# Pilot study on the impact of impulse noise on sea bass larvae

Debusschere Elisabeth[1,2], Kris Hostens[2], Magda Vincx[1], Dick Botteldooren[3] and Steven Degraer[1,4]

[1] Marine Biology Section, Biology Department, University of Ghent, Krijgslaan 281 S8, 9000 Gent, Belgium
E-mail: elisabeth.debusschere@ilvo.vlaanderen.be

[2] Aquatic Environmental and Quality, Bio-environmental Research, Institute for Agricultural and Fisheries Research (ILVO), Animal Sciences, Ankerstraat 1, 8400 Oostende, Belgium

[3] Research Group Acoustics, Department of Information Technology, University of Ghent, Sint-Pietersnieuwstraat 41, 9000 Gent, Belgium

[4] Management Unit of North Sea Mathematical Models (MUMM), Royal Belgian Institute of Natural Sciences, Gulledelle 100, 1200 Brussels, Belgium

Anthropogenic underwater sound generated in the marine environment is ubiquitous, comprising both intense impulse and continuous sound. The installation of offshore wind farms across the North Sea has triggered a range of ecological questions regarding the impact of anthropogenic produced underwater sound on marine wild life. At the moment, marine mammals and adult fish are research targets in bioacoustics while fish eggs and larvae remain understudied. Given that fish eggs and larvae are dependent on currents for their transport and consequently cannot avoid underwater noise, there is a need to examine their vulnerability.

This pilot study aims to determine the acute lethal effect and the chronic impact on the development of sea bass (*Dicentrarchus labrax*) larvae. Vials with 30 fish larvae each were exposed for 10, 20 and 30 minutes to strong impulse sounds (ca. 500-3000 Hz, >200 dB) resembling the sound pressure of pile-driving, using a SIG sparker-electrode to discharges of 300 Joules (3000 Volt discharges every 2 seconds). The first results already showed higher direct mortality in exposed fish larvae, compared to reference samples that underwent the same handling procedure save the sound exposure.