

Aim	Code	Objective	Indicator	Data source	Data availability
AM01. Achieve sustainable and viable local fisheries	1.1	Develop and test innovative approaches to locally-led fisheries management through collaboration between fishermen, regulators and scientists	(i) Delivery of FRMP plans for five species (herring, bass, whelk, squid, skates & rays) by 2021	IFCA / NDFA	C
			(ii) Establish voluntary agreements with local fishermen and/or consult on byelaws for sustainable management of herring stock	IFCA / BMF	C
			(iii) Area (km2) subject to management measures incl. voluntary agreements, fishery byelaws, MPA	IFCA / NE	A
	1.2	Support local delivery of the recommendations from FRMP and the Herring Project to achieve sustainable commercial fish stocks (wild capture)	(i) Quantity and quality of fish stocks incl. CPUE (number per km2), TAC recommendations to ICES, condition of non-quota species	ICES / CEFAS	B
			(ii) Extent and condition of habitats providing moderate or significant contribution to wild food provision (Rees et al. 2018, 2019)	NE / EMODnet / EUSeaMap	A
			(iii) Extent and condition of spawning and nursery habitat	CEFAS	A
	1.3	Maintain and / or increase cultural and economic value of ongoing inshore fisheries (wild capture), where these do not exceed sustainable exploitation limits, including value-added benefits e.g. fish smokeries	(i) Annual landings (tonnes and £) per species by vessels operating from NDMP ports	MMO	B
			(ii) Number of businesses and employment supported (fishing vessel businesses, processors and markets/fish sellers and boat building, engineering)	IFCA / MMO / ONS (Nomis)	A
			(iii) Number of projects supported and / or investment secured (£) for indirect stakeholders and supporting stakeholder businesses related to the fishing industry	NDBR	C
1.4	Support robust management of hand gathering activity in the Taw-Torridge estuary, including monitoring of the spatial distribution of crab tiling zones and bait digging areas. Links to MNCP7	(i) Number of permits and total number of allowable traps	IFCA	B	
		(ii) Establish voluntary agreements with local tilers and/or consult on byelaws for sustainable management of hand gathering in Taw-Torridge estuary	IFCA / NDBR	C	
		(iii) Extent and condition of habitat impacted by hand gathering activity	IFCA / NE / EMODnet / EUSeaMap	A	
1.5	Support sustainable management of subtidal, wild <i>Mytilus edulis</i> (blue mussel) beds in Taw-Torridge estuary SSSI. Links with MNCP4	(i) Quantity and quality of mussel stock incl. total stock (t), mean mussel density (kg/m2), patch density (kg/m2), spatial extent of mussel bed (% cover), population size structure	IFCA	A	
		(ii) Monthly allowable commercial take, number of applications to harvest, harvest weight (t/month)	IFCA / NE	A	
		(iii) Overwintering, wading bird population numbers	WEBS	A	
1.6	Maintain migratory fish species stocks ( <i>Salmo salar</i> and <i>Salmo trutta</i> ) above conservation limits. Links with MNCP4	(i) Quantity and quality of migratory fish stocks incl. CPUE (number per licence per day), seasonal catch limits, reported catch returns	NASCO / EA / CEFAS	A	
		(ii) Extent and condition of salmon rivers incl. egg deposition estimates, compliance of salmon rivers	NASCO / EA / CEFAS	A	
1.7	Achieve sustainable non-quota commercial species stocks ( <i>Homarus gammarus</i> and <i>Cancer pagurus</i> ) through locally-led initiatives with fishermen and regulators	(i) Quantity and quality of non-quota species stocks incl. landings (tonnes and £), stock assessment	CEFAS / IFCA / MMO	B	
		(ii) Number of licences (commercial and recreational potting; commercial and recreational diving)	IFCA	A	
		(iii) Area (km2) subject to management measures incl. voluntary agreements, fishery byelaws, MPA	IFCA / NE	A	
1.8	Support development and adoption of criteria for maritime industries to reduce impacts on fishery sustainability.	(i) Delivery of criteria by 2025	IFCA	C	
		(ii) Compliance / engagement monitoring	IFCA / NDBR	C	

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AM02. Create new jobs in sustainable mariculture	2.1	Support development and adoption of a code of conduct for future commercial shellfish culture	(i) Delivery of code of conduct by 2025 (ii) Compliance / engagement monitoring	IFCA IFCA / NDBR	C C
	2.2	Maintain and / or increase economic value and employment of ongoing commercial shellfish culture	(i) Quantity and quality of commercial shellfish stocks incl. harvested weight, spatial extent of farm, stock density (ii) Extent and condition of farmed area incl. harvesting area classification and number of HABs (iii) Number of aquaculture production businesses registered (iv) Number of new shellfish / mariculture licences	CEFAS / IFCA CEFAS / FSA CEFAS CEFAS / IFCA	B A A A
	2.3	Conduct feasibility study for macroalgae culture in Taw-Torridge estuary	(i) Delivery of study by 2030	IFCA / NDBR	C
	3.1	Implement voluntary no-anchor zones and mooring code of conduct. Links with MNCP4, MNCP6	(i) Count of boats inside / outside no-anchor zones (aerial photography) (ii) Compliance with mooring zones through incident reporting	NDBR NDBR	B C
AM03. Promote sustainable tourism and recreation	3.2	Increase number of eco-moorings and/or permanent, subtidal moorings where recreational boating activity interacts with sensitive habitats. Links with MNCP4, MNCP6	(i) Number of eco-moorings and new installations (ii) Number of mooring leases	NDBR NDBR	C C
	3.3	Review and deliver code of conduct of conduct for recreational activities within the Taw-Torridge estuary including zoning areas for motorised watercraft e.g. water-skiing, jet-skiing etc.	(i) Delivery of code of conduct by 2030 (ii) Compliance / engagement monitoring including incident reporting, watersports survey, aerial photography, education/awareness programme	NDBR NDBR	C C
	3.4	Review and reinstate licencing scheme for motorised watercraft	(i) Delivery of licencing scheme by 2030 (to align with Estuary Officer timeline) (ii) Number of licences	NDBR NDBR	C C
	3.5	Implement the recommendations from the seabird disturbance report to reduce overwintering bird disturbance by recreational use	(i) Overwintering bird numbers (ii) Production of materials designed to increase awareness and reduce disturbance activities such as signage, educational pamphlets, code of conduct (iii) Regular disturbance monitoring	NDBR / WEBS NDBR NDBR	B C C
	3.6	Review and reinstate biosphere accreditation scheme for recreational boats as part of BCHT project. Links with MNCP4	(i) Delivery of of scheme by 2025 (ii) Number of accredited boats (iii) Monitor effectiveness through disturbance monitoring and incident reporting (birds and marine mammals)	NDBR NDBR NDBR	C C C
	AM04. Improve water quality and clean sediments	4.1	Support delivery of the recommendations from the River Basin- and Catchment-Management Plans to maintain and where possible improve the overall Ecological Status of water bodies	(i) Ecological Status of water body (WFD condition assessment) (ii) Investment (£) in marine water quality outcomes (iii) Area of farmland with catchment sensitive farming schemes and other pollution reduction measures (iv) % of pollution sources from agriculture and farming (v) Records of improvements to sewerage system	EA NDBR/ EA EA EA DEFRA
4.2		Improve shellfish waters upto at least class B by 2030 through improved upstream management to reduce run-off. Links with MNCP1	(i) Condition of shellfish waters (Number of incidences per year of toxic phytoplankton concentrations above threshold) (ii) Condition of shellfish waters (Number of incidences per year of shellfish flesh sample toxins above threshold) (iii) Quantity and quality of commercial and wild shellfish populations (iv) Management measures for commercial harvesting	CEFAS CEFAS IFCA / CEFAS IFCA / NE	A A B A

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	4.3	Improve bathing water quality to guideline standards by 2025 through concerted beach and catchment management including beach specific measures e.g. signage, education, bins	(i) Condition of bathing waters (Site-level classification from annual assessment of bathing water quality)	EA	B
			(ii) No. of incidences of heavy metal and DAIN levels above threshold levels	EA	C
			(iii) No. of pollution incidents causing beaches or coastal access points to be closed for a period	EA	A
			(iv) Investment (£) in beach specific water quality measures	NDBR	C
	4.4	Support the implementation of Plastic Free Consortium strategy particularly through Fishing for litter and other marine sectors	(i) Investment (£) secured in marine litter outcomes	NDBR	C
			(ii) Beach clean data incl. number of volunteers, amount of locally-derived litter collected	MCS / NDBR / SAS / AONB	B
			(iii) Marine plastic retrieved from the sea	Fishing for litter	C
	4.5	Support research and development to monitor microplastics in the marine environment through continued collaboration with local research agencies	(i) No.of partnership projects that include at least part of the ND Biosphere and focus on marine litter	NDBR	C
4.6	Support activities of Plastic Free North Devon to reduce waste at source	(i) No. of partnership projects / events / activities that include at least part of the NDBR	PFND / AONB / NDBR	C	
		(ii) Investment (£) secured for waste reduction, outreach and education projects	PFND / AONB / NDBR	C	
AM05. Deliver robust protection of marine biodiversity	5.1	Support research and monitoring to identify degraded habitats with potential for recovery under Highly Protected Marine Area (HPMA) management measures	(i) No.of partnership projects that include at least part of the ND Biosphere and focus on HPMA	NE / IFCA / MMO	C
	5.2	Work with regulatory bodies to integrate natural capital approach to management of MPAs in North Devon to deliver environmental net gain across the whole site	(i) No.of partnership projects that include at least part of the ND Biosphere and focus on net gain within MPAs	NE / IFCA / MMO	C
	5.3	Facilitate fisheries co-management to deliver local stewardship of the environment from different marine users	(i) Delivery of FRMP plans for five species (herring, bass, whelk, squid, skates & rays) by 2021	IFCA / NDFA	C
			(ii) Establish voluntary agreements with local fishermen and/or consult on byelaws for sustainable management of herring stock	IFCA / BMF	C
			(iii) Area (km2) subject to management measures incl. voluntary agreements, fishery byelaws, MPA	IFCA / NE	A
	5.4	Develop and share tools for spatial monitoring of natural capital assets and for assessing sustainability of natural capital management approaches	(i) Delivery of the Geodatabase which aligns with the objectives and indicators of the North Devon Marine Natural Capital Plan	SWEEP	B
(ii) Regular monitoring and updating of Geonode spatial layers alongside review of North Devon Marine Natural Capital Plan			NDBR	C	
(iii) Delivery of an asset and risk register for North Devon			SWEEP	A	
(iv) Delivery of a sustainability appraisal tool to assess natural capital management approach			SWEEP	C	
5.5	Support trial measures that improve spatial knowledge of fishing and levels of impact across sediment habitats (e.g. Inshore Vessel Monitoring Systems (iVMS)).	(i) No. of vessels using iVMS	IFCA	C	
		(ii) Extent and intensity of fishing activity	IFCA	C	
		(iii) Extent and condition of sediment habitats	NE / EMODnet / EUSeaMap	B	
AM06. Enhance resilience to natural hazards and future climate change	6.1	Increase saltmarsh extent in the Taw-Torridge estuary by 50-80Ha by 2030. Links to MNCP1, MNCP4	(i) Extent and condition of habitats providing moderate or significant contribution to healthy climate provision and / or natural hazard regulation (Rees et al. 2018, 2019)	NE / EMODnet / EUSeaMap	B
			(ii) Number and area (km2) of new managed realignment sites	NDBR	A
			(iii) Value of sequestered carbon incl. carbon sequestered in saltmarsh (t), traded carbon value (£), social cost of carbon (£)	UK GOV / SWEEP	B

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	6.2	Improve degraded saltmarsh habitat ('unfavourable' in Rees et al. 2018, 2019) to achieve national policy targets for GES by 2030	(i) Extent and condition of habitats providing moderate or significant contribution to healthy climate provision and / or natural hazard regulation (Rees et al. 2018, 2019)	NE / EMODnet / EUSeaMap	B
			(ii) Area (km2) of saltmarsh impacted by grazing pressure	NE / EMODnet / EUSeaMap	B
			(iii) Area (km2) subject to management measures incl. voluntary agreements with farmers, payments for ecosystems services, MPA	NDBR / NE	A
			(iv) Number of access points / area of public access footpaths (km2) on saltmarsh habitat	NDBR	B
	6.3	Improve degraded (LRC<3 in Rees et al. 2018, 2019) infralittoral rock and littoral mud, sand sediment habitats to achieve national policy targets for GES by 2030. Links with MNCP1, MNCP3	(i) Extent and condition of habitats providing moderate or significant contribution to healthy climate provision and / or natural hazard regulation (Rees et al. 2018, 2019)	NE / EMODnet / EUSeaMap	B
			(ii) Area (km2) under management measures incl. voluntary agreements, fishery byelaws, MPA	IFCA / NE	A
			(iii) Fishing abrasion pressure incl. area (%) open / closed to fishing gear types, number of permits and area (km2) impacted by potting and hand gathering activity	IFCA / FisherMap	B
			(iv) Recreation vessel abrasion pressure incl. frequency of anchoring within restricted zones, area (km2) of scoured seabed around moorings, number of slip-ways	NDBR	C
			(v) Intensity of other activities (e.g. aggregate extraction) that impact on the seabed	MMO / EMODnet / Crown Estate	B
	6.4	Undertake a feasibility study for blue carbon (phytoplankton, macroalgae and seagrass). Links with MNCP2, MNCP6, MNCP8	(i) Delivery of study by 2030	IFCA / BR	C
			(ii) Improved estimates of the value of sequestered carbon in reef habitat with algae	NDBR	C
			(iii) Extent (km2) of areas of high planktonic productivity	NDBR	C
6.5	Establish criteria for acceptable offshore wind and tidal renewable energy projects.	(i) Seascape character assessment	NDBR / NDC / TDC	B	
		(ii) Area (km2) of habitat under management measures	NDBR / NE	B	
		(iii) Area (km2) outside management measures considered to be 'high risk' (Rees et al. 2019)	SWEEP	B	
		(iv) Tidal lagoon and estuary currents / siltation model	NDBR	C	
6.6	Reduce social and economic risk from natural hazards through investment in natural sea defences	(i) Area (km2) of coastal land at medium or high (zone 2, 3) risk of flooding	EA	B	
		(ii) Area (km2) of high quality agricultural land (grade 1,2,3a) that overlaps with flood risk zone 2 or 3 in coastal belt	EA	B	
		(iii) Value of high quality agricultural land (grade 1,2,3a) that overlaps with flood risk zone 2 or 3 in coastal belt	EA	B	
		(iv) Number of people that live in coastal belt	EA	B	
		(v) Total value of property interacting with medium to high (zone 2, 3) areas	EA	B	

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AM07. Develop a centralised database and knowledge sharing	7.1	Establish voluntary agreements with fishermen and shellfish harvesters to supply appropriate spatial-scale data on catch and effort. Links with MNCP1	(i) Delivery by 2030	NDBR	C
	7.2	Collaborate with regulatory bodies to improve access to data on spatial intensity of fishing activity	(i) Delivery by late 2020	IFCA / MMO	C
	7.3	Repeat North Devon watersports survey regularly as part of recreational activities monitoring scheme. Links with MNCP3	(i) Delivery by 2030	BR	C
	7.4	Reinstate incident database on Biosphere Reserve website. Links with MNCP3	(i) Delivery by 2030	BR	C
	7.5	Design and deliver regular waterbird disturbance survey. Links with MNCP3	(i) Delivery by 2030	BR	C
	7.6	Collation of data on marine litter from citizen science and voluntary marine waste collection organisations. Links with MNCP5	(i) Delivery by 2030	BR	C
	7.7	Collation of data on features of conservation interest in MPAs. Links with MNCP6	(i) Delivery by 2030	BR	C
	7.8	Implement annual monitoring of mean chlorophyll-a concentrations as a proxy for planktonic productivity	(i) Delivery by 2021	NDBR	C
	7.9	Support research and development to improve habitat-based models of coastal storm impacts	(i) Number of research projects conducted on Taw-Torridge estuary, investment (£) secured for related projects	NDBR / SWEEP	B
AM08. Establish new governance and funding structures	8.1	Establish Biosphere Foundation as local delivery body for Blue Impact Fund / natural capital trust	(i) £££ investment secured for marine related projects	BR	C
	8.2	Formalise the role of the North Devon Biosphere Reserve's Marine Working Group and sub-groups	(i) Deliver regular monitoring reports of the marine working group	BR / MWG	C
			(ii) Appropriate sub-groups identified and active		C
	8.3	Seek funding to progress and formalise the Fisheries Science and Management Partnership	(i) £££ investment secured	BR / IFCA	C
	8.4	Strengthen the relationship between the Biosphere Partnership, Marine Working Group and IFCA committee	(i) MWG rep and / or Biosphere Partnership rep is an IFCA member	BR / MWG / IFCA	A
			(ii) IFCA is represented on the MWG and /or Biosphere Partnership		C
	8.5	Develop clear management objectives and decision-making partnerships for MPAs (where this doesn't exist)	(i) Contribute to development of partnership management group	BR	C
	8.6	Set-up appropriate monitoring and evaluation of governance groups	(i) Regular reporting of attendance, representation, engagement opportunities, impact on decisions and result of decisions	BR	C
8.7	Seek funding to hire a North Devon Marine Coordinator by 2025	(i) £££ investment secured	BR	C	
8.8	Seek funding to hire an Estuary Officer for the Taw-Torridge estuary by 2030	(i) £££ investment secured	BR	C	