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Podgorica, Montenegro, 2-3 April 2019

**Agenda item 3: State of Play of Integrated Monitoring and Assessment Programme (IMAP)  
Implementation with regards to EO5 and EO9, MEDPOL Monitoring Programme and Way Forward**

**Example of overall interrelationships between the IMAP and the DPSIR framework applied to the coastal and marine ecosystem**

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### **Note by the Secretariat**

The Table provided in this document presents an example of the overall interrelations between the IMAP structure and the DPSIR framework applied to the coastal and marine ecosystem. The activities (originated by main drivers commonly known) are aligned with the current IMAP multidimensional measurement system (with its Ecological Objectives and Common Indicators) to address potential scenarios of pressures-state-impacts. It is an extension of the interrelations presented in Table 3 in document UNEP/MED 463/5, relating specifically IMAP with relevant responses provided through the regional policies related to the Barcelona Convention.

In particular, to explore the cross-cutting issues in the coastal and marine areas a number of economic sectors described in the ICZM Protocol of the Barcelona Convention (under the DPSIR model approach, Drivers-Pressures-State-Impact-Response) have been selected and aligned among the IMAP Common Indicators and current related regional policies, although for the latter the extension to additional regional and national policies implemented by the Contracting Parties should be foreseen.

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ANNEX I: Definitions for IMAP Common Indicators by Ecological Objectives

## **List of Abbreviations / Acronyms**

<b>CI</b>	Common Indicator
<b>DPSIR</b>	Drivers-Pressures-State-Impacts-Responses
<b>EcAp</b>	Ecosystem Approach
<b>EO</b>	Ecological Objective
<b>IMAP</b>	Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria

**1. Table of cross-cutting IMAP Ecological Objectives (EOs) and Common Indicators (CIs) along the Drivers-Pressures-State-Impacts-Responses (DPSIR) model in the coastal and marine environment.**

The table below considers the main activities for the economic sectors defined in the ICZM Protocol of the Barcelona Convention. Further, it relates specifically the individual components of the Integrated Monitoring and Assessment (IMAP), as the measurements system of the Barcelona Convention, with the current relevant regional policies, as an integration towards an ecosystem-based management under the Ecosystem Approach.

The geographical transect between coastal and seaward (including lagoons, islands, offshore areas) are differentiated and some degree of linear connection can also be sought to some extent. The added value of the table is the combined synthesis that provides a synoptic vision of the requirements and responsibilities for an ecosystem based-management. In particular, this table details the activities (originated by main drivers) which are commonly known and align them with the Ecological Objectives and Common Indicators of IMAP to address potential current scenarios of pressures-state-impacts.

In addition, the table aims as to provide a better understanding of the definitions (namely, drivers (activities), pressures, state, impact (ecosystem services) and responses) within the DPSIR by giving examples for all of them. The impact (I) component of the DPSIR has been recently, conceptually assimilated to the effects of ecosystems and ecosystem services rather than it is considered from a single dimension point of view. Therefore, the ecosystem-based management (i.e. integrated and holistic approach) requires a widening of this component whom its effects impair the benefits of having healthy marine ecosystems from the human and managerial perspective.

At the end of the document the definition for the IMAP Common Indicators by Ecological Objectives is provided to identify to which ecosystem indicators and characteristics it is referred to in the table.

	COASTAL AREA					SEAWARD - LAGOONS - ISLANDS - OFFSHORE					
(DRIVERS) Economic		PRESSURES	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs		PRESSURE	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs	RESPONSES (Regional policy)
	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
<b>1)</b> <b>Agriculture</b>	Crops (any)	Runoff/River (organochlorinated and other chemicals)	Coastal contamination /pollution/ eutrophication	Habitats deterioration; Sea food contamination	BIODIVERSITY (EO1): CI1-CI5; EUTROPHICATION (EO5):CI13- CI14; CONTAMINATION (EO9):CI17, CI18, CI20	Crops (effects seaward)	Runoff/River (organochlorinated and other chemicals)	Coastal and offshore contamination/pollution Eutrophication	Ecosystems deterioration; Sea food contamination	BIODIVERSITY (EO1): CI1-CI5; EUTROPHICATION (EO5):CI13-CI14; CONTAMINATION (EO9):CI17, CI18, CI20	LBS Protocol Hazardous Substances Protocol SAP/MED Regional Plan on the on the phasing out of lindane and endosulfane, Regional Plan on the Phasing Out of DDT; and other similar Regional plans for phasing out POPs

	COASTAL AREA					SEAWARD - LAGOONS - ISLANDS - OFFSHORE					
(DRIVERS) Economic		PRESSURES	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs		PRESSURE	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs	RESPONSES (Regional policy)
	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
	Crops (any)	Runoff (river litter)	Costal litter occurrence (beach, surface and seabed)	Species threaten Natural resources affected Landscape visual impairment	BIODIVERSITY (EO1): C11-C15; MARINE LITTER (EO10):C122, C123, C124	Crops (effects seaward)	Runoff (river litter)	Costal litter occurrence (surface, water column, seabed and deep-sea bed)	Long-lived species threaten Natural resources affected Marine ecosystems deterioration	BIODIVERSIT Y (EO1): C11- C15; MARINE LITTER (EO10):C122, C123, C124	Regional Plan on Marine Litter Action Plan for the management of the Mediterrane an Monk Seal Action Plan for the Conservation of Mediterrane an Marine Turtle Action Plan for the conservation of cetaceans in the Mediterrane an Sea SAP/BIO
	Crops (any)	Seaward sediment flux Alterations	Coastal erosion	Coastal surface decrease (beaches, dunes, etc.)	C116	Crops (effectsseaward)	Seaward sediment flux alterations	Subsidence, unsustained costaline	Loss of coastline	C116	ICZM Protocol
	Delta crops	Delta use	Delta degradation (contaminated, inert)	Exploited resources affected	C116	Crops (harvesting)	Coastal micro- and macro algae harvesting	Habitats alterations	Natural resources affected	N/A	SPA and Biological Diversity Protocol

	COASTAL AREA					SEAWARD - LAGOONS - ISLANDS - OFFSHORE					
(DRIVERS) Economic		PRESSURES	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs		PRESSURE	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs	RESPONSES (Regional policy)
	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
<b>2) Industry (land-based sources)</b>	Diverse industrial activities	Industrial wastewater (treated and untreated)	Transitional and coastal water pollution	Chemical and emerging contamination of habitats and species (water column and seafloor)	BIODIVERSITY (EO1): CI1-CI5; CONTAMINATION (EO9):CI17, CI18, CI20	Diverse industrial activities	Diffuse contamination	Coastal and offshore contamination	Pelagic and benthic ecosystem deterioration Seafood contamination	BIODIVERSITY (EO1): CI1-CI5; CONTAMINATION (EO9):CI17, CI18, CI20	LBS Protocol Hazardous Substances Protocol Mercury Regional Plan Offshore Protocol National Baselines Budgets (NBBs) SPA and Biological Diversity Protocol
		Litter increase	Riverine and coastal litter occurrence (surface, beach)	Species threaten Natural resources affected Coastal visual impairment	BIODIVERSITY (EO1): CI1-CI5; MARINE LITTER (EO10):CI22, CI23, CI24		Litter pollution (spread)	Coastal and offshore contamination (surface, water column, seabed, deep-sea bed)	Long-lived species threaten Natural resources affected Marine ecosystems deterioration	BIODIVERSITY (EO1): CI1-CI5; MARINE LITTER (EO10):CI22, CI23, CI24	SPA and Biological Diversity Protocol
		Industrial effluents (occasional inputs, acute events)	Transitional and coastal water pollution	Natural resources loss	CONTAMINATION (EO9): CI17, CI18, CI19, CI20		Sea disposal sites (authorized dumping)	Sea-floor habitats affected (integrity impaired)	Benthic ecosystem loss	SEA-FLOOR INTEGRITY (EO6); CONTAMINATION (EO9): CI17, CI18, CI19, CI20	Dumping Protocol



	COASTAL AREA					SEAWARD - LAGOONS - ISLANDS - OFFSHORE					
(DRIVERS) Economic		PRESSURES	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs		PRESSURE	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs	RESPONSES (Regional policy)
	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
<b>3) Aquaculture</b>	Costal aquaculture (shellfish farming, Fish farming)	Water column and seabed habitats impacted by substances	Eutrophication	Habitats deterioration Biodiversity impaired	BIODIVERSITY (EO1): C11-C12; EUTROPHICATION (EO5):C113-C114; CONTAMINATION (EO9): C120	Coastal, offshore farming	Pelagic ecosystem impacted by substances	Eutrophication	Habitats deterioration Biodiversity impaired	BIODIVERSITY (EO1): C11-C12; EUTROPHICATION (EO5):C113-C114; CONTAMINATION (EO9): C120	SPA and Biological Diversity Protocol
	Coastal aquaculture (shellfish farming, Fish farming)	Marine Litter and Microplastic Generation	Marine Litter and Microplastic generation; lying on the seafloor and float around the Mediterranean	Effect on biota, microplastic ingestion,	MARINE LITTER (EO10) : C123, C124						Regional Plan on Marine Litter Management in the Mediterranean SPA and Biological Diversity Protocol
<b>4) Fisheries</b>	Fishing vessels (artisanal, trawling, etc.)	Pressures on fish stocks and benthic ecosystems	Marine fisheries decline (over-fishing)	Decrease on fish species of commercial importance	FISHERIES (EO3): C17-C112	Fishing vessels (medium power, trawling, etc.)	Pressures on fish stocks and benthic ecosystems	Marine habitats decline	Decrease on fish species of ecological importance	FISHERIES (EO3): C17-C112	Regulations and MPAs, SPAs, SPAMIs
	Fishing vessels (artisanal, trawling, etc.)	Marine Litter and Microplastic Generation,	Marine Litter and Microplastic spread in the water column	Effect on marine, biota, ALDFG, Ghost-fishing	MARINE LITTER (EO10) : C123, C124						Regulations and MPAs, SPAs, SPAMIs

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(DRIVERS) Economic		PRESSURES	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs		PRESSURE	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs	RESPONSES (Regional policy)
	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
		“Ghost Fishing”	and on the seafloor,								
	Extraction of genetic resources	Pressures on fish stocks and benthic ecosystems	Populations diversity impaired	Decrease on fisheries ecological function	BIODIVERSITY (EO1): C11-C12	Extraction of genetic resources	Pressures on fish stocks and benthic ecosystems	Populations diversity impaired	Decrease on fisheries ecological function	BIODIVERSITY (EO1): C11- C12	SPA and Biological Diversity Protocol
<b>5) Tourism, sporting, recreational activities</b>	Urban/Real- state development	Waste generation (litter, wastewater treatment plants) Urban effluents Microbiological pollution	Degradation of land, air and water sources Occurrence of pathogens	Soil, habitats and coastal forestry loss Bathing water quality detriment	COAST (EO8): C16; BIODIVERSITY (EO1): C11-C12; EUTROPHICATION (EO5): C13-C14; CONTAMINATION (C120- C121); MARINE LITTER (EO10): C122, C123	Urban/Real-state development (only lagoons, islands, etc.)	Waste generation (litter, wastewater treatment plants) Urban effluents Microbiological pollution	Degradation of land, air and water sources Occurrence of pathogens	Soil, habitats and coastal forestry loss Bathing water quality detriment	COAST (EO8): C16; BIODIVERSITY (EO1): C11- C12; EUTROPHICATION (EO5): C13- C14; CONTAMINATION (C120- C121); MARINE LITTER (EO10): C122, C123	LBS Protocol Action Plan for the conservation of marine vegetation in the Mediterranean Sea Action Plan for the conservation of bird species listed in Annex II of the Protocol on Specially Protected Areas and Biological Diversity

	COASTAL AREA					SEAWARD - LAGOONS - ISLANDS - OFFSHORE					
(DRIVERS) Economic		PRESSURES	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs		PRESSURE	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs	RESPONSES (Regional policy)
	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
		Landfills	Contaminated and littered land	Degradation of natural resources Landscape visual impairment	COAST (EO8): C16		Landfills	Contaminated and littered land	Degradation of natural resources Landscape visual impairment	COAST (EO8): C16	SPA and Biological Diversity Protocol ICZM Protocol
		Coastal urban expansion	Coastal degradation	Land-sea interface habitat loss and biodiversity loss	COAST (EO8): C16		Coastal urban expansion	Coastal degradation	Land-sea interface habitat loss and biodiversity loss	COAST (EO8): C16	ICZM Protocol Land protection regulations (national)
		Increased nutrients	Eutrophication	Habitats deterioration Biodiversity impaired	BIODIVERSITY (EO1): C11-C12; EUTROPHICATION (EO5):C113-C14		Increased nutrients	Eutrophication	Habitats deterioration Biodiversity impaired	BIODIVERSITY (EO1): C11-C12; EUTROPHICATION (EO5):C113-C14	SPA and Biological Diversity Protocol
	Scuba-diving activities	Pressures on habitats and functions maintenance (extraction of fish and shellfish)	Sea-floor habitats decline	Alteration on habitats and species of economical ecological importance	BIODIVERSITY (EO1): C11-C12; SEA FLOOR INTEGRITY (EO6)	Scuba-diving activities (only lagoons, islands, etc.)	Pressures on habitats and functions maintenance (extraction of fish and shellfish)	Sea-floor habitats decline	Alteration on habitats and species of economical ecological importance	BIODIVERSITY (EO1): C11-C12; SEA FLOOR INTEGRITY (EO6)	Regulations and MPAs, SPAs, SPAMIs

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(DRIVERS) Economic		PRESSURES	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs		PRESSURE	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs	RESPONSES (Regional policy)
	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
	Fishing vessels (recreational)	Pressures on fish stocks	Water column habitats (species) decline	Decrease on fish species of ecological and commercial importance	BIODIVERSITY (EO1): CI1-CI2	Fishing vessels (recreational)	Pressures on fish stocks	Water column habitats (species) decline	Decrease on fish species of ecological and commercial importance	BIODIVERSITY (EO1): CI1- CI2	Regulations and MPAs, SPAs, SPAMIs Action Plan for the conservation of cartilaginous fishes (Chondrichth yans) in the Mediterrane an

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(DRIVERS) Economic		PRESSURES	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs		PRESSURE	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs	RESPONSES (Regional policy)
	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
	Tourism frequentation	Pressures on coastline (beaches, natural areas, etc.)	Increased pollution	Coastal areas degradation Habitats alteration Physical loss	BIODIVERSITY (EO1): C11-C12; COAST (EO8): C16	Tourism frequentation (only lagoons, islands, etc.)	Pressures on coastline (beaches, natural areas, etc.)	Increased pollution	Coastal areas degradation Habitats alteration	BIODIVERSITY (EO1): C11- C12; COAST (EO8): C16	ICZM Protocol Action Plan for the conservation of marine vegetation in the Mediterranean Sea Action Plan for the conservation of bird species listed in Annex II of the Protocol on Specially Protected Areas and Biological Diversity
	Yachting	Coastal areas navigation, contamination, noise	Increased pollution (biological, chemical, litter)	Coastal areas degradation Habitats alteration	BIODIVERSITY (EO1): C11-C12	Yachting	Coastal areas navigation, contamination, noise	Increased pollution (biological, chemical, litter)	Coastal areas degradation Habitats alteration	BIODIVERSITY (EO1): C11- C12	SAP/MED SAP/BIO Offshore Protocol

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(DRIVERS) Economic		PRESSURES	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs		PRESSURE	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs	RESPONSES (Regional policy)
	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
	Tourism facilities	Coastal changes	Land alteration	Loss of biodiversity/ Population (species) decreases	BIODIVERSITY (EO1): C11-C12; COAST (EO8): C16	Tourism facilities (only lagoons, islands, etc.)	Coastal changes	Land alteration	Loss of biodiversity/ Population (species) decreases	BIODIVERSITY (EO1): C11- C12; COAST (EO8): C16	ICZM Protocol Action Plan for the conservation of marine vegetation in the Mediterranean Sea Action Plan for the conservation of bird species listed in Annex II of the Protocol on Specially Protected Areas and Biological Diversity
	Other small scale activities	Waste generation (litter, waste treatment plants, effluents)	Degradation of coastal environments	Coastal resources integrity impaired Physical loss	BIODIVERSITY (EO1): C11-C12; COAST (EO8): C16	Other small scale activities	Waste generation (litter, waste treatment plants, effluents)	Degradation of coastal environments	Coastal resources integrity impaired	BIODIVERSITY (EO1): C11- C12; COAST (EO8): C16	ICZM Protocol SAP/MED SAP/BIO

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(DRIVERS) Economic		PRESSURES	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs		PRESSURE	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs	RESPONSES (Regional policy)
	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
6) Utilization of specific natural resources	Sea bed mining	Extraction of sea bed substrate	Habitats deterioration	Integrity of sea- floor impaired	BIODIVERSITY (EO1): C11-C12; SEA FLOOR INTEGRITY (EO6)	Sea bed mining	Extraction of sea bed substrate	Habitats and deep- habitats deterioration	Integrity of sea- floor impaired	BIODIVERSITY (EO1): C11- C12; SEA FLOOR INTEGRITY (EO6)	Offshore Protocol Action Plan for Coralligenous and other Calcareous Bio- Concretions
	Desalinization	Uptake of seawater /release of brine and brackish waters	Habitats deterioration	Integrity of sea- floor and water column impaired	N/A	Desalinization	Uptake of seawater /release of brine and brackish waters	Habitats deterioration	Integrity of sea- floor and water column impaired	N/A	LBS Protocol
7) Infrastructure, energy facilities, ports and maritime works and structures	Port/Harbour developments	Land/coastal changes	Degradation of coastal vegetation	Loss of coastal integrity (by erosion)	COAST (EO8): C16						ICZM Protocol and other UN related conventions
		Waste generation (litter, waste port facilities, effluents)	Coastal fragmentation	Biodiversity (natural) impaired Ecological conectivity loss	BIODIVERSITY (EO1): C11-C12 MARINE LITTER (EO10) : C122, C123						ICZM Protocol and other UN related conventions LBS Protocol

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(DRIVERS) Economic		PRESSURES	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs		PRESSURE	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs	RESPONSES (Regional policy)
	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
		Risk of acute pollution events/accidents (hazardous substances, oil)	Water column and seabed habitats decline Biodiversity loss	Natural resources loss Endemic species threatened	CONTAMINATION (EO9): C17, C18, C19, C20						SPA and Biological Diversity Protocol
		Inputs of nutrients and organic matter enrichment	Loss of endemic species/habitats	Resources loss	EUTROPHICATION (EO5):C13-C14						ICZM Protocol and other UN related conventions LBS Protocol
		Microbiological pollution	Occurrence of pathogens	Degraded bathing water quality	CONTAMINATION (EO9): C121						ICZM Protocol and other UN related conventions LBS Protocol
	Port/Marinas developments	Land/coastal change (roads, real-state)	Degradation of coastal vegetation	Loss of coastal area integrity (by erosion)	COAST (EO8): C16						ICZM Protocol and other UN related conventions
		Waste generation (litter, waste port facilities, effluents)	Coastal fragmentation	Biodiversity (natural) impaired Ecological connectivity loss	BIODIVERSITY (EO1): C11-C12; MARINE LITTER (EO10):C122-C123						ICZM Protocol and other UN related conventions LBS Protocol



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	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
		Risk of acute pollution events/accident s (hazardous substances, oil)	Water column and seabed habitats decline Biodiversity loss	Natural resources loss Endemic species threatened	CONTAMINATI ON (EO9): CI17, CI18, CI19, CI20						SPA and Biological Diversity Protocol
		Inputs of nutrients and organic matter enrichment	Loss of endemic species/habitats	Resources loss	EUTROPHICATI ON (EO5):CI13- CI14						ICZM Protocol and other UN related conventions LBS Protocol
		Microbiological pollution	Occurrence of pathogens	Degraded bathing water quality	CONTAMINATI ON (EO9): CI21						ICZM Protocol and other UN related conventions LBS Protocol
	Underwater cables and pipelines	Wiring operations disturbance	Habitats decline	Loss of habitats and species	BIODIVERSITY (EO1): CI1-CI2; SEA FLOOR INTEGRITY (EO6)	Underwater cables	Wiringoperationsd isturbance	Habitats decline	Loss of habitats and species	BIODIVERSIT Y (EO1): CI1- CI2; SEA FLOOR INTEGRITY (EO6)	ICZM Protocol and other UN related conventions SPA and Biological Diversity Protocol

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(DRIVERS) Economic		PRESSURES	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs		PRESSURE	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs	RESPONSES (Regional policy)
	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
	Oil and gas exploration	Exploraiton disturbances (air guns)	Water columna habitats decline	Loss of species, stranding of long-lived species	BIODIVERSITY (EO1): C11-C15	Oil and gas exploration	Exploration disturbances (air guns)	Water columna habitats decline	Loss of species, stranding of long-lived species	BIODIVERSITY (EO1): C11-C15	ICZM Protocol and other UN related conventions SPA and Biological Diversity Protocol
						Islands, lagoon/ports/marinas	Coastal changes, downward flows interrupted	Degradation of coastal environments	Physical loss and habitats loss	COAST (EO8): C116; BIODIVERSITY (EO1): C11-C12	ICZM Protocol and other UN related conventions SPA and Biological Diversity Protocol
<b>8) Maritime activities</b>	Awaiting-anchoring areas (oil tankers, cargo transport, hazardous substances vessels)	Introduction of pollutants (oil hydrocarbons and related organic compounds)	Water columna habitats decline	Healthy coastal water and habitats decline	BIODIVERSITY (EO1): C11-C12; SEA FLOOR INTEGRITY (EO6)	Awaiting areas (oil tankers, cargo transport, hazardous substances vessels)	Introduction of pollutants (oil hydrocarbons and related organic compounds)	Water columna habitats decline	Healthy coastal water and habitats decline	BIODIVERSITY (EO1): C11-C12; SEA FLOOR INTEGRITY (EO6)	Offshore Protocol
		Risk of accidents and spills	Water quality degradation	Coastal environment impacted	CINTAMINATION (EO9): C119		Risk of accidents and spills	Water quality degradation	Coastal and marine environment impacted	CINTAMINATION (EO9): C119	Offshore Protocol

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	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
	Bunkering	Introduction of pollutants (oil hydrocarbons and related organic compounds)	Water columna habitats decline	Healthy coastal water and habitats decline	CINTAMINATI ON (EO9): C19; BIODIVERSITY (EO1):C11-C12	Bunkering	Introduction of pollutants (oil hydrocarbons and related organic compounds)	Water columna habitats decline	Healthy coastal water and habitats decline	CINTAMINAT ION (EO9): C19; BIODIVERSIT Y (EO1):C11- C12	Offshore Protocol
		Risk of accidents and spills	Water qualitydegradation		CINTAMINATI ON (EO9): C19		Risk of accidents and spills	Water quality degradation		CINTAMINAT ION (EO9): C19	Offshore Protocol
	Offshore platforms (oil and gas exploration)	Introduction of pollutants (oil hydrocarbons and related organic compounds)	Water columnh abitats decline	Healthy coastal water and habitats decline	CINTAMINATI ON (EO9): C17, C18, C20; BIODIVERSITY (EO1):C11-C12	Offshore platforms (oil and gas exploration)	Introduction of pollutants (oil hydrocarbons and related organic compounds)	Water columna habitats decline	Healthy coastal water and habitats decline	CINTAMINAT ION (EO9): C17, C18, C20; BIODIVERSIT Y (EO1):C11- C12	Offshore Protocol
		Risk of accidents and spills	Water quality degradation	Healthy coastal water and habitats decline	CINTAMINATI ON (EO9): C19		Risk of accidents and spills	Water quality degradation		CINTAMINAT ION (EO9): C19	

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(DRIVERS) Economic		PRESSURES	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs		PRESSURE	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs	RESPONSES (Regional policy)
	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
	Shipping traffic (commercial, ferries, military, cruise liners)	Introduction of pollutants and noise, litter	Water columna habitats decline	Healthy coastal water and habitats decline	BIODIVERSITY (EO1): CI1-CI2; CONTAMIAN TION (EO9): CI17, CI20; MARINE LITTER (EO10): CI22-cC24; ENERGY (EO11): CI26-CI27	Shipping traffic (commercial, ferries, military, cruise liners)	Introduction of pollutants and noise, litter	Water columna habitats decline	Healthy coastal water and habitats decline	BIODIVERSIT Y (EO1): CI1-CI2; CONTAMIAN TION (EO9): CI17, CI20; MARINE LITTER (EO10): CI22-cC24; ENERGY (EO11): CI26-CI27	Offshore Protocol
		Risk of accidents or acute spills	Water qualitydegradation	Healthy coastal water and habitats decline	CINTAMINATI ON (EO9): CI19		Risk of accidents or acute spills	Water quality degradation	Healthy coastal water and habitats decline	CINTAMINAT ION (EO9): CI19	
		Introduction of NIS (ballast water)	Biodiversity and functions alteration	Healthy coastal water and habitats decline	NON-INDIGENOUS SPECIES (EO2): CI6		Introduction of NIS (ballast water)	Biodiversity and functions alteration	Healthy coastal water and habitats decline	NON-INDIGENOUS SPECIES (EO2): CI6	
	Dredging (natural environment)	Extration of soil substrates	Disturbance of sea-floor integrity impaired	Benthic species and habitats deterioration	SEA FLOOR INTEGRITY (EO6); BIODIVERSITY (EO1): CI1-CI2	Dredging (natural environment)	Extration of soil substrates	Disturbance of sea-floor integrity impaired	Benthic species and habitats deterioration	SEA FLOOR INTEGRITY (EO6); BIODIVERSIT Y (EO1): CI1-CI2	Offshore Protocol
	Offshore energy (renewable)	Occupation of coastal marine space	Surface and pelagic ecosystems altered	Healthy coastal water and habitats decline	BIODIVERSITY (EO1): CI1-CI2	Offshore energy (renewable)	Occupation of coastal marine space	Surface and pelagic ecosystems altered	Healthy coastal water and habitats decline	BIODIVERSIT Y (EO1): CI1-CI2	Offshore Protocol

	COASTAL AREA					SEAWARD - LAGOONS - ISLANDS - OFFSHORE					
(DRIVERS) Economic		PRESSURES	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs		PRESSURE	STATE	IMPACT (Ecosystem Services, Welfare)	IMAP EOs and CIs	RESPONSES (Regional policy)
	Activity type				Pressure, Impact and State-based indicators	Activity type				Pressure, Impact and State-based indicators	UN Barcelona Convention
	Solid waste disposal	Asfixiation of benthic habitats	Habitats and species loss	Healthy coastal benthic habitats decline	SEA FLOOR INTEGRITY (EO6); BIODIVERSITY (EO1): C11-C12	Solid waste disposal	Asfixiation of benthic habitats	Habitats and species loss	Healthy coastal benthic habitats decline	SEA FLOOR INTEGRITY (EO6); BIODIVERSITY (EO1): C11-C12	Dumping Protocol
	Storage of gases	Subsubstrates to rage (seismic risks)	Disturbance of sea-floor integrity impaired	Healthy coastal benthic habitats decline	SEA FLOOR INTEGRITY (EO6); BIODIVERSITY (EO1): C11-C12	Storage of gases	Subsubstrates to rage (seismic risks)	Disturbance of sea-floor integrity impaired	Healthy coastal benthic habitats decline	SEA FLOOR INTEGRITY (EO6); BIODIVERSITY (EO1): C11-C12	Offshore Protocol
	Defence operations	Noise, contamination and waste material	Coastal and marine environment threatened	Healthy coastal water and habitats decline	SEA FLOOR INTEGRITY (EO6); BIODIVERSITY (EO1): C11-C12	Defence operations	Noise, contamination and waste material	Coastal and marine environment threatened	Healthy coastal water and habitats decline	SEA FLOOR INTEGRITY (EO6); BIODIVERSITY (EO1): C11-C12	Offshore Protocol
	Disposal of munition	Dumping of munitions (including bacteriological)	Disturbance of sea-floor integrity impaired	Healthy coastal benthic habitats decline	SEA FLOOR INTEGRITY (EO6); BIODIVERSITY (EO1): C11-C12	Disposal of munition	Dumping of munitions (including bacteriological)	Disturbance of sea-floor integrity impaired	Healthy coastal benthic habitats decline	SEA FLOOR INTEGRITY (EO6); BIODIVERSITY (EO1): C11-C12	Offshore Protocol

**Annex I**  
**Definitions for IMAP Common Indicators by Ecological Objectives**

D1MS FD		<b>BIODIVERSITY (EO1): CI1-CI5</b>
	CI1	CI1. Habitat distributional range (EO1) to also consider habitat extent as a relevant attribute
	CI2	CI2. Condition of the habitat's typical species and communities
	CI3	CI3. Species distributional range (EO1 related to marine mammals, seabirds, marine reptiles);
	CI4	CI4. Population abundance of selected species (EO1, related to marine) mammals, seabirds, marine reptiles
	CI5	CI5. Population demographic characteristics (EO1, e.g. body size or age class structure, sex ratio, fecundity rates, survival / mortality rates related to marine mammals, seabirds, marine reptiles)
D2MS FD		<b>NON-INDIGENOUS SPECIES (EO2): CI6</b>
	CI6	CI6. Trends in abundance, temporal occurrence, and spatial distribution of non-indigenous species, particularly invasive, non-indigenous species, notably in risk areas (EO2, in relation to the main vectors and pathways of spreading of such species)
D3MS FD		<b>FISHERIES (EO3): CI7-CI12</b>
	CI7	CI7. Spawning stock Biomass
	CI8	CI8. Total landings
	CI9	CI9. Fishing Mortality
	CI10	CI10. Fishing effort
	CI11	CI11. Catch per unit of effort (CPUE) or Landing per unit of effort (LPUE) as a proxy
	CI12	CI12. Bycatch of vulnerable and non-target species (EO1 and EO3)
D4MS FD		<b>MARINE FOOD WEBS (EO4)</b>
D5MS FD		<b>EUTHROPICATION (EO5)</b>
	CI13	CI13. Concentration of key nutrients in water column
	CI14	CI14. Chlorophyll-a concentration in water column
D6MS FD		<b>SEA FLOOR INTEGRITY (EO6)</b>
D7MS FD		<b>HYDROGRAPHY (EO7)</b>
	CI15	CI15. Location and extent of the habitats impacted directly by hydrographic alterations (EO7) to also feed the assessment of EO1 on habitat extent
does not exist		<b>COAST (EO8)</b>
	CI16	CI16. Length of coastline subject to physical disturbance due to the influence of man-made structures (EO8) to also feed the assessment of EO1 on habitat extent
	CI25	candidate CI25. Candidate Indicator: Land use change
D8MS FD		<b>CONTAMINATION (EO9)</b>
	CI17	CI17. Concentration of key harmful contaminants measured in the relevant matrix (EO9, related to biota, sediment, seawater)
	CI18	CI18. Level of pollution effects of key contaminants where a cause and effect relationship has been established

	CI19	CI19. Occurrence, origin (where possible), and extent of acute pollution events (e.g. slicks from oil, oil products and hazardous substances) and their impact on biota affected by this pollution
D9MS FD	CI20	CI20. Actual levels of contaminants that have been detected and number of contaminants which have exceeded maximum regulatory levels in commonly consumed seafood
Bathing Directive	CI21	CI21. Percentage of intestinal enterococci concentration measurements within established standards
D10M SFD		<b>MARINE LITTER (EO10)</b>
	CI22	CI22. Trends in the amount of litter washed ashore and/or deposited on coastlines (including analysis of its composition, spatial distribution and, where possible, source)
	CI23	CI23. Trends in the amount of litter in the water column including microplastics and on the seafloor
	CI24	candidateCI24. Candidate Indicator: Trends in the amount of litter ingested by or entangling marine organisms focusing on selected mammals, marine birds and marine turtles
D11M SFD		<b>ENERGY (EO11)</b>
	CI26	candidateCI26. Candidate indicator: Proportion of days and geographical distribution where loud, low, and mid-frequency impulsive sounds exceed levels that are likely to entail significant impact on marine animals
	CI27	candidate27. Candidate Indicator: Levels of continuous low frequency sounds with the use of models as appropriate