



# Silence is golden... especially underwater

MARIN introduces a new silent towing carriage in a bid to further the industry's knowledge about underwater-radiated noise.

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Traditionally, underwater-radiated noise is mainly of interest for naval vessels and fishery research ships. Nowadays, however, there is growing concern that marine life is affected by the rise in background noise levels in the oceans, which is being caused by an increase in shipping, amongst other factors. Marine mammals and fish use sound to communicate and to sense their environment and this requires low background noise levels.

This topic is highly relevant for ships that need to operate in vulnerable areas such as the Arctic but this has also resulted in an interest in evaluating underwater-radiated noise caused by shipping in general. In this context, standardised procedures for full-

scale noise measurements have recently been proposed by ANSI/ASA, ISO and DNV.

MARIN has responded to the need for more knowledge on underwater-radiated noise from cavitating propellers by developing a new silent towing carriage for the Depressurised Wave Basin (DWB). This carriage has a much lower background noise level than the existing standard carriage and is much more versatile than the old, silent towing carriage. The old towing carriage for noise measurements was developed for the US/NL Flow Noise Project (MARIN Report 95, January 2009) in which, amongst other things, the radiated noise from breaking ship waves was successfully measured. The new design focused on minimising the

transfer of vibrations of the carriage to rails and of course, on minimising the mass of the carriage. Additionally, the propeller drive train is being redesigned so it will be as silent as possible. The goal is to measure the noise of propellers that need to comply with the ICES 209 norm.

The procedure for noise measurements in the DWB is similar to full-scale noise trials: the ship sails over a pair of hydrophones, which are mounted on a mast in the basin. Due to the basin's large size, the influence of reflections is limited. Therefore, the DWB offers unique features for cost-effective noise reduction in ship design and consequently, in turn, the quality of marine life will be improved. ▢