BSAP B8: By 2022 at the latest, specify knowledge gaps on all threats to the Baltic Proper harbour porpoise population, and by 2023 for the western Baltic population, including by-catch and areas of high by-catch risk, underwater noise, contaminants and prey depletion.

A literature study (more than 180 references checked)

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Jastarnia group meeting, 20-22 th of March 2023

Introduction

Baltic Proper population of harbour porpoise
Description of:

- Abundance and distribution
- Seasonal movement pattern
- Life history
- Energetic requirements
- Prey composition
- Sensory capabilities
- Conservation

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Threats and data gaps- bycatch

- Lack of bycatch monitoring and reporting
- Imprecise monitoring of fishing effort especially with respect to the spatiotemporal scale, and for static nets and small vessels below 12 m

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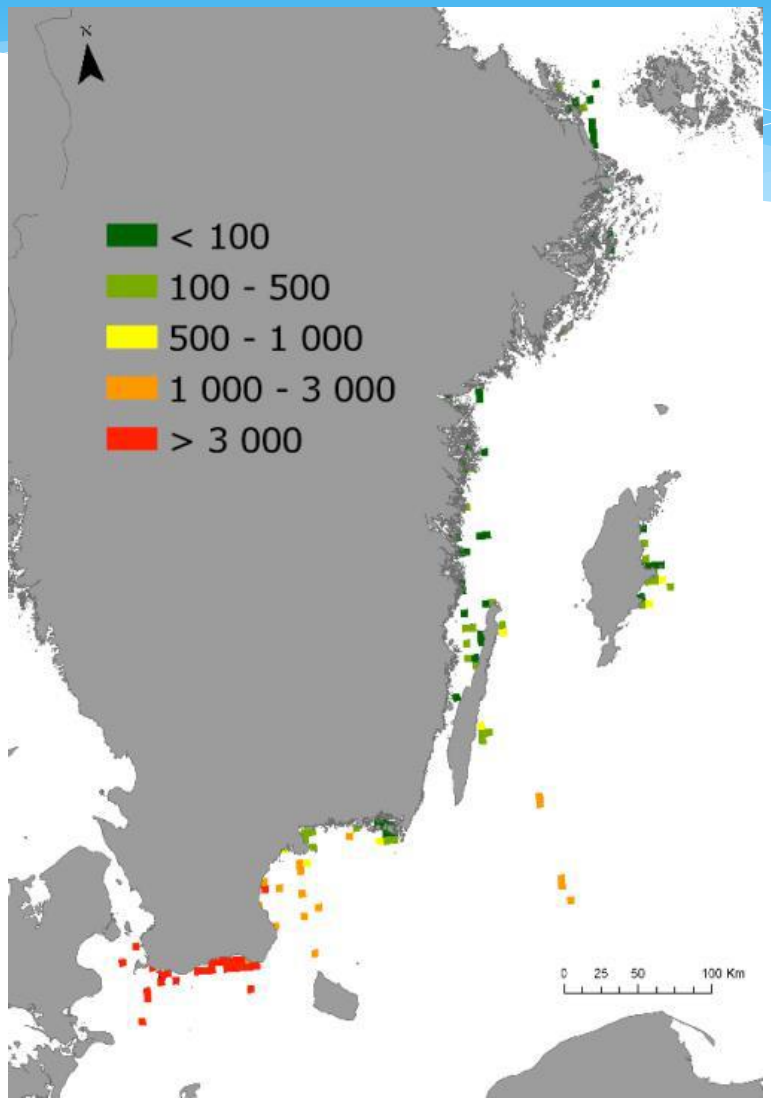
High bycatch risk areas



HELCOM ACTION report

High bycatch risk areas

* Still largely unknown,
* **HELCOM ACTION** provided only initial data on a basis of relative abundance and distribution of harbour porpoise and distribution of relevant fishing effort, and thereby identified areas where monitoring of bycatch needs to be intensified

More data needed on:

* Abundance and distribution of harbour porpoise in the Baltic Sea (SAMBAH II),
* Better spatiotemporal data on fishing effort

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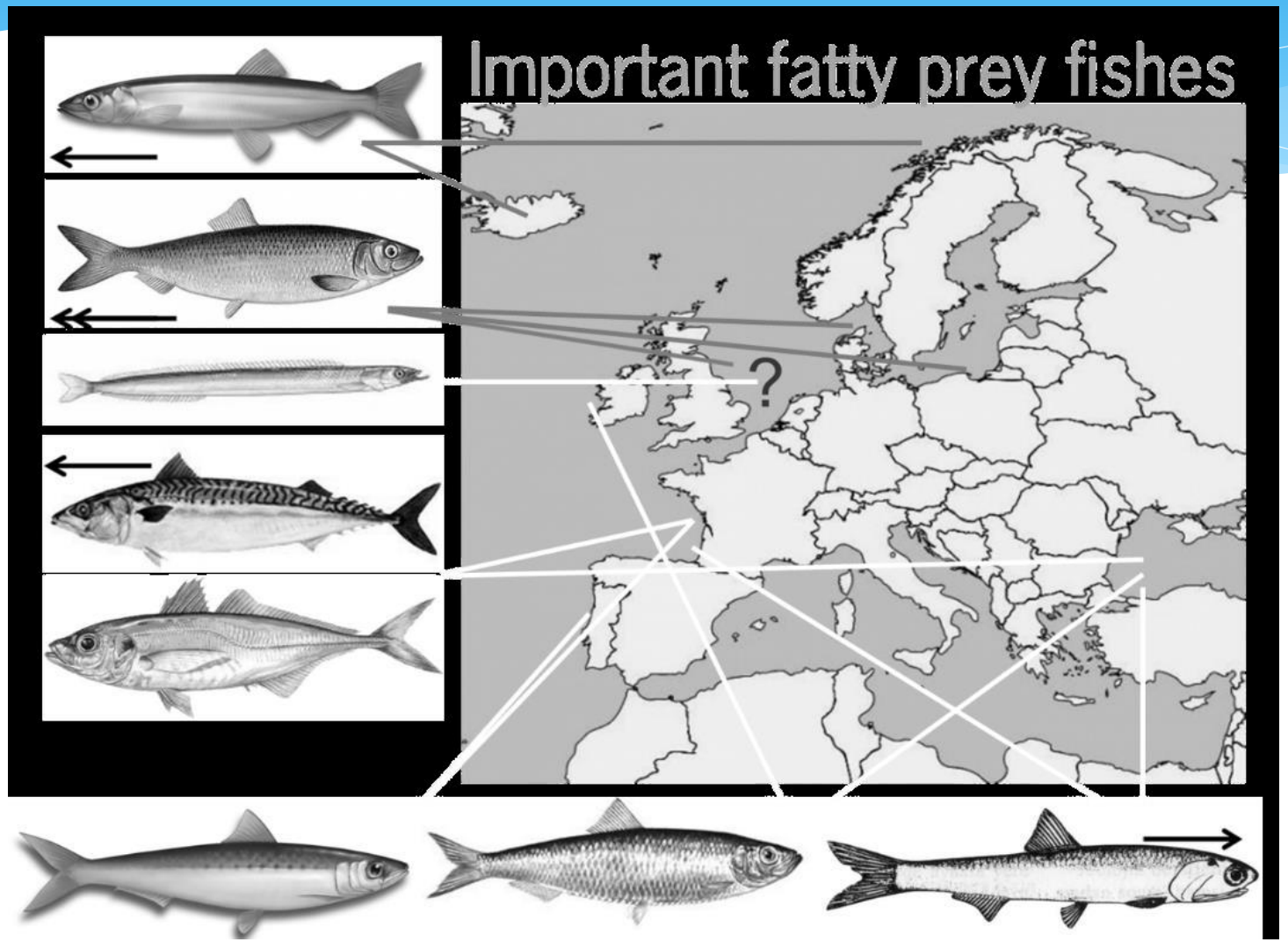
Prey depletion

Leopold, M.F., 2015



Prey depletion

* **Major reasons for prey depletion** : fisheries, climate change, eutrophication, deterioration of fish habitats

Knowledge gaps:

* Lack up to date data on Baltic Proper **harbour porpoise diet**
* Lack of data on **changes in the distribution and quality of potential prey species** (not just commercially caught species) at spatial and temporal scales that would enable comparisons to harbour porpoise distribution and density.

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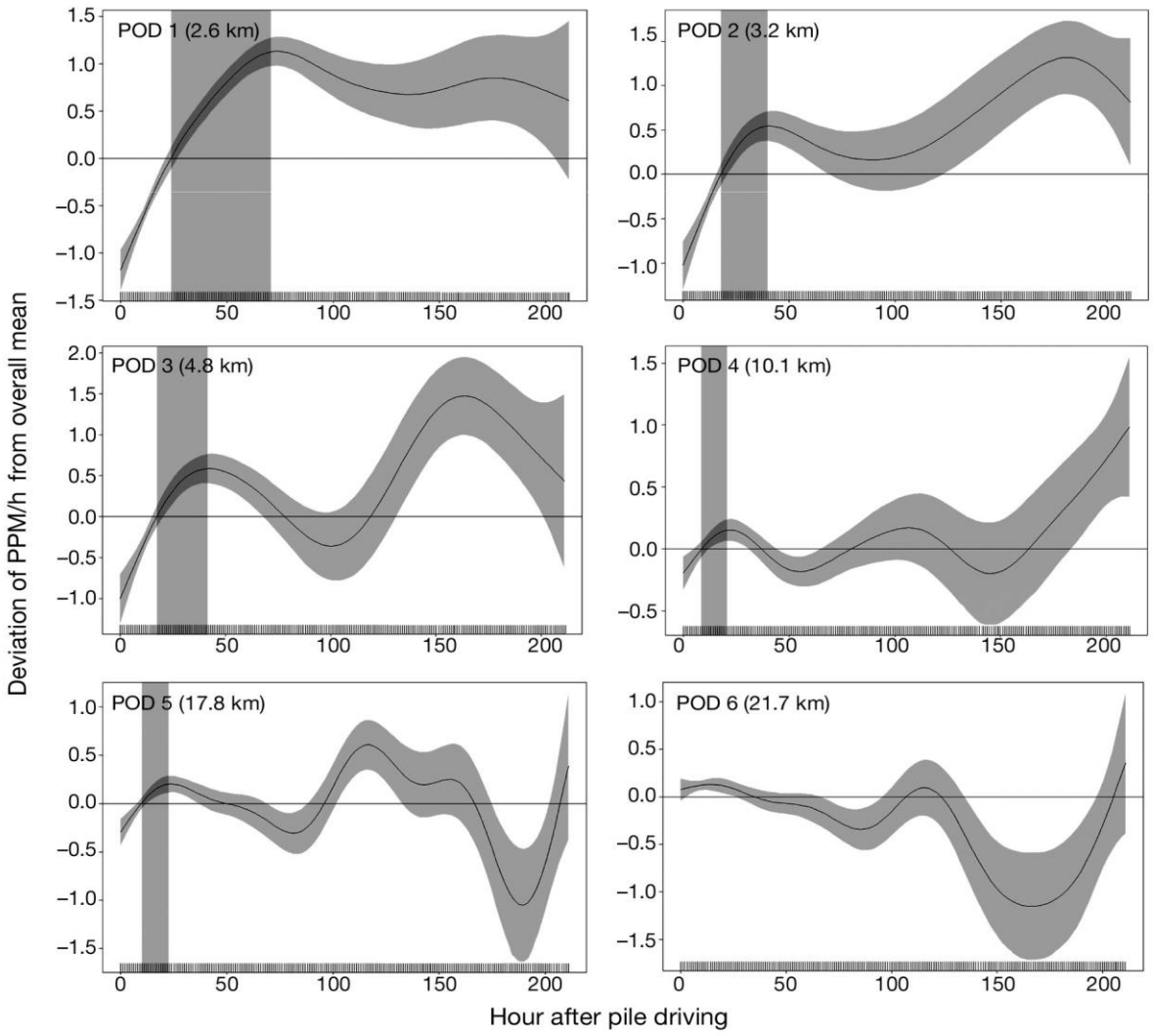
Noise



(Brandt et al. 2011)

Noise

Threat: **acoustic disturbance** (including displacement, masking of communication, reduction of feeding or mating behaviour, and increases in acute or chronic stress etc.).

Data gaps:

* impacts of **continuous noise** at the individual- and, especially, population-level of Baltic Proper harbour porpoise especially on foraging and mating success of individuals,
* This chapter still needs more work!, especially **impulsive noise**.

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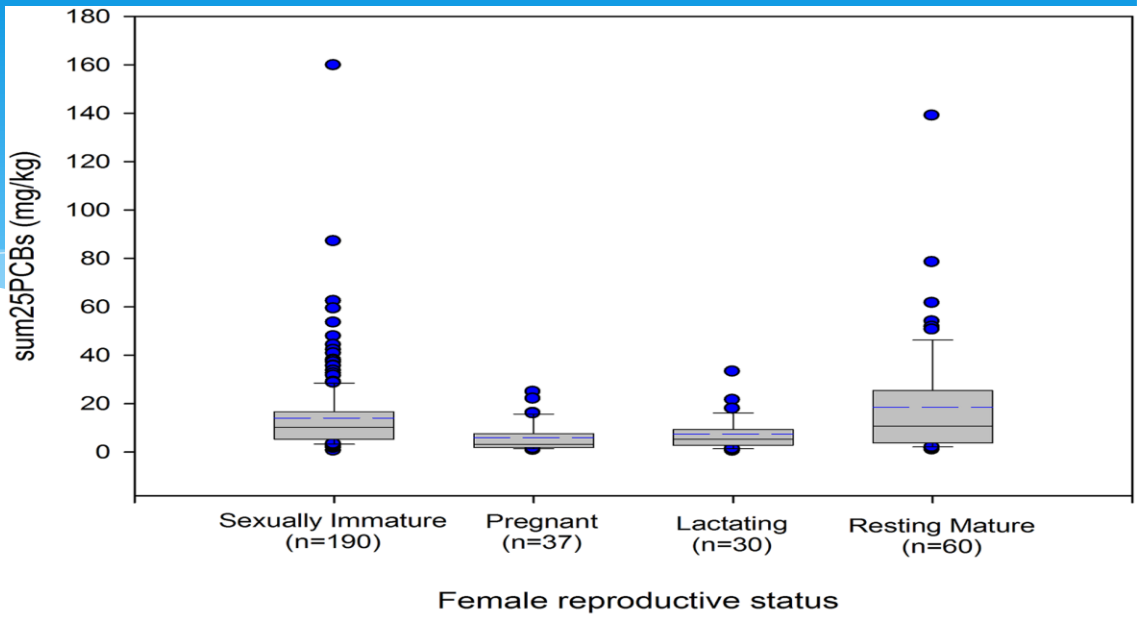
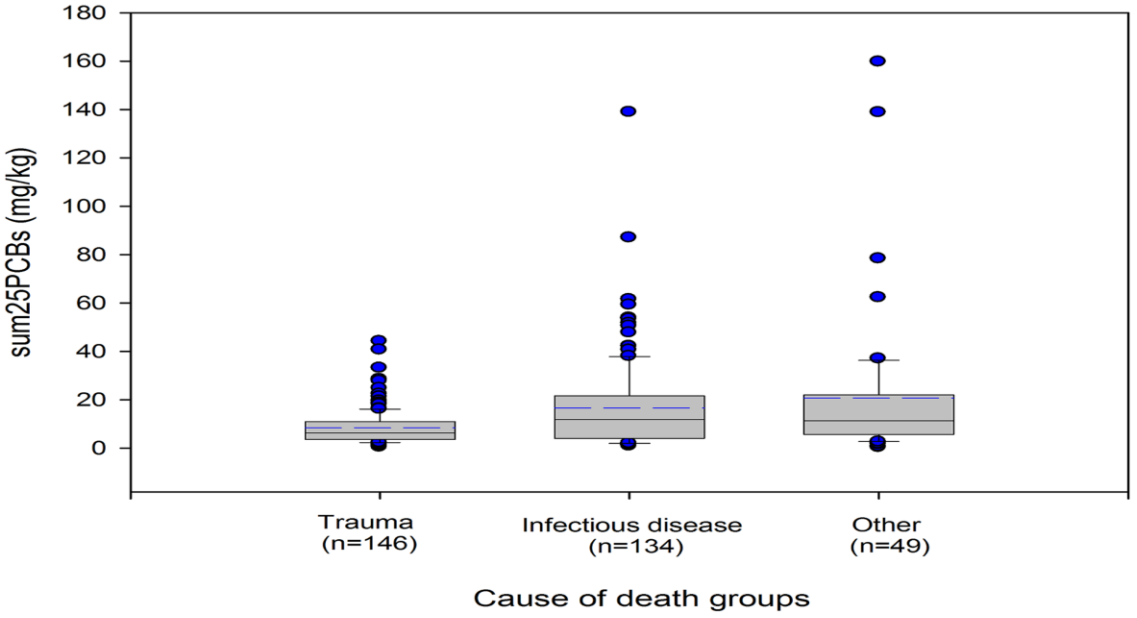
Contaminants





Murphy et al. 2015

Contaminants

Higher concentrations **of contaminants** e.g. PCBs in the Baltic Sea than e.g. in Kattegat/Skagerrak, Norway.

Data gaps:

- Suspect for impediment to the health (including the risk of infectious disease) and reproductive status – **but lack of enough amount of samples**
- the **impact of PCB exposure on marine mammals** is still largely unknown
- From other elements such as **heavy metals, oil pollution** and **pharmaceuticals** little data on negative effect of, cumulated through the lifespan, heavy metals on health status exist.

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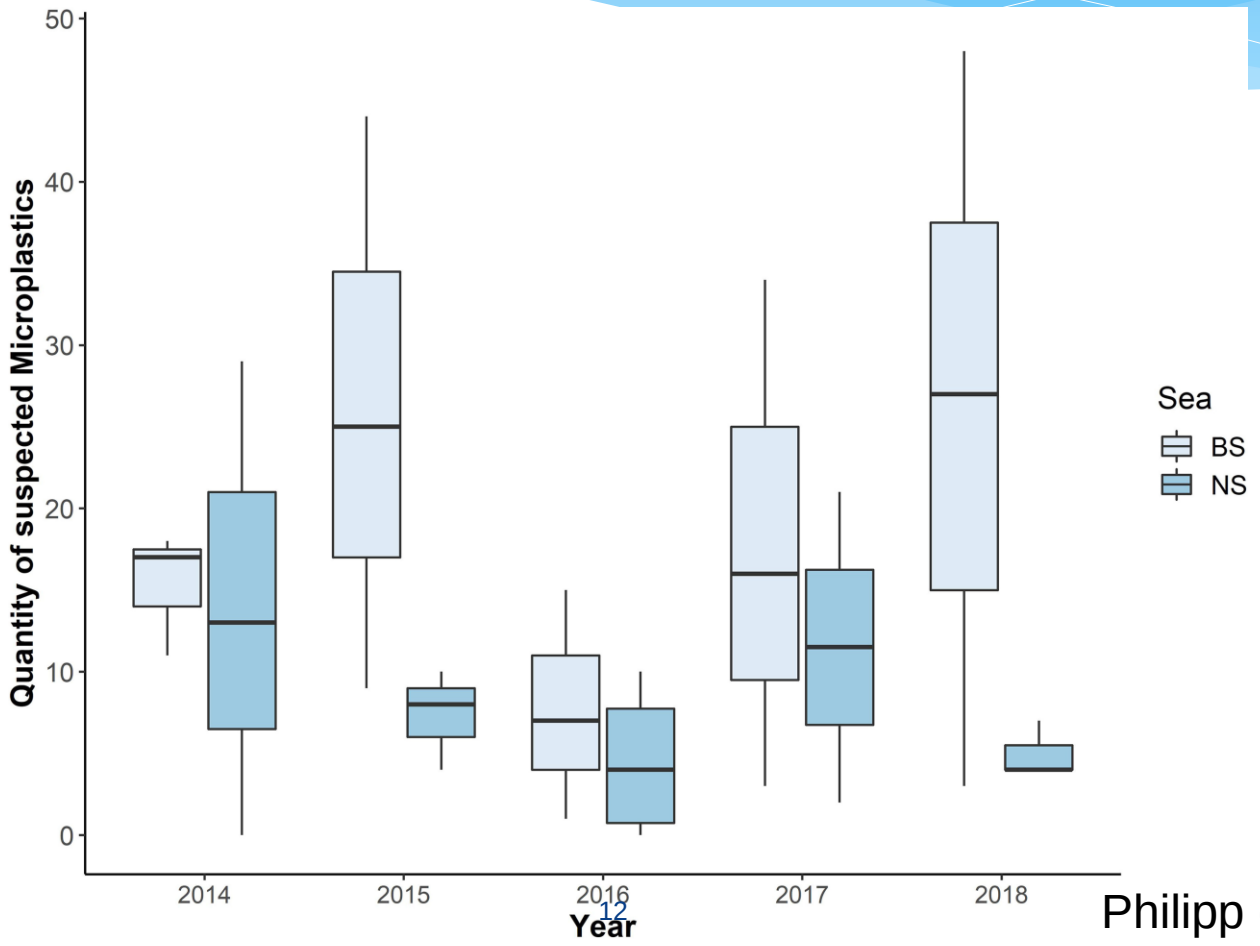
Waste



Philipp et al. 2021

Waste

* Pose a threat to porpoises through: **entanglements and plastic ingestion**

* large knowledge gap concerning threat to BP harbour porpoise caused by marine litter – data from other marine regions;
* difficult to **differentiate between actual entanglement in ALDFG and entanglement in active gear**
* **ingestion of microplastics** and their potential toxicological and pathogenic effects (ingestion is proved in the Baltic Sea), **but pathogenic effects unknown. Potential vector for POP burden?**

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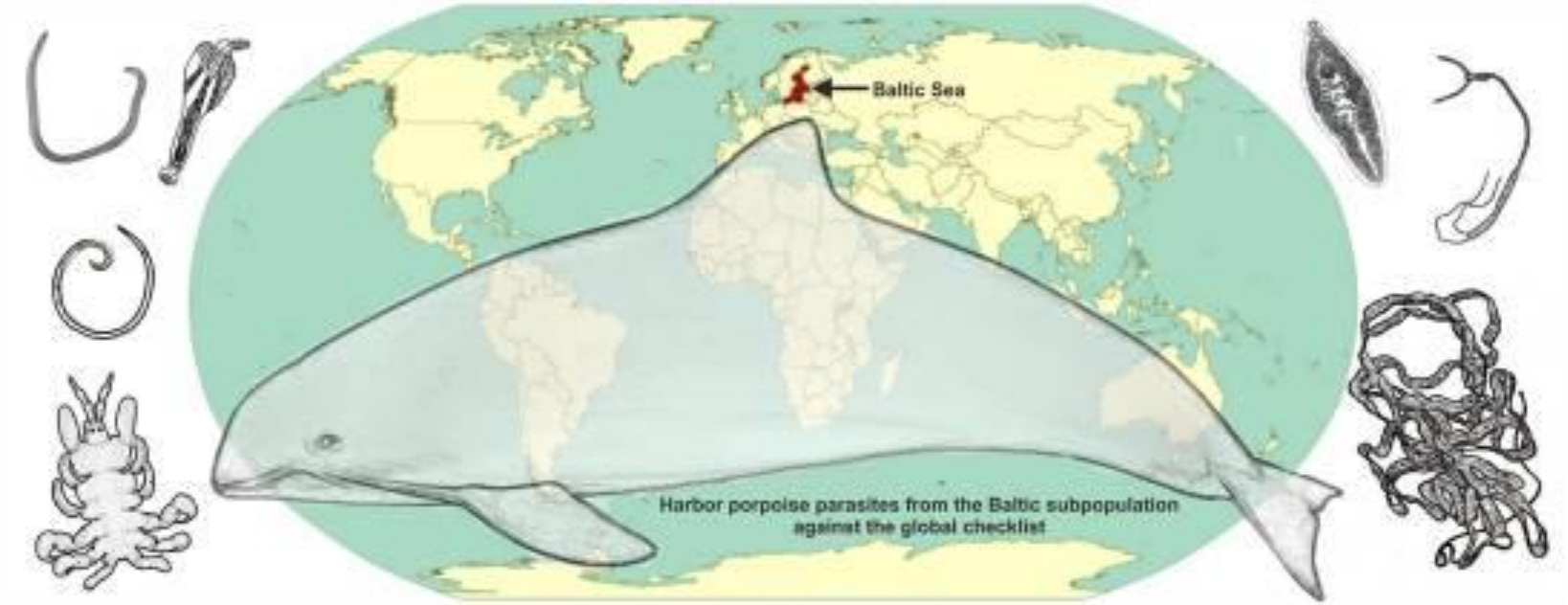
Disease



Dzido et al. 2021

Disease

- **Environmental factors seem to play a role** in the health status od harbour porpoises.

For example:

- Parasite infections in the Baltic Sea including Baltic Proper population **seem to be higher** than in other areas (e.g. Greenland)

Data gaps:

- **Disease factors and mortality etiologies are difficult to study** and **only few samples available** for the Baltic proper harbour porpoise. Data from stranded animals are important. In the Baltic sea (rather Western population not BP) **pneumonia** was a frequent cause of death.

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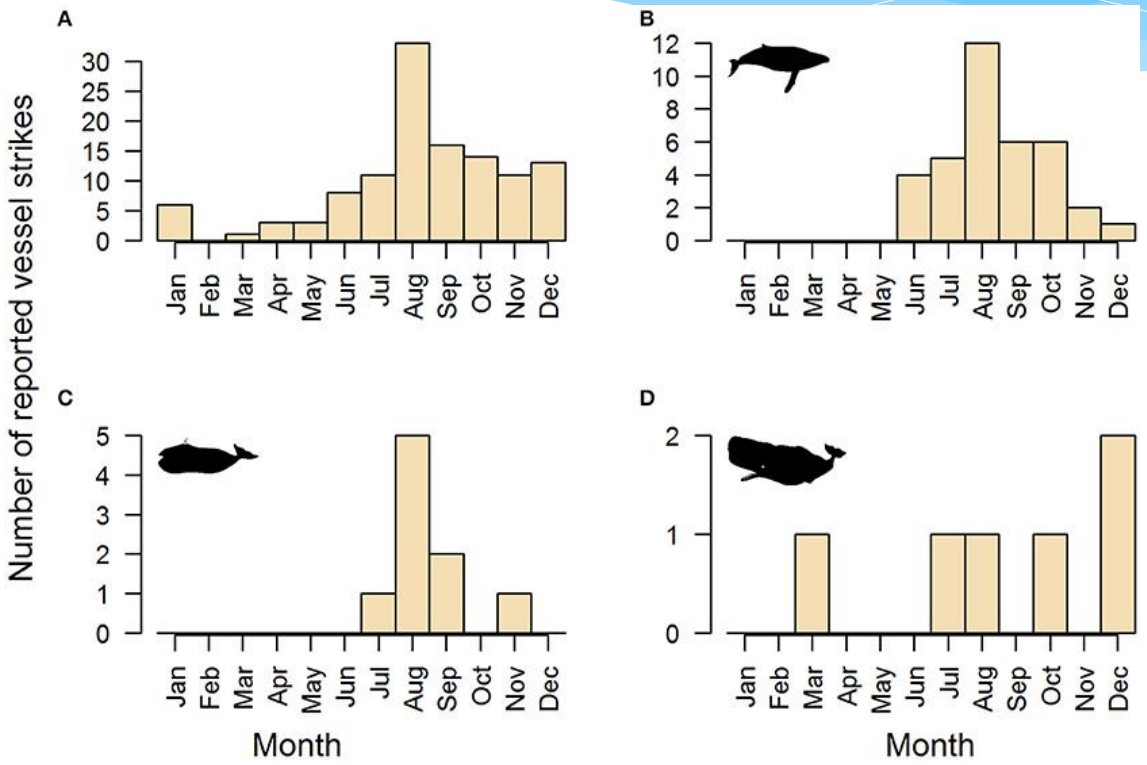
Collisions



Peel et al. 2018

Collisions

* Problem **known for large baleen whales** (physical trauma or death).

For small cetaceans **very scarce evidence of collisions** :

* Due to reporting biases (more difficult to notice);
* Due to the avoidance behaviour of porpoises.

Rapid expansion in **high speed ferry traffic** around the world, **or jet skis** locally may lead to the lethal injuries of small cetaceans in the future.

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Thank you for your attention

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