

Media Release

Chiefs of Staff, News Directors

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New Macquarie Harbour projects to help protect Maugean Skate and monitor oxygen levels

IMAS researchers have begun two new research projects in Macquarie Harbour to assess the impact of degraded environmental conditions on the endangered Maugean Skate and to monitor oxygen levels and their impact on remediation efforts.

Due for completion in December 2019, the Maugean Skate project aims to provide an understanding of how recent changes in the harbour environment have affected the skate population, and to inform efforts to manage risks and improve conservation outcomes.

The study will focus on the development and survival of the skate's eggs and the behavioural and physiological responses of adults to the changing harbour environment and in particular dissolved oxygen levels.

The research will use a combination of laboratory and field sampling methods, including new generation sensors which will be attached to the skate to monitor the actual conditions that they experience in the wild, including dissolved oxygen, temperature and depth.

The project's Principal Investigator, Dr Jeremy Lyle, said Maugean Skate are only found in Macquarie and Bathurst harbours, and the species' limited geographic range and small population size has seen it listed as endangered.

"Our previous research has shown that the environmental health of the harbour, particularly oxygen levels in the bottom waters, is likely to be a crucial factor in the future well-being of the skate population," Dr Lyle said.

"Preliminary research suggests that the skate has limited ability to tolerate low oxygen concentrations, although the threshold levels are yet to be determined.

"Using tags attached to the skate and an array of underwater acoustic receivers, our research will study where the skate lay their eggs, how the environment affects egg survival and development, what levels of dissolved oxygen the skate experience, and the physiological impact of those levels."

The research is funded by the Australian Government's Fisheries Research Development Corporation (FRDC), the Tasmanian Government, aquaculture companies Tassal, Petuna and Huon Aquaculture, and the World Wildlife Fund.

The second project, led by Dr Jeff Ross, uses a state-of-the-art sensor network that will map environmental conditions, including oxygen levels, throughout the harbour. This information is

available in real time, via satellite communications, for scientists, regulators and marine farm managers.

Dr Ross said the information is critical to an understanding of changes in the harbour ecology and the effectiveness of remediation strategies and aquaculture pen fallowing.

“Oxygen levels are a major determinant of the response of the environment at the bottom of the harbour (the benthic zone) to fish farm waste, so it’s important that we’re able to combine real-time dissolved oxygen data with benthic observations,” Dr Ross said.

“In late 2016 IMAS reported a major deterioration in sediment conditions around salmon farms in the harbour, which coincided with very low oxygen levels.

“As a result, a whole salmon lease and a number of pens were subject to mandatory fallowing, and government and industry supported this further research by IMAS to allow a better understanding of the factors affecting oxygen levels and the likely success of current and future management responses.”

The project is funded by FRDC, the Tasmanian Government and aquaculture companies Tassal, Petuna and Huon Aquaculture, and is due for completion in early 2018.

Regular update reports are being provided in the interim, with [the first released on the IMAS website](#) in May this year.

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