UN environment programme

ASCOBANS

AGREEMENT ON THE CONSERVATION OF SMALL CETACEANS OF THE BALTIC, NORTH EAST ATLANTIC, IRISH AND NORTH SEAS

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11 March 2026

22nd MEETING OF THE JASTARNIA GROUP
Online, 14-16 April 2026
Agenda Item 5

DRAFT PROGRESS REPORT ON THE IMPLEMENTATION OF THE JASTARNIA PLAN – MARCH 2026

(Prepared by the Coordinator of the Baltic Harbour Porpoise Action Plans)

1. The draft progress report on implementation of the ASCOBANS Recovery Plan for Baltic Harbour Porpoises (Jastarnia Plan), version March 2026 in Annex 1, is presented to the 22nd Meeting of the Jastarnia Group for review. An earlier draft was circulated via email to the Jastarnia Group on 31 January 2026.

Action requested:

2. The Jastarnia Group is requested to review the draft progress report in Annex 1 and provide updates.

PROGRESS REPORT
on
THE JASTARNIA PLAN:
THE RECOVERY PLAN FOR THE HARBOUR PORPOISE IN THE BALTIC PROPER

MARCH 2026 - **DRAFT**

Photo: Patrik Eld

This report was compiled by Ida Carlén as the coordinator of the ASCOBANS Jastarnia Plan, the Recovery plan for the harbour porpoise in the Baltic Proper. Please note that the coordinator's recommendations do not necessarily reflect the collective views or consensus of the Jastarnia Group.

Contents

Summary of progress in 2025-2026

Here we summarise the status and progress since the last report was published, under each main action point of the plan. Priority recommendations are also given for each main action point.

Increase involvement, awareness and cooperation

Awareness-raising about the Baltic Proper harbour porpoise is slowly increasing in some countries around the Baltic, although progress is still quite slow. However, the German programme "Sea Rangers" is worth mentioning, where, fishermen are engaged in training on fisheries and marine environment, with tasks related to environmental protection, conservation of fish stocks, aquaculture management, tourism services and preservation of the cultural heritage of coastal fishing. The first course finished in 2024.

- Public awareness needs to be increased to support conservation action and facilitate collection of stranded animals.

Monitor and estimate abundance and distribution

The second survey of the Baltic Proper harbour porpoise population, SAMBAH II, was finalised in August 2025, and analysis will be carried out int he CUMBIAH project with funding from BfN in Germany.

- National monitoring should be designed in collaboration between countries, ensuring that stations are distributed in the most effective way and that data is comparable between countries.

Monitor, estimate and reduce bycatch

Since the delegated act on bycatch mitigation in Baltic Proper Natura 2000 areas came into effect in 2022, few measures have been implemented that will significantly affect bycatch risk of the Baltic Proper harbour porpoise. However, in October 2024, Sweden implemented mandatory pinger use in an area south of Skåne, in ICES area 24, for Swedish vessels, and proposed management measures for static net fisheries in the German Baltic EEZ are currently undergoing consultation.

Commented [IC1]: What is the status here?

During 2024, ICES published a technical service on alternative measures for the Baltic Proper harbour porpoise, and a scientific advice on bycatch risk for the Baltic Proper harbour porpoise.

- Mitigation needs to be put in place immediately in the entire range of the Baltic Proper harbour porpoise population. We urge the current Swedish Baltfish presidency to put focus on the issue.
- Countries that do not have targeted bycatch monitoring in place should make sure to develop this, notably Germany and Poland
- Improvements are needed in the extent and methods of monitoring fishing effort. All parties should strive to implement monitoring of fishing effort so that the data collected is sufficient to estimate more precise bycatch rates.

Monitor and mitigate impact of underwater noise

On underwater noise, several research projects are ongoing on the impacts of underwater noise on harbour porpoises, but progress on mitigation is still rather slow. There are very few measures in place to minimise noise exposure in for example harbour porpoise MPAs, and the increased demand for fossil-free energy production means offshore wind development is likely to have significant impact on the underwater soundscape in the near future.

The development of underwater noise indicators is still ongoing at the EU and HELCOM levels. Underwater noise thresholds for excess levels have been agreed upon, but discussions are still ongoing on the Level of Onset of Biologically adverse Effects (LOBE).

Lastly, the military forces of all Baltic Sea countries, as well as NATO, should be aware of the issues with underwater explosions and employ proper mitigation measures in the cases where such explosions cannot be avoided. ASCOBANS together with experts could maybe somehow provide guidance on this matter

- All countries that do not have national guidance documents on EIA procedures to assess noise impact on e.g. harbour porpoises, noise limits/thresholds and control programmes, should develop and implement such documents and programmes.
- Cumulative effects must be properly evaluated in all EIAs, not only relating other offshore wind projects, but including all threats to the population.
- A continuation of the dialogue started at the Joint ACCOBAMS-ASCOBANS Workshop with Navies on Underwater Noise and Cetaceans in Toulon in November 2024 should be arranged, and participation from further countries should be encouraged.

Monitor and assess population status

In Germany, a concept for monitoring and assessing the pollution load of marine mammals in the North and Baltic Seas is being developed, and in Denmark, the amount of necropsies carried out has increased in the last few years. A genetic SNP panel for assigning examined animals to the Belt Sea or the Baltic Proper population is in place and is used to some extent, for example in Sweden.

- Samples for genetic analysis should be taken from all individuals that are found dead in the Jastarnia area, regardless of stage of decomposition.

Investigate habitat use and protect important areas

The ongoing SAMBAH II and the analysis project CUMBIAH aims to create new distribution maps for harbour porpoises in the study area in the Baltic Proper, now including also the deeper areas below 80 m, and showing absolute density rather than probability of detection. These maps will be extremely important in ensuring that existing conservation actions are taken in the most relevant areas, and for identifying further areas where conservation measures are needed.

- In Sweden, areas around Öland, Gotland and in Hanö Bay should be designated.
- In Polish waters we would recommend designating the Polish part of the Southern Midsea bank as a Natura 2000 area, and to extend the Natura 2000 area in Puck Bay.

- In Finland, the area of Bogskär should again be designated as an MPA and protected from anthropogenic pressures such as fisheries, shipping and offshore wind development.
- MPAs where the harbour porpoise is listed should all have effective conservation measures in place, most importantly to eliminate bycatch risk, decrease the risk of disturbance from underwater noise and to ensure the availability of prey.

The ASCOBANS Jastarnia Plan – Background

The ASCOBANS Jastarnia Plan is a recovery plan for harbour porpoises inhabiting the Baltic Proper (figure 0.1). The harbour porpoise is the only cetacean species occurring throughout the year in the Baltic Sea. Genetic (Celemín et al. 2025; Lah et al. 2016; Wiemann et al. 2010), morphometric (Galatius et al., 2012), and distributional studies (Carlén et al., 2018; Sveegaard et al., 2015) all indicate a separate harbour porpoise population in the Baltic Proper (Evans and Teilmann, 2009; Lockyer, 2003; Sveegaard et al., 2015).

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Figure 0.1. *Map of geographical terms used in the Jastarnia Plan*

Since the mid-twentieth century, harbour porpoise numbers have declined drastically. This decline has probably been caused by a combination of factors: commercial hunting up to the end of the nineteenth century which was resumed during the two world wars (Lockyer and Kinze, 2003; Skora and Kuklik, 2003), severe ice conditions during the first half of the twentieth century (Svärdson, 1955), environmental contaminants (Beineke et al., 2005; Berggren et al., 1999) probably causing immunosuppression, increased disease risk and reproductive failure (Jepson et al., 2016, 2005; Murphy et al., 2015), and, perhaps most importantly during the last decades, the use of synthetic gillnets causing bycatch (Hammond et al., 2016; HELCOM, 2013). The population is currently listed as Critically Endangered (CR) by IUCN (Carlström et al., 2023) and HELCOM (HELCOM 2025), and in Annexes II and IV of the Habitats Directive.

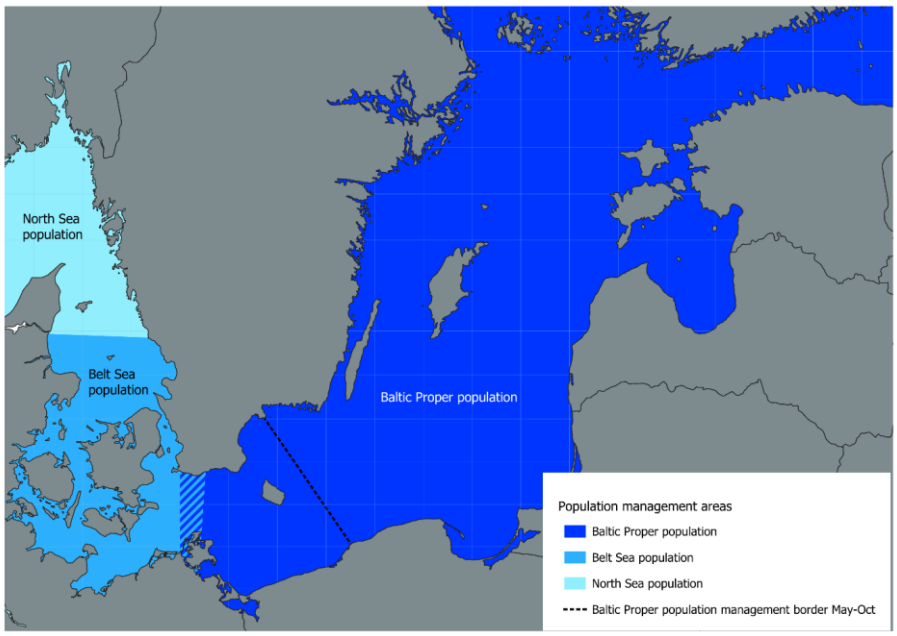

Figure 0.2. *The management areas of harbour porpoise populations in the Baltic region. Dark blue indicates the management area of the Baltic Proper population during November-April, with the dotted black line showing the May-October management border identified in the SAMBAH project (Carlén et al. 2018). The mid-blue area indicates the management area for the Belt Sea population as described by Sveegaard et al. (2015). The striated area indicates overlap between the Baltic Proper and the Belt Sea populations.*

The ASCOBANS Recovery Plan for Baltic Harbour Porpoise has become known as the Jastarnia plan since much of the drafting of the plan took place during a workshop in Jastarnia, Poland, in 2002. The plan was finally adopted in 2009 by the 6th meeting of the Parties to ASCOBANS in Bonn, Germany. The plan has been revised once and the new version was adopted by the 8th Meeting of the Parties in Helsinki, Finland in 2016. ASCOBANS has two other harbour porpoise conservation plans for the North Sea and the Western Baltic and Belt Sea (WBBK), respectively, see figure 0.2. It was agreed in 2021 that the Jastarnia and WBBK areas will be adjusted as the plans are updated, so that the WBBK plan will include waters from 56.95°N to 13.5°E, and the Jastarnia plan will include the Baltic from 13.0°E, i.e. there will be a slight overlap between the plan areas.

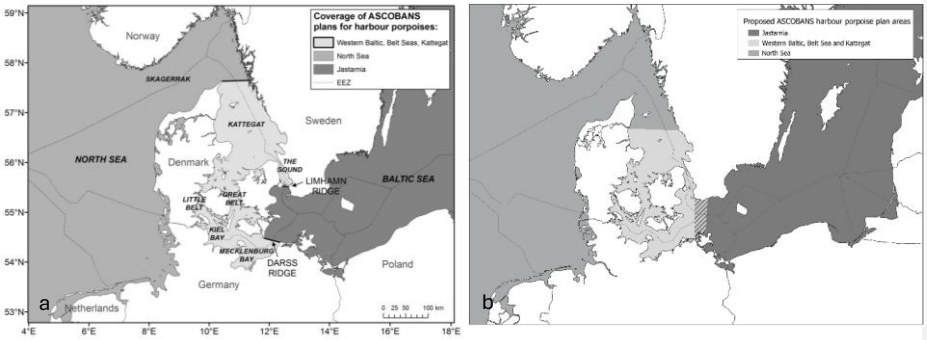

Figure 0.3. *Maps showing the current (a) and proposed (b) division between the ASCOBANS harbour porpoise plans for the North Sea, WBBK and Jastarnia areas.*

Since 2005, the ASCOBANS steering group for the Baltic Sea region, known as the Jastarnia Group, has met annually. The latest (22nd) meeting was held in Stralsund, Germany, in April 2026.

Six main action points are identified, based upon the 2016 revision of the Jastarnia Plan, and the progress under these action points is presented below. Until 2024, the coordinator report on the progress under the Jastarnia plan summarised progress for the entire lifetime of the plan. The current report will summarise the progress under each action point for 2025-2026, with some background where needed. For greater detail on previous years, earlier reports are available on the ASCOBANS website.

1. Increase involvement, awareness and cooperation

In 2002, ASCOBANS declared the third Sunday in May of each year as the "International Day of the Baltic Harbour Porpoise" (IDBHP) in order to raise awareness of the critical situation for populations of the Harbour Porpoise. Each year on or in connection with this day, different kinds of dissemination activities take place in the countries around the Baltic Sea. More information can be found on the ASCOBANS website https://www.ascobans.org/en/campaign/international-day-baltic-harbour-porpoise.

The reporting by the public of live sightings and stranded animals is an important part of public awareness and involvement. A list of links for reporting in each country can be found in table 1.1.

Table 1.1. *Summary of sightings and strandings programmes and websites for reporting*

Country	Organisation	Website	Comment
Denmark	Maritime Museum in Esbjerg	Strandings: https://fimus.dk	For sightings there is an app: Marine Tracker by University of Southern Denmark
Estonia	Nature Observations Database	http://loodus.keskkonnainfo.ee/lva/	
Finland	Finnish Ministry of the Environment	https://loydos.luomus.fi/loydos/forms/luontohavainto?language=en	
Germany	ITAW German Oceanographic Museum	Schleswig-Holstein (SH): ITAW https://www.tiho-hannover.de/itaw/uebers-itaw/schweinswalsichtung Mecklenburg Vorpommern (MV): DMM https://www.deutsches-meeresmuseum.de/en/scienceresearch/news/report-stranded-marine-mammals	App OstSeeTiere
Latvia	Dabas Dati, Nature Protection Agency, Latvian Museum of Natural History	live: www.dabasdati.lv dead: www.daba.gov.lv dead: www.dabasmuzejs.gov.lv	
Lithuania	State food and veterinary service, Lithuanian Sea Museum	dead: http://vmvt.lt/ live or dead: http://www.muziejus.lt/	
Poland	Hel Marine Station, University of Gdansk	www.morswin.pl	hel@ug.edu.pl Tel. +48 601 88 99 40.
Russia	Baltic Fund for Nature Kaliningrad zoo	www.bfn.org.ru	bfn@bfn.org.ru
Sweden	Swedish Museum of Natural History	Sightings and strandings should be reported to https://marinadaggdjur.nrm.se/rapportera-tumlare	

	Artportalen (Species Observation System) SwAM, Rappen	Sightings can also be reported to: https://www.artportalen.se/ Sightings and strandings can also be reported to: https://rapportera.artfakta.se/eftersokta/rappen/skapa	

In Finland, public awareness effort has been low in recent years, but every year a press release is made to inform about the possibility to report opportunistic sightings.

In Sweden, several outreach activities including interviews, press releases, social media posts etc has been carried out on e.g. management, ongoing projects, and how the public can contribute. Involved organisations are the Swedish Agency for Marine and Water Management (SwAM), the Swedish Museum of Natura History (NRM), the Swedish Veterinary Institute (SVA), Lund University (LU), the Swedish Agricultural University (SLU), the County Administrative Boards (CABs) and the Swedish Society for Nature Conservation (SSNC).

In order to increase cooperation between authorities and stakeholders, a total of 104 letters have been sent to all coastal municipalities, CABs and other stakeholders from SVA, to initiate or continue cooperation with reporting, storage and transport of stranded cetaceans. Dialogues and presentations have been made at meetings with fisheries organisations, management agencies and international collaborations such ICES and CIBBRiNA, and an annual meeting on porpoise management with participants from national agencies, research institutions and an NGO has been established.

In Germany, the first course in the Sea Rangers program, training fishermen to become specialists in "Fisheries and marine environment" was completed in summer 2024. The aim of the program is to educate fishermen and hopefully increase their sense of stewardship for the marine environment. Additionally, cooperation and dialogue fora has been developed within different projects such as Stella 2 and Pal-CE. The International Day of the Baltic Harbour Porpoise was celebrated with a public Event at the German Oceanographic Museum in May 2024. The incidental sightings programs are successful and gathered 543 harbour porpoise sightings in the German Baltic in 2024. There is an app and a map of sightings is accessible online. There has also been NGO awareness campaigns showcasing the harbour porpoise, both in relation to underwater noise and marine protected areas, for example from Friends of the Earth Germany (BUND).

Commented [IC3]: Is this continuing?

Commented [IC4]: Also in 2025?

In Denmark, since 2017 in the town of Middelfart there is an active listening station where the public can visit, both in person and online (https://www.youtube.com/watch?v=aPOlRi9Ouls and https://bios.au.dk/forskningraadgivning/temasider/baelt-i-balance/), to listen in real time to any porpoises present around the hydrophone in Middelfart harbour. There is currently no public sightings programme in operation in Denmark, but Fjord&Bælt in Kerteminde has developed the "Marine Tracker" app which can be used to report sightings. Although there is no comprehensive stranding scheme, reporting to the Maritime Museum in Esbjerg (https://fimus.dk) is encouraged, and the Facebook group hvaler.dk is very active with people posting sightings of marine mammals.

Figure 1.1. *Harbour porpoise statue in Gdynia, Poland.*

In Poland, Hel Marine Station, University of Gdańsk (HMS UG), has had a long history of raising awareness about harbour porpoises, led by initiatives from Krzysztof Skóra and Iwona Pawliczka, later in collaboration with WWF Poland. Each year several public educational events take place where special attention is dedicated to harbour porpoises. The ASCOBANS International Day of the Baltic Harbour Porpoise event has been organized in the area around the statue of harbour porpoise in Gdynia (figure 1.1), and in 2013, a special exhibition dedicated to harbour porpoise was open in a building called “House of the Harbour Porpoise” in Hel, which is open for the public. There is also a programme called Blue School run in HMS UG, educating young people about this endangered Baltic species and its environment.

In Lithuania, a harbour porpoise protection plan was initiated in 2014, with flyers and a short documentary made to raise public awareness (https://www.youtube.com/watch?v=WQYP5T0SCbs). The International Baltic Harbour Porpoise Day is celebrated each year at the Lithuanian Sea Museum. In conjunction to the Sea Museum, a Baltic Sea Animals Rehabilitation Center opened in October 2022.

In some countries like Sweden, Germany and Lithuania, there has been an increase in public awareness work in the last few years, however, Latvia and Estonia appear to have no campaigns to raise public awareness about porpoises in the Baltic and porpoises are mostly not recognised as part of the native fauna. There is an important need to make people aware that the porpoise does occur in their waters albeit at low numbers, and that efforts to create the conditions favourable for the species will go a long way to enhancing the possibility of porpoises returning in greater numbers to their waters. All across the Baltic, there is a need to sustain and increase the public awareness in order to support the necessary conservation action.

Key Conclusions and Recommendations

Public awareness initiatives have been increasing in numbers in recent years, but the difference between countries is still quite large. Further efforts to improve awareness of the presence of the species, its conservation status and threats are needed in all countries, as well as efforts to actively involve stakeholders, notably both small-scale and industrial fishers, in processes aiming to mitigate bycatch.

2. Monitor and estimate abundance and distribution

Large-scale surveys

SAMBAH II is the second large-scale survey of the Baltic Proper harbour porpoise population, and took place from 1 July 2024 to end of August 2025, funded by the countries involved in the effort; Sweden, Finland, Estonia, Lithuania, Poland, Germany and Denmark. Latvian and Russian waters was not surveyed. The survey was carried out using C-PODs, in order for results to be comparable to SAMBAH (Amundin et al. 2022; Carlén et al. 2018), but efforts were taken to also collect data using other acoustic intstruments to make comparisons and facilitate a future switch to other instruments. A more precis abundance estimate than the one acquired in SAMBAH is pursued, firstly using a stratified survey design of 217 stations, with higher densities of detectors in areas where harbour porpoise density is expected to be higher based on SAMBAH results, and secondly by calculating a more precise effective detection area through the deployment of hydrophone arrays in some stations. Additionally, eDNA data samples are taken twice at each station, in order to collect data for analysis of prey availability.

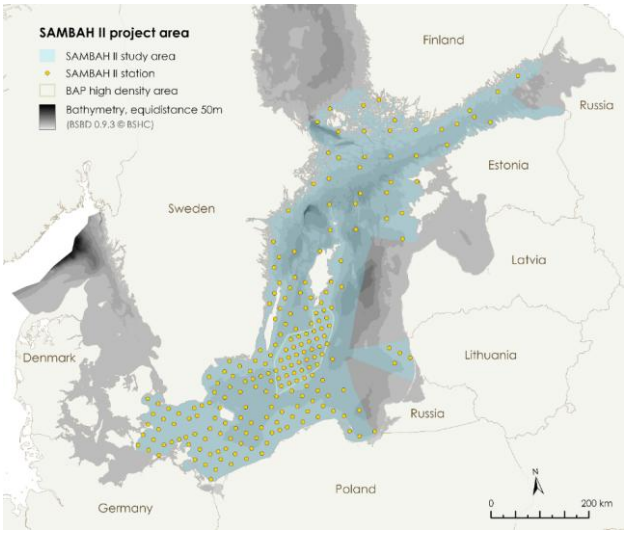

Figure 2.1. *The SAMBAH II study area, showing the stratified survey design.*

Based on the data collected in SAMBAH II, as well as other existing data, the CUMBIAH project aims to provide the information that the EU Member States need for their reporting on the conservation status of harbour porpoises in the Baltic marine region, including the habitat quality of the species, in accordance with Habitats Directive Article 17.

This information is a foundation needed for the countries to identify and implement concrete conservation actions to secure the survival of the Baltic Proper harbour porpoise population and prevent further decline of the Belt Sea harbour porpoise population. The objectives of CUMBIAH are to:

1. Estimate density and abundance
2. Investigate the impact of habitat quality
3. Determine Life history parameters and estimate abundance thresholds
4. Provide a basis for future management and population monitoring

Funding for CUMBIAH has now been granted by the German Federal Agency for Nature Conservation, and the project started in February 2026.

National monitoring

In addition to the large-scale surveys, several countries in the Jastarnia area carry out national monitoring based on the SAMBAH passive acoustic methodology (figure 2.2). In the national monitoring programmes, not enough information is collected to calculate the detection function, which means it is not possible to calculate absolute abundance, but the monitoring is useful in that the harbour porpoise detection frequencies can be tracked between the large-scale surveys.

An issue in the national monitoring programmes is that the detection frequency is still recorded in different ways and the results from the monitoring in different countries are therefore currently not completely comparable. Work on harmonizing data and drafting of monitoring guidelines for abundance and distribution of harbour porpoises will be carried out within the CUMBIAH project.

In Sweden, a national monitoring program that has been ongoing since 2017 deploys C-PODs at 11 stations in the Jastarnia area, whereof five is within the Natura 2000 area Hoburgs bank och Midsjöbankarna. The stations used are SAMBAH stations, including position 1036, which has the highest detection rate of all stations within the population summer distribution range. In this station, as well as on one station in the Bothnian Sea and one in Skagerrak, there is joint monitoring of porpoises and underwater noise. Additionally, the regional monitoring programme, carried out by the County Administrative Boards, in the Baltic Sea was expanded in 2024 and will continue to be expanded in 2025 to reach 30-40 stations from Scania to north of Stockholm. In addition, the County Administrative Board of Gotland is carrying out line transect survey using a towed acoustic array in the N2000 area Hoburgs bank och Midsjöbankarna during summer. The survey has taken place in 2022 (Lst Gotland 2022), 2024 and 2025 and is also planned for 2026.

Commented [IC5]: What is the current status of this? Would it be possible to get some sort of spatial GIS data to add to the map in Fig 2.2?

In Finland, the national monitoring program has been running since 2016 and includes 11-25 stations (depending on available funding and gear) south of Åland and the Archipelago Sea. The methods applied are the same as in the SAMBAH Project using C-PODs, but F-PODs have been added at some stations to provide data to compare detection rates between the two devices. The results indicate a similar pattern and rates of detection as was obtained in the SAMBAH project and show that the harbour porpoise occur regularly in low numbers in the southwestern offshore waters of Finland year-round.

In Poland, there has been national monitoring of harbour porpoise included in the Polish "Monitoring of marine habitats and species programme" since 2018. This is carried out using

static acoustic methods, in three sites: Pomeranian Bay, Stilo Bank and, since 2021, Gulf of Gdansk including Puck Bay. Monitoring will be carried out two years out of 6 years, with the most recent monitoring period being from March 2021 to March 2023.

Commented [IC6]: Any updates here?

In Germany, the national acoustic monitoring program includes 15 stations, whereof 7 is east of 13°E, i.e. within the winter population range for the Baltic Proper population. Monitoring at some of the stations started in 2002.

The project HABITATWAL, running 2022-2026, will investigate habitat selection of harbour porpoises in the North and Baltic Seas and the influence of anthropogenic disturbance factors on the population dynamics of harbour porpoises, carry out visual surveys of marine mammals in German waters, including the SCANS-IV survey in 2022, and create a concept for further development of marine mammal monitoring. The HaMoNa project (funded by BfN and implemented by the German Oceanographic Museum in 2022 – 2026) is developing new methods to acoustically determine the group size of harbour porpoises and the presence of calves to complement long-term acoustic data series.

In Denmark, the monitoring program is part of the MSFD monitoring program, with C-PODs rotating between SACs every three years since 2012. In 2024-2025 C-PODs were deployed at ten national monitoring stations around Bornholm as part of the national co-funding for SAMBAH II.

Unfortunately, no formal monitoring programmes exist in the eastern Baltic states, but some monitoring was carried out in Lithuania in 2022-2023 in preparation for the installation of an offshore windfarm, and both Estonia and Lithuania were part of the SAMBAH II survey in 2024-2025.

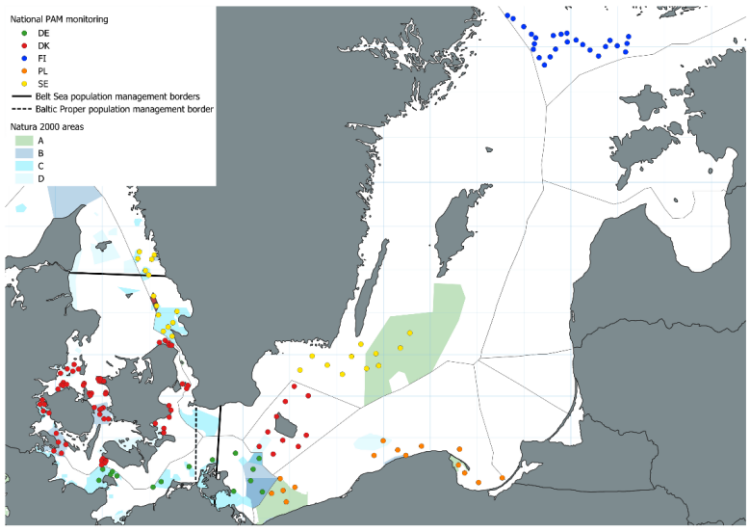

Figure 2.2. *National passive acoustic monitoring stations in the WBBK and Jastarnia areas in 2025.*

Opportunistic sightings

As mentioned above, most countries around the Baltic collect reports on opportunistic sightings in some way, but the level of the effort and whether results are presented online varies. There are maps available online in Sweden and Germany (fig 2.3 and 2.4), and all records are added to the HELCOM harbour porpoise database, although there is often a delay in reporting from countries.

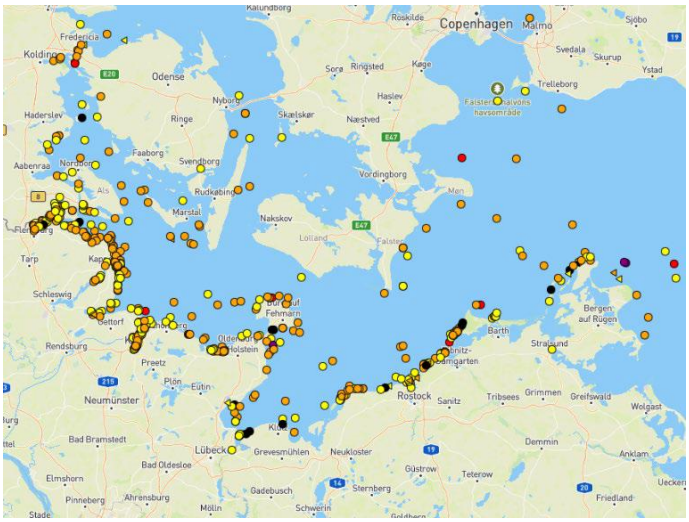

***Figure 2.3**. 543 opportunistic sightings of harbour porpoise and 22 dolphin sightings were reported in Germany during 2024 (Source: German Oceanographic Museum).*

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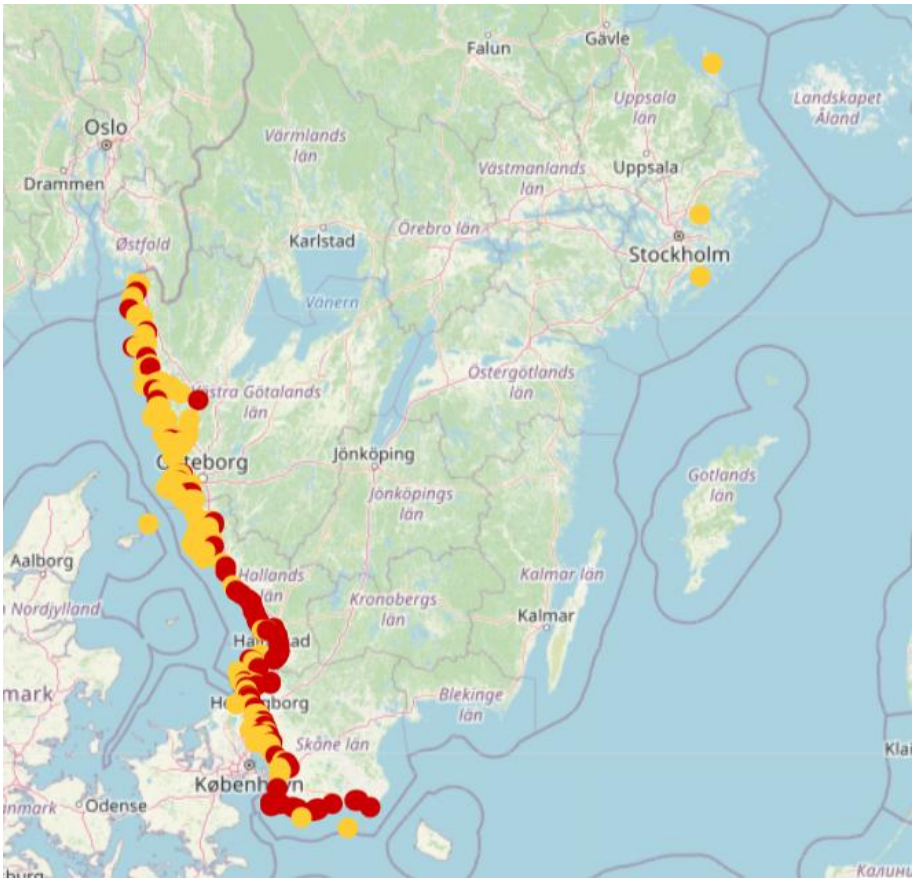

Figure 2.4. *Harbour porpoise sightings reported to the Swedish Museum of Natural History during 2025. Yellow dots are live sightings and red dots are animals found dead. From* https://marinadaggdjur.nrm.se/observationer-tumlare.

HELCOM

A qualitative assessment of the distribution and abundance of the Baltic Proper population was completed by the Swedish Museum of Natural History for the third HELCOM Holistic Assessment of the Baltic Sea Ecosystem (HOLAS III, HELCOM, 2022), including a review of historic records in Swedish newspapers from the late 1700's to the early 1900's. This study confirms that the Baltic Proper population was historically seen much more frequently, with a larger range extending all the way north into the Bothnian Bay.

SMNH, SwAM and TiHO co-led the production of indicator documents on abundance and distribution of harbour porpoises for HOLAS III, and the Baltic Proper population was assessed as being in bad status for both abundance and distribution. Additionally, in 2022-23 a report was produced by Poland, Germany and Sweden on action B8 of the revised Baltic Sea Action Plan,

Commented [IC8]: Would like to include the map from Magie's study here if possible?

https://www.authorea.com/users/998470/articles/1358904-historical-range-contraction-and-extent-of-harbour-porpoises-phocoena-phocoena-in-the-baltic-sea-revealed-by-archival-newspapers

listing threats and knowledge gaps but also clearly states that the current knowledge is enough to take immediate measures. The report has also been edited and published as a scientific paper (Koschinski et al. 2024).

Population Structure & Management Units

Evidence that support the existence of a separate Baltic Proper harbour porpoise population include genetic (Lah et al. 2016; Celemín et al. 2025), morphometrical (Galatius et al. 2012) and spatial (Carlén et al. 2018; Sveegaard et al. 2015) data. Work in recent years by the University of Potsdam has added further evidence, and a genetic tool, a so-called SNP panel, is now available to assign samples to the different populations in the Baltic Sea region (Celemín et al. 2025). Using this method some temporary migration of other populations into the proper Baltic has been identified

The ICES advice (ICES, 2020) proposes to use 13.0°E as the western management border for the Baltic Proper harbour porpoise during November – April, and the "SAMBAH border" (Carlén et al. 2018) during May – October (see figure 0.2). The basis for using 13.0°E is the seasonal porpoise distribution patterns at Rügen (Gallus et al., 2012), the morphological difference between the populations (Galatius et al. 2012), and the bathymetry of the southern Baltic, showing that the deep waters of the Arkona Basin north of Rügen reach approximately longitude 13°E).

Key Conclusions and Recommendations

The SAMBAH II survey was funded by countries and was finalised in August 2025. This is a very important step forward. Additionally, in the end of 2025, funding for analysing the data was granted by the German Federal Agency for Nature Conservation, and the CUMBIAH project will deliver results on distribution and abundance, as well as on habitat quality, life history parameters and abundance thresholds, and provide a basis for future management and population monitoring. Looking forward, it is crucial that the process for securing funding is taken on by the countries for SAMBAH III.

National monitoring should be undertaken in all Baltic Sea countries, and this monitoring should be designed in collaboration between countries, ensuring that stations are distributed in the most effective way and that data is comparable between countries.

3. Monitor, estimate and reduce bycatch

Bycatch of harbour porpoises occur primarily in static nets. While the target of zero bycatch in the Baltic Proper population range is still not being met, it should be noted that static net fishing effort is continuously decreasing (see e.g. figure 3.1), mainly as a result of declines in fish stocks and increasing conflicts with predators, mainly grey seals and cormorants.

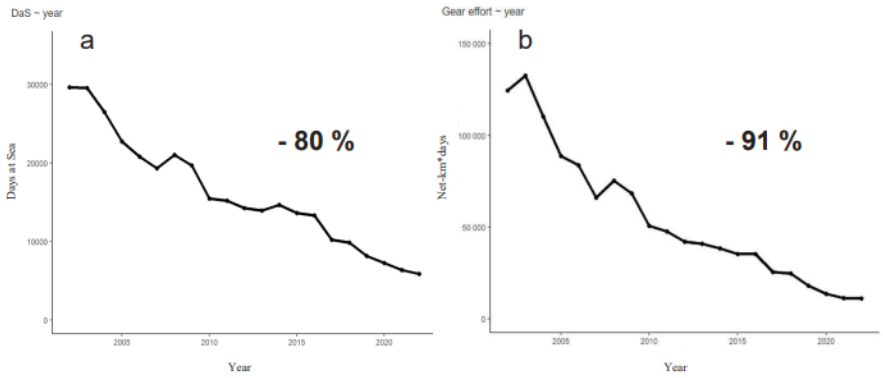

***Figure 3.1**. Gill net fishing effort in Swedish waters in days at sea (a) and net-km-days (b) from 2002-2022. Source: Swedish Agency for Marine and Water Management*

Bycatch mitigation

In 2020, at the request of the European Commission (EC), ICES published scientific advice on emergency measures to prevent bycatch of common dolphin (*Delphinus delphis*) and Baltic Proper harbour porpoise (*Phocoena phocoena*) in the Northeast Atlantic (ICES 2020). For the Baltic Proper harbour porpoise population, the advice lists a set of five bycatch mitigation measures that, if implemented as a whole, is expected to reduce the bycatch risk for the Baltic Proper harbour porpoise population. This eventually led to a joint recommendation from Baltfish (the Baltic Sea Fisheries Forum) to the EC and subsequently to a delegated act specifying bycatch mitigation in some MPAs designated for harbour porpoises and a couple of other areas that were considered important for the population (figure 3.1).

In 2024, again at the request of the EC, ICES published a technical service on alternative measures to prevent bycatch of the harbour porpoise in the Baltic Sea (ICES 2024a) and special request advice on support for the implementation of the Action Plan for harbour porpoise in the Baltic Sea (Baltic Proper) (ICES 2024b). The technical service listed available alternative measures for mitigating bycatch in the Baltic Proper, and explained why dynamic closures cannot be considered an effective bycatch mitigation measure to achieve the objective of ≤0.7 individuals per year. The special request advice identified the fishing métiers with the highest risk of harbour porpoise bycatch and calculated bycatch risk maps using data on harbour porpoise detection probability from SAMBAH (Carlén et al. 2018) and data on fishing effort in the bycatch risk assessment method (ByRA) (Verutes et al. 2020). Many of the areas of high bycatch risk pointed out in the advice are still lacking mitigation measures. Also, the advice

clearly states that a sustainable population could not be achieved without the implementation of the measures proposed by the 2020 advice (ICES 2020).

Since the delegated act in 2022, there has been little movement in Baltfish to elaborate further joint recommendations, despite the ICES advice from 2020 being very clear that measures only in MPAs would not be enough to sufficiently mitigate bycatch. Under the Polish presidency in 2023-24, discussions were initiated again, but lost momentum during the German presidency in 2024-25. The Swedish Baltfish presidency running 2025-26 has an explicit goal to finalise a joint recommendation on harbour porpoise bycatch mitigation in the Baltic Proper, as well as starting the drafting of a joint recommendation on bycatch mitigation in the Belt Sea population range.

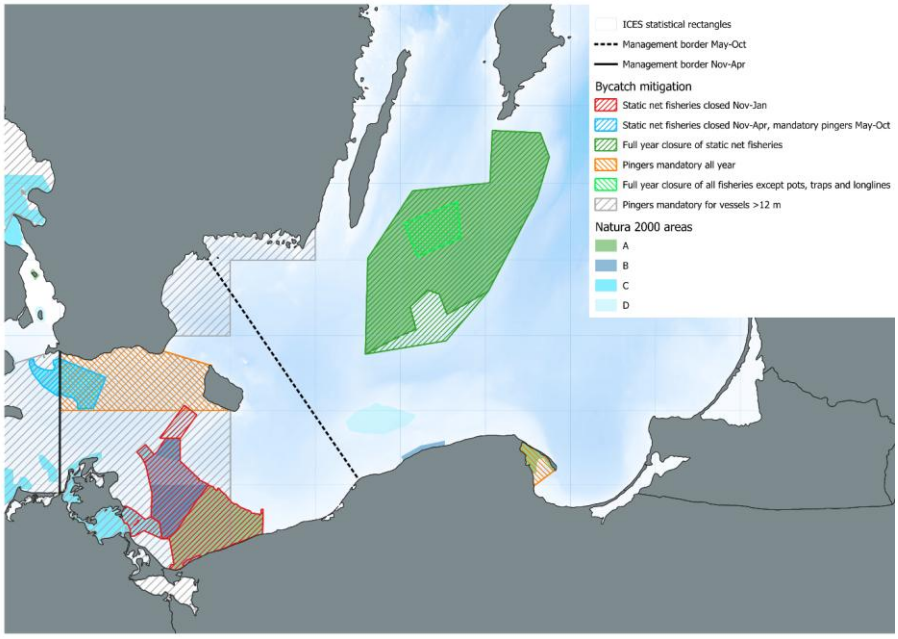

Figure 3.1. *Existing bycatch measures in the Jastarnia area. These include measures specified in the EU regulation 2019/1241, the delegated act EU 2022/303, as well as national measures. The black solid line between Sweden and Germany is the approximate western winter distribution limit for the Baltic Proper harbour porpoise, and the slanted dotted line between Hanö Bay in Sweden and the Polish coast marks the approximate western limit of the summer distribution.*

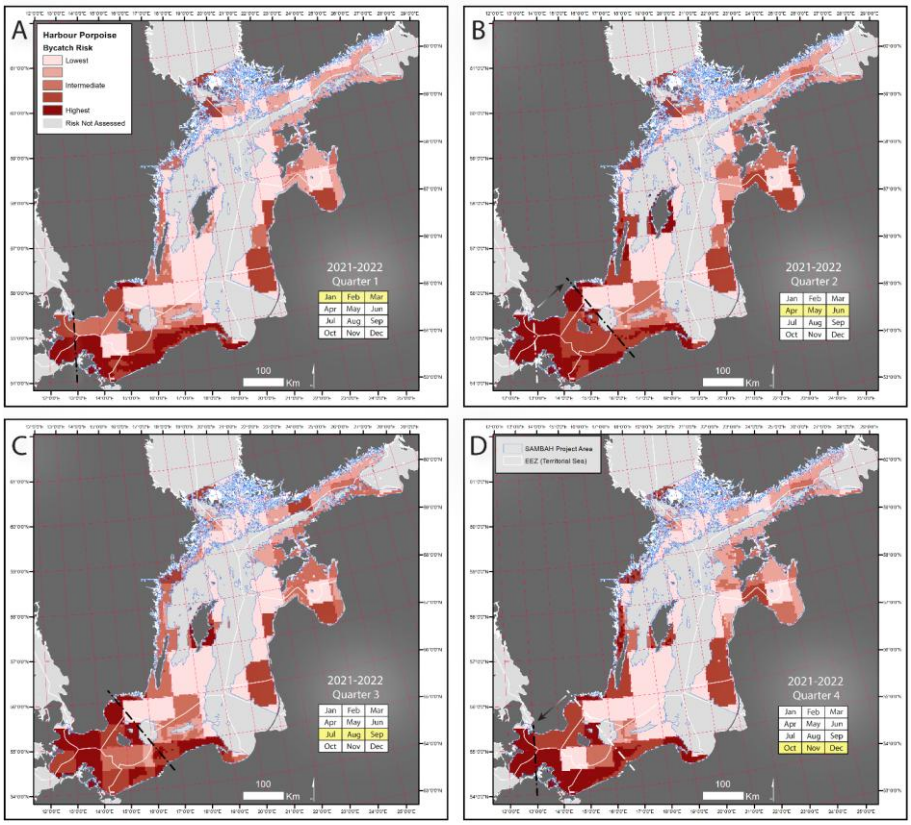

Figure 3.2. *Estimated relative bycatch risk for harbour porpoise in the Baltic Sea at the scale of 5 × 5 km grid cell in set gillnets (GNS) and trammel nets (GTR) for each quarter of pooled years 2021 and 2022. The relative bycatch risk is based on relative ranks and classified using quantiles (20/40/60/80%) of the distribution of values for all four quarters (A-D). Black dotted lines in the soutwestern Baltic reflect the approximate position of a management border for Baltic Proper harbour porpoise distribution in summer (panels B and C) and winter (panels A and D), as proposed by Carlén et al. (2018). White dotted lines together with arrows indicate seasonal shifts in this border in the middle of quarter 2 (panel B) and the beginning of quarter 4 (panel D). From ICES 2024b.*

In July 2020, an infringement procedure was opened by the EC against Sweden for not complying with Habitats Directive articles 6.2 for not taking sufficient measures to protect harbour porpoises within designated Natura2000 areas, and 12.4 for not having taken sufficient action to monitor harbour porpoise bycatch and ensure that bycatch does not have a negative impact on the species. The case was escalated to a reasoned opinion in February 2024, and the main remaining issue is the lack of bycatch mitigation in the entire range of the Baltic proper population. Since October 2024, pingers are obligatory in a large area in ICES area 24 (see figure 3.1) where the new bycatch monitoring program detected a higher number of bycatches.

Currently, the pinger obligation is only in place for Swedish fishermen, but the aim is to include it in a future delegated act.

In Germany, regulations for mobile bottom-contacting gears are in place in German Baltic N2K areas in the EEZ (EU 2024/2943) and proposed management measures for static net fisheries in the German Baltic EEZ are currently undergoing consultation.

Commented [IC9]: Any news on this?

Alternative fishing gear and other new bycatch mitigation methods

As part of the CIBBRiNA project, with several Jastarnia countries participating, pearl nets, designed to increase the reflective properties of the net, are being tested in a commercial fishery in Iceland, to evaluate the effect on bycatch. There are also ongoing commercial trials with two types of loud pingers (Future Ocean and Banana pingers), where the idea is that louder pingers would make it possible to use fewer devices per length of net.

In Sweden, there are practical tests on pinger battery capacity and functionality ongoing, evaluating pingers on the market and in use today, because there have been some signs that pingers stop working prematurely. There is also a review of seine fisheries ongoing, as well as implementation and developing projects of selective gears such as fyke nets, hoovering traps and pontoon traps, with the hope of these new gears replacing some of the effort with static nets.

In Poland, jigging machines are being tested under the CIBBRiNA project, and another project is developing seal safe fish traps for fishing in the Baltic Sea.

In Germany, the project STELLA 2 has been finalised but the final report is not yet published, and the PAL-CE project on the bycatch mitigation effectiveness of the PAL has been concluded.

Commented [IC10]: Any news? Maybe a link to the report? 😊

Commented [IC11]: Any report available?

Bycatch monitoring

In the Jastarnia area, not many countries have specific bycatch monitoring (see table 3.1). Video monitoring has been developed for quite long in both Denmark and Sweden, and has now been incorporated in the monitoring under the EU Data Collection Framework in both countries, however Denmark has no monitoring in the Jastarnia area.

The Swedish monitoring program is the most developed, with systematic stratification of effort based on porpoise density and population vulnerability. In 2024, the coverage exceeded 30% of the fishing effort in parts of the Jastarnia area. 23 harbour porpoises were observed bycaught in 2024, all of them in the Belt Sea population range, and the total bycatch has been estimated to 112 animals in this area, however, these are preliminary results.

Commented [IC12]: Is there any data for 2025 available, or finalised results from 2024?

In Poland, bycatch monitoring was carried out from 29 January – 30 November 2024. In total 50 days of gillnetting effort was monitored in coastal Polish waters.

***Table 3.1**. Overview of bycatch monitoring implemented in the Jastarnia area (i.e. east of 13.0°E, for relevant countries.*

Country	Description
Denmark	CCTV-monitoring is now part of the Danish DCF monitoring, 8-10 vessels monitored year-round in the WBBK area. No bycatch monitoring in the Jastarnia area.
Estonia	No bycatch monitoring in place.

Finland	No bycatch monitoring in place.
Germany	Bycatch monitoring included in DCF monitoring but no specific monitoring methods aimed at detecting bycatch
Poland	Bycatch monitoring included in DCF monitoring but no specific monitoring methods aimed at detecting bycatch
Latvia	No bycatch monitoring in place.
Lithuania	No bycatch monitoring in place.
Sweden	Bycatch monitoring using mobile electronic monitoring (MEM) and observers are included in the Swedish DCF programme since July 2022.

An important part of bycatch monitoring is the reporting done by fishermen themselves. However, reporting of bycatch is not legally required in all countries (see table 3.2), and where it is required, we know that compliance may be poor. It is important that reporting is mandatory and enforced, but also that fishermen know that they will not be punished if they report bycatch. Closer cooperation with fishermen is likely to be the most effective way to increase reporting.

Table 3.2. *Legal obligation for fishermen to report bycaught harbour porpoises in EU legislation and in national legislation of the different countries of the Baltic Sea Region.*

Country	**Legal obligation for fishermen to report bycatch**	**Legislation**
European Union	No (EU legislation directed at Member States, not at individual fishermen)	Commission Delegated Decision (EU) 2019/910, which implements part of the EU Data Collection Framework Regulation (EU) 2017/1004. Section 3(a): "For all types of fisheries, incidental by-catch of all birds, mammals and reptiles and fish protected under Union legislation and international agreements, including the species listed in Table 1D, including absence in the catch, during scientific observer trips on fishing ships or by the fishers themselves through logbooks."
Denmark	No	
Estonia	Yes	Fishing act § 61
Finland	Yes	Fisheries legislation § 62
Germany Schleswig-Holstein	Yes, within <12 nm	KüFischV §9(3)
Germany Mecklenburg-Vorpommern	No	
Poland	Yes	National regulation from the Ministry of Marine Economy and Inland Navigation § 20
Latvia	Yes	Cabinet Regulation No. 296, Regulations Regarding Commercial Fishing in Territorial Waters and Economic Zone Waters §8.10
Lithuania	Yes	
Russia	No	

Sweden	Yes	Havs- och vattenmyndighetens föreskrifter (HVMFS 2018:11), annex 2

Within HELCOM a core indicator has been developed for bycatch of marine mammals and sea birds. For the Baltic Proper harbour porpoise population, the threshold for GES has been set to zero bycatch, and with an estimated bycatch of 7 animals in 2017, the status does not reach Good Environmental Status in HELCOM HOLAS 3 which evaluates the period 2016-2021.

Key conclusions and recommendations

The work in Baltfish to develop further joint recommendations on bycatch measures has been moving very slowly since the delegated act was published in 2022. Mitigation needs to be put in place immediately in the entire range of the Baltic Proper harbour porpoise population. We urge the Swedish Baltfish presidency to put focus on the issue and to ensure that a joint recommendation containing effective bycatch mitigation measures is produced before the end of the presidency period in June 2026.

When it comes to bycatch monitoring, especially Germany and Poland should make sure to put in place targeted bycatch monitoring, and Germany and Denmark should make sure self-reporting from fishermen of bycatch is obligatory in all waters. Additionally, improvements are needed in the extent and methods of monitoring fishing effort. There are detailed provisions as to how monitoring can be improved, in ASCOBANS Resolution 8.5 Monitoring and Mitigation of Small Cetacean Bycatch, the ICES advice on fisheries Emergency Measures to minimize Bycatch of short-beaked common dolphins in the Bay of Biscay and harbour porpoise in the Baltic Sea and in the HELCOM Roadmap on fisheries data in order to assess incidental bycatch and fisheries impact on benthic biotopes in the Baltic Sea. All parties should strive to implement these monitoring measures without delay, and ensure monitoring effort is enough to estimate bycatch rates.

4. Monitor and mitigate impact of underwater noise

Commented [IC13]: Make a new sub-heading for shipping

MSFD indicators and the work in HELCOM

In the context of impacts upon marine mammals, underwater noise can be divided into continuous sounds largely derived from shipping, and impulsive sounds derived from sources such as seismic survey airguns, pile driving, detonations and active sonar. For this reason, under the EU Marine Strategy Framework Directive, two indicators were developed for Descriptor 11 on the introduction of energy/noise:

11.1. Distribution in time and place of loud, low and mid frequency impulsive sounds
11.2. Continuous low frequency sound

In November 2022, continuous underwater noise threshold levels were agreed upon at EU level. In short, to reach good environmental status (GES), excess levels of continuous underwater noise cannot impact more than 20% of a given marine area over the course of a year. Similarly, no more than 20% of a given marine area can be exposed to excessive levels of impulsive noise over a given day, and no more than 10% over a year. Excess levels are defined as noise levels above "Level of Onset of Biologically adverse Effects", LOBE. Now, the next step is to define LOBE for relevant indicator species and habitats in relation to the three frequency bands that have been agreed on for underwater noise monitoring, namely 63 Hz, 125 Hz and 2 kHz. It is important to note, however, that since porpoises are high frequency echolocators with a hearing range most sensitive above 15 kHz (maximum sensitivity c. 125 kHz) (Kastelein et al. 2015, 2002), the MSFD frequencies are unsuitable for assessing impact of continuous noise on this species (Dyndo et al. 2015; Hermannsen et al. 2014; Wisniewska et al. 2018).

The discussion on LOBE levels and relevant indicator species are currently mainly taking place in HELCOM. Within the EU framework, there are options to set lower threshold values based on regional specificities. For continuous noise, such regional specificities could be indicator species or populations considered particularly vulnerable and/or endangered, such as the Baltic Proper harbour porpoise, uncertainty in the noise model, for example related to effects of strong sound speed gradients, which are common in the Baltic Sea, or influence from sources such as recreational boats not included in the current models. Such regional specificities are to be considered for the Baltic in the work towards HELCOM HOLAS 4.

The pre-core indicator on continuous noise is still to be developed in a range of aspects. While spatial and temporal threshold values have just been adopted at EU level, formal discussions and agreements still remain about their implementation, including the possibility of adopting stricter thresholds and decisions left to be made at the regional level. The indicator will therefore be further discussed and developed towards HOLAS 4.

New soundscape maps were made in the HELCOM BLUES project for the biologically significant dedicades 125 Hz (fish) and 500 Hz (mammals), based on the methodology from BIAS (see below). These maps are available through the ICES portal by looking for data for the year 2018 (https://www.ices.dk/data/data-portals/Pages/Continuous-Noise.aspx). The 500 Hz dedicade is too low to fully represent harbour porpoise hearing, but was used as a compromise between

seal and harbour porpoise and also because modelling higher frequencies become less meaningful given their relatively short dispersion distance.

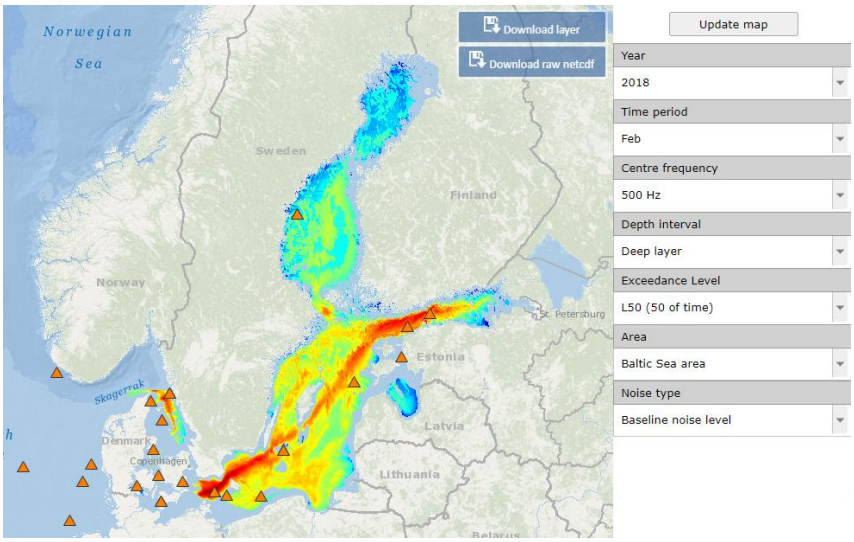

Figure 4.1. *Underwater noise map from the HELCOM BLUES project, calculated using the BIAS methodology with AIS data from the year 2018 and noise data from the remaining BIAS stations (marked with orange triangles). Source: https://underwaternoise.ices.dk/continuous/viewonmap.*

For impulsive noise, the indicator 'distribution in time and space of loud low- and mid-frequency impulsive sounds' was evaluated for HOLAS III. The distribution of sound was partially compared to the distribution of harbour porpoises in the Baltic Sea to get a first idea of overlap of sound and the occurrence of harbour porpoises. At the time of the assessment of this indicator the quantitative threshold values had not been agreed upon, so it was agreed to use an interim assessment threshold value of a daily fraction of exposed area of 10% of the Baltic Sea, which was in agreement with the threshold concept under discussion at EU level. The indicator reached GES but it was unclear whether the data used was complete or if data gaps and insufficient reporting to the database by countries may have influenced the assessment.

The general aim of the indicator is to assess the availability of habitat; there should be enough habitat for harbour porpoises to avoid regions impacted by low- and mid-frequency impulsive sounds.

For Indicator 11.1, ICES have set up a registry in support of HELCOM and OSPAR. This registry provides an overview of the spatial and temporal distribution of impulsive noise events over the frequency band of 10 Hz to 10 kHz causing a "considerable" displacement (http://ices.dk/data/data-portals/Pages/underwater-noise.aspx). "Considerable" displacement is defined as displacement of a significant proportion of individuals for a relevant time period and at a relevant spatial scale. Data are now being entered, but for the registry to work as intended, countries need to get more proactive in reporting.

Shipping

In Denmark, important work is being done on the effects of shipping on harbour porpoises. Recently, the SATURN project (https://www.saturnh2020.eu/oceansound, 2021-2025) used DTAGs to study impacts of disturbances on marine populations and the importance of animal movements and energetics. Results reveal that vessel noise exposures causes behavioural reactions and reduce feeding rates, thereby leading to energy deficits that compromise individual fitness and population viability (Frankish et al. 2023, Rojano Doñate et al. in press).

Commented [IC14]: Laia's paper is not published yet, I gather, do we know when it will be?

Offshore wind

Offshore energy production, and especially offshore windfarms, has been increasing a lot in the last few years, and the EU has been clear with the priority to accelerate deployment of renewable energy, including offshore wind, for example through the directive on renewable energy (EU 2023/2413). Acoustic investigations of bottom structures before construction, the construction phase as well as windfarms in operation, including service traffic to and within the windfarms, can all have negative impacts on harbour porpoises, both at the individual level and at the population level. Given the status of the Baltic Proper harbour porpoise population, offshore energy production could have significant impacts on population survival.

In Sweden, the government announced in November 2024 that all current applications for permits to build offshore windfarms in the Baltic Proper were denied due to national security concerns. It is unlikely that any more applications for permits will be submitted, since the government has been quite clear that there will at the present time not be any OWFs in Swedish Baltic Proper waters, and submitting applications under those circumstances would constitute a big financial risk for the companies. The government has also announced that Sweden will move from the current "open door procedure", where companies can apply to build OWF anywhere in Swedish waters, to the more common auction system, where the government will appoint certain areas that will then be auctioned off to offshore wind companies.

In Poland, there are plans to Build several windfarms in the shallow areas north and east of Słupsk bank, and on the slopes of the Polish part of the Southern Midsea bank (figure 4.2). It seems like one in the southern cluster is under construction, while the others are in different stages of authorisation or pre-construction. A permit was recently issued for the windpark Baltica 1 on the slopes of the Southern Midsea bank. The amount of windfarms planned especially on the Southern Midsea bank but also in the ecologically important area of Słupsk bank and Słupsk furrow, is clearly worrying in relation the the Baltic Proper harbour porpoise.

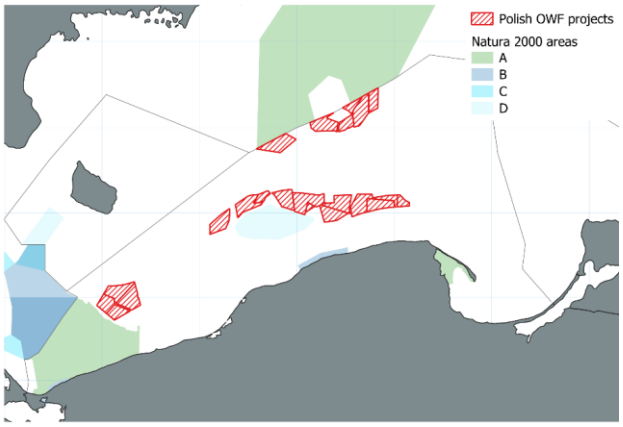

***Figure 4.2**. Offshore wind projects in Polish waters.*

In Denmark, the plans for offshore wind southwest of Bornholm in the Baltic Proper (figure 6.3) is moving forward in coorperation with Germany. These offshore windfarms would be situated directly to the northwest and southeast of the Natura 2000 area Adler Grund og Rønne Banke (DK00VA261) where the harbour porpoise is not listed (but which is included in the 2022 delegated act on bycatch mitigation measures).

In relation to offshore windfarms, baseline monitoring of underwater noise in relation to offshore wind farm projects, including estimation of effect of geophysical surveys on baseline data, is taking place at the Danish Energy Island North Sea/North Sea lot1. The ENS screening project is undertaking soundscape mapping of Danish waters, with focus on contribution from windfarms.

The Energy Agency in Denmark recently published guidelines for monitoring windfarms before, during and after construction and are planning to enforce this practice.

In Finland, there are quite a few offshore windfarms in the early planning stages, mostly in the Gulf of Bothnia, but notably also south of Åland, in the same area as most of the harbour porpoise detections in Finnish waters, and also in the same area as the planned protected area Bogskär. It remains to be seen if these plans go ahead or not.

Commented [IC15]: Any news here?

In Germany, six offshore windfarms are already in operation in the Baltic, whereof five are east of 13°E. Two farms in the very eastern part of the German EEZ has had their permits denied, probably because they are situated within Natura 2000 areas, and 4-6 farms are approved or under construction (figure 4.3).

Commented [IC16]: Any news/updates?

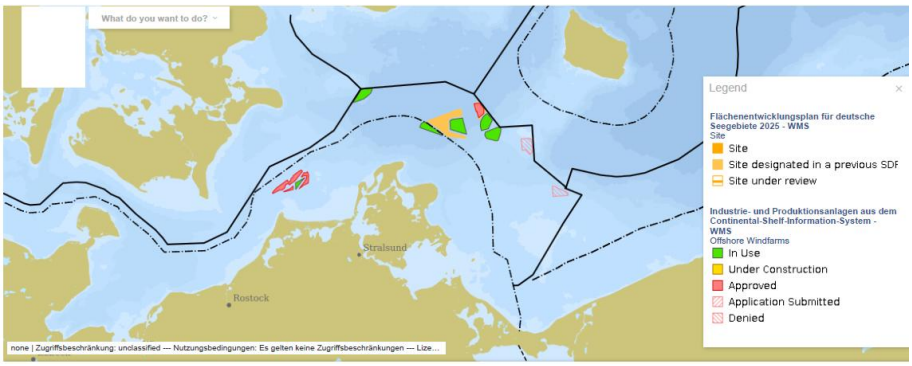

Figure 4.3. *Offshore windfarms in German waters.*

In Lithuania, an environmental impact assessment including harbour porpoise monitoring, has been carried out for an offshore windfarm in the northern part of the EEZ. There are a few plans in Latvia, mainly in the Baltic Proper, and many in Estonia, however, nothing seems to be further progressed.

Underwater explosions

In some areas of the Baltic Sea, there are old unexploded ordinance from WWII which were left or dumped after the war. These mines or other types of explosives, when found, often have to be removed, and the safest way for humans to do that is usually through controlled explosions. Such operations are carried out by the respective national military forces or within joint exercises, for example under the NATO umbrella. Unfortunately, the military organisations operating in the Baltic Sea Region are often are not aware of the hazard that explosions pose to marine life generally and harbour porpoises specifically, nor do they use the available mitigation methods such as bubble curtains to minimize any damage.

In Germany, a project called NAVESS (Environmentally compatible blastings at sea) ran in 2023-2024 as a collaboration between BfN and the Military, using scientific data to assess impact of unavoidable blast noise from a nature conservation perspective. The project evaluated the mitigation effect of different bubble curtain configurations and the efficiency of deterrence and mitigation measures (figure 4.4). The final report as well as guidance on nature friendly removal of UXOs are being prepared.

Commented [IC17]: Is this report ready yet?

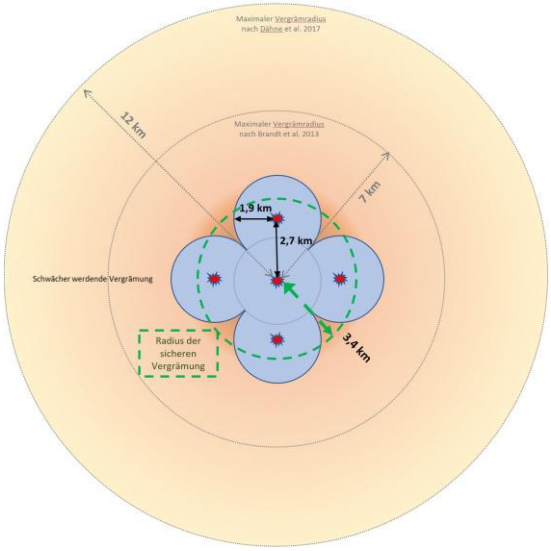

Figure 4.4. *The staged deterrence concept developed in NAVESS. 1.9 km „safe deterrence range“ (Brandt et al. 2013). Timeline: 1) Pingers, 2) Seal Scarer middle, 3) Seal Scarer outside + seal scarer middle moves to 2.7 km distance → ~3.4 km safety zone*

In Sweden, a military exercise to detonate a mine in Hanö Bight was cancelled in June 2020, after the military had submitted the exercise to consultation by the County Administrative Board, who in turn asked for comments from the Swedish Agency for Marine and Water Management, the Swedish Museum of Natural History and the Swedish Defence Research Agency, and all three instances expressed serious concerns. It is unclear how these situations will be dealt with in the future. For clearing of UXOs that cannot be avoided, mitigation measures equivalent to big double bubble curtain or hydro sound damper are required, at least within MPAs.

In Poland, most detonations are carried out without mitigation.

There has been some discussion about the possibility to use bubble curtains as mitigation for explosions of larger charges of 1000 kg TNT equivalents or more. Opinions differ, and there is lack of clarity on the presence of methodology or experience on the positive use of bubble curtains in such large explosions. However, from the company Hydrotechnik Lübeck there seems to be a willingness to provide mitigation also for large charges.

Underwater explosions are also sometimes used when widening or deepening shipping routes to increase maritime safety. Explosive charges are put into drilled holes and blasted to remove layers of bedrock. Some of the noise will travel through the ground rather than in the water column, but mitigation measures such as stemming (filling the top portion of the blast hole with inert material such as sand, gravel or clay) or bubble curtains can still significantly decrease the impact radius. However, in many Baltic Sea countries, these mitigation practices are not regularly used.

Carbon Capture and Storage

With climate change rapidly progressing and effects becoming more and more evident, countries are looking for ways to decrease the release of CO2. One method that has arisen on the agenda is carbon capture and storage (CCS), where CO2 is captured into liquid form and pumped down under ground, either into emptied oil and/or gas deposits, or into porous sediments. Because this is associated with some risk, the public opinion is that this type of storage should be found in the sea floor. The problem with CCS is firstly that CO2 may leak back into the atmosphere, but secondly, and in relation to harbour porpoise conservation perhaps more relevant, that acoustic surveys of the sediment layers in the sea floor is necessary both before potential CCS is carried out, but also with regular intervals (every 1-2 years) after CO2 has been pumped into the storage, to ensure that the storage is intact. The surveys are carried out using powerful acoustic methods such as airguns, which can deter harbour porpoises up to 12 km (Sarnocińska et al. 2020) and cause hearing damage at closer ranges.

In HELCOM, there has been discussions in which some contracting parties argue that CCS is not permissible under the HELCOM agreement, while some countries are of the opinion that it should be possible. Work is ongoing within HELCOM to produce both a kind of impact assessment and a legal investigation on CCS in the Baltic Sea.

In Sweden, the government has tasked the Swedish Geological Survey with investigating the suitability of the sedimentary bedrock for carbon dioxide storage in two areas: southern Skåne including the sea area south of Skåne (southwestern Baltic Sea), and Gotland and the southeastern Baltic Sea. The latter area overlaps to a quite large extent with the Natura 2000 area Hoburgs bank och Midsjöbankarna, which means that seismic surveys would be carried out in the most important area for the Baltic Proper population. 2000 km of seismic surveys were proposed within the Natura 2000 area, and 4000 km outside of the Natura 2000. In autumn 2025, the County Administrative Board of Gotland issued a permit for the surveys that excludes the Natura 2000 area, but the Swedish Geological Survey promptly lodged an appeal with the Land and Environment Court. The case is currently being evaluated by the court.

Mitigation

In Sweden, Noise mitigation regulations are in place for some protected areas, see examples in ICES WGMME 2024 report Table 2-7 (ICES 2024c).

In Germany, guidelines for the legal and technical nature conservation requirements for the clearance of explosive ordnance in the German North Sea and Baltic Sea are being developed. Such guidelines are likely to include mitigation measures that are considered for each planned detonation, and includes separation of the fuse box from the main charge in certain types of air mines, translocation of UXO and detonation in shallow waters or on a sandbank (in air), use of pingers/seal scarers and/or bubble curtains, all depending on the situation. In Lower Saxony, which includes the Wadden Sea, there are already binding guidelines for the handling of UXOs. If possible, UXOs are defused. If this is not possible, they are towed to tidal areas, where ignition above water level is possible during low tide. If that in turn is not possible, ignition is carried out on site using double bubble curtain and seal scarer.

For offshore windfarm construction, the sound protection concept developed for windfarm construction in the North Sea is still applied also in the Baltic Sea.

In Denmark, the Energy Agency guidelines for pile driving includes limits for exposures to noise and methods for assessment of projects. Use of noise abatement systems is de facto mandatory for pile driving. The Energy Agency also has put in place guidelines for seismic surveys with air guns, including requirements for soft starts. There are also guidelines for use of deterring sounds prior to underwater explosions. A method for assessing impact on porpoises from anthropogenic activities has been developed and is available within a report by Sveegaard et al (Sveegaard et al. 2024).

Ongoing projects

Commented [IC18]: Feel free to add things here!

In Finland, in the project LIFE IP Biodiversea, running from 2021-2029, will produce noise maps for the Finnish Archipelago Sea and identify quiet areas which may be suitable for protection. The project will also propose mitigation measures for anthropogenic pressures, including underwater noise.

In Germany, the project UWE-2, studying underwater noise effects on harbour porpoises using DTAGs, finished in 2024. The final report is being prepared, but one paper is already published (Elmegaard et al. 2023).

Commented [IC19]: Is the report ready?

In Sweden, there is ongoing joint monitoring of porpoises and underwater noise in three stations, one in southern Skagerrak, one on the Northern Midsea Bank in the Baltic Proper and one in the Bothnian Sea. This is a collaboration between the Swedish Museum of Natural History (NRM), SwAM and the Swedish Defence Research Agency (FOI). A paper was published in 2024 (Owen et al. 2024) on porpoise presence, buzz ratio, ship numbers and noise levels before and after rerouting a shipping lane in Kattegat (NRM and FOI in collaboration), and a report was published on noise impact assessments, threshold values, and information on control programme for underwater noise from pile driving (FOI). Lastly, an MSc thesis was presented on impacts by recreational vessels on porpoise swim speed and surfacing rate observed by unmanned aerial vehicles (UAVs) (Till, 2025; LU)

In Denmark, the national underwater noise monitoring stations are continued. Another project, A sound marin environment, started in 2024 and monitors the noise from ships and recreational vessels in Aarhus Bay, and the effects on porpoises.

Key conclusions and recommendations

Almost all Baltic Sea countries have contributed some data to the MSFD noise registry maintained by ICES. However, for the registry to be useful in preventing exceeding thresholds, reporting needs to be done with regular and quite short time intervals.

It is highly recommended that all countries that do not have national guidance documents on EIA procedures to assess noise impact on e.g. harbour porpoises, noise limits/thresholds and control programmes, should develop and implement such documents and programmes. This is particularly important given the increased interest in offshore wind energy development, but also other noise sources, which risks impacting the Baltic Proper harbour porpoise population.

EIA investigations for offshore wind should assess porpoise spatiotemporal presence in and around the area for a potential wind farm. At present, the only reliable method is considered to be passive acoustic monitoring. Additionally, investigating the effects on harbour porpoises of the sometimes substantial service traffic in offshore windfarms should be included in studies on impacts of offshore wind development. Cumulative effects must be properly evaluated in all EIAs, not only relating other offshore wind projects, but including all threats to the population.

Lastly, the military forces of all Baltic Sea countries, as well as NATO, should be aware of the issues with underwater explosions and employ proper mitigation measures in the cases where such explosions cannot be avoided. ASCOBANS together with experts could provide guidance on this matter, and a continuation of the dialogue started at the Joint ACCOBAMS-ASCOBANS Workshop with Navies on Underwater Noise and Cetaceans in Toulon in November 2024 should be arranged.

5. Monitor and assess population status

Red list status and reporting under the Habitats Directive

Since 2008, IUCN has classified the Baltic subpopulation of the harbour porpoise as Critically Endangered based on criteria C2a(ii), also in the new assessment that was published in 2023 (Carlström et al. 2023). The new HELCOM Red List II (HELCOM 2025) also lists the Baltic Proper harbour porpoise as Critically Endangered.

Table 5.1 gives an overview of the conservation status of the harbour porpoise according to national red data books or red lists. Note that Germany does not give a separate classification for the Baltic harbour porpoise population, but one general classification for all populations in their national waters. We encourage separate listing of the Baltic Proper population for those countries where two or more populations occur, in line with the IUCN listing, and expect the classification to be changed to "Critically Endangered" if that is not already the case.

Table 5.1. *National Red Data list status of the Baltic Proper harbour porpoise.*

Country	Red list status	Reference
Denmark	Critically Endangered (CR)	Wind & Pihl (2004)
Estonia	Data Deficient (DD)	Anonymous (2008)
Finland	Not assessed	Liukko et al. (2019)
Germany*	Endangered (EN)	Haupt et al. (2009)
Latvia	Probably extinct (0)	Andrušaitis (2000)
Lithuania	Not listed	Rašomavičius (2007)
Poland	Vulnerable (VU)	Glowacinski et al. (2022)
Russian Federation	Uncertain Status (4)	Iliashenko & Iliashenko (2000)
Sweden	Critically Endangered (CR)	SLU Artdatabanken (2020)
HELCOM	Critically Endangered (CR)	HELCOM (2013)
IUCN	Critically Endangered (CR)	Carlström et al. (2023)

In the Habitats Directive Article 17 reporting for 2019-2024, Denmark, Germany, Poland and Sweden reports the status for harbour porpoises in the Baltic marine region as "Unfavourable-Bad", the worst status assessment. Estonia, Finland, Lithuania, Latvia have not reported at all or reported N/A on the harbour porpoise.

Health monitoring

An important tool for assessing population health and conservation status is to examine stranded and bycaught harbour porpoises, through necropsies and tissue sampling.

In the Jastarnia area, only Germany has a dedicated stranding scheme, which operates in both Schleswig-Holstein and Mecklenburg-Vorpommern. The scheme is administered in the former region by the Terrestrial and Aquatic Research Institute (ITAW) in Büsum, and in the latter region by the German Oceanographic Museum in Stralsund.

Since German waters span the transition zone, it is difficult to know how many animals stranded in Germany that come from the Baltic Proper population. In 2024, approximately 30 animals were reported stranded in Mecklenburg-Vorpommern. Necropsies are undertaken on fresh specimens to determine cause of death and collect life history information.

Commented [IC20]: Is there new data for 2025?

Investigation of health, nutritional status and diet of harbour porpoises is ongoing in the framework of the stranding network, and assessment of bycatch and health on harbor porpoises from 2023 to 2026 is carried out by ITAW. The HaMoNa project is conducting digestion experiments to analyse the role of harbour porpoises in the ecosystem and especially in food webs, and the CREATE 2 project is developing concepts for reducing the impact of anthropogenic pressures and uses on marine ecosystems and biodiversity, as well as indicators for the health of marine mammals and their further development for the assessment of anthropogenic impacts.

In Denmark, the reporting of strandings to the Maritime Museum in Esbjerg (https://fimus.dk) is promoted, although there is no comprehensive coordinated stranding scheme. Carcasses that are in good enough condition to be autopsied and/or used for a blubber thickness indicator study for the HELCOM indicator for nutritional state are collected by Aarhus University. There is funding for 25 necropsies per year. In 2022, 245 dead porpoises were reported stranded, whereof 65 from the North Sea population range, 179 from the Belt Sea population range, and 1 from Bornholm in the Baltic Proper population range. 5 animals were also reported as known bycatch. 30 animals were necropsied, and 53% of the animals necropsied were assessed or known bycatch. One of the necropsied animals were from the Baltic Proper (Fiskeri- og Søfartsmuseet 2022).

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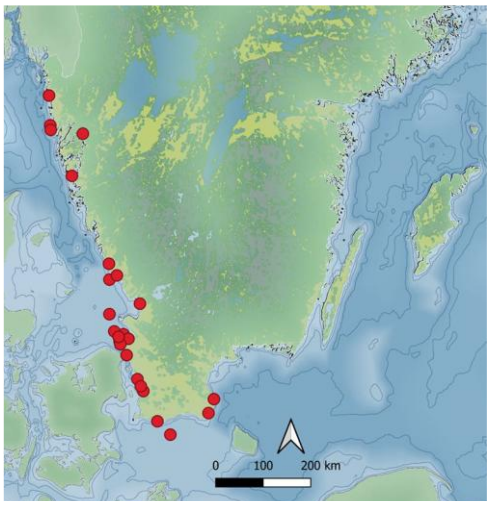

Figure 5.1. *Locations of harbour porpoises collected for necropsy in Sweden in 2024.*

In Sweden, records of strandings are collected opportunistically by the Swedish Museum of Natural History (SMNH) in collaboration with the Swedish National Veterinary Institute and the Gothenburg Museum of Natural History, and carcasses are collected for necropsy. From the

Baltic Sea coast, if a carcass is too decomposed to carry out a necropsy on, the carcass (or parts of it) is still collected and sampled. Which samples are taken depends on how decomposed the carcass is, and which parts of it remain. Sometimes some soft tissue samples can still be taken, or at least some bones and/or teeth. Some form of genetic samples are also always taken. From the Swedish west coast carcasses are collected if they are fresh enough for necropsy. Necropsies are carried out in collaboration between SMNH and the Swedish National Veterinary Institute (SVA). In 2020, a new health and disease monitoring programme was designed including seals, porpoises and the occasional strandings of other species of cetaceans. The aim for this programme is to continue to undertake necropsies at the level of 30 animals/year, approximately 15 bycaught and 15 stranded animals, in total.

In 2024, 118 harbour porpoises were found stranded and 9 were submitted by fishermen as bycatch. All of the animals submitted by fishermen were necropsied, as well as 17 of the stranded animals (figure 5.1). 6 of the 17 stranded animals were diagnosed as bycatch. Of the 26 animals necropsied, 2 male calves were stranded east of 13.5°E. Both were diagnosed as bycatch or probably bycatch.

Commented [IC22]: I assume there is new data here?

Bycaught animals (submitted by fishermen and found stranded) continue to show significant health findings such as skin lesions and pneumonia. This is relevant since skin infections can reflect overall health status. Further characterization (pathology, whole genome sequencing) of skin lesions is on-going. Birthing complications also continue to be documented, with 5 cases in 2020-2023 and 1 case in 2024. A paper on diet analysed using macroscopic stomach contents and DNA metabarcoding was recently published (Stedt et al. 2025).

Since a few years, Swedish samples from stranded and bycaught porpoises go through the SNP panel to determine which population the individuals may come from, and since 2023, these analyses can be carried out at the genetics lab at NRM. Results show a mixture between three different population affiliations, and it is rare for any individual to belong 100% to a certain population. None of the harbour porpoises from 2023–2024 showed 100% population affiliation with the critically endangered Baltic Sea harbour porpoise (figure 5.2).

Although Poland does not have a dedicated national stranding scheme, a network of volunteers called Blue Patrol started in 2010 and is maintained by WWF Poland and Hel Marine Station UG. One of their tasks is to cooperate with HMS UG in a stranding project and help collect samples or carcasses for postmortem analysis. Since 2017 an increase in the number of stranded animals found on the beaches of Poland can be seen, but it is unclear what the reasons behind this may be, and which population the stranded animals belong to. It seems likely that animals stranded in the west of Poland may come from the Belt Sea population and the majority of strandings were observed in the same season under stormy conditions. In 2021, 16 animals were found stranded.

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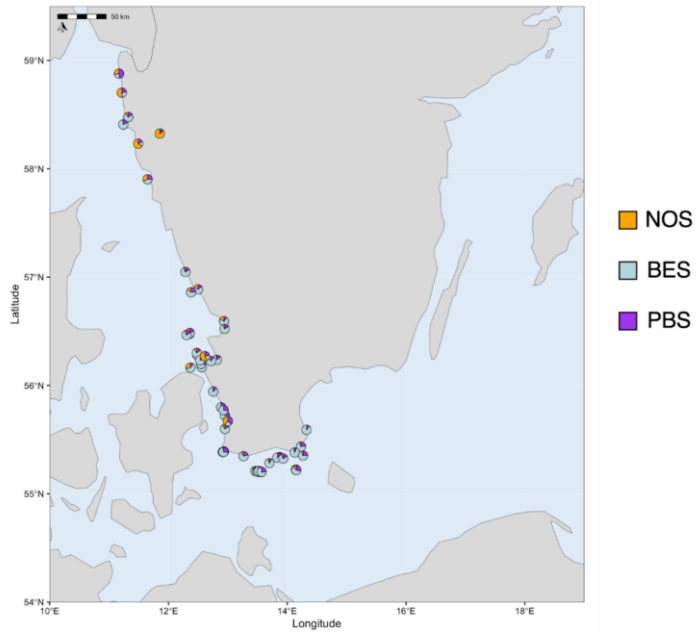

Figure 5.2. *Genetic assignment of 64 bycaught and stranded individuals to the three main genetic clusters present in the Baltic Sea Region, the North Sea (NOS), the Belt Sea (BES) and the Baltic Proper (PBS). The circle diagrams represent the place where each bycaught or stranded individual was found, and the colours represent the probability of the individual to belong to each of the three clusters. From (SVA 2025).*

The Baltic countries east of Poland have no formal stranding schemes. In Finland, there have been no strandings or bycaught animals since 1999, except for one animal bycaught and released alive in December 2018, and before that only six specimens in the 1960-1980's. In Lithuania, as noted earlier, there have been only thirteen documented cases of porpoise stranding or by-catch between 1903-2017; and none confirmed in recent years.

Key conclusions and recommendations

Monitoring and assessing population status is challenging for a population that is so rare over large parts of the Baltic Proper. It is important that all lines of evidence are utilised, including acoustics, opportunistic sightings, and strandings along with life history information derived from dead animals. To achieve this, stranding schemes should be combined with public awareness campaigns. It should be noted that guidelines for genetic sampling will be available soon and that those should be used to sample any individuals that are found dead in the Jastarnia area, regardless of stage of decomposition.

In this context, the perceived status of Baltic porpoises in national Red Data lists for most countries could usefully be updated. This applies particularly to Poland which lists a status for the porpoise that is clearly misleading (least concern). For those countries where several

populations may be present, the Baltic Proper population should be listed separately in line with the IUCN red list. Additionally, in the article 17 reporting under the EU habitats directive, the harbour porpoise should reasonably be reported as Unfavourable-bad by all countries, given that it is clear that it has been quite common in the entire Baltic Sea, including the Gulf of Finland (see under 2. Monitor and estimate abundance and distribution above).

6. Investigate habitat use and protect important areas

The SAMBAH Project has provided the best available map to date of the basin-scale seasonal distribution of harbour porpoise population in the Baltic Proper (Carlén et al. 2018). However, as noted earlier, there are some areas (e.g. waters deeper than 80 m and near-shore areas) that were not well sampled by the acoustic stations deployed. Also, the SAMBAH project survey was carried out in 2011-2013, which means the data is now over 10 years old. The follow-up, SAMBAH II and CUMBIAH, aims to fill in some of those gaps. The passive acoustic survey was carried out from July 2024 until August 2025, and data analysis of abundance and distribution, which is likely to take another 3 years, will be carried out in the CUMBIAH project. The results will be of great importance to evaluate implemented conservation measures as well as to evaluate potential further areas for protection. Among other things, analyses of porpoise distribution in relation to prey distribution is planned within CUMBIAH.

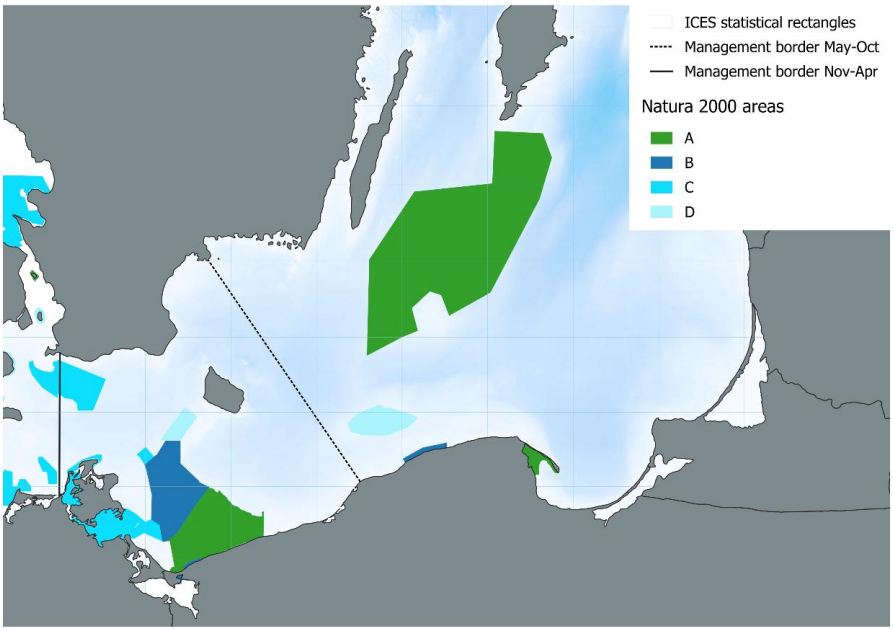

Figure 6.1. *Natura 2000 areas in the Jastarnia area that have the harbour porpoise listed as population A, B, C or D. Note that the MPA does not provide any protection for the harbour porpoise if the species is listed as population D (i.e. non-significant). The black solid line between Sweden and Germany is the approximate western winter distribution limit for the Baltic Proper harbour porpoise, and the slanted dotted line between Hanö Bay in Sweden and the Polish coast marks the approximate western limit of the summer distribution. In the winter Baltic Proper porpoises may be present anywhere to the east of the winter border, while in summer the main distribution is east of the summer border.*

Today, there are 13 Natura 2000 areas in the Jastarnia area where the harbour porpoise is listed as population A-C (see figure 6.1 and table 6.1). Most of the MPAs designated for the harbour

porpoise in the Jastarnia plan area have some kind of fisheries regulations through the delegated act described under 3. Monitor, estimate and reduce bycatch (figure 3.1). However, basically no other conservation measures aimed at harbour porpoise protection are in place in any of the areas.

***Table 6.1**. Natura 2000 areas designated for harbour porpoises in the Jastarnia area. Only sites with "significant presence" of harbour porpoises are listed here, however, the Danish site Adler Grund og Rønne Banke has been included since it has specific harbour porpoise conservation measures taken through the delegated act EU 2022/303.*

Name	Code	Country	Measures in place
Erweiterung Libben, Steilküste und Blockgründe Wittow und Arkona	DE1345301	DE	
Greifswalder Bodden und südlicher Strelasund	DE1747402	DE	
Greifswalder Boddenrandschwelle und Teile der Pommerschen Bucht	DE1749302	DE	Static net fisheries closed Nov-Jan
Pommersche Bucht mit Oderbank	DE1652301	DE	Static net fisheries closed Nov-Jan Mobile gear banned in part of the area
SPA Pommersche Bucht	DE1552401	DE	Static net fisheries closed Nov-Jan
Westliche Rönnebank	DE1249301	DE	Static net fisheries closed Nov-Jan Mobile bottom-contacting gear banned
Adlergrund	DE1251301	DE	Static net fisheries closed Nov-Jan Mobile bottom-contacting gear banned
Wolin i Uznam	PLH320019	PL	
Ostoja na Zatoce Pomorskiej	PLH990002	PL	Static net fisheries closed Nov-Jan
Zatoka Pucka i Półwysep Helski	PLH220032	PL	Pingers mandatory in static net fisheries all year
Ostoja Słowińska	PLH220023	PL	
Hoburgs bank och Midsjöbankarna	SE0330308	SE	Static net fisheries closed all year in the whole area. All fisheries except pots, traps and longlines closed all year in part of the area, on the Northern Midsea bank. In the core areas for harbour porpoises within the Natura 2000 site, all year: Activities generating noise levels above 40 dB above the hearing threshold of harbour porpoises are not allowed. Exceptions for activities that improve the site's conservation objectives.
Sydvästskånes utsjövatten	SE0430187	SE	Pingers mandatory in static net fisheries in May-Oct, static net fisheries closed Nov-April
Adler Grund og Rønne Banke	DK00VA261	DK	Static net fisheries closed Nov-Jan

In Denmark, the Natura 2000 area Adler Grund og Rønne Banke is situated within the Jastarnia area (see figure 6.1 and table 6.1). The area has the harbour porpoise listed as population D, which means the area does not provide any formal protection for harbour porpoises, but

through the 2022 delegated act static net fisheries are closed in Nov-Jan. Between 2020-2023, several EIA assessment studies have been carried out in the western Baltic Sea, and the results confirm what we know about the distribution. Figure 6.2 shows an example from a baseline study for the Arkona OWF.

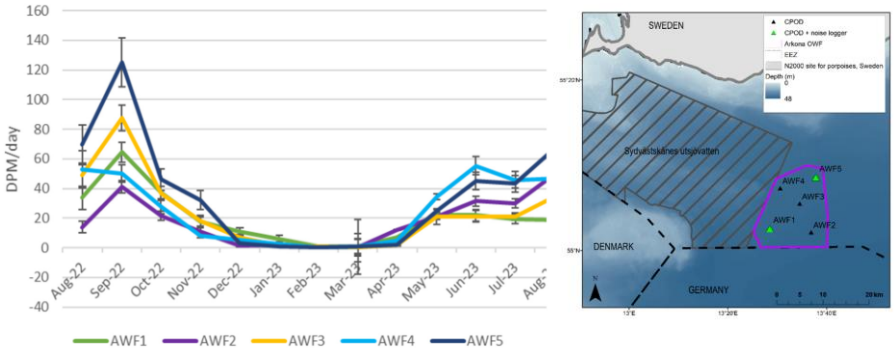

Figure 6.2. *Example of porpoise presence (detection positive minutes per day, DPM/day) for an area south of Skåne in Swedish waters.*

In the Baltic Proper, an EIA assessment study was carried out in 2021-2023 for the Energy Island Bornholm project, using PAM and aerial surveys (figure 6.3).

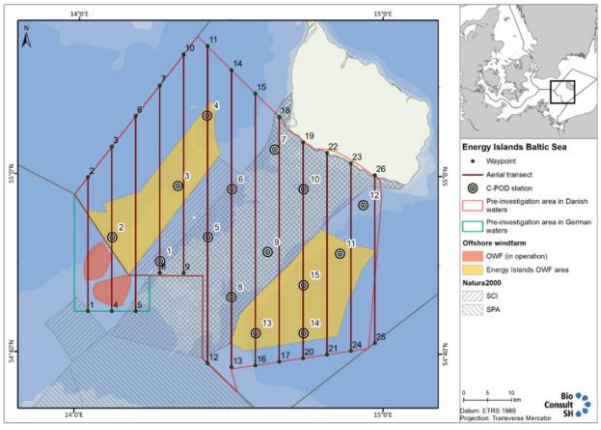

Figure 6.3. *Surveys carried out in the EIA assessment for the energy Island Bornholm.*

In Germany, management plans for Natura 2000 sides in the German EEZ entered into force in February 2022. Regulations for towed gear in MPAs are in place with regulation EU 2019/1241, regulations for mobile bottom-contacting gears are in place through delegated act EU 2024/2943 and regulations for passive gears (gillnets and entangling nets) are in place through the delegated act EU 2022/303 (figure 3.1 and 6.4). Further measures for passive gear are under negotiations.

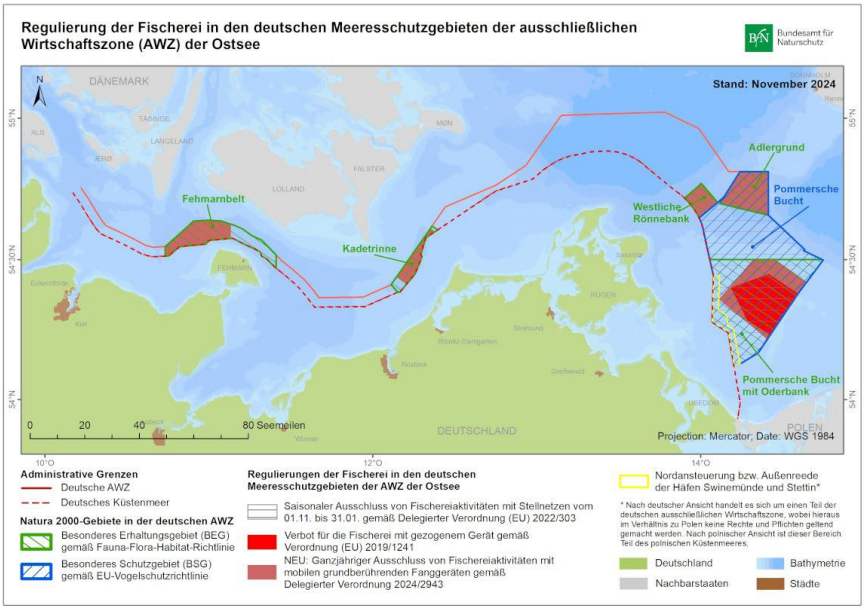

Figure 6.4. *Fisheries regulations in place in German Baltic MPAs.*

In Sweden, a new nature reserve has been designated southwest of Gotland, Karlsöarnas havsområde. The area has also been designated as a Natura 2000 area under the birds directive, which means that porpoises are not on the list of protected species for the area. Additionally, Nämndöskärgården in the Stockholm Archipelago has been designated as Sweden's second marine national park, and the first in the Swedish Baltic Sea. Porpoises are not mentioned specifically in the designation, but porpoises have historically been quite common in the Stockholm archipelago, so there is potential if the ecosystem status is improved that they will return to the area. Around Öland the County Administrative Board of Kalmar is carrying out data collection and analyses for a potential future proposal of a protected area. Conservation regulations for porpoises are in place for some areas, see table 6.1. During 2025, the Southern Midsea bank was included as part of the Swedish Natura 2000 area Hoburgs bank och Midsjöbankarna.

A BACI study on effects from reconstructed stone reefs on porpoises in Öresund is running from 2025-2027. Prey surveys and eDNA sampling were carried out as part of SAMBAH II, and hydroacoustic surveys of prey are carried out using a sailing drone in the Natura 2000 area Hoburgs bank och Midsjöbankarna, 1-2 times per year in 2023, 2024, 2025 and 2026.

A paper was published on harbour porpoise foraging techniques (Stedt et al. 2024), and an MSc thesis published on programmed unmanned aerial vehicles (UAVs) for porpoise surveying (Hartmann 2024) is now being reworked to a manuscript.

In Finland, at the end of 2023, a new large (1164 km2) MPA, Bogskär, was designated in the Northern Baltic Proper (figure 6.5), including harbour porpoise on the species list, by the Åland

Government. However, after two working days, the decision was overturned. The area is now back in preparation and may still be designated as an MPA.

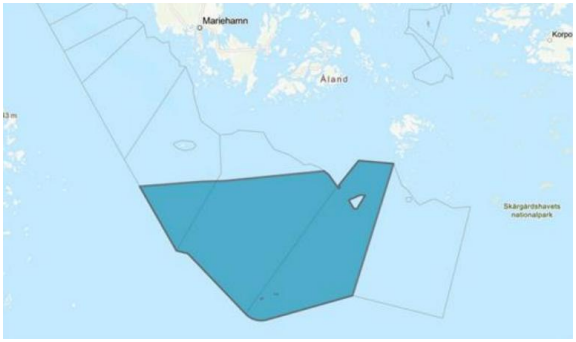

***Figure 6.5**. The proposed Bogskär MPA, situated south of Åland in the Northern Baltic Proper.*

Key conclusions and recommendations

Based on the results of the SAMBAH Project, protected areas have been designated for harbour porpoise. Sweden in particular has some key areas designated, however, these could usefully be extended, for example to include areas in Hanö Bay and around Öland and Gotland. The recently designated Natura 2000 area Karlsöarna och Gotlands sydvästra kust should also be designated as an SCA to allow for harbour porpoises to be listed, and any additions around Öland would be very welcome. In Polish waters we would recommend designating the Polish part of the Southern Midsea bank as a Natura 2000 area, and to extend the Natura 2000 area in Puck Bay.

In Finland, the area of Bogskär which was designated and shortly overturned in December 2023 should again be designated as an MPA and protected from anthropogenic pressures such as fisheries, shipping and offshore wind development. This area has very high nature values, including regular presence of harbour porpoises, and could be important habitat to the Baltic Proper harbour porpoise population, especially in the event of a much needed population increase.

For the areas already designated, it is of the highest priority to get management plans in place but most importantly to get conservation measures in place to fulfil the requirements of the Habitats Directive for those areas. Conservation measures should include mitigation of bycatch, but also measures aimed at mitigating other threats such as underwater noise and prey quantity and quality. We suggest using the results from the two ASCOBANS workshops on management of MPAs for small cetaceans to come up with suitable measures (https://www.ascobans.org/sites/default/files/document/ascobans_mpa-ws2_report.pdf).

Summary of Progress in the Implementation of the Recovery Plan

Here we present the table showing the assessed implementation progress under the Jastarnia plan for the recovery of the Baltic Proper harbour porpoise population. Status assessment criteria can be found in annex I.

***Table 7.1**. Summary of Progress in the Implementation of the Recovery Plan. For status assessment criteria see Annex I. Note that Russia is not currently evaluated.*

Actions from the Jastarnia Plan		Priority		SE	DK	DE	PL	FI	LI	LA	EE	RU
1	**Implementation of the CP: co-ordinator and Steering Committee**	**High**		Coordinator in place								NA
2	**Increase involvement, awareness and cooperation**	**High**	Public awareness	3	1	3	3	2	1	0	0	NA
			Involvement and cooperation	1	1	1	1	1	1	0	0	NA
3	**Monitor and estimate abundance and distribution**	**High**	Population-wide (including modelling)	SAMBAH II/CUMBIAH in progress						0		NA
			Regional/national monitoring	2	2	3	2	3	1	0	0	NA
			Population structure in the Baltic Region	3	2	3	2	NA	NA	NA	NA	NA
4	**Bycatch**	**High**	Monitor bycatch	3	2	1	2	1	1	0	0	NA
			Estimating bycatch	1	0	0	0	NA	NA	NA	NA	NA
			Reducing bycatch	2	2	2	2	0	0	0	0	NA
5	**Monitor and mitigate impact of underwater noise**	**High**	Improve knowledge and develop threshold limits	1	2	2	1	1	1	1	1	NA
			Mitigating effects of continuous noise	0	1	0	0	0	0	0	0	NA
			Mitigating effects of impulsive noise	2	3	3	2	2	0	?	?	NA
6	**Monitor and assess population health status**	**Medium**		3	1	2	2	NA	NA	NA	NA	NA
7	**Investigate habitat use and protect important areas**	**Medium**	Investigating habitat use	SAMBAH II/CUMBIAH in progress						0		NA
			Protecting important areas	2	1	2	2	0	NA	NA	NA	NA

References

Amundin, Mats, Julia Carlström, Len Thomas, et al. 2022. "Estimating the Abundance of the Critically Endangered Baltic Proper Harbour Porpoise (Phocoena Phocoena) Population Using Passive Acoustic Monitoring." *Ecology and Evolution* 12 (2): e8554. https://doi.org/10.1002/ece3.8554.

Carlén, Ida, Len Thomas, Julia Carlström, et al. 2018. "Basin-Scale Distribution of Harbour Porpoises in the Baltic Sea Provides Basis for Effective Conservation Actions." *Biological Conservation* 226 (October): 42–53. https://doi.org/10.1016/j.biocon.2018.06.031.

Carlström, Julia, Ida Carlén, Michael Dähne, et al. 2023. "IUCN Red List of Threatened Species: Phocoena Phocoena Baltic Sea Subpopulation." *IUCN Red List of Threatened Species*, April 7. https://www.iucnredlist.org/en.

Celemín, Enrique, Marijke Autenrieth, Anna Roos, et al. 2025. *Evolutionary History and Seascape Genomics of Harbour Porpoises (* Phocoena Phocoena *) across Environmental Gradients in the North Atlantic and Adjacent Waters*. July, e13860. https://doi.org/10.1111/1755-0998.13860.

Dyndo, Monika, Danuta Maria Wiśniewska, Laia Rojano-Doñate, and Peter Teglberg Madsen. 2015. "Harbour Porpoises React to Low Levels of High Frequency Vessel Noise." *Scientific Reports* 5 (June): 11083. https://doi.org/10.1038/srep11083.

Elmegaard, Siri L., Jonas Teilmann, Laia Rojano-Doñate, et al. 2023. "Wild Harbour Porpoises Startle and Flee at Low Received Levels from Acoustic Harassment Device." *Scientific Reports* 13 (1): 1. https://doi.org/10.1038/s41598-023-43453-8.

Fiskeri- og Søfartsmuseet. 2022. *Strandede havpattedyr i Danmark 2022 - Beredskabet vedrørende Havpattedyr*. https://fimus.dk/wp-content/uploads/2023/10/Beredskabsrapport-2022_Final_2.pdf.

Frankish, Caitlin K., Alexander M. Von Benda-Beckmann, Jonas Teilmann, et al. 2023. "Ship Noise Causes Tagged Harbour Porpoises to Change Direction or Dive Deeper." *Marine Pollution Bulletin* 197 (December): 115755. https://doi.org/10.1016/j.marpolbul.2023.115755.

Galatius, Anders, Carl Christian Kinze, and Jonas Teilmann. 2012. "Population Structure of Harbour Porpoises in the Baltic Region: Evidence of Separation Based on Geometric Morphometric Comparisons." *Journal of the Marine Biological Association of the United Kingdom* 92 (Special Issue 08): 1669–76. https://doi.org/10.1017/S0025315412000513.

Hartmann, Dinah Josefine. 2024. "Drivers of the Small-Scale Spatio-Temporal Distribution of Harbour Porpoises (Phocoena Phocoena) Investigated via UAV around Kullaberg, Sweden." M.Sc, Lund University. https://lup.lub.lu.se/student-papers/search/publication/9153945.

HELCOM. 2025. *HELCOM Red List II of Baltic Sea Species in Danger of Becoming Extinct*. Baltic Sea Environment Proceedings, No. 25.

Hermannsen, Line, Kristian Beedholm, Jakob Tougaard, and Peter T. Madsen. 2014. "High Frequency Components of Ship Noise in Shallow Water with a Discussion of Implications for Harbor Porpoises (Phocoena Phocoena)." *The Journal of the Acoustical Society of America* 136 (4): 1640–53. https://doi.org/10.1121/1.4893908.

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/news-and-events/news-archive/news/Pages/EmergencyBycatchMeasures.aspx.

ICES. 2024a. *EU Request on Alternative Measures to Prevent Bycatch of the Harbour Porpoise (Phocoena Phocoena) in the Baltic Sea*. ICES Technical Service. ICES. https://ices-library.figshare.com/articles/report/EU_request_on_alternative_measures_to_prevent_bycatch_of_the_harbour_porpoise_i_Phocoena_phocoena_i_in_the_Baltic_Sea/26868907?file=48877123.

ICES. 2024b. *EU Request on Support for the Implementation of the Action Plan – Harbour Porpoise in the Baltic Sea (Baltic Proper)*. Report. ICES Advice: Special Requests. https://doi.org/10.17895/ices.advice.27967035.v1.

ICES. 2024c. *Report of the ICES Working Group on Marine Mammal Ecology (WGMME)*. ICES Scientific Reports. PDF, 16476270 Bytes, 239. https://doi.org/10.17895/ICES.PUB.26997367.

Kastelein, Ronald A., Paulien Bunskoek, Monique Hagedoorn, Whitlow WL Au, and Dick de Haan. 2002. "Audiogram of a Harbor Porpoise (Phocoena Phocoena) Measured with Narrow-Band Frequency-Modulated Signals." *The Journal of the Acoustical Society of America* 112 (1): 334–44.

Kastelein, Ronald A., Jessica Schop, Lean Hoek, and Jennifer Covi. 2015. "Hearing Thresholds of a Harbor Porpoise (Phocoena Phocoena) for Narrow-Band Sweeps." *The Journal of the Acoustical Society of America* 138 (4): 2508–12.

Koschinski, Sven, Kylie Owen, Kristina Lehnert, and Katarzyna Kamińska. 2024. "Current Species Protection Does Not Serve Its Porpoise—Knowledge Gaps on the Impact of Pressures on the Critically Endangered Baltic Proper Harbour Porpoise Population, and Future Recommendations for Its Protection." *Ecology and Evolution* 14 (9): e70156. https://doi.org/10.1002/ece3.70156.

Lah, Ljerka, Daronja Trense, Harald Benke, et al. 2016. "Spatially Explicit Analysis of Genome-Wide SNPs Detects Subtle Population Structure in a Mobile Marine Mammal, the Harbor Porpoise." *PLOS ONE* 11 (10): e0162792. https://doi.org/10.1371/journal.pone.0162792.

Lst Gotland. 2022. *Akustisk Och Visuell Inventering Av Östersjötumlare Över Hoburgs Bank Och Midsjöbankarna*. Rapport 2022:17. Länsstyrelsen i Gotlands Län Rapportserie. Länsstyrelsen i Gotland. https://www.lansstyrelsen.se/gotland/om-oss/vara-tjanster/publikationer/2023/akustisk-overvakning-av-tumlare-i-sydostra-ostersjon.html.

Owen, Kylie, Julia Carlström, Pia Eriksson, et al. 2024. "Rerouting of a Major Shipping Lane through Important Harbour Porpoise Habitat Caused No Detectable Change in Annual Occurrence or Foraging Patterns." *Marine Pollution Bulletin* 202 (May): 116294. https://doi.org/10.1016/j.marpolbul.2024.116294.

Sarnocińska, Joanna, Jonas Teilmann, Jeppe Dalgaard Balle, Floris M. van Beest, Matthieu Delefosse, and Jakob Tougaard. 2020. "Harbor Porpoise (Phocoena Phocoena) Reaction to a 3D Seismic Airgun Survey in the North Sea." *Frontiers in Marine Science* 6 (January). https://doi.org/10.3389/fmars.2019.00824.

Stedt, Johanna, Linnea Brokmar, Aleksija Neimanis, William F. Englund, Per Carlsson, and Anna Roos. 2025. "Combining DNA Metabarcoding with Macroscopic Analysis Increases the Number of Detected Prey Taxa in the Estimated Diet for Harbour Porpoises." *Frontiers in Marine Science* 12 (March). https://doi.org/10.3389/fmars.2025.1517330.

Stedt, Johanna, Héloïse Hamel, Sara Torres Ortiz, Jakob Højer Kristensen, and Magnus Wahlberg. 2024. "Harbour Porpoises Are Flexible Predators Displaying Context-Dependent Foraging Behaviours." *Ecology and Evolution* 14 (12): e70671. https://doi.org/10.1002/ece3.70671.

SVA. 2025. *"Hälsa, sjukdomar och dödsorsaker hos marina däggdjur 2024*. Nr 107. SVA:s rapportserie.

Sveegaard, Signe, Anders Galatius, Rune Dietz, et al. 2015. “Defining Management Units for Cetaceans by Combining Genetics, Morphology, Acoustics and Satellite Tracking.” *Global Ecology and Conservation* 3: 839–50.

Sveegaard, Signe, Jonas Teilmann, and Jakob Tougaard. 2024. *Effects of Artificial Reefs on Marine Mammals. Construction and Placement of the Artificial Reef*. Nos. Scientific note no. 2024, 7. Aarhus University, DCE - Danish Centre for Environment and Energy. https://dce.au.dk/fileadmin/dce.au.dk/Udgivelser/Notater_2024/N2024_07.pdf.

Verutes, Gregory M., Andrew F. Johnson, Marjolaine Caillat, et al. 2020. “Using GIS and Stakeholder Involvement to Innovate Marine Mammal Bycatch Risk Assessment in Data-Limited Fisheries.” *PLOS ONE* 15 (8): e0237835. https://doi.org/10.1371/journal.pone.0237835.

Wiemann, Annika, Liselotte Andersen, Per Berggren, et al. 2010. “Mitochondrial Control Region and Microsatellite Analyses on Harbour Porpoise (Phocoena Phocoena) Unravel Population Differentiation in the Baltic Sea and Adjacent Waters.” *Conservation Genetics* 11 (1): 195–211.

Wisniewska, Danuta Maria, Mark Johnson, Jonas Teilmann, et al. 2018. “High Rates of Vessel Noise Disrupt Foraging in Wild Harbour Porpoises (*Phocoena Phocoena*).” *Proceedings of the Royal Society B: Biological Sciences* 285 (1872): 20172314. https://doi.org/10.1098/rspb.2017.2314.

Annex I

Status assessment criteria for progress on the implementation of the actions of the Jastarnia Plan

1. **Implementation of the CP: co-ordinator and Steering Committee**
   Yes/No

2. **Increase involvement, awareness and cooperation**

   Public awareness
   0 – No activity
   1 – Occasional and/or local campaigns informing about BS hp
   2 – Nation-wide communications campaign has taken place, but not continuously
   3 – Ongoing and continuous nation-wide information campaign, information on strandings scheme and reporting of observations available on well-established website

   Involvement and cooperation
   N.A. – not applicable
   0 – No activity
   1 – Occasional dialogue meetings for certain issues but no established groups
   2 – Dialogue/reference groups established to involve stakeholders in management of some protected areas or to mitigate bycatch in some of the distribution range
   3 – Dialogue/reference groups established to involve stakeholders in management of all protected areas and bycatch mitigation in the entire distribution range

3. **Monitor and estimate abundance and distribution**

   Population-wide (including modelling)
   N.A. – Not applicable
   0 – No activity
   1 – Surveys carried out every 10-12 years, results with wide confidence intervals of CV>0.4, distribution maps showing probability of detection
   2 – Surveys carried out every 10-12 years, more narrow confidence intervals of abundance estimates with CV>0.2 to 0.4, maps of harbour porpoise density
   3 – Surveys carried out every 6 years, even more narrow confidence intervals of abundance estimates with CV of ≤0.2, maps of harbour porpoise density

   Regional/national monitoring
   N.A. – Not applicable
   0 – No activity

1 – Some monitoring going on, at local/national scale, not continuously, covering important areas for harbour porpoises where possible
2 – Continuous (year round) monitoring for at least two years every six years covering important areas for harbour porpoises where possible
3 – Continuous (year round) monitoring for the entire six-year cycle, covering important areas for harbour porpoises where possible

Population structure in the Baltic region
N.A. – Not applicable
0 – No activity
1 – Samples collected from some carcasses found within the distribution range of the Baltic Proper population, but no analysis
2 – Samples collected from some carcasses found within the distribution range of the Baltic Proper population, some analysis completed (genetics, life history, morphometrics etc.)
3 – Samples collected from over 90% of carcasses found within the distribution range of the Baltic Proper population, and all possible analyses completed (genetics, life history, morphometrics etc.)

4. Bycatch

Monitoring bycatch
N.A. – Not applicable
0 – No activity
1 – Some assessment of bycatch rates (e.g. questionnaire surveys, sample surveys, logbooks) (under Reg. 2019/1241 or equivalent)
2 – Bycatch monitoring of some of the fisheries known to cause harbour porpoise bycatch (under Reg. 2019/1241 or equivalent), leading to an estimate of bycatch rates
3 – Bycatch monitoring in all fisheries known to cause harbour porpoise bycatch (under Reg. 2019/1241 or equivalent), leading to a robust estimate of bycatch rates

Estimating bycatch
N.A. – Not applicable
0 – No estimates available
1 – Estimate of bycatch available from research project, for part of the fisheries known to cause harbour porpoise bycatch
2 – Estimate of bycatch available for >50% of fisheries known to cause harbour porpoise bycatch
3 – Robust estimate of total bycatch available for all fisheries known to cause harbour porpoise bycatch

Measures to reduce bycatch
N.A. – Not applicable
0 – No activity

1 – Research and pilot projects ongoing into effective bycatch mitigation measures for harbour porpoises
2 – Some effective bycatch mitigation measures implemented to reduce bycatch but only within protected areas or for part of the fisheries known to cause harbour porpoise bycatch
3 – Effective bycatch mitigation measures implemented in all fisheries known to cause harbour porpoise bycatch

5. **Monitor and mitigate impact of underwater noise**

Improve knowledge on impact of underwater noise and develop threshold limits for disturbance
N.A. – Not applicable
0 – No activity
1 – Research projects in place to improve knowledge on impact of underwater noise
2 – Threshold limits of disturbance in place for continuous or impulsive underwater noise.
3 – Threshold limits of disturbance in place for continuous and impulsive underwater noise.

Mitigating effects of continuous noise (e.g. shipping)
N.A. – Not applicable
0 – No activity
1 – Mitigation measures to reduce continuous noise (e.g. quieting technologies, speed restrictions, re-routing vessels) under development or being tested
2 – Mitigation measures to reduce continuous noise (e.g. quieting technologies, speed restrictions, re-routing vessels) in place to some extent. National and/or HELCOM guidelines under development.
3 – Mitigation measures to reduce continuous noise (e.g. quieting technologies, speed restrictions, re-routing vessels) routinely in place. National and/or HELCOM guidelines in place.

Mitigating effects of impulsive noise (e.g. seismic, sonar, explosions, piling)
N.A. – Not applicable
0 – No activity
1 – Mitigation measures to reduce impulsive noise (e.g. soft starts, bubble curtains, insulation casings) under development or being tested
2 – Mitigation measures to reduce impulsive noise (e.g. soft starts, bubble curtains, insulation casings) in place to some extent. National and/or HELCOM guidelines under development.
3 – Mitigation measures to reduce impulsive noise (e.g. soft starts, bubble curtains, insulation casings) routinely in place. National and/or HELCOM guidelines in place.

6. **Monitor and assess population health status**
N.A. – Not applicable

0 – No activity, no plan or guidance on how to act in case of a stranding
1 – Samples collected from some carcasses from within the distribution range of the Baltic Proper population, no analysis carried out
2 – Some analysis and assessments completed on certain organs or tissues, and/or some necropsies carried out
3 – Full necropsies (according to ASCOBANS protocol) conducted for >90% of carcasses in good enough condition, and samples analysed for health indicators, e.g. contaminant levels and life history parameters. Regular (at least every 6 years) assessments of results

7. Investigate habitat use and protect important areas

Investigating habitat use
N.A. – Not applicable
0 – No activity
1 – Research projects ongoing on spatiotemporal distribution
2 – Spatiotemporal distribution has been mapped and important areas identified in parts of the population range, within the last 10-12 years
3 – Spatiotemporal habitat use has been mapped and important areas identified at a broad scale in the entire population range, and at a fine spatial scale in important areas, within the last 10-12 years

Protecting important areas
N.A. – Not applicable
0 – No harbour porpoise important areas designated as MPAs or other conservation measures introduced
1 – Some important areas designated as harbour porpoise MPAs
2 – Some important areas protected with conservation measures in place
3 – All harbour porpoise important areas protected (effective protective measures in place)