SC/68D/E/09

Sub-committees/working group name: E

Collaboration with imo on reducing underwater noise from shipping

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Abstract

This paper summarises the IMO process for revising the 2014 IMO 'Guidelines for the reduction of underwater noise from commercial shipping to address adverse impacts on marine life' and identifying next steps to reduce underwater noise from shipping. The IWC is a member of the IMO Correspondence Group working on this and further input will be required over the coming year.

Background

The IWC Scientific Committee has been discussing the impacts of noise on cetaceans since at least 2004, including noise from shipping in 2008, measurements of ambient noise and sound mapping in 2014, a workshop on masking in 2016 (IWC, 2016) and a workshop on Advancing Efforts to Address Underwater Noise from Shipping in 2020 (IWC, 2020). Following the workshop in 2016, the Committee consolidated a number of its recommendations related to underwater noise, which were included in the IWC's contribution to the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea in 2018. The Commission has also passed a Resolution (2018-04) on anthropogenic underwater noise in 2018 which gave a number of instructions to the Scientific and Conservation Committees.

As part of this Resolution, the Secretariat and IWC was directed to continue engagement with IMO on noise and contribute to discussions on this topic (CO1837). Anthropogenic ocean noise is also highlighted as one of the priority threats in the Strategic Plan of the IWC Conservation Committee, and work continues to better understand the impact of noise on cetaceans, and the effectiveness of different approaches to reducing exposure.

Many of the concerns about noise from shipping have arisen because of the impacts on baleen whales which are low-frequency specialists. More recently there have been a number of studies showing impacts of higher frequency noise from small vessels such as recreational craft (Erbe et al. 2019). The IWC interest is on direct impacts on cetaceans but also on other ecosystem effects, particularly those that affect prey species (e.g., Weilgart, 2018) and by extension, cetaceans. Resolution 2018-04 noted that cetacean research and conservation management efforts should include the protection of the acoustic habitat and the impacts of anthropogenic underwater noise on lower trophic levels, including fish and invertebrates.

In 2008, the Committee endorsed a noise reduction target that established a goal for 'initial global action that will reduce the contributions of shipping to ambient noise energy in the 10-300 Hz band by 3dB in 10 years and by 10 dB in 30 years relative to current levels' (Wright 2008). This target was reviewed at the SC workshop on Advancing Efforts to Address Underwater Noise from Shipping in 2020 in the light of the considerable amount of work on underwater noise since noise reduction targets had been endorsed in 2008. There was broad agreement that there is a need for a clear target on lowering ship noise to facilitate regulation, and that the target should not be too complex. However, there were concerns that the 3dB and 10dB targets were rather too simplistic, partly because the 10-300 Hz bandwidth might not be sufficient to cover impacts on many cetacean taxa, and partly because they may not be ambitious enough to avoid harmful effects (see IWC, 2020).

IMO process and IWC collaboration

The IWC has observer status at the International Maritime Organization (IMO). The IMO started a process in 2008 to develop non-mandatory technical guidelines for reducing ship noise and the IWC participated in the IMO correspondence group developing these. The IMO adopted its Guidelines for the reduction of underwater noise from commercial shipping to address adverse impacts on marine life in 2014 (IMO, 2014).

In the years that followed, there has been very little uptake on the guidelines and a wide recognition that further work was needed at IMO to address the issue of underwater noise from shipping. IWC provided a short summary update paper on noise issues to the IMO Marine Environment Protection Committee in 2018 (IMO, 2018).

Several papers on underwater noise were tabled for MEPC 75 in 2020. Australia, Canada, and the US submitted a proposal for a new output concerning a review of the 2014 Guidelines and identification of next steps (MEPC/75/14) with comment papers from European Union countries (MEPC/75/14/1) and other organisations (MEPC/75/14/2 and MEPC/75/14/3). MEPC 75 was postponed due to the Covid-19 pandemic and noise issues were not discussed until MEPC 76 in June 2021. IWC submitted a short response paper (MEPC 76-12), noting that the IWC would welcome the opportunity to contribute to a MEPC work item on underwater noise through the work of its Scientific and Conservation Committees. In particular, the IWC could contribute to the proposed outputs of raising awareness related to the available scientific evidence on the impacts of underwater vessel noise on marine ecosystems, and to the evaluation of measures to further prevent and reduce underwater radiated noise in terms of the expected benefits to cetaceans. The paper also highlighted connections between reducing underwater noise and ship strike risk associated with slower vessel speeds.

At MEPC 76 in 2021, the IMO agreed to review the 2014 Guidelines and identify next steps. This was addressed in the Ship Design and Construction Sub-Committee (SDC 8) in January 2022. IWC contributed the paper in Appendix 1 (SDC 8/14/5) to IMO SDC 8.

An outcome from this meeting was the establishment of a correspondence group coordinated by Canada to work on updating the IMO noise guidelines and identification of next steps.

In accordance with recommendation (SC2184) encouraging further intersessional collaboration and coordination between the Scientific Committee and the Conservation Committee on underwater noise, representatives of the CC AUN CG and SC along with the Secretariat have joined the IMO CG to contribute to discussions reviewing the Guidelines.

The first round of input is underway in the form of a questionnaire on general issues to be addressed.

Terms of reference for the IMO Correspondence Group of particular relevance to the IWC include:

- identify actions to further prevent and reduce underwater noise from ships, including options to integrate new and advancing technologies and/or vessel design solutions taking into account geographical characteristics;
- identify areas that require further assessment and research;
- consider next steps, taking into account document SDC 8/14/8 and the Workplan for the review of the 2014 Guidelines for the reduction of underwater noise and identification of next steps (SDC 8/18, annex 11)

In particular, the SC could contribute through information on known impacts of shipping noise in relation to noise levels, information on the distribution of cetaceans that is relevant to identifying areas of particular importance, linking work on underwater noise to efforts to reduce ship strike risks and assessing how any proposed measures to reduce underwater radiated noise from ships would benefit cetaceans.

Options to provide ongoing input

The IMO Correspondence Group is tasked with providing a report to SDC 9 in early 2023. Thus, there will be a need for input over the coming year. We suggest the SC re-establish the noise group with ToR to include collaboration with CC to input to the IMO process.

References

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Appendix 1: SDC 8/14/5

INTERNATIONAL MARITIME ORGANIZATION

E

SUB-COMMITTEE ON SHIP DESIGN AND CONSTRUCTION

8th session

Agenda item 14

SDC 8/14/X

X November 2021

Original: ENGLISH

Pre-session public release: ☒

REVIEW OF THE GUIDELINES FOR THE REDUCTION OF UNDERWATER NOISE (MEPC.1/CIRC.833) AND IDENTIFICATION OF NEXT STEPS

Comments on SDC 8/14 and SDC 8/14/1

Submitted by International Whaling Commission

SUMMARY

Executive summary:	SDC 8/14/1 proposes an approach for addressing the review of the Guidelines for the reduction of underwater noise (MEPC.1/Circ.833). The IWC supports this approach and this document identifies areas of particular interest to the IWC, where the IWC expects to be able to contribute through the work of its Scientific and Conservation Committees.
Strategic direction, if applicable:	1,2, and 3
Output:	Not applicable
Action to be taken:	Paragraph 27
Related documents:	MEPC.1/Circ.833 (2014 Guidelines); MEPC 75/14 Annex 2; MEPC 76/12, MEPC 76/15; SDC 8/14; SDC 8/14/1

Introduction

1 This document is submitted in accordance with the provisions of paragraph 6.12.5 of the Organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies (MSC-MEPC.1/Circ.5/Rev.2) and comments on document SDC 8/14/1.

2 This document supports the process articulated in SDC 8/14/1, submitted by Canada, New Zealand, United Kingdom, and United States and outlines where the IWC could contribute to the ToR of the sub-committee SDC 8/14 to develop a proposal for a programme of action and/or next steps to further prevent and reduce underwater radiated noise.

3 The IWC has noted that there is evidence indicating that chronic anthropogenic underwater noise from shipping is affecting the marine acoustic environment in many regions, including potential adverse effects on some cetacean populations. The IWC has provided updates on its activities related to underwater noise, and summaries of new information on impacts of underwater noise on marine life, in 2018 (MEPC 72/INF.9) and 2021 (MEPC 76/12).

Comments on SDC 8/14/1

4 The IWC supports the approach in SDC 8/14/1 (para 10) to include consideration of underwater radiated noise (URN) goals for individual vessels and for ongoing monitoring to ensure that the goals have been met. Monitoring of URN reductions could be conducted alongside monitoring of behavioural responses of sensitive species, particularly where individual vessels make repeated transits through important habitat (for example, regular ferries or RoRo cargo).

5 The IWC welcomes the inclusion of Guidelines for monitoring approaches for the URN of ships in SDC 8/14/1 (para 13.3) and notes the potential for integrating such monitoring with other studies of the acoustic environment and biology, including cetacean presence and vocal behaviour.

6 Some cetaceans rely on use of low frequency sounds which overlap with the peak broadband energy from shipping. Other cetacean species are high frequency specialists and these frequencies may overlap with those used by many echosounder systems. Thus we welcome the inclusion of echosounder noise (SDC 8/14/1 Annex 7.2.7) in the list of design and technical noise-reduction approaches. The IWC Scientific Committee continues to review studies of the impacts of sonar and echosounders on cetaceans.

7 The inclusion of ship speed and ship routeing (SDC 8/14/1 Annex 7.3.3 and 7.3.4) under operational and maintenance approaches is very relevant to cetaceans. IWC has previously noted the multiple environmental benefits of reductions in speed and particularly the reduced risk of collisions ('ship strikes') with cetaceans, alongside reductions in URN and GHGs. Reductions in URN associated with slow steaming to reduce emissions was also highlighted in MEPC 76/Inf.17 from Belgium. Small changes in routeing have been identified in several areas that would reduce ship strike risk as well as the impacts of URN. IWC is in the process of reviewing 'high risk areas' of overlap between cetaceans and shipping as part of the IWC Strategic Plan to Mitigate the Impacts of Ship Strikes on Cetacean Populations. Area based measures such as routeing may also address cumulative or synergistic impacts where noise from shipping is in addition to other noise producing activities such as seismic surveys or pile-driving.

8 We note that progress has recently been made in setting threshold values for continuous underwater noise in a number of fora, including within the European Union Marine Strategy Framework Directive (MSFD), OSPAR and HELCOM. The EU MSFD requires thresholds to be set such that levels of anthropogenic continuous low-frequency sound do not exceed levels that adversely affect populations of marine animals. Other regional conventions are also likely to set threshold values for underwater noise. Measures to keep the total sound levels from shipping within such thresholds would benefit from the development of appropriate thresholds within the revised guidelines (e.g. based on vessel type, size and operating parameters) for URN from individual vessels.

Comments on SDC 8/14

9 In addition to the review of the Guidelines, the ToR for the Sub-Committee include the development of a proposal for a programme of action and/or next steps to further prevent and reduce underwater radiated noise based on the findings of the review. The programme of action is likely to include a wide range of stakeholders and both operational and design considerations, taking into account other developments and particularly those related to energy efficiency. Some consideration of the programme of action could be initiated straight away, as a parallel process alongside the review of the Guidelines, which would allow as much time for stakeholder contributions to this process as possible.

Action Requested of the Sub-Committee

10 The Sub-Committee is invited to consider the information above and contact IWC Secretariat on any of the issues identified where IWC may be in a position to provide further information to help with the work of the Sub-Committee.