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

An assessment of incentive schemes as a driver of URN reduction

Submitted by ASEF, ICS and BIMCO

SUMMARY

Executive summary: This document has been submitted in support of the two-year extension of the experience-building phase of the *Revised guidelines for the reduction of underwater radiated noise from shipping to address adverse impacts on marine life* (MEPC.1/Circ.906/Rev.1).

The key conclusions from an assessment of economic incentive schemes as drivers of URN reduction are presented, highlighting the positive impact of such measures in supporting shipowners when adopting noise management plans or relevant URN reduction-related class notations.

In addition, the Sub-Committee is invited to support the development of standards for autonomous URN measuring facilities and thereafter to encourage the establishment of a network of such facilities or equivalent technologies that could provide increased availability of low-cost measuring facilities, whilst ensuring accuracy, consistency and repeatability of such measurements.

To allow practical experience on the effectiveness of such incentive schemes in reducing URN, it is recommended for the Committee to take up the option of the two-year extension to the EBP.

*Strategic direction,
if applicable:* 1

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Action to be taken: Paragraph 12

Related documents: SDC 12/INF.3, SDC 12/INF.4, SDC 12/INF.5 and
MEPC.1/Circ.906/Rev.1

Introduction

1 This document has been submitted in support of the experience-building phase (EBP) of the *Revised guidelines for the reduction of underwater radiated noise from shipping to address adverse impacts on marine life* (MEPC.1/Circ.906/Rev.1). It considers the possible financial benefits that could be received by shipowners when adopting noise management plans or "quiet ship" class notations, consisting in this way of rewards that may be achieved through the various existing environmental incentive schemes.

2 The analysis is based on three real-life case studies which are submitted in separate documents, as follows:

- .1 SDC 12/INF.3 – An assessment of incentive schemes as a driver of URN reduction – A Ro-Pax case study;
- .2 SDC 12/INF.4 – An assessment of incentive schemes as a driver of URN reduction – A Canada Steamship Lines case study; and
- .3 SDC 12/INF.5 – An assessment of incentive schemes as a driver of URN reduction – A Stolt Tankers case study.

Case studies

3 The case studies relate to a Baltic Sea-based Ro-Pax ship, a group of self-unloading bulk carriers operating on the east and west coasts of Canada, and a parcel tanker serving various ports in the Gulf of Mexico.

4 In each case, the costs associated with the implementation of a noise management plan or "quiet ship" class notation are defined before comparing with the possible financial gains from environmental incentive schemes.

Key findings

5 The key findings of the case studies are summarized as follows:

- .1 If prepared in parallel with the shipowner's selection of energy efficiency measures, the implementation of a noise management plan can be achieved at minimal cost. In such cases, the capital cost of the measures applied would be attributed to GHG regulatory compliance and fuel saving, whereas the resulting URN reduction would result as a co-benefit, with no associated cost. The propeller redesign undertaken for Ro-Pax ships, and the hull and propeller cleaning and recoating carried out by Canada Steamship Lines (CSL) and Stolt Tankers are good examples of this approach, where a holistic consideration of energy efficiency and URN reduction can influence the selection of measures and yield the co-benefit.
- .2 The incentives put in place by the port of Vancouver and the autonomous measurement facility funded by Canada appear particularly well configured. Ships entering the port can regularly record their URN emissions at no cost. The level of reductions in port dues that are attributable to a Panamax-sized ship, for example, is clearly of sufficient magnitude to promote the uptake of noise management plans and other URN reduction measures.

- .3 On the Canadian east coast, there are currently no incentive schemes for URN. It is possible that reductions in port dues alone could be of sufficient magnitude to cover the costs of the URN measurements. But providing a financial incentive for the uptake of URN reduction measures would necessitate a balancing of the noise measurement cost versus the rewards attributable to any incentive scheme.
- .4 None of the ports served by the parcel tanker participates in schemes that incentivize URN reduction. However, for illustrative purposes, a scenario was considered whereby one of the ports might adopt a scheme similar to that applied by the port of Vancouver. However, the resulting reduction in port dues was substantially less than the annualized cost of implementing the "quiet ship" class notation, i.e. \$2,836 versus \$5,000, respectively. This imbalance highlighted a potential weakness in the reward schemes, i.e. whereas the rewards attributable to incentive schemes are usually determined by gross registered tonnes (GRT), the dominant cost for achieving a "quiet ship" class notation is associated with the URN measurements, which are the same, regardless of the size of the ship. Hence, the reward systems tend to benefit larger ships.
- .5 Unless autonomous measurement facilities or equivalent technologies¹ are available, the cost of implementing a noise management plan is likely to be dominated by the costs of dedicated noise measurement trials, particularly if the ship has to redeploy to the trials area and/or go off-hire. These costs alone may exceed the financial benefits of an incentive scheme.
- .6 Class societies do not currently consider autonomous measuring facilities as being sufficiently accurate to support the award of a "quiet ship" class notation. However, it is understood that ISO has begun discussions for a standard on autonomous facilities, which could facilitate acceptance of such installations by class societies.
- .7 The co-sponsors are grateful to the International Association of Ports and Harbours (IAPH) for sharing preliminary information on the URN module of their Environmental Ship Index (ESI) incentive scheme. It is, however, understood that the rewards for URN reduction measures will only be adopted by the ports from 2027 onwards.

Conclusions

6 Unless autonomous measuring facilities or equivalent technologies are available, the only way to establish URN baselines for a noise management plan is dedicated sea trials. The costs of such trials, particularly if ships need to redeploy or go off-hire, are likely to exceed any benefits attributable to incentive schemes.

7 A reward determined by GRT is not considered an adequate formulation, as for small ships, this is unlikely to yield benefits that equal or exceed the cost of a noise management plan, or a "quiet ship" class notation.

¹ It is acknowledged that alternative measurement technologies are also under development that could, in due course, fulfil the same objectives as an autonomous buoy, i.e. increased availability and reduced measurement cost. For example, onboard URN measurement methods, and measurement of URN by drones.

8 Nevertheless, if well configured, environmental incentive schemes can provide financial rewards equivalent to, or in excess of, the costs of implementing a noise management plan. If implemented on a wider scale by a greater number of ports, such schemes could be a key enabler of greater reduction of URN from ships.

9 It should be noted that financial gain is not the reason why some shipowners have already adopted noise management plans or "quiet ship" class notations. Some consider this approach as an integral part of their environmental policies and responsibilities, while others consider that early adoption of new technologies and techniques is part of their corporate culture and can yield a longer-term competitive advantage.

10 Nevertheless, shipping companies are businesses and, therefore, responsible for ensuring a positive return on investment through profitable activities. Hence, if the availability and accuracy of low-cost autonomous URN measuring facilities (or equivalent technologies) can be improved, and the rewards from incentive schemes are configured to exceed the cost of URN reduction strategies, with further adoption of such schemes by ports, the industrial-scale uptake of the Revised URN Guidelines and "quiet ship" class notations is expected to follow.

11 The IAPH ESI is one of the largest and well-known environmental schemes.² However, with URN reduction only being incorporated into ESI from 2027, there will be several years before it becomes clear how effective it is. Noting that the three-year experience-building phase of the IMO URN guidelines is due to end in 2026, it would be beneficial in this respect for MEPC to confirm the optional two-year extension.

Action requested of the Sub-Committee

12 The Sub-Committee is invited to

- .1 note the conclusions within paragraphs 6 to 11;
- .2 consider ways to leverage the opportunity that environmental schemes offer for industrial-scale roll-out of noise management plans, "quiet ship" class notations and other URN reduction measures, e.g. by:
 - .1 Encouraging the reward scheme managers, and the ports and harbour authorities to consider the impact of their reward scales on smaller ships: The cost of implementing a noise management plan or achieving a "quiet ship" class notation is largely independent of ship size, but the reward is usually dependent on the GRT. Therefore, the existing systems tend to be less effective for smaller ships.
 - .2 Supporting development of standards for autonomous buoys or equivalent technologies that could see their wider acceptance by classification societies, as a more cost-effective means of URN measurement. Although at an early stage, it is understood that ISO has begun to consider such a standard.

² Other similar schemes include Green Marine, Green Award, the PIAQUO Noise Ship Index (NSI) and the Vancouver Port Authority Echo Program.

- .3 Supporting the adoption of a network of autonomous measuring buoys, whilst not excluding equivalent technologies. If located in the vicinity of key pinch points, e.g. the Suez Canal, the Panama Canal, the English Channel, etc., and if the accuracy, consistency and repeatability of URN measurements can be assured, such a network could significantly increase the availability of low-cost measurements, and if coupled with adequate levels of rewards, could provide a powerful financial incentive for URN reduction; and
 - .3 agree to a two-year extension of the EBP, with a view to allowing sufficient time to gather experience of how environmental incentive schemes are performing with respect to URN reduction. Environmental incentive schemes are an important aspect of the Revised URN Guidelines implementation.
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