

GREAT AUSTRALIAN BIGHT RESEARCH PROGRAM

BP, CSIRO, the South Australian Research and Development Institute (SARDI), the University of Adelaide and Flinders University are working on a four year, \$20 million research program to improve our understanding of the environmental, economic and social value of the Great Australian Bight.

Background

The Great Australian Bight is a unique marine environment. Over 85 per cent of known species in the region are found nowhere else in the world.

The region also supports Australia's largest commercial fishery, the South Australian Sardine Fishery, and is a significant tourist destination.

The region has been identified as prospective for oil and gas, an important Australian industry. In 2011, BP was granted exploration rights in the Bight and has chosen to collaborate with some of Australia's pre-eminent science institutions to enhance everyone's understanding of this vast expanse of ocean and its surrounds.

This science and industry collaboration is delivering one of the largest whole-of-ecosystem studies ever undertaken in Australia. More information about this unique marine territory will inform decision makers and ensure that future developments co-exist with the Bight's environment, industries and the community.

Partnering with industry

Despite the vast majority of our oil production currently coming from offshore Australia, our nation's deep sea remains relatively unexplored and there is significant potential for new resources to be found in deepwater frontier basins such as the Great Australian Bight. This research program is a unique approach,

Sharing the knowledge

The collaboration joins together Australia's national science agency, CSIRO and SARDI, the University of Adelaide and Flinders University, who are partners in South Australia's premier research partnership, Marine Innovation Southern Australia (MISA), and along with BP, a global company that finds, produces and markets the natural energy resources on which our world depends.

It is critical for Australia's research institutions to be involved with industry partners: the research results will be made available for the benefit of other stakeholders, such as Commonwealth and State regulators, governments and a diverse range of research, community and environmental groups through publication in science journals, literature and published reports.

forged between industry and science to increase current understanding of the Great Australian Bight for the benefit of all stakeholders.

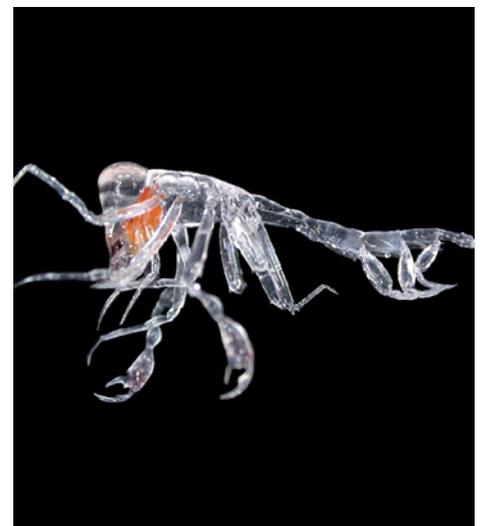
By applying the learnings from one of the largest whole-of-ecosystem research programs ever undertaken in Australia we will have better informed industry, regulators and government.

Research program

The research program brings together multidisciplinary research teams organised around seven major research themes.

The oceanography, ecology, and geochemistry of the Bight will be studied together with socio-economic research on communities and businesses dependent on the region.

The aim of the program is to help balance human activity and sustainability; to ensure future developments co-exist with the area's environment, industries and the community.



An unusual amphipod found during a voyage to the Great Australian Bight in April 2013.

Oceanography

Researchers will collect and analyse data and develop ocean models to gain a greater understanding of the connections between deep, off-shelf regions on the continental shelf and coastal regions and the dynamic effect of the ocean on seafloor and ocean-dwelling biodiversity.

This will include information on ocean flows that connect the deep, off-shelf regions to the shelf and coastal region, and how physical drivers, such as upwelling, downwelling, and mixed-layer thickness, can affect the dynamics of the intricate and vital food webs existing in the Bight.

Open water (pelagic) ecosystem and environmental drivers

Scientists will collect information on the community structure, dynamics and biodiversity of microbes, plankton and micronekton (i.e. small crustaceans) in the Bight. Research will include assessing food web structure in relation to currents, turbidity, light levels, stratification, nutrient concentrations and turbulence.

They will also study the distributions of key species and apex predators, such as whales, sharks and southern bluefin tuna, and develop tools and protocols for monitoring ecological indicators of the pelagic system.

Sea floor (benthic) biodiversity

Studies of the abundance and distribution of biodiversity on the sea floor will be used to develop metrics to monitor long term changes.

Ecology of iconic species and apex predators

Researchers will study the ecology and abundance of key iconic species such as whales, sea lions and dolphins, and apex predators such as southern bluefin tuna and sharks. This includes studying their distribution and behaviour to develop movement and habitat models for these species.

Petroleum geology and geochemistry

Geologists and geochemists will identify and characterise natural petroleum seepage in specific areas of the Bight.

Socio-economic analysis

Social science approaches will be used to develop a socio-economic profile of communities potentially affected by oil and gas activities. Through consultation, community concerns and perceptions of key issues regarding likely future activities will be examined, along with the economic dependence of individual regional communities on activities related to the GAB.

This will provide a baseline measurement against which any future changes may be assessed.

Integration and modelling

A quantitative model of the structure and dynamics of the Bight's ecosystem will be created, which will be used to inform a qualitative risk assessment and integrated into ecosystem models that can be used to conduct more informed and refined ecological risk assessments for future development activities that may be conducted in the Bight.

“We have to know what is there, and understand how the ocean system works in that region, to be able to predict and measure any environmental impact resulting from development.”



Researcher Matt Sherlock with the Integrated Coring Platform, Great Australian Bight.

CSIRO, BP, SARDI, the University of Adelaide and Flinders University are working on a \$20 million research program to better understand the environmental, economic and social value of the Great Australian Bight.

Multidisciplinary research teams will study the oceanography, ecology, biodiversity, petroleum geochemistry and socio-economic value of the region.

The research will increase our knowledge of the region and help inform decision making for marine resource management and sustainable development in the region.

For more information
www.misa.net.au

