

Marine Strategy Part One: UK updated assessment and Good Environmental Status

Results from biodiversity indicators

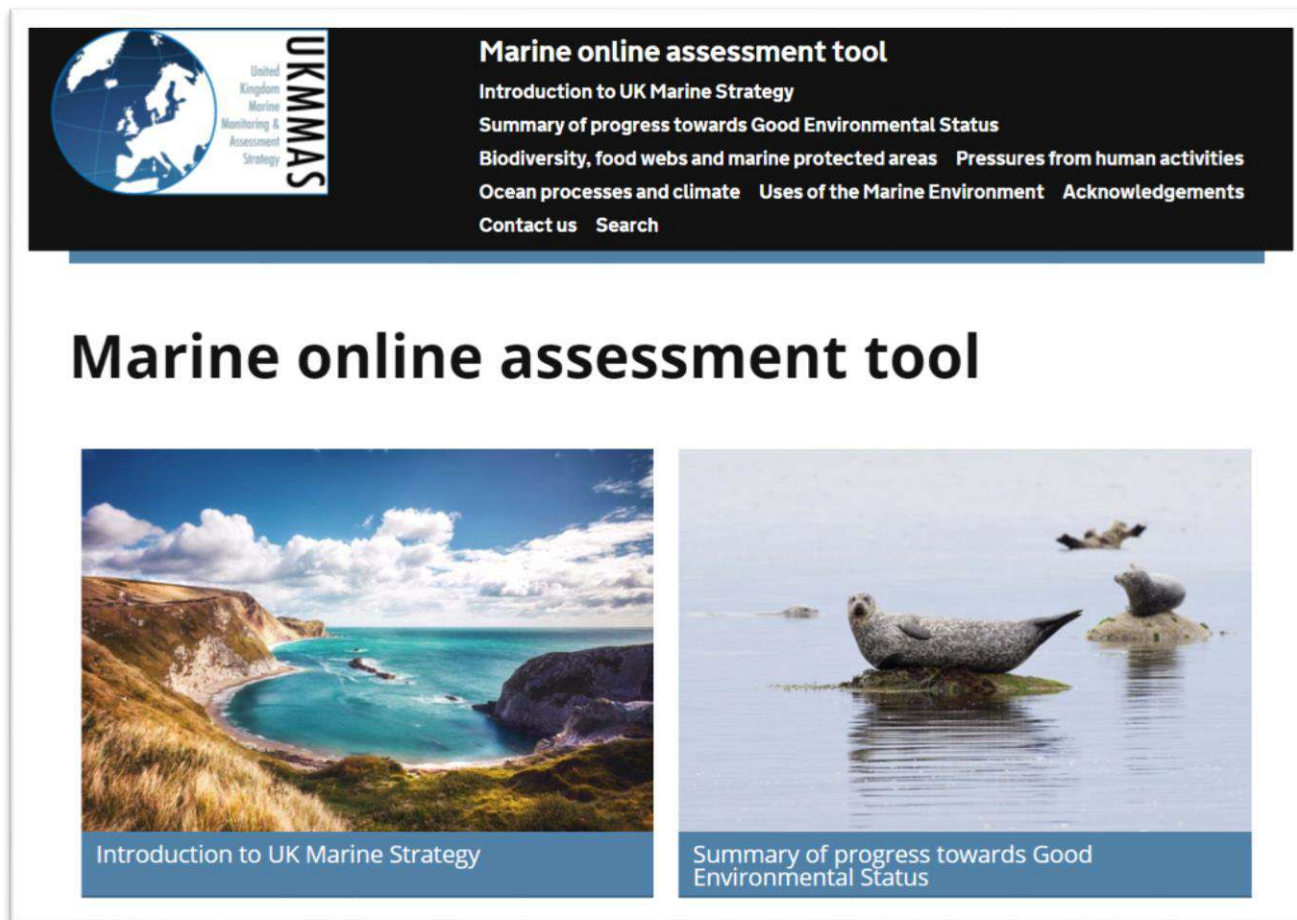
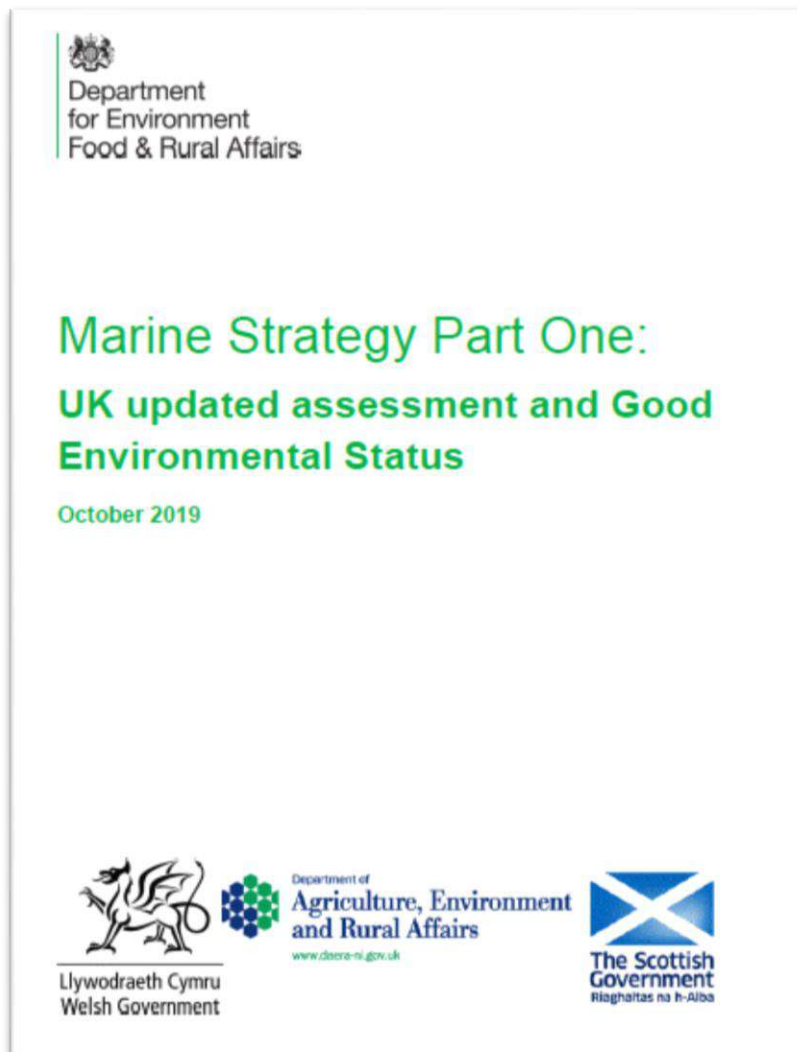
Laura Pettit

JNCC



2018 Good Environmental Status Assessment

<https://moat.cefas.co.uk/>



The Concept of Good Environmental Status

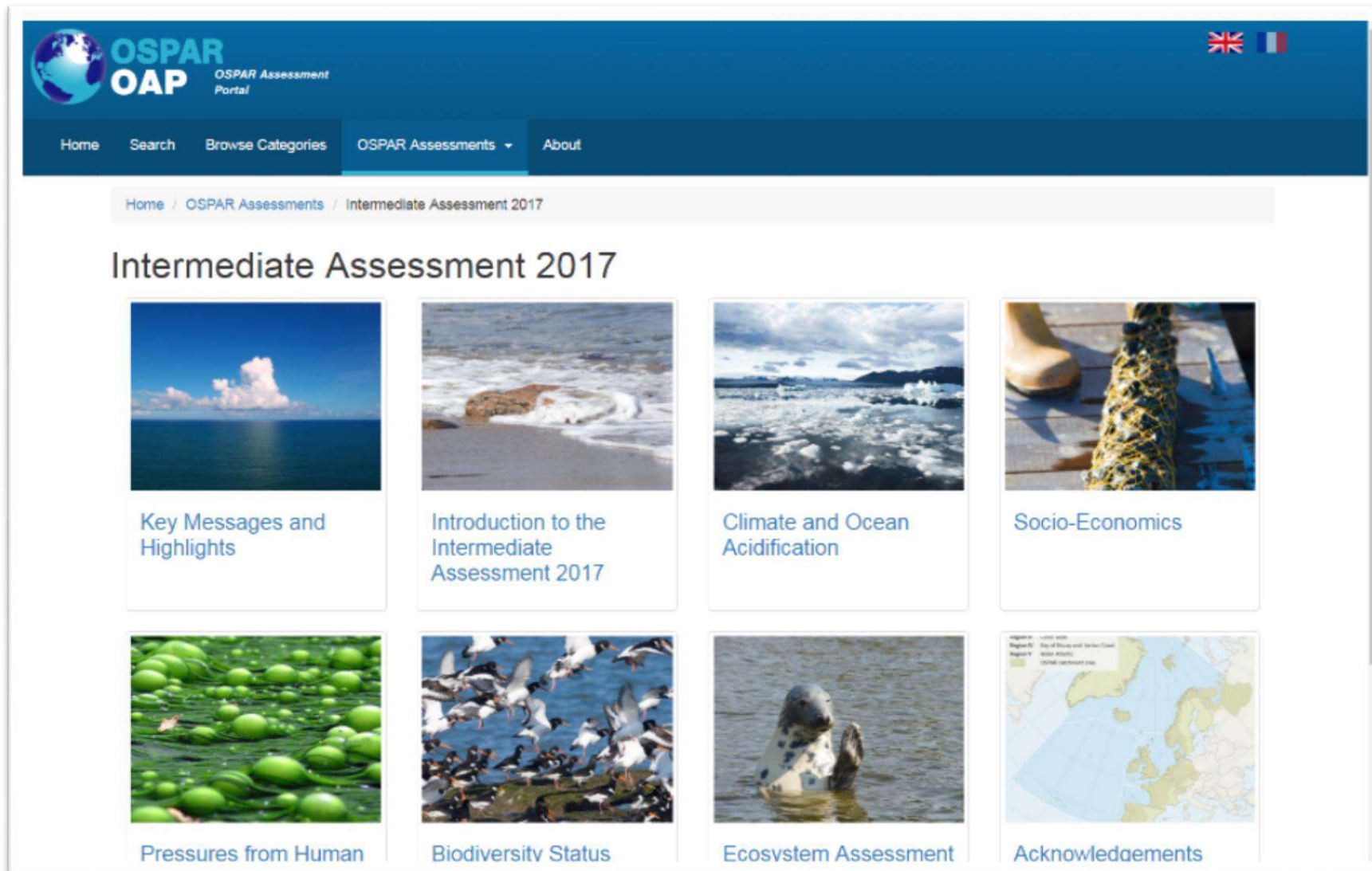
MSFD Article 1

*This directive establishes a framework within which Member States shall take the necessary measures to achieve or maintain **Good Environmental Status** in the marine environment **by the year 2020** at the latest*

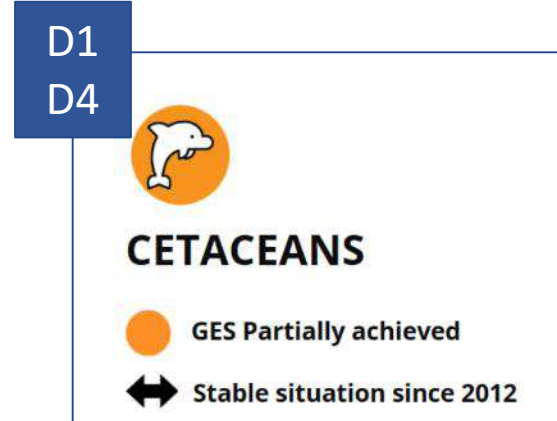


DESCRIPTOR

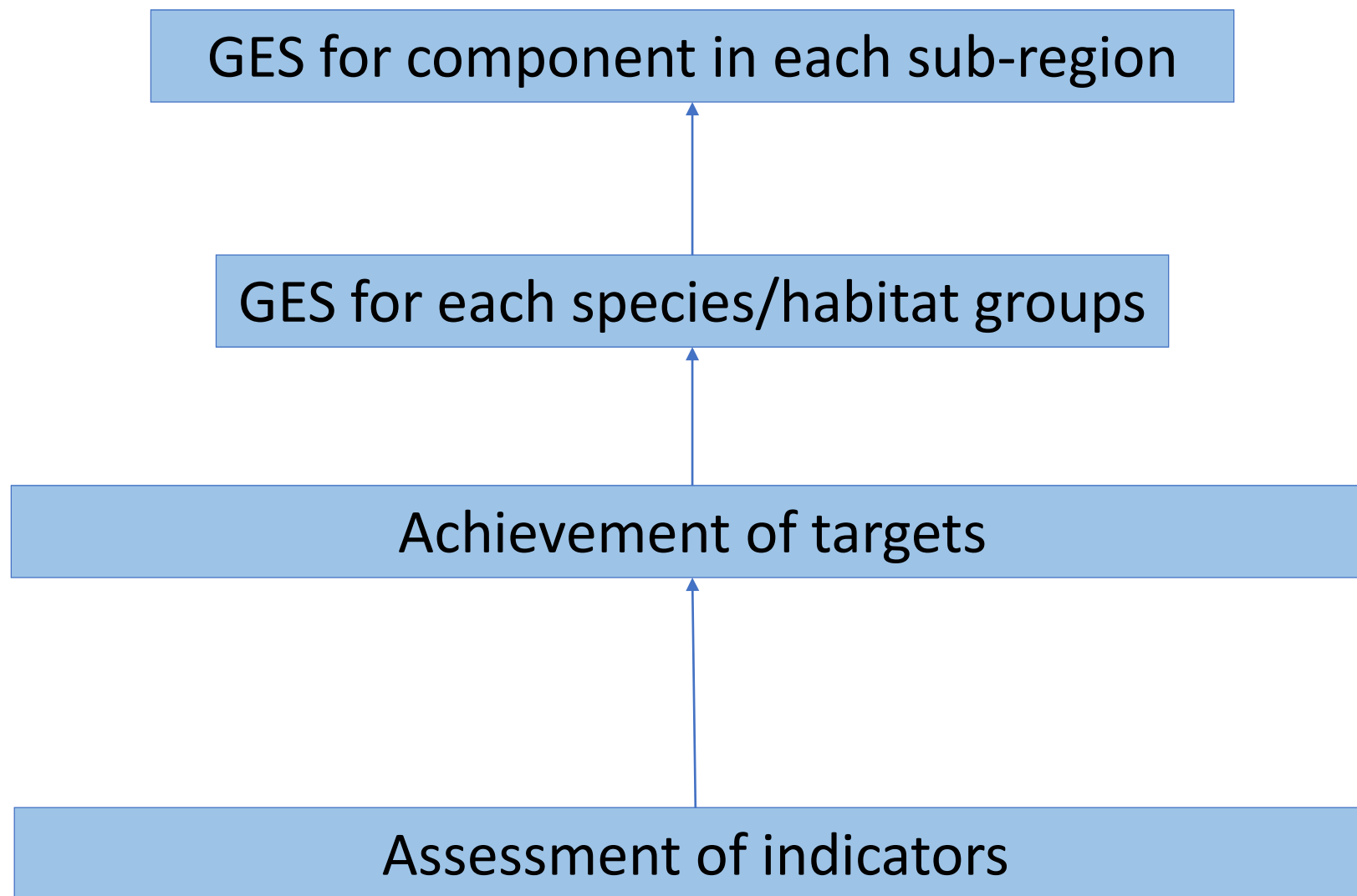
- 1 Biological diversity
- 2 Non-indigenous species
- 3 Commercial fish & shellfish
- 4 Food-webs
- 5 Eutrophication
- 6 Sea-floor integrity
- 7 Hydrography
- 8 Contaminants
- 9 Contaminants in seafood
- 10 Litter
- 11 Underwater noise



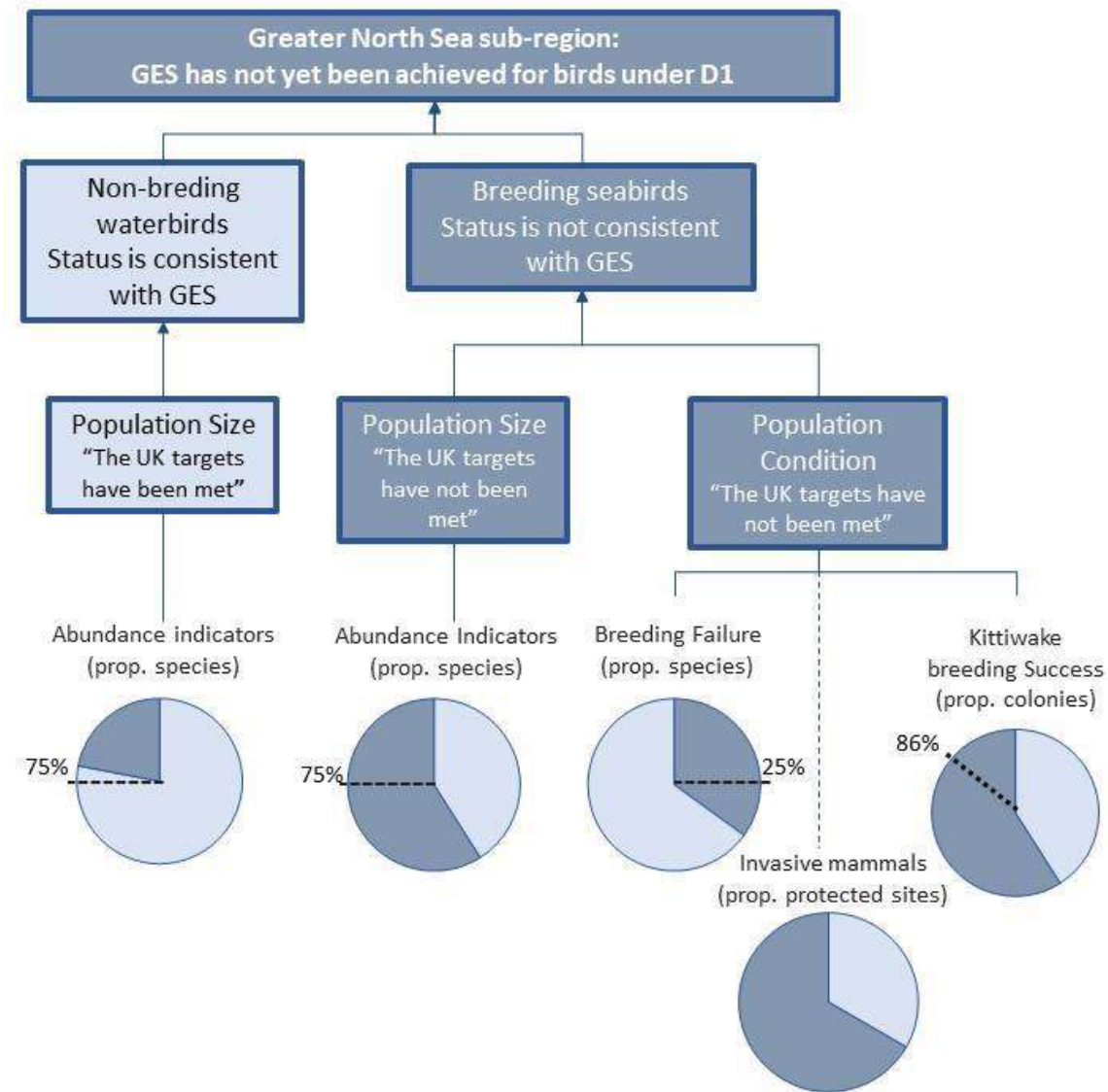
2018 Good Environmental Status Assessment



Integrated assessment of Good Environmental Status



D1. Biodiversity - integrated assessment of GES



Changes in abundance of seals



SEALS

GES Partially achieved

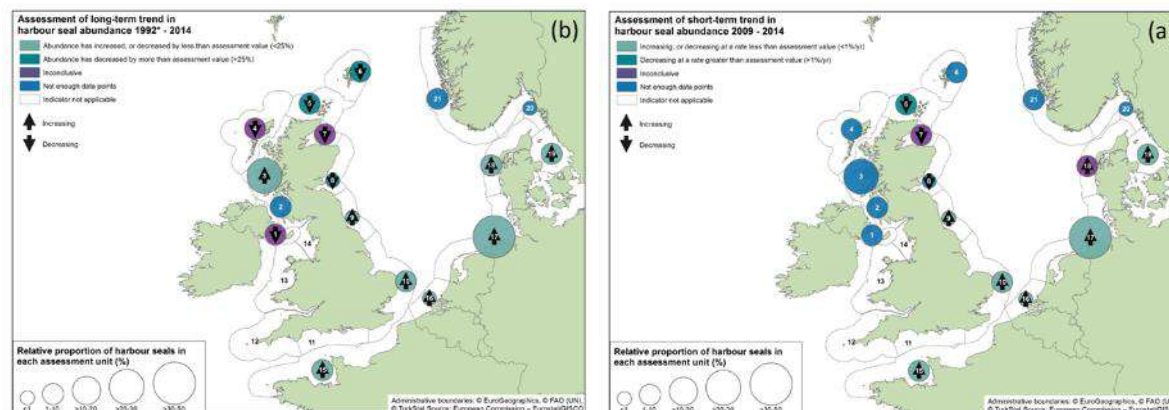
Improving situation since 2012

"abundance is not decreasing"

Survey data: moulting (harbour) and breeding (grey) counts in AUs

Target met if abundance 2009 – 2014 decline by < average 1% per year, or by < 25% since baseline year (1992)

Harbour seal

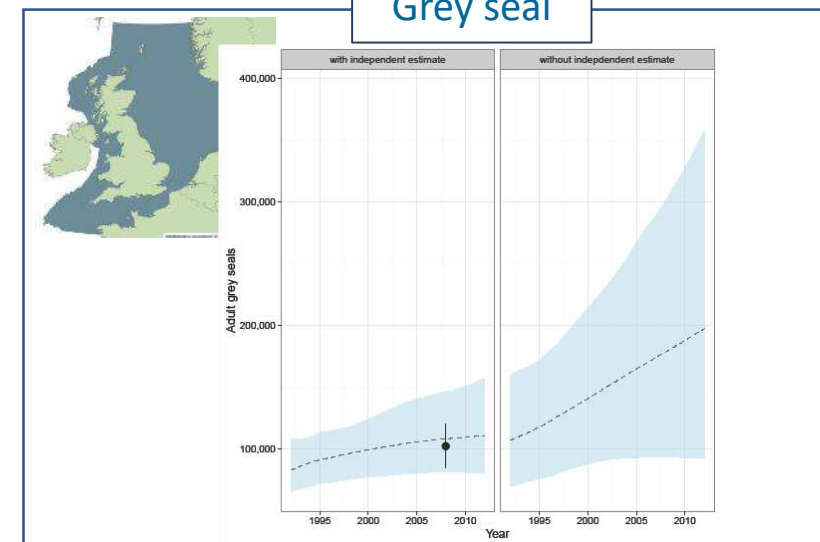


AU assessment integrated to sub-region scale

Celtic Sea:
Unknown/uncertain

Greater North Sea:
Target not met

Grey seal





Celtic Sea:
Target met

Greater North Sea:
Target met

Abundance of cetaceans



CETACEANS

-  GES Partially achieved
-  Stable situation since 2012

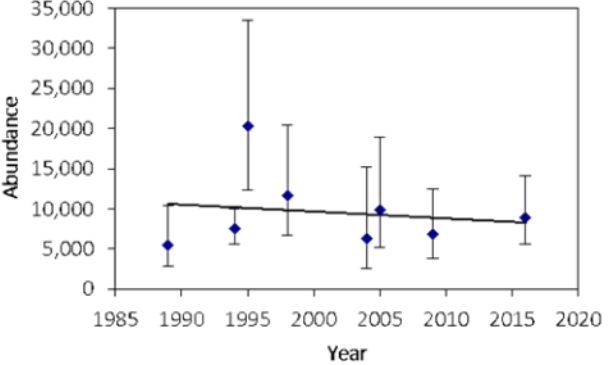
Greater North Sea assessment only

“abundance of cetaceans is not decreasing”

Target met if trend is increasing ($\geq 5\%$), stable ($< 5\%$ change) or not declining ($\geq 5\%$) over 10-years

Trend assessment of abundance

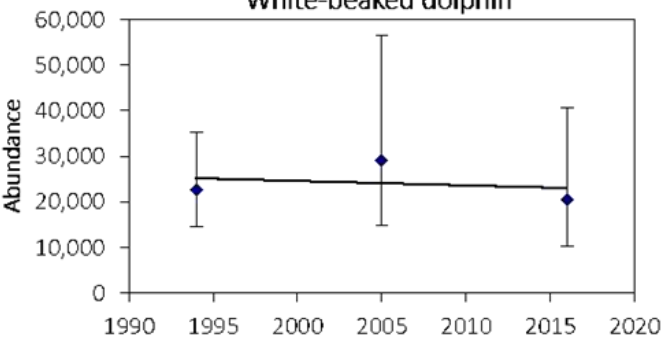
Minke whale



Able to detect change

Target met

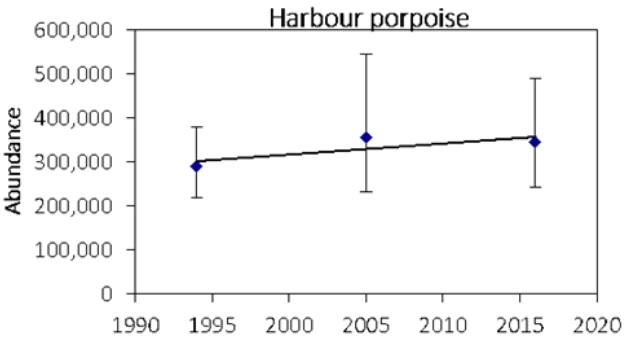
White-beaked dolphin



Uncertain of change

Uncertain / unknown

Harbour porpoise



Uncertain of change

Uncertain / unknown

- Common dolphin
- Atlantic white-sided dolphin
- Fin whale
- Long-finned pilot whale
- Offshore bottlenose dolphin

Assessment not possible

Uncertain / unknown

Marine bird breeding success/failure



BIRDS



GES not achieved



Declining situation since 2012



“widespread seabird colony breeding failures should occur rarely in other species that are sensitive to changes in food availability”

Breeding failure assessment using annual estimates of species breeding success

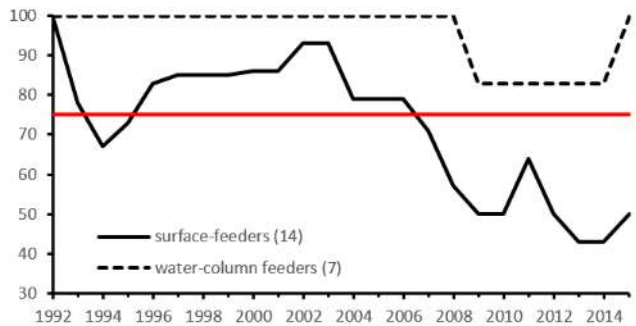
% of species experienced frequent, widespread colony failure (2010-2015)

Trend assessment of breeding success (1991-2015)

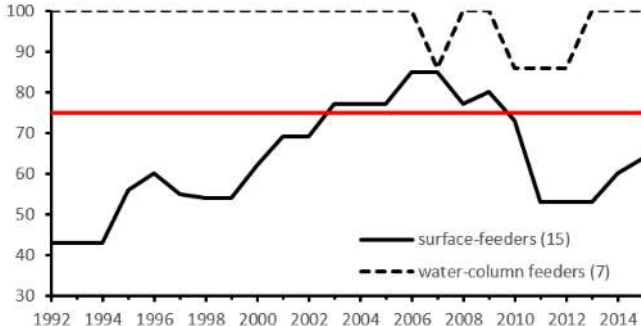
	Greater North Sea	Celtic Seas
Surface feeding species	50% (14)	36% (14)
Water column feeding species	0% (6)	0% (6)
All species	35% (20)	25% (20)

Proportion of species (%) not showing widespread breeding failure

Greater North Sea



Celtic Seas





Greater North Sea:
Target not met

Celtic Sea
UK target met

Benthic habitat integrated assessment



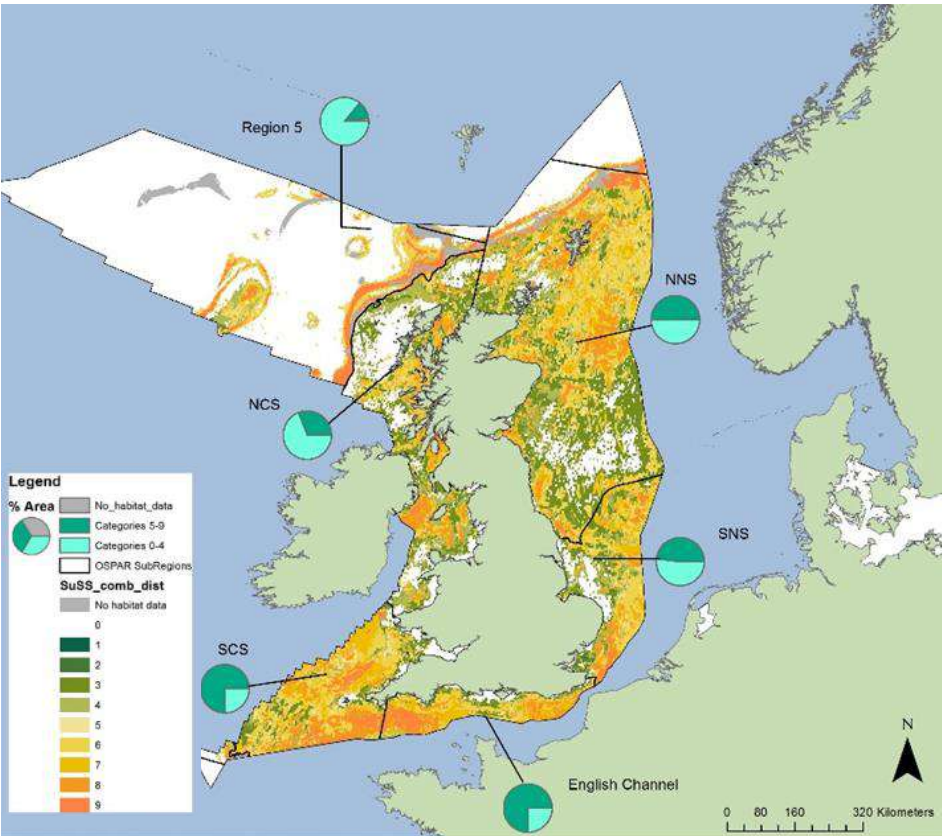
BENTHIC HABITATS

 GES not achieved
 Stable situation since 2012

		Assessment					
		Soft sediment		Sublittoral rock and biogenic habitats		Intertidal habitats	
Target	Indicator	G. North Sea	Celtic Sea	G. North Sea	Celtic Sea	G. North Sea	Celtic Sea
Habitat extent	Physical loss	-	-	Not met	Not met	-	-
Habitat condition, physical damage, condition of benthic community	Physical damage	Not met	Not met	Not met	Not met	-	-
	Rocky shore macroalgal index	-	-	-	-	Met	Met
	Aggregated saltmarsh tool	-	-	-	-	Not met	Met
	Aggregated intertidal seagrass tool	-	-	-	-	Met	Met
	Intertidal rock community change	-	-	-	-	Unknown /uncertain	Unknown /uncertain
Habitat condition, condition of benthic community	Benthic communities indicator	Unknown /uncertain	Unknown /uncertain	-	-	-	-
	Aggregated infaunal quality index	Not met	Met	-	-	-	-
Overall assessment		Uncertain	Uncertain	Not met	Not met	Uncertain	Uncertain

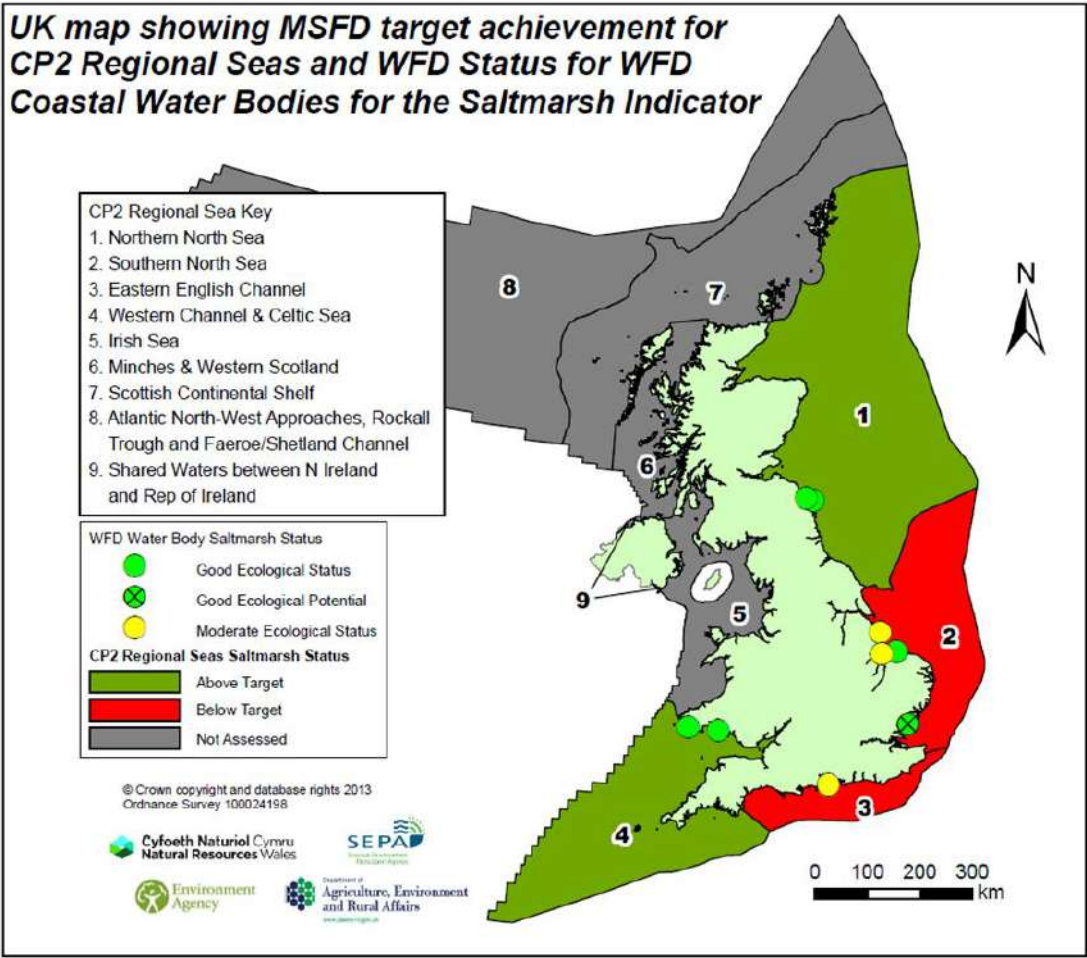
Benthic indicator assessments

Extent of physical damage

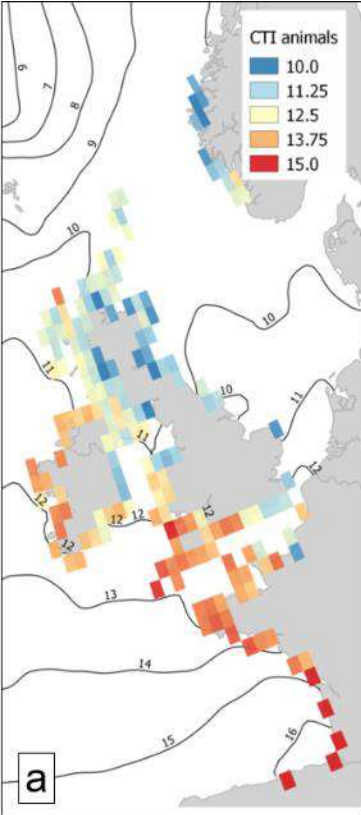


Line - Available under GNU Lesser General Public License at <https://www.ngdc.noaa.gov/mgg/shorelines/gshhs.html>

Intertidal saltmarsh communities



Intertidal Community Index



Pelagic habitats - Changes in plankton community

“community distribution is not significantly adversely influenced, as assessed by changes in plankton functional types (lifeforms) indices”

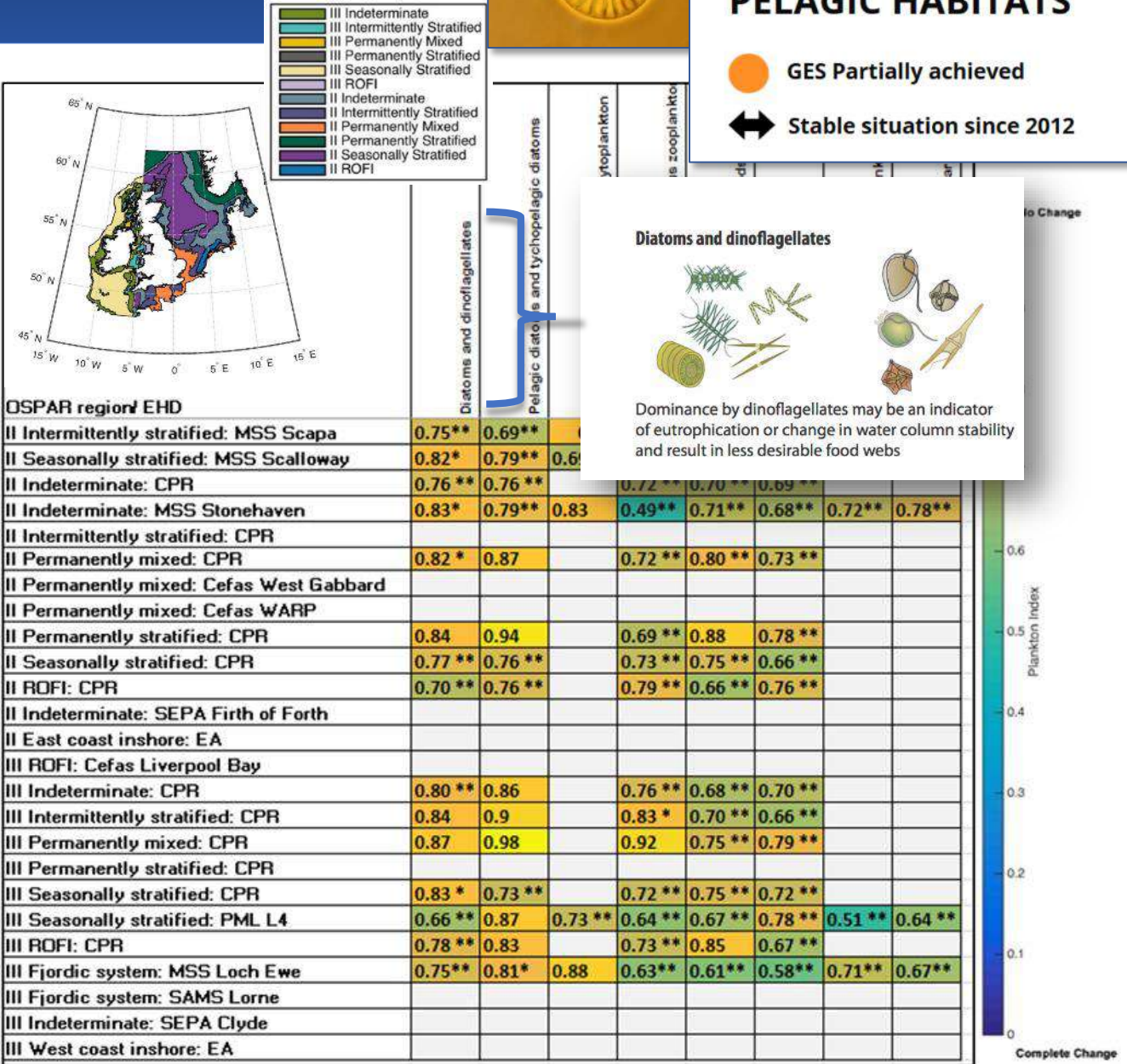


Changes in ecologically-meaningful pairs of plankton lifeforms provide information on ecosystem structure and energy flow

Plankton Index

Observed change in UK plankton communities

Extent to which GES is achieved is unknown/
uncertain: changes observed however drivers unknown



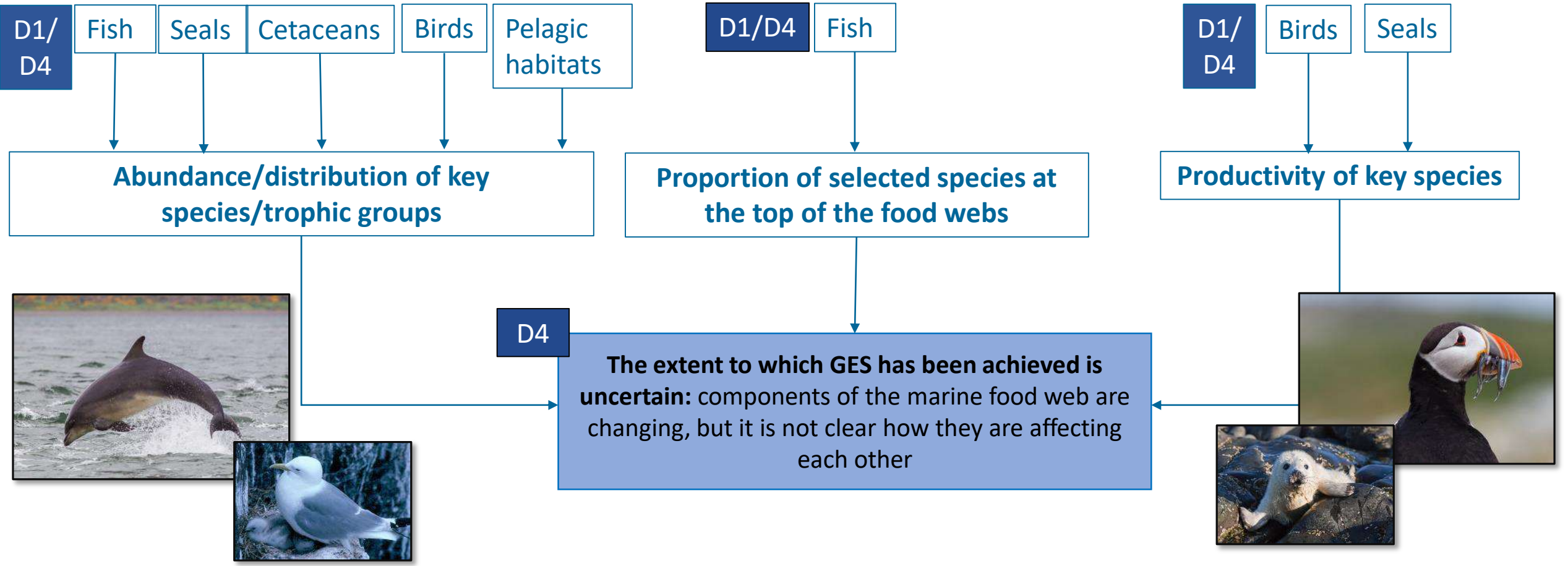
Food webs integrated assessment



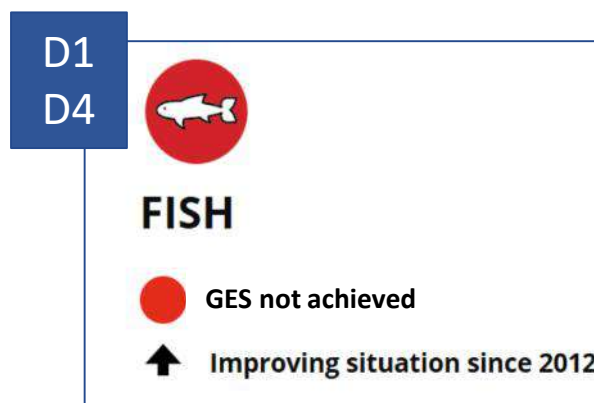
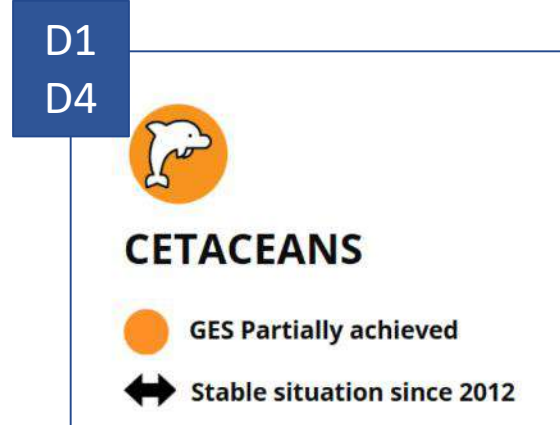
FOOD WEBS

GES Partially achieved
Improving situation since 2012

“No significant adverse change in the function of different trophic levels in marine food web”



2018 Good Environmental Status Assessment



Knowledge gaps & forward look

D1/6 Benthic habitats

Improve current methods and modelling approaches to evaluate cumulative effects from human pressures and impacts from climate change. Incorporation of data from MPAs, and new indicators on biogenic and rock



D1/D4 Cetaceans

Improve power to detect trends, and better understand impact of human pressures: consider more frequent SCANS survey, make better use of citizen science observations and develop a UK cetacean bycatch strategy.



D1/D4 Birds

Further develop our understanding of the impacts of human pressures on marine birds. Continue to protect marine birds through new operational targets.



D1/D4 Seals

Continued research into harbour seal declines in N & E Scotland. Determine extent and impact of human pressures through targeted monitoring, investigation of life history parameters, new UK seal bycatch indicator.

D1/D4 Pelagic habitats

More evidence is required into the effects of the key anthropogenic pressures and climatic drivers.

D1/D4 Fish

More evidence is required on the impacts of pressures and warming seas to conduct quantitative integrated assessments. Improve stock assessments and develop an indicator for fish bycatch

D4 Foodwebs

Further development of foodweb indicators and ecosystem models to better assess the impact of human activities on the foodweb under different environmental and management scenarios.

Contributors



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