



MARINE BIODIVERSITY RESEARCH

Prediction and Management of Australia's Marine Biodiversity

TASMANIAN AND AUSTRALIAN MARINE ENVIRONMENT CHANGED FOREVER Invasive Screwshell – Cow or Cane Toad? 19 March 2010

Australian marine scientists have discovered that the impact of an introduced species of shellfish – the invasive screwshell - has grown dramatically.

The New Zealand screwshell (*Maoricolpus roseus*) entered the Tasmanian marine environment some 70 years ago – but now covers large areas of the marine environment, from D'Entrecasteux Channel to Sydney Harbour.

Professor Nic Bax, of the Marine Biodiversity Research Hub, said the various impacts of the screwshell were a clear demonstration of how human intervention can alter the marine environment irrevocably.

“There is only finite space in the marine environment; in this instance what was there originally has gone,” Prof. Bax said.

Dr Neville Barrett said the Hub has documented the extent of the invasion by the New Zealand screwshell.

Using an AUV (autonomous underwater vehicle) from IMOS (International Marine Observing System), the Hub has extensively mapped the seabed in eastern Tasmanian waters.

“We now have a much better understanding of the deeper shelf habitats,” Dr Barrett said.

“We know what's on the hard reefs and what's in the soft sediments. Previously we've never had any idea because no-one had ever done this before.”

“The invasive screwshell has displaced indigenous shellfish and surrounding ecosystems.”

Prof. Bax said that a good comparison was to pose a question:

“Is the invasive screwshell a cow or a cane toad?” Prof Bax said. “Cows are useful to humans; cane toads aren't.

“We don’t know enough to know whether the invasive screwshell is a cow or a cane toad. What we do know is has changed the way other animals live in the environment

“Now we are finding sponge gardens, deep sea sponges - sponge communities - living on top of the invasive screwshells on the seabed.

“The screwshell is changing the environment directly by displacing other species and indirectly by providing new opportunities for other species to grow.

“There are winners and losers in each of these changes. What’s important to understand is that we are no longer in the situation where we can return to a pristine marine environment.”

Dr Barrett said in New Zealand, there were beaches that are covered with screwshells and suggests similar long-term outcomes in Tasmania are possible.

“In the D’Entrecasteux Channel there are extensive areas that are 100% made up of invasive screwshells – it excludes all other species, including scallops, which are an important Tasmanian fishery.

“There are lots of species in Tasmanian waters that are introduced species, but very few, perhaps 1-2%, that are invasive species.

“As a direct result of New Zealand screwshell colonisation the Tasmanian native screwshell, *Gazameda gunnii*, has disappeared.”

The Marine Biodiversity Research Hub is a collaboration between the University of Tasmania, CSIRO, Geoscience Australia, the Australian Institute of Marine Science and Museum Victoria. The Hub analyses the patterns and dynamic of marine biodiversity to determine the appropriate units and models for effectively predicting Australia’s marine biodiversity. The Hub is funded through the Commonwealth Environment Research Facilities (CERF) Program.

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