

## IMO and anthropogenic underwater noise

The International Maritime Organization's (IMO) work in relation to noise, began with addressing the effects of noise on humans aboard ships in the early 1980s, through the adoption of a *Code on noise levels on board ships* by the Maritime Safety Committee (MSC) which has since been updated at regular intervals<sup>1</sup>. At the time it was also realized that some benefits to marine life may be derived from this instrument.

In 2004, in response to the growing body of research that was emerging on the issue, the Marine Environment Protection Committee (MEPC) commenced discussions on the harmful impacts of underwater noise from ships on marine life. It was noted that continuous anthropogenic noise in the ocean was primarily generated by shipping, and since ships routinely cross international boundaries, management of such noise required a coordinated international response.

Consequently, MEPC, at its 58th session in October 2008, approved the inclusion of a new item on "Noise from commercial shipping and its adverse impacts on marine life" in the agenda of MEPC 59 (July 2009). The basis for the new item was a proposal by a delegation to develop non-mandatory technical guidelines, aiming to minimize incidental noise from commercial shipping operations in the marine environment and thus to reduce potential adverse impacts on marine life.

As a result of this work, IMO, in 2014, recognizing that underwater noise associated with shipping was an issue that could be mitigated and addressing concerns about its short and long-term negative impacts on marine life, especially marine mammals, approved guidelines for commercial ships on ways to reduce underwater noise. This non-mandatory instrument entitled *Guidelines for the Reduction of Underwater Noise from Commercial Shipping to Address Adverse Impacts on Marine Life* (MEPC.1/Circ.833) is intended to provide general advice on the matter to designers, shipbuilders and ship operators.

Given the complexities associated with ship design and construction, the Guidelines focus on primary sources of underwater noise, namely on propellers, hull form, on-board machinery, and various operational and maintenance recommendations such as hull cleaning. Much, if not most, of the underwater noise is caused by propeller cavitation, but on-board machinery and operational modification issues are also relevant. The Guidelines also introduce definitions and underwater noise measurement standards. When adopting the Guidelines, MEPC also noted that there were still significant knowledge gaps, and that sound levels in the marine environment and the contribution from various sources was a complex issue. Therefore, setting future targets for underwater sound levels emanating from ships was premature and more research was needed, in particular on the measurement and reporting of underwater sound radiating from ships. The Committee, therefore, invited interested Member Governments to submit proposals for appropriate new outputs to a future session, in accordance with the Committees' Guidelines.

The issue of underwater noise and its effects on marine life is also taken into account through IMO adopted "Particularly Sensitive Sea Areas<sup>2</sup>" (PSSAs). These are areas considered to deserve special protection, due to their recognized ecological or socio-economic or scientific significance, and which may be vulnerable to damage by ships. Through the establishment of

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<sup>1</sup> See resolution A.343(IX) *Recommendation on methods of measuring noise levels at listening posts*, resolution A.468(XII) *Code on Noise Levels on Board Ships*, and resolution MSC.337(91) *Code on Noise Levels on Board Ships*. The most recent version of the Code is mandatory and took effect on 1 July 2014.

<sup>2</sup> For a list of adopted PSSAs, refer to circular MEPC.1/Circ.778/Rev.2 and <http://www.imo.org/en/OurWork/Environment/PSSAs/Pages/Default.aspx>

these areas, specific measures to protect the environment are applied to international shipping. The 2005 *Revised guidelines for the identification and designation of Particularly Sensitive Sea Areas* (resolution A.982(24), as amended by resolution MEPC.267(68)), recognizes that noise from ships can adversely affect the marine environment and living resources of the sea.

Noise has also been discussed in the context of the work of the London Convention and Protocol on the protection of the marine environment from pollution from dumping of wastes and other matter, noting that dredging activities, being the main source of wastes dumped at sea under these treaties, are also a source of anthropogenic noise. In 2013, the Scientific Groups noted that it would be premature to prescribe any action in relation to dredging activities at that stage, and that it would be beneficial to ascertain the full extent and impact of noise emanating from such activities before any action could be considered<sup>3</sup>. Since then, delegations have submitted information to the annual joint sessions, with the view to build a better understanding of the issue.

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<sup>3</sup> Report of the 2013 joint session of the Scientific Groups of the London Convention and Protocol (LC/SG 36/16, paragraphs 8.36 to 8.38).