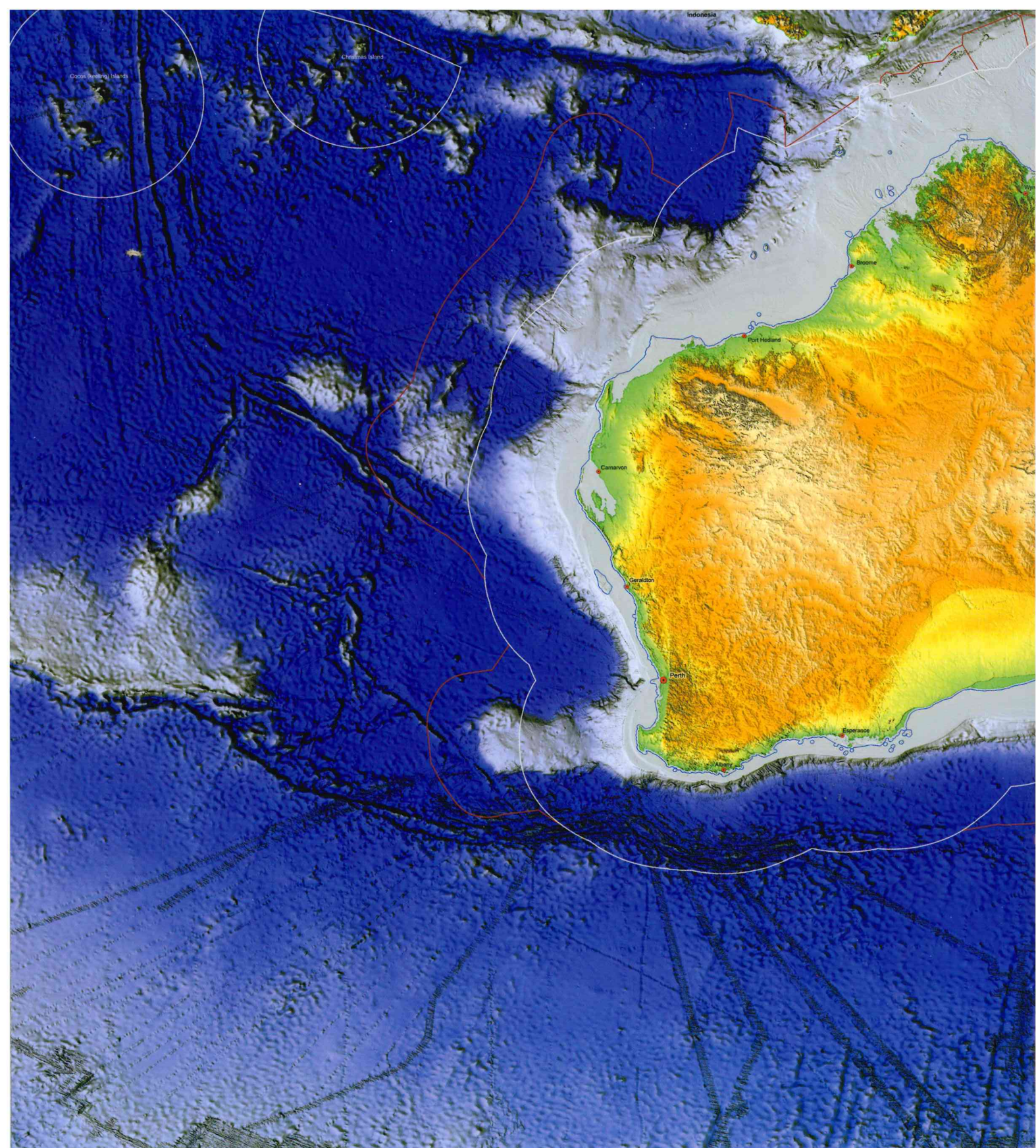
In Western Australia there is a high demand for trained and qualified people to work in the expanding marine industry and research sector. WAMSI offers postgraduate scholarships through a program involving the participating tertiary institutions - The University of Western Australia, Curtin University of Technology, Murdoch University and Edith Cowan University.

35 postgraduate students were based across the six research programs of WAMSI between 2006 -2011.



## WAMSI 2 MEMBERSHIP CATEGORIES

	Full Membership			Associate Membership		
	Existing WAMSI partner	Existing Industry partner	New partner	Industry Associate Member	NGO Associate Member eg. Environmental Foundations, Affiliate Benefactor, eg. philanthropy, donors	Government Associate Member
Marine science requirement / connection / ongoing responsibility	●	●	●	●	●	●
Provides Co-Investment	●	●	●	●	●	●
Provides Science Expertise	●	●	●	●	●	●
Governor - eligible to attend Governors meetings and nominate for a Board position	●	●	●	●	●	●
Named legal entity in JV Agreement	●	●	●	●	●	●
Leading some aspect of the science	●	●	●	●	●	●
WA Capacity Development	●	●	●	●	●	●



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To find out how you can initiate, commission or participate in WAMSI's marine research capability, contact the CEO.

*WAMSI would like to thank Peter Strain, Clay Bryce, Eric Matson © Australian Institute of Marine Science and Steve Blake for the use of their images.*

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## WAMSI CAPABILITY STATEMENT

WAMSI brings together 15 partner agencies with access to more than 250 marine and coastal researchers with a diversity of disciplines and skills, who collaborate to undertake world-class marine and coastal marine science projects, addressing government policy requirements and developing public-good science.

The current WAMSI partners are:

### Full partners:

- Australian Institute of Marine Science
- Bureau of Meteorology
- ChemCentre (WA)
- CSIRO – Wealth from Oceans Flagship
- Department of Commerce (WA)
- Department of Environment and Conservation (WA)
- Department of Fisheries (WA)
- Curtin University of Technology
- Edith Cowan University
- Murdoch University
- The University of Western Australia
- Office of the Environmental Protection Agency
- Western Australian Global Ocean Observing System Inc.
- Western Australian Museum

### Associate Members:

- Cygnet Bay Pearls (Kimberley)
- Airborne Research Australia (Flinders University)

### Industry Foundation Collaborator:

- Woodside Energy Ltd

WAMSI brings to the State a unique framework of collaboration through coordination, integration, governance and accountability in the delivery of regional scale marine science that cannot be replicated by any single agency. This produces a critical mass of expertise and a transparent co-investment model within a sound governance framework.

The WAMSI partnership has a comparative advantage for the delivery of public-good science because of its independence, size, membership, critical mass and governance which links the State to national and international opportunities. As a result there are considerable economies of scale.

The WAMSI collaborative model is a proven and highly effective way of directing more of its partners' very considerable marine research capabilities to generate information needed for management and development of the State's marine endowment.

WAMSI has unrivalled access to national and State facilities, uniquely equipping it to undertake regional scale marine science, especially in the remote locations of the northwest of Western Australia and accounts for around 95% of the marine research capability within Western Australia.

WAMSI requires researchers to publish their outputs in peer-reviewed journals, thus ensuring that they meet acknowledged international benchmarks for research. Moreover the universities focus upon peer-reviewed, quality publications within the national Excellence in Research for Australia (ERA) framework. AIMS and CSIRO also have rigorous research quality framework agreements with Government to assure the quality, impact and uptake of their research. All WAMSI projects are subject to quality assurance and quality control procedures. Every WAMSI project is reviewed annually by an independent science panel, the WAMSI Board, the WAMSI Governors and at a peer-to-peer level through open public Node symposia.

WAMSI has a strong management and governance process with a particular focus on ensuring utilisation of research outputs as depicted in the Diagram below:

WAMSI Schematic for Policy and Project Planning

