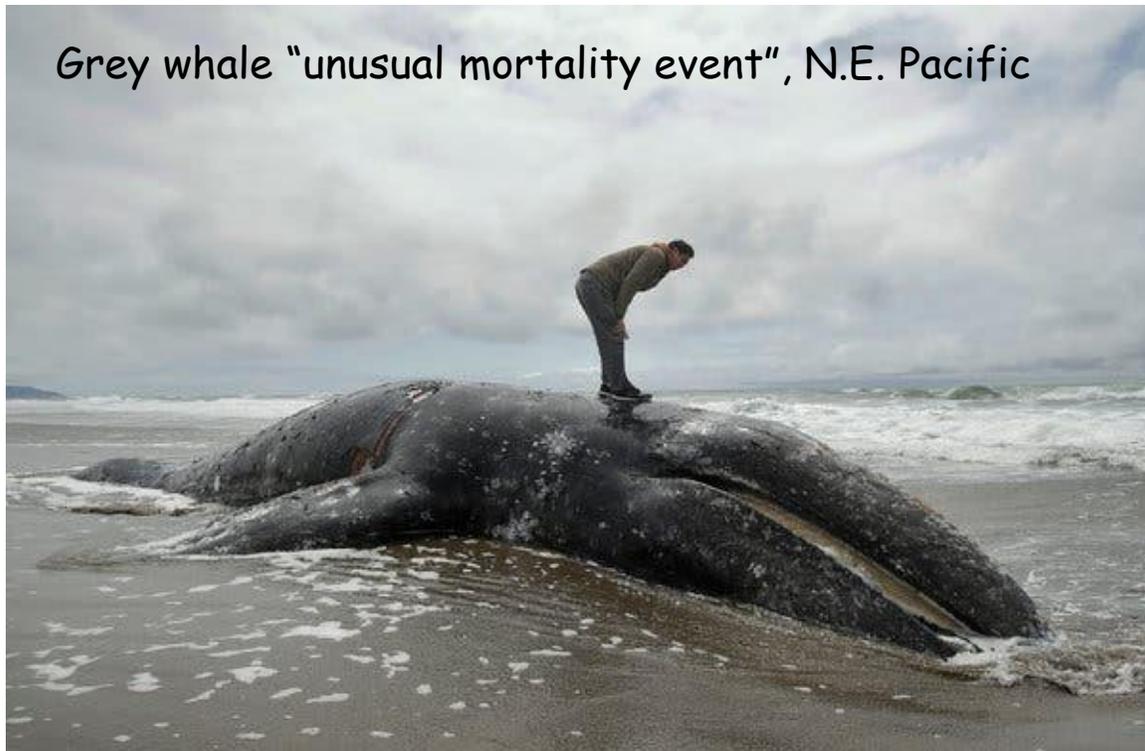


ASCOBANS AC25 - Stralsund, Germany, 17-19 Sept 2019

2. Review of new information on threats to small cetaceans

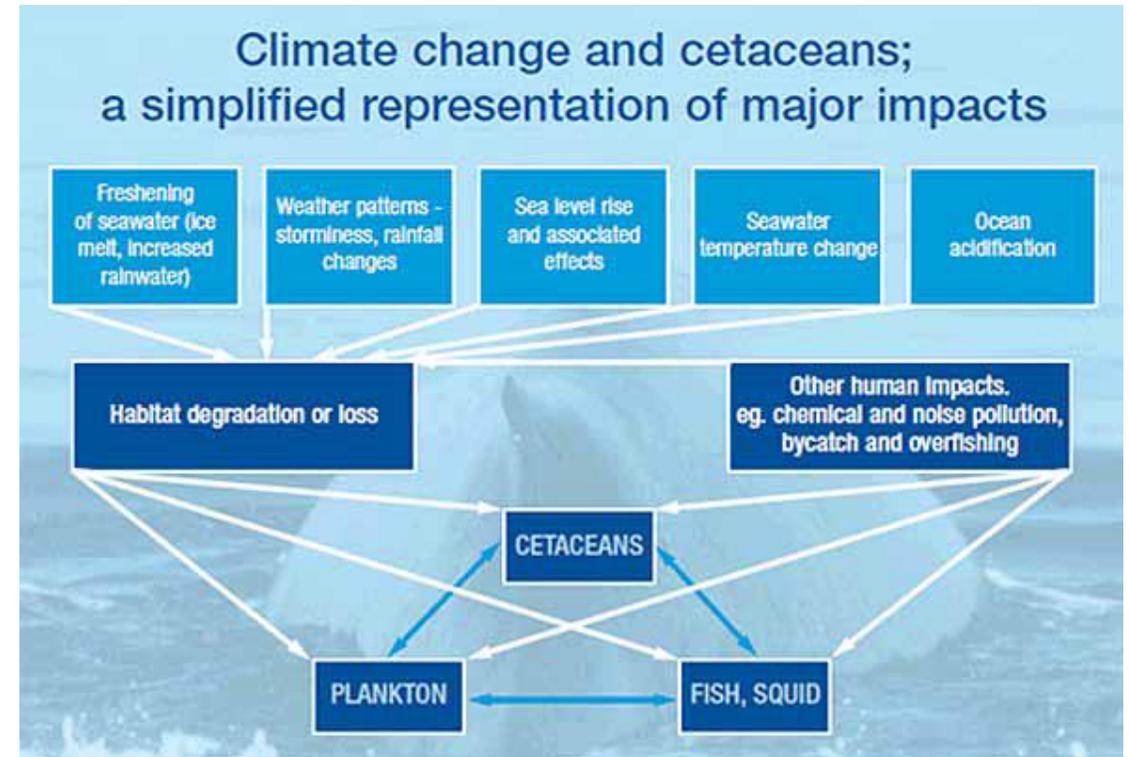
2.5. CLIMATE CHANGE

Relevant Resolutions: 8.9, 8.4, 8.3, 8.2, 8.1, 7.4, 7.1, 6.1, 5.7



Grey whale "unusual mortality event", N.E. Pacific

Jeff Chiu/Associated Press, New York Times 22/6/19



Elliott & Simmonds, 2007. Whales in Hot Water? WDC Report

AIM: To illustrate progress on understanding, monitoring and mitigating negative effects on small cetaceans of important and emerging climate-change-related hazards

It is certain that climate change is altering the habitat of cetaceans. However, our understanding on how the predicted changes will impact different species and populations is still lacking. CMS highlights the importance of addressing potential issues through the engagement of researchers to better understand the underlying processes, as well as conservation managers and policy makers to monitor changes and to mitigate negative impacts. Focussing on tangible climate change effects relevant to cetaceans, such as ocean warming, prey depletion / prey range shifts, ocean acidification, increased frequency and intensity of ocean storms, sea ice, weakening of the North Atlantic Drift, we need to gather evidence on the existence and nature of climate change effects on small cetaceans and evaluate current monitoring programmes and mitigation measures.

This section aims to provide an overview of what kind of activities are already ongoing in the member states to address climate change. The focus is hereby on those actions specifically regarding cetaceans as well as the most likely impacts on their habitat and prey. Climate change represents possibly the most important future threat to the status of cetaceans in the ASCOBANS region. Direct effects may arise due to ocean warming, resulting in (generally northward) in distribution shifts so that the animals continue to occupy waters with temperature regimes compatible with their thermal niches. Key indirect effects will result from prey distribution and abundance due to ocean warming, ocean acidification and ocean current systems.

National reports

High-level Summary of Key Messages

2. The greatest challenges in implementing the Agreement?

UK: Climate change

BE	DK	FI	FR	DE	LT	NL	PO	SE	UK
12.1. Does your country monitor climate effects on cetaceans?									
No	No	No	Yes	Yes		Yes	No		Yes
12.5. Are there any actions / measures in your country to reduce identified climate change impacts on small cetaceans (directly or indirectly)?									
No		No	No	No		No	No		No

12.2. Which effects has your country been monitoring in the reporting period from 2016 to 2018?

Monitoring activity	FR	DE	NL	UK
Changes in...				
small cetacean abundance	Yes *	Yes	Yes *	Yes *
small cetacean distribution	Yes *	Yes	Yes *	Yes *
small cetacean migration or movement range				Yes *
small cetacean migration or movement timing		Yes *	Yes *	Yes *
small cetacean community structure	Yes *			
small cetacean reproductive success and timing	Yes *			Yes *
prey (fish) abundance and distribution	Yes *		Yes *	Yes *
prey (fish) timing of spawning and migration	Yes *			Yes *
fishing effort	Yes *		Yes *	Yes *
occurrence of pathogens (from sampled individuals)			Yes *	Yes *
Incidences of algal blooms	Yes *	Yes *		Yes*

* Explanations, references, contact points and/or link(s) provided

12.3. List new initiatives / projects which provide evidence / data about climate change effects on small cetaceans in your country in 2016-2018

New initiatives and projects

PhD (St Andrews): "Marine mammal predators and ecosystem change in European Atlantic seas." Focus: porpoise diet and sandeel abundance.

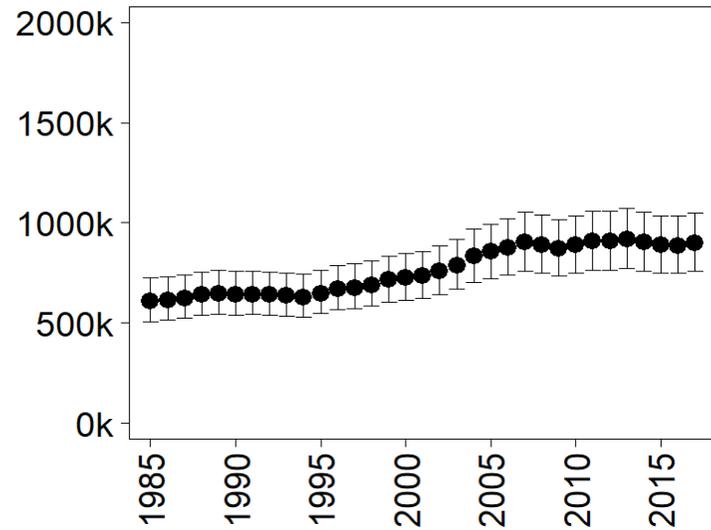
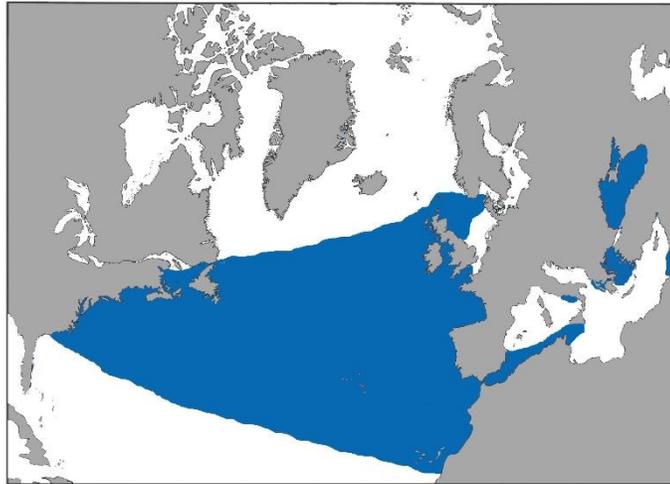
UK

NERC/Defra funded MERP (Marine Ecosystem Research Programme) Project: Sea Watch Foundation / Bangor University mapped temporal changes in the abundance and distribution of fish and cephalopods as well as climate indices and related these to temporal trends in the abundance and distribution of cetaceans.

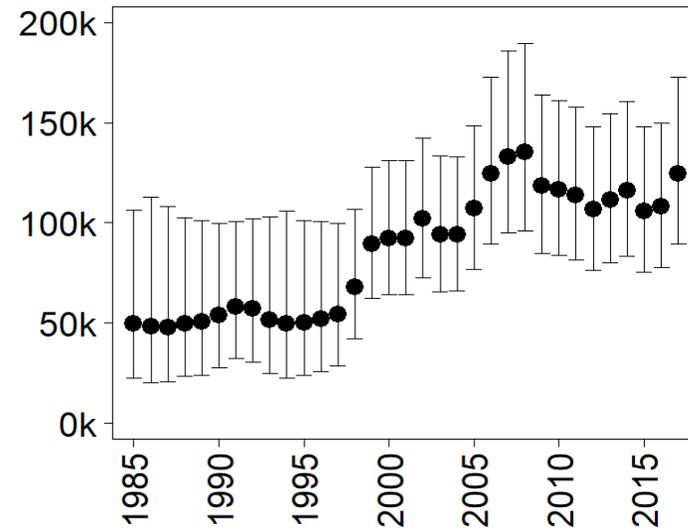
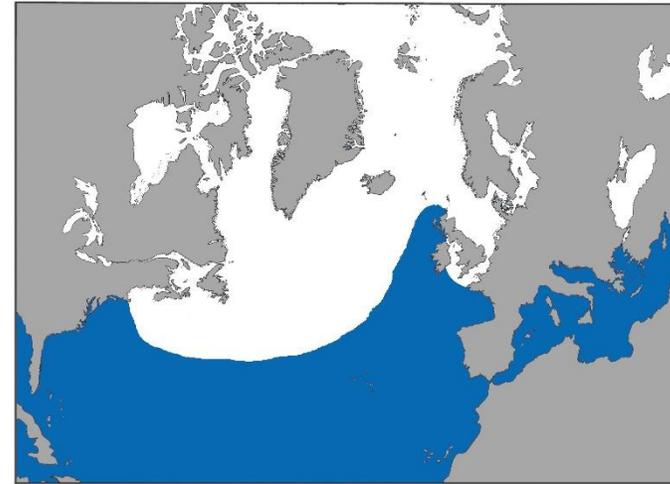
See: Evans & Waggitt (2019) Impacts of climate change on marine mammals. Marine Climate Change Impacts Partnership (MCCIP) Science Review 2019 (in press).

CLIMATE CHANGE IMPACTS UPON MARINE MAMMALS

Common Dolphin



Striped Dolphin



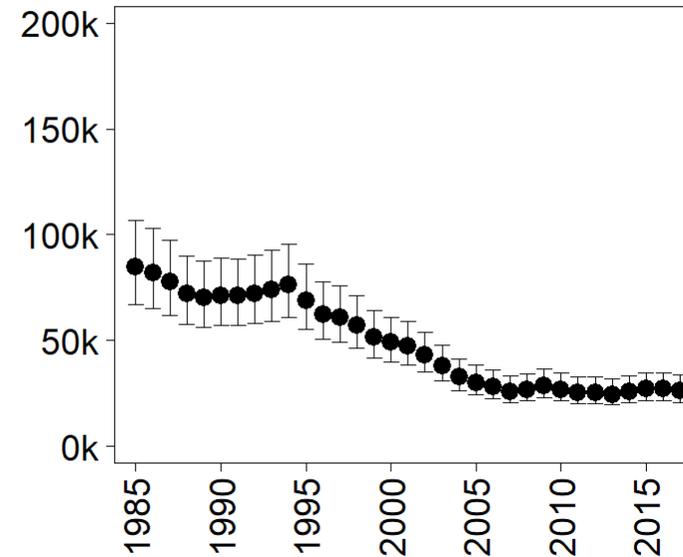
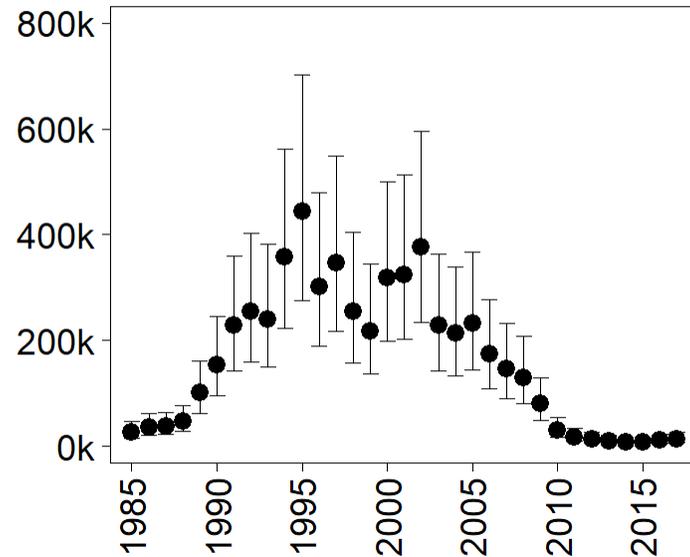
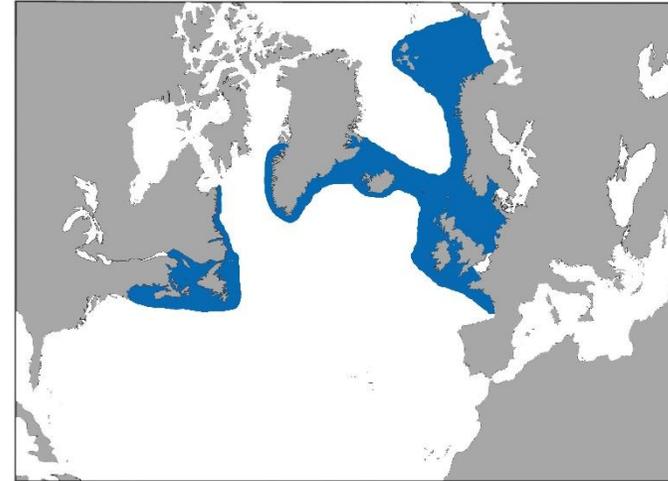
Source: Evans & Waggitt (2019)

CLIMATE CHANGE IMPACTS UPON MARINE MAMMALS

Atlantic White-sided Dolphin

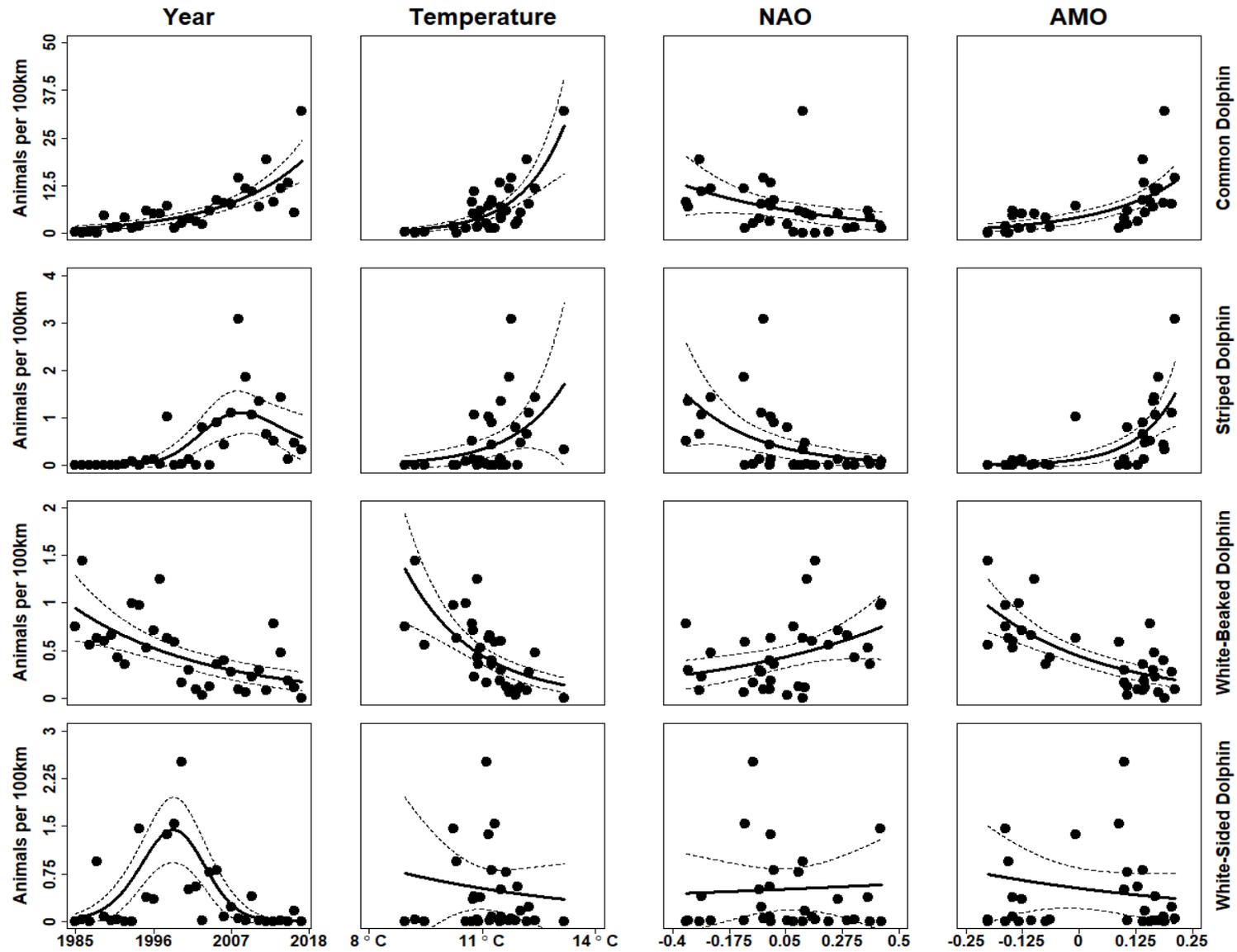


White-beaked Dolphin



Source: Evans & Waggitt (2019)

CLIMATE CHANGE IMPACTS UPON MARINE MAMMALS



Source: Evans & Waggitt (2019)

12.4. List new reports/publications which provide evidence / data of climate change effects on small cetaceans in your country in 2016-2018

	New reports and publications
UK	<p>Bairstow, A. (2017) The effects of climate change on Northwest European cetaceans. MSc Thesis, University of Bangor. 35pp.</p> <p>Evans, P.G.H. and Bjørge, A. (2013) Impacts of climate change on marine mammals. Marine Climate Change Impacts Partnership (MCCIP) Science Review 2013: 134-148. Published online 28 November 2013 doi:10.14465/2013.arc15.134-148.</p> <p>Evans, P.G.H. and Waggitt, J.J. (2019) Impacts of climate change on marine mammals. Marine Climate Change Impacts Partnership (MCCIP) Science Review 2019 (in press).</p> <p>MacDonald, A., Speirs, D.C., Greenstreet, S.P.R. & Heath, M.R. (2018) Exploring the Influence of Food and Temperature on North Sea Sandeels Using a New Dynamic Energy Budget Model. <i>Frontiers in Marine Science</i>, 5, 53-14.</p> <p>Simmonds M.P. (2017) Evaluating the Welfare Implications of Climate Change for Cetaceans. In: Butterworth A. (eds) <i>Marine Mammal Welfare</i>. <i>Animal Welfare</i>, vol 17. Springer, Cham https://doi.org/10.1007/978-3-319-46994-2_8</p>

12.6. List any gaps in monitoring / mitigation of climate change effects on cetaceans

	Gaps
FR	How can we relate changes in cetacean population to climate change (at least in temperate areas)?
UK	<p>A need for greater understanding of habitat use and prey changes effects on predators, especially for harbour porpoises which appear to be very sensitive to any reduction in foraging success. Need for further information on the abundance of important porpoise prey especially sandeels and gobies in UK waters. The same applies to all species listed in 12.9 and other fish species affected by climate change eg. cod, whiting, haddock.</p> <p>Greater frequency of monitoring to understand finer-scale changes in abundance and distribution.</p>

12.7. List any emerging potential issues related to climate change effects on small cetaceans

	Emerging potential issues
UK	Shift or contraction in range; changes to physical habitat; changes to food web, prey distribution and availability and predator-prey relationships; increased susceptibility to disease and contaminants; effects on reproductive success

12.8. Have there been any other notable instances / issues on climate change effects on small cetaceans in your country in the reporting period?

	Notable instances
BE	Appearance in Belgium of a narwhal (2016) and a bowhead whale (2017), potentially linked with dwindling Arctic ice (Haelters 2017, Lutra 60 (1): 1-3).

12.9. Is the perceived level of pressure from climate change to small cetaceans in your country increasing, decreasing, staying the same or unknown?

Species	BE	DK	FI	FR	DE	LT	NL	PL	SE	UK
Harbour porpoise <i>Phocoena phocoena</i>					U		U			I
Bottlenose dolphin <i>Tursiops truncatus</i>										I
Risso's dolphin <i>Grampus griseus</i>										I
Short-beaked common dolphin <i>Delphinus delphis</i>										I
White beaked dolphin <i>Lagenorhynchus albirostris</i>										I

* I = increasing, D = decreasing, S = staying the same, U = unknown

Conclusions

- Only the UK views climate change as the greatest challenge in implementing the agreement
- There is a good level of monitoring of Cetacean abundance, distribution etc (although it may not be straightforward to extract the climate change signal)
- Only the UK reports new initiatives and publications
- Gaps: (a) how to identify the climate signal, (b) fine-scale prey and habitat use data (and fine-scale monitoring to obtain these data)
- Range changes are an issue