

Summary of Key Indicators: Annex 2f Marine

Natural England's Natural Capital Indicators Project aims to identify key attributes for measuring change in natural capital in England, at a range of scales. Key indicators have been identified for the quantity, quality and location of ecosystems. We have not identified suitable repeated measures for value of benefits, which could be used as indicators.

Summary of key indicators:

See table below for further detail and related data sets

1. **Extent of habitat:** Deep sea habitats, intertidal rock, intertidal sediment, maerl beds, reefs, sea grass beds, shallow subtidal sediment, shelf subtidal sediment, subtidal rock

2. Quality

- Nutrient/chemical status: of sediment and sea water (including pH, turbidity, dissolved oxygen, carbon content of sediment and bacterial/viral water quality).
- Sediment processes: sediment biota.
- Species composition: naturalness of biological assemblage (number of trophic levels and community composition in each), amount & number of decomposers, net productivity by species.
- Cultural: nature, culture and history, facilities.
- Geodiversity: favourable condition of designated geosites; active geomorphological processes.

3. Location of:

- Transition and connectivity from subtidal to coastal and terrestrial habitats

4. Ecosystem service flows (specific to individual services):

- Measurement of the service: amount of clean water, carbon sequestered and greenhouse gases fixed, maintenance of wildlife habitats and species, water quality, fish, shellfish, seaweed and other products. Practices that relate to experiential and physical, scientific and educational; aesthetic, spiritual and/or emblematic use.

The project also identifies and reviews datasets for measuring the attributes. Data sets are only included if they are regularly updated. Gaps in data are also identified, where appropriate data sets have not been found.

This note summarises the results of this project for the Marine Broad Habitat, for the key ecosystem services in the table below. Please also see the separate note on the method followed.

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Marine: provisioning and regulating services			Ecosystem services					Data Sources
Asset attribute	Indicator category	Indicator	Wild animals, plants, algae, & outputs	Aquaculture	Water quality	Maintenance of nursery pops & habs	Climate regulation	
Quantity	Extent	Deep sea habitats	X			X		DASSH Archive for Marine Species & Habitat Data; JNCC Marine Protected Areas Monitoring; MEDIN — Marine Environmental Data and Information Network
Quantity	Extent	Intertidal rock	X			X		Site of Special Scientific Interest Condition data (SSSI only)
Quantity	Extent	Intertidal sediment	X			X	X	Site of Special Scientific Interest Condition data (SSSI only)
Quantity	Extent	Maerl beds	X			X		JNCC Marine Protected Areas Monitoring
Quantity	Extent	Reefs	X			X	X	DASSH Archive for Marine Species & Habitat Data; JNCC Marine Protected Areas Monitoring; MEDIN — Marine Environmental Data and Information Network
Quantity	Extent	Sea grass beds	X		X	X		WFD; JNCC Marine Protected Areas Monitoring
Quantity	Extent	Shallow subtidal sediment	X			X		DASSH Archive for Marine Species & Habitat Data; JNCC Marine Protected Areas Monitoring; MEDIN — Marine Environmental Data and Information Network
Quantity	Extent	Shelf subtidal sediment	X			X		DASSH Archive for Marine Species & Habitat Data; JNCC Marine Protected Areas Monitoring; MEDIN — Marine Environmental Data and Information Network
Quantity	Extent	Subtidal rock	X			X		DASSH Archive for Marine Species & Habitat Data; JNCC Marine Protected Areas Monitoring; MEDIN — Marine Environmental Data and Information Network
Quality	Nutrient (& chemical) status	Bacteriological & viral water quality	X	X	X	X		Coastal Bathing Water Standard; WFD; Blue Flag Beach Quality
Quality	Nutrient (& chemical) status	Carbon content of sediment					X	None identified
Quality	Nutrient (& chemical) status	Dissolved oxygen	X	X		X		Clean Seas Environmental Monitoring Programme; CEFAS Data hub; National Oceanographic database
Quality	Nutrient (& chemical) status	Nutrient and chemical status of sediment & sea water (N, P, Si & water turbidity)			X			Clean Seas Environmental Monitoring Programme; CEFAS Data hub; National Oceanographic database
Quality	Nutrient (& chemical) status	pH	X			X		National Oceanographic database
Quality	Soil/sediment processes	Sediment biota	X			X		Clean Seas Environmental Monitoring Programme
Quality	Species composition	Amount & number of decomposers/decomposition rate (kg/ha/year)					X	None identified
Quality	Species composition	Naturalness of biological assemblage number of trophic levels & community composition in each level	X			X		None identified
Quality	Species composition	Net productivity by species (kcal/ha/yr)	X				X	None identified
Spatial config.		Transition and connectivity from subtidal to coastal and terrestrial habitats	X			X		None identified
ES flow		Carbon sequestered & green house gases fixed					X	None identified
ES flow		Fish, shellfish, seaweed and other products (tonnes)	X	X				Food & Agricultural Organisation Fishery Statistical Collection: global production
ES flow		Maintenance of sustainable ecosystems/life cycle stages	X			X		None identified
ES flow		Water quality (chemical & biological, including viral & bacterial)			X			Clean Seas Environmental Monitoring Programme; Coastal Bathing Water Standard; CEFAS Data hub; Blue Flag Beach Quality; National Oceanographic database

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Marine: Cultural & Geodiversity Services					Data Source
Asset attribute	Indicator category	Indicator	Cultural Services	Geodiversity services	
Quantity	Extent	Reefs	X		DASSH Archive for Marine Species & Habitat Data; JNCC Marine Protected Areas Monitoring; MEDIN — Marine Environmental Data and Information Network
Quantity	Extent	Sea grass beds	X		WFD; JNCC Marine Protected Areas Monitoring
Quality	Nature	Visibility of wildlife	X		None identified
Quality	Nature	Presence of flagship species	X		None identified
Quality	Nature	Presence of rare (red list) species	X		None identified
Quality	Nature	Species diversity	X		Countryside Survey; CSM (only for Sites of Special Scientific Interest)
Quality	Nature	Favourable condition of SSSIs	X		CSM (only for Sites of Special Scientific Interest)
Quality	Nature	Favourable condition of designated geosites	X	X	CSM (only for Sites of Special Scientific Interest)
Quality	Nature	Quality of bathing waters	X		Coastal Bathing Water Standard
Quality	Facilities	Number of organised events	X		None identified
Quality	Facilities	Presence of clubs, schools, training centres	X		None identified
Quality	Culture & history	Designated Historic Environment Assets (World Heritage Sites, Scheduled monuments)	X		Historic Environment Record
Quality	Formative geological processes	Active geomorphological processes; terrestrial, coastal & marine		X	None identified
ES flow	Experiential & physical use	Number of visits	X		MENE: Monitor of Engagement with the Natural Environment
ES flow	Experiential & physical use	Duration of visits	X		MENE: Monitor of Engagement with the Natural Environment
ES flow	Experiential & physical use	Range of activities undertaken (number of people carrying out each activity, frequency)	X		MENE: Monitor of Engagement with the Natural Environment
ES flow	Scientific/educational	Number of research projects; PhD / Masters projects	X		None identified
ES flow	Scientific/educational	Number of school visits	X		None identified