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Additional measures are needed to minimise bycatch of the critically endangered Baltic Sea subpopulation of harbour porpoise, *Phocoena phocoena*

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Additional measures needed to mitigate bycatch of the Baltic Sea subpopulation of harbour porpoise

The Scientific Committee of the IWC has recommended that urgent actions are needed to minimise fisheries bycatch and allow the Critically Endangered Baltic Sea harbour porpoise¹ subpopulation to recover from the current estimated number of approximately 500 animals². In February 2022, a Delegated Act³ under the EU Technical Measures Framework came into effect, closing static net fisheries in some Natura 2000 areas and other areas deemed as important for the Baltic harbour porpoise. In addition, the

¹ Hammond, P.S., Bearzi, G., Bjørge, A., Forney, K., Karczmarski, L., Kasuya, T., Perrin, W.F., Scott, M.D., Wang, J.Y., Wells, R.S. & Wilson, B. 2008. *Phocoena phocoena* (Baltic Sea subpopulation). *The IUCN Red List of Threatened Species* 2008: e.T17031A6739565. Accessed on 08 April 2022.

² Amundin, M., Carlström, J., Thomas, L., Carlén, I., Teilmann, J., Tougaard, J., Loisa, O., Kyhn, L.A., Sveegaard, S., Burt, M.L., Pawliczka, I., Koza, R., Arciszewski, B., Galatius, A., Laaksonlaita, J., MacAuley, J., Wright, A.J., Gallus, A., Dähne, M., Acevedo-Gutiérrez, A., Benke, H., Koblitz, J., Tregenza, N., Wennerberg, D., Brundiers, K., Kosecka, M., Tiberi Ljungqvist, C., Jussi, I., Jabbusch, M., Lyytinen, S., Šaškov, A., Blankett, P., 2022. Estimating the abundance of the critically endangered Baltic Proper harbour porpoise (*Phocoena phocoena*) population using passive acoustic monitoring. *Ecol. Evol.* 12, e8554. <https://doi.org/10.1002/ece3.8554>

³ Commission Delegated Regulation (EU) amending Regulation (EU) 2019/1241 as regards measures to reduce incidental catches of the resident population of the Baltic Proper harbour porpoise (*Phocoena phocoena*) in the Baltic Sea, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022R0303>

use of pingers was mandated in some other MPAs (Fig. 1). However, according to the ICES scientific advice published in 2020⁴, these closures by themselves are not sufficient, as mitigation measures need to cover the entire population range in order to be effective and to meet the legal requirements and allow the population to recover.

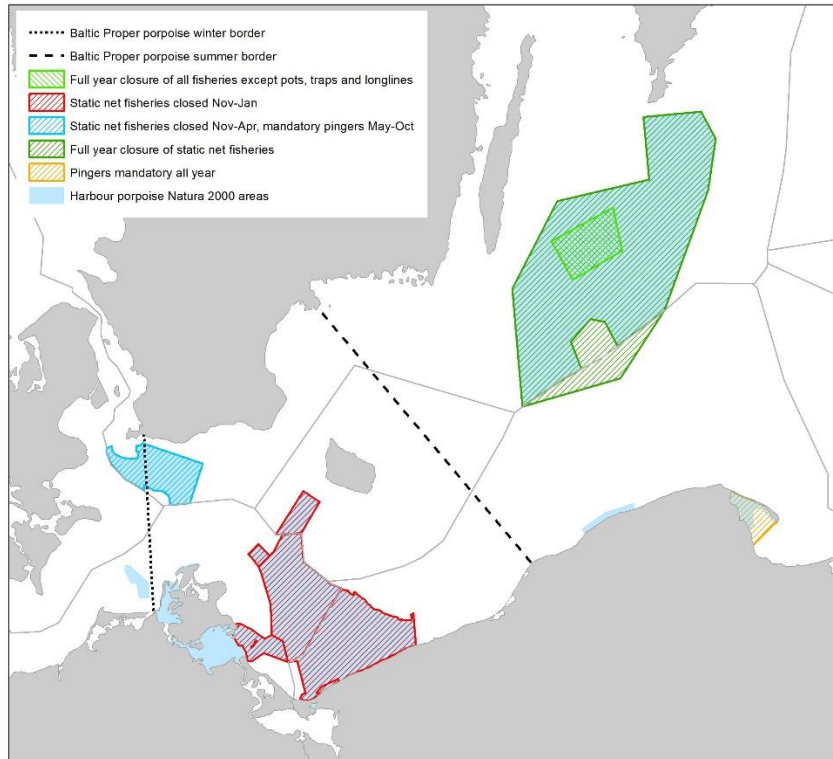


Figure 1. A map showing the measures specified in the delegated act amending EU regulation 2019/1241

The most effective solution

The ICES advice³ stated that to achieve the necessary target of zero bycatch all static net fisheries in the Baltic Sea harbour porpoise subpopulation range would have to be closed. However, this solution does not appear to be politically feasible.

The next best solution

In the absence of closing all static net fisheries in the Baltic Proper, ICES proposed closures of static net fisheries in some important harbour porpoise areas, as now regulated by the delegated act published in February 2022, as well as the mandatory use of pingers⁵ in the remaining static net fisheries in the entire population range.

However, large-scale pinger use has not yet been implemented and the military forces of some Baltic Sea range states are concerned that pingers may interfere with their underwater acoustic activities and will not

⁴ ICES 2020. ICES Special Request Advice on Emergency Measures to Prevent Bycatch of Common Dolphin (*Delphinus delphis*) and Baltic Proper Harbour Porpoise (*Phocoena phocoena*) in the Northeast Atlantic. https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2020/Special_Requests/eu.2020.04.pdf

⁵ As the ICES WKEMBYC, we note that the use of pingers may not be the best solution to mitigate bycatch in the Baltic Sea, given that pingers only reduce bycatch with up to 80%, but it is the one tool that appears to be deployable at this time.

allow large-scale pinger use in their waters^{6,7}. It should be noted that pingers are used in many other areas where naval activity is undertaken with no adverse impacts on military preparedness or function, and no scientific information has been presented showing that pinger use is, indeed, a major issue for military activities.

So what can be done?

If some national military forces cannot accept the large-scale use of pingers, significant additional closures for static net fisheries will have to be put in place in order for Member States to comply with EU environmental legislation. Ideally, closures should result in a bycatch mitigation benefit equivalent to the pinger measure proposed by ICES, which means closing additional large areas that are known to be of importance to this subpopulation. Such areas can be identified based on the results from the SAMBAH project^{8,9} as well as national monitoring programmes, acoustic research projects, and other available data¹⁰. Closures of static net fisheries can still allow fishing using alternative gear that is known to not cause harbour porpoise bycatch, such as pots, traps, and longlines. Additional closures should be complimented by strengthened efforts to replace static nets with alternative fishing gear that do not cause harbour porpoise bycatch and ensuring effective enforcement is in place.

Why dynamic closures/moving-on procedure is not an effective measure for the Baltic Sea harbour porpoise

The Baltic Sea Regional Fisheries Body (BALTFISH) have discussed alternative measures to be implemented in lieu of large-scale use of pingers. One possible measure discussed is the moving-on procedure (also known as dynamic closures) where a harbour porpoise sighting (which could be reported by scientists, members of the public or fishermen) would trigger a defined spatial-temporal closure for fisheries with high bycatch risk. We provide the following reasons why this approach is not expected to provide effective bycatch mitigation in the Baltic:

- There is no current demonstration that dynamic closures have been effective in mitigating bycatch, and particularly for a small, critically endangered, and elusive species. For example, there have been a number of challenges in implementing similar dynamic measures for right whales in the Northwestern Atlantic, despite these being much larger and more conspicuous with a considerable amount of searching effort including dedicated aerial surveys.¹¹
- Porpoises are difficult to detect and the chances of a sighting being reported when animals are present is very low. Even for dedicated visual surveys for harbour porpoises in good weather

⁶ BALTFISH High Level Group Meeting 22 June 2021

⁷ BSAC Report from the BALTFISH Forum 21 June 2021, <http://www.bsac.dk/getattachment/BSAC-Resources/Documents-section/BALTFISH/BSACreportBALTFISHForum07092021.pdf.aspx?lang=en-GB>

⁸ www.sambah.org

⁹ Carlén, I., Thomas, L., Carlström, J., Amundin, M., Teilmann, J., Tregenza, N., et al. (2018). Basin-scale distribution of harbour porpoises in the Baltic Sea provides basis for effective conservation actions. *Biological Conservation*, 226, 42–53. <https://doi.org/10.1016/j.biocon.2018.06.031>

¹⁰ E.g. Owen, Sköld & Carlström, 2021. An increase in detection rates of the critically endangered Baltic Proper harbor porpoise in Swedish waters in recent years. *Conservation Service and Practice*, 3:8 e468. <https://onlinelibrary.wiley.com/doi/abs/10.1111/csp2.468>

¹¹ We note a dearth of published information showing that this approach is effective in mitigating bycatch.

conditions the probability of detection is low and this drops rapidly with sea state^{12,13}. In fact, visual surveys are not used in the Baltic Proper because the very low density results in very low sighting rates.

- Incidental sightings of harbour porpoises in the Baltic Proper generally do not correlate well with the published research of the porpoise distribution, because sightings occur very rarely and only where human activities and porpoises overlap^{14,7}.
- Current porpoise acoustic monitoring systems are not suitable for real-time detections needed for a dynamic closure. Existing systems can be difficult to setup and use, and have a limited detection range of a few hundred metres².
- In the eastern Baltic Proper, there are currently no active reporting procedures for porpoise sightings. This method would require a huge logistic effort of putting such a system in place, and to make sure people are aware of the need to report sightings.
- There is an issue with how to mandate and enforce the reporting of sightings. For example, there is a major risk that fishermen would not report any porpoise sightings if they know it would result in closed fisheries or displacement to sub-optimal grounds.
- The time-delay between the reporting of a sighting to actual closure of fisheries would very likely be too long for the closure to be relevant. Small-scale movement patterns and temporal persistence of concentrations of porpoises in the Baltic Sea are not well understood. Without a good understanding of these factors it is not possible to determine the spatial and temporal extent of dynamic closures that would be needed to be effective, even if porpoises were reliably detected and reported.

Recommendations

We recommend that Baltic Sea countries, in lieu of large-scale implementation of pingers in static net fisheries in the Baltic Proper, urgently implement closures of fisheries with high bycatch risk, mainly static net fisheries, in all areas important for the Baltic Proper harbour porpoise subpopulation. Further, we urge the countries whose military forces cannot accept large-scale use of pingers to fully investigate the potential effect of pingers on military underwater acoustic activities as well as possible technical adaptations to minimise such effects.

¹² Laake, Calambokidis, Osmek & Rugh, 1997. Probability of Detecting Harbor Porpoise from Aerial Surveys: Estimating $g(0)$. *The Journal of Wildlife Management*, 61:1, pp 63-75. <https://www.jstor.org/stable/3802415>

¹³ Nachtsheim, D.A., Viquerat, S., Ramírez-Martínez, N.C., Unger, B., Siebert, U., Gilles, A., 2021. Small Cetacean in a Human High-Use Area: Trends in Harbor Porpoise Abundance in the North Sea Over Two Decades. *Front. Mar. Sci.* 7.

¹⁴ HELCOM Biodiversity database <https://maps.helcom.fi/website/biodiversity/>