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

Agenda Item 2:

Review of new information on threats to small cetaceans

2.6 PHYSICAL HABITAT CHANGE (e.g. from construction)

Relevant Resolutions: 8.11, 8.9, 8.6, 8.4, 8.3, 8.2, 8.1, 7.1, 6.2, 6.1, 5.7

AIM: Human activities in the Agreement area have the potential to impact upon small cetaceans. Tracking those activities causing physical habitat change and better understanding their relative impacts will help shape any necessary mitigation action required.

This section aims to review new information on physical habitat change, e.g. from construction, and its impacts on small cetaceans, their prey and their habitat, and to make recommendations to Parties and other relevant authorities for further action.

The collation of this information will contribute to the development of risk maps showing the spatial and temporal (by season) distribution of activities that have an impact on cetaceans, including information provided in National Reports, taking into account the work done by other organisations.

Note: In the term "physical habitat change", we include a) coastal/marine construction – artificial islands, harbours, bridges, oil/gas platforms, wind turbines, tidal turbines; and b) seabed damage – dredging, bottom trawling.

National Reporting on Physical Habitat Change (e.g. from construction)

BE	DK	FI	FR	DE	LT	NL	PO	SE	UK
13.1. Do you have spatial information on locations of physical habitat change in your country for 2016-18?									
yes		yes	unknown	yes		yes	unknown		yes

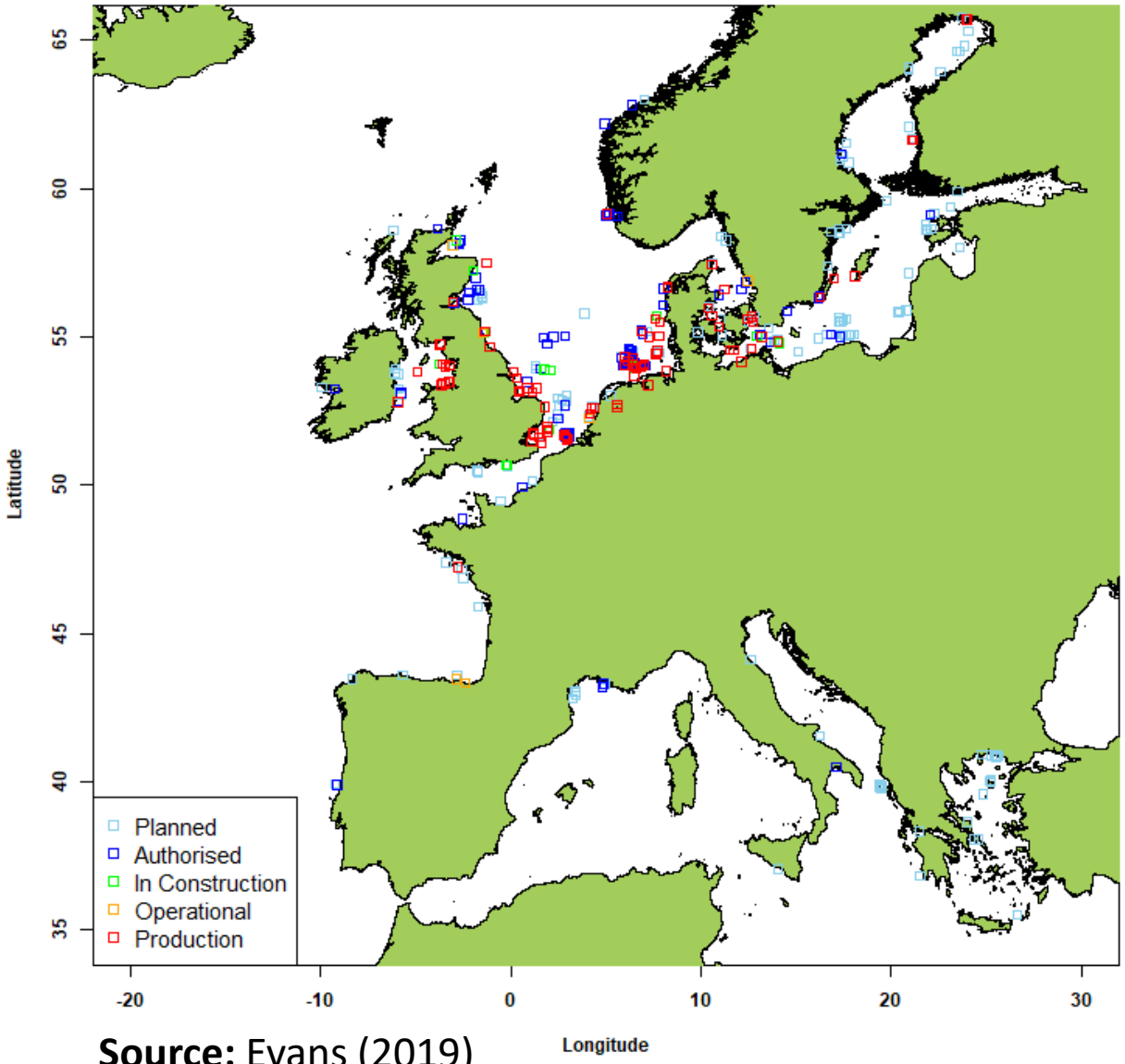
→ Most countries have maps of dredging & sand extraction activities, wind farm, tidal turbine & bridge constructions, and ICES have data on bottom trawling & scallop dredging fishing activities although not directly on seabed damage

13.2. Does your country have any cases of impacts on small cetaceans during physical habitat change activities (e.g. dredging, marine construction, coastal construction)?									
no		no	unknown	yes		no	unknown		no

→ *Germany:* Nine cases of the noise threshold being met were recorded between 2016 and 2018; seven of these were in the southern North Sea and two in the Arkona Basin. These are all from pile driving activities and with double bubble curtains deployed, and in some cases also the 1 HC Noise Mitigation System and/or Hydro Sound Damper. The number of turbines involved ranged from 31 to 70. All of these cases are noise impacts.

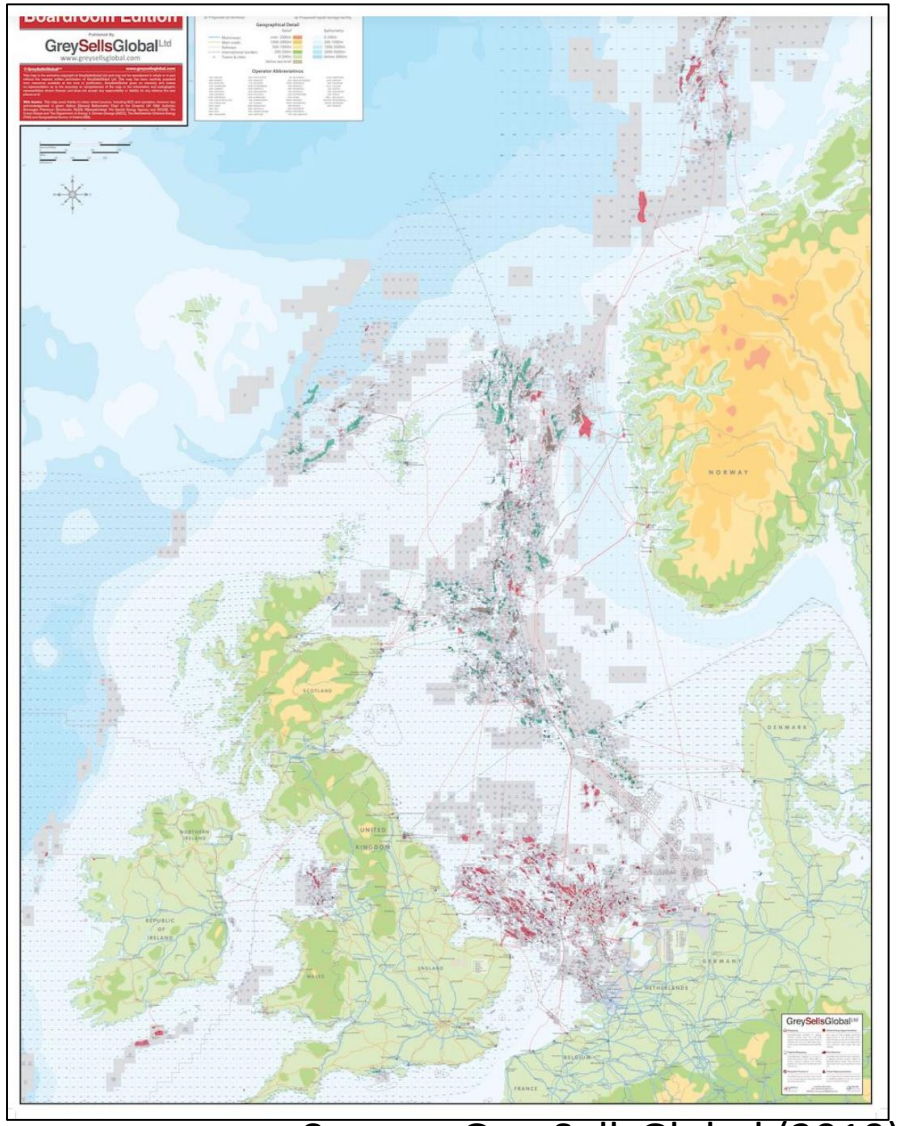
National Reporting on Physical Habitat Change (e.g. from construction)

Map of Wind farms

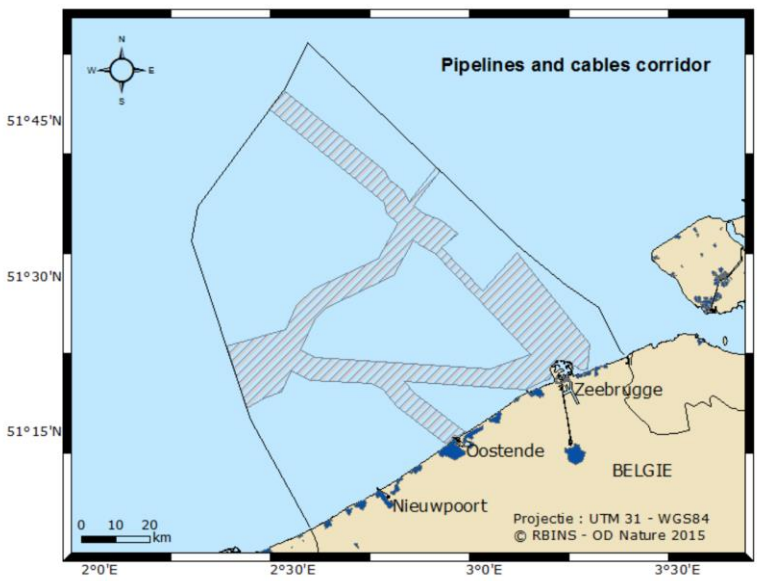


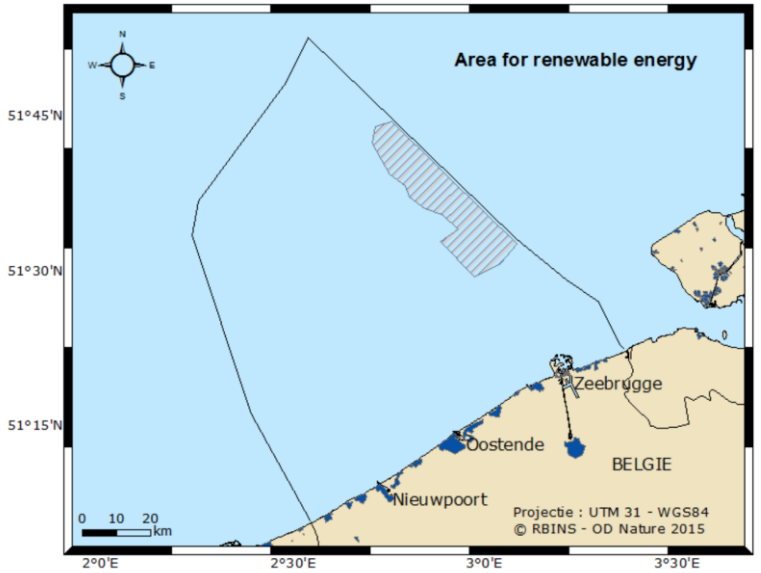
Source: Evans (2019)

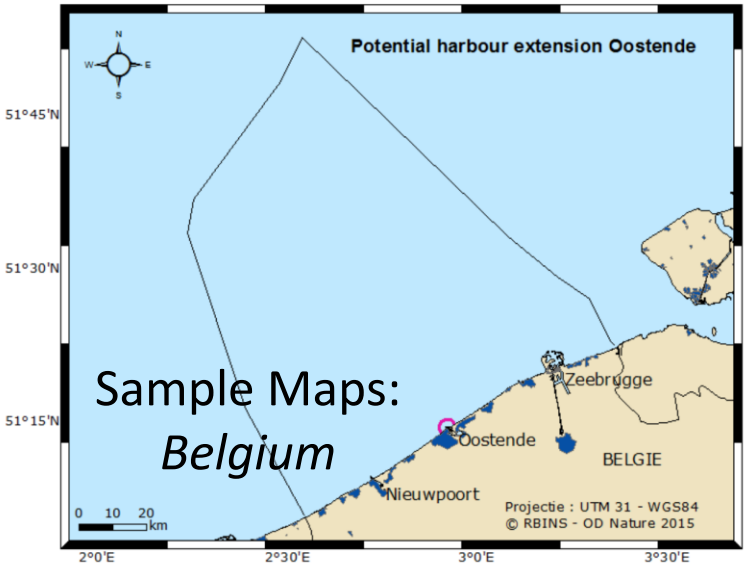
Map of Oil & Gas Installations



Source: GreySellsGlobal (2019)

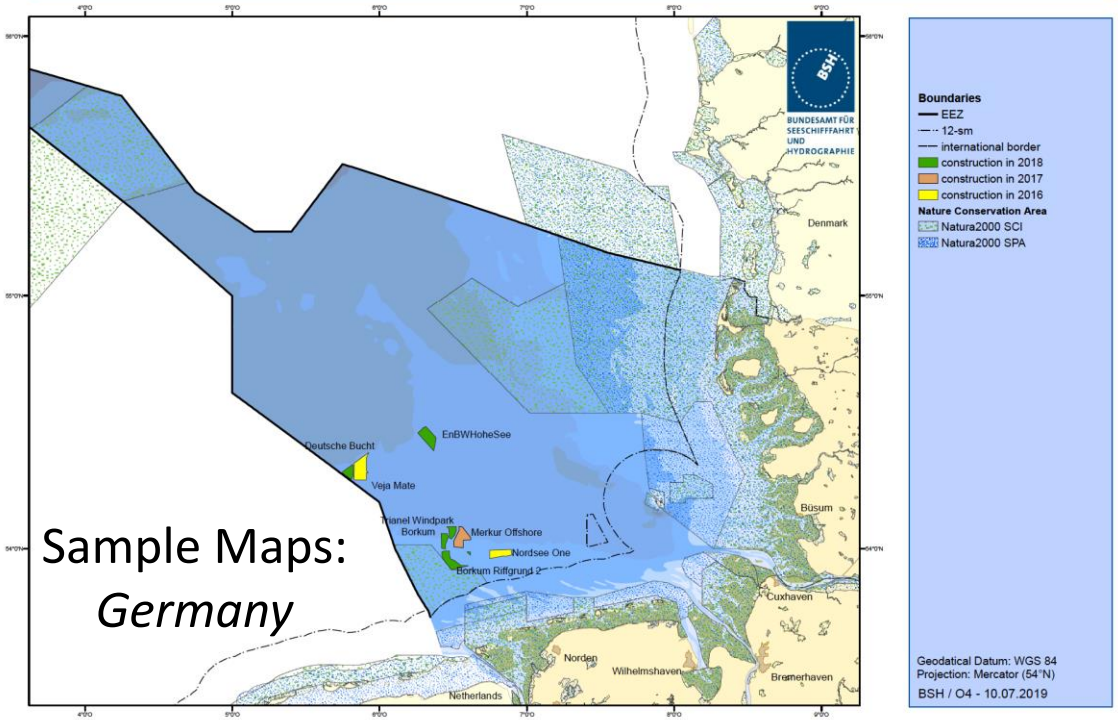






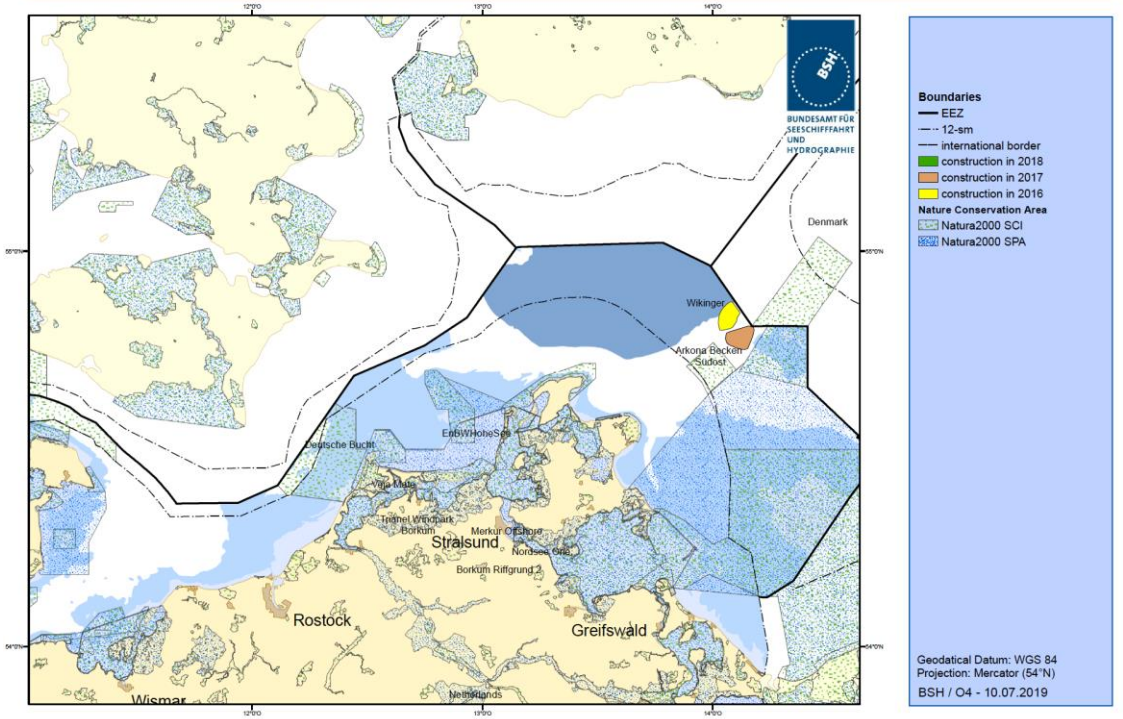
Sample Maps:
Belgium

Offshore Wind Farm Construction in the years 2016 to 2018 in the German EEZ of the North Sea



Sample Maps:
Germany

Offshore Wind Farm Construction in the years 2016 to 2018 in the German EEZ of the Baltic Sea



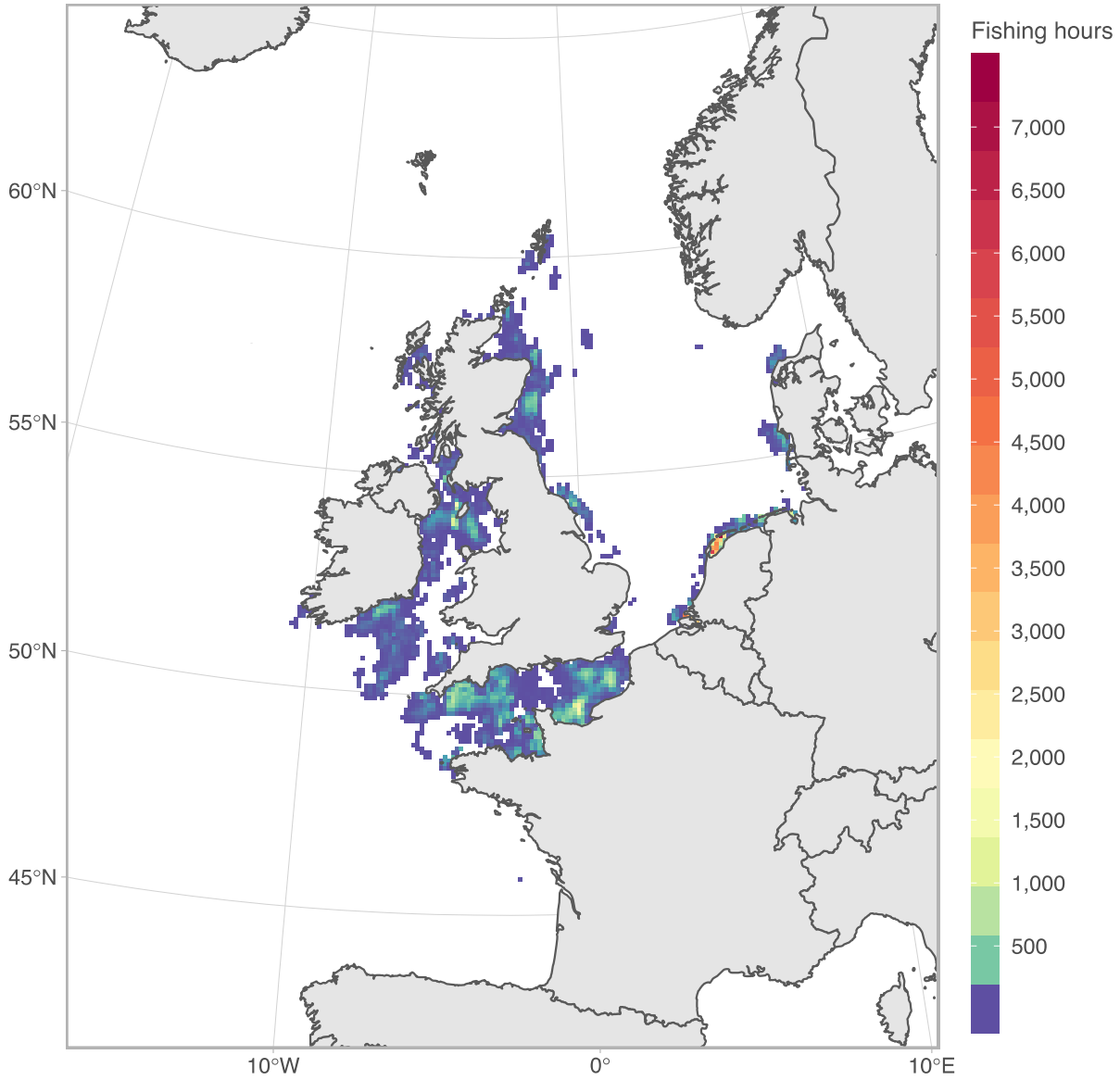
Sample Maps: *The Netherlands*

Sand extraction areas

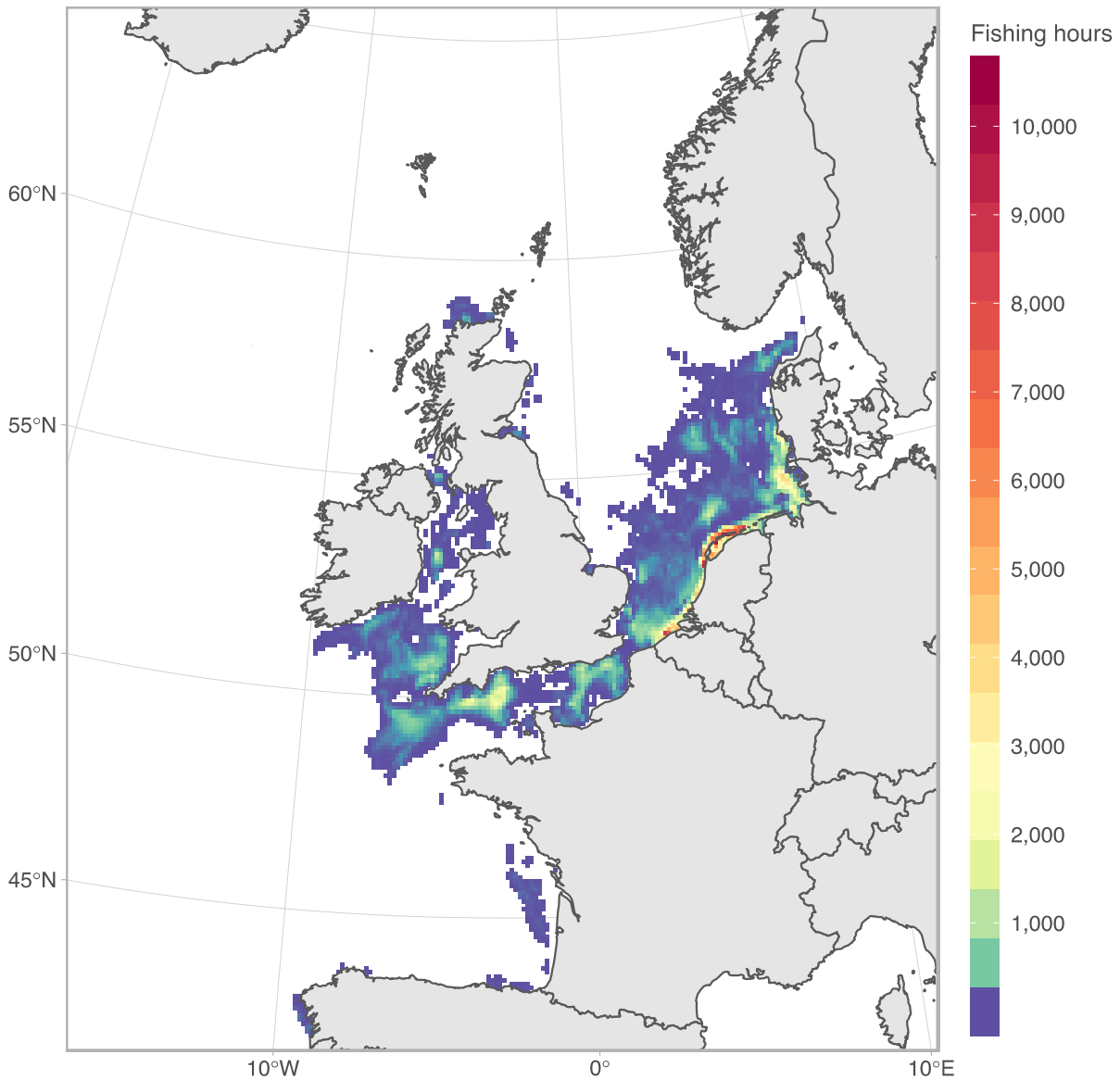
Dredge dump areas

Sample Maps: *UK (and beyond)*

Fisheries: Dredging



Fisheries: Beam Trawling



BE	DK	FI	FR	DE	LT	NL	PO	SE	UK
13.3. Does your country have any mitigation measures to prevent impacts on small cetaceans during physical habitat change activities (e.g. dredging, marine construction, coastal construction)?									
yes		yes	sort of	yes		unknown	sort of		yes

→ **Mitigation measures:** Four countries have mitigation measures in place during the construction phase of wind farms:.

- Legislative actions are taken by **DE**;
- Administrative/management actions (including permitting) are taken by **BE, DE & UK**;
- Agreements and recommendations (e.g. noise thresholds, ADDs, bubble curtains) are taken by **DE & FI**.
- **FR** has a steering/scientific committee advising on mitigation measures for the Saint-Brieux wind farm project.
- N has a public awareness programme (by WWF Polska) for the protection of marine mammals, birds and their habitats.
- **FI** has applied ADDs and bubble curtains (mainly for seals) in relation to Nord Stream pipeline construction.

BE	DK	FI	FR	DE	LT	NL	PO	SE	UK
13.4. List initiatives/projects (including PhD, MSc) involving studies of physical habitat change activities and their possible effects on small cetaceans for 2016-18 in your country									
none		n/a	unknown	yes		none	yes		yes

→ **Initiatives/Projects (including MSc & PhD) & Contracts:**

Germany: Several contracts on noise impacts from wind farm construction -

Poland: Pilot implementation of monitoring of species and habitats of producers in years 2015-18

UK*:* J. McAuley *et al*. (SMRU, University of St. Andrews) are tracking cetaceans around offshore installations, and D. Gillespie *et al.* are using passive acoustics to study how small cetaceans (harbour porpoise & dolphins) behave in the immediate vicinity of tidal energy devices.

BE	DK	FI	FR	DE	LT	NL	PO	SE	UK
13.5. List publications from 2016-18 involving studies on other sources of disturbance in your country									
none		none	unknown	yes		none	pilot study		yes

→ **Publications:**

France - Virgili, A., Authier, M., Dars, C., Dorémus, G., Laran, S., Van Canneyt, O., and Spitz, J. (2018) Levée des risques Pour l'appel d'offres éolien au large de Dunkerque par observation aérienne. Programme DUNKRIRSK – Campagne LEDKOARapport d'analyses. Observatoire Pelagic / Agence Françoise pour la Biodiversitée. 49pp.

Germany - Dähne, M., Tougaard, J., Carstensen, J., Rose, A., and Nabe-Nielsen, J. (2017) Bubble curtains attenuate noise levels from offshore wind farm construction and reduce temporary habitat loss for harbour porpoises. *Marine Ecology Progress Series,* 580: 221–237.

Brandt, M.J,, Dragon, A.C., Diederichs, A., Bellmann, M., Wahl, V., Piper, W., Nabe-Nielsen, J. and Nehls, G. (2018) Disturbance of harbour porpoises during construction of the first seven offshore wind farms in Germany. *Marine Ecology Progress Series,* 596: 213–232.

UK - Cox, S.L, Witt, M.J., Embling, C.B., Godley, B.J., Hosegood, P.J., Miller, P.I., Votier, S.C., and Ingram, S.N. (2017) Temporal patterns in habitat use by small cetaceans at an oceanographically dynamic marine renewable test site in the Celtic Sea, *Deep Sea Research Part II*, 141: 178-190.

Evans, P.G.H. (2017) Habitat pressures. Pp. 441-446. In: *Encyclopedia of Marine Mammals* (Editors B. Würsig, J.G.M. Thewissen and K.M. Kovacs). 3rd Edition. Academic Press, San Diego. 1,157pp.

13.8. Is the perceived level of pressure from physical habitat change in your country increasing, decreasing, staying the same or unknown?

Belgium

Scientific name of the species	Increasing	Decreasing	Staying the same	Unknown
Harbour Porpoise	X			

France

Scientific name of the species	Increasing	Decreasing	Staying the same	Unknown
All small cetaceans	X			

Germany

Scientific name of the species	Increasing	Decreasing	Staying the same	Unknown
Harbour Porpoise			X	X

The Netherlands

Scientific name of the species	Increasing	Decreasing	Staying the same	Unknown
Harbour Porpoise				X

UK

Scientific name of the species	Increasing	Decreasing	Staying the same	Unknown
Harbour porpoise				X
Bottlenose dolphin				X
Risso's dolphin				X
Common Dolphin				X
White beaked dolphin				X

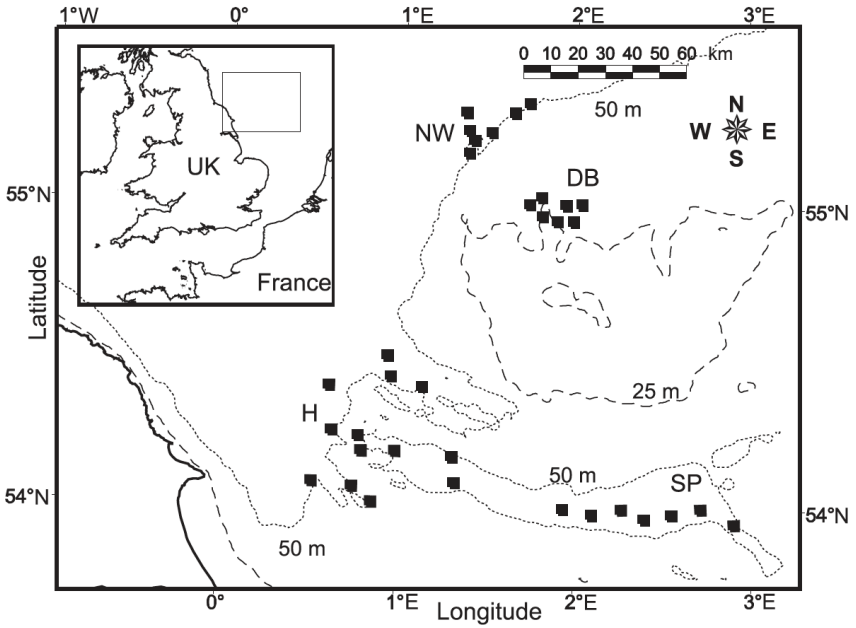
National Reporting on Physical Habitat Change (e.g. from construction)

RECOMMENDATIONS

- Encourage **all** Parties & Range States to contribute national information for a more complete picture
- Several reports on the impacts of physical habitat change refer to the impacts of noise. It may therefore be helpful to consider these together in future, at least with respect to wind turbine construction.
- We need more studies of direct change to the physical habitat and its potential consequences. One example is by Hiddink *et al.* (2006a, b) who examined the effects of bottom trawling upon the seabed and its benthic faunal communities in the North Sea.

(a)

Sites examined with different levels of bottom trawling activity



(b)

Effects on benthic fauna production, biomass and species richness