

Excellence in marine science
inspired through collaboration

MISA

May 2009

overview

Marine Innovation SA's efforts to boost South Australia's capability in marine research and educational opportunities, and help grow the State's seafood industry, are on track.



Marine Innovation South Australia (MISA) was established in September 2005 to support the seafood industry's South Australian Seafood Plan 2005-2015 which aims to double the State's seafood production by 2015 to \$2 billion annually.

Innovation is required to realise this future.

MISA, an initiative of the South Australian Government, has drawn together the State's top marine research and development institutions, universities, training centres and the SA seafood industries to help make this happen.

MISA partners are collaboratively pursuing highly targeted research and education that will create many new opportunities for seafood production.

MISA's vision is to establish South Australia as an internationally recognised and vibrant centre for marine science, education and ecologically sustainable aquatic industries development.

Major Achievements

MISA has already addressed a number of research and capability gaps, and expanded current key capabilities and infrastructure to facilitate the industry's growth.

New Expertise

MISA directly supports 34 scientists working collaboratively with SARDI Aquatic Sciences, Flinders University, Adelaide University, SA Museum and Department for Environment and Heritage on nearly 80 projects. These scientists bring new capabilities to South Australia in the areas of * market science * product development * fish health * plankton research * oceanography * ecosystem modelling * nutrition * biosecurity research * genetics * feed technology * ecology of large marine vertebrates * spatial risk analysis.

New Infrastructure

Lincoln Marine Science Centre – A \$6.59m expansion of the Lincoln Marine Science Centre at Port Lincoln, commissioned in March 2009, delivers significant new research and education capability direct to regional South Australia and seafood industries.

The expansion aims to make the state-of-the-art research centre a global hub for southern temperate marine research and education, attracting scientists from around the world.

Research at the centre ranges from understanding the key farmed species life cycles, their growing requirements, breeding and genetics. Further research is advancing fish health and pathology, pre and post harvest product quality and safety, cool chain management, product quality, waste minimisation and seafood market access.

The expansion has been funded through MISA by the South Australian Government (\$4.49) and Flinders University (\$2.1m) through the Federal Government's Capital Development Pool scheme. The LMSC now provides the highest quality laboratories and facilities for around 35 permanent and visiting scientists and educational staff, as well as increased student numbers.

Southern Australian Integrated Marine

Observing System (SAIMOS) – Understanding the ocean current systems and climate change that impact SA's valuable fisheries and marine environments was identified as a major gap in the State's capability, prior to MISA's establishment.

MISA provided the critical collaborative platform required to secure national funding of \$6.4 million in 2008 to establish the Southern Australian Integrated Marine Observing System that covers the SA and west Victorian regions. This new capability heralds the start of an exciting new chapter in SA marine science.



SAIMOS infrastructure, funded by the \$55 million National Collaborative Infrastructure Strategy, is the largest planned coastal node of the national Integrated Marine Observing System (IMOS). It includes instrumented shelf moorings, ship-based surveys, programmed ocean gliders, autonomous underwater vehicles and a tracking system monitoring the movements of radio tagged fish in the wild. This equipment will be complemented by the State Government funded \$516,000 High Frequency Ocean RADAR system that will monitor off-shore sea state and current conditions.

Experimental Pool Farm – A \$1.2 million experimental pool farm located at SARDI Aquatic Sciences, South Australian Aquatic Sciences Centre, West Beach, opened in mid-2006 provides advanced facilities for aquaculture research focussed on feed development, nutrition, product quality and fish husbandry.

Biosecurity – The management of marine pests and fish diseases which threaten our aquatic ecosystems, fishing industries, exports and even our lifestyle, is a relatively new area of marine research. A high level aquatic biological containment facility, which will be of national importance, is a critical element of MISA's infrastructure planning to allow advanced research in this area. A suitable South Australian site is now being considered for the proposed facility.

Science, education and innovation
underpinning our communities and industries.

Moving forward

MISA partners are focusing on high priority research across four main areas:

Product Quality and Value-Adding

Increasing the unit value of South Australian seafood opens significant opportunities for growth in the value of the seafood industry.

This involves the creation of new products and processes, understanding both the domestic and export seafood markets, providing the best quality healthy seafood and responding to consumer needs. These research activities are coordinated across a number of agencies including SARDI, Flinders University's School of Biological Sciences, PIRSA's shellfish quality assurance program and the South Australian Food Centre, TAFE and the University of South Australia's Marketing Science Centre, as well as seafood producers and processors.

Aquaculture Innovation

MISA Aquaculture Innovation is finding new ways to increase South Australia's seafood production by creating new opportunities and improving the operations of existing aquaculture industry sectors.

The research involves * nutrition and feed technology * aquatic animal health and welfare * genetics, reproduction and biotechnology * propagation, systems design and animal husbandry * algal production, biofuels and carbon sequestration.



Ecosystem Services

SA's estuarine and marine waters encompass an enormous area and many diverse ecosystems including the Lower Lakes and Murray River mouth, SA's unique gulfs, numerous off-shore islands and a large portion of the Great Australian Bight.

MISA's Ecosystem Services is expanding our understanding of the nature of marine ecosystems and the way they support SA's important fisheries, aquaculture and tourism industries, as well as furthering the conservation and management of South Australia's protected marine mammals, seabirds and fish.

Research areas include * ecosystem modelling * biological and physical oceanography * marine chemistry * biogeochemistry * seagrass ecology * plankton biology * ecology of large vertebrates * ecological monitoring.

Biosecurity

The management of invasive marine species and fish diseases is of growing importance to protect South Australia's valuable and unique marine environment.

MISA biosecurity research covers: * methods to prevent entry of marine pests and diseases * management and risk assessment for established pests and diseases * DNA-based molecular diagnostics to identify pathogens, parasites and marine pests in ballast water * study of harmful and toxic microalgae * invertebrate and algal physiology and biology * fish veterinary science and genetics.

Collaborations

Australian Seafood

Cooperative Research Centre (CRC)

MISA's active participation in the \$137million Australian Seafood CRC has created many new opportunities for innovative new research, particularly in the areas of product quality and value-adding. The LMSC's new facilities and expertise have attracted significant CRC research funds involving yellowtail kingfish, hatchery reared tuna, marine scale fisheries, abalone, oysters and prawns.

SA Food Centre

MISA's involvement with the SA Food Centre at Regency Park TAFE, has led to valuable new Seafood CRC funded research for industry in responding to consumer demands, understanding the national and international markets, helping industry deliver safe, high-quality seafood to the premium markets, and developing new seafood products.



Contact

Dr Stephen Madigan
Key Program Manager

E-mail: stephen.madigan@state.sa.gov.au
Phone: 61 8 8207 5490

www.misa.net.au

2008 South Australian Science Excellence Awards winner of the
Constellation SA Excellence in Collaborative Research Award.



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of South Australia



Marine Innovation SA (MISA), an initiative of the South Australian Government, is a partnership between the South Australian Research and Development Institute (SARDI), Flinders University, the University of Adelaide, the South Australian Museum and the SA seafood industry.