



TAFI Media Release



TASMANIAN AQUACULTURE AND FISHERIES INSTITUTE

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ATTENTION: Chiefs of Staff, News Directors

Remote seabed mapping reveals marine pests spread

High-technology seabed mapping has shown that long-spined sea urchins (*Centrostephanus rogersii*), which are a threat to Tasmania's seaweed and kelp forests, have not spread to the environmentally valuable sponge beds located in deeper reefs off the state's coast.

Tasmanian Aquaculture and Fisheries Institute (TAFI) researchers have been using an Autonomous Underwater Vehicle (AUV) to map important marine habitats off the coast of Freycinet, Bruny Island and the Tasman Peninsula.

Marine Biodiversity Research Group leader Dr Neville Barrett said the maps provide a vital tool for evaluating Tasmania's offshore sea bed habitat health, and the potential impacts of threats such as introduced pests, climate change or over-fishing of key predator species.

Dr Barrett said the urchin, which is endemic to mainland Australia, has established itself on Tasmania's east coast in response to climate change.

"They are a problem because in the absence of natural predators they are capable of destructive grazing of kelp and seaweed and form large 'urchin barrens', which are not suitable habitat for lobsters, abalone and other invertebrates," Dr Barrett said.

"Our recent mapping work has helped identify how far the long-spined sea urchin has spread through Tasmania's coastal waters.

"So far it appears that they do not inhabit the deeper sponge gardens.

"This is an important discovery as sponge communities form an important component of marine ecosystems forming complex structures on the sea floor, which provide habitat for many fish and invertebrate species."

However, the mapping work has also identified another introduced marine pest, the New Zealand screw shell (*Maoricolpeus roseus*) in abundance on sandy sediments in many places on Tasmania's east coast.

“We knew that this screw shell species had formed extensive cover in parts of the D’Entrecasteaux Channel, but were not aware of similar densities in other areas of the east coast,” Dr Barrett said.

“In some areas the density produces its own habitat type, allowing other species, such as sponges, to settle and grow on the piles of dead shells.”

The AUV, which takes both stereo photographic and sonar images of the flora and fauna of the sea bed is programmed to swim two metres above the sea bed to depths of more than 100m.

Taking thousands of photographs as it glides above the sea bed, the images are stitched together to form three-dimensional sea floor maps. The high resolution images allow fine sea bed details including individual rocks and sponges to be measured.

TAFI’s sea mapping research is a collaborative project within the CERF Marine Biodiversity Hub, which is funded through the Commonwealth Environment Research Fund Program and is in partnership with CSIRO, Geoscience Australia, the Australian Institute of Marine Science and the Museum of Victoria.

The project is currently testing the ability of new multi-beam sonar technology to identify and predict the distribution of marine habitats in shelf waters, by comparing fine-scale mapping information with biological data on the species present derived from imagery collected by the AUV and towed video.

Data from the sea bed mapping project is made available to all researchers through the Australian Integrated Marine Observing System (IMOS). IMOS is a national facility for observing the oceans surrounding Australia using state of the art equipment and data services and was established in 2006 as a collaborative program led by the University of Tasmania. IMOS is operated by 10 Australian agencies and several co-investors.

The University of Tasmania’s new institute, the Institute for Marine and Antarctic Studies (IMAS), will integrate the Tasmanian Aquaculture and Fisheries Institute (TAFI) and Institute of Antarctic and Southern Ocean Studies (IASOS) from January 1 next year.

IMAS will also collaborate with the Tasmanian Government, CSIRO, the Antarctic Climate and Ecosystems Cooperative Research Centre, the Integrated Marine Observing System, the Australian Antarctic Division and industry stakeholders.

Results from the sea bed mapping project were released at today’s launch of the UTAS publication, *Research to Reality*.

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