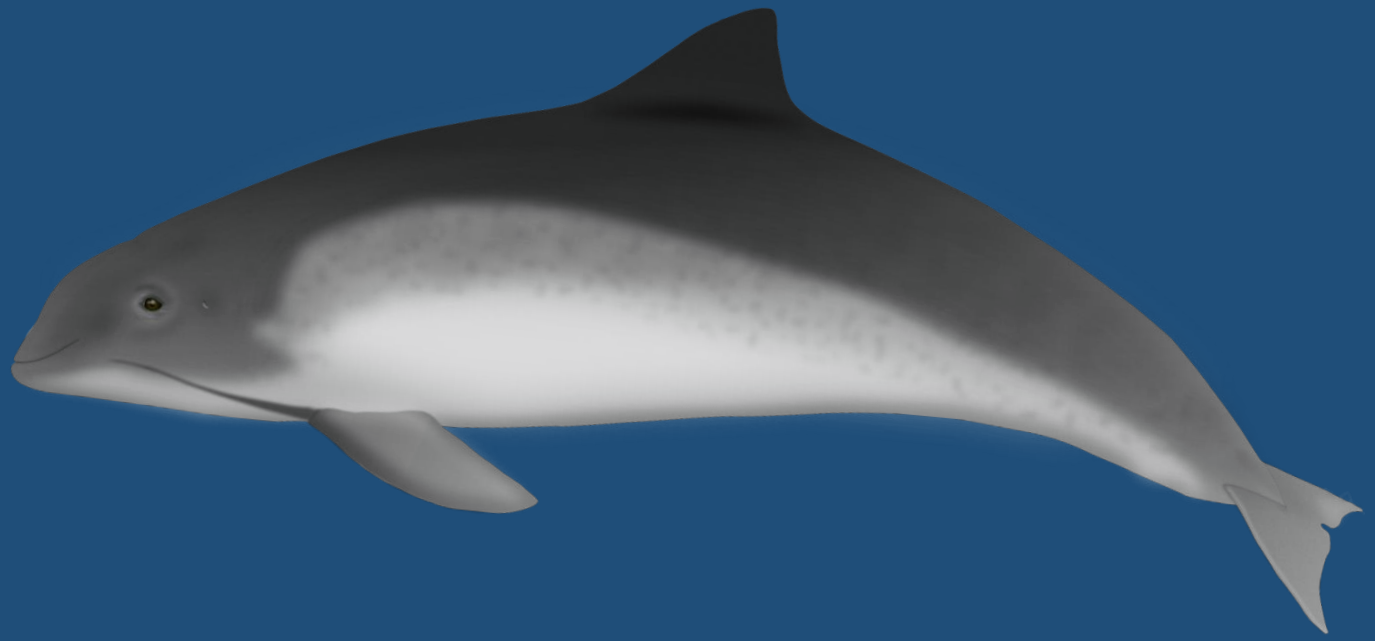
National Progress Report for Sweden

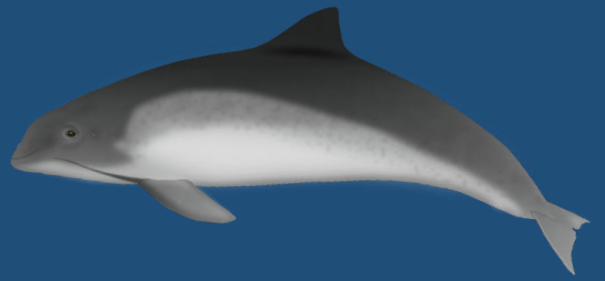


Kylie Owen, Sara Königson, Kristin Öhman, Pia Eriksson

ASCOBANS Jastarnia Group meeting

20-22 March 2023

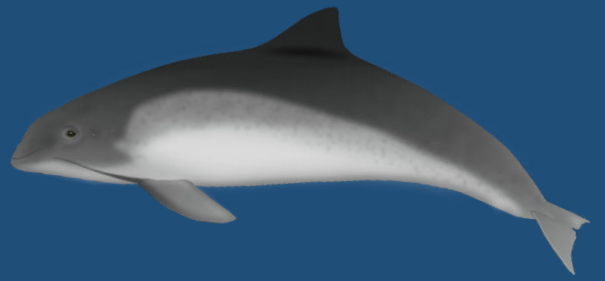
Increase involvement, awareness and cooperation



What has been done in terms of raising public awareness, by authorities, NGOs and other organisations?

- CCB completed public awareness through social media channels.
- SwAM press releases on:
  - 30 years of ASCOBANS
  - Baltic proper Porpoise day
- NRM, LS, SVA, CCB, LU, SLU Aqua completed several interviews for newspapers, radio, podcasts.
- Skåne county admin board- communication about harbour porpoises biology/ecology and protected areas around Kullaberg with tourists
- Gotland/Kalmar county admin board- press release around management plan/monitoring in Natura2000 area in the Baltic

Increase involvement, awareness and cooperation



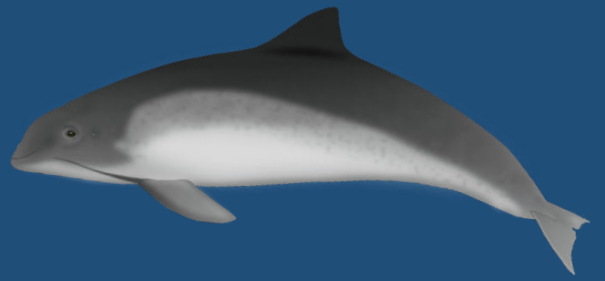
What has been done to engage stakeholders in dialogue?

- SwAM has continuous diaglog meetings with different fisheries.
- SLU many meetings with fisherman in relation to research projects and monitoring projects
- SwAM hosted a online seminar for people working with management, monitoring, research and outreach related to small cetaceans and marine protected areas in Sweden and Brazil.

What has been done to increase cooperation between authorities and stakeholders (incl. fishers)? Have any reference groups or similar been established?

- SwAM has plans to make a reference group for management of issuing of permits to individual fisherman in Nordvästra Skånes havsområde where fisheries is completely closed.
- Lots of communication/meetings with windfarm developers, as well as energy and transport authorities for work developing the new Ocean Plan (Havsplan).

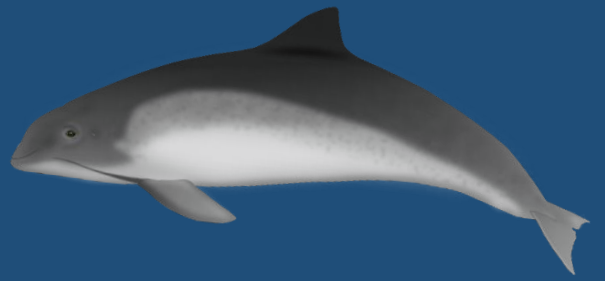
Monitor and estimate abundance and distribution



Are there any new results from national monitoring programmes or large-scale surveys?

- SCANS IV completed summer 2022- results available in the coming months. Signe Sveegaard will present details.
- First live sighting of Baltic Proper harbour porpoise in the field!
- Passive acoustic monitoring of the Belt Sea population:
  - Report summarising data collected since 2019 was produced (NRM, SwAM).
  - Power analysis currently being completed to determine future plan for stations (published by end of 2023) (NRM, SwAM)
- Swedish regional monitoring program in some regions- planned to be expanded (County Administrative Boards/SwAM/NRM), but not yet allowed to deploy FPODs in the Baltic due to the security situation- Cinthia Tiberi Ljungqvist to present more.

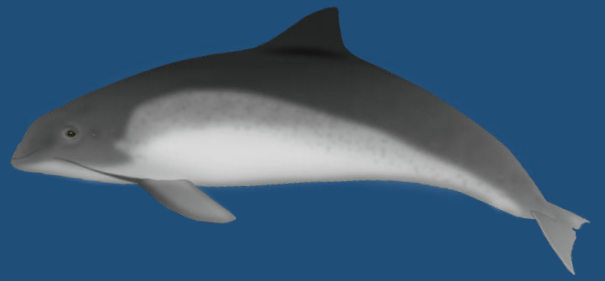
Monitor and estimate abundance and distribution



Other work

- County Administrative boards in Gotland and Kalmar completed towed acoustic montoring in the large Natura 2000 area in the Baltic- Alexandra Colbing to present results.
- Completed a qualitative assessment of the abundance and distribution of the Baltic Proper population using historic newspapers and records for HOLAS III (HELCOM BLUES project) (NRM, SwAM):
  - BP population historically seen much more frequently, with a larger range extending north into Bothnian Bay
- Co-led production of indicator documents on abundance and distribution of harbour porpoises for HOLAS III (HELCOM EG MAMA) (NRM, TiHO, SwAM):
  - Abundance: Both populations bad status,
  - Distribution: BP population bad status (Belt Sea not assessed)
- Assiting PL and DE with B8 of Baltic Sea Action Plan – review of threats- Kate Kamińska to present

Monitor and estimate abundance and distribution



What is being planned for the near future?

- Postdoc (Malin Hasselgren) investigating historic population size of BP population using genetics, and their capacity for recovery given management scenarios (NRM).
  - Sequence entire genome of ~10 animals pre-1950.
  - **Looking for samples/collaborators** (contact kylie.owen@nrm.se).
  - Project starts in September.
- SAMBAH II application: consortium still searching for funding opportunities
  - No relevant EU funding opportunities
  - Optimal design of the stations completed by CREEM March 2023.
  - Hoping it can be funded nationally to start monitoring spring 2024
  - Urgently needed as SAMBAH data now > 10 years old and very out of date

Monitor and mitigate impact of underwater noise

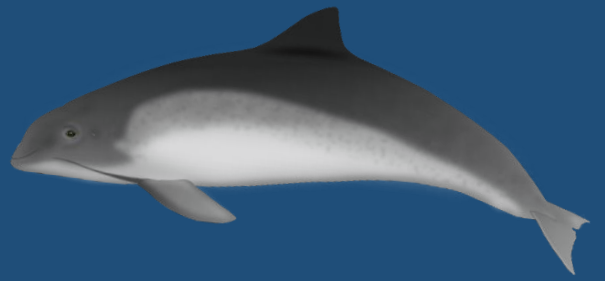
What projects or research or monitoring is in place to monitor underwater noise and its impact on harbour porpoises? Are there any results to present?

- Joint monitoring of HP and underwater noise: N Midsea Bank (Baltic) and Hönö (S Skagerrak), and off Sundsvall (Bothnian Sea) (FOI, NRM, SwAM).
- Tango project investigating the impact of a change in shipping lane location on harbour porpoise presence and foraging completed (NRM, AU, FOI)- Kylie Owen to present results.

Are there any measures in place or planned to mitigate the impact of underwater noise?

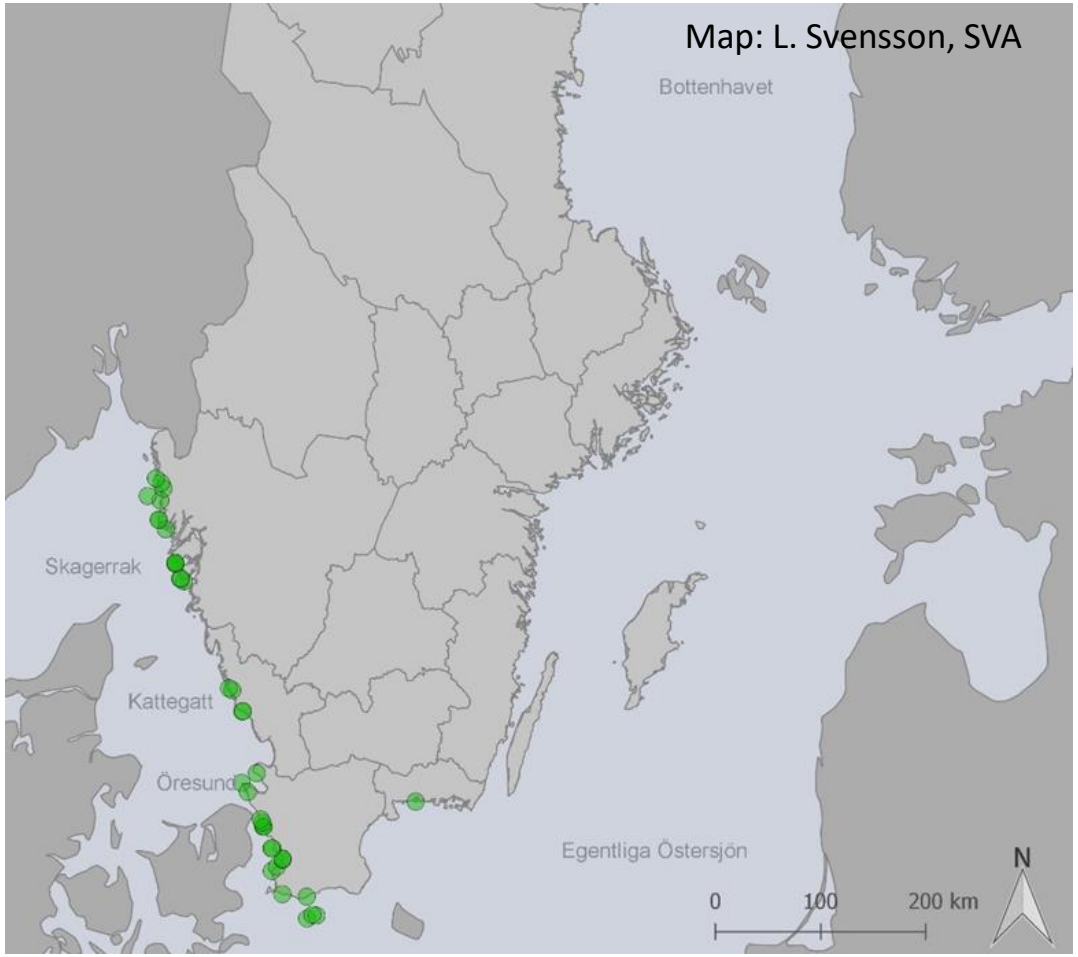
- Government assignment for the implementation of Helcom BSAP and Ospar NEAES is ongoing - many noise-related measures, with a focus on porpoises, among other things.

Monitor and assess population health status

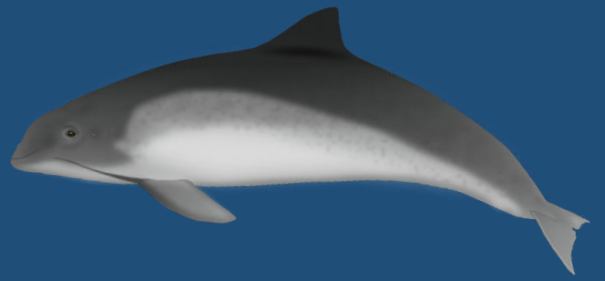


What is the status of collection of animals found dead, (approximately) how many animals have been sampled and necropsied?

- Numbers of dead reported animals not yet summaried, but collected by NRM in collaboration with SVA- will be available later in 2023.
- In 2022, a total of 41 porpoises were examined by necropsy
  - 22 were found stranded,
  - 19 were bycaught (submitted by fishermen March-May and July-October)

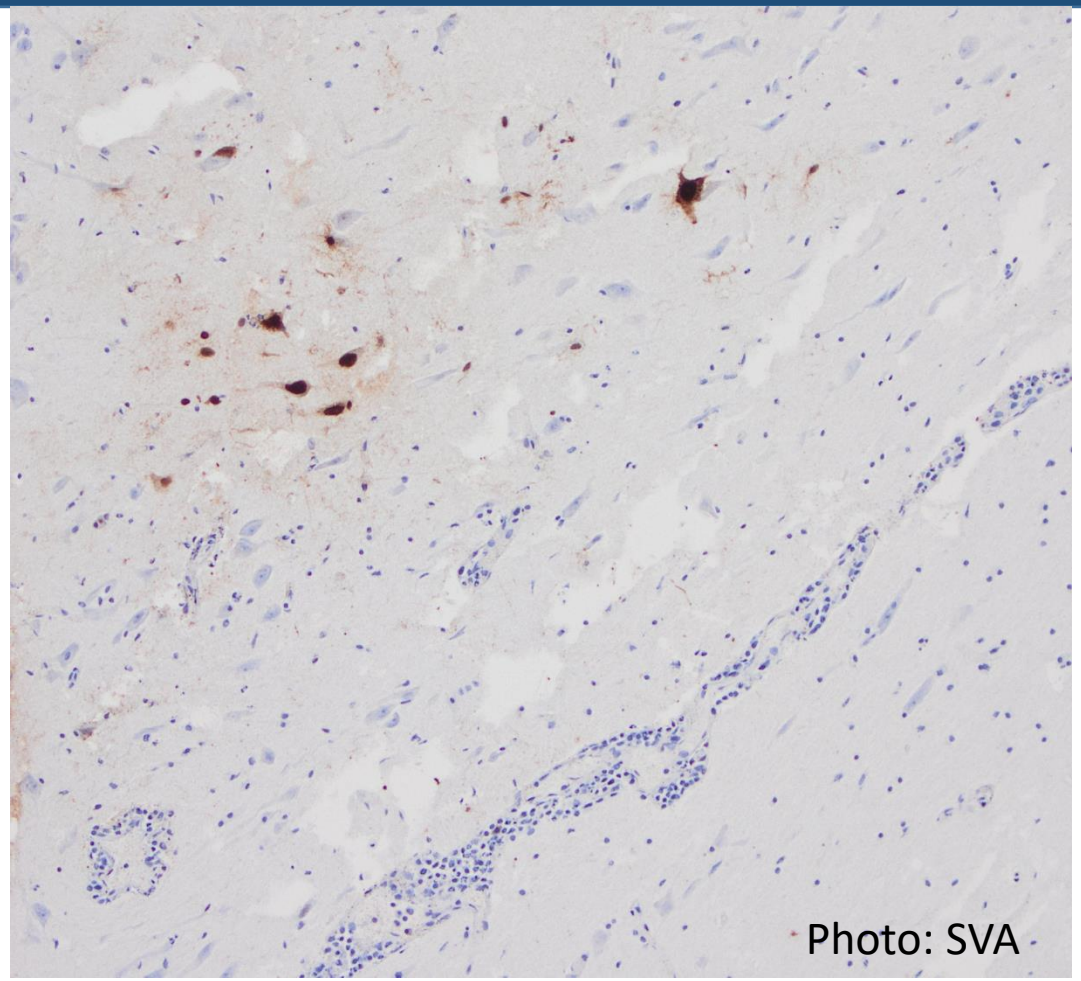


Monitor and assess population health status



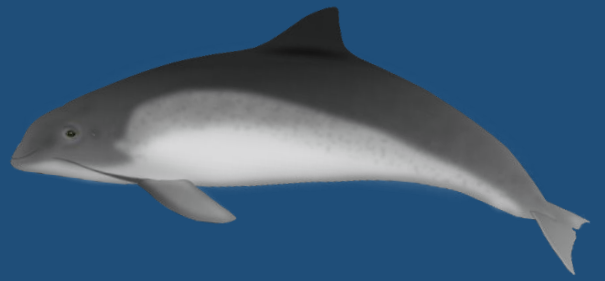
Any specific interesting cases to mention (for example bycatch or strandings in the Baltic Proper population range)?

- The first fatal case of highly pathogenic avian influenza virus (H5N1) was found in a stranded harbour porpoise. It coincided with a large influenza outbreak in seabirds and reflected the high viral infection pressure in the marine environment
- Three porpoises died from *Erysipelothrix rhusiopathiae* bacterial pneumonia. This apparent increase in cases and may reflect a more pathogenic strain of bacteria, lowered host immune status or both.
- Skin infections are commonly seen and further characterization is on-going
- Aleksija Neimane to present more information



Brain inflammation (small, blue cells) caused by avian influenza virus. Virus in brain cells is stained brown.

Monitor and assess population health status

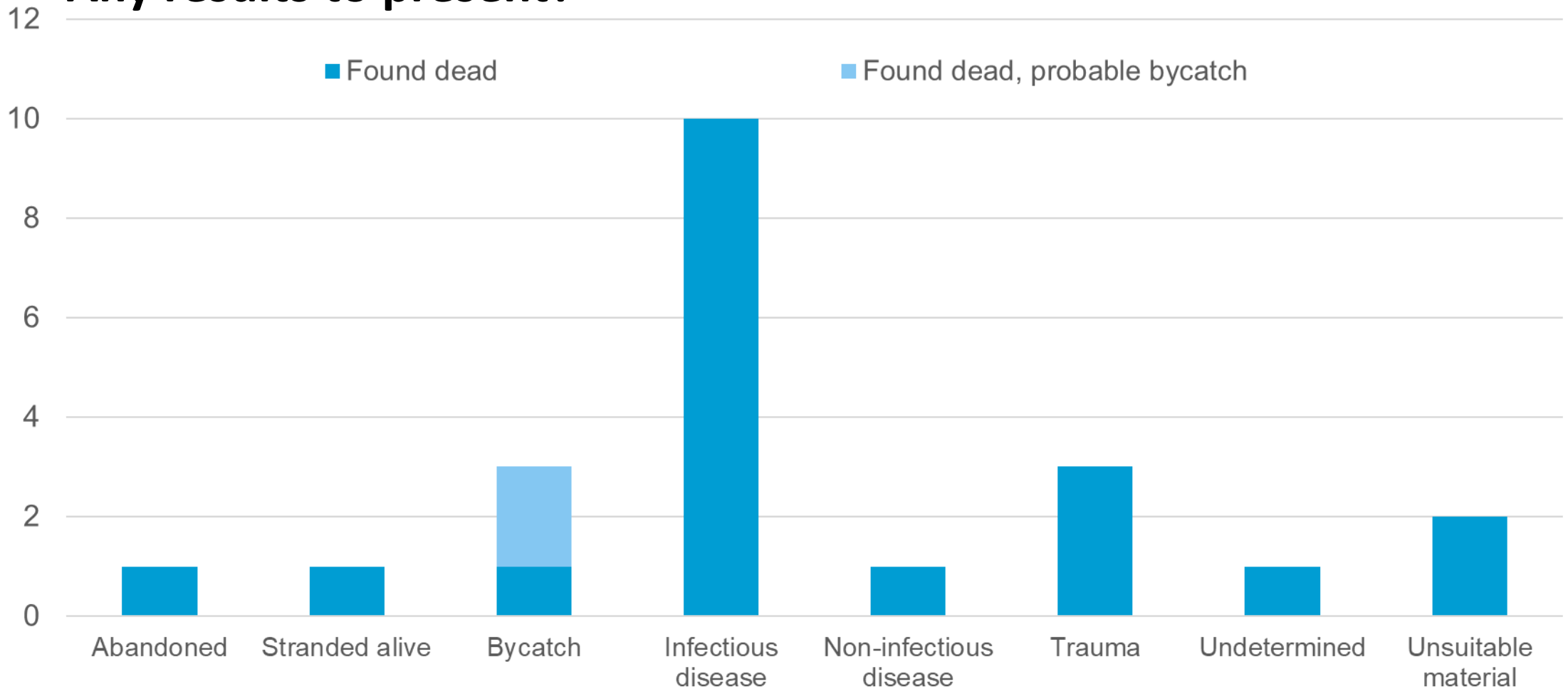


Any results to present?

- 22 females, 19 males
  - 13 sexually mature, 12 immature, 16 calves
  - All 5 adult females were pregnant
- SVA determine cause of death and health status, document nutritional condition and reproductive status, and collaborate with researchers at Lund University and Gothenburg University to investigate diet

Monitor and assess population health status

Any results to present?



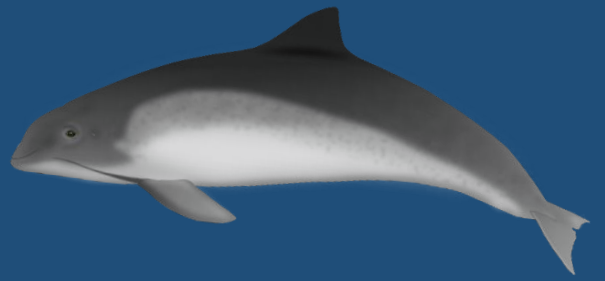
Monitor and assess population health status

Any results to present?

- In addition to the 19 animals submitted by fishermen, stranding data contributed information on incidental bycatch (SVA)
  - In previous years, **bycatch** was the **most common diagnosis** for **stranded porpoises**
  - In 2022, a **smaller proportion** (n=3) of **stranded** animals were diagnosed as **bycaught** than in previous years.
  - **Bycaught animals**, including those submitted by fishermen, often had other **significant health findings** including **pneumonia** and **skin lesions**. These animals help us follow general health trends in the population.

Bycaught harbour porpoise with skin lesions

Monitor and assess population health status



Other work

- Masters student (Sara Bollina, LU) investigating extent of microplastics in harbour porpoise (and otter) tissue (n = 13 intestines, n = 10 lung) using optical photothermal infrared (LU/NRM)
  - Preliminary results- Polystyrene the most common- more in the intestines than lungs, males more than and females in the intestines
  - Results due to be published by the end of 2023.
- Ongoing diet study (LU, NRM and SVA):
  - Stranded and bycaught porpoises in Sweden between 2006-2023.
  - Analyzed using three methods:
    - Traditional macroscopic analysis of gastrointestinal content,
    - Stable isotope analysis of teeth, ribs and muscle, and
    - eDNA-analysis.
  - Differences spatially and temporally, as well as between age groups and sexes.
- Sweden is involved in the indicator work on the reproductive status and nutritional status of marine mammals within HELCOM and OSPAR (NRM).

Investigate habitat use and protect important areas

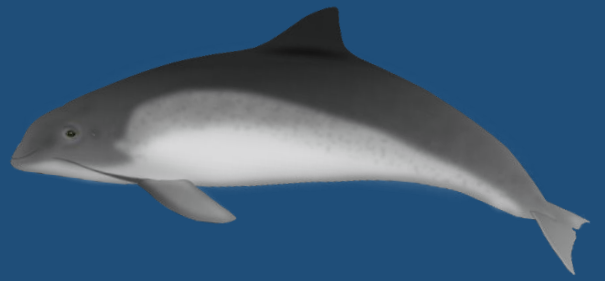
Are there any projects or other research ongoing on porpoise distribution or habitat use? Any "new" important areas identified?

- New publication – Stedt et al. (in Press) Micro-scale spatial preference and temporal cyclicity linked to foraging in harbour porpoises (LU).
  - Activity can vary greatly between very close locations (hundreds of meters)
  - Presence seems to be driven of foraging opportunities- the more frequently a site is used, the higher degree of foraging occurs.
- Visual surveys of calves at Kullen this summer (May-Sep) using drones (when calves are born, where are they, how many, growth, and behavior) (Skåne LS/ LU).

Are there any new protected areas designated for harbour porpoises?

- Not in 2022

Investigate habitat use and protect important areas



Any conservation measures and/or management plans in place for existing areas?

- Three additional management plans for protected areas (Nordvästra Skånes havsområde, Havet kring Ven, Sydvästskånes utsjövatten) in Skåne.
- NRM participated in EU project on management effectiveness of Natura 2000 sites and other EU marine protected areas (lead: SUBMON, Spain).
- Masters student (Hedda Kjelldahl) investigating overlap between bycatch risk and location of Natura 2000 sites in Skåne (SU, NRM)

Monitor, estimate and reduce bycatch

What is being done in terms of bycatch monitoring?

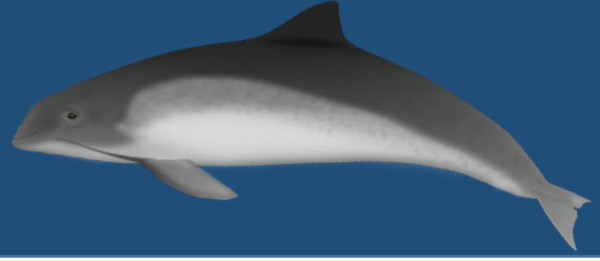
2017-2019 Pilot project, observerprogram in South baltic, the sound and Kattegatt,
2020-2021 Pilot project MEM Mobile Electronic Monitoring, 490 monitored days

- Development of a Camera system (continued during 2022)

2022- MEM and Observers in gillnet fisheries in Skagerakk, Kattegatt, the Sound and Baltic

- Development of an machine learning program for analysing bycatch
- Commitment in ICES WKRARE, WK Petsamp
- Development of ICES RDBES
- Mandatory for fishermen to report bycatch in log books since Feb 2021
- 2022 Bycatch monitoring with observers and cameras included in DCF
  - 14 fishing vessels with cameras/MEM systems
  - Skagerakk: 12 EM days, no observer days (March-May 2022)
  - Kattegatt: 42 EM days, 3 observer days (Feb.-June 2022)
  - The Sound: 253 EM days, 34 observer days
  - Baltic: 28 EM days, 15 observer days (July-Dec. 2022)

Monitor, estimate and reduce bycatch



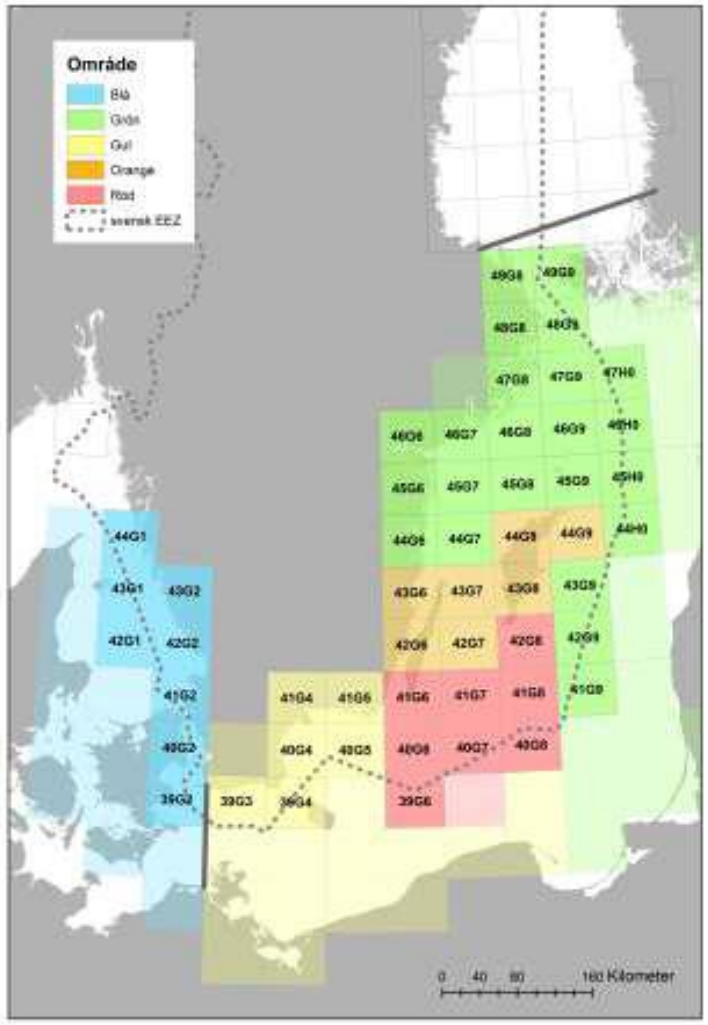
What is being done in terms of bycatch monitoring?

2022 Bycatch monitoring with observers and cameras, bycatch project Jun-Dec.
Distributed over defined risk areas* : Green, orange, yellow, red, blue.

Sampling design areas
Green, low risk area
Orange, low risk area
Yellow, medium risk area
Red, high risk
Blue area - Belt pop area

Area	EM days (Jun-Dec)	Observer days (Jul-Dec)
Green	0	0
Orange	0	4
Yellow	26	11
Red	16	0
Blue	121	16

(All days above are included in total sampling days 2022 on previous slide)



*Risk areas are based on porpoise density from SAMBAH and Natura 2000 areas where h.p. is included for conservation.

Monitor, estimate and reduce bycatch

Have any bycatch estimates been calculated for either population, nationally or in ICES or any other forums?

- New estimation in “Belt Sea population” DTU with SLU involvement, reported at North Sea meeting
- Developed a bycatch threshold (73 animals) for the Belt Sea population using a modified PBR approach (NRM; AU; TiHO; Univ-lr) that was used within HELCOMs HOLAS III:
  - Bycatch: Both populations bad status

Monitor, estimate and reduce bycatch

What measures are in place to reduce bycatch?

- Voluntarly use of pingers
- EFF funding available for pingers made available for fisheries
- EFF funding available for selective gears
- Fisheries banned in protected areas in the Baltic Sea - new EU regulations already in Swedish legislation
- Significant reduce in gillnet effort due to EU cod fishery ban
- Pingers to be used within Natura 2000 areas

Monitor, estimate and reduce bycatch

Any ongoing projects and trials of alternative gear? Any results on alternative gear effectiveness etc. to present?

- Evaluation of effectiveness of Future Ocean Pingers and Banana Pingers in a commercial fishery
- Evaluation of harbour porpoise presence around a pinger developed by Future Ocean
- Evaulating harbour porpoise presence around bouys
- Participating in CIBBRINA
- Participating in Bypass LIFE
- Developing alternative gears for catching flatfish (plaice and turbot)
- Ongoing gear development.....
- Life project developing new acoustic technique recording harbour porpoise clicks

Relevant links/citations

- Belt Sea acoustic monitoring report (https://www.diva-portal.org/smash/get/diva2:1722257/FULLTEXT01.pdf)
- HELCOM, 2022. Qualitative assessment of the abundance and distribution of the Baltic Proper harbour porpoise. HELCOM core indicator report. Draft version for IC EG MAMA 1-2022, Odense, Denmark, 13-15 September 2022. ISSN 2343-2543.
- Stedt et al. (in Press) (https://www.int-res.com/prepress/m14268.html)
- New PhD thesis (Ida Carlen) (https://www.su.se/polopoly_fs/1.624205.1662020160!/menu/standard/file/Ecology%20and%20Conservation%20of%20the%20Baltic%20Proper%20Harbour%20Porpoise.pdf)
- Towed acoustic array by Gotland and Kalmar (https://www.lansstyrelsen.se/publikation?entry=123&context=30)