

Charting Progress 2 The state of UK seas



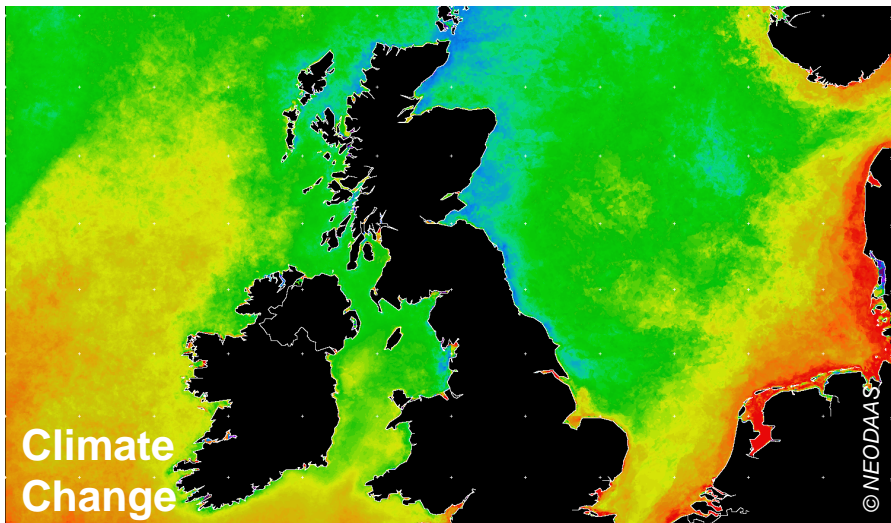
Findings

Acknowledgements: Colin Moffat (Marine Scotland Science), CP2 Editorial Group



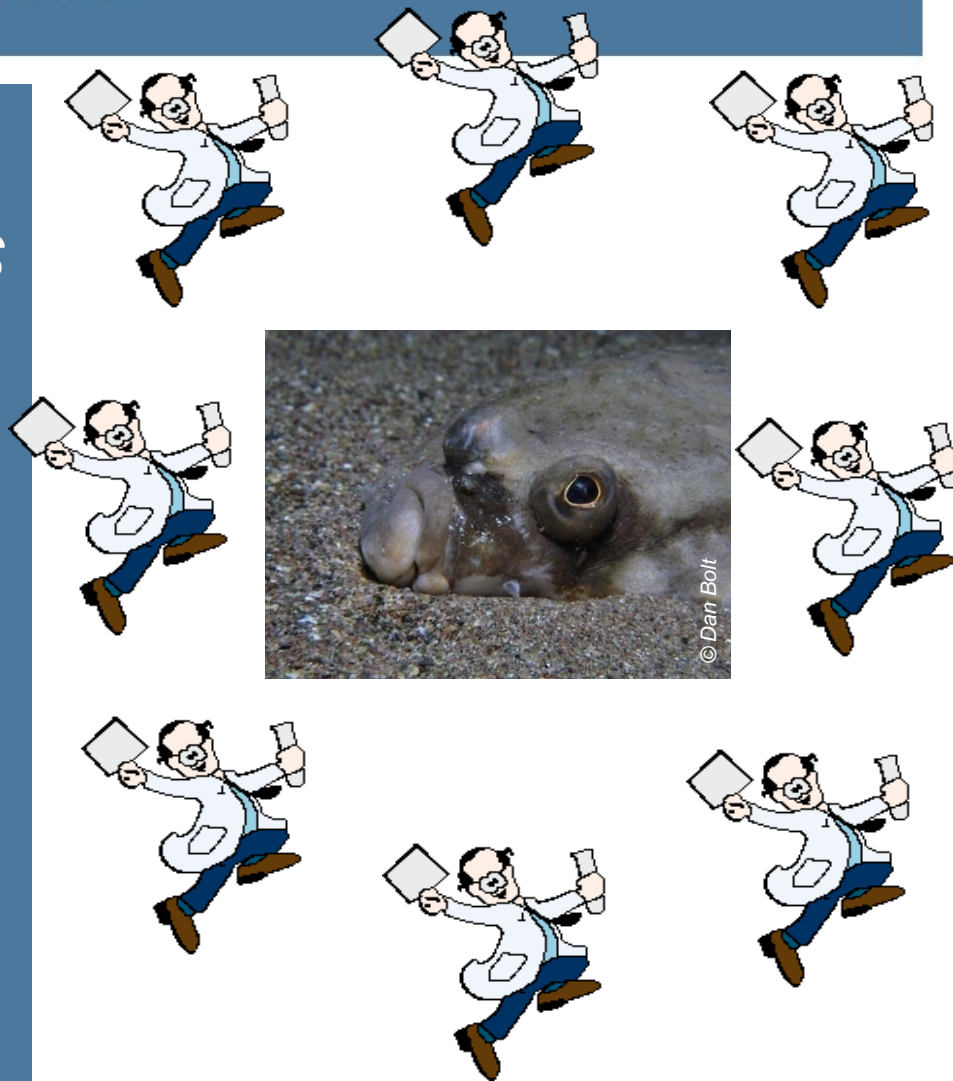
A shared vision:

‘clean, healthy, safe, productive and biologically diverse oceans and seas’



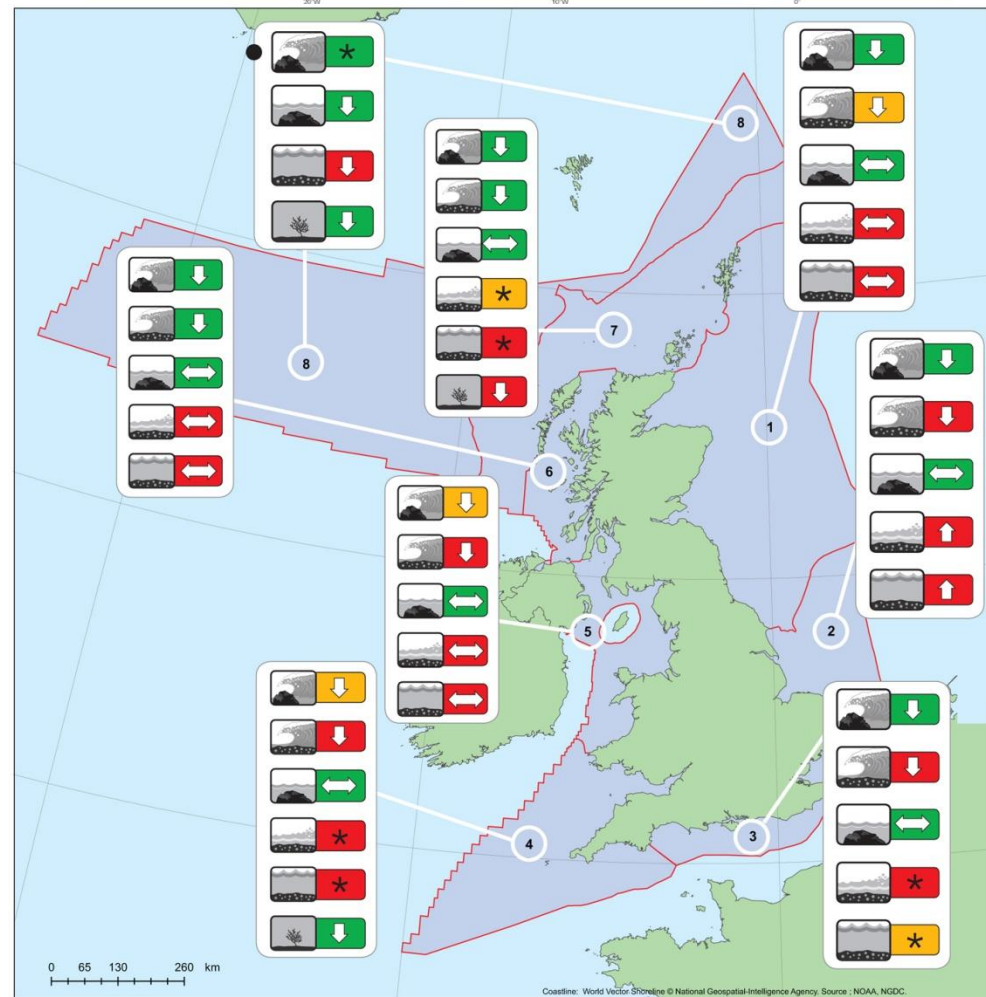
Charting Progress 2 and the Feeder Reports

Based on the monitoring,
research, assessment,
musing, cogitations,
considerations and
ruminations of many,
many, many scientists
across the UK.



CP2 Regions

- Eight (8) regions based on bio-geographical features rather than administrative boundaries.
- Summaries based on the 8 CP2 Regions *where appropriate.*








Charting Progress 2 The state of UK seas

Components currently assessed	Region							
	1	2	3	4	5	6	7	8
Clean Seas								
Hazardous substances	↔	↔	↔	↔	↔	↔	↔	★
	Main sources are inputs from rivers, the atmosphere, various industries and agriculture. These sources are subject to controls. In some limited areas marine biota are at risk, particularly near to the main sources in industrialised estuaries. Reservoirs in sediments due to historical contamination will take many years to dissipate to background concentrations due to persistency of the substances.							
Radio-activity	↔	↔	↔	↑	↑	↔	↔	↔
	Main sources are discharges from the nuclear sector and hospitals and the offshore oil and gas industry which discharges naturally occurring radionuclides. Received doses of radioactivity to both humans and wildlife continue to be well within regulatory limits.							
Eutro-phication	↑	↔	↑	↑	↑	↑	↑	★
	Main sources are inputs of nitrogen (N) and phosphorus (P) from sewage works and agriculture. Ecosystems are at risk if eutrophication occurs. A few very small coastal harbours and embayments with limited water circulation experience eutrophication problems. Nitrogen and phosphorus inputs to these are controlled.							
Oil/ chemical spills								
	Main sources are accidental spills from ships and the offshore oil and gas industry. Ecosystems, habitats and species may be at risk if loads are significant. Where significant tonnages are spilled, regional monitoring programmes are implemented to assess risk. Assessment of cumulative impact is problematic.							
Beach litter	↔	↔	↑	↔	↔			
	Main sources are the general public, fishing, sewage discharges and shipping. Aesthetic, economic and environmental impacts may occur if levels are high. Only limited data available for Regions 6, 7 and 8.							
Offshore litter								
	Main sources are from fishing/shipping and plastics discarded on land and at sea. There is insufficient evidence or criteria to assess impacts and state on a regional basis, but several surveys indicate that marine litter accumulates in certain locations due to sea currents.							
Noise								
	Main anthropogenic sources are explosions used in construction and demolition, shipping, seismic surveys, offshore construction and industrial activities and sonar of various types. There is insufficient evidence or criteria to assess impacts and state on a regional basis, but research indicates that cetaceans and fish may be affected by specific noises.							

A section of the Clean and Safe Seas chapter summary table

Charting Progress 2 The state of UK seas

Air temperature	Sea temperature	Sea level	CO ₂ and ocean acidification	Circulation, suspended particulate matter, turbidity and waves
				
Upward trend	Upward trend	Upward trend	Upward trend	No significant trend



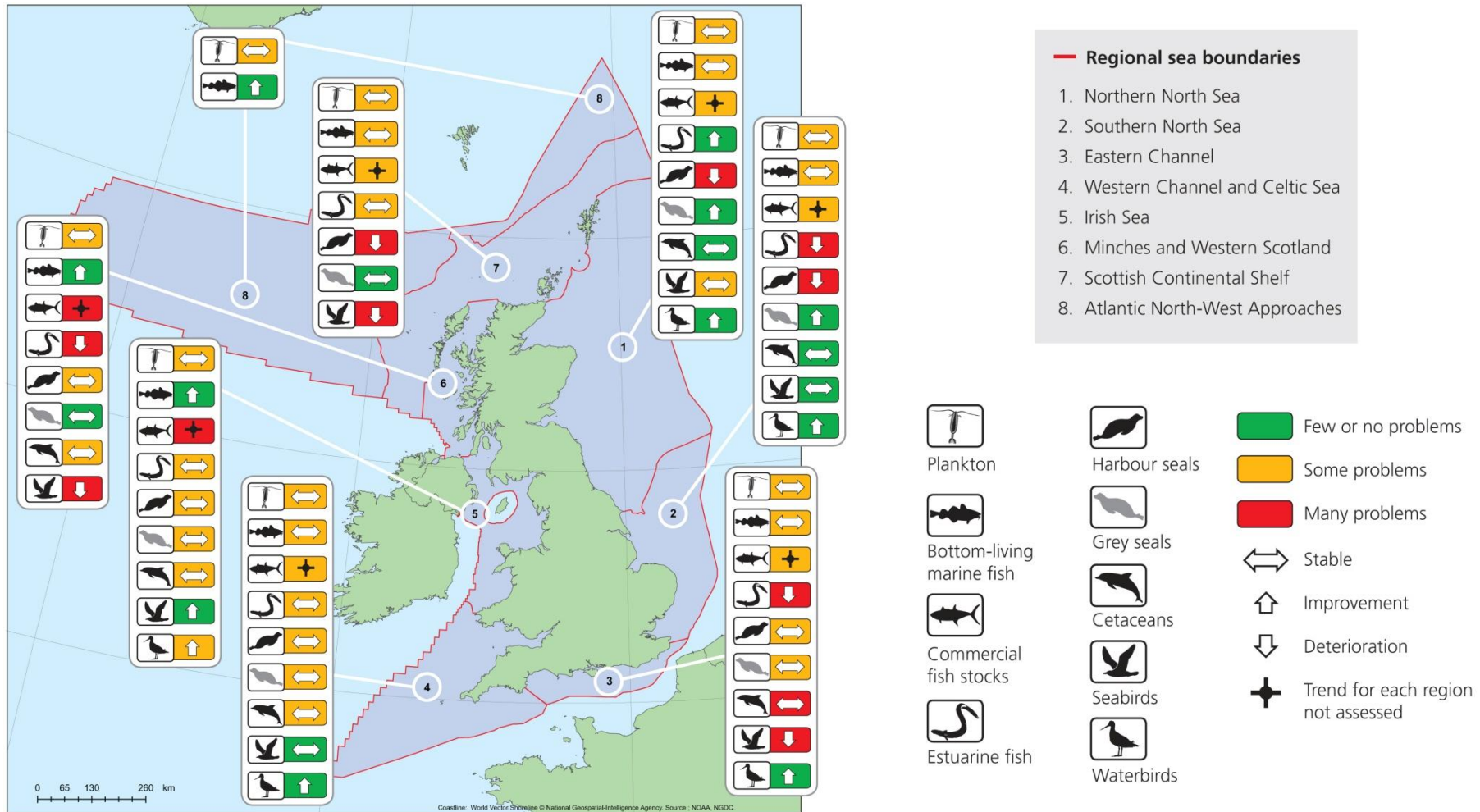
Charting Progress 2 The state of UK seas

- Intertidal rocky and nearshore subtidal rocky habitats are in reasonable condition while many seabed sedimentary habitats have been adversely effected, particularly by mobile fishing gears.
- The diversity and overall abundance of soft-bottom demersal fish have improved appreciably in most regions over the past 5 years; this is probably due to reductions in fishing effort.
- Commercial fisheries continues to exert a significant pressure on target and non-target fish populations; overall, fish stocks are still depleted compared to 50 to 100 years ago.
- Populations of waterbirds have improved in most regions.
- Harbour seal populations have declined in Scottish and North Sea regions
- Climate change is having an impact on fish populations, may be a factor in the population decline observed for seabirds in many regions and is impacting the species composition of intertidal rocky communities.
- Cetacean populations are considered to be in good condition across the North Sea.



Healthy and Biologically Diverse Seas











Charting Progress 2 The state of UK seas



Healthy and Biologically Diverse Seas

Charting Progress 2 The state of UK seas

Components currently assessed	Region							
	1	2	3	4	5	6	7	8
Commercial fish stocks	+	+	+	+	+	+	+	
	Based on the assessment in Chapter 5 (Productive Seas), fishing mortality has declined significantly in many of the assessed fish stocks in UK waters and although there is some way to go before the majority of commercial stocks are considered to be exploited at safe levels, there have been marked improvements. The main pressure is removal of fish through commercial fishing activities. However, for some stocks the change in water temperature is thought to be a contributing factor							
Estuarine fish	↑	↓	↓	↔	↔	↓	↔	NP
	The lack of data available for estuarine fish makes any conclusions tentative. What evidence there is suggests an overall increase in diversity and number of fish linked to cleaner estuaries but with a significant reduction in eel recruitment reflecting an Atlantic-wide trend. Although estuarine communities have improved in some Regions, the recent decline in eels (and salmon) often reduces the overall score							
Harbour seals	↓	↓	↔	↔	↔	↔	↓	NP
	Harbour seals have been decreasing in abundance, dramatically in some areas (up to 50%), particularly in Regions 1, 2 & 7. Although subjected to various pressures (competition with grey seals, predation by killer whales, unregulated shooting, and declines in important prey species such as sand eels) the reason for this decline is still unknown							
Grey seals	↑	↑	↔	↔	↔	↔	↔	NP
	Although grey seals are generally not experiencing any problems, populations in Regions 4, 5 & 6 are no longer increasing. The reasons for this apparent plateau in the population are not clear at present							
Cetaceans	↔	↔	↓	↔	↔	↔		
	Historic by-catch is suspected to be responsible for low numbers of cetaceans in the Eastern Channel (Region 3) but more data are required to confirm the cause. Impact of persistent contaminants is decreasing							
Seabirds	↔	↔	↓	↔	↑	↓	↓	NP
	There have been substantial declines in seabird abundance in north and north-west Scotland where the main pressures are climate change and the introduction of non-indigenous species (e.g. rat and mink affecting nesting sites). Tern numbers breeding in the Eastern Channel have declined due to natural causes (i.e. predation and storm events)							
Waterbirds	↑	↑	↑	↑	↑			NP
	Waterbirds are generally not experiencing any problems and their status has been improving since the mid-1970s. An exception is Region 5 where waterbird populations are moving east, away from traditional sites; the reasons for this change are unknown but may be due to climate change							

-  Few or no problems
-  Some problems
-  Many problems
-  Lack of evidence and/or robust assessment criteria
- NP** Component not present in the region
-  Stable
-  State improving
-  State deteriorating
-  No trend information available
-  Low confidence in assessment
-  Assessment of trend for each region not made

Healthy and Biologically Diverse Seas

Charting Progress 2 The state of UK seas

Components currently assessed	Region							
	1	2	3	4	5	6	7	8
Commercial fish stocks								
	Based on the assessment in Chapter 5 (Productive Seas), fishing mortality has declined significantly in many of the assessed fish stocks in UK waters and although there is some way to go before the majority of commercial stocks are considered to be exploited at safe levels, there have been marked improvements. The main pressure is removal of fish through commercial fishing activities. However, for some stocks the change in water temperature is thought to be a contributing factor							
Estuarine fish								NP
	The lack of data available for estuarine fish makes any conclusions tentative. What evidence there is suggests an overall increase in diversity and number of fish linked to cleaner estuaries but with a significant reduction in eel recruitment reflecting an Atlantic-wide trend. Although estuarine communities have improved in some Regions, the recent decline in eels (and salmon) often reduces the overall score							
Harbour seals								NP
	Harbour seals have been decreasing in abundance, dramatically in some areas (up to 50%), particularly in Regions 1, 2 & 7. Although subjected to various pressures (competition with grey seals, predation by killer whales, unregulated shooting, and declines in important prey species such as sand eels) the reason for this decline is still unknown							

Healthy and Biologically Diverse Seas

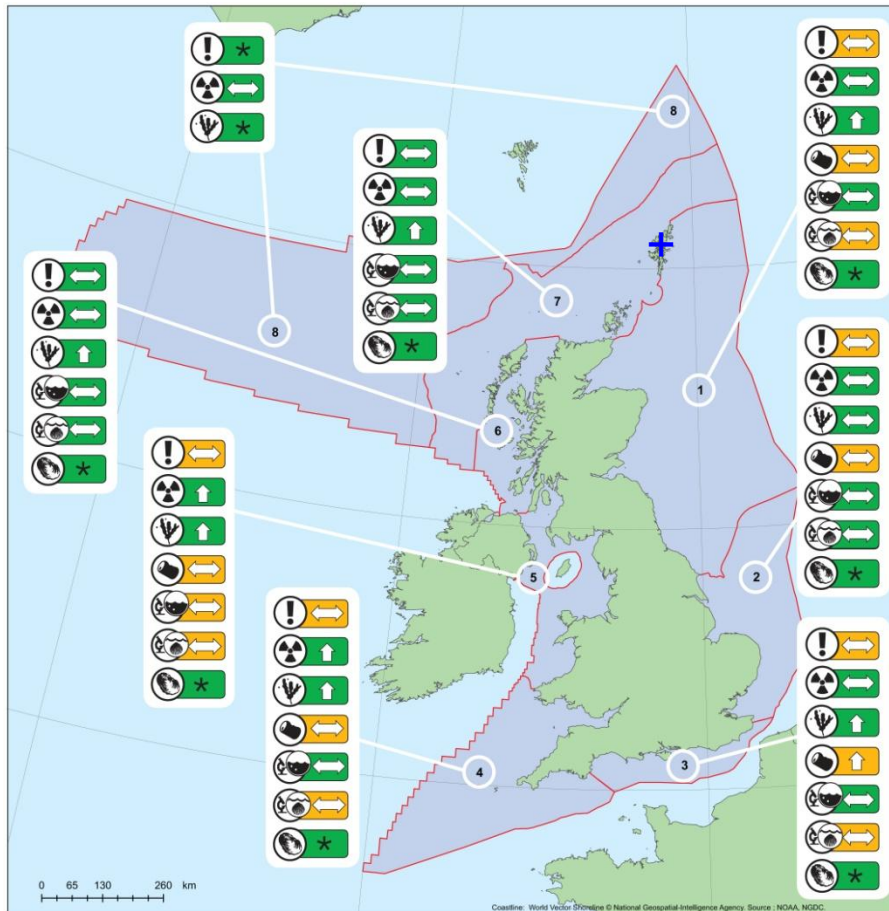
Charting Progress 2 The state of UK seas

- Few or no problems relating to radioactivity, eutrophication, microbiological contaminants or algal toxins in seafood.
- Hazardous substances reduced in most regions. Impacts are localised in industrial estuaries and coastal areas. Some persistent chemicals can still be detected in marine sediments and species in these areas.
- Litter found on all surveyed beaches. More limited evidence shows it is also present in the sea and on the sea floor.
- Unable to make an assessment of the impact of noise.

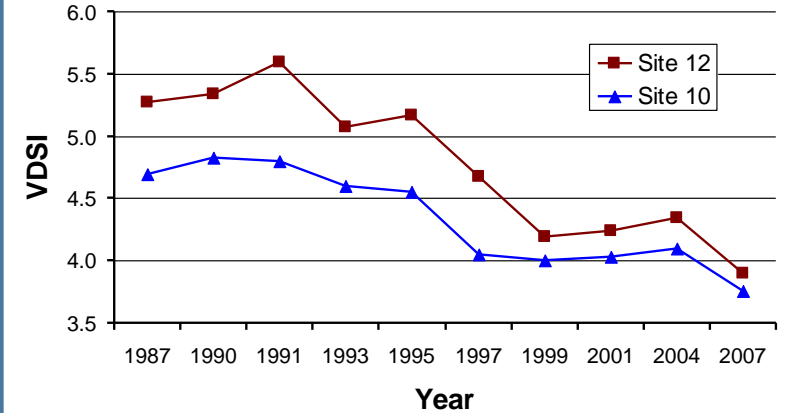


Clean and Safe Seas

Charting Progress 2 The state of UK seas



Temporal trend in imposex (VDSI) of dogwhelks in Sullom Voe (+ on map)



- Hazardous substances
- Radioactivity
- Eutrophication
- Beach litter
- Microbiological quality of bathing waters
- Microbiological quality of shellfish growing waters
- Algal toxins
- Few or no problems
- Some problems
- Many problems
- No overall trend discernable
- Improvement
- Deterioration
- No trend information available

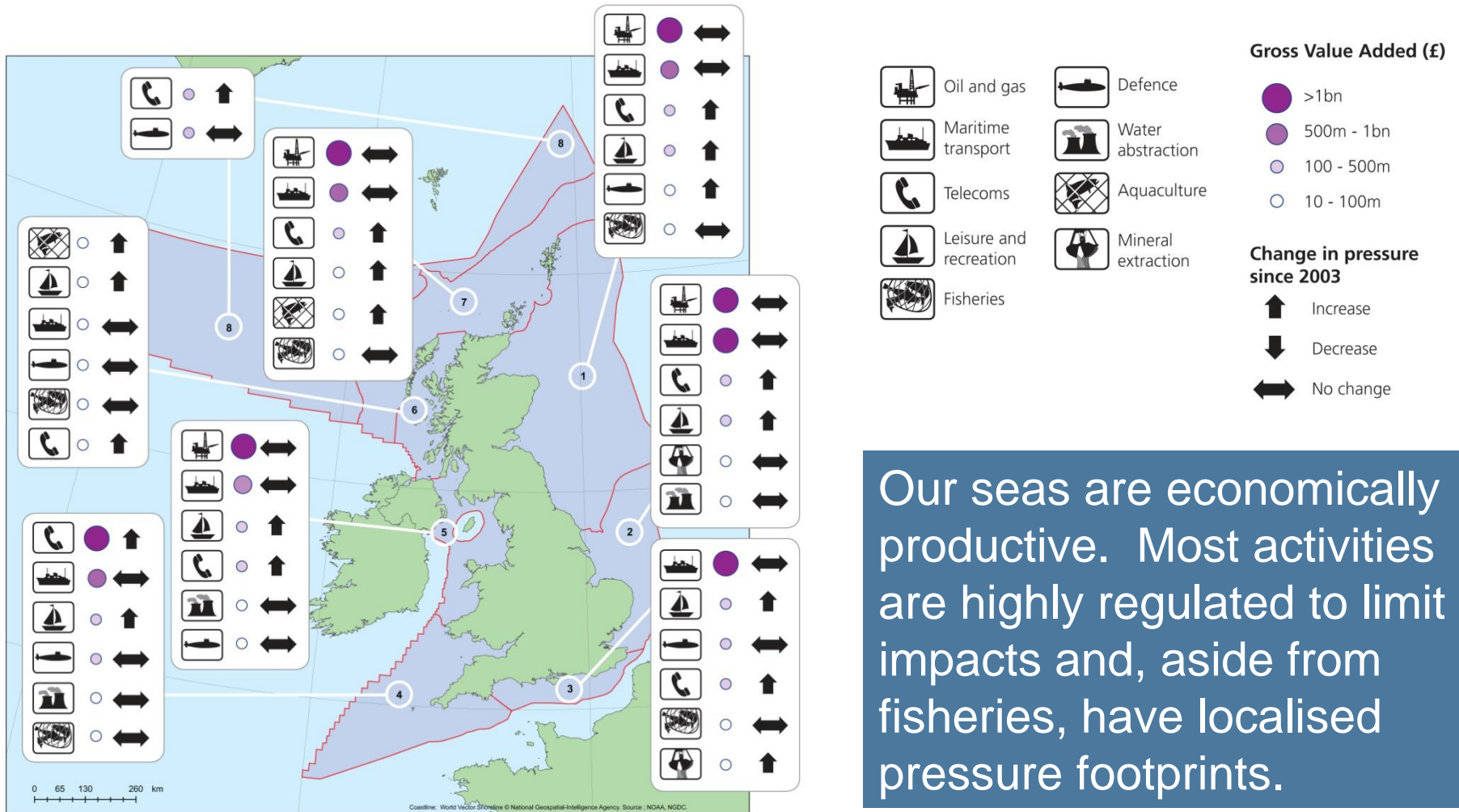
Clean and Safe Seas

Charting Progress 2 The state of UK seas

- Oil and gas contribute the most to the economy. Renewable energy and flood and coastal defence activities have more than doubled since 2005.
- Fishing mortality has declined. There are indications of improvements in sustainability for some fish stocks. Many assessed stocks are fished at rates above the levels expected to provide the highest long-term yield.
- Socio-economic activities put varying degrees of pressure on the marine environment: damage and loss of seabed habitat from fishing; pollution from land and marine-based sources; introduction of invasive species from shipping.
- We are not yet able to accurately assess the impact of all pressures on our seas (e.g. underwater noise), nor able to assess the cumulative effects of pressures and to determine whether use is sustainable.

Activity	GVA £million
Oil and Gas	37 000
Maritime Transport	4 700
Telecom Cables	2 700
Leisure & Recreation	1 289
Defence - Military	468
Fisheries	204
Aquaculture	193

Charting Progress 2 The state of UK seas



Our seas are economically productive. Most activities are highly regulated to limit impacts and, aside from fisheries, have localised pressure footprints.

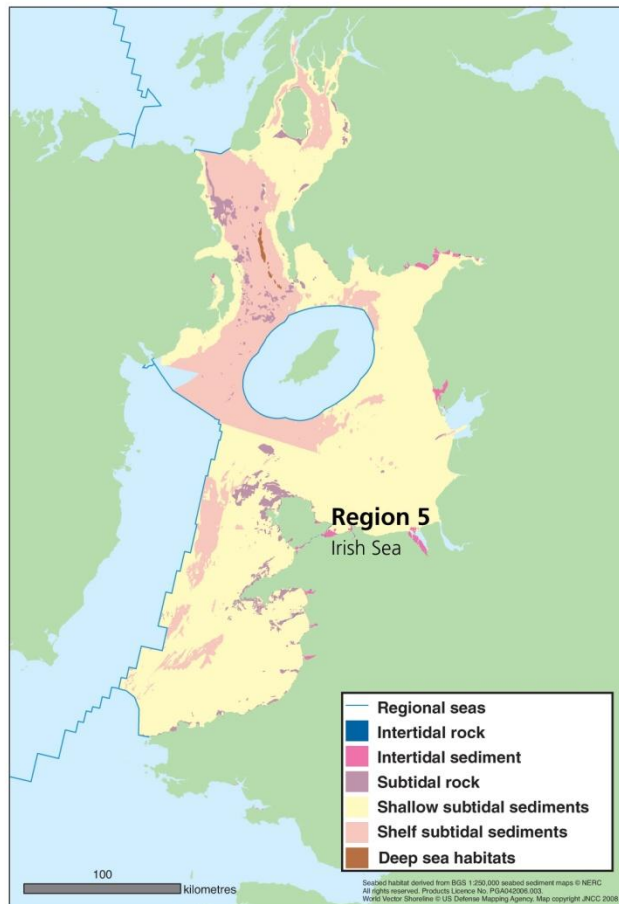
Productive Seas

Climate change caused by human activity is likely to play an increasingly significant role in the changing state of our seas

- Warmer sea temperatures since the 1980s have increased the growing season.
- Distributions of different types of plankton are likely to shift in response to warming climate; this may not be smooth.
- The distributions of some North Sea fish have responded to increasing sea temperatures by moving northward and to deeper waters.
- Increased sea water acidity is likely to affect species and habitats, such as cold-water coral reefs and shellfish.



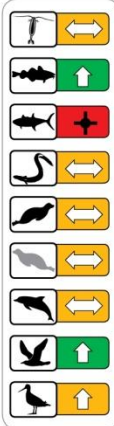
Charting Progress 2 The state of UK seas



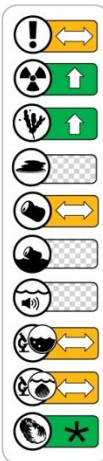
Habitats



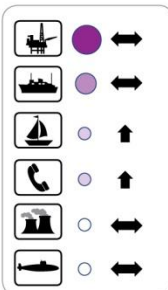
Species



Clean and Safe Seas



Productive Seas



- All regions support, or are affected by, human activities.
- The varied extent of human uses leads to different pressures.
- Fishing continues to be a widespread pressure.
- Threat due to pollution by hazardous substances is greatest around the coasts of England and Wales.
- There are significant changes in the populations of seabirds and seals across different regions.

Common issues and regional perspectives

Charting Progress 2 The state of UK seas

- Quality of the evidence base
- Harmonized assessment criteria
- Consistent baselines
- Appropriate scales
- Integrated assessment
- Need for better tools and wider coverage
- Communicating key findings simply and effectively



Challenges

Charting Progress 2 The state of UK seas



Our legacy, our children's future



Charting Progress 2 The state of UK seas

