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EXPERIENCE-BUILDING PHASE FOR THE REDUCTION OF UNDERWATER RADIATED NOISE FROM SHIPPING

The release of the Environmental Ship Index underwater radiated noise module and sharing experiences from a regional underwater radiated noise reduction programme

Submitted by IAPH

SUMMARY

Executive summary: The document aims to highlight the recent release of the environmental ship index underwater radiated noise (URN) module as a tool to support incentivization for URN reduction. Additionally, lessons from a ports-supported regional URN reduction programme are shared to support IMO's ongoing URN experience-building phase.

Strategic direction, if applicable: 1

Output: 1.16

Action to be taken: Paragraph 23

Related documents: MEPC.1/Circ.906/Rev.1 and MEPC 82/17/Add.1

Introduction

1 The *Revised guidelines for the reduction of underwater radiated noise from shipping to address adverse impacts on marine life* (MEPC.1/Circ.906) (Revised URN Guidelines)¹ came into effect on 15 October 2023, and a three-year experience-building phase (EBP) was initiated. MEPC 82 further approved the Guidance on the experience-building phase for the Revised URN Guidelines (MEPC 82/17/Add.1, annex 9).

2 This document provides information on four of the seven needs identified in the EBP Guidance: incentive schemes, implementation of operational approaches to noise reduction, evaluation and monitoring of noise reduction effectiveness and training and awareness building activities.

¹ MEPC 82 (30 September to 4 October 2024) subsequently approved MEPC.1/Circ.906/Rev.1. The *Revised guidelines for the reduction of underwater radiated noise from shipping to address adverse impacts on marine life* annexed to MEPC.1/Circ.906/Rev.1 took effect on 1 December 2024.

Background

3 Since 2011, the International Association of Ports and Harbors' (IAPH) Environmental Ship Index (ESI) has been providing the shipping industry with measurements of the environmental footprint of merchant ships so that ports can serve as incentive providers to reward ships demonstrating clear improvements in emission performance. ESI is a subsidiary body of IAPH and is a voluntary system developed and guided by ports for ports with indicators focusing on air pollutants, greenhouse gas and innovation. Shipowners or incentive receivers upload information related to a ship's equipment, fuel/energy consumed, innovations installed and operating on board, and other data. From this data, an ESI score is generated along with various sub-scores that allow ports to inform their specific incentive programmes. Shipping companies pay a nominal fee for registering their ships on ESI. The Index has become the industry standard, with over 7,000 cargo and passenger ships registered on the scheme together with over 100 incentive providers around the world.² ESI is a modular system.

4 On 6 May 2026, IAPH released a new URN module within ESI to allow participants to evaluate and include URN performance in their ratings and incentive programmes. The components of the module are described here to encourage active participation and feedback from ESI users and the broader IMO community.

5 Further, lessons learned are provided on behalf of IAPH members Port of Seattle, Northwest Seaport Alliance, and Port of Tacoma, all located in the Pacific Northwest of the United States, associated with the first five years (2021 to 2026) of operating the Quiet Sound³ programme. Quiet Sound is a non-regulatory programme focused on the inland waters of Washington State that includes ship traffic transiting to and from the ports listed above. The non-governmental organization Maritime Blue administers the programme for a coalition of federal agencies, Tribes, state agencies, the supporting ports, maritime business and conservation groups. The goal of the programme is to reduce the effects of disturbance from large commercial ships on endangered southern resident killer whales in these waters through developing and implementing voluntary operational measures for commercial ships; advancing killer whale detections and alerts to mariners; and promoting and supporting the adoption of ship quieting technology. The programme has implemented several URN management approaches that were identified as topics of interest for IMO's EBP.

ESI's new URN module

6 The ESI URN module's points scheme is capped at 100 points, summed across four categories:

- .1 20 points: noise management plan, aligned with the Revised URN Guidelines;
- .2 0-15 points: range of technologies installed on ships with identified URN reduction;
- .3 0-15 points: participating in identified ship speed reduction programmes; and
- .4 50 points: securing a quiet ship class notation.

² <https://environmentalshipindex.org>

³ <https://quietsound.org/>

7 A list of technologies receiving points for reduction of URN through the Index is currently maintained by the Vancouver Fraser Port Authority and will be updated as needed.

8 Eight existing voluntary ship speed reduction programmes on the east and west coasts of the United States and Canada are currently providing participants with compliance scores for the Index as follows: 1-5 compliant activities (5 points), 6-10 compliant activities (10 points), 11 or more compliant activities (15 points). Both the Enhancing Cetacean and Habitat Observation (ECHO) programme in waters off British Columbia, Canada and the Quiet Sound programme in adjacent Washington State, United States waters can provide ships with the official slowdown participation data needed to earn up to 15 points in the ESI URN module.

9 Documentation from all existing class society underwater noise notations is accepted.

10 For more information about ESI and the URN module contact: admin@environmentalshipindex.org; and urn@environmentalshipindex.org.

Lessons for the EBP from Quiet Sound

11 In 2022, Quiet Sound began to implement annual voluntary slowdowns for large commercial ships in Admiralty Inlet and north Puget Sound, a waterway with the greatest overlap between killer whales and ship traffic in the inland waters accessing the Port of Seattle, the Northwest Seaport Alliance, Port of Tacoma, and Port of Everett. In each of the four years of the slowdown, 64-71% of transits reduce their speeds, resulting in up to 50% reduction in median broadband underwater noise as well as reductions in frequencies used by killer whales for communication and echolocation. Shipping industry representatives report no impacts to maritime safety and minimal impacts to maritime trade.

12 The 14.5-knot speed target group (car carriers, containers and passenger ships) have the highest number of transits out of participant ships, the highest percentage of transits that reduce their speed, the most speed reduction as compared to baseline speeds, and are responsible for most of the noise reduction in the slowdown. Participation rates are driven by outreach to these ship types through trusted sources, such as industry groups and the United States Coast Guard, and their desire to publicly demonstrate their commitment to the environment.

13 The 11-knot speed target group (bulkers, tankers and general cargo) account for a smaller portion of transits, participate at a lower rate and contribute less to underwater noise reduction. This may be due to less familiarity with the slowdown amongst ships that do not frequently call Puget Sound ports or lower motivation to demonstrate environmental stewardship. Across all speed target groups, ships whose transits rely on navigating strong tides and currents (for example, routes between Puget Sound and Alaska) report not being able to participate because of the need to remain on schedule. Shipping companies note that the additional time it takes to participate in the slowdown is not difficult to accommodate, but advance notice is required. A company will not participate if it means missing their scheduled berthing times due to the financial consequences.

14 Quiet Sound adopted speed targets used by the ECHO programme⁴, administered by the Vancouver Fraser Port Authority in Canada. This partnership allowed both programmes to synchronize communication to mariners transiting through both British Columbia and Washington slowdowns, and Quiet Sound has benefitted from the research and engagement conducted by the ECHO programme to validate the conservation benefit of these speed targets. In addition to parameters, Quiet Sound has aligned slowdown metric calculations for

⁴ https://www.portvancouver.com/article/2026_voluntary_slowdowns_and_route_alteration

noise reduction and participation with ECHO's. This provides comparable results on both sides of the Salish Sea.

15 The slowdown occurs seasonally from September through January when killer whales most commonly occur in central Puget Sound. Slowdown start and end dates are a balancing act between dynamic (responsive to whale presence) and static (pre-determined dates) approaches, each with distinct advantages and challenges. Regular engagement with mariners is essential to maximize participation.

16 Draft parameters are shared with federally recognized Indigenous Tribes who have treaty fishing rights that overlap with the slowdown zone so that Tribes have time to review and raise any concerns in advance of the season. Following the slowdown, Quiet Sound debriefs with mariners and programme implementers. Quiet Sound reviews and adjusts parameters as needed after each slowdown season to support continuous improvement.

17 Quiet Sound posts slowdown parameters on its website and through a newsletter announcement. Parameters are translated into English, Greek, Tagalog, Chinese (simplified and traditional), and Russian on a printed instructional brochure which is disseminated to mariners through the Puget Sound Pilots and Port of Seattle. Quiet Sound also works with the United States Coast Guard to issue a Local Notice to Mariners in advance of the slowdown as well as a Marine Safety Information Bulletin. Information about the slowdown is also relayed through the Pacific Merchant Shipping Association and the Marine Exchange of Puget Sound. Communications through industry groups supports the programme's legitimacy, while Coast Guard channels help reach ships that do not regularly call Puget Sound ports. Quiet Sound's slowdown is listed amongst other whale protection measures in the World Shipping Council's Whale Chart⁵. Quiet Sound also disseminates slowdown parameters directly to fleet operations managers of select shipping lines. Identifying and building rapport with these managers is equally critical in building trust and increasing participation. Feedback indicates that most pilots are aware of and supportive of the slowdown, and that ship agents and tugs build the additional 45 minutes into their transit schedules. This level of awareness and buy-in reflects years of relationship-building and mariner education about the initiative's importance and impact.

18 The proportion of transits that slow down from typical operating speeds is measured by pilot-reported participation. The proportion of transits that meet suggested speed targets is measured by Automatic Identification System (AIS) data corrected for speed through water with a tidal model. Sharing AIS data gives pilots an important opportunity to review which transits reduced their speed but did not meet suggested speed targets. The AIS data also helps the programme identify ships and companies that might benefit from direct outreach.

19 AIS data do not include information about ship owner/operator. Quiet sound has matched ship owner/operators to ships primarily by 1) connecting with fleet operations managers who then provide the IMO numbers for the ships in their fleet; 2) using databases such as IMO Global Integrated Shipping Information System (GISIS) and Equasis. Quiet Sound provides interested fleet operations managers with their participation at monthly intervals to support adjustments while the slowdown is in effect.

20 Mariner feedback shows that measurements of underwater noise reduction help build confidence that operational measures are contributing to meaningful URN reductions. For three slowdown seasons, Quiet Sound deployed a temporary hydrophone to measure changes in underwater noise during the slowdown and a baseline period. The 2025 and 2026 seasons estimate noise reduction using a statistical sampling approach that leverages existing

⁵ <https://www.worldshipping.org/whales>

data sets of ship IDs and acoustic signatures. Quiet Sound plans to install a calibrated underwater listening station in 2027 which will be used to measure changes in ambient underwater noise including during slowdowns.

21 Quiet Sound does not provide financial incentives for participation in slowdowns. The programme celebrates participation by providing recognition certificates, acknowledgement on social media, and nominating companies for regional environmental awards. Companies see participation as a way to differentiate themselves from competition, improve or maintain their reputation and demonstrate action towards environmental commitments.

22 The studies summarized in this document can be found on the Quiet Sound website. Questions may be directed to Rachel Aronson, Quiet Sound Program Director at rachel@maritimeblue.org.

Action requested of the Committee

23 The Committee is invited to note the information provided.
