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Media release

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WORLD FIRST SEISMIC SOUND EXPERIMENT CONDUCTED OFF NW AUSTRALIA

The Australian Institute of Marine Science (AIMS) has conducted the first real-world seismic experiment to determine the effects of marine noise on fish and pearl oysters.

The experiment, using the geological survey vessel the BGP Explorer, surveyed two sites off the northwest of Western Australia over ten days. The experiment, which has taken the collaborative efforts of more than 100 people a year to design and co-ordinate, could help clarify some of the questions around marine noise.

AIMS research scientist and the project's science lead Dr Mark Meekan said the experiment was unique.
"It is the first time anyone has had a dedicated seismic vessel to look at the effects of seismic energy on pearl oysters and on fish," Dr Meekan said.

"This is an enormous piece of research, the answers are not going to apply just to Australia, they'll be important internationally."

Seismic surveys are used to produce images of the various geological layers and their location beneath the earth's surface. The seismic vessel tows an array of air guns that use compressed air to produce acoustic energy. Sound waves penetrate the seabed and, depending on the depth and characteristics of the geological layers, are reflected back at different time intervals and intensity.

The reflected sounds are captured by a series of very sensitive hydrophones (underwater microphones) towed behind the seismic vessel. Analysing the time of arrival and characteristics of the reflected sound waves provides valuable information about the geological layers.

The study is looking specifically at Pearl oysters (*Pinctada maxima*) and red emperor, which are a commercially important indicator species for other demersal fish.

The researchers tagged 390 red emperor and are tracking the fish via an array of 96 acoustic receivers as well as using BRUVS© (Baited Remote Underwater Video Systems) to document their movements before, during and after exposure to the seismic sound.

WA Department of Primary Industries and Regional Development acting regional manager Ellen Smith said looking into the effect of seismic activities on demersal fish was important because their abundance and biodiversity is an indicator of the health of an ecosystem.

"We want to find out if fish change their behaviour and leave the area, stop spawning, hide or return to normal," Ms Smith said. "If we know how demersal fish react we can manage our fisheries appropriately to ensure long-term sustainability."

With the support of the Pearl Producers Association and the Paspaley Pearl Company the AIMS study also set out more than 10,000 pearl oysters in groups of about 1200 at different distances of up to 6 kilometres from the seismic vessel operation.

"This experiment is important because we need to understand the nature of the risks associated with seismic testing and pearl oysters at Eighty Mile Beach," Pearl Producers Association chief executive Aaron Irving said.

Photos and Footage available
More information on the project can be found at: www.aims.gov.au/nw-shoals-to-shore

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