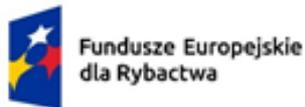

BSAP B8: By 2022 at the latest, specify knowledge gaps on all threats to the Baltic Proper harbour porpoise population, and by 2023 for the western Baltic population, including by-catch and areas of high by-catch risk, underwater noise, contaminants and prey depletion.

A literature study (more than 200 references checked)

Sven Koschinski (DE expert), Kyle Owen (SE), Kate Kaminska (PL)



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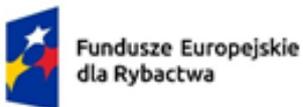
ASCOBANS AC, 26-28 th of September 2023

Introduction

Baltic Proper population of harbour porpoise

Description of:

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



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Threats and data gaps- by-catch



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By- catch rate

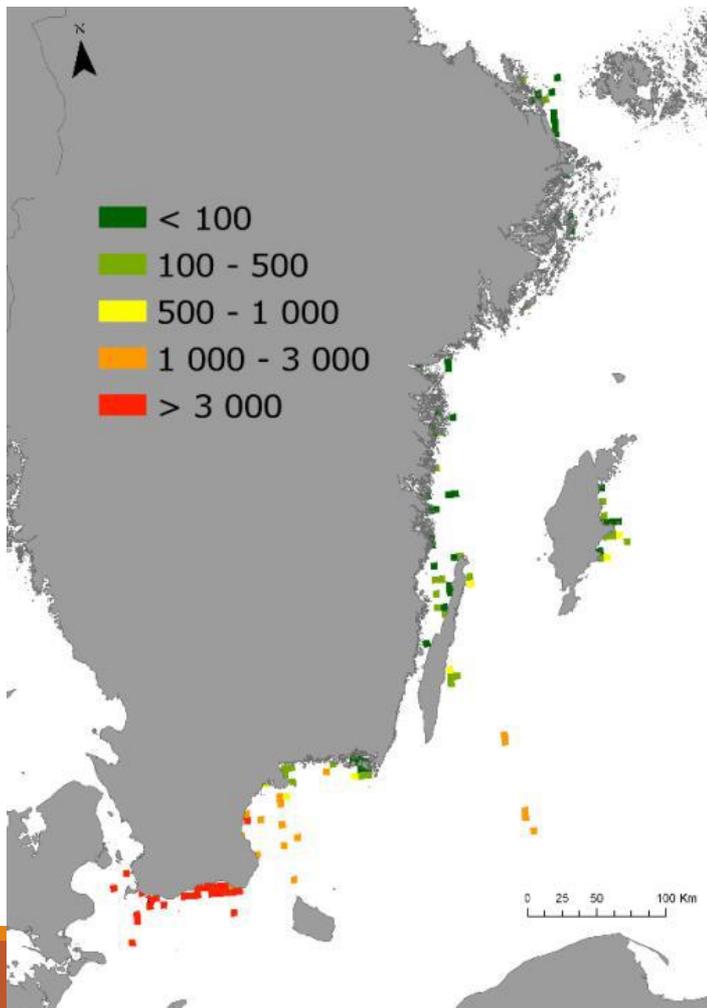
- Lack of **by- catch monitoring and reporting**
- Imprecise **monitoring of fishing effort** especially with respect to the spatiotemporal scale, and for static nets and small vessels below 12 m

More data needed on:

By- catch numbers;

Spatio-temporal data on fishing effort for relevant métiers to calculate by- catch rate.

Areas of high by- catch risk



Areas of high bycatch risk

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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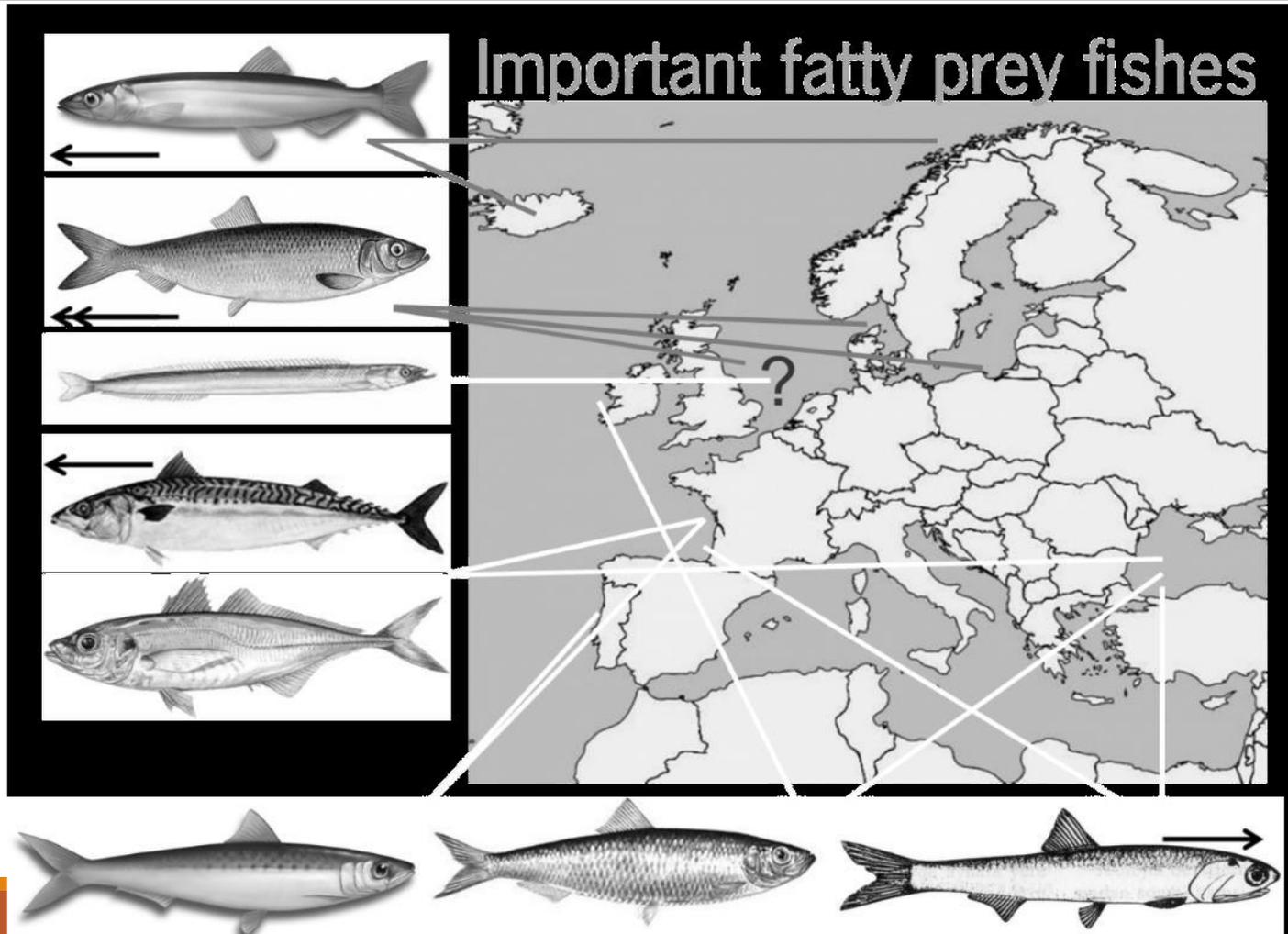
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Prey depletion

Leopold, M.F., 2015



Prey depletion

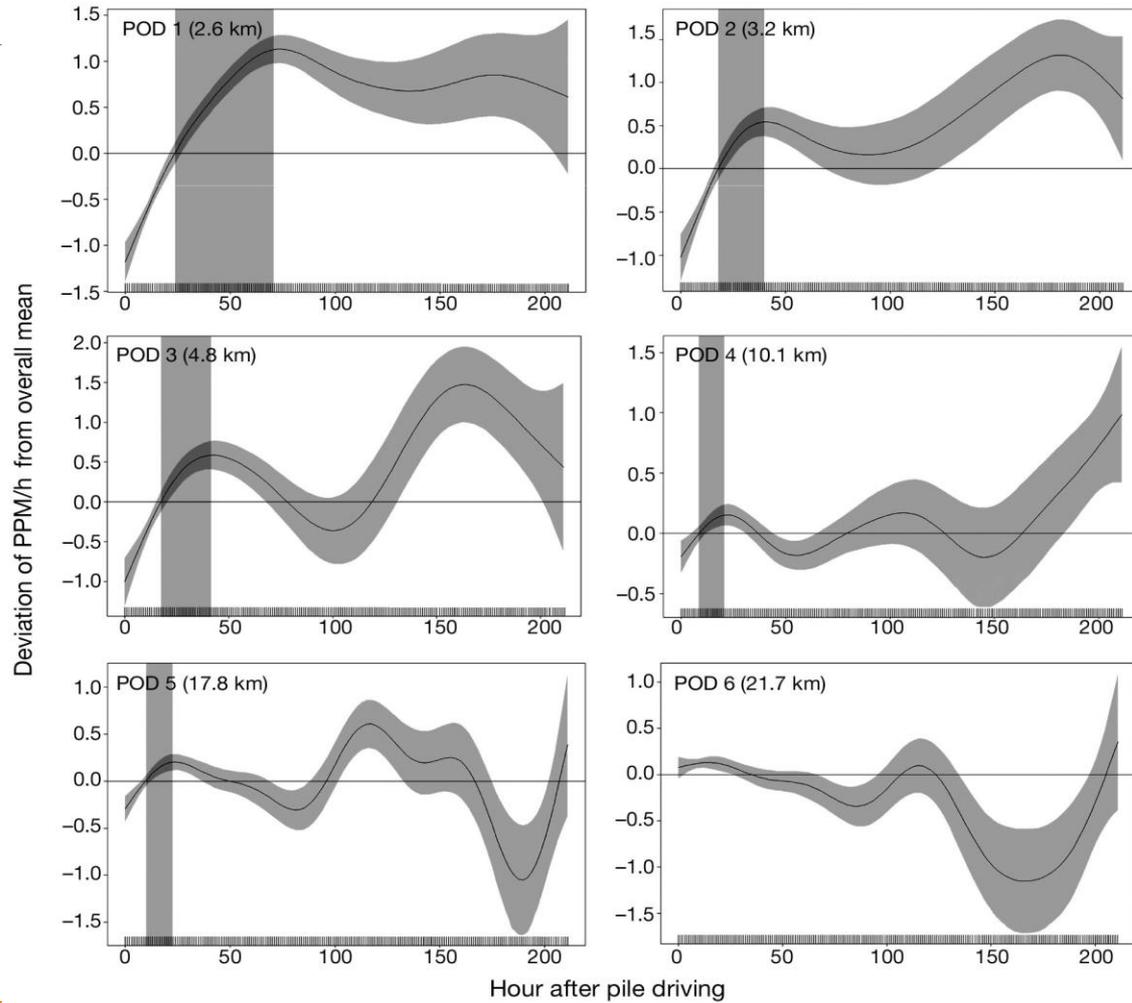
Major reasons for prey depletion : fisheries, climate change, eutrophication, deterioration of fish habitats

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.

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:

Impact of **continuous noise** at the individual- and, especially, population-level of Baltic Proper harbour porpoise especially on foraging and mating success of individuals,

Impact of **impulsive noise** on individual and especially population level on energetic and population consequences are unknown, in case of e.g. explosions they may cause injury or death.



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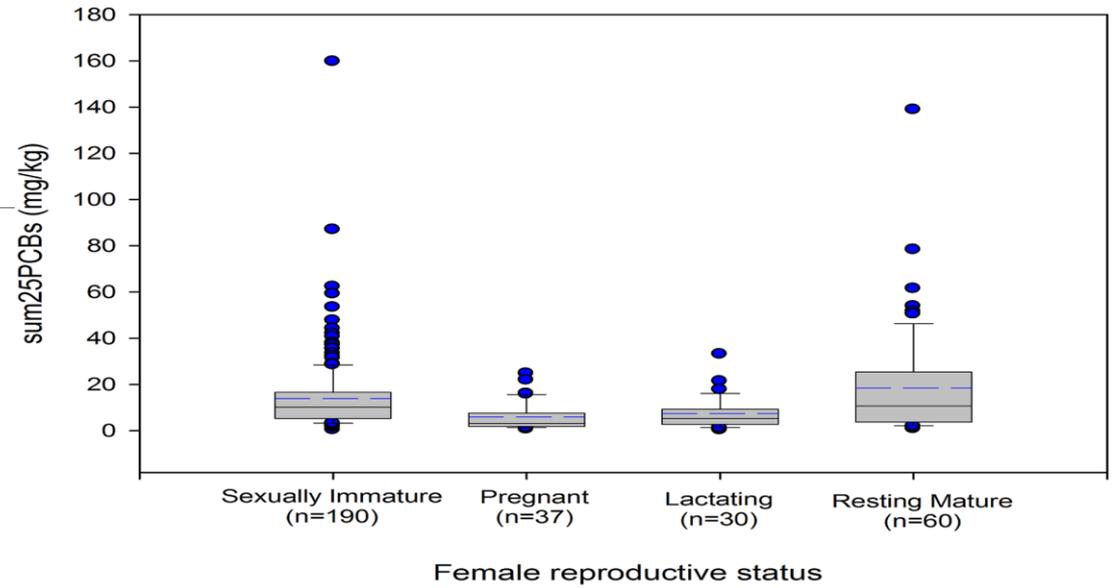
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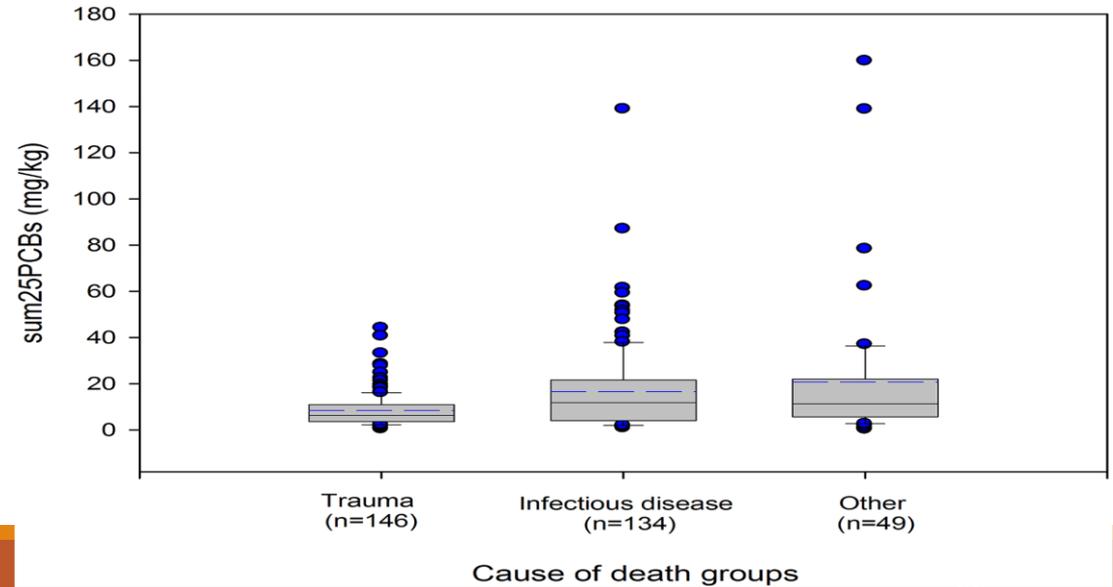


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Contaminants



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 to affect 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, but from other regions we know that the impact is negative.



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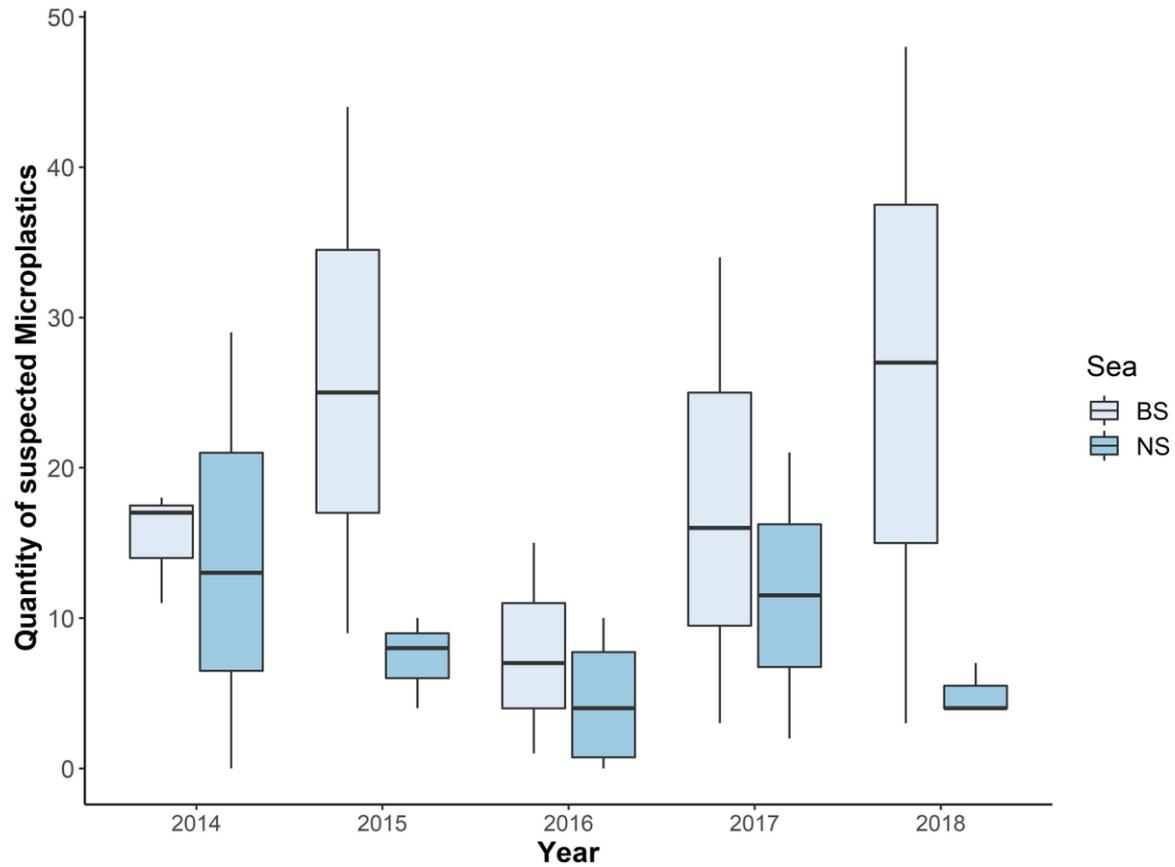
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Waste



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 of 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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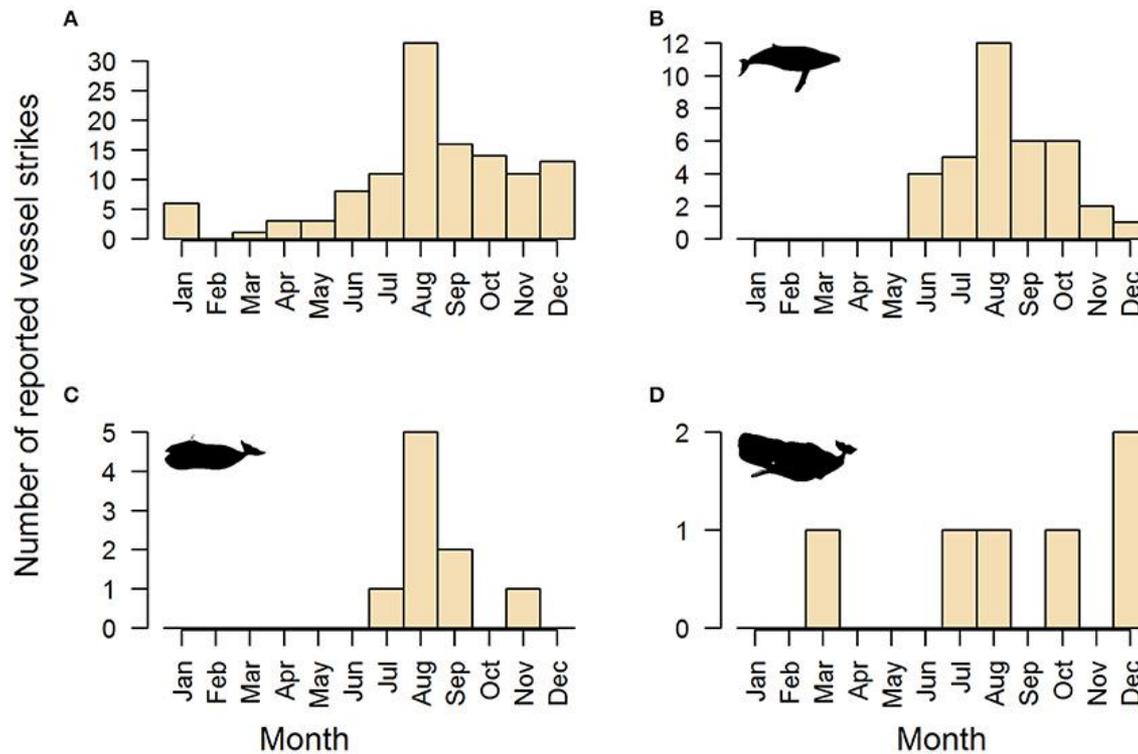
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Vessel strikes



Peel et al. 2018

Vessel strikes

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

For small cetaceans **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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Major conclusions

A **lot knowledge gaps exist but we know enough to act** and implement hp protection measures for all anthropogenic pressures;

There is an **urgent need for an updated abundance estimate and new information on the distribution of the population** to best locate our conservation efforts;

It is important to **introduce ecosystem-based sustainable management of fisheries, aquaculture and agriculture**, in order to maintain a functioning food web;

Cumulative pressures need to be taken into account;

There is still a need **to better eliminate pollution and regulate the use of emerging noise sources**

A **common database including the cause of death, health status, contaminant load, and population assignment of each animal** investigated would help in quantifying the population-level impact of each activity.

Thank you for your attention



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