

# Appendices

**Appendix 1:** Status metadata describing goal/sub goal, data description, units, available temporal resolution, spatial resolution as applied to OHI+ assessment, data type and source.

Goal	Sub goal	Dataset	Units	Temporal res.	Spatial res.	Data type: Observed (O) Product (P) Modelled (M) Classification (C)	Source (see Appendix 2 for source data urls)
<b>Clean Waters (CW)</b>		Bathing Water classification	Ranked category	1997-2017	Region-specific	C	Environment Agency
		Water clarity: gelbstoff (coloured dissolved organic matter) & detrital material	Light absorption due to gelbstoff and detritus at 442 nmi (m <sup>-1</sup> )	2003-2017	Region-specific	O	NASA
		Beach clean data	Litter items m <sup>-1</sup>	2018	Region-specific	O	MCS
		Run-off from urban-suburban built areas modelled from UK monthly rainfall data & land classification	mm/km <sup>2</sup>	2005-2015	Region-specific	P	CEH: Centre for Ecology & Hydrology
		Pollution from vessels (data extracted to 3nm of coast)	Vessel density (2 km <sup>-2</sup> )	2011-2015	Region-specific	O	MMO
		Nutrients: fertiliser use (national data regionally apportioned by land use)	Tonnes (total tonnes per region)	2002-2016	National: apportioned by region	P	FAO
		Pesticide use (national data regionally apportioned by land use)	kg/ha	1990-2016	National: apportioned by region	P	FAO
		Land cover (for data extraction)	Area: km <sup>2</sup>	2015	Region-specific	O	CEH: Centre for Ecology & Hydrology
<b>Food Provision (FP)</b>	<b>Fisheries (FIS)</b>	B/B <sub>MSY</sub> data (regional) derived from regional (CEFAS) stock assessments	Ratio: popn. biomass /MSY biomass	2017	Regional (South West England)	P	CEFAS
		B/B <sub>MSY</sub> data (global) derived from global (RAM legacy) stock assessments	Ratio: popn. biomass /MSY biomass	2001-2015	Global	P	ramlegacy.org
		Marine Conservation Society sustainable seafood	Ranked category	2020	National	C	Marine Conservation Society
		UK and foreign vessels landings by UK ports	Tonnes	2014-2018	Port specific	O	gov.uk
		<b>Mariculture (MAR)</b>	Mariculture production data	Tonnes	2012-2016	National: apportioned by region	O
		Mariculture production sites	km <sup>2</sup>	2019	Region-specific	O	CEFAS
<b>Artisanal Opportunities (AO)</b>		UK and foreign vessels landings by UK ports	Tonnes	2014-2018	Port specific	O	gov.uk
		Catch per unit (vessel) effort	Ratio: tonnes/hour	2012-2016	Port specific	P	MMO
		Marine diesel price	Cost: £/litre	2010-2017	National	P	gov.uk

**Appendix 1 (cont.):** Status metadata describing goal/sub goal, data description, units, available temporal resolution, spatial resolution as applied to OHI+ assessment, data type and source.

Goal	Sub goal	Dataset	Units	Temporal res.	Spatial res.	Data type: Observed (O) Product (P) Modelled (M) Classification (C)	Source (Appendix 2 for urls)
<b>Coastal Livelihoods &amp; Economies (LE)</b>	<b>Livelihoods (LIV)</b>	Employed marine workforce	n (number of jobs [full-time equivalent])	2010-2018	Unitary/district authority	O	ONS
		Per capita (median) annual wage	£	2002-2018	Unitary/district authority	O	ONS
		Consumer Price Index	% rate of increase/decrease	2018	National	P	ONS
	<b>Economies (ECO)</b>	Regional GVA by local authority	£	1997-2015	Unitary/district authority	O	ONS
		Employed marine workforce & total workforce	n (number of jobs [full-time equivalent])	2010-2018	Unitary/district authority	O	ONS
<b>Tourism &amp; Recreation (TR)</b>		Domestic overnight tourist stays	n (overnight stays)	2010-2014	Unitary/district authority	O	Visit England
		International overnight tourist stays	n (overnight stays)	2010-2014	Unitary/district authority	O	Visit England
		Accommodation (hotels, campsites, B&B)	n (accommodation units)	2019	Regional (South West England)	O	©OpenStreetMap contributors
		Viewshed (land with sea views) 1 km inland of coast	Proportion	2014	Region-specific	M	MMO
		Modelled marine recreation potential (MMO 1064) (clipped to 3 km of coast [mean high water])	Proportion	2014	Region-specific	M	MMO
<b>Designated Areas (DA)</b>	<b>Landscapes (LAN)</b>	World Heritage Site (WHS) Local Nature Reserve (LNR) Important Bird and Biodiversity Area (IBA) Biosphere Reserve (BR) Heritage Coast (HC) RSPB Reserve (RSPBR) Area of Outstanding Natural Beauty (AONB) Protected Wrecks (PW) National Parks (NP)	km <sup>2</sup>	2001-2006 1973-2011 2007-2015 1976 1974-1992 1994-2016 1957-1995 1973-2014 1954	Region-specific data clipped to 1 km inland & 3 nmi from coast (mean high water)	O	various
		Special Area of Conservation (SAC) Special Protected Area (SPA) Marine Conservation Zone (MCZ) Site of Special Scientific Interest (SSSI) RAMSAR sites	km <sup>2</sup>	2005-2017 1992-2017 2013-2016 1983-2009 1991-2001	Region-specific data clipped to 1 km inland & 12 nmi from coast (mean high water)	O	various

**Appendix 1 (cont.):** Status metadata describing goal/sub goal, data description, units, available temporal resolution, spatial resolution as applied to OHI+ assessment, data type and source.

Goal	Sub goal	Dataset	Units	Temporal res.	Spatial res.	Data type: Observed (O) Product (P) Modelled (M) Classification (C)	Source (Appendix 2 for urls)	
<b>Biodiversity (BD)</b>	<b>Habitat (HAB)</b>	Seagrass extent	km <sup>2</sup>	1985-2015	Region-specific	O	EMODnet	
		Seagrass condition & monitoring	Ranked category	2012-2019	Region-specific	C	Natural England	
		Saltmarsh/mudflats extent	km <sup>2</sup>	2013	Region-specific	O	Natural England	
		Saltmarsh/mudflats condition & monitoring	Ranked category	2003-2016	Region-specific	C	Natural England	
		Maerl extent	km <sup>2</sup>	2009	Region-specific	O	DEFRA	
		Maerl condition	Ranked category	2013	Region-specific	C	Natural England	
		Soft & hard bottom extent	km <sup>2</sup>	2019	Region-specific	O	EMODnet	
		Soft & hard bottom condition (GFW trawl intensity)	Fishing hours day <sup>-1</sup>	2012-2018	Region-specific	O	global fishing watch	
		<b>Species (SPP)</b>	MMO policy statements derived marine species list	None	2019	SW Marine Plan Area	O	MMO
			NBN Atlas	Region Id	2019	Region-specific	O	NBN
	DEFRA MB0102		Region Id	2010	Region-specific	O	DEFRA	
	The Shark Trust		Region Id	2010	Region-specific	O	The Shark Trust	
	IUCN		Region Id	2011-2012	Region-specific	O	IUCN	
	Seabird Monitoring Programme		Region Id	1985-2018	Region-specific	O	JNCC	
	Breeding Bird Survey		Region Id	2013-2018	Region-specific	O	BTO	
	MCZ feature condition		Ranked category	2012-2019	Region-specific	C	Natural England	
	B/B <sub>MSY</sub> data		Ratio	2017	Regional (South West England)	P	CEFAS	
	BoCC rank		Ranked category	2015	National	C	BTO	
	<b>Coastal Systems (CS)</b>	<b>Coastal Protection (CPR)</b>	IUCN Redlist (extinction risk)	Ranked category	2003-2018	Global	C	IUCN
			IUCN Redlist (population trend)	Ranked category	2003-2018	Global	C	IUCN
Seagrass extent			km <sup>2</sup>	1985-2015	Region-specific	O	EMODnet	
Seagrass condition & monitoring			Ranked category	2012-2019	Region-specific	C	Natural England	
Saltmarsh/mudflats extent			km <sup>2</sup>	2013	Region-specific	O	Natural England	
<b>Carbon Storage (CST)</b>			Saltmarsh/mudflats condition & monitoring	Ranked category	2003-2016	Region-specific	C	Natural England
			Sand dune extent	km <sup>2</sup>	1985-2015	Region-specific	O	Natural England
			Sand dune condition & monitoring	Ranked category	2007-2017	Region-specific	C	Natural England
			Seagrass extent	km <sup>2</sup>	1985-2015	Region-specific	O	EMODnet
			Seagrass condition & monitoring	Ranked category	2012-2019	Region-specific	C	Natural England
		Saltmarsh/mudflats extent	km <sup>2</sup>	2013	Region-specific	O	Natural England	
		Saltmarsh/mudflats condition & monitoring	Ranked category	2003-2016	Region-specific	C	Natural England	
		Maerl extent	km <sup>2</sup>	2009	Region-specific	O	DEFRA	
		Maerl condition	Ranked category	2013	Region-specific	C	Natural England	

## Appendix 2: Sources of status data.

Goal	Sub-goal	Data	Superscript	url
CW		Bathing water classifications	4	<a href="https://environment.data.gov.uk/bwq/profiles/data-download.html?country=England">https://environment.data.gov.uk/bwq/profiles/data-download.html?country=England</a>
		Water clarity	5	<a href="https://oceancolor.gsfc.nasa.gov/cgi/l3">https://oceancolor.gsfc.nasa.gov/cgi/l3</a>
		Beach clean data	7	No url – data request made to the Marine Conservation Society
		Urban run-off	3	<a href="https://catalogue.ceh.ac.uk/datastore/eidchub/33604ea0-c238-4488-813d-0ad9ab7c51ca/GB/monthly/">https://catalogue.ceh.ac.uk/datastore/eidchub/33604ea0-c238-4488-813d-0ad9ab7c51ca/GB/monthly/</a>
		Pollution from vessels	6	<a href="https://environment.data.gov.uk/ds/catalogue/index.jsp#catalogue">https://environment.data.gov.uk/ds/catalogue/index.jsp#catalogue</a>
		Nutrients	1	<a href="http://www.fao.org/faostat/en/#data/RFN">http://www.fao.org/faostat/en/#data/RFN</a>
		Pesticides	2	<a href="http://www.fao.org/faostat/en/#data/EP/visualize">http://www.fao.org/faostat/en/#data/EP/visualize</a>
		Land cover	8	<a href="https://digimap.edina.ac.uk/roam/download/environment">https://digimap.edina.ac.uk/roam/download/environment</a>
FP	FIS	CEFAS stock assessment (B/B <sub>MSY</sub> data (regional))	1	<a href="http://data.cefas.co.uk/#/View/18741">http://data.cefas.co.uk/#/View/18741</a>
		RAM stock assessment (B/B <sub>MSY</sub> data (global))	2	<a href="https://www.ramlegacy.org/database">https://www.ramlegacy.org/database</a>
		Marine Conservation Society sustainable seafood guide	3	<a href="https://www.mcsuk.org/goodfishguide/search">https://www.mcsuk.org/goodfishguide/search</a>
		Landings to port	4	<a href="https://www.gov.uk/government/statistical-data-sets/uk-and-foreign-vessels-landings-by-uk-port-and-uk-vessel-landings-abroad">https://www.gov.uk/government/statistical-data-sets/uk-and-foreign-vessels-landings-by-uk-port-and-uk-vessel-landings-abroad</a>
	MAR	Mariculture production data	1	No url – data request made to CEFAS
		Mariculture production sites	2	<a href="http://data.cefas.co.uk/#/View/79">http://data.cefas.co.uk/#/View/79</a>
AO		Landings to port	1	<a href="https://www.gov.uk/government/statistical-data-sets/uk-and-foreign-vessels-landings-by-uk-port-and-uk-vessel-landings-abroad">https://www.gov.uk/government/statistical-data-sets/uk-and-foreign-vessels-landings-by-uk-port-and-uk-vessel-landings-abroad</a>
		Catch per unit (vessel) effort	2	<a href="https://data.gov.uk/search?filters%5Bpublisher%5D=Marine+Management+Organisation">https://data.gov.uk/search?filters%5Bpublisher%5D=Marine+Management+Organisation</a>
		Marine diesel price	3	<a href="https://www.gov.uk/government/statistical-data-sets/oil-and-petroleum-products-monthly-statistics">https://www.gov.uk/government/statistical-data-sets/oil-and-petroleum-products-monthly-statistics</a>
LE	LIV	Workforce & annual wages	1	<a href="https://www.nomisweb.co.uk">https://www.nomisweb.co.uk</a>
		Consumer Price Index	2	<a href="https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/d7g7mm23">https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/d7g7mm23</a>
	ECO	Revenue (GVA)	1	<a href="https://www.ons.gov.uk/economy/grossvalueaddedgva/datasets/regionalgvaibylocalauthorityintheuk">https://www.ons.gov.uk/economy/grossvalueaddedgva/datasets/regionalgvaibylocalauthorityintheuk</a>
		Workforce (total & marine)	2	<a href="https://www.nomisweb.co.uk">https://www.nomisweb.co.uk</a>
TR		Domestic overnight stays	1	<a href="https://www.visitbritain.org/archive-great-britain-tourism-survey-overnight-data">https://www.visitbritain.org/archive-great-britain-tourism-survey-overnight-data</a>
		International overnight stays	2	<a href="https://www.visitbritain.org/nation-region-county-data">https://www.visitbritain.org/nation-region-county-data</a>
		Accommodation	3	<a href="https://overpass-turbo.eu">https://overpass-turbo.eu</a>
		Viewshed	4	<a href="https://environment.data.gov.uk/DefraDataDownload/?mapService=MMO/LandWithSeaViews&amp;Mode=satial">https://environment.data.gov.uk/DefraDataDownload/?mapService=MMO/LandWithSeaViews&amp;Mode=satial</a>
		Recreational potential	5	<a href="https://environment.data.gov.uk/ds/catalogue/index.jsp#catalogue">https://environment.data.gov.uk/ds/catalogue/index.jsp#catalogue</a>
DA	LAN	WHS extent & designations	1	WHS: <a href="https://data.gov.uk/dataset/3ac5c299-6805-476b-af9b-90aadec5e7b4/world-heritage-sites-gis-data">https://data.gov.uk/dataset/3ac5c299-6805-476b-af9b-90aadec5e7b4/world-heritage-sites-gis-data</a>
		LNR extent & designations	2	LNR: <a href="https://data.gov.uk/dataset/acdf4a9e-a115-41fb-bbe9-603c819aa7f7/local-nature-reserves-england">https://data.gov.uk/dataset/acdf4a9e-a115-41fb-bbe9-603c819aa7f7/local-nature-reserves-england</a>
		IBA extent & designations	3	IBA: <a href="http://datazone.birdlife.org/site/requestgis">http://datazone.birdlife.org/site/requestgis</a>
		Biosphere Reserves extent & designations	4	Biosphere reserves: <a href="https://data.gov.uk/dataset/4ceee251-ed74-4419-921f-5d25f5ae3c5c/biosphere-reserves-england">https://data.gov.uk/dataset/4ceee251-ed74-4419-921f-5d25f5ae3c5c/biosphere-reserves-england</a>
		Heritage Coast extent & designations	5	Heritage Coasts: <a href="https://naturalengland-defra.opendata.arcgis.com/datasets/d9557885721d483dac138bdd0ab08c3e_0/data">https://naturalengland-defra.opendata.arcgis.com/datasets/d9557885721d483dac138bdd0ab08c3e_0/data</a>
		RSPBR extent & designations	6	RSPB reserves: <a href="https://opendata-rspb.opendata.arcgis.com/datasets/rspb-reserves/data">https://opendata-rspb.opendata.arcgis.com/datasets/rspb-reserves/data</a>
		AONB extent & designations	7	AONB: <a href="http://naturalengland-defra.opendata.arcgis.com/datasets/areas-of-outstanding-natural-beauty-england/data">http://naturalengland-defra.opendata.arcgis.com/datasets/areas-of-outstanding-natural-beauty-england/data</a>
		Protected Wrecks extent & designations	8	Protected Wrecks: <a href="https://services.historicengland.org.uk/NMRDataDownload/SecurePages/Download.aspx">https://services.historicengland.org.uk/NMRDataDownload/SecurePages/Download.aspx</a>
		National Parks extent & designations	9	National parks: <a href="https://data.gov.uk/dataset/334e1b27-e193-4ef5-b14e-696b58bb7e95/national-parks-england">https://data.gov.uk/dataset/334e1b27-e193-4ef5-b14e-696b58bb7e95/national-parks-england</a>
		ECL	SAC, SPA, RAMSAR site extent & designations	1
		MCZ extent & designations	2	MCZ: <a href="https://naturalengland-defra.opendata.arcgis.com/datasets/marine-conservation-zones-england">https://naturalengland-defra.opendata.arcgis.com/datasets/marine-conservation-zones-england</a>
		SSSI extent & designations	3	SSSI: <a href="https://naturalengland-defra.opendata.arcgis.com/datasets/sites-of-special-scientific-interest-units-england">https://naturalengland-defra.opendata.arcgis.com/datasets/sites-of-special-scientific-interest-units-england</a>

## Appendix 2 (cont.): Sources of status data.

Goal	Sub-goal	Data	Superscript	url	
BD	HAB	Seagrass extent	1	<a href="https://www.emodnet-seabedhabitats.eu/access-data/download-data/">https://www.emodnet-seabedhabitats.eu/access-data/download-data/</a>	
		Seagrass condition & monitoring	2	Seagrass condition: sourced from various reports and years	
		Saltmarsh/mudflats extent	3	<a href="https://naturalengland-defra.opendata.arcgis.com/datasets/priority-habitat-inventory-england-south/data">https://naturalengland-defra.opendata.arcgis.com/datasets/priority-habitat-inventory-england-south/data</a>	
		Saltmarsh/mudflats condition & monitoring	4	<a href="https://designatedsites.naturalengland.org.uk/SiteSearch.aspx">https://designatedsites.naturalengland.org.uk/SiteSearch.aspx</a> - and data request from Natural England	
		Maerl extent	5	<a href="https://data.gov.uk/dataset/c530a017-94f1-4e09-96de-13b4d1874250/2009-defra-mb0102-2c-distribution-of-maerl-beds-from-polygon-data-in-the-united-kingdom-and-isle-of-man">https://data.gov.uk/dataset/c530a017-94f1-4e09-96de-13b4d1874250/2009-defra-mb0102-2c-distribution-of-maerl-beds-from-polygon-data-in-the-united-kingdom-and-isle-of-man</a>	
		Maerl condition	6	<a href="https://data.gov.uk/dataset/22842939-102d-4b2b-a3d7-d72dfa008b82/2013-natural-england-fal-and-helford-sac-maerl-drop-down-video-and-dive-survey">https://data.gov.uk/dataset/22842939-102d-4b2b-a3d7-d72dfa008b82/2013-natural-england-fal-and-helford-sac-maerl-drop-down-video-and-dive-survey</a>	
		Soft & hard benthic habitats extent	7	<a href="https://www.emodnet-seabedhabitats.eu/access-data/download-data/">https://www.emodnet-seabedhabitats.eu/access-data/download-data/</a>	
		Soft & hard benthic habitats condition	8	<a href="https://globalfishingwatch.force.com/gfw/s/data-download">https://globalfishingwatch.force.com/gfw/s/data-download</a>	
		SPP	List of marine species	1	<a href="https://www.gov.uk/government/publications/marine-planning-iteration-3-engagement-for-the-north-east-north-west-south-east-and-south-west-marine-plan-areas">https://www.gov.uk/government/publications/marine-planning-iteration-3-engagement-for-the-north-east-north-west-south-east-and-south-west-marine-plan-areas</a>
			Species distribution ranges	2	<a href="https://nbnatlas.org/">https://nbnatlas.org/</a>
			Species distribution ranges	3	<a href="https://data.gov.uk/search?q=DEFRA+MB0102">https://data.gov.uk/search?q=DEFRA+MB0102</a>
			Species distribution ranges	4	<a href="https://www.sharktrust.org/Pages/FAQs/Category/british-sharks">https://www.sharktrust.org/Pages/FAQs/Category/british-sharks</a>
Species distribution ranges	5		<a href="https://www.iucnredlist.org/search">https://www.iucnredlist.org/search</a> (distribution)		
Species distribution ranges	6		<a href="http://archive.jncc.gov.uk/smp/sitesMain.aspx">http://archive.jncc.gov.uk/smp/sitesMain.aspx</a>		
Species distribution ranges	7		<a href="https://www.bto.org/our-science/projects/bbs/latest-results/species-lists/county-species-lists">https://www.bto.org/our-science/projects/bbs/latest-results/species-lists/county-species-lists</a>		
Species status	8		<a href="https://www.gov.uk/government/collections/marine-conservation-zone-designations-in-england">https://www.gov.uk/government/collections/marine-conservation-zone-designations-in-england</a>		
Species status	9		<a href="http://data.cefas.co.uk/#/View/18741">http://data.cefas.co.uk/#/View/18741</a>		
Species status	10		<a href="https://www.bto.org/our-science/publications/psob">https://www.bto.org/our-science/publications/psob</a>		
Species status	11		<a href="https://www.iucnredlist.org/search">https://www.iucnredlist.org/search</a> (status)		
Population trend	12		<a href="https://www.iucnredlist.org/search">https://www.iucnredlist.org/search</a> (trend)		
CS	CPR	Seagrass extent	1	<a href="https://www.emodnet-seabedhabitats.eu/access-data/download-data/">https://www.emodnet-seabedhabitats.eu/access-data/download-data/</a>	
		Seagrass condition & monitoring	2	No url – data request made to Natural England	
		Saltmarsh/mudflats/sand dune extent	3	<a href="https://naturalengland-defra.opendata.arcgis.com/datasets/priority-habitat-inventory-england-south/data">https://naturalengland-defra.opendata.arcgis.com/datasets/priority-habitat-inventory-england-south/data</a>	
		Saltmarsh/mudflats/sand dune condition & monitoring	4	<a href="https://designatedsites.naturalengland.org.uk/SiteSearch.aspx">https://designatedsites.naturalengland.org.uk/SiteSearch.aspx</a> - and data request from Natural England	
	CST	Seagrass extent	1	<a href="https://www.emodnet-seabedhabitats.eu/access-data/download-data/">https://www.emodnet-seabedhabitats.eu/access-data/download-data/</a>	
		Seagrass condition & monitoring	2	No url – data request made to Natural England	
		Saltmarsh/mudflats extent	3	<a href="https://naturalengland-defra.opendata.arcgis.com/datasets/priority-habitat-inventory-england-south/data">https://naturalengland-defra.opendata.arcgis.com/datasets/priority-habitat-inventory-england-south/data</a>	
		Saltmarsh/mudflats condition & monitoring	4	<a href="https://designatedsites.naturalengland.org.uk/SiteSearch.aspx">https://designatedsites.naturalengland.org.uk/SiteSearch.aspx</a> - and data request from Natural England	
		Maerl extent	5	<a href="https://data.gov.uk/dataset/c530a017-94f1-4e09-96de-13b4d1874250/2009-defra-mb0102-2c-distribution-of-maerl-beds-from-polygon-data-in-the-united-kingdom-and-isle-of-man">https://data.gov.uk/dataset/c530a017-94f1-4e09-96de-13b4d1874250/2009-defra-mb0102-2c-distribution-of-maerl-beds-from-polygon-data-in-the-united-kingdom-and-isle-of-man</a>	
		Maerl condition	6	<a href="https://data.gov.uk/dataset/22842939-102d-4b2b-a3d7-d72dfa008b82/2013-natural-england-fal-and-helford-sac-maerl-drop-down-video-and-dive-survey">https://data.gov.uk/dataset/22842939-102d-4b2b-a3d7-d72dfa008b82/2013-natural-england-fal-and-helford-sac-maerl-drop-down-video-and-dive-survey</a>	

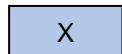
**Appendix 3: Status data availability described by goal/sub goal, data description, available years and OHI assessment year.**

Goal	Sub-goal	Data	Data year if prior to 2001	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
CW		Bathing water classification																		X					
		Water clarity																		X					
		Beach clean data																							
		Urban run-off																X							
		Pollution from vessels																X							
		Fertiliser use																	X						
		Pesticide use																	X						
	Land cover (for data extraction)																X								
FP	FIS	CEFAS stock assessment (B/B <sub>MSEY</sub> data (regional))																			X				
		RAM stock assessment (B/B <sub>MSEY</sub> data (global))																X							
		Marine Conservation Society sustainable seafood guide																							
		Landings to port																			X				
MAR		Mariculture production data																			X				
		Mariculture production sites																					X		
AO		Landings to port																			X				
		Catch per unit (vessel) effort																	X						
LE	LIV	Marine diesel price																			X				
		Employed marine workforce																			X				
		Per capita (median) annual wage																			X				
		Consumer Price Index																		X					
ECO		Regional GVA by local authority in the UK																X							
		Employed marine workforce & total workforce																			X				
TR		Domestic overnight stays															X								
		International overnight stays															X								
		Accommodation (hotels, campsites, B&B)																					X		
		Viewshed (land with sea views)																X							
		Modelled marine recreation potential															X								
DA	LAN	World Heritage Site (WHS) extent & designation							X														!		
		Local Nature Reserve (LNR) extent & designation												X										!	
		Important Bird and Biodiversity Area (IBA) extent & designation																	X					!	
		Biosphere Reserve (BR) extent & designation		X 1976																				!	
		Heritage Coast (HC) extent & designation		X 1992																				!	
		RSPB Reserve (RSPBR) extent & designation																		X				!	
		Area of Outstanding Natural Beauty (AONB) extent & designation		X 1995																				!	
		Protected Wrecks (PW) extent & designation																	X					!	
			National Parks (NP) extent & designation		X 1954																				!
		EC		Special Area of Conservation (SAC) extent & designation																			X		!
				Special Protected Area (SPA) extent & designation																			X		!
				Marine Conservation Zone (MCZ) extent & designation																	X				!
				Site of Special Scientific Interest (SSSI) extent & designation										X											!
	RAMSAR extent			X																			!		

! data current at 2019



available data



2018 assessment data

**Appendix 3 (cont.):** Status data availability described by goal/sub goal, data description, available years and OHI assessment year.

Goal	Sub-goal	Data	Data year if prior to 2001	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
BD	HAB	Seagrass extent																X							
		Seagrass condition																			Rgn 3	Rgn 4/5	Rn 6		
		Seagrass monitoring														Rgn 5			Rgn 3	Rgn 4	Rgn 6				
		Littoral sediment extent															X								
		Littoral sediment condition & monitoring																				X			
		Maerl extent											X												
		Maerl condition															X								
		Soft and hard bottom extent																		X					
		Soft and hard bottom condition (GFV trawl intensity)																						X	
		SPP		Species list (MMO policy statements)																				X	
				NBN Atlas (species distributions)																					X
				DEFRA MB0102 (species distributions)																					
				The Shark Trust (species distributions)																					
				IUCN (species distributions)																					
				Seabird Monitoring Programme (species distributions)																					
		Breeding Bird Survey (species distributions)																							
		MCZ feature condition (species status)																					X		
		B/BMSY data (species status)																			X				
		BoCC rank (species status)																X							
		IUCN Redlist (extinction risk: species status) #																							
		IUCN Redlist (population trend: status trend) #																							
CS	CPR	Seagrass extent																X							
		Seagrass condition																			Rgn 3	Rgn 4/5	Rn 6		
		Seagrass monitoring														Rgn 5			Rgn 3	Rgn 4	Rgn 6				
		Saltmarsh/mudflats extent															X								
		Saltmarsh/mudflats condition & monitoring																					X		
		Sand dune extent																	X						
		Sand dune condition & monitoring																				X			
		CST		Seagrass extent															X						
				Seagrass condition																		Rgn 3	Rgn 4/5	Rn 6	
				Seagrass monitoring													Rgn 5			Rgn 3	Rgn 4	Rgn 6			
				Saltmarsh/mudflats extent														X							
				Saltmarsh/mudflats condition & monitoring																				X	
				Maerl extent										X											
				Maerl condition														X							

# data year dependent on IUCN assessment year

 available data       2018 assessment data

**Appendix 4:** Pressure data described by stressor name, category and sub-category, region specific data, data type and goal/sub goal application.

Stressor	Category	Sub-category	Region specific	Data type: Observed (O) Product (P) Modelled (M)	Goal or sub goal and element																					
					CW	FIS	MAR	AO	LIV	ECO	TR	LAN	ECL	HAB: SM*	HAB: SG*	HAB: M*	HAB: SB*	HAB: HB*	SPP	CP: SM*	CP: SG*	CP: SD*	CS: SM*	CS: SG*	CS: M*	
Invasive species	Ecological	Alien species	No	M		1		1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Genetic escapes	Ecological	Alien species	No	M		1			1	1									1							
Ocean acidification	Ecological	Climate change	No	M												1	2			1				1	2	
Sea level rise	Ecological	Climate change	Yes	P			1		2	2	2	1	1	2	2					3	3	3	2	2		
Sea surface temperature	Ecological	Climate change	Yes	P											2	1				1		2			2	1
Ultraviolet radiation	Ecological	Climate change	No	M															1							
Fisheries pressure (inshore) dredging	Ecological	Fishing pressure	Yes	P		3		2	1						3	3	3	3	3		3			3	3	
Fisheries pressure (inshore) lining	Ecological	Fishing pressure	Yes	P		2		1	1										1							
Fisheries pressure (inshore) netting	Ecological	Fishing pressure	Yes	P		2		1	1						2		2	2	3		2			2		
Fisheries pressure (inshore) potting	Ecological	Fishing pressure	Yes	P		2		1	1						2		1	1	1		2			2		
Fisheries pressure (inshore) trawling	Ecological	Fishing pressure	Yes	P		3		3	1		Yes				3	3	3	3	3		3			3	3	
Fisheries pressure (offshore) fixed gear	Ecological	Fishing pressure	Yes	P		2		2	1								1	1	2							
Fisheries pressure (offshore) longlines	Ecological	Fishing pressure	Yes	P		2		2	1										2							
Fisheries pressure (offshore) trawls	Ecological	Fishing pressure	Yes	P		3		2	1								3	3	2							
Intertidal habitat destruction	Ecological	Habitat destruction	Yes	O		1		1	1	1			3	3	3				2	3	3	3	3	3		
Subtidal hard bottom habitat destruction	Ecological	Habitat destruction	Yes	P		2		2	2	2			2					3	2							
Subtidal soft bottom habitat destruction	Ecological	Habitat destruction	Yes	P		2		2	2	2	Yes						3	2								
Industrial sprawl	Ecological	Pollution	Yes	O		1		1			3	2	2	2					2	2		2	2			
Urban sprawl	Ecological	Pollution	Yes	O		1		1			3	2	2	2					2	2		2	2			
Chemical input within coast to 12 nmi offshore	Ecological	Pollution	Yes	O   P   M			1	2		3	3								2							
Chemical input within coast to 3 nmi offshore	Ecological	Pollution	Yes	O   P   M		3		3	1			3	2	2	1	2	1	2	2	3	1	2	1	1	2	1
Nutrient input within coast to 12 nmi offshore	Ecological	Pollution	Yes	M		1			1	1									3							
Nutrient input within coast to 3 nmi offshore	Ecological	Pollution	Yes	M		3		3	1	3	3	3	2	2	2	3	2	2	2	2	2	3	2	2	3	2
River pollution	Ecological	Pollution	Yes	O		3		3	1			3	2	2	1	2	1	2	2	3	1	2	1	1	2	1
Pathogens within coastal waters	Ecological	Pollution	No	O		3			3	3	3															
Plastic pollution within coast to 12 nmi offshore	Ecological	Pollution	Yes	M		3			3	3	3	3	3	3					1							
Underwater noise within coast to 12 nmi offshore	Ecological	Pollution	Yes	O															3							
Recreational pressure	Ecological	Pollution	Yes	M		2						2			2	2	2		2	2	2	2	2	2	2	
Social deprivation	Social	Social	Yes	O				2	3	3	3															

O: Observed - a recorded value  
P: Product - a derived unit from multiple 'observed' data sets (e.g. kg/m<sup>2</sup>)  
M: Modelled - data not observed but derived from a modelling algorithm

\* SM – saltmarsh, SG – seagrass, SD – sand dunes, M – maerl, SB – soft bottom benthic substrata, HB – hard bottom benthic



**Appendix 5:** Resilience data described by layer name, category and category type, region specific data, data type, weight, and goal/sub goal application.

Layer	Category	Category type	Region specific	Data type: Observed (O) Product (P) Modelled (M)	Weight	Goal or sub goal and element																					
						CW	FIS	MAR	AO	LIV	ECO	TR	LAN	ECL	HAB: SM*	HAB: SG*	HAB: M*	HAB: SB*	HAB: HB*	SPP	CP: SM*	CP: SG*	CP: SD*	CS: SM*	CS: SG*	CS: M*	
Measure of ecological integrity	Ecological	Ecosystem	Yes	O	1		X		X							X	X	X	X	X		X	X	X	X	X	X
Management of nonindigenous species	Ecological	Regulatory	No	O	1			X							X	X	X	X	X	X	X	X	X	X	X	X	X
CITES signatories	Ecological	Regulatory	No	O	0.5														X								
Management of habitat to protect fisheries biodiversity	Ecological	Regulatory	No	O	1		X		X									X	X	X							
Commercial fishing management	Ecological	Regulatory	No	O	1		X		X									X	X	X							
Artisanal fisheries management effectiveness	Ecological	Regulatory	No	O	1		X												X								
Nearshore & estuarine fisheries byelaws	Ecological	Regulatory	Yes	O	1				X																		
Management of habitat to protect habitat biodiversity	Ecological	Regulatory		O	1		X		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Coastal protected marine areas	Ecological	Regulatory	Yes	O	1		X		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X
EEZ protected marine areas	Ecological	Regulatory	Yes	O	1		X		X	X	X						X	X	X								
Management of mariculture to preserve biodiversity	Ecological	Regulatory	No	O	1			X							X	X	X	X	X	X							
Mariculture sustainability index	Ecological	Regulatory	No	O	1			X																			
Management of tourism to preserve biodiversity	Ecological	Regulatory	No	O	1										X	X	X	X	X	X							
Management of waters to preserve biodiversity	Ecological	Regulatory	No	O	1		X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Global Competitiveness Index (GCI) scores	Social	Social	No	P	1				X	X																	
Strength of governance	Social	Social	No	P	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Social Progress Index	Social	Social	No	P	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

O: Observed - a recorded value  
P: Product - a derived unit from multiple 'observed' data sets (e.g. kg/m<sup>2</sup>)  
M: Modelled - data not observed but derived from a modelling algorithm

\* SM – saltmarsh, SG – seagrass, SD – sand dunes, M – maerl, SB – soft bottom benthic substrata, HB – hard bottom benthic substrata

## Appendix 6: Pressure and resilience data sources.

Data	Description	Pressure or Resilience	Source url
nvasive species	Modelled impact from harmful invasive marine species	pressure	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/sp_alien.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/sp_alien.csv</a>
Genetic escapes	Modelled impact from introduced mariculture species	pressure	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/sp_genetic.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/sp_genetic.csv</a>
Ocean acidification	Modelled change in ocean acidity	pressure	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/cc_acid.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/cc_acid.csv</a>
Sea level rise	Sea surface height anomalies	pressure	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/cc_slr.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/cc_slr.csv</a>
Sea surface temperature	Sea surface temperature anomalies	pressure	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/cc_sst.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/cc_sst.csv</a>
Ultraviolet radiation	Modelled UV radiation anomalies	pressure	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/cc_uv.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/cc_uv.csv</a>
Fisheries pressure (inshore) dredging	Modelled inshore fishing activities intensity	pressure	<a href="http://data.cefas.co.uk/#/View/3277">http://data.cefas.co.uk/#/View/3277</a>
Fisheries pressure (inshore) lining	Modelled inshore fishing activities intensity	pressure	<a href="http://data.cefas.co.uk/#/View/3277">http://data.cefas.co.uk/#/View/3277</a>
Fisheries pressure (inshore) netting	Modelled inshore fishing activities intensity	pressure	<a href="http://data.cefas.co.uk/#/View/3277">http://data.cefas.co.uk/#/View/3277</a>
Fisheries pressure (inshore) potting	Modelled inshore fishing activities intensity	pressure	<a href="http://data.cefas.co.uk/#/View/3277">http://data.cefas.co.uk/#/View/3277</a>
Fisheries pressure (inshore) trawling	Modelled inshore fishing activities intensity	pressure	<a href="http://data.cefas.co.uk/#/View/3277">http://data.cefas.co.uk/#/View/3277</a>
Fisheries pressure (offshore) fixed gear	Fishing effort and vessel presence	pressure	<a href="https://globalfishingwatch.force.com/gfw/s/data-download">https://globalfishingwatch.force.com/gfw/s/data-download</a>
Fisheries pressure (offshore) longlines	Fishing effort and vessel presence	pressure	<a href="https://globalfishingwatch.force.com/gfw/s/data-download">https://globalfishingwatch.force.com/gfw/s/data-download</a>
Fisheries pressure (offshore) trawls	Fishing effort and vessel presence	pressure	<a href="https://globalfishingwatch.force.com/gfw/s/data-download">https://globalfishingwatch.force.com/gfw/s/data-download</a>
Intertidal habitat destruction	Resident population within 5 km of coast	pressure	<a href="https://catalogue.ceh.ac.uk/documents/0995e94d-6d42-40c1-8ed4-5090d82471e1">https://catalogue.ceh.ac.uk/documents/0995e94d-6d42-40c1-8ed4-5090d82471e1</a>
Subtidal hard bottom habitat destruction	Fishing effort over hard bottom benthic substrata	pressure	<a href="https://globalfishingwatch.force.com/gfw/s/data-download">https://globalfishingwatch.force.com/gfw/s/data-download</a>
Subtidal soft bottom habitat destruction	Fishing effort over soft bottom benthic substrata	pressure	<a href="https://globalfishingwatch.force.com/gfw/s/data-download">https://globalfishingwatch.force.com/gfw/s/data-download</a>
Industrial sprawl	Area (km <sup>2</sup> ) change in industrial built environment between 1965 and 2014	pressure	<a href="https://uk-nationaltrust.opendata.arcgis.com/datasets/64c3e911034f40829d288e1cd908415a_0">https://uk-nationaltrust.opendata.arcgis.com/datasets/64c3e911034f40829d288e1cd908415a_0</a> <a href="https://uk-nationaltrust.opendata.arcgis.com/datasets/ab9ac11913e042dfa55f51df440fd0ac_0">https://uk-nationaltrust.opendata.arcgis.com/datasets/ab9ac11913e042dfa55f51df440fd0ac_0</a>
Urban sprawl	Area (km <sup>2</sup> ) change in urban built environment between 1965 and 2014	pressure	<a href="https://uk-nationaltrust.opendata.arcgis.com/datasets/64c3e911034f40829d288e1cd908415a_0">https://uk-nationaltrust.opendata.arcgis.com/datasets/64c3e911034f40829d288e1cd908415a_0</a> <a href="https://uk-nationaltrust.opendata.arcgis.com/datasets/ab9ac11913e042dfa55f51df440fd0ac_0">https://uk-nationaltrust.opendata.arcgis.com/datasets/ab9ac11913e042dfa55f51df440fd0ac_0</a>
Chemical input within coast to 12 nmi offshore	Agricultural pesticide pollution	pressure	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/po_chemicals.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/po_chemicals.csv</a>
Chemical input within coast to 12 nmi offshore	Pollution from vessels	pressure	<a href="https://environment.data.gov.uk/ds/catalogue/index.jsp#catalogue">https://environment.data.gov.uk/ds/catalogue/index.jsp#catalogue</a>
Chemical input within coast to 12 nmi offshore	Urban run-off	pressure	<a href="https://catalogue.ceh.ac.uk/datastore/eidchub/33604ea0-c238-4488-813d-0ad9ab7c51ca/GB/monthly/">https://catalogue.ceh.ac.uk/datastore/eidchub/33604ea0-c238-4488-813d-0ad9ab7c51ca/GB/monthly/</a>
Chemical input within coast to 3 nmi offshore	Agricultural pesticide pollution	pressure	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/po_chemicals.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/po_chemicals.csv</a>
Chemical input within coast to 3 nmi offshore	Pollution from vessels	pressure	<a href="https://environment.data.gov.uk/ds/catalogue/index.jsp#catalogue">https://environment.data.gov.uk/ds/catalogue/index.jsp#catalogue</a>
Chemical input within coast to 3 nmi offshore	Urban run-off	pressure	<a href="https://catalogue.ceh.ac.uk/datastore/eidchub/33604ea0-c238-4488-813d-0ad9ab7c51ca/GB/monthly/">https://catalogue.ceh.ac.uk/datastore/eidchub/33604ea0-c238-4488-813d-0ad9ab7c51ca/GB/monthly/</a>
Nutrient input within coast to 12 nmi offshore	Agricultural fertiliser pollution	pressure	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/po_nutrients.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/po_nutrients.csv</a>
Nutrient input within coast to 3 nmi offshore	Agricultural fertiliser pollution	pressure	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/po_nutrients.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/po_nutrients.csv</a>
River pollution	Water framework directive violations	pressure	<a href="https://environment.data.gov.uk/catchment-planning/data-download/">https://environment.data.gov.uk/catchment-planning/data-download/</a>
Pathogens within coastal waters	Population without access to improved sanitation facilities	pressure	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/po_pathogens.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/po_pathogens.csv</a>
Plastic pollution within coast to 12 nmi offshore	Modelled floating marine plastics (density & distribution)	pressure	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/po_trash.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/po_trash.csv</a>
Underwater noise within coast to 12 nmi offshore	Vessel density	pressure	<a href="https://environment.data.gov.uk/ds/catalogue/index.jsp#catalogue">https://environment.data.gov.uk/ds/catalogue/index.jsp#catalogue</a>
Recreational pressure	Recreational activity (coast to 3 nmi offshore)	pressure	<a href="https://environment.data.gov.uk/ds/catalogue/index.jsp#catalogue">https://environment.data.gov.uk/ds/catalogue/index.jsp#catalogue</a>
Social deprivation	Carstairs index within 5 km coast	pressure	<a href="https://census.ukdataservice.ac.uk/get-data/related/deprivation.aspx">https://census.ukdataservice.ac.uk/get-data/related/deprivation.aspx</a>
Measure of ecological integrity	Marine species condition (species sub-goal status score) calculated for all of EEZ (to 12 nmi offshore) as a proxy for ecological integrity	resilience	data as per BD: SPP sub-goal
Management of nonindigenous species	Survey responses by country to the Convention on Biological Diversity (CBD) Third National Report: invasive species related questions	resilience	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/sp_alien_species.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/sp_alien_species.csv</a>
CITES signatories	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) signatories	resilience	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/g_cites.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/g_cites.csv</a>
Management of habitat to protect fisheries biodiversity	Survey responses by country to the Convention on Biological Diversity (CBD) Third National Report: habitat related questions	resilience	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/fp_habitat.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/fp_habitat.csv</a>

## Appendix 6 (cont.): Pressure and resilience data sources.

Data	Description	Pressure or Resilience	Source url
Commercial fishing management	Regulations and management of commercial fishing	resilience	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/tp_mora.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/tp_mora.csv</a>
Artisanal fisheries management effectiveness	Quality of management of small-scale fishing for artisanal and recreational purposes (expert opinion survey)	resilience	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/tp_mora_artisanal.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/tp_mora_artisanal.csv</a>
Nearshore & estuarine fisheries byelaws	Direct & supportive MPA measures	resilience	<a href="http://www.association-ifca.org.uk/map/">http://www.association-ifca.org.uk/map/</a>
Management of habitat to protect habitat biodiversity	Survey responses by country to the Convention on Biological Diversity (CBD) Third National Report: habitat related questions	resilience	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/hd_habitat.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/hd_habitat.csv</a>
Coastal protected marine areas	Percentage marine areas protected from bottom towed gear within 3 nmi of coastline	resilience	<a href="https://www.mcsuk.org/mpa/realty-check">https://www.mcsuk.org/mpa/realty-check</a>
EEZ protected marine areas	Percentage marine areas protected from bottom towed gear within 12 nmi of coastline	resilience	<a href="https://www.mcsuk.org/mpa/realty-check">https://www.mcsuk.org/mpa/realty-check</a>
Management of mariculture to preserve biodiversity	Survey responses by country to the Convention on Biological Diversity (CBD) Third National Report: mariculture related questions	resilience	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/g_mariculture.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/g_mariculture.csv</a>
Mariculture sustainability index	Mariculture practice assessment criteria from the Mariculture Sustainability Index (MSI)	resilience	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/g_msi_gov.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/g_msi_gov.csv</a>
Management of tourism to preserve biodiversity	Survey responses by country to the Convention on Biological Diversity (CBD) Third National Report: tourism related questions	resilience	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/g_tourism.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/g_tourism.csv</a>
Management of waters to preserve biodiversity	Survey responses by country to the Convention on Biological Diversity (CBD) Third National Report: tourism related questions	resilience	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/po_water.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/po_water.csv</a>
Global Competitiveness Index (GCI) scores	Competitiveness in achieving sustained economic prosperity	resilience	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/li_gci.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/li_gci.csv</a>
Strength of governance	World Governance Indicators (WGI) six combined scores	resilience	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/wgi_all.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/wgi_all.csv</a>
Social Progress Index	Social Progress Index scores	resilience	<a href="https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/res_spi.csv">https://github.com/OHI-Science/ohi-global/blob/draft/eez/layers/res_spi.csv</a>

## Appendix 7: Goal dataset reference points.

Goal	Sub-goal	Data	Reference type
CW		Nutrients, pesticides, urban run-off, water clarity & pollution from vessels	Benchmark: within region maxima during most recent 5 years
		Beach clean data	Benchmark: maximum regional value
		Bathing water classifications	Target: categorical rank 0-1
FP	FIS	CEFAS/RAM stock assessment (B/B <sub>MSY</sub> data [regional/global])	Target: B/B <sub>MSY</sub> = 1
	MAR	Mariculture production data	Benchmark: within region maxima during most recent 5 years
AO		Under 10 m fishing fleet proportion of catch & catch per unit (vessel) effort	Benchmark: within region maxima during most recent 5 years
		Marine diesel price	Benchmark: maximum in most recent 5 years
LE	LIV	Workforce & annual wages	Benchmark: within region temporal comparison
	ECO	Revenue (GVA) & workforce	Benchmark: within region maxima during most recent 5 years
TR		Domestic & international overnight stays	Benchmark: within region maxima during most recent 5 years
		Viewshed	Benchmark: proportion of total area
		Recreational potential	Benchmark: maximum gridded value
DA	LAN	WHS, LNR, IBA, Biosphere Reserves, Heritage Coast, RSPBR, AONB, Protected Wrecks, National Parks extent & designations	Target: proportion of total area
	ECL	SAC, SPA, RAMSAR, MCZ & SSSI site extent & designations	Target: proportion of total area
BD	HAB	Seagrass, saltmarsh/mudflats condition & monitoring	Target: categorical rank 0-1
		Maerl condition	Target: categorical rank 0-1
		Soft & hard benthic habitats condition	Benchmark: within region maxima during most recent 5 years
	SPP	Marine species status	Target: categorical rank 0-1 & B/B <sub>MSY</sub> = 1
CS	CST	Seagrass, saltmarsh/mudflats condition & monitoring	Target: categorical rank 0-1
		Maerl condition	Target: categorical rank 0-1
	CPR	Seagrass, saltmarsh/mudflats & sand dune condition & monitoring	Target: categorical rank 0-1

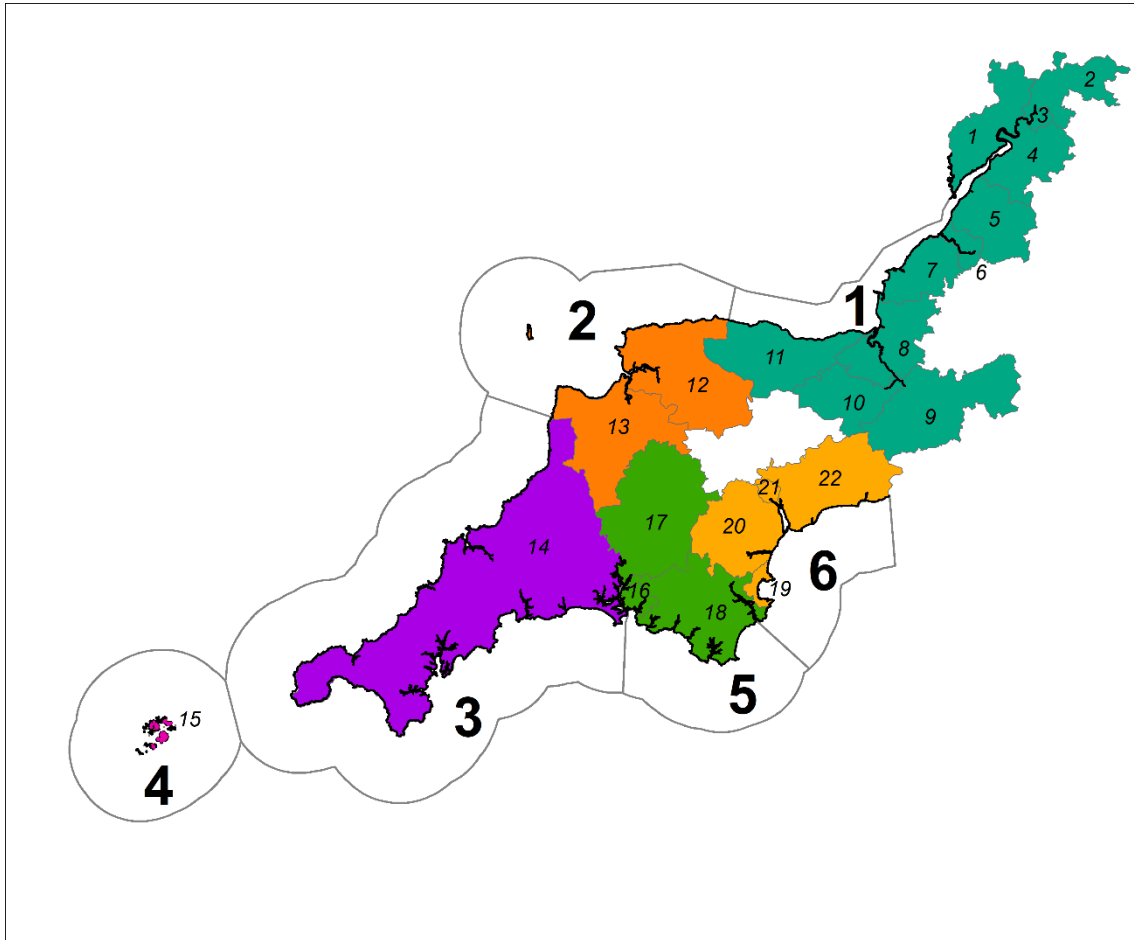
## Appendix 8: Status data trend calculations.

Goal	Sub-goal	Data	Trend
CW		Nutrients, pesticides, urban run-off, water clarity, pollution from vessels & bathing water classifications	Region-specific trend calculated from the most recent 5 years of data for nutrients, pesticides, urban run-off, suspended detrital matter, coastal pathogens and pollution from vessels
		Beach clean data	Marine debris trends were estimated using a secondary dataset describing the amount of improperly disposed of plastics (Halpern et al., 2012, 2017; Jambeck et al., 2015)
FP	FIS	CEFAS/RAM stock assessment (B/B <sub>MSY</sub> data [regional/global])	Region-specific trend calculated from the most recent 5 years of data
	MAR	Mariculture production data	Region-specific trend calculated from the most recent 5 years of data
AO		Under 10 m fishing fleet proportion of catch & catch per unit (vessel) effort	Region-specific trend calculated from the most recent 5 years of data for proportion of catch and CPUE
		Marine diesel price	National trend calculated for marine diesel
LE	LIV	Workforce & annual wages	Region-specific trend calculated from the most recent 5 years of data.
	ECO	Revenue (GVA) & workforce	Region-specific trend calculated from the most recent 5 years of data.
TR		Domestic & international overnight stays	Region-specific trend calculated from the most recent 5 years of data.
DA	LAN	WHS, LNR, IBA, Biosphere Reserves, Heritage Coast, RSPBR, AONB, Protected Wrecks, National Parks extent & designations	Region-specific trend calculated from the most recent 5 years of data
	ECL	SAC, SPA, RAMSAR, MCZ & SSSI site extent & designations	Region-specific trend calculated from the most recent 5 years of data
BD	HAB	Saltmarsh/mudflats, soft & hard benthic habitats	Region-specific trend calculated from the most recent 5 years of data for saltmarsh and benthic sub-littoral habitats
		Seagrass & maerl	Time-series data for seagrass and maerl were not available, as such a yearly trend of -0.07 (Jones and Unsworth, 2016) for seagrass and -0.006 (Gubbay et al, 2016) for maerl were used
	SPP	Marine species status	Species-specific population trend data were source from the IUCN Red List. Population trend categories were re-ranked 'decreasing' = -0.5, 'stable' = 0 and 'increasing' = 0.5 (Halpern et al., 2012, 2017) and aggregated (mean) to provide region-specific population trends
CS	CST	Seagrass, saltmarsh/mudflats & maerl	Region-specific trend calculated from the most recent 5 years of data for saltmarsh. Time-series data for seagrass and maerl were not available, as such a yearly trend of -0.07 (Jones and Unsworth, 2016) for seagrass and -0.006 (IUCN 2016) for maerl were used
	CPR	Seagrass, saltmarsh/mudflats & sand dune	Region-specific trend calculated from the most recent 5 years of data for saltmarsh and sand dunes. Time-series data for seagrass not available, as such a yearly trend of -0.07 (Jones and Unsworth, 2016) was used

**Appendix 9:** Standard Industrial Classification (SIC) codes and related marine industries.

<b>SIC code</b>	<b>Industry</b>
03110	Marine fishing
03210	Marine aquaculture
10200	Processing and preserving of fish, crustaceans and molluscs
30110	Building of ships and floating structures
30120	Building of pleasure and sporting boats
33150	Repair and maintenance of ships and boats
46380	Wholesale of other food, including fish, crustaceans and molluscs
47230	Retail sale of fish, crustaceans and molluscs in specialised stores
50100	Sea and coastal passenger water transport
50200	Sea and coastal freight water transport
52101	Operation of warehousing and storage facilities for water transport activities
52220	Service activities incidental to water transportation
52241	Cargo handling for water transport activities
77341	Renting and leasing of passenger water transport equipment
77342	Renting and leasing of freight water transport equipment

**Appendix 10: Local authorities with coastal/estuarine tidal waters.**



Region	Id	Authority
1	1	Forest of Dean
1	2	Tewkesbury
1	3	Gloucester
1	4	Stroud
1	5	South Gloucestershire
1	6	City of Bristol
1	7	North Somerset
1	8	Sedgemoor
1	9	South Somerset
1	10	Taunton Deane
1	11	West Somerset
2	12	North Devon
2	13	Torrige
3	14	Cornwall
4	15	Isles of Scilly
5	16	Plymouth
5	17	West Devon
5	18	South Hams
6	19	Torbay
6	20	Teignbridge
6	21	Exeter
6	22	East Devon

**Appendix 11:** Region-specific Status, Trend, Pressures, Resilience, Future and Goal scores described by aggregated mean and standard deviation, minimum, maximum values and difference.

Region	Status	Trend	Pressures	Resilience	Future	Goal	Metric
1	66	-0.15	68	83	65	66	mean
1	17	0.37	31	8	22	19	sd
1	33	-0.61	38	75	32	38	minimum
1	87	0.50	100	92	97	92	maximum
1	54	1.11	62	16	66	54	difference
2	67	0.00	64	77	66	67	mean
2	20	0.29	37	13	22	20	sd
2	35	-0.41	27	67	36	35	minimum
2	95	0.50	100	92	100	93	maximum
2	61	0.91	73	24	64	58	difference
3	68	-0.03	77	78	64	66	mean
3	18	0.23	21	12	14	16	sd
3	26	-0.25	58	70	34	30	minimum
3	81	0.50	100	92	83	82	maximum
3	55	0.75	42	22	50	52	difference
4	61	-0.20	89	81	54	57	mean
4	17	0.17	13	10	19	17	sd
4	27	-0.45	76	71	30	29	minimum
4	82	0.05	100	92	81	81	maximum
4	54	0.50	24	20	51	53	difference
5	69	-0.04	58	83	69	69	mean
5	13	0.31	37	8	18	14	sd
5	42	-0.49	33	76	47	48	minimum
5	85	0.50	100	92	100	93	maximum
5	44	0.99	67	16	53	45	difference
6	63	-0.14	63	78	57	60	mean
6	21	0.31	32	12	22	21	sd
6	17	-0.54	39	70	21	19	minimum
6	83	0.50	100	92	88	86	maximum
6	66	1.04	61	22	67	67	difference



**Appendix 12:** Example of key ‘topic areas’ identification from SWMP policies. Example shows page 1 of draft policy SW-WQ-1. Sample of key areas identified for mapping against South West England OHI+ data include but are not limited to oil, sediment, sewage, nutrients, heavy metals and thermal pollution.

**Policy drafting template SW-WQ-1**

<b>HLMO</b>	Living within environmental limits	<b>Sub bullet(s)</b>	Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
<b>Grouping</b>	Water quality	<b>Code</b>	SW-WQ-1

**Policy**

**SW-WQ-1**

Proposals that may have significant adverse impacts upon water quality, including upon habitats and species beneficial to water quality, must demonstrate that they will, in order of preference:

- a) avoid
- b) minimise
- c) mitigate significant adverse impacts

**What is water quality?**

1. Water quality is a measure of the condition of water and its suitability to sustain a range of uses for both biotic and human benefits. Good water quality is important in meeting the UK government’s vision for clean, healthy, safe, productive and biologically diverse seas and oceans ([Marine Policy Statement](#)). Water quality in respect of the [Water Environment \(Water Framework Directive\) \(England and Wales\) Regulations 2017](#) is defined by specific biological, physico-chemical and hydromorphological criteria. The objectives of the [Water Environment \(Water Framework Directive\) \(England and Wales\) Regulations 2017](#) to protect and improve water quality, set ambitious environmental goals and actions which are implemented by [River Basin Management Plans](#). This policy seeks to complement these objectives and River Basin Management Plan implementation.

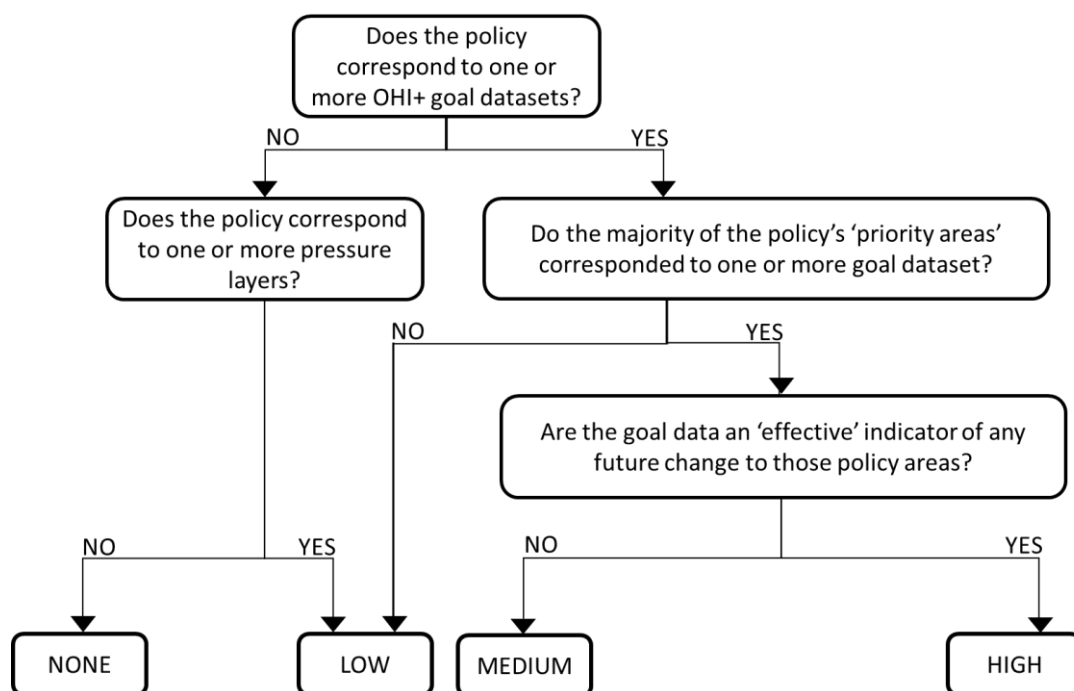
**What causes poor water quality in the south west marine plan areas?**

2. Poor water quality refers to the presence of pollutants in water. These pollutants may include oil, sedimentation, sewage, nutrients, heavy metals, and thermal pollution. Water pollution can come from either diffuse (unlicensed sources) or point sources (regulated sources). In the south west inshore marine plan area there are issues for water pollution from abandoned mines, storm overflows and agricultural run-off.
3. Water quality is also affected by:
  - physical modifications to water ways
  - changes to the natural flow and level of water
  - negative effects of invasive non-native species
  - resuspension of sediment
  - extreme weather such as drought followed by intense rainfall
  - seasonal population variation

**What causes poor water quality in the south west marine plan areas?**

2. Poor water quality refers to the presence of pollutants in water. These pollutants may include oil, sedimentation, sewage, nutrients, heavy metals, and thermal pollution. Water pollution can come from either diffuse (unlicensed sources) or point sources (regulated sources). In the south west inshore marine plan area there are issues for water pollution from abandoned mines, storm overflows and agricultural run-off.

**Appendix 13:** Decision tree used to map SWMP policies against South West England OHI+ goal datasets and assign ranks to draft policies.



## Appendix 14: Goal weighting example

Isles of Scilly data used as an exploratory case study

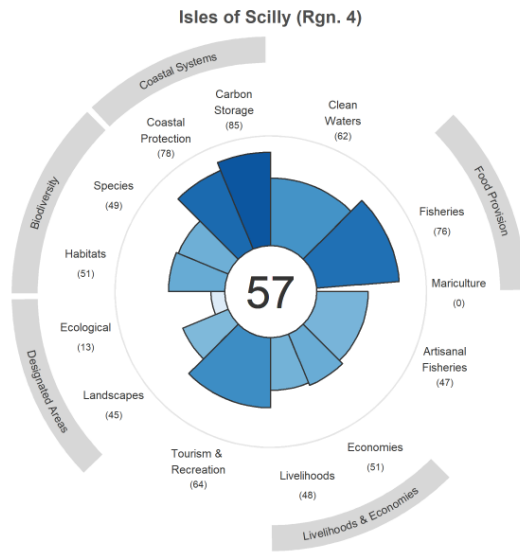
Classification	Natural products	Food	Fishing communities	Carbon storage	Coastal protection	Culture & identity	Livelihoods & economy	Tourism & recreation	Clean waters	Biodiversity	Energy	Education & Science
Very important	37	66	66	53	65	41	61	61	93	80	48	66
Moderately important	33	31	33	26	32	43	37	36	15	23	41	29
Slightly important	34	9	9	7	10	20	13	13	0	3	17	16
Not at all important	4	7	5	2	0	1	1	2	1	1	1	0
Don't Know	2	0	1	19	3	5	0	0	3	5	4	1
(blank)	9	6	5	12	9	9	7	7	7	7	8	7
Applicable OHI Goal		FIS & MAR	AO	CST	CPR	ECL & LAN	LIV & ECO	TR	CW	SPP & HAB		

### Raw survey data

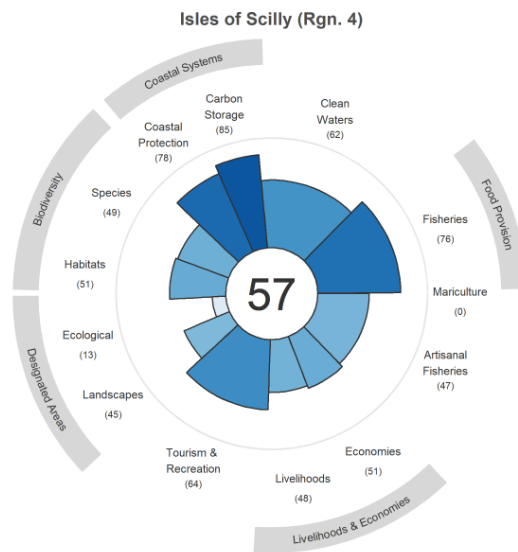
- Each classification assigned a score (1 [not at all important] to 4 [Very important])
- Multiplied number of respondents by ranked score for each 'goal'
- Calculated an aggregated score (sum) for each 'goal'
- Then proportionalised these aggregated scores as a total of all goal scores
- Where a survey category comprised 2 sub-goals (e.g. livelihoods & economies) the proportion would have been divided between the goals equally (except for 'Food' which I divided between FIS and MAR using the wild caught weight proportion)

### Final weights

Goal	Name	Weight
MAR	Mariculture	0.011042
FIS	Fisheries	1.001213
CW	Clean Waters	1.107652
CST	Carbon Storage	0.405432
CPR	Coastal Protection	0.498178
SPP	Species	0.524677
HAB	Habitats	0.524677
ECL	Ecologically Important Areas	0.442531
LAN	Valued Landscapes	0.442531
TR	Tourism & Recreation	1.006956
LIV	Livelihoods	0.506128
ECO	Economies	0.506128
AO	Artisanal Fisheries	1.022855



No goal-relevant weightings applied prior to goal calculation: index score 57.2.



Goal-relevant weightings applied as part of goal calculation: index score 57.2.